THE TRADE IN DOPING PRODUCTS AND THE CHALLENGES OF SUPPLY REDUCTION: AN EXAMINATION OF ITALY'S EXPERIENCE

Letizia Paoli

LINC, Leuven Institute of Criminology K.U. Leuven Faculty of Law Hooverplein 10-11 B-3000 Leuven - Belgium Phone: + 32 (0)16 325274 E-mail: Letizia.Paoli@law.kuleuven.be

Alessandro Donati

Libera Via Nomentana Nuova 25 I-00141 Roma - Italy Phone: +39 06 87190551 E-mail: alessandro.donati759@alice.it

July 15, 2012

Draft: do not quote or cite without the authors' consent

To be released at WADA Workshop in Lausanne, autumn 2012

Contents

| Acknowledgements | 4 |
|---|-------------------------------------|
| PROLOGUE: THREE "ANTIPASTI" | 7 |
| INTRODUCTION Project Aims and Objectives Research Design Structure of the Report | |
| 1WHAT IS KNOWN ABOUT DOPING AND WHAT CAN THIS STUDY ADD TO IT? | 22 |
| Literature Review International Policy Context Conceptual Framework: A Semi-Illegal Market | 22 32 36 |
| 2. DOPING PRODUCTS AND THEIR DEMAND | 40 |
| Doping Substances and Methods Available in Italy Italy's Sportsmen and Sportswomen and the Groups at Risk of Doping The Results of Anti-Doping Tests Estimates of the Users of Doping Products A Preliminary Estimate of the Size of the Market | |
| 3. THE (ILLEGAL) SUPPLIERS OF DOPING PRODUCTS | 77 |
| Key Socio-Demographic Characteristics A Typology The Illegal Suppliers' Motives | |
| 4. DISTRIBUTION CHAINS AND MARKET RELATIONSHIPS | 102 |
| Sources, Distributions Levels, and Connections between the Legal and Illegal Segme the Market How Best to Conceptualize the Relationships among the Suppliers? The Suppliers' Modus Operandi Changes over Time | ents of 102 113 118 120 |
| 5. THE ROLE OF SPORTS BODIES AND ORGANIZED CRIME | 125 |
| Sports Body Officials as Key Providers of Protection What is the Role of Underworld and Organized Crime in the Market? | 125 142 |
| 6. REVENUES AND PROFITS | 150 |
| The Retail Price of Doping Substances The Potential Market Value of the Substances Seized A Preliminary Estimate of the Financial Size of the Market Illegal Suppliers' Revenues and Profits | 150 155 159 163 |
| 7. ANTI-DOPING LAW ENFORCEMENT: LEGISLATION, ACTORS, OUTCOMES, AND THE CHALLENGES AHEAD | 170 |
| The Criminal Law Provisions of Italian Anti-Doping Legislation | 170 |
| Public and Criminal Law Institutions Involved in Anti-Doping | 180 |
| Uttenses, suspects, Detendants and Verdicts The Challenges of Anti-Doning Law Enforcement | |

| 8. SYNTHESIS OF FINDINGS AND LESSONS FOR POLICY-MAKING | . 216 |
|---|-------|
| Findings on Italy's Market for Doping Products and Anti-Doping Policy | . 217 |
| Generic Conclusions and Lessons for Policy-Making | . 226 |
| Concluding Remarks: WADA at a Crossroads | . 252 |
| APPENDIX 1 | . 254 |
| REFERENCES | . 256 |

Acknowledgements

Many people have supported us in this study and, without the help of some of them, this report would have literally not been possible.

In Italy, Dr. Luciana Magrì supported us with invaluable assistance, by constructing the entire Database on NAS Investigations, patiently typing in an Excel sheet all the data received by NAS in a pdf file, researching on the internet the prices of hundreds of doping substances and assisting us in all the calculations.

Prof. Paoli was also helped by the capable research assistance of Bertrand Fincoeur and Evelien van Dun. The latter, in particular, played a key role in revising and formatting the references. David Schmitter proofread the entire report, correcting the English style as needed. Ellen Wauters from the KU Leuven Financial Department competently took care of the project finances. At the World Anti-Doping Agency (WADA), Julien Sieveking, senior manager of Legal Affairs, was our reliable contact person throughout the study for all practical and legal matters. We are grateful to all of them.

We also would like to acknowledge the role of Victoria Greenfield (U.S. Naval Academy and RAND). She developed with us the project proposal, double-checked and improved our calculations in chapter 2 and improved substantively and stylistically the first chapters of the report.

We also appreciate the help received from Dr. Giusy Muratore, Dr. Claudio Caterino and Dr. Isabella Corazziari from the Italian Statistical Office (Istat), who provided data about proceedings initiated, the persons charged and the verdicts issued for several doping-related offenses. At our request, they extracted for the first time the data concerning the Italian anti-doping act (Act 376/2000) from the Istat database on criminal statistics. Likewise, we recognize the support received from Dr. Elisabetta Simeoni and her staff from the Dipartimento Politiche Antidroga of the Prime Minister's Office, who provided us the data on the use of steroids among Italy's adults, which had been collected through a population survey but had never been published. Many thanks also go to Kristin Smolka (German Central Office of Customs Investigation Service) who provided Paoli with valuable data about the profit margins of the trade in doping substances and information about recent German anti-doping investigations.

We received insightful comments and data from a number of other scholars and thank them all for their important contributions. Dr. Pasquale Bellotti and Dr. Roberta Pacifici (Higher Institute of Health) proofed our 100 consumption profiles and discussed them with us in detail; thanks to their in-depth experience in the fields of doping and antidoping, they have considerably helped increase the profile validity. Prof. Caterina Pesce (University of Rome Foro Italico) shared with us the raw data of a survey she had conducted with several colleagues about doping consumption patterns among a sample of high-school students in Rome. Prof. John Hoberman (University of Texas at Austin) furnished Paoli with some unpublished material on the use of doping products among law enforcement and other officers of the public and private security sector, confirming our own findings. Prof. Wolfgang Jelkmann (University of Lübeck), a world-renowned specialist for EPO, double checked our analysis of the use and production of this drug. Prof. Ulrich Haas (University of Zurich) shared with Paoli insights on the positive repercussions of Italy's anti-doping law enforcement on sports arbitration, based on his experience as judge at the Court of Arbitration of Sport (CAS). Dr. (PD) Markus Parzeller (University of Frankfurt) provided Paoli with the yet unpublished report of his comparative analysis of anti-doping legislation and criminal prosecution in five European countries (France, Germany, Italy, Spain, and Switzerland), including all five case studies. Prof. Wilhelm Schänzer (Cologne Sports University) provided data about the costs of anti-doping tests at the Cologne Anti-Doping Laboratory. Prof. Perikles Simon (University of Mainz) made useful comments on our literature review, also sharing some unpublished material and some comments he had received from Prof. Harrison Pope (Harvard University). Dr. Andreas Singler (Center for Doping Prevention, Heidelberg) commented on our analysis of the history of anti-doping and drug prevention programs. Dr. Erkki Vettenniemi (University of Jyväskylä) shared with Paoli his deep knowledge of the Finnish Ski Federation's doping program in the 1980s and Prof. Conconi's contacts with the Finnish researchers involved in that program.

Prof. Arne Ljungqvist (WADA and International Olympic Committee, IOC) provided Paoli with background information about the doping scandal at the 2006 Turin Olympic Games, which helped us better understand the relevance of that episode in the history of anti-doping. More generally, Paoli profited extensively from the informal exchanges of ideas she had with Prof. Arne Ljungqvist and Dr. Richard (Dick) Pound (IOC) at the margins of a symposium on "Sports Medicine and Doping in Europe" which she organized in September 2011 in her capacity as president of the Evaluation Commission for Sports Medicine in Freiburg on behalf of the Freiburg University. The insights and trust of these two key policy-makers in contemporary anti-doping have been highly appreciated.

This study would have also not been possible without the extensive cooperation granted us by the Comando Carabinieri per la Tutela della Salute (Carabinieri Command for Health Protection), better known as NAS, the acronym of the original name. In particular, we would like to thank the Captains Pietro Della Porta, Francesco Saggio, and Dario Praturlon. In their respective capacity as heads of NAS Operations and Analyses Departments, Captains Della Porta and Saggio were extremely helpful in retrieving precious information for us, developing and administering a questionnaire to the heads of all NAS branch offices and arranging our interviews with officers in the field. We are also very indebted to the latter officers from nine branch offices, some of whom we met or talked to on the telephone several times. These officers made time available for us, answered our numerous, sometimes probably bothersome, questions and shared with us their reports, prosecutor's charges and/or verdicts in numerous closed criminal proceedings.

Likewise, we are grateful to our other respondents and specifically to the six prosecutors who shared with us their reflections on their own investigations and anti-

doping policy more generally, and provided us with charges and verdicts: Dr. Luigi Bocciolini (Florence), Dr. Gianfranco Colace (Turin), Dr. Vincenzo Condorelli (Mantua), Dr. Paolo De Angelis (Cagliari), Dr. Raffaele Guariniello (Turin) and Dr. Benedetto Roberti (Padua). In particular, we owe special thanks to Dr. Guariniello, who volunteered to check the status of several key anti-doping proceedings in the internal database of the Italian Ministry of Justice and then requested a paper copy of the highest-level verdicts available from the relevant courts. We highly appreciate the several open conversations we had with him, in which he shared his assessment of the doping problem in Italy and Italian antidoping policy. We also would like to thank Dr. Lorenzo Gestri from the Bologna Prosecutor's Office, who promptly followed up on our request and sent us a verdict concerning an important case.

With their commitment to anti-doping, generosity and trust, two individuals made this report possible—and that's why we would like to thank them most warmly at the very end. One of them is General Cosimo Piccinno, the Head of NAS. Piccinno authorized the extensive and—for Italian law enforcement standards—unprecedented sharing of data and reports of anti-doping criminal investigations with us, as well as the many candid interviews and informal conversations we had with NAS officers.

The other, David Howman, the WADA Director General, decided to fund our work in a very unbureaucratic manner, outside the usual selection procedures. When one of us (Paoli) first talked to Howman on the phone about our proposal, asking whether we could submit it through the regular WADA application channels despite their current focus on doping prevention, he immediately answered: "We need this study. Period!" and secured funds.

Grazie!

PROLOGUE: THREE "ANTIPASTI"

We begin this report with three summaries of some of the most momentous anti-doping criminal investigations in Italy. The summaries are meant to serve as appetizers, or "antipasti", as we say in Italian, for the subsequent analysis. They exemplarily show what can be achieved in the field of anti-doping when a country has adequate criminal laws, specialized police units and independent prosecutors. Although antipasti are usually eaten at the start of a course, the first of these three investigations, which shattered the 2006 Winter Olympic Games in Turin, bears the name of a famous Viennese chocolate dessert, "Operation Sachertorte." In an interview-based biography, Prof. Arne Ljungqvist, who coordinated that case in his capacity as Vice-President of the World Anti-Doping Agency (WADA) and President of the Medical Commission of the International Olympic Committee (IOC), recounts:

"It was a couple of days after I arrived in Turin that I learned that WADA had attempted to carry out an out-of-competition drugs test on the Austrian cross-country skiing and biathlon teams before they set off for Turin. According to the official whereabouts report that WADA had received, the skiers should have been stationed at a training camp in Austria. But when the doping control officers arrived at the given address, a guest house, no skiers were there.

However, in the guest house's cellar they found what looked like a hematological laboratory. It really *felt* of blood doping. The doping control officers were quickly ushered away by the owner of the guest house, who turned out to be the wife of the Austrian ski trainer Walter Mayer—the same Walter Mayer who had received an unprecedented ten-year ban from the IOC at Salt Lake City four years earlier, when he had been found with an array of transfusion equipment which suggested that he was tampering with the blood of the Austrian ski team.

On that occasion no skier had been caught testing positive. But this time, news came through that Walter Mayer had been spotted in the Turin area in the vicinity of the Austrian camp, even though he was not accredited by the Olympics. As Italy has a very strict doping law, and doping offenses can be treated as criminal offenses, we felt obliged to inform our Italian hosts."

On the morning of Thursday February 16, a meeting was held in the hotel suite of IOC President Jacques Rogge. Present was Rogge, Arne and two other representatives from the IOC, together with the Italian sports minister [Mario Pescante] and the chief of the Italian anti-doping organization. The IOC delegation handed over to the Italians the information that they had got from WADA, then outlined their own observations about Mayer's presence and revealed that they intended to carry out a surprise test of the Austrian cross-country skiers and biathletes on Saturday evening.

"We were forced to give the Italians some time to consider the information. At the same time, I was scared that something would be leaked giving the Austrians time to prepare before Saturday evening. Perhaps they would make themselves unavailable. But the Italians kept quiet. They got back to us on Saturday morning and informed us that they regarded the case as so serious that they were thinking of raiding the Austrian camp. They suggested that we should co-ordinate a raid that evening."

Arne found himself heading the investigation with a group of "troops." The IOC's doping control officers and the *carabinieri*, set off at the same time for the Austrian camps in Sestriere and Pragelato. Apart from a few red traffic lights that slowed them down, it went like clockwork, with both raids happening simultaneously.

"Medical instruments and other material were thrown out of the window and the Austrians tried to get away. Walter Mayer disappeared in his car towards the Austrian border, but was stopped at a police roadblock. He ended up in hospital, apparently with excessive alcohol in his blood.

Two biathletes returned home to Austria, from where they announced their immediate retirement. Several other Austrian skiers and biathletes were tested."

The events made big news. Arne was forced to hold a press conference and explain what had happened. He was fiercely questioned, especially by the Austrian media. More press conferences took place. The Italians didn't say much about what had happened, but Arne was forced to admit at a press conference that all the drug tests had proved negative.

"It wasn't that surprising. They had, of course, planned the tampering with the blood so it would test negative at the upcoming events. But we were forced to act as we did. At the press conference, I was sarcastically asked by Austrian journalists why I had made such a fuss: everyone was negative, so it wasn't doping, they said.

I replied that doping is not just about testing positive. For example, there's possessing doping medication and doping equipment."

There was a long wait for the report from the Italians. The matter had ended up on the desk of the Turin's notoriously aggressive public prosecutor Raffaele Guariniello. "I visited Guariniello in Turin. He was a friendly but very determined gentleman. We were in contact for a long time."

As late as October 2008, Guariniello gave notice that he intended to charge a long list of Austrian officials and athletes for breaking Italy's doping laws. But before this, the IOC received enough information from Guariniello confirming that blood doping equipment had been found as well as banned doping substances in the Austrian camp. It was sufficient for the IOC to act.

Several cross-country skiers as well as team managers were banned from competing in future Olympics. The Austrian Olympic Committee was fined a US\$1 million by the IOC for failing to monitor the team sufficiently. The international ski federation banned the athletes in question and the team leaders for two years. Some athletes appealed to CAS [Court of Arbitration of Sport, the highest sports court] against their conviction, without success. In June 2009, the Italian prosecutors indicted ten Austrian officials and skiers for having violated the Italian doping law.

"Sure it was a successful case. Internally we referred to it with a touch of gallows humour as 'Operation Sachertorte', but the Austrians probably don't like that. It is really tragic for sport that something like this needs to happen. At the same time, the events are a good example of having an effective law in place in the country that is arranging a major international event. It was because they had the law on their side that the Italians could carry out such a raid and find what they did. If the Italian anti-doping law hadn't existed, the cheating being done by the Austrians would never have been discovered. All the tests were negative, after all.

At the IOC session in Guatemala in June 2007, I met the Austrian premier, Alfred Gusenbauer. He was there because Salzburg was a candidate to host the 2014 Winter Olympics, but he wanted to meet me. I felt a little embarrassed and apologized a bit for what we had done in Turin.

But he wanted to thank me for the effective action we had taken which had revealed the unacceptable cheating. It had made it possible for the Austrian parliament to pass a law in record time with strong anti-doping rules" (Lager and Ljungqvist, 2008: 178-180; see also Fisher and Macur, 2006; Macur, 2006; Zinser, 2006; IOC, 2007 and Mayer, 2010).¹

Ironically, the much-praised Carabinieri raid took place only because the IOC had been defeated in its effort to persuade the Italian government to impose a moratorium on its anti-doping act during the Turin Games. Mario Pescante, the then undersecretary for sport, as well as the Italian government supervisor for the 2006 Games and an IOC member, had also insistently, but unsuccessfully, called for such a moratorium but his and the IOC's request found little public and political support in Italy (Vinton, 2005). "Members of Parliament consider this moratorium a sign of weakness," Pescante finally had to admit (ibid.). When Ottavio Cinquanta, the only Italian member of the IOC's executive board, was asked if Italy's Prime Minister, Silvio Berlusconi, could help persuade the country's judges to tread delicately at the Games, Cinquanta was reported saying "that it was difficult to pressure a judge" (ibid.). Almost foreseeing Guariniello's involvement in the raid, *The New York Times* noted that "one judge in particular, Raffaele Guariniello, has gained a reputation for his hard-nosed investigation of widespread doping in Italian soccer. Guariniello is based in Turin." (ibid.)

In July 2012, the court in Susa finally issued a verdict on the case and convicted two athletes and the trainer of the Austrian cross-country ski team of doping. The other defendants, including the President of the Austrian National Ski Team and the trainer Walter Mayer, were acquitted (*Adnkronos*, 2012). The court has not yet published the reasons for its decision.

The second investigation had taken place seven years before the Turin Olympic Games, in 1999. With it, the Italian law enforcement authorities questioned—perhaps even more aggressively than in Turin—the integrity of the Italian and world sports system, by raising charges against Prof. Francesco Conconi, head of Centro di studi biomedici applicati allo sport (Centre for Bio-Medical Studies Applied to Sports) at the University of Ferrara and rector of the same university. Conconi and his staff were accused of administering blood-boosting erythropoietin (EPO) to, and practicing blood doping on,

¹ Unrelated to the Turin events, Mayer was later sentenced to 15 months of imprisonment for repeated violations of the Austrian anti-doping law (*Wiener Zeitung*, 2011).

leading cyclists and other top athletes from 1992 to 1997, at the same time as Conconi was a member of the IOC's Medical Committee, the President of the Medical Commission of the Unione Cycliste Internationale (UCI) and received large amounts of funding from the IOC and the Italian National Olympic Committee (CONI). (The IOC's funding was meant to develop an EPO test, which Conconi, however, never delivered.)

Pierguido Soprani, the first prosecutor in charge of this investigation, had to fend off the opposition of the University of Ferrara and public opinion, local and national politicians and his own Chief Prosecutor, who tried to stop his investigation. The latter also prevented Soprani from opening a parallel financial investigation, by refusing to allow him to collaborate with the Guardia di Finanza. Disgusted by these undue pressures, Soprani asked to be relocated after he had filed the charges against Conconi and his staff with the judge for preliminary investigations, and left the judiciary soon afterwards. When the judge for preliminary investigations finally considered the case, he modified the charges so that the court judge had to send the proceeding back to another prosecutor. The judge for preliminary investigations also commissioned a new, unnecessary, expert report from a hematologist connected with Dr. Ferrari, one of Conconi's closest collaborators (see below), who skillfully reduced the evidence available against Conconi (Int-NAS-26 and Int-Oth-2). When the trial finally started, Judge Franca Oliva had no choice but to apply the statute of limitations, despite "the seriousness and convergence of all the evidence" (Tribunale di Ferrara, 2003: 46).² Relying on 70,000 pages of documentation collected by the prosecutors (NZZ, 2004), the Court of Ferrara left no doubt that Prof. Conconi and two members of his staff were guilty of sporting fraud. As Judge Oliva later stated in an interview, "Conconi was guilty. It is obvious that the defendants were perfectly aware of the EPO-doping that was administered at their institute in Ferrara. ... The defendants have supported for years athletes in their EPO-doping and through the continuous medical controls they have also encouraged the athletes to make to use of EPO" (NZZ, 2003; see chapter 3).

In a related proceeding, Ferrara Prosecutor Soprani investigated the protection and support that high-level CONI officials, including three Presidents, had given Conconi for decades. After reconstructing the relationships between CONI and Conconi since late 1970s, in fact, Soprani came to the conclusion that

Franco Carraro (CONI President from 1981 to 1986), Arrigo Gattai (CONI President from 1987 to 1994), Mario Pescante (CONI Secretary General from 1981 to 1994 and CONI President from 1995 to 1998), Gianfranco Carabelli (responsible for the Research and Documentation Section of the CONI School of Sport) and Francesco Conconi, as partner

² We will explain the reasons why the statute of limitation applied to this and several other more or less prominent—anti-doping criminal proceedings in chapter 7. To summarize here, the extensive use of the statute of limitation in Italy is not a peculiarity of the anti-doping sanctioning but is due to some general characteristics and the resulting inefficiency of the Italian criminal justice system.

responsible for the studies funded by CONI, were the promoters of a criminal organization ([article 416 CP]; Procura della Repubblica di Ferrara, 2000: 42).

This criminal association was allegedly set up to distribute drugs in a dangerous way to public health (article 445 CP) and active throughout the 1980s (ibid.; see also Capodacqua, 2000a). Pescante and Conconi were regarded as the promoters of the criminal organization.

As too much time had elapsed between the alleged activities and the prosecution, Soprani had to dismiss the case but insisted that his request "does not diminish the social and criminal non-value of the activities proved" (Procura della Repubblica di Ferrara, 2000: 56) and that "one could not reasonably recognize good faith of those who approved the deliberations while they were the top managers of the public body CONI. Instead, the contents of the investigative materials ... have shown several elements of opposite direction" (ibid.: 43). Despite "a multiplicity of circumstantial evidence" (ibid.: 52), the prosecutor found, instead, no conclusive proof of the existence of a criminal organization between Conconi and the CONI top leaders after 1989.

Barely half a year after being accused by the Ferrara Prosecutor's Office, Pescante was elected a member of the Italian Chamber of Deputies in Silvio Berlusconi's Forza Italia (now Partito delle Libertà) party. From 2001 to 2006 he served as undersecretary of the Ministry of Cultural Heritage and Activities under Prime Minister Silvio Berlusconi and from 2004 to 2006, was the Italian government supervisor for the 2006 Winter Games in Turin. As of June 2012, he is the president of the European Union Affairs Commission of the Chamber of Deputies. His international career did not suffer either: Pescante has been without interruption an IOC member since 1994 and was the first Italian to become an IOC Vice-President in 2009 (see chapter 5).³

The third investigation occurred in 1998 and led to the temporary closure of CONI's anti-doping laboratory in Rome and the withdrawal of its IOC accreditation. Searches ordered by the Turin Prosecutor Raffaele Guariniello demonstrated that the lab did not carry out proper tests for steroids⁴ in 70% of the urine samples of Italy's football league players. Positive tests were covered up and documents were destroyed (Evaluation Team, 2002: 13 and Travaglio, 1998). A Commission of inquiry established by the government concluded that "the number of violations recorded in the mechanisms to ascertain prohibited substances specifically in football was so large as to compromise the whole anti-doping policy pursued by CONI." The latter was accused of failing to exercise properly its

³ Pescante stepped down from the vice-Presidency in early 2012, when the cabinet headed by Mario Monti refused, for austerity reasons, to back Rome's bid for the 2020 Summer Olympics, which Pescante had headed. See http://www.olympic.org/mr-mario-pescante.

⁴ Anabolic–androgenic steroids are a family of hormones derived from cholesterol that includes the natural male hormone, testosterone, together with numerous synthetic testosterone derivatives (Pope and Brower, 2009).

duties of vigilance on the laboratory, and the Italian Football Federation and the Italian Federation of Sports Physicians were deemed to be "co-responsible" "of the violations of the duty to establish urine Ph and density when the samples were taken" and regarded as "protagonist of a non-linear affair concerning anti-doping rules" (*Adnkronos*, 1998). Under the pressure of public opinion, CONI President, Mario Pescante, stepped down (Longman, 1998b; Travaglio, 1998; Italy, 2002: 13).^{5 6}

These three cases suggest the systematic spread of doping in elite sports and the long-term tolerance, complicity and even direct involvement of high-level representatives of Italian, foreign and international sports ruling bodies⁷ in doping practices; but they also hint at the structural difficulties of anti-doping criminal investigations in Italy, which we will analyze in chapter 7.

⁵ The investigation was initiated by the detailed report of a member of our research team (Donati) and of a chemist who worked at the lab.

⁶ As a rule, in this report we only mention the names of well-known elite athletes and public figures who have been involved in anti-doping investigations when the doping allegations have been reported in a publicly available source, such as a publication or a legitimate, verifiable media report. We respect, instead, the anonymity of all other persons, suspected or even convicted of doping-related sports violations or criminal offenses.

⁷ A note on vocabulary: with the expression "sports ruling bodies," we mean all bodies governing sports at the national or international level: i.e., the IOC, national Olympic Committees, international and national sports federations and associated disciplines. We use the expressions "sports governing bodies" and "sports bodies" as synonyms. We use instead the expressions "organized sports world" or "sporting organizations" more broadly to refer not only sports ruling bodies but also to all clubs and teams affiliated with a sports federation.

INTRODUCTION

Italy's anti-doping criminal investigations not only distinguish themselves for the many high-level athletes, suppliers, and protectors they have pursued but also have few parallels in the world for their number and extent. Perhaps more than in any other country, actions under Italian anti-doping criminal law have shed light on the many different aspects of the problem of doping and specifically of the supply of doping substances and methods (hereafter referred to jointly as "doping products"), such as the emergence of an illegal market to supply large numbers of non-competitive sportsmen and sportswomen (above all, visitors of gyms and fitness centers), the misuse of veterinarian drugs for animals and humans, the theft of medicines from trucks and the storehouses of hospitals and pharmaceutical companies, the falsification of medical prescriptions, and the growing connection between the trade in doping products and trafficking in illegal drugs.⁸

As discussed in more detail in the following pages, three main factors have enabled Italy's exceptionally intense anti-doping action:

- 1. Adoption of an anti-doping law in 2000, the Act No. 376/2000, that established the criminal offenses of doping and trade in doping products (article 9) and set up the Commissione per la vigilanza ed il controllo sul doping e per la tutela della salute nelle attività sportive (Commission for the Vigilance and Control on Doping and the Protection of Health in Sports Activities, known under the acronym CVD).
- Existence of a police force specialized in public health, the Comando Carabinieri per la tutela della salute (Carabinieri Command for Health Protection), better known as NAS, the acronym of the original name, Nuclei Antisofisticazioni e Sanità (Anti-Sophistication and [Public] Health Units).
- 3. Autonomy of the public prosecutors from the government: In Italy public prosecutors are career magistrates with the same status and career path of judges and are not subordinated to the Minister of Justice. Exploiting this autonomy, several Italian prosecutors have repeatedly dared to press charges against high-level government representatives, politicians, sports body officials and businessmen not

⁸ In the United States, the Drug Enforcement Administration (DEA) has carried out numerous, penetrating investigations relating to anabolic steroids, whereas the U.S. Food and Drug Administration remains the competent authority for other doping products. Less systematically, several large anti-doping investigations have also been carried out in Belgium, Denmark, Sweden, Australia and, more recently, Austria. A few important investigations have also been carried out in France and Spain. In France, however, these investigations have focused almost exclusively on professional cycling and, in Spain, clandestine pharmaceutical labs (for an overview, see Donati, 2007 and Anti-Doping Denmark, [2012]).

only in the field of anti-doping but also in the fight against corruption and organized crime (see chapter 7).⁹

Even though some of the illegal practices revealed by the three above-mentioned proceedings may appear uniquely Italian, the Executive Committee of the World Anti-Doping Agency (WADA), the body that has been responsible for coordinating the prevention and control of doping worldwide since 2001, has repeatedly praised the Italian criminal legislation and investigations for their effectiveness, presenting them as a model to follow in other countries (e.g., WADA, 2009 and 2010c). At the 2011 UNESCO "Conference of Parties to the International Convention against Doping in Sport,"—the treaty constituting the foundation of the current international anti-doping regime—Ljungqvist again referred to what had happened in Turin, stressing that the existence of anti-doping legislation is no longer a cause of concern for the IOC but a requirement for being selected as host of the next Olympic Games:

In emphasizing the importance of appropriate legislation I usually take the incident at the Olympic Games in Torino in 2006 as an example. Had the existing anti-doping law not been in place in Italy, the organized and systematic blood doping that was practiced by part of the Austrian skiing team would have never been revealed. The IOC could only test the suspected athletes, and they all tested negative. But the Italian police found doping substances and equipment, which made it possible for the IOC to identify not just a number of involved athletes but also the people in their entourage. May I also inform you that since I last spoke to you [in 2009], the IOC has decided to make the existence of appropriate domestic anti-doping legislation an important element when it comes to the evaluation of candidate cities for hosting the Olympic Games (Ljungqvist: 2011; see also Lager, 2011: 177-80).

The recent appreciation of Italy's criminal law and investigations is part, and indicative, of a broader change in anti-doping policy. As addressed in more detail below, WADA and several national anti-doping bodies are increasingly shifting emphasis from athletes' testing to law enforcement action and intelligence sharing between law enforcement agencies and national anti-doping organizations. In recent speeches, WADA President John Fahey described the latter two activities as "the future of anti-doping" (UK Antidoping, 2011). WADA Director General, David Howman, elaborated the point in a 2011 speech, by making reference to the case of Marion Jones:

One only has to remind people that Marion Jones competed for seven years, was tested on many many occasions, was never found to have an adverse analytical finding, but cheated throughout. She insisted she was a clean athlete, "look at how many times I have been tested!!" – "I have been tested more often than any other athlete and never been found positive. What does that mean?" She even wrote it in her book and sued those who suggested otherwise. It was only during the investigation

⁹ It is enough to refer here to the numerous charges raised against Silvio Berlusconi when he was Italy's Prime Minister (see *Economist*, 2011a).

process that led to her lying to a grand jury and the eventual charge of perjury against her, that she confessed most and went to prison.

If criminal law action against athletes, their suppliers and protectors is to become "the future of anti-doping," then it becomes crucial to consider what can be learnt from the Italian seminal experience in this field.

Project Aims and Objectives

In this study we have examined Italy's anti-doping criminal law experience with the general aim of analyzing the production and trade of doping products and exploring the challenges of reducing their supply.

Seven objectives of this project support that aim:

- 1. To assess the size of the market for doping products, by estimating, at least for some key products and classes of users, the demand.
- 2. To identify the types of actors involved in the production and trade of doping products (the "suppliers"), assess the extent of their involvement in either the legal or illegal segments of the market and consider their *modus operandi*, in particular, the extent to which different types of suppliers engage in violence, corruption, or other illegal activities as a business practice and, aware of the illegality of their market participation, take any other precautions to protect themselves from law enforcement and judicial actions.
- 3. To assess the relative importance of different sources of products to the doping market (e.g., diversion v. black market; domestic v. foreign).
- 4. To map the distribution system of doping products from producers to final users, by identifying and characterizing the levels or stages of the market that link producers and importers to final users for different doping products as is done in a large literature on illegal drug markets (e.g., Preble and Casey, 1969; Paoli, 2003a; Dorn et al., 2005; Paoli, Greenfield and Reuter, 2009).
- 5. To estimate the financial dimensions of the doping market, including the revenues and profits of different types of suppliers of doping products.
- 6. To account for and assess anti-doping law enforcement and judicial activities (e.g., reports, arrests, convictions), identifying the challenges they face, particularly but not exclusively in the field of international cooperation.
- 7. To draw policy implications from the analysis.

Although the current study focuses exclusively on Italy, we would argue that our analysis and the related policy implications hold value beyond Italy's borders for both research and policy-making purposes. We explain the reasons for our conviction in the following chapter.

Before that, however, we turn our attention to matters of vocabulary and provide some information about the research design and structure of the report. To reduce the

potential for misunderstanding among our readers we end this section with a discussion of the vocabulary of doping as it appears in this report. Many key—recurring—terms, including the word "doping," are used ambiguously or inconsistently in public forums and, occasionally, in the academic literature.

In the World Anti-Doping Code, which entered into force in 2004, "doping" is defined formally as the occurrence of one or more anti-doping rule violations that can be committed by an athlete or support personnel.¹⁰ Although the Code does not make an explicit statement, the ultimate aim of such violations is assumed to be the enhancement of an athlete's performance (WADA, 2008: 14, 18-25; see also Teitler and Ram, 2008). In this report, we have adopted a slightly broader definition of "doping" and consider the production and trade of the substances and methods prohibited by the Code, whenever these substances and methods will be used for non-therapeutic purposes. Not all nontherapeutic users of doping products are athletes and not all users take them to enhance their performance in sports competitions. As we show in more detail in chapter 2, a considerable share of the users of some doping products (even excluding traditional illegal drugs prohibited by WADA, such as cannabis, cocaine, and heroin) does not seek to increase their athletic performance but uses them for broader life-style or psychoactive purposes, such as enhancing muscle growth, reducing body fat or boosting aggressiveness (see literature review below). As a corollary, we use the expression "doping substances" to mean "performance and image enhancing substances/drugs," an expression that is increasingly common in both the scientific literature (e.g., Graham et al. 2009) and government reports (e.g., Anti Doping Denmark et al., [2012]).

In our project, we define "trade" broadly, to include importing, wholesaling, retailing, prescribing, administering, and delivering doping products, including both doping substances and methods. We have purposely chosen the word "trade" rather than the more pejorative word "trafficking," to avoid exercising any judgment *ex ante* on the legal status of such activity.¹¹

In meeting the first project objective, we distinguish the several categories of users and largely focus on the sportsmen and sportswomen, collectively "sportspeople," in Italy

¹⁰ Having "athletes" (see definitions below) and their support personnel in mind, the Code singles out the following eight violations: 1) presence of a prohibited substance or its metabolites or markers in an athlete's sample; 2) use or attempted use by an athlete of a prohibited substance or a prohibited method; 3) refusing or failing without compelling justification to submit to sample collection; 4) violation of applicable requirements regarding athlete availability for out-of-competition testing; 5) tampering or attempted tampering with any part of doping control; 6) possession of prohibited substance or prohibited method and 8) administration or attempted administration to any athlete of prohibited substances and methods or assisting, encouraging, aiding, abetting, covering up or any other type of complicity involving an anti-doping rule (WADA , 2008: 18-25).

¹¹ This choice also reflects the words used in Italy's anti-doping act, which does not speak of trafficking (see chapter 7). NAS also speak of the "illegal trade" of doping substances or products and use the expression "trafficking" only with reference to illegal drugs (Int-NAS-26; see chapter 7).

who engage regularly or occasionally in sporting activities. For reasons of data consistency, particularly with regard to surveys and anti-doping testing,¹² and because we believe them to be less heavily involved in doping, we do not include individuals under age 15 in our assessment; nevertheless, we acknowledge that some such young people are doping or at high risk of future doping (see the findings of literature review carried out by Backhouse et al. 2007: 47). Among sportsmen and sportswomen, we distinguish between "athletes," those who engage in competitions at some level, and non-competitive sportspeople.

Following the literature (e.g., Stirling and Kerr, 2006), we further distinguish "elite" athletes from "recreational" athletes. We define the former as those athletes who take part in national or international competitions, oftentimes as a member of a team but in some instances individually (e.g., professional tennis players). Elite athletes also include professional athletes, that is, those who receive regular remuneration for their participation in elite sporting activities.¹³ We define "recreational" athletes as those who compete only sub-nationally.¹⁴

Among non-competitive sportspeople, we distinguish body-builders, most of whom are gym patrons,¹⁵ from other sportspeople. Admittedly, some body-builders might be considered "elite" according to our criteria. However, body-building is not recognized as an Olympic sport by the IOC,¹⁶ Italy's body-building associations are not recognized as official sports federations by CONI (2008)¹⁷ and some observers even question whether body-building must be regarded as a sport at all (see Littman, 2010). While we reject the latter position as too extreme, we do not include body-builders in the category of athletes, following the IOC and CONI's stances, but consider them as a separate subset of

¹² As discussed in the following chapter, Italy's anti-doping authorities, CONI and CVD, do not routinely test youths for evidence of doping, except in rare and specific cases (Int-Oth-2).

¹³ Whereas we regard all professional athletes as elite athletes, it is important to recall that not all elite athletes are professionals. Until the 1990s the IOC nominally only allowed amateur athletes to participate in the Olympic Games (Teetzel, 2011) and some sports federations (e.g., International Boxing Association) still only allow amateurs to participate in the Olympic Games. As the concept of amateur athlete entails some "baggage" and is interpreted in different ways in different contexts (e.g., in Italy an amateur is understood primarily as a non-elite athlete), we avoid using the term in this report.

¹⁴ Our distinction between elite and recreational athletes, made on the basis of the competitions they participate in, parallels the division of competencies between CONI and CVD in anti-doping testing (Ministero della Salute, 2007; see chapter 2).

¹⁵ We speak of gyms (shortening of "gymnasia") rather than fitness centers, because gyms are not always distinguished from fitness centers in Italy. Gym is a broader category than fitness center. Whereas all fitness centers have a gym, gyms are multivalent sporting venues, and not all of them have the body-building machines that are instead typical of fitness centers.

¹⁶ See http://www.olympic.org/sports.

¹⁷ A few, albeit not precisely known, number of body-builders are former members of Italy's Weightlifting Federation. Between 2000 and 2011, this was called Federazione Italiana Pesistica e Cultura Fisica, with the expression "cultura fisica" (i.e., physical culture) referring de facto to body-building. To stress the difference between weightlifting and body-building, the federation changed its name in 2011 and is now called simply Federazione Italiana Pesistica (see FIPE, 2012).

sportspersons. Our choice can also be justified on pragmatic terms, as body-builders have different doping consumption patterns than athletes.

The remainder, whom we refer to simply as other sportsmen and sportswomen, or collectively as other sportspeople, does not participate in competitions, but nevertheless engages in regular or occasional physical exercise and may have some connection or susceptibility to doping for other lifestyle purposes. In chapter 2 we also note that doping products also may be used rarely by other people who do not engage in any sport for lifestyle or pseudo-medical reasons.

While these definitions are necessary for market estimation, we are aware of the fact that the distinctions between different types of athletes and sportspeople and between sporting and non-sporting activities are far from being rigid or clear-cut. As Houlihan notes (2002: 98 and 99), there is a "continuum of sporting contexts for drug use" and "the boundary between what might be referred to as mainstream sports (Olympic and major team sports) and fringe sports (such a body-building, and exhibition/novelty sports events) is frequently indistinct with athletes often crossing the boundary more than once in their lives."

Research Design

Our data collection focused on four issue areas: suppliers, their relationships and *modus operandi*, products and markets, and control efforts. For each area, we identified a comprehensive set of items that together would have constituted an ideal dataset (see Appendix 1). In the case of suppliers, for example, we sought information on gender; age at the time of investigation; ethnicity, nationality, and country of residence; background and possible role in elite or recreational sports; criminal records; "criminal career"; and motivation. As expected, we were not able to find data for all of these items but we have been able to draw a detailed picture of the market for doping products, with specific reference to the supply of doping products, and of actions under the anti-doping criminal law in Italy. In order to fulfill the first objective, i.e., to assess the size of the market for doping products, we relied on secondary sources and official data published by CONI and CVD.

The data collection in the four issues areas would not have been possible without intensive collaboration with NAS. In particular, the NAS Headquarters in Rome provided us with a detailed database (in the form of a "pdf") of 73 major anti-doping investigations conducted by NAS between 1999 and 2009 that included information about the suspects, their backgrounds, the doping production and trade activities, and the products sold.¹⁸ During the course of the current study, the NAS Headquarters then requested its 38 branch offices to update the database with information on the investigations carried out until

¹⁸ Not all investigations initiated or ongoing in 1999 are inserted in the NAS Investigations Database.

2011. Details on seven more investigations were added to the original 73; therefore, in total, we had summary data on 80 investigations. In a very labor-intensive process, we inserted these data in an Excel spreadsheet, made the quantities of doping products seized in the different investigations comparable, and added, for each product seized, the official price, as established by the Agenzia Italiana per il Farmaco,¹⁹ and, when available, the unofficial internet price.²⁰ We will refer to this database as the "Database on NAS Investigations" or "NAS Investigations Database." The database has been a most useful source of information because it gives a detailed overview of all the anti-doping investigations conducted by NAS from 1999 to 2009, which represent the vast majority of the anti-doping criminal investigations conducted in Italy.

To achieve a fuller picture of the doping substances seized in Italy, we have also collected the seizure data from the websites of the Agenzia delle Dogane (i.e., customs), Guardia di Finanza (i.e., tax police) and Polizia di Stato for the period January 1998 through February 2012.²¹ For the same time period, we also conducted an extensive review of all the doping-related news launched by the three main Italian news agencies—*Ansa, Agi,* and *Adnkronos*.

In addition to the summaries of the proceedings contained in the database, we have analyzed official documents related to 46 different criminal investigations carried out by NAS or other police forces. In some cases, the documents analyzed were the extensive summaries of the investigations written by NAS officers and submitted to the Prosecutor's Office; in other cases, the charges pressed by the prosecutors, the arrest warrants issued by the judges for preliminary investigations, or first-, second- or third-degree verdicts. We refer to these cases generically as "investigations" (from NAS's perspective) or "proceedings" (from a judicial perspective) or with the specific name of the document (e.g., verdict, charges).

Contrary to our original intention, we have not been able to reconstruct the entire judicial path for the main criminal proceedings on doping (that is, from the prosecutor's charges to the final verdict), except for a few cases. In fact, NAS or the Prosecutor's Offices do not collect information systematically about the proceedings originating from their investigations. Moreover, due to procedural rules regarding geographical competence and

²¹ For the Agenzia della Dogane, see

¹⁹ See http://www.agenziafarmaco.gov.it/it/content/farmaci-autorizzati.

²⁰ Prices have been looked up, for example on a variety of websites, including the following: http://www.mesomorphosis.com/; http://www.eurobolic.info/; http://it.steroidset.com/; http://www.que.es/ultimas-noticias/sucesos/201203102001-decomisan-toneladas-marihuana-cocainasuroeste-efe.html?anker_3. It is important to note, though, that these websites change continuously.

http://www1.agenziadogane.it/ed/motore_ricerca/?XML=/Agenzia_Dogane/_C=eJyLz2HILGGIL8tjcExPz avKTIx3yU9PzEtliC9kSMxLTMrPyayqSswryWSIz8gscSvNyWEwNGAAAPwEEjY_/_s=0¶m_query=ana bolizzanti; for the Guardia di Finanza, see

http://www.gdf.gov.it/ricerca/ricerca.asp?testoRicerca=anabolizzanti&ok=ok; for the Polizia di Stato http://poliziadistato.it/search/sh/.

the defendants' right to request a bargaining agreement (see chapter 8), the criminal proceedings are often split in different streams and, if the offenders are resident in different judicial districts, assigned to different courts so much so that it becomes very difficult to ascertain the final outcome of the proceedings. We have been able to reconstruct such outcomes for only 24 proceedings, primarily thanks to the personal commitment of a particular prosecutor, Dr. Raffaele Guariniello from the Turin Prosecutor's Office.

The other crucial source of information has been experts. In total, we have interviewed 26 NAS officers at the Headquarters and in nine NAS branch offices as well as seven prosecutors, one policy-maker, and one other expert. In some cases, we talked to our interviewees more than one time. We refer to these interviews with the following codes: Int-NAS-1 to 26 for the NAS officers, Int-Proc-1 to 7 for the prosecutors and Int-Oth-1 and 2 for the two others. Together, with the two officers coordinating NAS's anti-doping activities, we also developed a short questionnaire to collect information on the human and financial resources, priorities and anti-doping activities, which the NAS Headquarters then sent to the all 38 branch offices.

To fulfill the study objectives, we also collected different types of statistical data, including some that had never been published before. We obtained data on the use of steroids among Italy's adults (15-64-year-old) from the Dipartimento Politiche Antidroga (Drug Control Department) of the Prime Minister's Office, which had been collected through a population survey but had never been published before. To better assess overallanti-doping actions, we also requested and obtained statistical data on the number of police reports to the Judicial Authority and court verdicts for doping and other related offenses during 2001-2010, which the Italian Statistical Office (Istat) calculated explicitly for this study.

To strengthen our conclusions, we triangulated the findings from the different sources, including an extensive media analysis.

Structure of the Report

The present report is organized as follows. The first chapter briefly reviews the literature on doping and anti-doping, describes the current international policy context and singles out the conceptual framework of the study.

The second chapter briefly lists the doping products available in Italy and then provides some key data on Italy's sportsmen and sportswomen and the numbers of athletes who have tested positive in anti-doping tests. On the basis of these and other data, the chapter then attempts to estimate the number of users of doping products and the quantities they consume, thus addressing the first objective of the project. The second chapter also outlines the main trends in the development of Italy's market for doping substances to provide necessary context for assessing the supply of doping products.

The third chapter focuses on the suppliers of doping products, largely fulfilling the second objective of the project. It identifies the different categories of suppliers on the basis of some general characteristics, builds a typology of illegal suppliers on the basis of their profession or occupation and singles out their motives. The fourth and fifth chapters address the third and fourth project objectives. The fourth begins by singling out the sources of different doping products (e.g., pharmaceutical companies v. illegal labs) and the different distribution chains. It then analyzes the suppliers' relationships and *modus operandi* and the overall structure of the market for doping products, including changes over time. The following chapter, the fifth, discusses the complicity of the Italian and, in a few cases, international sports bodies that have either tolerated or sometimes even explicitly favored illegal doping practices and considers the role of organized crime.

The sixth chapter fulfills the fifth project objective: It evaluates the data available on illegal suppliers' revenues and profits margins and attempts a preliminary estimate of the revenues associated with doping.

The seventh chapter examines Italy's anti-doping laws and their evolution and highlights the two key elements of the broader institutional framework that have made Italy's unprecedented anti-doping criminal law actions possible, namely the existence of a police force that is specialized in public health issues and the independence of the public prosecutors. It then presents some statistical data about the outcomes of Italy's antidoping criminal law actions (e.g., reports, arrests, convictions) and finally identifies the challenges such actions face, particularly but not exclusively in the field of international cooperation. In such a way, the fourth chapter fulfills the sixth objective of the project.

The final chapter summarizes our main findings and draws policy implications from the analysis, thus addressing the seventh project objective.

1. WHAT IS KNOWN ABOUT DOPING AND WHAT CAN THIS STUDY ADD TO IT?

In this chapter we briefly review the literature on doping and anti-doping to illustrate the value added of the present study beyond Italy's borders. We also consider the international policy context to demonstrate the study overall policy relevance and timeliness. On the basis of literature review and current anti-doping policies, we single out the study conceptual framework.

Literature Review

Since the 1970s a relatively broad scientific literature has developed on the history, prevalence and promoting factors of the use of doping products in sports, on anti-doping policies, rules and testing, with scholarly contributions from numerous disciplines. On the topic there is also—both in the press and on the internet—a bourgeoning non-scientific literature, including reconstructions of major scandals and investigations and first-hand accounts written by elite athletes (e.g., Bassons, 2000; Gaumont, 2005) and other individuals involved in doping scandals, such as masseurs and physicians (e.g., Voet, 2000; D'Hont, 2007).

The Use of Doping Products: Trends and Prevalence

According to several historians and sociologists, there has been a "growing demand for illicit drugs by athletes" in the post-WWII period (Waddington and Smith, 2009: 64; see also Hoberman, 2005; Yesalis and Bahrke, 2005), which can be explained by some key trends in sports and the broader society sometimes dating back to the nineteenth century: a) the "de-amateurization" of sports, with an increasing emphasis being placed on winning (Dunning, 1986; Bette and Schimank, 2006: 62) as the shift from pre-modern to modern society favored inter-area sports competition; b) the medicalization of sports, as exemplified by the development, since the 1960s, of what is now called sports medicine (Waddington and Smith, 2009: 66-101); c) the politicization of sports—particularly during the Cold War, sports became an extension of the rivalry between the West and the Soviet bloc (Singler and Treutlein, 2010); and last but not least, d) its commercialization, meaning the development of both sports sponsorship and global audiences, via television, for all major sports events (e.g., Gratton and Taylor, 2000: 163; Hoberman, 2001: 245; Coakley and Pipe, 2009: 384-425). The sports industry is now estimated to be an US\$800 billion a year business (Howman, 2011).

At its core, as Coakley (and Pipe, 2009: 205-214) stresses, the use of illegal performance-enhancing substances and methods in sports is due to overconformity, athletes' uncritical acceptance of the norms of the sports ethic not only to win but more fundamentally to play the game, gain the respect of their peers and maintain their identity as elite athletes. Overconformity is the motivation not only for doping but also for risky behaviors, such as playing with broken bones and torn ligaments or using painkilling drugs to stay in the game. It is often encouraged by coaches, sponsors, administrators and fans and, according to Coakley, "is grounded in the culture and organization of sports and the social dynamics that exist in the social worlds that are created around sports" (ibid.: 198).

Whereas elite competitive athletes have since the 1950s used steroids and other doping substances to improve performance, since the 1980s the use of steroids has spread out of the elite athletic community and into the general population (e.g., Buckley et al. 1988; Kanayama, Pope, Hudson, 2001; Kanayama, Hudson, Pope, 2008 and 2009a). This trend has been partially stimulated by the appearance of progressively more sophisticated underground guides on how to self-administer steroids (Kanayama et al. 2009). Western cultural developments have also likely contributed to the increased prevalence of steroid use, as media images have increasingly focused on male muscularity. According to Pope, Phillips and Olivardia (2000), males suffer under an Adonis complex, i.e., impossible ideals of beauty and body that favor the use of dangerous steroids and "supplements" in addition to compulsive behaviors, chronic depressions and eating disorders. Over the last few decades, even children's action toys have begun to acquire the bodies of steroid users (Pope et al., 1999). Others connect the impossible ideals of beauty with the current society's culture of performance (Quaglio et al., 2009) and its medicalization (Swedish National Institute of Public Health, 2010: 66). As a result of the latter trend, ageing, being overweight, sexual performance, hair loss, shyness and tiredness are some of the events that have been redefined as medical issues and treated with drugs (Conrad, 2007). In particular, as many people do not have time to live healthily and to train in order to achieve a more attractive body, medical preparations, including doping substances, appear to be increasingly seductive and effective solutions (Harth et al., 2008), and lucrative markets for health, beauty and achievement are created at the same time. The market for doping products thus partially overlaps with the market for human enhancement drugs, i.e., drugs that have the potential to improve human attributes and capabilities (see Savulescu, ter Meulen and Kahane, 2011; Evans-Brown et al., 2012; Singler, 2012).

Steroids, in particular, are used only to build muscles but also to promote aggressiveness, courage and the feeling of omnipotence (e.g., Thiblin, Kristiansson and Rajs, 1997; Thiblin and Parlklo, 2002; Kindlundh et al., 1998; and Chantal, Soubranne and Brunel, 2009; Swedish National institute of Public Health, 2010: 56-57). As such, they are particularly loved by action-oriented males, who, according to John Hoberman (2012), belong to an inter-related set of subcultures and compose a "global anabolic universe." Among these males, there are police and military personnel, firefighters, mercenaries, action-film stars, bodybuilders, bouncers, motorcycle gangsters, professional wrestlers, martial arts fighters, private security guards and militia members. For Hoberman, in particular, steroid use is now "epidemic" among police officers in the United States, as indicated by, as one case among many, the steroid scandal involving hundreds of New Jersey police officers and firefighters that erupted in December 2010. Even the Norwegian mass murderer Anders Behring Breivik took steroids to increase his aggressiveness and determination before the 2011 attacks and in his manifesto gave detailed instructions about the use of steroids and ephedrine, claiming that "the use of anabolic steroids will significantly increase your agility, speed, strength and endurance" (Berwick, 2011).

Perhaps as a result of these trends, illicit steroid use has now grown into a widespread public health problem in the United States (Buckley et al., 1988; Yesalis et al., 1993 and McCabe et al., 2007) and many other Western countries (Melia et al., 1996; Handelsman and Gupta, 1997; Nilsson et al., 2001; Pallesen et al., 2006; Wanjek et al., 2007; Kokkevi et al., 2008). Although epidemiologic studies in these various countries have produced a wide range of prevalence estimates, most have reported a lifetime prevalence of steroid use of at least 3% in young men, suggesting that some tens of millions of individuals worldwide have used these drugs (Kanayama et al. 2009). By contrast, steroid use in women is uncommon, since women are less likely to want to become very muscular and are also vulnerable to the masculinizing effects of steroids (Kanayama et al. 2007; see below). Many steroid users are visitors to gyms, who are thought to be the largest consuming group. Estimates of steroid users in several western countries range from 5% to 13.5% of gym visitors (Korkia et al., 1997; Kanayama et al., 2001; Simon et al., 2006; Striegel et al., 2006; see also Kläber, 2010).

Ranges are even broader for elite athletes. While about 1% of official doping tests yield positive results on average worldwide (WADA, 2011a and 2010a), scientific studies using the randomized response technique,²² currently considered the least biased data collection method, show that at least 7% of elite athletes admit having practiced doping (e.g., Striegel et al., 2010). In an early survey carried out in Italy in 1989, over 10% of the 1,015 athletes interviewed indicated a frequent use of amphetamines or anabolic steroids at national or international level, while fewer athletes mentioned blood doping (7%) and beta-blockers (2%) or other classes of drugs. These proportions were 2-3 times higher for occasional use, and similar opinions were expressed by the 216 coaches, doctors, and managers who were also interviewed (Scarpino et al., 1990). Surveys targeting athletes engaging in power sports or weightlifting report even higher prevalence estimates of steroid use with estimates ranging from about 20% to more than 50% (Beel et al., 1998; Kanayama et al., 2009a). A 2011 analysis of 7,289 blood samples from 2,737 athletes from all disciplines and countries concluded that the prevalence of blood doping ranged from 1% to 48% for subpopulations of samples and a mean of 14% for the entire study population (Sottas et al., 2011).

According to some sports physicians, the real rate of elite athletes engaging in doping may be as high as 40% to 60% (Simon, 2010). Anecdotal reports—and repeated

²² The randomized response technique is a data collection method used in interviews or in surveys that offers a high degree of perceived protection to interviewees, because the latter can give responses to sensitive questions according to a randomized procedure (e.g., Striegel et al., 2009).

scandals—lend credence to, or even go beyond, the latter perceptions. Several elite athletes, coaches, and physicians have admitted that doping practices, especially but not only the use of anabolic steroids, were widespread in different sports disciplines, including weightlifting, rugby, discus and hammer throwing, and other track and field sports during the 1960s, 1970s, and 1980s (see the numerous events and declarations reported in Todd and Todd, 2001; de Mondenard, 2004; Singler and Treutlein, 2010). According to Hoberman (2011b), all the female world records achieved in the 1980s and 1990s in the 100 to 10,000 meters (without hurdles), discus throw and shot put as well as the male records in discus and hammer throw and shot put are suspicious and were-certainly or most likely—achieved with the help of doping (see also Singler and Treutlein, 2010 and Simon, 2011). The Festina scandal at the 1998 Tour de France demonstrated that drug use in cycling was not a matter of few individual riders acting on their own initiative, but that it was widespread, systematic and organized. As Hanstad, Smith and Waddington (2008: 227) note, "drug use was institutionalized within the structure of professional cycling." According to the opinions of many other experts (e.g., Brissonneau, 2007; Brissonneau et al. 2008; Christiansen, 2005; Hoberman, 2002; Møller, 2008; Singler and Treutlein, 2010) and the testimonies of former riders (e.g., Bassons, 2000; Gaumont, 2005; taz, 2011), at least until the beginning of the current century it was almost impossible to be competitive in elite cycling without resorting to doping.²³

A Brief History of Doping Products and Anti-Doping Tests

Doping deaths and scandals have been the main factor promoting the development of the contemporary anti-doping control regime. Although several international sports federations had banned doping before the Second World War, the world's sports ruling bodies came under pressure to introduce drug testing after the doping-related death of two cyclists—the Dane Knud Enemark Jensen and the Englishman Tom Simpson—who abused stimulants and died during competition. (Jensen died at the 1960 Olympic Games in Rome and Simpson died during the 1967 Tour de France.) The IOC did not take any direct measures after Jensen's death and did not mention it in the final report of the XVII Olympic Games (de Mondenard, 2004: 76). Instead, it was forced to react to Simpson's death, which had taken place under the eyes of millions of people watching the Tour on television. In 1967, the IOC Medical Commission became fully operational and set up its first list of prohibited substances, introducing drugs tests at the Olympic Winter Games in Grenoble and at the Olympic Games in Mexico in 1968 (Henne, 2009).

The first anti-doping controls were established twenty years after the use of anabolic steroids had begun to spread. Effective tests became available only in the early 1970s. In 1973, the London anti-doping laboratory developed the first test capable of

²³ Recently the U.S. Anti-Doping Agency (USADA, 2012) opened a formal action against Lance Armostrong, seven-times winner of the Tour de France, accusing him of repeated anti doping rule violation, including the use, possession and trafficking of doping products rom before 1996 to 2005.

detecting the metabolites of anabolic steroids in urine samples. After being refined further by the Cologne anti-doping laboratory, the test was used for the first time at the 1976 Olympic Games in Montreal—but only in eight disciplines, because the other sports federations refused to cooperate (de Mondenard, 1984: 127-129; Houlihan, 2002).

In the meanwhile, athletes and their coaches knew when to stop taking anabolic steroids to avoid testing positive or to alternate anabolic steroids with testosterone, which gave similar performance-enhancing results but could not be detected with regular tests (de Mondenard, 1984: 130). The IOC tried to obviate to this problem by setting maximum limits between testosterone and epitestosterone, a natural steroid that is not affected by the exogenous administration of testosterone. However, the initial ratio between testosterone of 8:1 was set so high that, according to some critics (e.g., Ferrara, 2004: 279), it would only serve to reduce the numbers of positive test results and legal conflicts. When the IOC lowered the ratio to 6:1, athletes began taking epitestosterone together with testosterone. By the time the laboratories could distinguish between natural and artificial testosterone, other drugs had been developed that could stimulate the endogenous production of testosterone and could not yet be detected by chemical analyses.

Among them, the most powerful is gonadorelin, a man-made protein that is like the natural gonadotrophin-releasing hormone and is used in the treatment of dysfunctions of the pituitary gland and other pathologies. In the criminal proceedings against Prof. Conconi in 1996, Dr. Luigi Pressi (1996), who was the chief physician of the national Italian cycling team, reported the frequent use of gonadorelin among professional riders. Allegedly they used this undetectable hormone in order to enhance their performance without testing positive and to obtain evidence of a naturally high level of testosterone from the official anti-doping laboratories, such as that in Cologne.

In the early 1970s, Finnish sports officials started harvesting blood red cells from elite athletes and then transfusing them back into the athletes' circulatory systems prior to endurance competitions (the so-called "autologous transfusions"). With the aid of this practice, the Finnish athletes succeeded in dominating the international competitions of 1,500 meter to 10,000 meter tracks in track and field and cross-country skiing. Soon this practice spread in endurance disciplines of other countries, above all, East Germany, the United States, and Italy (see chapter 3). The Italian Ministry of Health banned blood transfusions for non-therapeutic purposes in early 1986; the IOC followed closely on that in the same year. In the late 1980s, an advance in medicine led to an entirely new form of blood doping involving EPO, a naturally occurring hormone that stimulates the formation of red blood cells. Many doping doctors—including in Italy, Prof. Conconi (Procura della Repubblica di Ferrara, 2000)—shifted from blood transfusion to EPO doping or at least began combining the two approaches. No direct test exists yet for autologous blood transfusions, and the direct testing of EPO use has proven very difficult despite the

existence of a urine test (Lundby, Robach and Saltin, 2012). Moreover, due to financial restrictions, not all urine samples are tested for EPO (Howman, 2011).

Gonadorelin, chorionic gonadotrophin and EPO belong to the group of peptide hormones. Among them there are also somatotropin and its recombinant version, somatropin (both known as "growth hormone" or "GH"), the latter being a prescription drug used to treat children's growth disorders and adult growth hormone deficiency. At the beginning of the 1980s, the suspicion was widespread that growth hormone was routinely extracted from the pituitary gland of cadavers for performance-enhancing purposes (de Mondenard, 2004: 627-629) In 1987, somatropin was produced by recombinant DNA technology and began to be sold on a commercial basis (Houlihan, 2002: 84-87).

The IOC banned both the natural and chemical versions of GH in 1989;²⁴ however, the ban long remained unenforceable, because traditional urine analysis could long not detect doping with either variant of GH. Before the 1984 Olympic Games, the U.S. endocrinologist, Dr. Robert Kerr, admitted to treating more than 4,000 athletes from 20 countries with GH and other peptide hormones and after the Olympics he claimed that many of his athletes had won medals (Todd and Todd, 2001: 78-82 and Crowe, 2001). In the early 1980s one of Kerr's assistants, Dr. Guillermo Laich, went back to Spain and his consulting room became a purported "pilgrimage" goal for sports directors, coaches, and athletes of different countries (Donati, 1989: 142). Bloods tests that could distinguish between natural and artificial GH began to be developed during the early 2000s but they did not become a standardized protocol. Even in the present day, urine tests can only detect GH if taken in the hours before the test.

The latest stage in doping history is represented by gene doping, which the WADA (2008: 7) defines as "the non-therapeutic use of cells, genes, genetic elements, or of the modulation of gene expression, having the capacity to improve athletic performance." Gene doping undoubtedly has the potential to become a threat to public health, as it is possible that genetic mutations in athletes could spread to the rest of the population. The extent to which gene doping already represents a common practice rather than a potential threat is yet unclear, though (Simon, 2010).

The literature also indicates a strong connection between the use of doping agents, narcotics, alcohol, dietary supplements and pharmaceuticals (among others, DuRant et al., 1993; Sjöqvist, et al., 2008). In a U.S. Internet study (Parkinson and Evans, 2006), 96% of the 500 respondents reported using other substances such as stimulants, fat-burners, growth hormone (GH) and insulin in addition to steroids, either to increase the effects of steroid use or to mitigate or master their side-effects (see also Hildebrandt et al., 2006; Swedish National Institute of Public Health, 2010: 45-49).

²⁴ Realizing the performance-enhancing potential of GH, UCI had intervened much earlier than the IOC. UCI initially inserted GH in its prohibited list in 1968. However it took it out in 1971, on the grounds that GH could not be detected in urine samples (de Mondenard, 2004: 635-6).

Whereas the IOC banned narcotics in 1967 and cocaine in 1971 (de Mondenard, 2004: 784 and 269), the prohibition of cannabis is much more recent. Only after the 1988 Olympic Games in Seoul did the IOC place cannabis in the category of "substances undergoing certain restrictions," while international sports federations continued to maintain different rules that were more or less restrictive. Roughly 15 years later, the 2004 World Anti-Doping Code fully banned cannabis (ibid.: 223-5) in competition.

Within the IOC and among the general public worldwide, there has long been a debate about whether cannabis, and to a lesser extent also cocaine, should be on the banned substances list.²⁵ Numerous observers do not regard cannabis as a performanceenhancing drug, while others note that cocaine may have performance-enhancing effects in some sports but it is used by athletes primarily for recreational rather than for doping purposes (e.g., Waddington and Smith, 2007: 44-47; Smith [2012]; contra, see Blackshaw [2012]).²⁶ The disqualification of athletes testing positive to cannabis has stirred controversy and in some instances elicited the opposition of team members and sports federations.²⁷ WADA has long defended its policy on the grounds that the two drugs are illegal and represent a serious threat to the athletes' health (see the statements of WADA President Fahey in Read, 2010 and Huestis, Mazzoni and Rabin, 2011). However, in partial contradiction of both arguments, it prohibits the drugs only in competition. The use of cocaine, in particular, can be harmful when it is coupled with heavy training, which might be prescribed by coaches who are not aware that their athletes use cocaine. The use of this strong stimulant can also further perturb the psychological equilibrium of these athletes, who may already experience the ups and downs of exaltation and dejection as a result of their participation in competitions and other pressures from the organized sports world (de Mondenard, 2004: 253-269). Accounting for 8% to 10% of all substances detected, cannabis constitutes the second or third most frequently tested group of doping substances worldwide after anabolic steroids and, in 2010, stimulants. Cocaine represents, instead, a much smaller percent of the so-called "adverse analytic findings" (i.e., positive test results; see WADA, 2009; 2010a; and 2011a).²⁸ In May 2012, WADA President Fahey announced that WADA might consider revising the generalized ban on cannabis and

²⁵ The prohibition of opioids, however, has been uncontroversial. As a matter of fact, athletes hardly ever use heroin, morphine or other opioids through systemic routes of administration, because these substances would depress their athletic performance.

²⁶ For a review of that debate and a list of the main cases of elite athletes testing positive to one of the two substances, see de Mondenard (2004: 207-26 and 253-69).

²⁷ E.g., the case of the Canadian snowboarder at the Nagano 1998 Olympics, who was stripped of his gold medal because he tested positive for marijuana [i.e., cannabis]; see Longman, 1998.

²⁸ Given the purported recreational use of these drugs, sports ruling bodies sometimes try to impose lighter sentences on athletes testing positive to either cocaine or cannabis. For example, in 2008 CONI gave a reduced sentence to a tennis player who had tested positive to cocaine, on the grounds "that the type of substance ingested did not increase his athletic performance capability" (CAS, 2008: 6). However, WADA successfully appealed against CONI's decision at the Court of Arbitration of Sport (ibid.).

maintaining it only for certain disciplines, such as pistol shooting and golf, where the drug has clear performance enhancing effects (Lane, 2012).

In 2004, WADA took all caffeine products off the Prohibited List, regardless of the fact that some caffeine products, such as Animine, can cause serious heart problems and even death if taken in high dosages (de Mondenard, 2004: 184-201). In doing so, it seemed to confirm its predominant interest in guaranteeing the fairness of competitions as separate from the health of athletes. Other scholars, however, approve WADA's decision given the general availability of caffeine in medical products and the limited risks associated with this substance (e.g., Waddington and Smith, 2009: 33).

Pursuant to article 4.3.1 of the Code, WADA currently decides to include a substance or method in its prohibited list if it determines that the substance or method meets any two of the following three criteria: (i) potential health risk, (ii) performance enhancing potential, and (iii) violation of the "spirit of sport" (WADA, 2009c: 32).²⁹ As reflected in the debate about cannabis and cocaine, several scholars and policy-makers object to the fact that a drug may be banned on the grounds that it damages the health of athletes and that it is contrary to the "spirit of sport", even though the substance has no performance-enhancing effect (e.g., Schneider and Butcher, 2001; Waddington and Smith, 2009: 44-47, who also report critical comments of several policy-makers). Even those, such as the authors of this report, who prioritize health protection, note that WADA should clarify the reasons and criteria for banning or not banning some substances or methods, with particular reference to the vaguely-defined concept of "spirit of sport" (see also Coakley and Pipe, 2010 and chapter 8).

Increasingly aware of the limits of testing, WADA Executive Committee introduced the Athlete Biological Passport Operating Guidelines on December 1, 2009. The fundamental principle of the athlete biological passport is based on the monitoring of an athlete's biological variables over time to facilitate indirect detection of doping on a longitudinal basis, rather than on the traditional direct detection of doping (WADA, 2012d). The passport builds on the experience of a few international sports federations, above all such the Unione Cycliste Internationale (UCI) and the Federation Internationale de Ski (FIS), which had introduced as early as the late 1990s markers of blood doping to deter the abuse of recombinant EPO that was undetectable by direct means at that time (Lundby, Robach and Saltin, 2012). The 2009 guidelines are the product of lengthy negotiations organized by WADA among key sports federations (WADA, 2012). The UCI has been most aggressive in implementing the passport and has sanctioned several riders for committing an anti-doping rule violation on the basis of the passport data (McQuaid, 2011).

²⁹ The Code then adds a fourth criterion in the following article (article 4.3.2): the masking potential of a substance or method (see Teitler and Ram, 2008).

While the biological passport represents an important step forward, WADA recognizes that "in some ways, [it] had been the author of its own misfortune, by introducing the passport and other techniques that had really driven sophisticated dopers to be more sophisticated." The latter have recently become "more sophisticated, with micro-dosing, manipulation, blood doping and other methods being used that were very hard to detect." In a recent study, Ashenden et al. (2011) concluded that the software on which the Athlete Biological Passport is based is not capable of detecting micro-dosing of EPO. WADA itself admits that "dumb dopers … probably" represent "the vast number of those who tested positive" (WADA, 2010d).

The Harms of Doping Products

Knowledge of the harmful effects of doping agents has increased in the past 20 years, but studies have so far focused on the harms associated with steroids, which are thought to be the most frequently abused substance class. Steroid use is associated with a range of adverse medical effects, including dyslipidemia, cardiomyopathy, and prolonged suppression of the hypothalamic–pituitary–gonadal axis (Kanayama, Hudson, Pope, 2008). In some individuals, steroids may also cause serious psychiatric effects, including especially major mood syndromes, which may sometimes be associated with aggression or violence (Thiblin and Parlklo, 2002; Perry et al., 2003; Kanayama, Hudson and Pope, 2008; Pope and Brower, 2009). According to the Swedish National Institute of Public Health (2010: 55-56), depressive symptoms are currently viewed as the most common, most widespread and probably the most serious side-effect after discontinued steroid intake, becoming a risk factor for both violence and suicide. Moreover, steroid dependence is documented in about 30% of illicit steroid users in various larger field studies (Kanayama, Hudson and Pope, 2009b).

Women are affected by side-effects similar to those in men and the risk of exhibiting them is higher (Kindlundh, et al., 1999; Quaglio, et al., 2009). Use also often entails a masculinizing effect that does not automatically return to normal after discontinued use. Some of the reported side-effects are larynx growth, beard growth, substantial body hair growth and simultaneously raised hairline, menstruation disturbances, clitoris growth and regression of the breasts (Kanayama et at., 2007; Swedish National Institute of Public Health, 2010: 53).

A number of Swedish studies have shown that steroid use entails an elevated risk of premature death (Thiblin, Runeson, & Rajs, 1999; Thiblin & Petersson, 2005; Petersson et al., 2006). This may be due to physical complications such as cardiac death, suicide or death resulting from the individual exposing himself to risk-taking in connection with use (Pärsinnenn et al. 2000, Petersson, et al., 2006).

The harmful effects associated with other substances have been studied less systematically, but this does not mean that they are less serious or frequent (for a review, see Peters, Schulz and Michna, 2002). As a matter of fact, some scholars regard some of these substances, such as those taken by body-builders in addition to steroids, as more dangerous than steroids themselves (Evans, 2004; Parkinson and Evans, 2006). Health risks are further increased by the fact that a growing, albeit often not precisely known, share of the doping substances on the international market are counterfeited. A study in the Netherlands (de Hon and van Kleij, 2005) has shown that at least 50-60% of the products illegally obtained do not contain what is declared on the label. As de Hon and van Kleij (2005: 7) note, "the dosages of these products are completely unpredictable, which means that the side effects that are encountered are likewise unpredictable. In some instances, the lack of hygiene surrounding the places where these products are processed poses an additional health risk."

Even greater risks are likely to arise from doping users' frequent polypharmaceutical practices, i.e., the unsupervised use of different doping substances, but the increased health risks associated with them have been hardly studied yet (Parkinson and Evans, 2006; Swedish National Institute of Public Health, 2010).

The Supply of Doping Products: A "New" Topic for Inquiry

Unlike use, the topic of the supply of doping products has received little scientific attention, represented in just a handful of scientific publications. Two seminal studies based on interviews, Koert & van Kleij (1998) and Oldersma et al. (2002), examined the illegal distribution networks of doping substances in gyms in the Netherlands. In 2007 Donati sketched out the *World Traffic in Doping Substances* on behalf of the WADA, analyzing secondary sources and first-hand documents retrieved online.

A few other—quantitative (e.g., Kindlundh et al., 1998; Lambert et al., 1998; Striegel et al., 2006) and qualitative (e.g., Brissonneau, 2007; Fincoeur, 2009)-studies that focus on doping use and government or sports federation reports on use (e.g., Australian Senate, 1989; Dubin, 1990; Mitchell, 2007) occasionally reveal information on the athletes' sources of doping products. Research on the state doping programs of the former East Germany (e.g., Berendonk, 1992; Franke, 1995; Spitzer 1998), also documents that doping athletes may not need to buy doping products on the black market but, at least in some extreme circumstances such as a non-democratic country, may be supplied directly by state officials. A few bio-chemical analyses have also focused on doping drug seizures (e.g., Lüdke et al., 2007, and Thevis et al., 2008). Isolated but interesting observations can also be found elsewhere: Bette and Schimank (2000), for example, stress that, contrary to the media representation of doping as a deviant behavior of single individuals, drug-using athletes are not working alone without the assistance and support of others. They speak of a "constellation of actors", not limited to the world of elite sports, but also including the public, mass media, and economic and political actors. In his turn, Waddington (2000: 159) points to a "doping network" surrounding the athletes.

Aside from these few publications, we know of no study focusing on the supply of doping products. A search on the Criminal Justice Abstracts (CJA), PubMed, and Web of

Science databases (they are, respectively, the largest and most authoritative database for criminology, the largest medical database, and one of the largest databases of any kind worldwide) in April of 2012 revealed only four relevant publications on the topic, using "doping" and "trafficking," "trade," and "supply" as keywords. In PubMed, the two relevant publications consisted of a one-page letter in the *British Medical Journal* describing the ease of obtaining insulin from UK pharmacies (Elkin et al., 1997) and an biochemical article indicating that black market copies of drug candidates are easily available via the Internet (Thevis, Geyer and Schänzer, 2011). In CJA, we found an article written in Slovenian and another one about the use and trafficking of steroids among bodybuilders in the United States (Kraska et al., 2010). In particular, criminology as a discipline has yet to discover the problem of doping (Paoli, 2012). The 2012 search on the CJA found 85 other publications listing "doping" as a keyword but the overwhelming majority of them consisted of forensic articles or treated the topic of doping only marginally.

Literature Review Implications

What have we learned from this necessarily brief literature review? The demand for doping products exists in most countries and has been addressed in numerous studies, but there is no consensus on its extent. It involves a plurality of doping substances and methods, which are not used only for performance-enhancing purposes. If there is a demand, there must surely also be a supply; however, the supply side of the market has been examined by very few studies. None of these studies has tried to identify the different actors and channels of supply in a given country. The lack of research of the supply side of the market also reflects the fact these activities have not been investigated systematically by many law enforcement agencies and, hence, the "supply" of research-worthy criminal justice data is also scant. As such criminal justice data are uniquely available in Italy, a study of the supply of doping products in Italy may be considered illustrative—or at least indicative—of what remains unexplored elsewhere, even if similarities and differences must be ascertained empirically in future projects. Indeed, we hope that this study may convince researchers and policy-makers in other countries and multilaterally of the scientific relevance of our approach.

International Policy Context

Research on the supply of doping products and on supply-oriented policy interventions is not only scientifically innovative but also policy-relevant. In the anti-doping policy community, awareness is growing that the international anti-doping regime, which has developed since the 1960s through the interaction of the IOC, international sports federations, and national governments, has so far "focus[ed] squarely on the athlete[s]" (WADA, 2010b) and their testing, and is not effective. It is enough to recall that at the latest three summer Olympic Games (2000 in Sydney, 2004 in Athens and 2008 in Beijing), a total of 10,796 tests were carried out, yielding only 53 positive results. The IOC's miserable success rate of 0.5% is still much higher than that obtained by the International Football Federation (FIFA): at the latest four World Cups not a single case of doping has been discovered (Hoberman, 2012: 1). Speaking at the 2011 UNESCO "Conference of Parties to the International Convention against Doping in Sport", David Howman, the WADA Director General asked and answered: "Do you think that we have the science to track those who dope in a sophisticated manner? Personally, I don't think we do. ... We are catching the dopey dopers, but not the sophisticated ones." He noted that EPO "is the drug of choice for dopers" and reflecting on the very low rate of positive tests for EPO.³⁰ Howman judged the current situation "pathetic," adding that "we must increase quality and efficiency if we want to continue the fight" (AFP, 2011; see also WADA, 2011c) Indeed, the divergence between official test results,³¹ randomized responses, and widespread perceptions that "doping poses a threat to sport worldwide" (European Commission [EU], 2007: 4), strongly suggests the insufficiency of testing alone. Testing is not only ineffective but is also very costly. According to some back-of-the-envelope calculations by Simon (2010), a leading German sports physician, an elite athlete who is doping may undergo tests 150 times before he or she tests positive, implying that each detection costs approximately US\$300,000 (see also Hoberman, 2001).

Today, there is a growing consensus among national and international policy-makers and many scholars (e.g., Bannenberg and Rössner, 2006; Rössner, 2009 and 2011; Howman, 2011) that a broader approach is needed, including the use of criminal law instruments and, specifically, the repression of "trafficking." According to the WADA (2010b), for example, "it is imperative that additional strategies be combined with testing, research and education to ensure an efficient and effective anti-doping fight." Testing alone cannot tackle five of the eight core violations listed in the WADA Anti-Doping Code, including trafficking in, and possession of, prohibited substances and methods.

The potential of criminal law instruments is also demonstrated by several large-scale anti-doping investigations carried out by the U.S. Drug Enforcement Administration and other national law enforcement agencies since 2000. Parallel investigations undertaken by the U.S. Anti-Doping Agency (USADA) and the federal prosecutors revealed that the Bay Area Laboratory Co-Operative (Balco) in California had marketed for several years prior to 2002 an until-then undetected designer anabolic steroid ("the Clear") as well as growth hormone (GH) and other drugs to a number of high-profile elite athletes from the United States and Europe (Fainaru-Wada and Lance, 2006). In 2006, U.S. DEA's Operation "Gear Grinder" led to the arrest of a key figure in Mexico's steroid industry, a pharmaceutical executive and trained veterinarian, whose three companies had allegedly produced more than 70% of the \$56 million worth of illegal anabolic steroids seized annually in the United

³⁰ While a total of 258,267 doping tests were carried out across the world last year, there were only 36 positive tests for EPO and 8 for a related product Darbepoetin (WADA, 2011a).

³¹ As noted previously, only 1% of the doping tests carried out by the WADA and the National Anti-Doping Organizations lead to positive results (WADA, 2011a).

States. At that time, at least the production of steroids in Mexico was legal (Dohrmann and Llosa, 2006). A year later, operation "Raw Deal," adopted a four-prong strategy focusing on: raw material manufacturers and suppliers in China and other countries; underground anabolic laboratories in the United States, Canada and Mexico; numerous U.S.-based websites distributing materials, or conversion kits, necessary to convert raw steroid powders into finished product; and Internet bodybuilding discussion boards that are the catalysts for individuals to learn how to illicitly use, locate and discreetly purchase performance enhance drugs, including anabolic steroids (U.S. DEA, 2007). In 2011, the joint operation of the Austrian and German police and customs led to the closure of what is believed to have been the oldest and most renowned underground laboratory in Europe, International Pharmaceuticals, and the seizure of over 5,000,000 units of steroids, hormones and stimulants (Bundeskriminalamt, 2011).

The World Anti-Doping Code constitutes the cornerstone of the current international drug control regime and is implemented by national governments through the ratification of the 2005 UNESCO International Convention against Doping in Sport. It has been very effective in harmonizing testing procedures and sports law rules.³² In the field of criminal law, however, very large differences still persist, as noted by the Conference of Parties to the International Convention against Doping in Sport (2011), despite the fact that the Convention requires State Parties to "adopt measures against trafficking to athletes and, to this end, measures to control production, movement, importation, distribution and sale" (article 8). Since the late 1990s, a few countries (e.g., France and Spain in addition to Italy) have adopted specific anti-doping criminal provisions, in most cases anchoring them to the WADA Prohibited List. Other countries (e.g., Belgium and those in Scandinavia) have included medicines that can be used for doping purposes in their existing lists of prohibited psychoactive drugs, thus criminalizing their production and distribution within the limits set by their drug laws. A third set of countries (e.g., Germany) have criminalized the supply of doping products only in so far as it can be tackled through existing criminal provisions concerning the sale and use of medicines or the exercise of the medical profession (see Federal Ministry of the Interior, 2009; T.M.C. Asser Instituut, 2010).³³ According to a review carried out by the Asser Institute in 2010 (T.M.C. Asser

³² Some scholars still see considerable differences in the implementation of the WADA and UNESCO rules by the anti-doping panels of the national sports federations and courts (see Hendrickx, 2008, and Henne, 2010). Some national policy-makers are worried that some NADOs and anti-doping laboratories are more efficient than others, thus de facto giving an unintended advantage to the athletes of less efficient countries (Sportausschus, 2011: 24-25). Olivier Niggli, WADA Director Legal Affairs, admitted that WADA "has at the world level problems to obtain conclusive data [from the laboratories]. There is no reporting according to the same rules. The data we receive do not state always the same" (ibid.: 28).

³³ For an excellent, in-depth, comparative review of the anti-doping legislation and criminal prosecution in five European countries (France, Germany, Italy, Spain, and Switzerland), see Parzeller et al. (2009/10) and Parzeller ([2011]). UNESCO and WADA have also commissioned a review of the

Instituut, 2010: 23), five EU Member States (Bulgaria, Latvia, Malta, Poland and Slovakia) had no existing laws and regulations relating to the trade and distribution of doping products; eight countries had criminal laws; ten countries addressed the problem at least partially through their anti-drug laws and four more countries through their sports legislation. (One country provided no clear answer to the question).

Although no study has yet systematically examined the issues, crucial differences also seem to persist in the institutional arrangements called to implement the national criminal law provisions. According to Hoberman (2011a: 100), for example, the seminal 1965 French anti-doping law "remained essentially irrelevant for decades." In Germany there is not yet an anti-doping law and, according to Rössner (2011: 420), there is an "implementation deficit" even of the criminal controls that are already available (see also Rechtskommission des Sports gegen Doping, 2005).

Much like its international drug control counterpart, the anti-doping regime is far from being uncontroversial. Critics challenge the ethical justifications of the "war on doping" and call for the liberalization of enhancement practices in sports within a framework of medical supervision (e.g., Savulescu, Foddy and Clayton, 2004; Kayser et al., 2007; contra, Wiesing, 2011). Even those who have no principled objections to the antidoping regime question its legitimacy and point to numerous critical issues. One of them is the overreliance on non-governmental forms of policy-making and adjudication, which are not bound to respect constitutional guarantees (Jacobs and Samuels, 1994-95: 581-83; Peterson, 2010: 322-3). Sports federations are private bodies and the Court of Arbitration for Sport (CAS), the sports law highest court, is based on private law under the jurisdiction of the Swiss legal system—a problematic fact in light of human rights law, particularly as regards fair trial and due process principles (Soek, 2006; Rudolph, 2009-2010). The strict liability principle, which Hard (2010:225) defines as "the most scrutinized feature, and the hallmark of the Code", is also questioned. It implies that, in the event of a doping offense, in principle, the athlete's "good faith" or "good intentions" are not taken into account and de facto reverses the burden of proof (see also Blumenthal 2010: 228). The new whereabouts requirements and testing methods are also disputed (e.g., Handstad and Loland, 2009; Mitten, 2009) and are considered by some scholars (Groleau, 2009) to be a violation of the athletes' rights to privacy.³⁴

Given the rising doubts about the effectiveness, legitimacy and costs of testing and the heterogeneity of approaches in tackling the supply of doping products across countries, it is no surprise that several international and national and policy-making bodies call for a tougher and more concerted supply-oriented criminal law approach. Already in its 2007

national legislation on trafficking and distribution of doping substances worldwide to Barrie Houlihan (WADA, 2011b) but the report has, to our knowledge not yet been published.

³⁴ The Belgian sport union, Sporta, legally challenged them, arguing that they violate European privacy laws (BBC, 2009).

White Paper on Sport, "the [European] Commission (2007) recommend[ed] that trade in illicit doping substances be treated in the same manner as trade in illicit drugs throughout the EU." Having acquired specific legal competencies on sports with the Lisbon Treaty, which entered into force in late 2009, the Commission does not rule out presenting a binding law-making initiative to criminalize "trafficking" in doping substances throughout the EU, if a political consensus were to emerge (Kornbeck, 2009; Krejza, 2009). According to the UK government, which will host the 2012 Olympic Games in London, it is necessary to shift from a "traditional' approach to testing athletes" to a "new paradigm of anti-doping" to tackle those who supply and administer doping substances (DCMS, 2009: 5). Reflecting this approach the UK government established a new organization, referred to simply as "UK Anti-Doping" in 2009, which it presents as an "intelligence-led organisation" that works closely with law enforcement partners, such as the Serious Organised Crime Agency (SOCA), customs, pharmaceutical companies, and the usual sports stakeholders.³⁵

Drawing on all these insights, WADA (2012e) lists the following as the third of eight key objectives in the 2011 version of its Strategic Plan: "Generate universal involvement of public authorities and public leaders in the campaign against doping in sport, and in particular encourage national laws to allow the sharing of evidence gathered or collected through investigations and inquiries by appropriate bodies." Moreover, WADA (2012b) now considers "cooperation with law enforcement" as its second priority right after its core mission of monitoring the code compliance, specifically indicating that "in collaboration with UNESCO, [it] works with individual governments to persuade them to have laws in place that allow to combat manufacturing, supply and possession of doping substances on their territories." To achieve such an objective and priority, WADA (2011d) has in recent years formalized cooperation agreements with Interpol and the World Customs Organization. In 2011 it also released guidelines designed to enhance judicial investigations and the cooperation between National Anti-Doping Organizations (NADOs) and law enforcement agencies (WADA, 2011e). In those guidelines WADA again refers to the Italian experience as a model, along with the Balco investigation. Despite the fact that the IOC long insisted on having the Italian anti-doping law suspended during the Turin Olympic Games (Vinton, 2005), WADA now considers exemplary the close cooperation the IOC and WADA had with the Italian law enforcement agencies that lead to the discovery of systematic doping practices at the Austrian biathlon and cross-country teams (WADA, 2011e).

Conceptual Framework: A Semi-Illegal Market

As implicit in the project title, we conceptualize doping in terms of a market, with its demand and supply. A market approach is "bread and butter" in the field of illegal drugs and other illegal goods and services but, to our knowledge, but has not yet been applied to

³⁵ See http://www.ukad.org.uk/what-we-do/intelligence/.
doping. We are aware of the fact, though, that there is not necessarily a monetary transaction between the final users of doping products and their suppliers (e.g., when these are team staff members).

In particular, we conceptualize the doping market as a semi-illegal market, at least from the point of view of criminal law. We stress that the legal status of doping products suffers the burden and ambiguity of contextual specificity; that is, in some contexts, the products, including their supply, are "legal" and in others they are not. In that way they are more like typical diverted pharmaceutical products, and less like traditional illicit substances, such as cocaine, heroin, and cannabis. By and large society treats the latter as "inherently" illegal: most countries prohibit trafficking and possession of cocaine, heroin and other illegal drugs for non-personal use because, with few exceptions, these drugs have been deemed dangerous to public health and lacking therapeutic value. Instead, most doping products are also legitimate, well-established pharmaceutical products.

The ambiguity of doping products has repercussions on both demand- and supplyside activities. Even in Italy, which has some of the world's most stringent anti-doping criminal legislation, the users of the same doping products may or may not commit a legal offense, depending on the goals of their use. In fact, only athletes using such products "in order to improve [their] competitive performance" (article 9 of Act No. 376/2000) are held liable. The same ambiguity can be found in the application of the world anti-doping sports rules. According to the WADA Anti-Doping Code, the users of the same doping products may or may not violate a sports rule, depending on whether or not they have a therapeutic use exemption.³⁶ A further complication is held by the superimposition and occasional mismatch of national laws and sports rules. Minor athletes who test positive for a certain doping substance clearly violate sports rules but cannot be held liable by a criminal court, not even in Italy, if they were administered the doping substance by their parents or physician (Int-Pro-2).

The legal status of many supply-side activities also varies contextually; in particular, it varies along the distribution chain and, for the same activity, from country to country. Even within each country, differences depend on the products exchanged, the final uses of the products, the applicable offenses, and the good faith of some suppliers. We consider each of these variations in legal status.

A drug may begin its "life" as a legal product at one end of the supply chain and conclude its "life" as an illegal product at the other. Many drugs, which are used illegally as doping products are produced by legitimate drug manufacturers³⁷ or by pharmaceutical companies that may not meet the regulatory requirements of western developed countries but can operate lawfully in their own countries.

³⁶ See http://www.wada-ama.org/en/Resources/Q-and-A/Therapeutic-Use-Exemption-TUE/.

³⁷A note on vocabulary: We distinguish drug manufacturers from drug distributors in those instances in which it is possible and important to make the distinction; in other instances, we refer to both with the expression "pharmaceutical companies."

Given the lack of harmonization of the relevant criminal law legislation even within the EU, the same supplying activities are likely to have different legal statuses in different countries. Body-builders in Germany can legally obtain anabolic steroids through regular physicians and pharmacies (Striegel et al., 2006), whereas physicians and pharmacists cannot legally prescribe or sell the same drugs to body-builders in Italy and The Netherlands (Koert and van Kleij, 1998). In a comparative perspective it is also necessary to ascertain the effective degree of enforcement of the existing regulations and prohibitions (for the concept of "effective illegality," see Paoli, Greenfield and Reuter, 2009). As already mentioned, even the exiting sports rules and criminal law provisions have not always been implemented effectively.

Even within the same country, some doping products, with very restricted therapeutic uses, may be "more" illegal—at least from the point of view of criminal justice rather than sports authorities—than others. Leaving aside "traditional" illegal drugs, such as cocaine and cannabis, which are also on the WADA Prohibited List, nandrolone is a good case in point. In 2010, the Italian Ministry of Health added nandrolone, an anabolic steroid, to the list of psychoactive substances to be controlled under Italian drug law (DPR 309/1990 and later amendments), therefore sharply reducing the possibility of its legal sale and consumption and allowing a whole range of special investigation methods (e.g., controlled delivery³⁸) that are not allowed by Italy's anti-doping act (Ministero della Salute, 2010b).

According to the Italian legislation, many actors frequently involved in the supply of doping products, such physicians or pharmacists, may or may not commit a crime depending on the therapeutic needs of their customers and clients. Specifically, the legality or illegality of their decisions and actions depends on whether their customers and patients are athletes consuming certain products "in order to improve [their] competitive performance" (article 9 of Act No. 376/2000). At one extreme, prescribing or materially supplying a performance-enhancing product to an athlete taking part in competition always constitutes a crime according to the Italian anti-doping act. At the other extreme, supplying the same product to a patient, including an athlete, who needs it for therapeutic reasons never constitutes a crime. Between these two extremes, there is an ambiguous continuum where the legal status of the physicians' or pharmacists' decisions and actions depend on whether offenses other than those foreseen by the anti-doping act are applicable and on the physicians' assessment of patient's psycho-physical conditions and needs.

³⁸ This is defined by Article 1 g) of the 1988 United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances as: "(...) the technique of allowing illicit or suspect consignments of (...) drugs (...) or substances substituted for them, to pass out of, through or into the territory of one or more countries, with the knowledge and under the supervision of their competent authorities, with a view to identifying persons involved in the commission of offences." See http://www.unodc.org/pdf/convention_1988_en.pdf.

The potential applicability of multiple offenses to doping contributes to the ambiguous legal status of supply-side activities. As apparent in the NAS investigations and related criminal proceedings, the supply of doping products has been criminalized and punished in Italy with reference to various offenses, beyond that of doping. In our analysis of the supply of doping products, we refer to all these different applicable offenses as "doping-related" offenses and in chapter 7, we consider in detail the offenses that have been concretely charged.

In fully illegal markets, both parties in a transaction are usually aware of the illegal nature of the exchange, even if, as might occur in Italy, the drug user does not necessarily commit an offense if buying drugs solely for personal consumption. In the case of doping, one of the parties to a transaction involving doping products may be ignorant of any illegality or rule-breaking, reflecting the "embeddedness" of doping exchanges in legitimate social networks and professional activities. This is, for example, the case of a pharmacist who sells a doping product on the basis of a fraudulent or stolen prescription.

Thus, illegality cannot be presupposed, but must be ascertained empirically for each level of the distribution chain, country, product, and supplying activity; for the goals of each transaction; and for each party to the transaction.

In this study, we analyze the supply of doping products in Italy almost exclusively through the lens of the NAS investigations and criminal proceedings. In that way, we are focusing on the illegal "segment" of the markets for these products. However, the markets for most of the products under consideration are broader and also include a legal segment. For example, EPO is not primarily produced for doping purposes, but is a life-saving medicine for those affected by serious anemia and other pathologies. Although it is beyond the scope of the present study, it is crucial for policy-making purposes to ascertain not just the absolute size of the illegal segment of the market for each doping product, but to also ascertain the relative size of the illegal segment vis-à-vis the legal segment. Regarding the latter, one must ask the following: what share of worldwide production of EPO, GH, or any such product ends up being misused for doping purposes? And the answer will probably differ from product to product (see chapter 8).

2. DOPING PRODUCTS AND THEIR DEMAND

In this second chapter we provide context for the analysis of the supply of doping products, by considering the products available in Italy and by assessing, at least roughly, the demand. Despite the lack of specific historical or cross-country studies, we draw from the assumption that the use of doping substances and methods in Italy has followed the same broad lines of development known from studies in other countries. On the basis of NAS seizure data and anti-doping investigations we show that the entire palette of doping substances and methods is currently available on the Italian market. Exploiting the available data, we then estimate the size of the two main groups of users of doping products, athletes and body-builders, and demonstrate that a significant minority of the nearly 14 million Italians, aged 15 and older, who regularly engage in sports has consumed doping products at least occasionally, generating a market that is comparable to that of heroin.

Doping Substances and Methods Available in Italy

The substances seized by NAS between 1999 and 2009, as reported in the NAS Investigations Database, demonstrate that the Italian market encompasses the full range of doping substances and methods.

The NAS seizures data constitute the best available source of information concerning the doping substances that are available on the Italian market, but their analysis requires preliminary methodological attention. From NAS, we received a detailed list of all the substances seized, including, for about 90% of the cases, the number of pills, vials or ampoules contained in each package. To aggregate the seizures correctly and meaningfully, we have relied on the internal guidelines established by the NAS Headquarters in close cooperation with Donati (NAS, 2011) and used the "dose" as our unit of measure.

Doping Doses

The U.S. Drug and Enforcement Administration (DEA) was the first agency to introduce the concept of a dose to this arena, but—to our knowledge—the agency applies the concept without drawing distinctions between pills, ampoules and other packages of anabolic steroids,³⁹ regardless of the fact that, for example, ampoules of steroids and some corticosteroids usually contain four to ten times more of the active ingredient than a pill of

³⁹ This procedure was described by DEA officials to Donati during a symposium organized by WADA in 2007 to enhance cooperation in the fight against doping in sport. See http://www.wada-ama.org/en/News-Center/Articles/Symposium-calls-for-increased-co-operation-in-fight-against-doping-in-sport/

the same product.⁴⁰ The same problem also applies to stimulants and testosterone, which are available both in pills and ampoules. To properly account for these considerable differences, the NAS Headquarters and Donati defined the key term of "dose" as the quantity of active ingredients contained in a single administration, even if more than one dose is taken daily and then undertook a three-part effort to establish the dose of each of the different products, in which they:

- 1. Recorded the active ingredients of each product seized, regardless of the differences in packages (e.g., pills, ampoules, spray, etc.). Only by considering the active ingredient can drugs seized in different packages be meaningfully aggregated and different packages of the same substance compared.
- 2. Retrieved information on recommended doses from the pharmaceutical companies' instructions and/or specialized websites and from the websites of the Agenzia Italiana del Farmaco⁴¹ and Pagine Sanitarie.⁴² The latter website provides detailed information about the different drugs available on the Italian market to pharmacists, physicians, and the public.
- 3. Compared the official doses, e.g., those of the pharmaceutical companies, with the dosages revealed by different athletes or their suppliers in wiretapped conversations, seized documents, or in official questionings or known to Donati through his previous experience as coach of several national Italian teams in track and field and other sports (fencing, rowing, Alpine and Nordic skiing, volleyball, basketball, waterpolo, and equestrian sports) and CONI official.

Table 2.1 below summarizes the quantities of active ingredients that constitute a doping dose for the doping substances seized by NAS and listed in the NAS Investigations Database. The classification of doping substances corresponds to that made by WADA (2012c) in its Prohibited List. However, we exclude cannabinoids, a separate category in the WADA Prohibited List and cocaine, which is included in the category of stimulants, for both substantive and practical reasons. Whereas we will explain the substantive reasons in the following pages, the practical reasons are striking: no seizure of cannabis or cocaine is reported in the NAS Investigations Database.⁴³

⁴⁰ For example, a website offered both steroids in pills for 10-25 mg and ampoules for 100-250 mg. See http://www.steroid4u.eu/compra-iniettare-steroidi/winstrol-depot?language=lt. Accessed March 13, 2012.

⁴¹ See http://farmaco.agenziafarmaco.it/index.php.

⁴² See http://www.paginesanitarie.com.

⁴³ In the case of both "narcotics" and "hormones and metabolic modulators", we have adopted WADA designations, but we only refer to the sub-sets of substances that have been seized by NAS. The category "narcotics" thus exclusively consists of local anesthetics. As already mentioned, athletes hardly ever use systemic narcotics, such as heroin or morphine, and no seizure of such drugs is reported in the NAS Investigations Database. Within the second category of "hormones and metabolic modulators", we refer exclusively to anti-estrogens, the main products included into that category and the only product

Table 2.1 Doping doses for the main types of doping substances seized by NAS

| Doping substances | 1 dose |
|--|------------------|
| Anabolic agents | 10 mg |
| Peptide hormones, growth factors and related | |
| substances, of which | |
| - EPO and other similar peptide hormones | 200 IU or 1 mcg |
| - GH and other similar peptide hormones | 1 IU or 0.333 mg |
| - Chorionic gonadotrophin | 1,000 IU |
| - Gonadorelin | 1.2 mg |
| - Adrenocorticotrophic hormone (ACTH) | 0.25 mg |
| and other corticotrophins | 0.25 mg |
| - Insulin | 10 IU |
| Beta-2 agonists | 2 mcg |
| Hormones and metabolic modulators | 10 mg |
| Diuretics and other masking agents | 25 mg |
| Stimulants | 25 mg |
| Narcotics | 50 mg |
| Glucocorticosteroids | 25 mg |
| Beta-blockers | 5 mg |

Source: NAS Headquarters, 2012.

Given the purposes of the exercise, criminal justice sources and Donati's direct experience were given priority vis-à-vis the pharmaceutical indications. As a result, the doping doses established by the NAS Headquarters and Donati sometimes differ significantly from the doses advised by pharmaceutical companies (see also Parkinson and Evans, 2006; Swedish National Institute of Public Health, 2010: 44). In the case of steroids, testosterone or stimulants, in fact, doping athletes often exceed the official doses indicated by pharmaceutical companies and government bodies. The reverse is true in the case of EPO. The mean dose in renal failure patients on dialysis in Italy or Germany is 8,000 IU per patient and week.⁴⁴ As a matter of fact, the doping dose that the NAS Headquarters and Donati suggest for EPO is also considerably lower than the usual doping doses of, say, elite riders reported in the literature (up 700-1,000 IU two or three times a week; see Lundby, Robach, Saltin, 2011). The NAS Headquarters and Donati have specified the lower dose because Italian investigations (e.g., NAS Brescia, 2011) confirm the trends to "microdosing" highlighted by WADA (2010d) and the scholarly literature (Ashenden et al., 2011; Lundby, Robach, Saltin, 2012). Namely, doping athletes and particularly elite riders increasingly tend to fragment the dosage to avoid unnecessary shocks to their bodies and now often take 200 IU several times a day. Smaller EPO doses also have the advantage to

of that category for which positive tests were recorded in Italy. "Local anesthetics" and "anti-estrogens" were also the two labels used by CVD until 2008 (see Ministero del Lavoro, della Salute e delle Politiche Sociali, 2009).

⁴⁴ This figure was indicated by Prof. Wolfgang Jelkmann, an authority on EPO (personal communication, 2012).

look more natural and to be even more difficult to detect with anti-doping tests (NAS Firenze, 2000; Int-NAS-15 and 16).

NAS Seizures

Table 2.2 provides key data on the seizures reported in the NAS Investigations Database and presents the results of our calculations, made on the basis of the previous parameters. In the 11-year time frame covered by the database, NAS seized 7,176,780 packages of doping substances. Most of these packages belonged to one of 495 different packages of substances for which we had or could reconstruct precise information about the active ingredients they contained. For about 10% of the packages, though, we did not have enough information to determine the active ingredient contained in them. To include such packages in our estimates, we have calculated the average active ingredients contained in the packages seized of the same product (or classes of product) and assumed that the packages with no additional information contained the average doses. In such a way, we estimate that the substances seized by NAS between 1999 and 2009, as reported in the

| | Pills, ampoules | Active ingredients | No. of | % of total |
|--|-----------------|--------------------|--------------|------------|
| Type of substance | and other | seized (mg) | | |
| | packages seized | | aoping aoses | aoses |
| Anabolic agents | 3,531,232 | 745,476,230 | 74,547,623 | 83.16% |
| Peptide hormones, growth factors and related substances, of which: | 45,812 | Not comparable | 1,604,608 | 1.79% |
| - EPO and similar hormones | 12,430 | Not comparable | 626,335 | 0.70% |
| - GH and other growth factors | 20,482 | Not comparable | 928,335 | 1.04% |
| Related substances* | 12,900 | Not comparable | 49,938 | 0.06% |
| Beta-2 agonists | 640 | 9,780 | 4,890 | 0.01% |
| Hormones and metabolic modulators | 35,561 | 355,610 | 35,561 | 0.04% |
| Diuretics and other masking agents | 13,339 | 340,125 | 13,605 | 0.02% |
| Stimulants | 3,373,570 | 291,379,175 | 11,655,167 | 13.00% |
| Narcotics | 1 | 6,750 | 135 | 0.00% |
| Glucocorticosteroids | 130,802 | 4,549,125 | 181,965 | 0.20% |
| Beta-blockers | 11 | 55 | 11 | 0.00% |
| TOTAL | 7,176,780 | 1,042,116,850 | 88,043,565 | 100.00% |

Table 2.2 Substances seized by NAS between 1999 and 2009, as presented in the Database on NASInvestigations

Source: our calculations on the basis of the NAS Investigations Database.

*This category includes all other substances related to peptide hormones and growth factors, such as chorionic gonadotrophin, gonadorelin, adrenocorticotrophic hormone (ACTH) and other corticotrophins and insulin, which we had listed separately in Table 2.1.

database, correspond to 1,042 kg of active ingredients⁴⁵ and to 88 million doses. Thus, on average, each year, NAS seized 652,434 packages of doping substances, corresponding to 95 kg of active ingredients and to 8 million doping doses.⁴⁶

Given the focus of NAS investigations on body-building (see chapter 7), these seizure data tend to overestimate the share of anabolic steroids, which are typically consumed by body-builders. With almost 75 million doses, steroids account for 85% of the doses seized. On the other hand, NAS seizure data under-assess the relevance of peptide hormones, growth factors and related substances,⁴⁷ which constitute only 1.8% of the drugs seized because they are used by athletes of speed and endurance disciplines rather than body-building. Under this broad category, NAS seized 626,335 doses of EPO and 928,335 doses of GH, accounting respectively for 38.6% and 52.3% of the doses seized in that category. After steroids, the second largest category of substances seized involves stimulants, which account for 13% of all the doses. All other categories of doping substances account for small fractions of the doses intercepted.

The substances reported in the NAS Investigations Database are not the only doping substances that have been seized in Italy. Other law enforcement agencies have also seized doping substances over the years and the NAS itself has carried out a few seizures during the period 1999-2009 that are not included in the database and several others afterwards. We will discuss these data in more detail in chapter 6, when we try to assess the financial dimensions of the market. For the moment, we use seizure data merely to demonstrate the availability of all doping substances included in the WADA Prohibited List (2012c) in Italy.

As noted previously, anti-doping investigations also reveal the frequent administration of doping methods and particularly of autologous and heterologous transfusions. In addition to the criminal proceeding against Conconi and his staff, other, more recent closed and ongoing investigations indicate that transfusion remains a frequent practice among elite athletes of endurance disciplines and particularly cycling (e.g., NAS Firenze, 2005; Int-Pro-4). A recent investigation coordinated by the Mantua Prosecutor's Office has, for example, identified several specialized centers in Italy and abroad that are willing to carry out transfusions on elite riders, showing that the latter visit one or another center depending on their location (NAS Brescia, 2011).

⁴⁵ This sum does not include the active ingredients of peptide hormones, because they are not comparable to each other and to the other doping substances.

⁴⁶ It must be taken into account, however, that NAS conducted only a handful of anti-doping investigations and seizure before the year 2000 and the adoption of a specific anti-doping law, while some of the earlier investigations, e.g., that concerning Prof. Conconi, are not inserted in the database.

⁴⁷ This is a complex category that, as noted in Table 2.1, includes various types of EPO, GH and other growth factors, such as insulin-like Growth Factor-1 (IGF-1), chorionic gonadotrophin, gonadorelin, adrenocorticotrophic hormone (ACTH) and other corticotrophins and insulin; see WADA (2012c).

Harmful Consequences of Doping Products

Albeit inadvertently, Italy' anti-doping investigations also persuasively indicate the harmfulness of the use of doping products. Our sources indicate that several key investigations originated from the suspicious death of a young athlete or body-builder. The large "Oil for Drug" investigation conducted by the Florence NAS Branch Office on behalf of the Rome Prosecutor's Office, for example, drew from the death of a recreational rider who was suspected of using stimulants and had a heart attack while training at the periphery of Rome (NAS Firenze, 2005). The investigation, known as "Flebo," of the Padova Branch Office took off when another young rider was admitted to a nearby hospital, after he fainted during an analogous transfusion carried out by the sports director of a cycling team known in the cycling world as "the wizard" (NAS Padova, 2009). The Rome Carabinieri launched another large-scale investigation after the death of a female competitive bodybuilder in 2004. She died in her sleep as a result of a brain aneurism, provoked by her abuse of anabolic steroids. Initially, her fiancé and manager was convicted and sentenced to a six-year prison sentence for the abusive exercise of a profession and the administration of dangerous drugs (article 348 and 445 CP); however, the verdict was subsequently canceled by the appeals court because of the territorial incompetence of the Rome first-degree court and the whole proceeding was annulled because the statute of limitations had run out in the case (Gazzetta di Modena, 2012).

Several interview partners at NAS also reports smaller investigations concerning the suspicious deaths of body-builders. Since 1997, at least five body-builders are known to have died of sudden heart failure solely in the regions of Emilia Romagna and Tuscany (Int-NAS-2, 3, 5, 6, 8 and 23). At least two other cases of body-builders' suspicious deaths were reported by Cagliari and Rome Branch Offices. The NAS officers, however, also report that many doping-related deaths go undetected. According to our interviewees, most emergency room admissions or sudden deaths that could be associated with abuse of steroids are not reported by the hospitals to NAS or other law enforcement agencies (Int-NAS-16 and 24).

Several other cases of sudden cardiac death of Italian body-builders (Camoni et al., 1997; Fineschi et al, 2007) are also reported in the scientific literature and, albeit with less degree of certainty, in the Italian media as a consequence of steroid use.⁴⁸

⁴⁸ See http://radiomosaici.blogspot.com/2010/03/palermo-culturista-muore-in-palestra.html; http://www.ivg.it/2010/01/morte-culturista-dopo-incidente-si-attende-referto-su-autopsia/; http://nlnl.facebook.com/note.php?note_id=374070606228; http://qn.quotidiano.net/1999/08/11/149085-Morto-un-culturista-anabolizzanti-sul-tavolo-.shtml; http://qn.quotidiano.net/1999/08/11/149085-Morto-un-culturista-anabolizzanti-sul-tavolo-.shtml;

http://archiviostorico.corriere.it/2004/dicembre/23/Doping_blitz_nelle_palestre_ucciso_co_9_041223 052.shtml; http://www.bodyweb.com/forums/threads/139057-culturista-24enne-morto-nelbergamasco; http://www.chimica-oggi.it/archives/0002902.html;

Risks are obviously not related only to steroids. A professional rider, who decided to become a witness after the 2001 raids at the Giro d'Italia, describes the spread of very dangerous doping habits in the world of professional cycling:

The first time I tried to make myself an injection on my bottom, I pricked myself eight times. Then it became a habit, a fantastic habit. All of a sudden, the bike starts going by itself, you no longer feel fatigue. I took EPO, GH, Sinacten,⁴⁹ Depo [i.e., Depo-Medrol, a powerful corticosteroid]. Whatever came into my hands ... We did not ask ourselves questions. The important thing was to go faster and faster. There is a well-known drug called Igf3 [insulin-like growth factor 3]. On the instructions it is written: "not for human use." We thought: "Wau, if it is good for horses, you can imagine what its effect on us will be." We read newspapers to remain updated about new drugs; when we read that a big champion had been caught with Actovegin,⁵⁰ we ran to buy it as well, in Chiasso [Switzerland], there was not even an ampule left. ... [To avoid controls] we slept with Emagel on the bedside table, it lowers the [blood] levels, or we shoot half a liter of physiological solution to dilute our blood. At the end of a competition we immediately took Andriol [testosterone undecanoate], which tests positive for seven days, but the following Sunday we were already clean ... A day I risked dying for an injection that did not function well, I was even admitted to the hospital in Milan ... (Fazzo and Mensurati, 2002b).

Body-builders and athletes may suffer harm not only as a direct consequence of the use of doping substances but also because of the misuse of illegal and additional drugs that may accompany doping (often cocaine and alcohol, as in the case of the Belgian 2005 world champion of cycling, Tom Boonen, who tested positive twice for cocaine; see BBC, 2009), hazardous injection techniques (e.g., Baker et al, 2006) and, in the case of elite athletes, the depressions that follow the abrupt, doping-related end of their sports careers). Exemplary of the latter problems is the life-history of Marco Pantani, who won both the Tour de France and the Giro d'Italia in 1998 and was considered one of the best climbers in road bicycle racing. Despite the fact that Pantani never tested positive, his career was beset by doping allegations. In the 1999 Giro d'Italia, he was expelled due to his irregular blood values. Although he was disqualified for "health reasons", it was implied that Pantani's high hematocrit was the product of EPO use. Following later accusations and

http://www.vivisicilia.com/index.php?option=com_content&view=article&id=1421%3Apalermo-culturista-muore-dopo-gli-allenamenti&catid=1%3Aultime&Itemid=2.

⁴⁹ Synacthen®, the brand name of tetracosactide is a synthetic analogue of the naturally occurring adrenocorticotrophic hormone (ACTH). Whereas Synacthen should be used for diagnostic purposes only, some professional cyclists also take it for prohibited performance-enhancing purposes.

⁵⁰ Actovegin® is a highly filtered extract obtained from calf blood that enhances aerobic oxidation in mammals. This improves absorption of glucose and oxygen uptake in tissue, which may enhance physical performance and stamina (see Pacifici and Donati, 2011: 54 and 55 and Maillo, 2008).

more frequent doping tests of Pantani, this went into a depression from which he never fully recovered. He died of acute cocaine poisoning in 2004 (Jones and Maloney, 2004).

Altering the users' mood, steroids may not only cause harm to the users but also to others. In 2009, for example, a former competitive body-builder, who suffered from depression (a frequent consequence of steroids use) stabbed his wife to death. When he later turned himself in to the police, he admitted that he could not remember what he had done (*Corriere della Sera*, 2009).⁵¹

Italy's Sportsmen and Sportswomen and the Groups at Risk of Doping

According to a 2006 Istat population survey, in Italy there are over 13,780,000 "adults," defined for our purposes as individuals aged 15 or older, who participate regularly or occasionally in one or more sports, corresponding to 27% of Italy's population of the same age (Istat, 2007: 3). Of the nearly 14 million adult sportspeople in Italy, about 3,090,000 take part in official competitions and about 1,600,000 in unofficial competitions, for a total of almost 4,690,000 adult sportspeople (ibid.: 14). Although we do not include them in our market assessment, the Istat data indicate that 3,460,000 Italian youths, ages 3-14, also participate in sports regularly or occasionally, of which 1,590,000 engage competitively, suggesting that the total number of competitive sportsmen, sportswomen, and young people might amount to almost 6,280,000 (ibid.: 3 and 14). ⁵²

In scoping the market for doping products, we regard the 4,690,000 adults who compete in sports as Italy's "athletes." Among them, as noted previously, we distinguish between "elite" athletes, on the one hand, and "recreational" athletes, on the other, even though we are aware of the fact that there is continuity and even two-way flow between the two groups. Consistent with the scientific and non-scientific literature, we regard elite athletes to be at a higher risk of doping than recreational athletes, because elite athletes devote greater time, energy, and personal commitment to sports and typically experience more competitive pressures than do recreational athletes. Within the category of non-competitive sportsmen and sportswomen—again on the basis of the literature—we single out gym visitors, and specifically body-builders, as groups that are also at high risk of doping.

⁵¹ In a WADA Foundation Board meeting, Mathieu Holz, an Interpol officer specialized in antidoping investigations reported data of the Swedish police, according to which, in 25% of cases of domestic violence, the husband was on steroids (WADA, 2010e).

⁵² As addressed in chapter 1, we do not include youths in our calculations for reasons of data consistency and because we do not believe them to be as heavily involved in doping as their adult counterparts; however, we acknowledge that some may be doping already or at high risk of future doping (see DuRant et al. 1994 and the findings of literature review carried out by Backhouse et al. 2007: 47). Note that pre-adolescent and adolescent Italians, ages 11-14, constitute about 1,480,000 and 780,000 of the total and competitive youth figures, respectively, and would be more likely to engage in doping than children ages 3-10 (Istat, 2007: 3 and 14).

Members of Sports Federations, Associated Disciplines and Enti di Promozione Sportiva

As of 2008, 4,186,752 people of all ages, here the data do not allow an age-based distinction, were enrolled in at least one of the 45 National Sports Federations (4,002,040) or in one of the 16 Associated Disciplines (184.712) recognized by CONI (2008: 6 and 9). Three team sports—football (27%), basketball and volleyball (8% each)—account for 43% of this group (ibid: 10).

In Italy, membership in a sports federation, associated discipline or one of the 15 Enti di promozione sportiva (see below) is regarded as the discriminating criterion to distinguish the pool of athletes who (are supposed to) take part in competitions from the mere casual and non-competitive sportspeople. The Enti are associations intended to promote sports in different social contexts, for example, among university students; some of them were originally linked to a political party or union, although they have now become largely autonomous.⁵³ The members of these three sets of sporting organizations are also targeted by CONI and CVD for the anti-doping tests. While we have exact data on the athletes enrolled in sports federation and associated disciplines, there are only partial data on the Enti membership—and therefore it is impossible to estimate the entire pool of athletes on the basis of this criterion. In fact, only 8 of the 13 Enti publish the number of their associated athletes or members (see table 2.3).

Moreover, not all Enti are equally involved in competitions; some speak of members rather than athletes and report only approximate numbers, suggesting that only a minority of their members take part in competitions; the athletes of some associations at least partially overlap with those enrolled in a sports federation or an associated discipline; and, even in the cases of Enti publishing good data, only an undetermined fraction of their "athletes" really takes part in races. Given all these caveats, knowing as we do that 5,439,252 people are enrolled in Enti is not particularly helpful. We note, however, that if we assumed that only half of the known Enti members (i.e., 2,709,626 people) take part in competitions without being also enrolled in a sports federation or associated discipline and add them to the over 4 million who are enrolled in a sports federation or associated discipline and action, we would reach the figure of 6,906,378—a figure rather close to the 6,280,000 competitive sportsmen, sportswomen, and youths found in the Istat data. ⁵⁴ Rather than

⁵³ For example, Centro Sportivo Italiano (CSI) was once linked to the Christian Democracy Party and the Italian Bishop Conference (CEI), the Unione Italiana Sport per Tutti (UISP) was originally linked to the Italian Communist Party, and the Unione Sportiva ACLI (US ACLI) was originally linked to the Catholic unions.

⁵⁴ A different estimation procedure has been suggested by Alfredo Cucciniello, who was for many years the coordinator of all the Enti. According to him, the real number of Enti members is approximately 6,100,000 units, of which 4,100,000 of them effectively engage in sports. About 40% (i.e., 1,640,000) of the actively engaged group is also associated with a sports federation or associated discipline and therefore need to be excluded from the calculation because otherwise we would count them twice. The remaining 60% (i.e., 2,460,000 athletes) is only associated with an Ente. According to Cucciniello, about 10% of the sports federation members rarely takes part in competitions or stops

trying to estimate the overall number of athletes through the membership in a sports federation, associated discipline or Ente, we work with the more robust Istat data.

| | Number of members |
|--|-------------------|
| Associazione di cultura, sport e tempo libero (ACSI) | n.a. |
| Alleanza Sportiva Italiana (ASI) | 150,000 |
| Attività Sportive Confederate (ASC) | n.a. |
| Centro Nazionale Sportivo Libertas (CNS Libertas) | 861,567 |
| Centro Sportivo Educativo Nazionale (CSEN) | 820,000 |
| Centro Universitario Sportivo Italiano (CUSI) | n.a. |
| Movimento Sportivo Popolare Italia (MSP Italia) | 503,896 |
| Unione Sportiva ACLI (US ACLI) | 600,000 |
| Associazione Italiana Cultura Sport (AICS) | n.a. |
| Centri Sportivi Aziendali Industriali (CSAIN) | n.a. |
| Centro Sportivo Italiano (CSI) | 953,789 |
| Ente Nazionale Democratico di Azione Sociale (ENDAS) | 300,000 |
| Polisportive Giovanili Salesiane (PGS) | n.a. |
| Organizzazione Per l'Educazione allo Sport (OPES) | n.a. |
| Unione Italiana Sport Per tutti (UISP) | 1,250,000 |
| Total | 5,439,252 |

Table 2.3 Sportspeople enrolled in the 15 Enti di Promozione Sportiva

Source: our calculations on the basis of the data retrieved from the Enti websites.⁵⁵

taking part in them during a given year. Therefore, only 3,750,000 out of the 4,186,752 sportspeople officially enrolled in a sports federation or associated discipline effectively take part in competition. By adding the former figure to the 2,460,000 Enti athletes, we reach an estimate of 6,210,000 athletes, which is very close to the 6,280,000 athletes aged 3 and older estimated by Istat.

⁵⁵ The data were collected from the following websites: Associazione di cultura sport e tempo libero (ACSI) at http://www.acsi.it/; Alleanza sportiva italiana (ASI) at http://www.alleanzasportiva.it/web/asi/i-numeri; Attività sportive confederate (ASC) at http://www.ascsport.org/; Centro nazionale sportivo Libertas (CNS Libertas) at http://www.cnsl-libertas.it/; Centro Sportivo Educativo Nazionale (CSEN) at http://www.csen.it/; Centro universitario sportivo italiano (CUSI) at http://www.cusi.it/home.aspx/; Movimento Sportivo Popolare Italia (MSP Italia) at http://www.mspitalia.it/; Unione Sportiva ACLI (US ACLI) at http://www.usacli.org/chi-siamo; Associazione italiana cultura e sport (AICS) at http://www.aics.info/; Centri sportivi aziendali industriali (CSAIN) at http://www.csain.it/; Centro Sportivo Italiano (CSI) at http://www.csinet.it/numeri?PHPSESSID=7ca6a107b53b36977d83c26e38d82cc0; Ente Nazionale Democratico di Azione Sociale (ENDAS) at http://www.endas.it/htm/ita/home.html/; Polisportive giovanili salesiane (PGS) at http://www.pgsitalia.org/index.asp; Organizzazione per l'educazione allo sport (OPES) at http://www.opesitalia.it/; and Unione Italiana Sport Per tutti (UISP) at http://www.uisp.it/nazionale/index.php?idArea=163&contentId=453.

Elite Athletes

There are no official data on the number of the elite athletes in Italy and it is difficult to develop an estimate because elite athletes merely represent an upper tier of a much wider pool of would-be or former elite athletes who would like to participate in national or international competitions. The borders between the elite, would-be-elite and former elite are fluid and blurred. Athletes rise or fall in the official ranks and therefore can be included in, or excluded from, national and international competitions; some retire, while others emerge; they may or may not be allowed by their federations to take part in some competitions or may be supplemented by foreign athletes who play for Italian clubs. In the wider pool of elite athletes, we can more easily identify the uppermost or "super" elite; that is, those who participate or have very good chances of participating in international competitions and are therefore most likely to be targeted by CONI's anti-doping tests. While a secretary of the CONI's Scientific Commission, a member of our project team (Donati) was responsible for identifying the-de facto "super"-elite athletes to be targeted by the CONI's anti-doping tests. Relying on the same criteria that were then (and are still) used by CONI (Int-Oth-2), we estimate that the total number of super elite athletes in Italy participating or likely to participate in international competitions is about 10,000 people, most but certainly not all of whom are likely to be "adults" as defined above (see table 2.4).

| ٠ | Members of the male football teams playing in the first and second leagues (serie | 1,800 |
|----|---|--------|
| | A and B) and the members of the female football teams playing in the first league | |
| ٠ | Members of the first- and second-league male and female volleyball teams | 1,600 |
| ٠ | Members of the first- and second-league male basketball teams and members of | 1,400 |
| | the first-league female basketball teams | |
| ٠ | Members of the first-league male and female waterpolo teams | 600 |
| ٠ | Members of the first-league male and female hockey teams | 600 |
| ٠ | Members of the first-league rugby male teams | 400 |
| ٠ | 10-15 best male and female athletes playing individual sports and specifically: | 0 |
| | Cycling (including professionals and under 23 athletes) | 600 |
| | - Swimming | 500 |
| | - Track and field | 500 |
| | - Winter sports | 400 |
| | - Rowing | 200 |
| | - Canoe/Kayak | 200 |
| | - Ice Skating | 100 |
| | - Weightlifting | 100 |
| ٠ | Combat sports | |
| ٠ | Other sports | 1,000 |
| То | tal | 10,200 |

Table 2.4 Estimate of the "super" elite athletes active in Italy – 2011-12⁵⁶

Source: our own estimates based on Donati's personal experience.

⁵⁶ The estimate of super elite athletes corresponds to the number of athletes considered eligible by CONI for its anti-doping tests. It is an approximate estimate, as CONI controls are sometimes extented to minor leagues or to teams and athletes ranked after the first 15.

Even if the super elite athletes represent only a minute share of the 6.2 million athletes, they are those most under pressure to use doping products. Moreover, they play a crucial role in the market for doping products for at least three other reasons.

- 1. With their illegal behavior, even if it is only suspected or if it is not consistently sanctioned by either sports law bodies or criminal justice agencies, they constitute negative role models for the millions of other elite, would-be elite, and recreational athletes and occasional sportspeople. Almost paradoxically, the doping super elite athletes who are left unscathed may be particularly harmful, because their experience suggests that great sports successes can be achieved by cheating and with impunity.
- 2. Super elite athletes significantly contribute to the economic "success" of some suppliers of doping products, in particular, a few prominent physicians and pharmacists. As some NAS investigations show, these suppliers build up a "reputation" by treating famous super elite athletes and then "monetize" this reputation, by selling their services or drugs to a larger number of lower-level sportsmen and -women (NAS Firenze, 2005; Int-Pro-4). An ongoing investigation focuses on a famous sports physician, who has been linked since the late 1990s to several champions of different sports disciplines and who more recently also "treated" a wide clientele of recreational athletes (Int-Pro-6).
- 3. Several super elite athletes have gone on to become coaches or officials of sporting organizations and, therefore, if they were able to enhance their performances with doping products and avoid harm or detection, they are likely to socialize future generations of promising athletes to such illegal practices, thus perpetuating a vicious circle.⁵⁷

Our sources provide a number of examples of known super elite athletes who failed drug tests or were involved in anti-doping criminal investigations during their active sports careers and later became coaches or sports body officials. Manuela Di Centa, a cross country skier who won several Olympic medals, for example, was one of the thirty-three professional athletes explicitly mentioned in the 2005 verdict of the Tribunale di Ferrara and indicated to have been treated with EPO by Conconi and his staff (see also Capodacqua, 2003). Like the other 32 athletes, Di Centa was not charged with doping because the facts addressed in the Conconi proceeding ante-dated the adoption of Italy's anti-doping law. Despite proof of what would have been illegal doping practices under

⁵⁷ In 2011 the UCI Management Committee approved the introduction of a new article in the regulations aiming to prevent anyone found guilty of an anti-doping violation during his cycling career from obtaining a license authorizing him to take on a role in cycling as a member of a team's staff. However, the measure is not applied retroactively. Therefore, the new rule does not affect numerous current managers, such as Bjarne Riis, who admitted to doping during his active sporting career, including 1996 Tour de France victory, and now runs an elite cycling team (*Telegraph*, 2011 and *Velonews.com*, 2011).

current standards, Di Centa became CONI Vice-President and a member of the IOC (Moresco, 2005). The case of the football player and manager, Josep Guardiola, is even more recent. In 2001, Guardiola tested positively twice to nandrolone, while he was playing for Brescia football team (Capodacqua, 2002a). Consequently, he was suspended by the Italian Football Federation (FIGC) and convicted by a first-degree court in Brescia. After retiring as a player, Guardiola became the team manager of Barcelona FC, leading the team to win the Spanish League, Spanish Cup and Champion League in his first season and numerous other prestigious trophies afterwards.⁵⁸ Seven years after the positive tests, in 2009 Guardiola was able to question the procedure used by the Rome anti-doping lab in analyzing his samples and to obtain the reversal of the verdicts issued by the FIGC and the Brescia first-degree court (Int-NAS-9). In early 2012 Guardiola received the FIFA World Coach of the Year for Men's Football award.⁵⁹

Last but not least, many super elite athletes—with the exception of two or three thousand professional athletes in football, basketball, volleyball and cycling—are dependent on government funding for their sports careers. Therefore, the athletes themselves, their coaches, and the officials of sports federations are under a particular obligation to make sure that taxpayers' money is not spent on doping practices that violate the laws of the funding government.

The super elite athletes represent only the very top-most segment of a much wider pool of elite athletes who take part in national competitions. These include, for example, in football, the players of Serie C (Italy's third league) and the first and second category and in other sports such as track and field or swimming, elite athletes of different age groups who take part in national competitions but are excluded for different reasons from the international ones. Among them, there are the best athletes of the younger age groups who still take place in lower-level (national) competitions than the adult elite athletes but are considering promising as well as older athletes who have passed their best performing age or started late their sporting activities but still want to, and can, compete at a national level.⁶⁰ The ratio between super elite and other elite athletes may be 1:30 or 1:50, but, having no means of precisely estimating the overall number of elite athletes, we cannot precisely establish the ratio between them.

It is important to stress, though, that many non-super elite athletes as well as the even broader range of would-be elite athletes train all day, every day and devote a

⁵⁸ For details, see http://www.fcbarcelona.com/football/first-team/staff/coaches/guardiola/biography

⁵⁹ See http://www.fifa.com/ballondor/media/newsid=1565969/index.html

⁶⁰ For example, the Italian Athletics Federation, which includes the track and field disciplines, recognizes the following categories of competitive athletes and organizes national competitions for each of them: ragazzi (age group 12-13); cadetti (age group 14-15); allievi (age group 16-17), juniores (age group 18-19), promesse (age group 20-22), seniors (23 and older), amatori (age group 23-34) and masters (35 and older; see FIDAL, 2012).

considerable amount of energy and personal commitment to sports. Thus, they should also be considered at high risk of doping.

Recreational Athletes

Even if we have no means to precisely estimate the number of elite athletes, there is no doubt that recreational athletes constitute the bulk of the almost 6,280,000 athletes of all ages and the 4,690,000 adult athletes that we identified earlier (Istat, 2007: 3 and 14). With the exception of the would-be elite athletes among them, most recreational athletes are less committed to sports than elite athletes and are therefore less at risk of doping. However, given their sheer numbers, they are likely to constitute a very large share of the demand for doping products.

Despite the lack of reliable longitudinal data, we hypothesize, on the basis of the scientific literature (see chapter 1) and a few NAS investigations, most notably "Oil for Drug" (NAS Firenze, 2005), that the recreational athletes' demand for doping products has grown steadily from very low levels since the 1970s as a consequence of the broader range of drugs and changes in sports and society. In turn, this growth has led to a significant expansion of the market for doping products and, therefore, also an increase in the recreational athletes' market share. Probably until 2000, the demand for doping products largely consisted of two separate segments: elite and would-be elite athletes, on the one hand, and body-builders, on the other. The sports successes of elite athletes suspected of or proven to be using prohibited performance-enhancing products and even the scandals and police investigations involving some of them, such as Pantani, have fostered the demand for and consumption of doping products also among the masses of recreational athletes. As we will describe in more detail in chapter 3, the investigation "Oil for Drug" (NAS Firenze, 2005) and the investigation concerning Dr. Michele Ferrari (Tribunale di Bologna, 2004; Int-Pro-4; MacMichael, 2011) document that several physicians have built up a "doping" reputation by treating a few super elite and elite athletes, but then gone on to make the bulk of their earnings by selling their services to a much larger number of unknown recreational athletes.

Body-Builders

In addition to elite athletes, the other group of sportsmen and sportswomen most at risk of doping practices are body-builders, as is well-known from the literature (see chapter 1). In Italy, there are no official figures concerning this group of sportspeople who usually attend gyms and, with few exceptions, do not belong to an official sports federation recognized by CONI or take part in competitions. In order to estimate its dimensions, we can rely on the results of a survey of the gyms of the regions Apulia, Emilia Romagna, Latium, Trentino Alto Adige and Veneto, which was conducted in 2007 by the Ministries of Sports and Social Solidarity. The two ministries collected data from the Camera di Commercio (Chamber of Commerce), Confartigianato and three main Enti di promozione sportiva (CSI, ACLI e UISP).

(Many gyms are enrolled in an Ente in order to obtain a more favorable tax regime.) The study identified about 1,350 gyms with at least one room fully devoted to body-building equipment or machines and estimated the number of sportsmen and sportswomen attending these gyms as approximately 423,000 people (Ministero dello Sport and Ministero della Solidarietà Sociale, 2008). As the five above-mentioned regions account for about 33% of the Italian population,⁶¹ we can estimate that there are 4,050 gyms with at least one room for body-building machines in the whole of Italy serving almost 1,270,000 potential body-builders. We refer to them as "potential" body-builders, because some or even many individuals may frequent gyms with rooms dedicated to body-building machines or equipment without being, themselves, body-builders. In this subset of gym patrons, there are also a considerable number of athletes especially those, such as weightlifters, discus and hammer throwers, and rugby players who visit gyms to increase their muscle mass and strengths. In other words, despite the formal separateness between athletes and body-builders, gyms often become a meeting point for different groups at high risk of doping who exchange advice on training methods, diets and, last but not least, doping products. They are also a venue where athletes and body-builders meet other sportspeople and the former two groups may become a model or a source of advice on doping and other matters for the latter.

The Results of Anti-Doping Tests

Italy's Anti-Doping Commission (CVD) and the Italian National Olympic Committee (CONI) are jointly responsible for conducting anti-doping tests in Italy, with CONI effectively sharing its competence with the Italian sports federations and, at least in principle, with the WADA and the international sports federations.⁶² An agreement signed in October 2007 by the then Minister of Health, the Minister of Youth Policies and Sports, and the CONI President formalized an official division of labor that had taken shape since CVD's establishment in 2000. In the cited agreement, the three parties "agreed … to regard the national and international competitive sports activities as the prevalent object of CONI's anti-doping activities." At the same time, the agreement restricted CVD's competencies to recreational athletes. The parties to the agreement also "agree[d] to consider the non-competitive activities and the competitive activities having no national relevance as the prevalent object of the anti-doping activities of the Commission" (Ministero della Salute, 2007). According to some observers, including Bellotti (2009) the former head of the CONI Scientific Commission and a former member of the CVD, the 2007 agreement overrules the

⁶¹ In total, 20,226,933 out of 60,626,442 residents in Italy. See http://www.comuniitaliani.it/regioni.html.

⁶² Due to funding constraints, WADA tests, on average, only seven or eight athletes per day all over the world and therefore the chance that an Italian elite athlete is targeted by a WADA control is very small. As a rule, international sports federations carry out most testing during the most important sports competitions, such as World Championships (Int-Oth-2).

Italian anti-doping law, Act 376/2000 (see chapter 7). Neither authority routinely tests youths, although, given cause, one or the other may do so in a specific case (Int-Oth-2).

CONI's Tests of Elite Athletes

As formalized in the 2007 agreement, CONI and the national sports federations target only elite athletes with their anti-doping tests. CONI oversees the data collection on all such tests carried out in Italy but has not published the data for 2006 and since 2008 (see CONI, 2012).⁶³ As shown in table 2.5, CONI and the national sports federations carried out an average of about 9,400 anti-doping tests over the past five years for which data are available (2002-2005 and 2006), thus potentially reaching many or most of the elite athletes in Italy at least once each year.⁶⁴ However, the rate of positive test results is only about 0.63% on average with very little variation after 2002. On average, about 59 elite athletes fail a drug test each year.

| Table 2.5 Anti-doping tests carried out in Italy by | CONI and the National | Sports Federations – Years |
|---|-----------------------|----------------------------|
| 2002-2005 and 2007 | | |

| | 2002* | 2003 | 2004 | 2005 | 2007 | Average | | |
|------------------------|-------|-------|-------|-------|--------|---------|--|--|
| Total tests | 7,823 | 9,431 | 9,950 | 8,791 | 11,154 | 9,430 | | |
| Positive results | 48 | 62 | 65 | 52 | 69 | 59 | | |
| Percent of positive | | | | | | | | |
| results on total tests | 0.61 | 0.66 | 0.65 | 0.59 | 0.62 | 0.63 | | |
| C | | | | | | | | |

*Source: our calculations on CONI, 2012*⁶³.

*Tests analyzed, not carried out.

Among the elite athletes that have tested positive, some are well known in Italian sports. To give just an example, ten professional football players in addition to Guardiola — including Edgar Davids, who was then a Juventus midfield, Fernando Couto, then a Lazio stopper, Francois Gillet, gatekeeper at Bari and several other less known players—tested positive to nandrolone in 2001, the year in which the official anti-doping laboratory in Rome started to operate again after the three-month suspension resulting from the scandal mentioned in the introduction (*Repubblica*, 2002). They players were suspended by the Italian football authorities (*Telegraph*, 2001). At least Davids, Couto and Gillet were also convicted by a regular court for the offense of doping foreseen by article 9 of Act. 376/2000 (*Repubblica*, 2005).

⁶³ The Rome Anti-Doping Laboratory, which carries out the tests on behalf of both CONI and CVD, does submit the results of its tests to WADA, which then publishes them in an annual report (e.g., WADA, 2011a). However, these data are not helpful to determine the number of positive results in CONI's tests because WADA merely reports "analytical adverse findings" and, as WADA itself notes (2011a: 1), these "may not be identical to sanctioned cases, as the figures … may contain findings that underwent the Therapeutic Use Exemption (TUE) approval process."

⁶⁴ See http://www.coni.it/index.php?dati_statistici.

⁶⁵ For further details, see http://www.coni.it/index.php?dati_statistici.

Judging by CONI's positive tests, one might conclude that the problem of doping hardly exists in Italy. CONI's data can be complemented with results of the anti-doping criminal investigations carried out by NAS and other police forces. With few exceptions, the elite athletes involved in these investigations did not test positive for doping products. At least 100 different riders, for example, have been involved collectively over the years in some of the largest anti-doping investigations, such as the proceeding against Prof. Conconi (20 or more riders; see Tribunale di Ferrara, 2005); the "Campioni senza valore" proceeding run by the Bologna Prosecutor's Office (another 20 or more riders; Tribunale di Bologna, 2000); the so-called "Oil for drug" case coordinated by the Rome Prosecutor's Office (another 30 or more riders; NAS Firenze, 2005); and the recent investigation in Mantua concerning a local pharmacist (another 40 or more riders; see NAS Brescia, 2011 and Pacifici and Donati, 2011), with several others implicated in smaller cases (e.g., NAS Firenze, 2002). At least 50 other elite athletes of different disciplines have also been suspected of illegal doping practices in the investigations conducted by NAS.

The abuse of legitimate drugs and the extensive use of doping substances were also documented by the charges pressed by Dr. Guariniello from the Turin Prosecutor's Office against Antonio Giraudo and Dr. Riccardo Agricola, respectively the manager and the chief sports physician of the Juventus football club. According to Guariniello, "the drugs seized from the Juventus' inventory would have been sufficient to supply an entire town" (Hartmann, 2003). The prosecutor's charges were confirmed by a 2007 verdict of the Corte di Cassazione (2007 and Travaglio, 2007; see chapter 3). No negative consequences were drawn from this verdict by the Italian sports authorities. However, if the Juventus team manager and chief physician were found guilty by the Court of Cassation of sporting fraud for purchasing and administering illegal performance-enhancing substances, such as corticosteroids, the logical implication of the Corte di Cassazione's verdict is that some if not all the Juventus players were administered illegal performance-enhancing substances. Moreover, the Corte di Cassazione (2007) concluded that the two defendants committed the same offense of sporting fraud when they administered legal drugs not included in the list of banned performance-enhancing substances, if these are used off-label, i.e., for purposes different than those officially foreseen. These practices seem to be widespread in the elite football world, as reported by the judge who wrote the first degree verdict in the Juventus case: "up to the end of the trial the defense lawyer repeatedly argued that Agricola's behaviors were enormously widespread in the sports world and that in practice all physicians of professional football teams behaved in the same way" (Tribunale di Torino, 2004:46).

Rather than reflecting the above-average "cleanness" of Italian elite athletes, the low percentage of positive samples in CONI's anti-doping tests might testify to the difficulty of detecting doping substances and methods in urine samples, the testing method used almost exclusively. CONI's rate of positive tests or "detection" is further hampered by fact that CONI conducts few out-of-competition, hence, genuinely surprise, tests (Int-Oth-1). Already in 2002, the Council of Europe team that evaluated Italian anti-doping policies came to the conclusion that "the proportion of out-of-competition controls provided for by the [1989 Council of Europe] Convention ... as being the most effective appears rather low. Moreover, advance warning of these controls seems in actual fact to be quite lengthy (at least 24 hours), which means that they cannot be regarded as unannounced controls within the meaning of the Convention" (Evaluation Team, 2002: 34). Judging on the basis of the data available and the opinion of some respondents with detailed knowledge of these issues (int-Oth-2 and Int-NAS-26), we conclude that the problems noted by the Council of Europe evaluation team in 2002 do not yet seem to have been solved.

CVD's Tests of Recreational Athletes

Although the recreational athletes overseen by CVD might be expected to have less interest in taking performance-enhancing drugs than the elite athletes targeted by CONI,

CVD has been considerably more effective than CONI with its doping tests.⁶⁶ CVD has been testing recreational athletes since 2003 and, as shown in table 2.6, between 2003 and 2011, CVD carried out on average 1,365 tests each year, about one seventh of the tests conducted yearly by CONI. With 3.4% positive tests on average, CVD has a five-time higher positive rate than CONI. Moreover, since 2008 the effectiveness of CVD's tests has considerably improved, with 3.8% positive tests on average, six times higher than CONI's average rate. In two recent years, 2008 and 2010, the rate of positive tests exceeded 4% (with a record 4.8% in 2010), but the number of tests was below average (there were 26% less tests in 2010 than in 2006).

A lack of financial means constrains CVD's, more so than CONI's, ability to conduct tests out-of-competition. However, given the more than 4 million people within CVD's jurisdiction and the seemingly countless number of recreational sports competitions, CVD's tests represent in most cases a surprise for the selected athletes. A crucial factor in improving the CVD's testing performance was also the fact that for the period 2009-10 its tests were coordinated by Dr. Pasquale Bellotti, a sports physician and sports teacher and former head of the CONI Scientific Commission, who has an in-depth knowledge of different disciplines and training methods and who could therefore more effectively select the dates and events to control (see chapter 6). Throughout the years, many more male athletes have tested positive than their female counterparts: in 2011, for example, the rates were 84.6% versus 15.4%, and the ratio is not significantly different in the previous years (Ministero della Salute and Istituto Superiore di Sanità, 2012: 11). Older athletes tend also to dope more frequently than younger ones. As shown in table 2.7, the age classes older than 30 consistently record higher rates of positive tests than the younger age classes and, in three out of the four-year period 2008-2011, the category of over 44-year-olds

⁶⁶ The CVD's controls are representatives for geographic areas and sports disciplines, considering also the number of sportsmen and sportswomen practicing the different disciplines (Ministero della Salute, 2011b; see also Bellotti, 2009).

|--|

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | Simple Average 2003-2011 | Simple Average 2008-2011 |
|---|------|-------|-------|-------|-------|------|-------|-------|-------|--------------------------------|--------------------------------|
| Total tests | 740 | 1,556 | 1,875 | 1,511 | 1,607 | 955 | 1,328 | 1,115 | 1,676 | 1,303 | 1,374 |
| No. substances detected | n.a | n.a | n.a. | 40 | 52 | n.a. | 52 | 97 | 80 | n.a. | 76.3* |
| Positive results | 20 | 42 | 37 | 37 | 46 | 39 | 42 | 53 | 52 | 40.9 | 46.5 |
| Percent of positive results on total tests | 2.7 | 2.7 | 2.0 | 2.4 | 2.9 | 4.1 | 3.2 | 4.8 | 3.1 | 3.4 | 3.8 |

Source: our calculations on Ministero del Lavoro, della Salute e delle Politiche Sociali (2009), Ministero della Salute (2010a and 2011b) and Ministero della Salute and Istituto Superiore di Sanità (2012: 11).

*Average 2007-2011.

registered the highest positive rates (Ministero della Salute and Istituto Superiore di Sanità, 2012: 13).

| | 2009 | 2000 | 2010 | 2011 |
|-------|-------|------|------|------|
| | 2008 | 2009 | 2010 | 2011 |
| <19 | 0.0% | 0.9% | 0.4% | 1.2% |
| 19-24 | 3.1% | 3.7% | 2.1% | 1.1% |
| 24-29 | 3.3% | 2.5% | 5.0% | 4.8% |
| 29-34 | 6.8% | 4.3% | 6.9% | 2.1% |
| 34-39 | 5.7% | 3.0% | 8.0% | 3.2% |
| 39-44 | 8.2% | 2.7% | 6.7% | 3.9% |
| >44 | 13.2% | 5.2% | 7.1% | 7.7% |
| Total | 4.1% | 3.2% | 4.8% | 3.1% |

Table 2.7 Percent of athletes testing positive by age on the total of tested athletes – 2008-2011

Source: Ministero della Salute and Istituto Superiore di Sanità (2012:).

Excluding the sports federations, associated disciplines and Enti, in which only a few controls were carried out, the highest rates of positive athletes were found in natural body-building (12.8%),⁶⁷ followed by weightlifting (7.6%), motorcycling (6.2%) and ex aequo cycling and sailing (5.9%). Other sports with above average rates were also rugby (5.1%), golf (5.0%), boxing (4.9%) and squash (4.6%; Ministero della Salute and Istituto Superiore di Sanità, 2012: 15).

The substances identified in the CVD's anti-doping tests from 2003 to 2011 are listed, in percent values, in table 2.8. In assessing the table it needs to be taken into account that, as the tests are exclusively conducted during competitions, they tend to over-assess the use of stimulants and diuretics agents, while they provide only a limited view of the use of anabolic steroids, which are commonly used in training. Moreover, as the CVD's (and CONI's) tests only involve urine samples, they cannot detect a wide range of peptide hormones. In particular, urine tests cannot detect GH, unless this drug has been taken a few hours before the test—which obviously athletes hardly ever do.

Analyzing the time series of CVD's positive samples with these caveats in mind, we observe, nonetheless, considerable changes in the relevance of different substances. Between 2003-4 and 2010-11,⁶⁸ the share of samples in which stimulants have been detected has decreased 14.7 percentage points, from 30.5% in the earlier period to 15.8% in the later period. The share of samples containing traces of cannabis has also decreased considerably: whereas cannabis was found in 26.7% of all samples in 2003-04, it was found

⁶⁷ The Natural Body-Building Federation is a small federation of recreational body-builders, which is not recognized by CONI but is part of an Ente, the A.S.I. (Alleanza Sportiva Italiana; see Ministero della Salute and Istituto Superiore di Sanità, 2012: 30).

⁶⁸ As the percent of positive results by substance in anti-doping tests are partially due to several not fully predictable factors, we have considered the average value of the first two years and the last two years of the overall time span under consideration in calculating the differences.

| Substances | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | Average 2003-11 | Averages 2003/04 (1) | Averages 2010-11 (2) | Differences (1)-(2) |
|--|------|------|------|------|------|------|------|------|------|--------------------|----------------------------|----------------------------|------------------------|
| Anabolic agents | 20.0 | 10.4 | 6.4 | 7.5 | 5.8 | 25.4 | 7.7 | 37.1 | 20 | 15.6 | 15.2 | 28.6 | 13.4 |
| Peptide hormones, growth factors and related substances* | 0.0 | 0.0 | 2.1 | 5.0 | 5.8 | 25.4 | 7.7 | 10.3 | 3.8 | 6.7 | 0.0 | 7.1 | 7.1 |
| Beta 2-agonists | 4.0 | 4.2 | 2.1 | 7.5 | 5.8 | 4.0 | 5.8 | 6.2 | 5 | 5.0 | 4.1 | 5.6 | 1.5 |
| Hormones and metabolic modulators | 0.0 | 0.0 | 0 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 |
| Diuretics and other masking agents | 16.0 | 16.7 | 19.1 | 20.0 | 17.3 | 3.4 | 15.4 | 12.4 | 25 | 16.1 | 16.4 | 18.7 | -2.3 |
| Stimulants | 36.0 | 25.0 | 19.2 | 12.5 | 17.3 | 16.4 | 23.1 | 10.3 | 21.3 | 20.1 | 30.5 | 15.8 | -14.7 |
| Narcotics | 4.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 3.8 | 2.1 | 0.0 | 1.1 | 2.0 | 1.1 | -1.0 |
| Cannabinoids | 16.0 | 37.4 | 42.6 | 32.5 | 42.3 | 16.9 | 28.8 | 7.2 | 17.5 | 26.8 | 26.7 | 12.4 | -14.4 |
| Glucocorticosteroids | 0.0 | 4.2 | 6.4 | 10.0 | 3.8 | 8.5 | 5.8 | 14.4 | 12.5 | 7.3 | 2.1 | 13.5 | 11.4 |
| Beta-blockers | 4.0 | 2.1 | 2.1 | 2.5 | 1.9 | 0.0 | 1.9 | 0 | 0.0 | 1.6 | 3.1 | 0.0 | -3.1 |

Table 2.8 Doping substances ascertained in CVD's anti-doping tests in percent values –Years 2003-2011

Source: Our calculations based on Ministero del Lavoro, della Salute e delle Politiche Sociali (2009), Ministero della Salute (2010a and 2011) and Ministero della Salute and Istituto Superiore di Sanità (2012: 11).

*GH and other growth factors are not included as they hardly can be detected and were indeed never detected so far in the urine tests ordered by CVD.

Note: totals may not match sums because of rounding.

in only 12.4% in 2010-11. On the contrary, no peptides or other hormones were detected in 2003-04, whereas they were found in 7.1% of all samples in 2010-11, and the shares of anabolic steroids and glucocorticosteroids also increased considerably, by 13.4% and 11.4%, respectively.

CVD's data also clearly document the medicalization of sports (see Hart et al., 2008; Waddington and Smith, 2009). In fact, the athletes selected for CVD's testing are also asked to fill in a questionnaire about the legal drugs (including homeopathic products) and health products (vitamins, mineral salts, amino-acids, creatine and other dietary supplements) they have taken in the 15 days before the test. In 2011, out of 1,676 athletes tested, 64.9% admitted using at least one of the above-mentioned products and out of these, 36.9% declared using three or more products. The most frequent class of products used are antiinflammatory drugs, which amount to 26.2% of all the declared products and to 42.6% of all drugs taken (Ministero della Salute and Istituto Superiore di Sanità, 2012: 29-31). Similar rates were also recorded in the previous years (Ministero della Salute, 2011a).

Estimates of the Users of Doping Products

To estimate the demand for doping products in Italy, we can use several datasets, none of which, however, provides a full or unbiased picture.

IPSAD Data on the Use of Steroids in the Adult Population

There is only one partial estimate concerning the whole Italian population and this relates exclusively to the consumption of anabolic steroids. In 2007, the lifelong, past-year, and past month prevalence of anabolic steroid use were collected in a sample of 85,000 respondents of the Italian population aged 15-64 by researchers of the Consiglio Nazionale delle Ricerche (National Research Council, known under the acronym of CNR) through the Italian Population Survey on Alcohol and other Drugs (IPSAD).⁶⁹ Almost 1% of the sample admitted using anabolic steroids at least once in their lives; 0.30% of the sample reported having used steroids in the 12 months preceding the interview, and 0.23% of the sample reported the use of steroids in the past 30 days (Dipartimento Politiche Antidroga, 2012; see table 2.9).⁷⁰ If the sample was representative of all Italians aged 15-64, then those percentages would implicate a total of 391,054 such Italians as lifetime users, 117,907 such

⁶⁹ The survey was repeated in 2010 but the questions concerning steroids were not asked (Dipartimento Politiche Antidroga, 2012).

⁷⁰ These rates are roughly comparable with those recorded in other countries. A nationwide population survey conducted in 2008 in Sweden found a 0.9% lifetime steroid prevalence among men aged 15–54, thus lower than the almost 1.0% found in Italy for both sexes (Swedish National Institute for Public Health, 2010: 21). However, population surveys carried out five times since 1997 in the Netherlands have found lifetime prevalence rates between 0.7% and 2.7% for a variety of performance-enhancing drugs (Anti Doping Denmark, 2012: 14-15). Although these drugs are broadly defined in the Dutch surveys as to include all the most frequent doping substances as well as cocaine and amphetamines, steroids are likely to be an important component of them.

Italians as past-year users, and 88,436 such Italians as past-month users. Given the wellknown biases of these surveys (e.g., Zhao, Stockwell and Macdonald, 2009), which usually have low response rates and are administered at home in condition of limited anonymity, the forgoing figures can be considered low-end estimates of the numbers of users. The researchers in charge of the IPSAD survey explicitly speak of a "systematic effect of underestimation of the phenomenon" (Ministero della Solidarietà Sociale, 2006: 55), albeit with reference to the 2005 IPSAD survey that did not contain questions on steroids.⁷¹

| | Rate | Total population aged 15-64 | Estimated users |
|------------|--------|-----------------------------------|--------------------|
| Lifetime | 0.995% | 39,306,261 | 391,054 |
| Past-year | 0.300% | 39,306,261 | 117,907 |
| Past-month | 0.225% | 39,306,261 | 88,436 |

| Table 2.9 The life-long, past-year and past-month prevalence | of |
|---|---------|
| anabolic steroid use in the Italian population aged 15-64 – Yea | ar 2007 |

Source: Author's calculations from unpublished data provided by the Dipartimento Politiche Antidroga (2012), based on the 2007 IPSAD survey.

Estimates of Doping Athletes

Another route for estimating the use of performance-enhancing drugs is to apply the rates for positive test results recorded by CDV in recent years, such as 2010 and 2011, to the approximately 4,690,000 adult athletes in Italy. This might also be treated as a low-end estimate of the users because positive results in anti-doping tests, even if they are as high as those of the CVD, unavoidably under-assess the true extent of doping, not least because many current doping products cannot be detected by the tests (see chapter 1). As shown in table 2.10, with this method, we find that the number of users of doping products for the

| Year | Number of athletes | Users of doping substances |
|---------|-----------------------|-------------------------------|
| | | |
| 2010 | 4,685,257 | 222,707 |
| 2011 | 4,685,257 | 145,243 |
| Average | 4,685,257 | 183,975 |

Table 2.10 Estimated number of users of doping substances among athletes

Source: our calculations on the basis of Istat data, as reported in Istat (2007), Ministero della Salute (2011) and Ministero della Salute and Istituto Superiore di Sanità (2012).

Note: We do not have separate estimates for the total number of athletes for 2010 and 2011.

⁷¹ This under-assessment is confirmed by the comparison between the IPSAD data, for the 15-19-age group, and the data collected with the EPSAD survey. The latter exclusively targets 15- to 19year-old students but has a very high response rate, because it is administered in class (for details, see Donati, 2005) most recent two years, i.e., 2010 and 2011, would average about 184,000 persons.

On the basis of CVD's data, we can also estimate the number of users of the different substances. By simply considering the number of substances detected on average in the 2,791 tests carried out in 2010 and 2011, we reached the following estimates (see table 2.11): there are about 87,300 users of anabolic agents among elite and recreational athletes. Reflecting the location of CVD's tests (i.e., in competition), the second largest group of users consists of those using diuretics and other masking agents (53,700), followed by about 45,325 using stimulants and 40,300 athletes using corticosteroids. With an estimated number of 35,253, users of cannabis represent the fourth largest group, followed by 21,800 users of peptide hormones and related substances (13,431 users of chorionic gonadotropin and 8,392 users of EPO)⁷² and 16,800 users of beta-2 agonists.

| Substances Detected | Cases in 2010 | Cases in 2011 | Total number of cases | Users of doping substances based on 2010-11 data |
|---|---------------|------------------|-----------------------------|--|
| Anabolic agents | 36 | 16 | 52 | 87,292 |
| Peptide hormones (growth factors) and related substances,* of which | 10 | 3 | 13 | 21,823 |
| - EPO | 4 | 4 | 5 | 8,392 |
| - Chorionic gonadotropin | 6 | 2 | 8 | 13,431 |
| Beta-2 agonists | 6 | 4 | 10 | 16,787 |
| Hormones and metabolic modulators | 0 | 0 | 0 | 0 |
| Diuretics and other masking agents | 12 | 20 | 32 | 53,718 |
| Stimulants, of which | 10 | 13 | 23 | 38,610 |
| - Cocaine | 3 | 4 | 7 | 11,751 |
| Narcotics | 2 | | 2 | 3,357 |
| Cannabinoids | 7 | 14 | 21 | 35,253 |
| Glucocorticosteroids | 14 | 10 | 24 | 40,289 |
| Beta-blockers | 0 | 0 | 0 | 0 |
| Total substances/users | 97 | 80 | 177 | 297,130 |

Table 2.11 Number of substances detected in CVD's controls in 2010 and 2011 and estimated numbers of users of doping products, by substance

Source: our calculations on the basis of Ministero della salute (2011) and Ministero della Salute (2011) and Ministero della Salute and Istituto Superiore di Sanità (2012)

*GH and other growth factors are not included as they were never detected in the urine tests ordered by CVD.

The sum of the estimated number of users of the different categories of substances is higher than the total number of users, as many athletes use more than one prohibited

⁷² As mentioned earlier, GH and other growth factors, which also belong to this class of substances, cannot be detected in tests, unless they were taken a few hours before the tests.

substance at a time (for example, they use a diuretic just before the competition, to mask the use of a performance-enhancing substance). As a matter of fact, CVD often detects more than one substance per sample. In 2010, for example, 19 athletes out of 52 tested positive for more than one substance: in particular, 11 tested positive for two substances, four athletes for three, three for four and three other athletes tested positive for five, six and even eight substances, respectively (Ministero della Salute 2011: 30; see table 2.12).

| Number of | Positive at | Positive athletes in 2010 | | Positive athletes in 2011 | |
|------------|-------------|---------------------------|-----|---------------------------|--|
| substances | No. | % | No. | % | |
| 1 | 32 | 60.4% | 33 | 63.5% | |
| 2 | 11 | 20.7% | 16 | 30.8% | |
| 3 | 4 | 7.6% | 1 | 1.9% | |
| 4 | 3 | 5.6% | 0 | 0.0% | |
| 5 | 1 | 1.9% | 0 | 0.0% | |
| 6 | 1 | 1.9% | 2 | 3.8% | |
| 8 | 1 | 1.9% | 0 | 0.0% | |
| Total | 53 | 100.0% | 52 | 100.0% | |

Table 2.12 Number of substances detected in samples taken during CVD's anti-doping controls - 2010-2011

Source: Ministero della Salute (2011b) and Ministero della Salute and Istituto Superiore di Sanità (2012).

Although cannabis and cocaine are on the WADA's Prohibited List (2012c), we do not regard them as part of the market for doping products for both substantive and practical reasons. Substantively, it is not always clear if the athletes testing positive to cannabis and cocaine used them for performance-enhancing or for recreational purposes. Moreover, these two illegal drugs are probably smuggled and distributed in Italy through separate channels than those supplying the doping market, despite the occasional, but growing, overlap between the doping and illegal drug markets (e.g., Paoli, 2000). Practically speaking, we have no matching information for these drugs on the supply-side, as the NAS investigations do not target them. For 2011, it is possible to separate those who exclusively used cannabis and cocaine from the rest, as exact data are provided about the combinations of the active ingredients found. In particular, we know that 13 users exclusively tested positive for THC, the active ingredient of cannabis, one for cocaine alone and a further person for cocaine and THC (Ministero della Salute and Istituto Superiore di Sanità (2012: 10). If we subtract these 15 cases from the 52 athletes who tested positive to tests in 2011, we are left with a positive rate of 2.3% and therefore with 103,000 users of doping substances other than cannabis or cocaine (see table 2.13). We do not have such detailed data for 2010, and therefore we have resorted to an alternative procedure. As shown in tables 2.6 and 2.10, CVD detected in 2010 cannabinoids seven times and cocaine three times out of a total of 97 substances detected in 53 positive tests (Ministero della Salute, 2011b: 30-32). Through use of a simple rule of proportionality (i.e., 10:97 = x:53), we calculate that almost 5.5 of the positive tests pertained to either cannabis or cocaine.

Subtracting them from the total of 53, we reach a rate of 4.26% positive test results, excluding cocaine and cannabis, and therefore arrive at an estimate of 199,592 athletes using doping substances other than cannabis or cocaine.⁷³ Making an average between the 2010 and 2011 estimates, we identify about 150,000 users of doping products other than cannabis or cocaine.

| Year | Number of athletes | Users of doping substances | Percent of positive results on total tests w/o cannabis and cocaine | Users of doping substances other than cannabis and cocaine |
|-------------------|-----------------------|-------------------------------|--|--|
| 2010 | 4,685,257 | 222,707 | 4.3% | 199,592 |
| 2011 | 4,685,257 | 145,243 | 2.2% | 103,076 |
| Simple average | 4,685,257 | 183,975 | - | 151,334 |

| Table 2.13 Estimated number of users of doping substances among athletes, including and excludi | ing |
|---|-----|
| cocaine and cannabis – 2010-2011 | |

Source: our calculations on the basis of Istat data, as reported in Istat (2006), Ministero della Salute (2011b) and Ministero della Salute and Istituto Superiore di Sanità (2012). Note: We do not have separate estimates for the total number of athletes for 2010 and 2011.

Estimates of Doping Body-Builders

Whereas the above-mentioned estimates also include elite athletes, the first group at substantial risk of doping, they almost entirely exclude the second group, i.e., body-builders. With few exceptions, they do not participate in competitions and, hence, are not, technically speaking, "athletes."

To estimate the number of body-builders that engage in doping, we have combined the data from the survey of gyms carried out in 2007 by the Ministries of Sports and Social Solidarity with the findings of the many NAS investigations that have targeted gyms (e.g., Tribunale di Bologna, 2000; Tribunale di Ravenna, 2004; Tribunale di Forlì, 2009; NAS Bologna, 2000; NAS Firenze, 2005, Tribunale di Siracusa, 2010). These investigations have been conducted in seven different Italian regions (Valle d'Aosta, Piedmont, Trentino Alto Adige, Veneto, Liguria, Emilia Romagna, Toscana, Latium, Campania, Apulia, Sardinia, Sicily) and concluded that at least 130 gyms were involved in the distributions of doping out of the 800 different gyms with body-building equipment screened over about a decade (that is, 16.25% of the total). Applying this rate to the earlier estimates of 4,050 gyms with at least a room for body-building equipment or machines, one could argue that since the late 1990s nearly 660 such gyms have participated in illegal doping practices. As the 4,050 gyms currently serve about 1,270,000 patrons, we can apply the same 16.25% rate and further

⁷³ In both cases, we have assumed a one-to-one correspondence between the number of tests and athletes. With over 4.6 million recreational athletes, the chances of being tested twice are extremely low.

conclude that the gyms involved in doping practices might attract about 206,000 potential body-builders. The above-mentioned judicial investigations also provide circumstantial evidence that approximately one third of these visitors—that is, just under 69,000—use on an occasional or habitual basis doping products, primarily anabolic steroids alone or in combinations with other doping substances (such as stimulants and GH).

Some further supporting evidence for the 69,000 estimate as well as for the range of substances misused emerges from a survey carried out in 2011 in Emilia Romagna among 86 managers of gyms, including those not specialized in body-building. These managers believe that 38% of their male customers use anabolic steroids, 31% stimulants, and 21% growth hormones. They indicate much lower prevalence estimates for female visitors: 26% are purported to be using anabolic steroids, 14% stimulants, and 8% growth hormone (Leone, 2010: 21). The survey coordinator (Leone, 2011: 19) has acknowledged that the managers' perceptions are exaggerated, all the more so that they refer not only to visitors of gyms specialized in body-building but to the visitors of all kinds of gyms. To give an idea of the unrealistic perceptions, it is enough to state that one out of four respondents believes that anabolic steroids are used by more than 60% of the male athletes visiting the gyms (ibid.). Despite the apparent exaggerations, the managers' perceptions unequivocally confirm that the use of anabolic steroids constitutes a widespread problem in gyms.

Another interesting element emerging from anti-doping investigations concerns the users themselves. Apparently, many users of anabolic steroids attending gyms work in the public or private security sector. Twenty-one police agents, for example, were reported to buy anabolic steroids from other policemen in a recent case handed in by the Tribunale di Torino (2012; see also Numa, 2010). U.S. soldiers located in a military base in Sicily were reported to be users-importers of steroids in an investigation coordinated by the Prosecutor's Office in Siracusa (Tribunale di Siracusa, 2010). Two other soldiers, one belonging to the U.S. Army, also emerged from the NAS Investigations Database as buyers and consumers of anabolic steroids. Another criminal case handled at the Tribunale di Forlì documented the sale of anabolic steroids to several "bouncers" working in discos on the Adriatic Coast and in Bologna (Tribunale di Forlì, 2007: 20 and 103). An investigation conducted by the Bologna Branch Office also documented the shipment of hundreds of steroids-containing packages to U.S. soldiers in Iraq (Int-NAS-13).

Our respondents at several NAS branch offices (Int-1, 3, 8, 16, 17, 20, 22 and 24) also confirmed the frequent involvement of law enforcement officers and private security guards in their anti-doping investigations. Their widespread perception is that most of these officers and guards purchase anabolic steroids and other drugs solely for their own consumption; a few of them, as we will see in chapter 3, are also active as traders or suppliers. The spread of anabolic steroids among this group confirms Hoberman's (2012) findings about steroid use among U.S. law enforcement and military personnel and is particularly worrying. In fact, all Italian policemen and many Italian private security guards have access to weapons and are entitled to the use of force while they perform their

66

professional functions. Given the aggressiveness and sudden mood changes stimulated by anabolic steroids, public and private security staff taking these drugs can provoke harm not only to themselves but also to uninvolved victims.

Doping Use in the Rest of the Population

Anti-doping investigations and other sources reveal that doping products are also used occasionally by a small fraction of those who participate in sports without taking part in competitions or visiting a gym with body-building equipment—about 7.8 million people in Italy⁷⁴— and by an even smaller fraction of those who do not engage in any sport. Antidoping investigations and particularly the "Artificial Body" investigation conducted by the Bologna Branch Office at the turn of the century (NAS Bologna, 2000) indicate that these two residual groups of users resort to doping products for a variety of reasons. Performance enhancement is still an important motivation for some recreational sportspersons, even if they do not take part in competitions; weight loss appears to be a frequent reason for consuming stimulants, whereas many users of steroids among both noncompetitive sportspeople and those who do not engage in any sport want to look "healthy" or to speed up the recovery from a trauma. This variety of motives for taking performance or image enhancing drugs even by those who do not take part in competitions or are body-builders also emerges from surveys conducted in several countries among fitness center visitors and managers (see Anti Doping Denmark et al., [2012]: 19-23) and the growing literature on human enhancement (Savulescu, ter Meulen and Kahane, 2011; Evans-Brown et al. 2012; Singler, 2012).

A survey carried out among a sample of 952 high-school students in Rome, aged 14to 19-years-old, sheds some light on doping consumption patterns among recreational sportspersons and people who do not undertake physical exercise, demonstrating that the use of doping products is spread not only among competitive athletes and gym visitors but also these other two groups of consumers (Lucidi et al. 2004).⁷⁵ Thirty-one students (3.25% of the sample) admitted using doping products in the three months preceding the survey and 29 declared that they were going to use these same products also in the subsequent three months. Interestingly, thirteen of them reported using doping products, even if they did not take part in competitions. Of these thirteen, four were gym visitors, seven engaged in sports independently, and two admitted using doping products without participating in any sports. Out of the seven who engaged in sports independently, three took stimulants (other than cocaine), three took steroids, and one took steroids with EPO. The two nonphysically active students both used stimulants.

⁷⁴ We reached the 7.8 million figure by subtracting the nearly 4.7 million sportsmen and sportswomen taking part in competition and the almost 1.3 million visitors to gyms with body-building equipment (whom we called earlier potential body-builders) from the approximately 13.8 million adults who practice regularly or occasionally one or more sports estimated by the Istat (2007: 5).

⁷⁵ We are grateful to Prof. Caterina Pesce (Rome University Foro Italico) for giving us the raw survey data, so that we could make our own calculations.

These limited insights, however, are not sufficient to quantify properly the number of users of different doping products among non-competitive sportspersons and physically inactive people in Italy. Despite the lack of clear evidence, we hypothesize that the consumption of doping products in the latter two groups has grown in recent years, as a result of the general medicalization of society and the growing emphasis on performance (e.g., Ehrenberg, 1991; Gasparini, 2004; Hoberman, 2005; see chapter 1). The latter emphasis is also reflected in the rapid expansion of the consumption of cocaine and other illegal stimulants, such as ecstasy, since the early 1990s in Italy and elsewhere (e.g., EMCDDA, 2012):⁷⁶ even though their consumption is mostly unrelated with sports, these stimulants are also doping, i.e., performance-enhancing, drugs. As noted earlier, successful super elite athletes, who have tested positive to doping products or have been suspected of taking such products but have never been caught, also constitute powerful negative models.

Concluding Estimates

Table 2.14 summarizes our estimates of the number of users of doping products in Italy. If we consider all substances included in the WADA Prohibited List, we estimate 253,700 users of doping products in Italy. If we exclude cannabis and cocaine, we reach the lower estimate of 218,700 users. This estimate confirms WADA's (2012) stance that doping is not limited to elite athletes and poses a serious threat to greater public health.

Even the lower figure of 218,700 users is comparable to the number of heroin misusers estimated in Italy for 2010: 218,425 people were estimated to need an opiate detox or substitution treatment based on a prevalence rate of 5.5 per thousand among residents aged 15-64 (Dipartimento Politiche Antidroga, 2011: 78).⁷⁷ However both figures are somewhat lower than the estimated number of cocaine users (353,000 people based on a 2010 past-year prevalence rate of 0.9%) and dramatically lower that the estimated number of cannabis users estimated on the basis of the last population survey (Dipartimento Politiche Antidroga, 2011: 8).⁷⁸ ⁷⁹

⁷⁶ See the trends in past-year prevalence of cocaine use among young adults (aged 15 to 34) in numerous European countries published by the European Monitoring Centre for Drugs and Drug Addiction on its website: http://www.emcdda.europa.eu/stats11/gpsfig14b

⁷⁷ Our estimate of the number of users of doping products is more than twice as large as the estimated number of heroin users emerging from the last population survey (98,000 people based on a 2010 past-year prevalence rate of 0.25%; see Dipartimento Politiche Antidroga, 2011: 8).

⁷⁸ On the basis of the past-year prevalence rate recorded in the 2010 population survey, there were over 350,000 current users of cocaine (last-year prevalence rate of 0.9% out of over 39 million people aged 15-64) and over 2 million users of cannabis (last-year prevalence rate: 5.2%). The differences would become even bigger, if the results of the 2008 population survey were considered, which were considerably higher than those recorded in 2010 (Dipartimento Politiche Antidroga, 2011: 8).

⁷⁹ In what seems to be a back-of-the-envelope calculation, Prof. Botré, the head of the Rome anti-doping laboratory, reaches much higher estimates. In fact, according to him, there are over 400,000 Italian sportspeople who use prohibited doping products. Botré reaches this estimate by

| Among | Users of doping products | Percent of total | Users of doping products excluding cannabis and cocaine | Percent of total |
|---------------|--------------------------|---------------------|---|---------------------|
| Athletes | 185,000 | 73% | 150,000 | 69% |
| Body-builders | 68,700 | 27% | 68,700 | 31% |
| Total | 253,700 | 100% | 218,700 | 100% |

Table 2.14 Estimated number of users of doping products in Italy

Source: our calculations on the basis of the data presented earlier. Note: totals may not match sums because of rounding.

It is worth remembering that not all users of doping products commit an offense for the mere fact of using doping substances. Even if Italy's anti-doping legislation is rightly considered to be some of the strictest in the world (Evaluation Team, 2002), article 9 of Italy's anti-doping act (Act 376/2000) punishes athletes for using doping products only if they want "to improve the[ir] competitive performance." Non-competitive sportspersons and those who do participate in sports but use doping products for life-style purposes are not liable on the basis of the Act 376/2000. All users, however, can be indicted of "receiving", if they buy doping substances that have been stolen, fraudulently imported or represent the proceeds of any other crime. For example, the 18 officers of the Italian Polizia di Stato who were body-builders and bought steroids from their colleagues were charged by the Turin Prosecutor's Office of receiving an illegal product (Numa, 2010; Tribunale Ordinario di Torino, 2012).

The same ambiguity can be found in the application of the world anti-doping sports rules. According to the WADA Anti-Doping Code, the users of the same doping products may or may not violate a sports rule, depending on whether or not they have a therapeutic use exemption.

A Preliminary Estimate of the Size of the Market

Given the number of doping products available and the preferences of the different users and their advisors, it is an almost impossible exercise to assess the quantities of the different products consumed and therefore the size of the market for doping products in Italy. As shown in tables 2.8 and 2.11, the substances detected by CVD in its anti-doping tests provide a first, albeit partial and possibly or even likely biased indication of the products chosen by doping athletes. No such detailed statistical data exists for bodybuilders and therefore we have had to rely on less solid data, explained in detail below.

applying the rate of positive tests found in his laboratory (the average of CONI's and CVD's test results) to the whole population of Italian sportspeople, which he estimates at 16 million people. Instead, we have applied CVD's rate of positive results only to the 4,690,000 sportspeople aged 15 or older who engage in competitions. Given the lack of data, we have refrained from estimating doping use among the much broader set of noncompetitive sportspeople. As discussed earlier, these are likely to use doping products less frequently than athletes (*Nuovo ciclismo*, 2007).

In a preliminary attempt to scope the quantities consumed, we have developed average consumption profiles of 100 hypothetical users of doping products. In developing such profiles, we have started from the understanding that the market for doping products consists of a multiplicity of substances and methods, some complements and some substitutes, and users mix them up for performance-enhancing or life-style purposes. Whereas the markets for illicit drugs are usually considered separately for the purposes of estimation (e.g., UNODC, 2005; Paoli, Greenfield and Reuter, 2009), this approach is intractable and undesirable in the case of doping.

The specific combination of doping products used and the related dosages also vary widely depending on a variety of factors, including the users' motivations and qualifications, the sports disciplines they engage in, and, in the case of athletes, the upcoming competitions. A sprinter needs different products than a boxer or a rider and an elite athlete taking part in many high-level competitions is likely to use performance-enhancing substances more frequently than a recreational one.

The extent and type of doping also depends on the perceived legitimacy of doping and specifically performance-enhancing practices in the wider social contexts in which the users operate. A recent WADA-funded study on doping practices in French, Swiss, and Belgian elite cycling, for example, shows that, whereas doping was considered a de facto legitimate practice in elite cycling until the 1998 Festina affair, the repeated scandals, intensified control activities as well as the moral and occasionally also legal condemnation of doping have decreased the legitimacy and probably also the prevalence of doping practices among recreational and non-super elite riders. Several elite and would-be elite riders interviewed by Brissonneau and his colleagues (2009) stressed that they were committed to staying clean even if that commitment meant that they would give up successful career prospects. (No super elite riders were included in Brissonneau et al.'s sample. The fact that both the winners and the other riders of the Tour de France have increased their average speed since the 1998 Festina scandal leads Hoberman (n.d.) to conclude that doping has remained widespread among super elite riders).

Given the multiplicity of doping products and patterns of use, we have opted for the definition of 100 profiles, covering the two broad categories of users identified in the previous sections, i.e., athletes and body-builders. Reflecting their percent of the total number of users of doping products in Italy (see table 2.11, above), athletes account for 69% of these profiles and body-builders account for 31% (see table 2.14). For athletes we have developed the profiles, in such a way that the share of the substances consumed corresponds to the percentages of the substances detected by the CVD in 2010 and 2011.

For body-builders, we have, above all, relied on the data emerging from the antidoping investigations and in particular from the at least 15 investigations in which Donati has been a consultant at over the years. The latter task, included among others, reading hundreds of pages of wiretapped conversations, in which body-builders, other users and their suppliers discuss dosages. For body-builders, we have also analyzed the consumption suggestions given in numerous websites.⁸⁰

Except for GH, our estimates of body-builders' consumption profiles are comparable with the data collected by Parkinson and Evans (2006) in a 2004 anonymous internet survey of 500 steroid users, a large majority of whom (78.4%) were noncompetitive bodybuilders and non-athletes. Parkinson and Evans' study constitutes the most recent study and one of the rare studies of consumption levels of doping products (see also Perry, Andersen and Yates, 1990; Pope and Katz, 1994; Evans, 1997; Bolding, Sherr and Elford, 2002). Almost all of their respondents (95%) practiced polypharmacy, taking other drugs in addition to steroids, with one in four users taking GH and insulin. Parkinson and Evans's respondents reported using between 70 and 6,000 mg of testosterone and other steroids per week for "cycles" ranging between 4 and 20 weeks. Converting Parkinson and Evans's data to annual average dosages by using 10 mg as a dose, we conclude that the 500 respondents had an average annual consumption of 28,810 mg or 2,881 doses of steroids. The latter figure is only slightly lower than the 2,525 doses of steroids consumed on average by the 31 hypothetical body-builders of our model (78,300 doses/31 bodybuilders). By applying the same conversion method, we also conclude that Parkinson and Evans' respondents consumed about 10,500 mg or 420 doses of 25 mg of stimulants on average on an annual basis—a figure almost coinciding with the 393 average doses we estimate in our model. Only our assumptions concerning GH consumption are significantly lower than the data recorded by Parkinson and Evans. In fact, reflecting the findings of Italian investigations, we estimate that our 31 hypothetical body-builders consume on average 55 doses of GH on a yearly basis, whereas the average GH consumption in Parkinson and Evans's study would correspond to 315 doses (each corresponding to 1 IU or 0.333 mg) of GH. Together with a few other hormones, GH is one of the most expensive doping substances available. Reflecting the official price of GH in Italy, we estimate that each dose of GH costs €13.90 (see chapter 7).⁸¹ Italian body-builders' lower GH consumption can perhaps be partially explained with the lower purchasing power of Italian body-builders' vis-à-vis their U.S. counterparts.

To increase the profiles' validity, we have also discussed them in detail with two Italian experts. The first is Dr. Bellotti, whose qualifications and key role in improving CVD's testing performance we have already mentioned. The second expert is Dr. Roberta Pacifici, director of the Observatory on Smoking, Alcohol and Drugs at the Higher Institute for Public Health in Italy, President of the Italian Society for Clinical Biochemistry and Clinical

⁸⁰ E.g., http://www.bodybuilding.com/fun/drobson221.htm and http://www.anabolicsteroids.com/steroids-deca.html.

⁸¹ The cost of a GH dose in the United States is comparable. We have checked the prices of GH packages sold by seven leading drug manufacturers on a U.S. website (see http://www.somatropin.net/hgh-brands.html) and conclude that a dose of 1 IU of GH currently costs US\$17 or €13.60.

Molecular Biology and the Higher Institute for Public Health's representative within CVD. As part of the latter role, Pacifici coordinates the writing of CVD's yearly reports. Except for Bellotti and Pacifici's feedback, though, we are fully aware of the fact that our consumption profiles lack external validation, and we present them as a work in progress, hoping to obtain feedback and suggestions for improving them from other experts worldwide.

By applying the average quantities of the different products consumed by the two classes of users, we estimate that on a yearly basis over 371 million of doping doses are consumed annually in Italy (see table 2.15). Among them, steroids represent the lion's share with 58.9% of the market, followed by stimulants with 13.9%. Three other classes of substances have similar shares: diuretics and other masking agents represent 8.7% of the market, followed by glucocorticosteroids with 5.8% and peptide hormones, growth factors and related substances with 6.4%. All other classes of substances are marginal.

Our calculations also indicate that body-builders, although they represent only 31% of the users, account for a very large share of the market (55.2%). Body-builders, in fact, consume steroids and other doping products continuously throughout the year and some of them take very large dosages, whereas athletes are usually more selective in their choices of doping products and, depending on the products, take them only during training, for a few weeks or months, or just before a competition. Therefore, it is plausible that athletes account for only 44.8% of the market, even if they represent 69% of the users.

We would like to point to two biases in our estimates of the doping substances consumed by athletes. As we rely on the results of CVD's anti-doping tests, we underestimate the use of other doping substances consumed out of, rather than in, competition. CVD's data were, however, the only way to anchor our estimates to objective data. For the same reasons, we do not factor in the use of GH and other hormones that have never been detected in CVD's tests.

A 2000 analysis of the blood parameters of athletes preparing for the Sydney Olympic Games, which was carried out by CONI Scientific Committee, gives some hint about the spread of GH misuse among Italy's elite athletes. Such an analysis anticipated the current blood passport and was intended to determine 10% variations from the athletes' average parameters of hematocrit, hemoglobin, GH, testosterone, IGF-1 (insulin-like growth factor) and others. Between May and July 2000, CONI Scientific Committee carried out 538 controls among athletes of 20 different disciplines, identifying numerous anomalous values and specifically 61 anomalies in the case of GH. The GH anomalies were concentrated in just a few sports. Among females, 32 of the 36 cases concerned swimming, volleyball, track and field, canoeing and weightlifting; among males, 20 out of 25 cases involved swimming, rowing, cycling and canoeing. Seven of the athletes with these blood anomalies won gold medals at the Sydney Olympics, and several others won silver and bronze medals (see Chiusano, 2000). The results were later confirmed by a commission of experts set up by the Turin Prosecutor Raffaele Guariniello, which reanalyzed 250 of the 538 samples and
Table 2.15 Estimated doses of doping substances consumed in Italy, by type of users and classes of substances

| Substances | Athlatas | Rody buildors | Total doses | Percent |
|------------------------------------|-------------|---------------|-------------|----------|
| Substances | Atmetes | Body-builders | per class | of total |
| Anabolic agents | 45,304,348 | 173,522,903 | 218,827,251 | 58.93% |
| Peptide hormones, growth factors | 10.056.522 | 2 767 410 | 22 222 0/1 | 6 20% |
| and related substances*, of which | 19,950,522 | 3,707,419 | 23,723,941 | 0.39% |
| - EPO | 7,675,907 | 0 | 7,675,907 | 2,07% |
| - GH** | n.a. | 3,564,001 | 3,767,419 | 0,96% |
| - Chorionic Gonadotropin | 12,280,615 | 203,418 | 12,484,033 | 3,36% |
| Beta-2 agonists | 13,130,435 | 11,081 | 13,141,515 | 3.54% |
| Hormones and metabolic modulators | 0 | 132,968 | 132,968 | 0.04% |
| Diuretics and other masking agents | 32,391,304 | 55,403 | 32,446,708 | 8.74% |
| Stimulants | 24,739,130 | 27,036,774 | 51,775,905 | 13.94% |
| Narcotics | 7,000,000 | 0 | 7,000,000 | 1.89% |
| Glucocorticosteroids | 21,130,435 | 531,871 | 21,662,306 | 5.83% |
| Beta-blockers | 2,608,696 | 0 | 2,608,696 | 0.70% |
| Total doses | 166,260,870 | 205,058,419 | 371,319,290 | |
| Percent of total | 44.78% | 55.22% | 100.0% | |

Source: Our estimation on the basis of the data presented earlier and the consumption profiles developed in Appendix 2.

* In the 100 consumption profiles we make detailed estimates for each user only in terms of the general category of substances belonging to this class. In fact, whereas we have considerable information on the dosages of EPO and GH, we have no basis to hypothesize the annual doping doses for other substances included in this class, such as chorionic gonadotrophin, ATCH, gonadorelin or insulin. However, we distinguish among the EPO, GH and chorionic gonadotrophin (the three main substances belonging to this class that have been either detected in CVD's tests or seized by NAS; see tables 2.2 and 2.11) in aggregate terms, for each set of users, i.e., athletes and body-builders. This differentiation is necessary for the subsequent estimate of the financial size of the market, given the considerable differences in prices among the substances included in the category of peptide hormones, growth factors and related substances (see chapter 6). For this differentiation we have relied, for athletes, on CVD's positive test results. In 2010 and 2011 there were 13 positive tests for this class of substances, five for EPO and 8 for chorionic gonadotrophin. We have thus split the total number of doses on the basis of the same proportion. For body-builders, we relied on NAS seizure data to estimate the consumption of GH and chorionic gonadotrophin—this focus is made plausible by the focus on NAS investigations on body-building (see chapter 7). In doing so, we have excluded EPO seizures, as NAS investigations have never delivered any proof of EPO being consumed by body-builders: in other words, we have assumed that the EPO seized by NAS is entirely bound for athletes. We have also excluded other substances belonging to this class, as we cannot estimate their consumption. Moreover, these other substances represent only a negligible share of the substances seized by NAS. Reflecting the relative share of GH and chorionic gonadotrophin in NAS seizures, we have hypothesized that GH accounts for 94.6% of the total doping doses of this class consumed by body-builders, whereas peptide hormones, growth factors and related substances and chorionic gonadotrophin account for 5.4%. ** We have no estimate of GH consumption by athletes because our estimates are based on the results of CVD's anti-doping tests and GH has never been detected in such tests.

found 43 subjects with GH/IGF-1 anomalies (Müller, Melioli and Minuto, 2002; see also Donati and Bellotti, 2002; Toti, 2002).

As GH can be used in many different sports disciplines, a conservative assumption would be to hypothesize that it is used as least as frequently as blood-boosting EPO, the main hormone detected by CVD in the category of peptide hormones, growth factors and other related substances, which is attractive only for the athletes of endurance disciplines. As shown in table 2.11, EPO was detected in 2.82% of CVD's 2010 and 2011 anti-doping tests corresponding to 8,392 athletes using that drug and 1,116,501 doping doses of 200 IU or 1 mcg each. On the basis of such data, we could conservatively assume that athletes also use a comparable amount of GH doses.

Other data collected by CVD also suggests the extensive misuse, presumably for doping purposes, of gonadorelin, which is also included in the classes of peptide hormones, growth factors and related substances and is not detected by anti-doping tests. Gonadorelin is a hormone of very limited therapeutic use, capable of freeing chorionic gonadotropin and thus stimulating the endogenous production of testosterone with the related anabolic effects. Through Federfarma, Italy's federation of pharmacies, CVD collected data about 2009 gonadorelin pharmacy sales from 16,669 pharmacies corresponding to 96.7% of all Italian pharmacies. These reported selling 101,310 packages of gonadorelin.⁸² Whereas there was considerable difference in the dosages contained in different types of packaging, each package contained on average 5.75 doses of 1.2 mg of gonadorelin. The data reveal gross differences in the territorial distribution of sales, which cannot be justified on the basis of gonadorelin therapeutic use. As shown in table 2.16, the provinces of Novara (1,184), Ferrara (669), Salerno (561), Caltanissetta (949) and Palermo (434), and the whole region of Calabria (763) reported very high sales per 100,000 inhabitants. Leaving aside these provinces and the respective regions, the sales ranged from a maximum of 1.3 packages per 100,000 in Umbria to 134 in Friuli. Sometimes the differences between neighboring provincial and regional contexts are striking. Whereas 669 gonadorelin packages per 100,000 inhabitants were sold in Ferrara province, the neighboring provinces of Bologna and Modena recorded rates of 1 and 10 per 100,000, respectively. Likewise, Calabria reported 792.5 packages sold per 100,000 inhabitants and the neighboring region of Apulia 3.4 per 100,000.

Given gonadorelin's very high price, the "aberrant" provinces and regions report much higher expenditures than the rest. Although they account only for 9% of the total

⁸² Pharmaceutical companies also sell gonadorelin directly to hospitals and other health care centers, but CVD collected no data on these sales.

| Region/Province | Inhabitants | Packages sold | Total value | Packages sold per 100,000 | Total value per 100,000 |
|---|-------------|-------------------|----------------------|------------------------------|----------------------------|
| Piedmont | 4,432,571 | 28,178 | 7,342,211 | 635.7 | 165,642 |
| - Novara province | 343.040 | 4,063 | 1,113,759 | 1,184.4 | 324,673 |
| Aosta Valley | 127,065 | 28 | 8,106 | 22.0 | 6,379 |
| Trentino Alto Adige | 1,018,657 | 97 | 26,557 | 9.5 | 2,607 |
| Venetium | 4,885,548 | 5,675 | 1,661,377 | 116.2 | 34,006 |
| Friuli | 1,230,936 | 1,645 | 507,734 | 133.6 | 41,248 |
| Liguria | 1,615,064 | 814 | 235,196 | 50.4 | 14,563 |
| Emilia Romagna | 4,337,979 | 2,942 | 758,387 | 67.8 | 17,482 |
| - Ferrara province | 357,980 | 2,396 | 623,474 | 669.3 | 174,164 |
| Tuscany | 3,707,818 | 851 | 203,713 | 23.0 | 5,494 |
| Umbria | 894,222 | 12 | 1,576 | 1.3 | 176 |
| Marche | 1,569,578 | 867 | 242,723 | 55.2 | 15,464 |
| Latium | 5,626,710 | 872 | 233,825 | 15.5 | 4,156 |
| Abruzzo | 1,334,675 | 42 | 5,211 | 3.1 | 390 |
| Molise | 320,795 | 401 | 147,955 | 125.0 | 46,121 |
| Campania | 5,812,962 | 12,311 | 2,921,818 | 211.8 | 50,268 |
| - Salerno Province | 1,106,099 | 6,207 | 1,508,804 | 561.2 | 136,408 |
| Apulia | 4,079,702 | 157 | 35,247 | 3.4 | 864 |
| Basilicata | 590,601 | 270 | 89,674 | 45.7 | 15,184 |
| Calabria | 2,008,709 | 15,317 | 4,297,389 | 762.5 | 213,938 |
| - Cosenza province | 733,508 | 7,049 | 2,024,430 | 961.0 | 275,993 |
| Sicilia | 5,037,799 | 8,542 | 2,266,027 | 169.6 | 44,980 |
| Caltanissetta province | 272,289 | 2,583 | 748,339 | 948.6 | 274,833 |
| - Palermo province | 1,244,680 | 5,406 | 1,393,428 | 434.3 | 111,951 |
| Sardegna | 1,671,001 | 431 | 78,859 | 25.8 | 4,719 |
| Total | 60,045,068 | 101,310 | 26,727,207 | 168.7 | 44,512 |
| Selected provinces | 5,332,797 | 35,972 | 9,685,193 | 674.5 | 181,616 |
| and region | (8.9%) | (35.5%) | (36.2%) | 110.4 | 21.140 |
| Rest of country | 54,/12,2/1 | 05,338 | 17,042,014 | 119.4 | 31,148 |
| in selected provinces and region at | 11,564 | 1,661,081 | 9,685,193 | 119.4 | 31,148 |
| Difference between effective and hypothetical sales | n.a. | 24,408 (24.1%) | 8,024,112 (30.0%) | n.a. | n.a. |

Table 2.16 Gonadorelin pharmacy sales in Italian regions and selected provinces in 2009

Source: CVD, 2010 and Istat, for the population data.

population, their share of gonadorelin pharmacy sales and expenditures in 2009 was about 35%. If we apply the average rate of 119.4 packages of gonadorelin sold per 100,000 inhabitants to these provinces and region and then subtract the results from the packages effectively sold, we come to the conclusion that 24,408 packages at a value of over €8 million were abnormally sold in these provinces and region, corresponding to 24% of the packages sold in all of Italy and 30% of the total market value, respectively. Thus, we can hypothesize that about a quarter of annual gonadorelin sales is diverted for non-therapeutic, most probably doping purposes.

In short, we do not claim to have ironclad bases for all our assumptions, and we are aware that our model underestimates the consumption of some substances and sets of users. Nonetheless, we believe that this first estimate of the size and the different shares of the Italian market for doping products may provide relevant insights to policy-makers. In Italy, the problem of doping is still largely conceptualized as a problem of the elite sports world and, except for a few projects such as the Palestra Sicura project mentioned earlier, most resources are still focused on the prevention and control of doping in sports and particularly in elite sports. One just has to consider the number of annual tests carried out by CONI (approximately 10,000 for about 10,000 super elite athletes) with those conducted by CVD (on average 1,313 between 2006 and 2010), even though the latter targets a much wider, albeit not precisely determined, number of athletes. By singling out the users who consume doping products more abundantly, namely the body-builders, our estimate can help (re-)focus resources on this rather neglected group of users who are likely to suffer most harm. "What is at stake," Turin Prosecutor Guariniello (2011) pointed out "is not only protecting the health of top athletes, of the privileged individuals that make up the sporting élite. What is at stake is first and foremost protecting the health of the many people, young and not so young, who engage in any sport or go to fitness clubs."

3. THE (ILLEGAL) SUPPLIERS OF DOPING PRODUCTS

In this chapter we first consider illegal suppliers' main characteristics, develop a typology of them based on their profession or occupation and single out their motives, thus fulfilling the second objective of the project. As we draw our information almost exclusively from law enforcement sources, we speak of illegal suppliers—that is, people who import, distribute, or administer doping products and have been at least suspected of a doping-related offense under Italian law. As will become clear in the course of this and especially the following chapters, however, there is a very thin and ambiguous line between illegal and legal suppliers, so much so that we will drop the adjective "illegal" in the following chapter, when we consider distribution chains and market relationships.

On the basis of Italy's anti-doping investigations we conclude that illegal suppliers of doping products are predominantly male, Italians and have a legitimate profession or occupation. Many of them, in particular, belong to the world of gyms, health care or human and horse sports. For most of them, the primary motive for engaging in the supply of doping products is private (or, more rarely, institutional) profit. Staff members of sports teams and sports federations are however often motivated by the same overconformity to a sports ethic that drives elite athletes to dope (Coakley and Pipe, 2009: 205-214).

Key Socio-Demographic Characteristics

To draw an overview of the actors involved in the supply of doping products and highlight their gender, nationality, criminal records and profession, we start by considering the Database on NAS Investigations, which contains data on about 71 supply-related investigations carried out by NAS from 1999 to 2011.⁸³ In total, these investigations have led to the arrest of 74 individuals and the reporting of 359 individuals to the judicial authorities for different doping-related offenses.⁸⁴ Whenever possible and appropriate, we integrate the data from the database with information drawn from the different police and judicial documents that we collected (e.g., police reports, charges, or verdicts) and the expert interviews that we conducted.

⁸³ The Database on NAS Investigations contains data on 80 closed investigations. However, nine of them concern athletes' consumption of doping products, which is criminalized in Italy, and therefore they have been excluded from the current analysis. Through the interviews, we have also become aware of several, mostly ongoing, investigations that are not included in the database.

⁸⁴ A higher number of arrests and reporting emerges from the answers to a questionnaire filled in by all the 38 NAS branch offices at the request of the Headquarters. For the comparison between the two datasets and a detailed analysis of the offenses, see chapter 7.

Gender

No explicit data are provided in the database about the gender of the suspects; however, as the Italian language has different, female and male, endings for most words, the impression that emerges from the database analysis is that the overwhelming majority of the suspects are male. The analysis of the police and judicial documents also confirms this gender disproportion. The few women who are suspected of a doping-related offense are linked by blood, marriage, or love ties with the male suspects and mostly play ancillary functions in the illicit businesses.

For example, in the so-called "Anabolic web" investigation, the main defendant, a body-building instructor who ran a distribution ring in Emilia Romagna and other regions, was supported by his mother, sister, and fiancé. The three women sent packages of doping products, primarily anabolic steroids, to customers located in several Italian regions and received money transfers from them on their own bank accounts (Tribunale di Ravenna, 2004). In another case, a woman whose partner was both a supplier and co-owner of a gym was not actively involved in the trade but was fully aware of her partner's illicit actions and gave him advice on how to protect himself from law enforcement investigations (Tribunale di Bologna, 2000: 63-64). Sometimes, business relationships are stronger than those of affection: The former wife of L.S. kept on cashing the checks he received from the illegal sale of anabolic steroids and other products, even after their marriage failed (Tribunale di Bologna, 2000: 67).

We are aware of only a few cases of women who have taken up active, managerial roles. In a proceeding of the Siracusa Prosecutor's Office, for example, the wife of the principal suspect—both of them body-builders—was fully involved in the importation of illegal performance-enhancing drugs from abroad and their distribution among the clients of their gym (Procura della Repubblica di Siracusa, 2010: 23-29).

Nationality

Although nationality is not a required or explicit element in the database, the case summaries included in the database—as well as the defendants' lists of the 46 criminal proceedings analyzed—indicate that most suspects are Italian. The preponderance of Italians is largely due to the fact that NAS investigations usually stop at the borders of Italy. The NAS officers and the prosecutors who we interviewed complained (Int-NAS-5, 6, 9, 10, 16) that they are rarely able to identify and charge the foreign suppliers of the Italian traders in doping products because of the lack of effective international cooperation (see chapter 7).

Notwithstanding these limitations, the NAS investigations document that very few foreign residents in Italy, in particular members of ethnic minorities, are involved in the trade in doping products in Italy. In a few criminal cases, some foreign residents in Italy are reported as users or "users-dealers" of the products. In the latter case, they buy the doping products, primarily anabolic steroids and stimulants, largely for their own

consumption and then re-sell part of the total purchase amount to others. For example, a Sudanese and a Bulgarian man and a Ukrainian woman were involved in the so-called "Take Away" investigation: the first two bought steroids and the third stimulants from the main suspect (Tribunale di Forlì, 2009). We are aware of only one case in which a foreign resident was a wholesaler. In the above-mentioned Siracusa proceeding, one of the two main suspects was a Nigerian-U.S. woman, who exploited her U.S. citizenship to have the doping products shipped to a nearby U.S. military base (Tribunale di Siracusa, 2010).

The very limited role played by foreigners on the Italian market constitutes a major difference vis-à-vis the market for illicit drugs, where migrants, mostly undocumented, now occupy the lowest and most dangerous levels in the distribution system, by selling drugs on the street (e.g., Paoli and Reuter, 2009). This difference appears to be a consequence of the semi-illicit nature of the doping market and points to the persistent "embeddedness" of the supply networks into legitimate social networks and specifically professional affiliations and relationships.

Nevertheless, the Italian market for doping products is not insulated from its foreign counterparts. Just as in the case of traditional illegal drugs, Italian suppliers of doping products are often part of large international networks: they often receive their products from abroad and occasionally they also sell them to foreign clients. We discuss the foreign sources in more detail below, but here it is worth referring to the charges recently filed by the Mantua Prosecutor's Office to understand how "multi-culti" the network of an Italian supplier of doping products can be (Int-Pro-4). Whereas his core customers were Italian professional riders, the main suspect of that case, a pharmacist, also sold doping products to a Danish professional rider and a foreign consul, who was a recreational rider; exchanged drugs and therapies with a like-minded Spanish doctor; provided advise to the sports director of a professional U.S. cycling team; and received regular data from Italian, Spanish, and Swiss hematological centers that were visited by the (Italian) riders to undergo blood doping (NAS Brescia, 2011, Pacifici and Donati, 2011).

Italian suppliers are also occasionally full-time participants in large international criminal organizations. A 2009 investigation of the Brescia NAS Branch Office, for example, identified one of these organizations, which was headed by a former high-level employee of a U.S. drug manufacturer. The Italian employee of this criminal organization was a former nurse of a Turin hospital, who produced himself anabolic steroids in a laboratory close to Brescia and marketed them through a website (Int-NAS-9).

Criminal Records

The NAS Investigations Database provides no detailed information on the suspects' criminal records. However the NAS officers and prosecutors interviewed unanimously confirmed that most suspects of doping-related offenses have no criminal records, again

reflecting the embeddedness of doping supply in professional affiliations and relationships. In other words, most suspects have not had a traditional "criminal career," one that would typically start in youth with petty thefts or violent crime and move on with advancing age to more serious crime (e.g., Laub and Sampson, 2003).

In face-to-face interviews (e.g., Int-NAS-9 and 16 and Int-Pro-2) and in the questionnaire distributed by the NAS Headquarters to the 38 NAS branch offices, however, the officers also pointed out four sets of exceptions to the general finding of clean records. First, there is a small group of former or current gym managers and owners who have been involved in the trade of doping products since the 1990s and have therefore been charged and convicted several times with doping-related offenses. Second, some bouncers have criminal records for fights and similar violent offenses. (Bouncers are, as a rule, mere users of doping products or at most users-retailers and play no role in the upper echelons of the market.) Third, some suppliers, especially at the retail level, have criminal records for dealing with illegal drugs. Fourth, the robbers of trucks and storehouses containing legitimate drugs with potential doping effects often have criminal records of the same type. Together with veterinary physicians, breeders and horse drivers involved in horseracing, they are also the only group of suppliers of doping products who have links, and sometimes are even affiliated, with Southern Italian mafia-type organized crime, most notably the Neapolitan camora (see below).

Profession

The legitimate professional positions held by most of the persons suspected of dopingrelated offenses lend further weight to the embeddedness of doping supply in legitimate activities. To get a first overview, we classified the suspects mentioned in the NAS Investigations Database according to their profession and report in table 3.1 the most frequent and relevant professions of note. In analyzing these data, it is important to keep in mind that the survey on which the database is drawn was not meant specifically to collect the suspects' profession and therefore not all NAS branch offices provided detailed information on this matter. The figures presented in table 3.1, therefore, must be regarded as indicative, as they provide only a partial and approximate idea of the different professional categories involved in the supply of doping products.

Gym owners, gym managers, or body-building instructors constitute by far the largest group among the suspects targeted by NAS investigations. Their preponderance reflects the persistent focus of NAS investigations on body-building and, more generally, the gym world (see chapter 7). In total, 158 such characters were reported as traders in doping products in 28 of the 71 supply-related investigations contained in the NAS Investigations Database. In one of these and nine other cases, an unspecified number of gym owners, managers, or instructors were also reported to be involved.

The second largest category of suspects belongs to the world of horseracing. One large scale investigation involved 140 veterinary physicians, breeders and horse drivers

(25 individuals were arrested and 115 were merely reported by NAS to the judicial authority; no specific data about the specific professions of the suspects were given). Other sources, reviewed below, provide evidence of several other investigations.

| Table 3.1 Leading relevant professions of the suspects reported in the NAS Investigation Databas | e |
|--|---|
| – 1999-2011 | |

| Profession | Number of | |
|--|-----------|--|
| | suspects | |
| Gym owners or managers and body-building instructors* | 158 | |
| Veterinary physicians, breeders, horse drivers | 140 | |
| Owners or managers of dietary supplement shops | 64 | |
| Pharmacists** | 20 | |
| Physicians*** | 17 | |
| Staff members of cycling teams**** | 12 | |
| Sports federation officials | 10 | |
| Law enforcement and military staff | 10 | |
| Hospital employees (including 5 nurses and 2 former employees) | 10 | |
| Employees and salesmen of (para)-pharmaceutical companies***** | 6 | |
| Staff of private security companies | 2 | |

Source: our calculations on the basis of the Database on NAS Investigations.

Notes: *An unspecified number of gym owners or managers and body-building instructors was reported in ten investigations; **An unspecified number of pharmacists was reported in five other investigations; ***An unspecified number of physicians was reported in three other investigations, and an unspecified number of vets in another; ****An unspecified number of staff members of cycling teams was reported in two other investigations; ***An unspecified number of employees of pharmaceutical companies was reported in another investigation.

Less surprisingly, given the focus of NAS investigations on body-building, the third most frequently recurring profession in the database is that of owner or manager of a dietary supplement shop. Sixty-one suspects with such qualifications are reported in the database in eight different investigations.

The fourth largest professional category involved in NAS investigations is composed of pharmacists. In total, 20 pharmacists are suspected of doping-related violations in nine different investigations. Moreover, an unspecified number of pharmacists were reported in five other investigations. The database on NAS Investigations also lists 17 accommodating or corrupt physicians, who constitute the fifth largest professional group mentioned in the database.

Twelve staff members of cycling teams and ten members of sports federations are also suspected of illegal doping practices according to the NAS Investigations Database, with an imprecise number of staff members of cycling teams reported in two other investigations. In the same data set, ten law enforcement or military officers and two staff members of private security companies have been suspected of trading and selling performance-enhancing drugs. Last but not least, ten employees of public hospitals, including five nurses, have been suspected of doping-related offenses according to the database, along with six employees or representatives of pharmaceutical and dietary supplement companies.

A Typology

On the basis of the most frequent professions and occupations listed in the database and criminal proceedings, we have identified ten main types of illegal suppliers of doping products in Italy and grouped them in five main categories.

The first category, "gym," consists of the two types of illegal suppliers that are the largest numerically in the NAS Investigations Database: gym managers or owners and body-building instructors, on the one hand, and managers or owners of dietary supplement shops, on the other hand. The second category, "health care," consists of four other types: pharmacists, physicians, hospital employees and employees or sale representatives of pharmaceutical and para-pharmaceutical companies (including not only manufacturers but also distributors). Two other types, staff members of sports teams and federations compose the third category, which we refer to as the "organized sports world". The fourth category refers to the world of horseracing and includes breeders, veterinarians, and drivers. The fifth category, which we term "use", consists of athletes, public and private security personnel engaging in body-building, and their close relatives. Athletes could easily also belong to the category "organized sports world" and the public and private security personnel engaging in body-building to that of "gym." However, we have created for them a separate category of "use," to stress that their involvement in the illegal supply of doping products is linked inherently with, and facilitated by, their own consumption. Finally, we include an "other" category for those suppliers who cannot be distinguished on the basis of a specific profession or occupation.

We list these types and categories in table 3.2 and discuss each of the types in the following sub-sections.

Gym Managers and Owners and Body-Building Instructors

Gym owners or managers and body-building instructors work most often as retailers, selling doping products (primarily anabolic steroids but also stimulants) to gym patrons. Some of these individuals, though, are also wholesalers, selling to retailers, who are often other gym managers, instructors, or body-builders. R.F., the manager of a gym in Forlì, for example, supplied not only several visitors of his gym but also the managers of at least four other gyms with anabolic steroids and other drugs (Tribunale di Forlì, 2009: 16-19). So did O.P., the owner of a gym specialized in body-building in Naples, who also distributed steroids and other drugs through a small network of accomplices (NAS Napoli, 2003). D.P., another body-building instructor was able to distribute anabolic steroids in several regions, including Emilia Romagna, where he was based, Lombardy, Latium, Apulia and Sardinia (Tribunale di Ravenna, 2004: 123). The NAS investigations

| Category | Туре |
|-------------------|--|
| Gym | Gym managers or owners and body-building instructors |
| | Managers or owners of dietary supplement shops |
| Health care | Pharmacists |
| | Physicians |
| | Hospital, health clinic and nursing home employees |
| | Employees or salesmen of (para-) pharmaceutical companies |
| (Human) Organized | Staff members of sports teams |
| sports world | Staff members of sports federations |
| | Veterinary physicians |
| Horseracing | Breeders |
| | Drivers |
| Use | Athletes |
| | Private and public security officers engaging in body-building |
| Other | People with no distinctive profession or occupation |

Table 3.2 Categories and types of illegal suppliers of doping products in Italy

reconstructed a wide network around him, which was composed—in addition to his mother, sister, and girl-friend—of the following people:

- At least two "partner-customers," including the owner of the gym where he worked, who were actively looking for new customers
- 21 customers who served as distributors in other regions, including six people who sold the products in Sardinia, one person responsible for the area of Rome, two persons based in Milan and its province, and the other 12 distributing the steroids in the region of Emilia Romagna, and
- Numerous users, who were primarily body-builders (Tribunale di Ravenna, 2004: 124).

In 22 investigations listed in the NAS Investigations Database, some gym owners or managers and body-building instructors have also turned out to be importing doping products from abroad (e.g., Tribunale di Ravenna, 2004: 125-6; NAS Napoli, 2003), and, in six partially overlapping cases, obtaining doping products from pharmacies with fraudulent methods or with the help of a corrupt pharmacist (Tribunale di Bologna, 2000).

According to the experts interviewed, three (former) gym owners surpass all other known steroid suppliers for the length and scope of their illegal businesses. The first one is P.B., the owner of a Bologna gym, who has been the largest known wholesaler in the Bologna area over a period spanning three decades, serving numerous other gym owners, including the above-mentioned R.F., as well as the visitors of his own gyms. Since the late 1990s P.B. has been arrested five times for the sale of doping products. In the last proceeding against him, P.B. was aided by two employees of his gym. Through a trusted couple, both body-builders, originating from Sardinia but resident in Bologna, he was able to sell steroids also in Sardinia (Tribunale di Forlì, 2009: 16-19; 173-175). In a previous investigation, his distribution network was even wider, extending to other Italian regions (NAS Bologna, 2000). Moreover, at the turn of the century, P.B. not only bought steroids from the two other major Italian suppliers (see infra) but also imported these drugs and their raw materials from third countries, received drugs from a Bologna Hospital employee and, most likely, also counterfeited medicine in laboratories, which were however never identified (ibid., 2000: 142, 408-412 and 428-435).

An even bigger trader in anabolic steroids is L.S., the owner of gyms in Campania and Milan, who like P.B. has been repeatedly involved in anti-doping investigations since the late 1990s (Tribunale di Forlì, 2007: 93; see also Spezia, 2009; Cascella, 2008). Since then at least, L.S. supplied P.B. and numerous other customers through Italy. In the late 1990s he bought most of his merchandise from V.G.F., who was then Italy's largest importer of anabolic steroids and GH, and with whom L.S. had a very close working relationship. Since the beginning of the present century, L.S. also began importing large quantities of drugs from abroad on his own. Additionally, throughout his career, he also received doping products that had been stolen from trucks in Southern Italy (Tribunale di Forlì, 2009: 93, NAS Bologna, 2000: 148). L.S. was arrested for the last time in July 2008 in front of P.B.'s gym, when he was trying to get rid of a big garbage bag containing a large quantity of anabolic steroids. In 2011, he was involved in another investigation conducted by the Milan Branch Office and accused, among others, of supplying steroids, through intermediaries, to a famous body-builder. To escape the new arrest, he went on hiding (*Giorno*, 2011).

As already noted, the third large-scale supplier is V.G.F., who was described in 2000 by the Bologna Branch Office as the "'big father' of national and international trafficking in anabolic steroids" (NAS Bologna, 2000: 233). This former employee of the Pesaro tax collection office, former body-builder and gym owner was first reported for the illegal import of anabolic steroids in 1993. In the late 1990s, V.G.F. supplied both L.S. and, through L.S. and directly, P.B., who was their major customer. In V.G.F.'s notes, the NAS officers discovered the names of seven Italian pharmaceutical companies, two pharmacies and a private hospital, which were considered to be the sources of some of the drugs distributed by V.G.F.⁸⁵ In addition, the agenda revealed contacts with pharmaceutical companies in Greece, Spain and Portugal, the three countries from which most of the products seized originated, as well as in Eastern Europe, Colombia, the Dominican Republic and Albania and numerous international couriers (NAS Bologna, 2000: 268-272). In addition to the gyms supplied through P.B. and L.S., V.G.F. also had direct contacts with at least 27 other gyms located in Piedmont, Lombardy, Trentino Alto

⁸⁵ The NAS officers state that they would focus on the exact relationship between V.G.F. and these health care bodies in a "possible later phase of the investigation" (NAS Bologna, 2000: 269). However, this was never done, given the very scarce chance of finding evidence backing charges against the pharmaceutical companies in the absence, back in the 1990s, of anti-doping criminal provisions.

Adige, Friuli Venezia Giulia, Emilia Romagna, Tuscany, Marche, Umbria, Latium, Campania, Apulia and Sicily (ibid.: 243-4 and 267-8).

V.G.F. was arrested again in August 2011 in Ancona for the illegal importation of very large quantities of doping products (Frezzi, 2011). In a storehouse under his control, the Ancona Branch Office seized over 45,000 ampoules and 50,000 pills of somatropin, testosterone, nandrolone, ephedrine and metadione with an estimated market value of over one million euro. The drugs were produced in clandestine laboratories in Spain, The Netherlands and the UK. V.G.F. had them shipped via unsuspecting couriers to several addresses in Italy, using several false identities. He then collected the drugs by car or truck, had local typesetters and carton companies produce the packages, blisters, labels and instructions and packaged himself the drugs with a few collaborators (Frezzi, 2011, *Resto del Carlino*, 2011).

Managers of Dietary Supplement Shops

Managers and owners of dietary supplement shops also figure prominently in NAS investigations and related proceedings. An investigation conducted by the Parma Branch Office focused on N.P., a former body-builder and the owner of two gyms, and his associate A.P. Together, they ran a dietary shop in Cesena and a related website to sell their products via internet. The two imported steroids from Bulgaria, Romania, Turkey and Greece and sold them to a wide clientele throughout Italy, using C.P.'s body-building reputation and a catalogue of dietary supplement to attract new clients. According to the two officers in charge of the investigations, these illicit businesses produced revenues of about €2 million (Int-NAS-13 and 15). In another investigation, the manager of a dietary supplement shop, himself a former professional body-builder, occasionally sold anabolic steroids but most often gave advice to other body-builders, including some participating in competitions, on the specific product combinations and quantities to use and the tricks necessary to avoid testing positive in anti-doping tests (Tribunale di Forlì, 2009: 234-54).

Pharmacists

Two examples illustrate the role of corrupt pharmacists in the doping market. Over a period of several years in the 1990s, the owner of a central pharmacy in Bologna, P.L., provided illegal performance-enhancing products, primarily stimulants, and other drugs to many elite athletes, ranging from riders to Serie A football players, from volley-ball players to track and field athletes. P.L. was skilled in preparing Galenic products, but he also sold pre-packaged performance-enhancing drugs, including some that were unavailable in Italy. Prominent physicians—some of them repeatedly suspected of doping practices, such as Michele Ferrari (see the discussion below)—sent their patients to buy drugs at P.L.'s pharmacy and occasionally also bought the drugs themselves (Tribunale di Bologna, 2004; Capodacqua, 2001). In a wiretapped phone conversation,

P.L. was heard saying that "Michele Ferrari passed by and emptied my pharmacy" (*Repubblica*, 2001). Among P.L.'s customers, there were also the sports physicians of the Italian football and track and field teams as well as those of several Serie A football teams, including Parma Calcio (Int-NAS-10). Two of these physicians were indicted but later acquitted of any wrongdoing by the Bologna Court in 2001. In the same trial, P.L. pleaded guilty and received a two-year imprisonment sentence for illegally acting as a pharmacist and adulteration and counterfeiting of food products (*Repubblica*, 2001). In an interview, the Prosecutor in charge of the case regretted that P.L. could not be convicted of doping because the latter's criminal activities pre-dated the introduction of Italy's anti-doping law (Spezia, 2001).

In a more recent, still ongoing investigation, another pharmacist, Guido Nigrelli, in the nearby province of Mantua is accused of treating the riders of the professional cycling team Lampre-ISD, including the 2008 World Champion Alessandro Ballan. Detailed wiretapped conversations and police observations document that Nigrelli administered the athletes a variety of illegal performance-enhancing drugs, including EPO, ephedrine, testosterone and corticoids and also arranged analogous transfusions for some of them. Although this pharmacist had no formal position within the team, he had a very close relationship with the team manager, the former World Champion, Giuseppe Saronni⁸⁶ and de facto acted as a team physician (NAS Brescia, 2011; Int-Pro-4; Ryan, 2011).⁸⁷

Pharmacists may also be involved unwittingly in the sale of performance-enhancing drugs, that is, without being aware of the illegal goals of the purchases. Most frequently, these "non-guilty" pharmacists sell doping drugs on the basis of false or stolen prescriptions or on the basis of prescriptions written by accommodating or corrupt physicians (e.g., Tribunale di Ravenna, 2004: 122, Int-NAS-17 and 19). The line between the deceived and corrupt pharmacist is sometimes difficult to draw, though. A pharmacist involved in an anti-doping investigation explained the sale of some anabolic steroids in the following way: "It happened a couple of times and I would have never thought that a person I knew was linked to the trafficking of doping substances. He came to me asking me Testovis, a hormone which is useful for weakened animals. He told me that it was for his dog and that he would have brought the prescription later. I made a mistake but I have nothing to do with these problems" (Spezia, 2009). According to official charges, however, the pharmacist sold different performance-enhancing products in addition to Testovis and at a price higher than the official one—facts that indicate that he was likely aware of the illegal nature of the business (Tribunale di Forlì, 2009).

⁸⁶ http://en.wikipedia.org/wiki/Giuseppe_Saronni

⁸⁷ Several other corrupt physicians, who delivered performance -enhancing drugs were also involved the investigation "Flebo" of the Padova Branch Office (NAS Padova, 2009) and in "Anabolandia" of the Bologna Office (Tribunale di Rimini, 2011).

Physicians

Several NAS investigations point to the role played by physicians in the supply of doping products. In the "Bianchi" case of the Bologna Branch Office summarized in the NAS Investigations Database, for example, a specialist in endocrinology and sports medicine prescribed stimulants and anabolic steroids to at least 14 recreational athletes practicing cycling, swimming and triathlon. In another recent investigation of the Brescia Branch Office, which is not included in the database, a local anesthetist issued void prescriptions and assisted an illegal producer of steroids in exchange for drugs and specifically a suntan cream, which he used in great dosages (Int-NAS-9).

The most insightful investigation in the database is, however, "Oil for Drug," which details the prescriptions and sale of illegal performance-enhancing drugs to at least 146 elite and recreational athletes of different sports in 29 Italian provinces and led to the seizure of large quantities of doping products totaling to 38,059 doses and blood doping equipment. In such a case, two physicians played a key role not only in prescribing these drugs to the athletes but also in convincing them of the need to take these drugs. As a rider stated in an interrogation, "[The physician] told me that I was at a crossroads: I either decided to take some prohibited substances to enhance my sports performance or I would have keep on having no results" (NAS Firenze, 2005: 454). As reported in the press (cycling news, 2007), the most prominent of the two physicians was Carlo Santuccione, an Italian sports doctor, who is allegedly known as Ali the Chemist.⁸⁸ A former assistant of Conconi's at the University of Ferrara, Santuccione had been suspended from acting as a sports physician from 1995-2000 by CONI for a previous doping offense. In the "Oil for Drug" investigation, he was suspected of coordinating the whole network of suppliers of illegal performance enhancing drugs and of connecting the athletes with their suppliers. In December 2007, Santuccione was given a lifetime ban by CONI as a result of these charges (cycling news, 2007). The main tranche of the proceeding is still pending at the Rome Court.

The two most prominent Italian physicians linked to doping are not mentioned in the NAS Investigations Database because the investigations concerning them started in the mid-1990s, prior to the inception of the database.

The "father" of Italy's doping physicians is undoubtedly Prof. Francesco Conconi, professor of biochemistry at the University of Ferrara since 1967, current head of its Centro di Studi Biomedici applicati allo Sport and rector of the same university from 1998 to 2004.⁸⁹ Professor Conconi is most famous for having "prepared" Francesco Moser for his successful attempt to break the world hour record in Mexico, 1984, among other things, by using blood doping, as Moser himself would later admit (*Repubblica*, 1999). In

⁸⁸ Although not a credible academic citation or claim to legitimacy, the entry under his name in Wikipedia provides evidence of the mere existence of an allegation. See http://en.wikipedia.org/wiki/Carlo Santuccione.

⁸⁹ See his personal webpage at http://docente.unife.it/francesco.conconi/curr.

the late 1970s, Conconi started providing a variety of doping products to Italian elite athletes, primarily in track and field, cycling, swimming, pentathlon, rowing and ski sports, with the tacit support of CONI (see below). In particular, Conconi's most effective application consisted of blood doping or analogous transfusions, a doping method that was allegedly applied in those years also in other countries (e.g., Finland). Conconi augmented it, for example, by preserving and re-injecting only blood plasma and by selecting and re-injecting only the younger red blood cells.⁹⁰ Starting in the early 1990s, he began using EPO and increasingly substituted "emo-doping" with "epo-doping." With his doping "research" funded by CONI (sums corresponding to more than 2 million euro over the years; see Tribunale di Ferrara, 2003), Conconi was able to achieve spectacular results with the athletes working with him: at the 1994 Winter Olympics, Italy sensationally emerged as a powerhouse in long-distance skiing and won 34 medals. It would later be documented that many of these athletes registered hematocrit values of greater than 50%--a strong indication of EPO use and measurements that today would invoke suspension from competition (Akinde, 2006). In their reports, the experts who supported the prosecutor of this case showed the close correspondence between the highest hematocrit values and the best performances during the competitions (Bellotti, 1999). At the same time, Conconi and his collaborators published several articles in scientific journals about EPO in athletes' blood samples and the eventual possibilities of its detection (e.g., De Paoli et al. 1988; Casoni et al. 1993; Conconi et al. 1994).

By the early 1990s, Conconi started to provide systematically his services to elite riders working in private teams. In addition to assisting a few of these teams (e.g., Gewiss Ballan and Mercatone Uno), Conconi also treated a large number of the stars of the 1990s, such as Marco Pantani, Claudio Chiappucci and Gianni Bugno. In one of the files later seized by NAS on behalf of the Ferrara Prosecutor's Office, detailed information was found about 407 athletes monitored—and hence presumably at least some doped—by Conconi during the three-year period 1992-1995 (Tribunale di Ferrara, 2003: 6-7).⁹¹ As already mentioned in the introduction, these searches and related

⁹⁰ Analogous transfusions were not prohibited in Italy until 1985 when they were banned by a Decree of the Italian Ministry of Health. Even before that decree, it was clear, though, that analogous transfusions were not a standard therapeutic or research practice and that they might de facto constitute doping, as recognized by Conconi himself. In an interview quoted in an official document of the Ferrara Prosecutor's Office, Conconi stated: Analogous transfusion "may be doping but before classifying it as such we need to analyze the reasons why the technique of analogous transfusion is carried out on an athlete. If one aims to treat a subject who a hemoglobin level lower than average and to raise that level to the average, then an analogous transfusion performs only a therapeutic function, because it "normalizes" an anomalous situation. If instead, one deals with a subject with normal hemoglobin values and adds up blood to enhance performance, then this operation can be seen as doping" (Procura della Repubblica di Ferrara, 1985: 19-20).

⁹¹ According to the prosecutor's charges, Conconi himself was listed in the database under a pseudonym—and took EPO too. On one occasion in September 1994, his hematocrit was recorded as recorded as high as 57. In that period, Conconi raced together with Francesco Moser, whom Conconi

investigations conducted by the Bologna and Firenze Branch Offices and the Ferrara Prosecutor Soprani lead to the indictment of Conconi and two of his assistants of the crime of sporting fraud. Despite "the seriousness and convergence of all the evidence" (Tribunale di Ferrara, 2003: 46), however, the inefficiency of the Italy judicial system and the defendants' procedural tactics (e.g., Toti, 2003) left the Ferrara judge no other choice but to dismiss the case in 2003 due to the statute of limitations.

Even more than Santuccione, the most famous of Conconi's pupils is Michele Ferrari, who split from Conconi in the late 1990s and later specialized in attending to high-level riders. While the most prominent among his clients has been the seven-time Tour de France winner Lance Armstrong, Ferrari helped many other athletes to succeed. In April 1994, for example, the Gewiss team, for which Ferrari worked as team physician, dominated a classic cycling race, the Flèche Wallonne, taking all three podium spots. After that race, Ferrari gave a candid interview to the French newspaper *L'Equipe*. Among other things he stated: "You are doped, if you test positive in a test," "As an elite athlete, I would take anything that improves my performance, as long as I remain within the rules" and "EPO is not dangerous, it's the abuse that is. It's also dangerous to drink ten liters of orange juice" (Bergonzi and Kindhauser, 2011).

Like Conconi, Ferrari eventually became the target of a criminal investigation. On the basis of that investigation, he was sentenced to one year of imprisonment and €900 fee by the Bologna Court for the offenses of sporting fraud and illegal exercise of the pharmaceutical profession, while he was acquitted of the charge of distributing products dangerous for public health. (As in Conconi's case, the offenses foreseen by Italy's antidoping law could not be applied because the investigations began before the adoption of that law). In writing his verdict, the judge concluded that

When the best sports physicians, those trained at a center of excellence funded by CONI, such as Dr. Ferrari, get involved in doping, there is reason to fear that cheating—gross cheating no matter how sophisticated it may be from a pharmacological point of view—will offset the effective value of the athletes. There is reason to fear that a "cosi fan tutti" culture will prevail and that behind the screen of more or less sincere statements of principle, the conviction will remain widespread that it is not possible to achieve great results without pharmacological support. It is for this reason that the sanctioning of Dr. Ferrari (...) cannot be mild. (Tribunale di Bologna, 2004: 81).

was preparing to break the hour record a second time, ten years after Moser's success. Under Conconi's guidance, Moser, who was then 43 years of age and had already retired from professional cycling, eventually rode 51.840 kilometers in 60 minutes, thereby riding 689 meters beyond his record set in 1984 (Josti, 1994). Even more surprisingly, Conconi, who was then 59 years old, finished only two minutes behind Moser in a mountain race in South Tyrol (*cylingnews.com*, 2000).

Ferrari's case ultimately gave way to an absence of hard evidence and, like that of his one-time mentor Conconi, the statute of limitations. The Bologna Court of Appeals in 2006 acquitted him of illegally acting as a pharmacist "because the facts do not exist" and of the sporting fraud because the statute of limitations had run out, despite the existence of "an imposing series of circumstantial evidence" (Corte d'Appello di Bologna, 2006).

As a consequence of this proceeding, Ferrari was banned from practicing as a sports doctor in cycling by the Italy's Cycling Federation, but apparently ignored the ban. In June 2012, in fact, U.S. Anti-Doping Agency (USADA) opened a formal action against him for numerous anti-doping rule violations, including possession, trafficking and administration of doping products along with the seven-time Tour de France winner Lance Armstrong, the team manager, coach and physicians of Armstrong's cycling teams. In its notifying letter, USADA writes that

numerous riders will testify that Dr. Ferrari gave to them, encouraged them to use and/or assisted them in using products and/or prohibited methods, including EPO, blood transfusion and testosterone during the period from 1999 through 2006. Riders and other witnesses will also testify that Ferrari taught them how to devoid detection of their drug use, actively working to conceal rule violations by himself and others throughout the period from 1999 to the present" (USADA, 2012a: 9).

Ferrari as well as physician and coach of the United States Postal Service team accepted the charges and received lifetime bans a few weeks afterwards (USADA, 2012b). Armstrong is trying to block the agency's action. If found guilty, he faces a lifetime ban and being stripped of his record seven Tour de France titles.

USADA's decision probably builds, at least partially, on an ongoing criminal investigation against Ferrari in Italy, which was partially leaked to the press. According to media reports (Pasqualetto, 2011; MacMichael, 2011), Ferrari allegedly operated a mobile clinic from a camper van to elude investigators and continued treating leading riders at different locations in Italy and abroad. Among his clients were several leading riders and triathlon athletes, as well as a famous track and field champion. Ferrari also kept contact with his "patients" through his son, who was located in Monaco. He reportedly collected his fees through an anonymous Swiss firm. Apparently, Lance Armstrong also made payments to such a firm. The cycling champion stated that he stopped working with Ferrari in 2004, but acknowledged in 2011 that he continued to see him and his family on a social basis (Pasqualetto, 2011; MacMichael, 2011).

Hospital, Health Clinic and Nursing Home Employees

Several investigations and related proceedings document the frequent involvement of hospital, health clinic and nursing home employees in the supply of doping products other than the physicians who may also work in these institutions. Low-level health care

employees often contribute to the supply of doping products through thefts. A 2000 proceeding of the Bologna Court (Tribunale di Bologna, 2000: 64) singled out a male nurse who stole GH from the Endocrinology Division of the Bologna Hospital where he worked and EPO from other divisions. Systematic thefts of drugs from hospitals have also been documented to take place in the 1990s in Tuscany, particularly at the Hospital of Pistoia (Int-NAS-16). In a proceeding recently dealt by the Turin Court, D.F., the receptionist of a local hospital did not steal the drugs themselves but merely booklets of blank prescriptions and the stamps of several hospital physicians so that he could obtain performance-enhancing drugs from local pharmacies at reduced cost. D.F. then re-sold the drugs in the gym he visited and in other places, including the hospital itself (Tribunale Ordinario di Torino, 2009).

Private health clinics may also take part in the supply of doping products, by providing illegal doping methods to elite riders. The recent investigation focusing on the pharmacist Nigrelli has proven that he arranged blood doping for some elite riders in a private health clinic (NAS Brescia, 2010). Not only low-level employees were involved in these illegal practices but reportedly also the physicians and the manager of the clinic. The health clinic website in fact explicitly offered several "special services" under the heading "sports medicine," including "ozone treatment", "small" and "large auto blood doping" (Pacifici and Donati, 2011: 45).

Employees and Sales Representatives of (Para-)Pharmaceutical Companies

The last type of health care professionals playing a role in the supply of doping products consists of employees and sales representatives of pharmaceutical and dietary supplement companies, who sometimes work independently and sometimes on behalf of a company. D.F. constitutes the example of a salesman of dietary and para-pharmaceutical products who acted on his own initiative. In the late 1990s, he was proven to supply ephedrine and amphetamine products to three important wholesalers, L.S., P.B. and V.G.F., partially using his wife's pharmacy as a cover (Tribunale di Bologna, 2000: 64-67).

A more concerning example emerges from a more recent investigation of the Bologna Branch Office. Three employees of the Italian branch of Swiss drug maker giant, Sandoz, including the commercial director of the Biopharmaceutical Division of Sandoz Italy, allegedly supplied large quantities of GH to the pharmacies suggested by a physician, B.H.E. The physician prescribed GH to numerous body-builders and elite athletes, including the female World Champion of 400 meter hurdles in the master category and a football player of an elite team, Rimini Calcio (Tribunale di Rimini, 2011; *Fatto Quotidiano*, 2011). As it emerges from extensive wiretappings, the three Sandoz Italy employees were aware of the fact that their expensive drug, Omnitrope, was not bound to children with growth problems and even made plans with B.H.E. to transfer the seat of the physician's activity from Rimini to the nearby Republic of San Marino to better protect the latter's activities. The sale representative of Sandoz Italy held close contacts with some athletes, occasionally providing them with GH at reduced prices and with the special needle (the so-called "pen") to inject it. At the end of 2009 the three Sandoz Italy employees paid a €4,000 honorarium to B.H.E. to reward him for his numerous prescriptions, fraudulently justifying the honorarium as a consultancy (ibid.: 41-3). The three Sandoz Italy employees and the physician have been charged of criminal organization (article 416 CP) by the Judge for Preliminary Investigations of Rimini Court. The case is pending.

Drug makers in Italy and abroad produce many of the doping substances consumed by Italy's users, as these substances to a large extent consist of legitimate drugs. As the pharmaceutical companies are often—largely or entirely—unaware of the diversion of their products onto the doping market, we also consider their role as legal producers in the following chapter.

Lastly, employees of drug distributors are reported to be frequently involved in the diversion of legitimate drugs with potential doping effects from the storehouses or trucks of their companies—their involvement occurs through either suspicious disappearances or thefts (Int-NAS-9 and 26).

Staff Members of Sports Teams

The large-scale raids repeatedly conducted by the NAS branch offices at several editions of the Giro d'Italia and in other circumstances, such as the "Oil for Drug" investigation, and the considerable amounts of drugs seized in some of these raids⁹² leave no doubt that cycling team staff members were not only aware and tolerant of the illegal doping practices of their athletes but were also actively involved in such practices. Following up on the 2001 Giro raid, for example, the Court of San Remo sentenced P.P., the masseur of the team Mercatone Uno, of both doping and sporting fraud and convicted him to eight months of imprisonment and a \notin 6,000 fine, as doping products had been found in his possession during the raid (Tribunale di San Remo, 2005; see also NAS Firenze, 2003 and 2005).

Other investigations provide even clearer evidence of the involvement of cycling team staff members in the supply of doping products. The "Muscoli e Fiale" investigation, which was conducted in the late 1990s by the Treviso Branch Office indicates that the president and two sports directors of two Veneto cycling teams bought doping substances on the black market in Italy and abroad and delivered them to the team athletes and other customers. The illegal network also involved five pharmacists who sold illicitly some of these drugs, eight sports physicians and three masseurs,

⁹² Over 8,100 doses of doping substances were seized in the 2001 raid by the Florence NAS Branch Office at the Giro d'Italia in San Remo (Int-NAS-16, NAS Bologna, 2002). Over 38,000 doses of doping products were seized in the searches conducted during the "Oil for Drug" investigation, (Database on NAS Investigations, 2011 and NAS Firenze, 2003).

including a Guardia di Finanza officer, who was the masseur of the national juniores cycling team (NAS Treviso, 2009).

A similar investigation was prompted two years later in Brescia by the report of a recreational rider. The latter recalled that he had been pressured by the sports director and another manager of his cycling team to use illegal doping substances, if he did not want to be excluded from the first team. The sports director of the rider's team, the director of another team, two pharmacists, several riders as well as the manager of the Italy's national cycling team (!; see infra) were involved in this investigation (*Quotidiano.net*, 2001; Capodacqua, 2000).

The role of sport directors emerges vividly from an interview with a professional rider turned witness: "The stuff circulates in every way. Sports directors constitute the main supply channel; they sell it to the riders. My first supplier was a masseur from the Gewiss [a cycling team], he sold EPO at 250,000 lire per ampoule [approximately, €125]." This rider, known as a witness under the nickname of Tau, also confirms that sports directors and other team personnel are not only be the retailers but also play a crucial role in initiating riders into illegal doping practices. Asked how he began, he answered:

With the sports director, as almost everybody else. There are some riders who dope since they are young boys. When I started cycling, I did not even think about it. One day, my sports director explained me that he did not let me "run the race", that is, he did not select me among those bound to win, because I did not "treat myself." Still naïve, I replied,: "Why shall I treat myself, I feel perfectly well." Then I understood what he meant. The day of my first dose, the team physician smiled: "At last you also get into the world of doping (Fazzo and Mensurati, 2002b).

Suppliers of doping products can be found not only in cycling teams. An investigation of the Turin Judicial Police and Prosecutor's Office proved widespread illegal doping practices in the football club Juventus Turin from 1994 to 1998, years in which the team won three Italian Championships, the Champions League, the Intercontinental Cup, and Italy's Cup. The related proceeding documented the abuse of an incredible number of drugs at Italy's leading football team, which were bought centrally by the team and administered by the sports physician and his assistants, in some cases without obtaining the informed consent of the players. Whereas the offense of doping itself could not be applied because it was established only in 2000, in 2007 the two main defendants, Giraudo and Agricola, the manager and chief sports physician of the team, were found guilty by Italy's Supreme Court, Corte di Cassazione (2007), of sporting fraud for purchasing and administering illegal performance-enhancing substances, such as corticosteroids. The Corte di Cassazione confirmed the Prosecutor's Office's original thesis that the offense of sporting fraud could also be committed through the purchase and administration of legal drugs not included in the list of banned performance-enhancing substances, if these are used off-label, i.e., for purposes different than those officially foreseen (Tribunale di Torino, 2004).

As the verdict handed down by the Court of Cassation states, the defendants were accused, in particular, of "being in collusion with one another with the aim of achieving an outcome other than that arising as a result of the proper and fair conduct of sporting competitions organized by the Italian Football Federation, Serie A football championship and Coppa Italia, and of having carried out a number of related and substantial fraudulent acts [...] in obtaining and administering medicinal products outside the indications authorized by the Ministry of Health to football players with the aim of enhancing their performance" (Corte di Cassazione, 2007: 37). While stating that the crime had expired due to the statute of limitations, the Italian Supreme Court of Cassation gave a particularly interesting analysis of the case:

The Territorial Court [Court of Appeal] stated that "there is no doubt that the challenged conduct, with reference to medicinal products that are not specifically banned, was perpetrated against the players [...]. The trial records indeed provide ample evidence [...] that from 1994 to 1998 administration of the drugs in question actually took place and was often carried out off label, in other words outside the scope of authorization identified by the Ministry of Health or in non-permitted forms." "As a consequence," continued the Territorial Court, "with regard to this aspect of the indictment [...], there can be no room for any acquittal formula, other than that arising out of the impossibility of applying the rules laid down in the Act No. 401 of 1989 [i.e., the offense of sporting fraud] to the case in question." [...]. This court, by contrast, held that the conduct of the accused amounted to the crime described in article 1 of the Act No. 401 of 1989 (ibid.).

Sports Federation Officials

The line between the staff members of sports teams and the officials of sports federations is often thin and blurred; however, we believe that it is an important analytical distinction, as the latter belong to sports ruling bodies. Several proceedings based on NAS investigations report the involvement of sports federation in officials doping practices, both as direct suppliers and as "protectors." We will discuss the protection-like services that officials of sports federations and other ruling bodies offer to athletes taking performance-enhancing drugs and to their suppliers in chapter 5. Here, we consider exclusively the sports federation officials' role as direct suppliers.

The role of supplier is well documented in the detailed diaries of Daniele Faraggiana, which became public in 1986. Faraggiana was a former decathlete and then a sports physician on the payroll of both Italy's Athletic and Weightlifting Federations. In his diaries, he listed the names of all the athletes he doped (among them, a track and field champion of the Los Angeles Olympics), the substances administered, the respective dosages, the negative effects on the athletes' health and the athletes' performances. The treatment of a national thrower was, for example, described as follows:

April 17, 1985: up to April 20, methandrostenolone, protein 2 per day; lecithin 1 spoon per day, Supradyn 1 pill per day. If he feels muscle tiredness, Berolase 2 ampules each every second day; vitamine C 3 gr oral or 1 gr intravenously per day. From April 22 Testoviron 100 mg every Monday, Wednesday, and Friday up to May 5; vitamin B12 (Benexol B12 or Epargrisovit 2 red ampules or similar), Epargrisovit 2 red ampules intramuscularly or intravenously every two days up to; Honey, brewer's yeast, Vitamine E (Ephinol, 1 pill per day from April 22 to; protein and lecithin as above and Supradyn. Diet without fats, increase starchy food in the last 10If sleepiness arises, Brain 3 pack. Die; if laziness arises, Sargenor 4-6 ampoules die (Donati, 1989:78).

Faraggiana also listed the transfers of doping substances to coaches and other physicians, including Prof. Conconi, with details about the types and quantities and the dates of each transfer. On another sheet, he also summarized the philosophy of his "pharmacological strategy", writing that this had "to complement the technical strategy" and he should also "give copy of [his] strategy" to the trainer of all throwers, according to whom "50 % of the results depend on the medical therapy" (ibid: 89).

Donati's casual discovery of a large box of about 1,000 bottles (about 100,000 doses) of the prohibited drug methandrostenolone in the offices of the Italian Athletic Federation in 1985 also seems to suggest federation involvement (ibid: 76). However, these discoveries and the repeated public complaints of Donati and a few other federation officials did not lead to any criminal law or sports investigations. On the contrary, as we discuss below, Primo Nebiolo, who was then the president of both the Italian and worldwide athletics federations (known as International Association of Athletics Federations),⁹³ ignored the reports and attempted to cover up the scandal (Donati, 1989).

More recently, in the investigation "Oil for Drugs", a high-level official of the Italian Cyclist Federation (FCI) was reported to be coordinating a group of distributors of doping substances and two controversial physicians who prescribed riders doping substances and methods. The NAS final report to the Rome Prosecutor's Office hypothesizes that the FCI official with his accomplices ran a criminal organization, which he himself headed. The official repeatedly put these suppliers in contact with potential customers and especially elite riders, misusing FCI's funds and other properties. To increase his position within the federation, the official even set up teams of doping

⁹³ For biographical details, See http://en.wikipedia.org/wiki/Primo_Nebiolo

riders, who scored well in competitions and thus helped consolidate the official's prestige and power (NAS Firenze, 2005: 509-512).

Coaches—regardless of whether they are on the payroll of a private sports team or a sports federation—may play a crucial role even when they are not actively involved in the purchase or administration of doping products but merely tolerate or recommend their use. One member of our research team (Donati) recalls that, in preparation of the 1984 Los Angeles Olympic Games, all the coaches of Italy's national track and field teams accepted the administration of testosterone and anabolic steroids and blood transfusions to their athletes to enhance the latter's performance.⁹⁴ All athletes—other than those trained by Donati—participated in such activities, which were administrated centrally in close cooperation with Prof. Conconi.

Reflecting on this experience, Donati (2003) concluded: "It was then that I understood how, when it comes to doping, the key figure is the coach; it is not really a question of honest or dishonest athletes but of honest or dishonest coaches." The evidence that we have presented in chapter 2 and we present below, nevertheless suggests that the athletes cannot be dismissed uniformly as "innocents," entirely lacking culpability.

Veterinary Physicians, Breeders and Drivers

We discuss these three types of suppliers jointly, as the NAS Investigations Database and other sources do not provide specific information on each. A large 2003-04 investigation conducted by the Naples NAS Branch Office documented how widespread doping practices were in the world of horseracing. The 140 veterinary physicians, breeders and drivers charged exchanged doping products, which they administered to horses. One of the purposes of these practices was to "fix" the results of official competitions organized by UNIRE⁹⁵ and thus earn considerable sums of money with legal and illegal bets. An imprecise number of suspects, presumably no larger than the 25 persons who were arrested, were also charged of criminal organization (article 416 CP). Predominantly based in the area of Naples, they largely used doping substances received from robberies, and especially truck robberies (see below; see also Fazzo and Mensurati, 2002b).

Another 2006 investigation conducted by the Naples police flying squad, reported in the media, confirmed the administration of doping substances to horses to fix at least 50 races at some of the best Italian racetracks, especially in Campania. Both cases proved

⁹⁴ Whereas the use of testosterone and steroids had already been banned by the IOC and, in Italy, by the Ministry of Health , blood transfusion was then not prohibited, although it had all the characteristics of doping—a fact that led Donati to reject it.

⁹⁵ UNIRE (Unione Nazionale Incremento Razze Equine) is a public body established in 1932 and charged with the promotion of horse breeding and the organization of horse races (for further information, see http://www.unire.gov.it/).

the veritable maltreatment of horses, which often had accidents as a result of the heavy stimulants and diuretics taken and were slaughtered as soon as they could not be used in competitions (De Arcangelis, 2006; see also *Repubblica*, 2004a). Veterinarians, breeders and drivers are often threatened by, or colluded with, members of camorra groups who have repeatedly tried to fix races particularly but not only in the Campanian racetracks. A telling detail is the fact the racetrack of Cirigliano in Aversa, a town north of Naples dominated by the powerful Casalesi clan, recorded in 2007 the highest average of bets in whole of Italy (Zunino, 2007). Horses are made run not only in official racetracks but also in unauthorized ones or even on regular streets at night or at dawn, where horses are maltreated even more (Zunino, 2009, Int-NAS-22 and 23).

A 2008 investigation of the Italian Polizia di Stato coordinated by the Lucca Prosecutor's Office again proved the fixing of dozen races, in several racetracks and the maltreatment of the horses, which were routinely given doping substances. This case also demonstrated the pervasiveness of illegal practices in the world of Italian horseracing—and not just in the South. Among the suspects, there was also Enrico Bellei, the best Italian trot driver, who was located in Pisa and had won 12 Golden Horsewhip, the prize that is yearly granted to the driver winning most races (*Repubblica*, 2008).

Athletes

NAS investigations and media reports indicate that athletes do not just use doping products to increase their performance but they or their closest family members also engage in the import and distribution of doping substances. Given their frequent trips abroad, elite athletes are in an ideal position to import doping substances. According to some of our interviewees (Int-NAS-25 and 26) it also may be the case that famous athletes are likely to be less frequently and less intensively checked at customs controls. Exploiting differences in the national regulations and enforcement, they also may be able to buy some of these products legally and then to sell amounts in excess of their consumption needs to other people.

Most athletes engage in these activities to increase their own sports performance. In 2005, for example, the Lithuanian rider, Raimondas Rumšas was arrested at his house in Lucca for smuggling banned performance-enhancing drugs into France. On the day of Rumšas' third place finish in the 2002 Tour de France the French police had discovered corticoids, EPO, testosterone, GH and steroids in his wife's car. She was jailed for several months before being released, despite her claim that the drugs were for her mother-inlaw. In January 2006, he and his wife received a four-month suspended prison sentences for the import of prohibited doping substances (*cnn.com*, 2006). The wife of another rider was also arrested in 2005 at the Italian-French border because she transported EPO ampoules in her car, while her husband, an Italian rider, was taking part in the Tour de France (*Corriere della Sera*, 2005). A few athletes, however, also engage in the illicit trade of doping substances to re-sell these drugs to others. A recent investigation coordinated by the Mantua Prosecutor's Office has for example singled out an elite rider who imported—through undetermined channels—steroids, GH and other products and sold them to colleagues and even a pharmacist (NAS Brescia, 2011). The rider-cum-witness previously mentioned recalls that his own cycling career was, at a certain point, enhanced by his experience in supplying doping substances: "My team manager had understood, he told me: 'I keep you for another while, even if you ride slowly. The only thing you have to procure me is the stuff.'" The witness goes on recalling that many people turned to him, because it was known that he had a good supplying channel. "The list of my customers would be long"— he adds—"physicians, sports directors, colleagues" (Fazzo and Mensurati, 2002b).

Public and private security personnel engaging in body-building

As much as athletes, body-builders, too, occasionally trade in the same doping products they consume. Since the 1990s, NAS investigations have provided repeated evidence of numerous body-builders operating as user-dealers and, more rarely, as wholesalers.

Among them, police officers and private security personnel compose a numerically consistent and particularly worrying subtype, which can be connected to specified set of profession. As we have seen in the previous chapters, body-building is an attractive activity for both sets of professions, which are usually associated, especially at low-levels, with an athletic and imposing physical presence (see Hoberman, 2012). As other body-builders, a few public and private security staff members practicing bodybuilding sell doping products to finance their own consumption habits and, in some cases, earn extra money. Several bouncers, for example, were reported mostly as customers but also as occasional retailers of doping substances in the Bologna Branch Office's investigations (e.g., Tribunale di Bologna, 2000; Tribunale di Forlì, 2009).

Whereas most body-builders remain user-dealers, a few expand the scale of their businesses beyond the retail level. The main defendant of an investigation carried out by Udine NAS Branch Office in 2004-05, for example, was a famous body-builder, who had also been elected "Mister Universe". Based in Trieste, the body-builder imported considerable quantities of steroids and other doping products from nearby Slovenia. He then partially retailed these drugs in one of his gyms and partially sold them to a network of distributors who were located in other Italian regions, above all in Lombardy, Veneto, and Marche (Int-NAS-5; NAS Udine, 2009a).

Several investigations also detail the illegal supplying activities of public and private security officers, who are themselves body-builders. A 2001-02 investigation of the Udine NAS revealed that a Guardia di Finanza agent and his cousin, both bodybuilders, sold doping products in the gym they visited, in other places, and via mail. Their main supplier was the brother of one of them, a Polizia agent based in Naples. The illicit trade was hidden through the dietary supplement shop of the police agent's wife. The three suppliers used a secret code and in their phone conservations spoke of dietary supplements, while the two Udine-based suppliers effectively ordered anabolic steroids and other drugs from Naples-based agent (NAS Udine, 2009b).

More recently in Turin, an investigation of the local NAS branch office and Prosecutor's Office revealed that a Polizia di Stato officer, bought large quantities of steroids and stimulants via the internet and then sold them to the clients of his wife's esthetical center and to several of his colleagues. Some of his colleagues further retailed the drugs to other policemen and other customers in the gyms of Turin and periphery. In total, 21 policemen were reported in different Italian regions; however, only three acted as suppliers (Numa, 2010; Tribunale Ordinario di Torino, 2012).

As the initiating policeman and some of his colleagues also worked at night as bouncers, this case also demonstrates the involvement of bouncers in the illicit trade of doping substances. Likewise, in an investigation carried out in Brescia, the owner of a private security firm, a former law enforcement officer, did not solely retail but also distributed large quantities of anabolic steroids, providing them to a large network of lower-level suppliers (Int-NAS-9).

Other Illegal Suppliers

The final category of illegal suppliers consists of persons with no distinctive profession or occupation. There are many of them and they are, above all, active in the thoroughly illegal segments of the market for doping products, as producers of doping substances in illegal labs, thieves, truck hijackers or operators of specialized websites. A good illustration of this type of supplier is the jobless former nurse of a Turin hospital, who produced anabolic steroids in a lab close to Brescia and marketed them through a website on behalf of an international criminal organization (Int-NAS-9).

The Illegal Suppliers' Motives

The primary and secondary motives of the main types of illegal suppliers of doping products are summarized in Table 3.3.

Unsurprisingly, profit provides the main and often sole motive for the nine types of illegal suppliers belonging to the categories of "gym," "health care," "horseracing" and "other" and for public and private security personnel engaging in body-building. Whereas the latter may also want to finance their own consumption, gym owners and managers, body-building instructors, managers of dietary supplement shops, hospital employees and other people with no specific professional or occupational background have no other, discernible motive than profit to enter the trade in doping products. As illustrated by the case of Dr. Ferrari (Tribunale di Bologna, 2004) and the Bologna pharmacist involved in the "Campioni senza valore" investigation (Int-NAS-10), many pharmacists and physicians administering or selling doping products are also driven by profit. As the Sandoz Italy case points out, though, in some cases the main gain may not be personal but possibly institutional (Tribunale di Rimini, 2011). Most of Prof. Conconi's financial earnings, too, did not consist of private money but of funds for his bio-chemical university center (Tribunale di Ferrara, 2003).

| Category | Туре | Motive | | |
|----------------------|--|----------------------|-----------------------------------|--|
| | | Primary | Other | |
| Gym | Gym managers or owners and body- building instructors | Personal profit | n.a. | |
| | Managers or owners of dietary supplement shops | Personal profit | n.a | |
| Health care | Pharmacists | Personal profit | Prestige, sports success | |
| | Physicians | Personal or | Prestige, sports | |
| | | institutional profit | success | |
| | Hospital employees | Personal profit | n.a. | |
| | Employees, sale representatives of | Personal or | 22 | |
| | (para-) pharmaceutical companies | company profit | II.d. | |
| (Human) Organized | Staff members of sports teams | Sports success | Personal profit/career | |
| sports world | Staff members of sports federations | Sports success | Career | |
| Horseracing | Veterinary physicians, breeders and drivers | Personal profit | n.a. | |
| Use | Athletes | Sports success | Personal profit, group solidarity | |
| | Public and private security personnel engaging in body-building | Personal profit | Own consumption | |
| Other | People with no distinctive profession or occupation | Personal profit | n.a. | |

Table 3.3 Primary and other motivations of the types of suppliers of doping products in Italy

Source: our elaboration on the basis of the NAS investigations analyzed.

The closer the supplier comes to the organized sports system, the more important non-financial motives become. The Conconi's case, for example, indicates that prestige may be an important complementary motive for the some physicians involved in illegal doping practices (Tribunale di Ferrara, 2003). Physicians and pharmacists, such as Nigrelli (NAS Brescia, 2011), may also break laws and the ethical codes of their professions out of a misconceived love for sports, having become fans of the athletes they treat. Whatever the exact motives, these professionals probably feel that the fame of the winning elite athletes at least partially reflects on them and may take satisfaction in giving those athletes a decisive advantage through their doping therapies and products (see also Waddington, 2011).

Non-financial motives play a larger part for suppliers belonging to the organized sports world and for suppliers who are athletes. Staff members of sports teams and sports federation officials may receive a premium or a pay rise when some of their athletes are successful but have no other direct financial gain from the athlete's doping

practices. The illegal behavior of staff members of sports teams and sports federation officials can rather be explained in terms of "overconformity" with norms and values embodied in sports, as the result of a socialization taken to extremes (Escriva, 2001; Coakley and Pipe 2009). Dr. Faraggiana, a former decathlete and sports physician, who systematically treated the athletes of the Italian Athletic and Weightlifting Federations with doping substances, did not receive a premium and had no other personal gain. Just like the trainer he quoted in his notes, he was simply convinced that a "pharmacological strategy" was unavoidable to be competitive (Donati, 1989: 89). Even though they are not financial, selfish motives cannot be ruled out even in the case of many staff members of sports teams and sports federation officials. In fostering or tolerating doping practices and thus achieving sports successes, they might also aim to consolidate and extend their own positions, foster their careers, and increase sponsor or government funding for their own teams or federations.

Most athletes and competitive body-builders who import or export doping substances for personal use are probably driven by overconformity to sports rules, the desire to score well competition and be accepted by their peers, as Tau's abovementioned quote suggests. For the super elite athletes of some popular disciplines, such as cycling, tennis and track and field, though, succeeding athletically and succeeding financially may be two sides of the same coin. A rider or tennis player, for example, might be driven by an interest in enhancing his or her performance and beating the competition, but a good result in an important event could entail new contracts with professional teams or sponsors and may sometimes result in a substantial direct payment, e.g., a large prize.

Financial motives are more clearly distinguishable among those athletes who trade in doping substance not only for their own consumption but also sell them to other sportspersons. Many athletes selling or giving doping substances to other colleagues are not exclusively driven by financial incentives, though. Tau, the earlier mentioned rider-turned-witness recalls: "Everybody knew everything. And there was even some sense of solidarity, if you had only a vial left, you shared it with those riders who were without. If a colleague was riding fast, you offered him to procure him the stuff, so that he did not stress out and focused only on winning (Fazzo and Mensurati, 2002b).

4. DISTRIBUTION CHAINS AND MARKET RELATIONSHIPS

In this chapter we first analyze the distribution chains composed by legal and illegal suppliers of doping products, noting that the length of the chain and the legal status of transactions vary depending on the products exchanged. Given the embeddedness of many supply-side activities in legitimate professions and exchanges, we then argue that the relationships the suppliers develop with each and their customers can often be subsumed under the broad category of white-collar crime. Tout court illegal enterprises also emerge, though, particularly among the suppliers dealing with substances that are illegally manufactured for doping purposes.

Sources, Distributions Levels, and Connections between the Legal and Illegal Segments of the Market

Many suppliers identified in the earlier typology operate as retailers; that is, they sell doping substances or administer doping methods directly to the final users. Other suppliers are, instead, wholesalers. Employees and salesmen of (para)-pharmaceutical companies are the most obvious example of this category, as they rarely have direct contacts with users and supply pharmacies or, less frequently physicians. Whereas most gym owners and managers are exclusively active at the retail level, some also operate at the middle or wholesale levels, and a few import doping drugs from abroad, particularly through internet. Hospital employees stealing doping products or prescription forms from hospitals are also a hybrid category: they may or not be retailers depending on whether they provide users or other suppliers with the drugs they have stolen from the hospitals or bought from pharmacies using stolen prescriptions.

A characteristic of the market for doping products is that not all the suppliers engage in market relationships with the final consumers of the doping products. A sports team or sports federation physician, masseur, or other staff member usually administers a performance-enhancing substance or method to an athlete without expecting any immediate financial reward from him or her. The sports team or sports federation staff member may even not have purchased the drug or doping equipment himself. Either he (or less likely, she) receives the drug or doping equipment directly from the team or federation, which has bought it centrally (as happened in the Faraggiana's case), or is provided with it by the athlete, who has bought the doping material independently.

To further clarify the (often variable) market position of the different types of suppliers, we need to identify the sources and distribution levels of the different doping products and, to do so, we also need to distinguish between doping substances and methods on the one hand, and among different doping substances, on the other. In the case of doping methods, it hardly makes sense to speak of a distribution system as these methods are administered using legitimate and often banal medical instruments. All doping substances, instead, entail a distribution system that requires close examination. However, the system can have different numbers and types of levels depending on the substances and quantities traded and the degree of entrepreneurship of the final users. In delineating the sources and distribution levels, we also establish the legal status of the sources and transactions between the different distribution levels, thus distinguishing the illegal suppliers from those who are unaware of the illegal nature of the exchanges they are involved in.

Doping Methods

Doping methods, such as transfusions, are the simplest case. As there is no real distribution system for them, it makes no sense to distinguish between retailers and wholesalers. Doping methods are usually practiced only on elite or professional athletes and, according to the evidence found in the NAS investigations, they are administered by physicians working in public (university) hospitals, such as Conconi (see Tribunale di Ferrara, 2003) or private health clinics (NAS Brescia, 2011) or, more rarely, by the staff members of a sports team or members of the athletes' entourage (e.g., NAS Padova, 2009; NAS Brescia, 2011; see case 1 of figure 4.1).⁹⁶

In order to administer a doping method, the suppliers need specialized transfusion equipment. Conconi obtained it regularly from the Ferrara University Hospital (Tribunale di Ferrara, 2003) and the private health clinic involved in the recent investigation coordinated by the Mantua Prosecutor's Office reportedly provided it to its staff (Pacifici and Donati, 2011). In other cases, it is not clear where the equipment came from. We see two possible alternatives: the equipment can be bought legally or diverted from hospitals and other health care centers. The recent Mantua proceeding additionally indicates that riders have equipped themselves with portable equipment to keep their blood refrigerated so that they can re-inject it at their own convenience (NAS Brescia, 2011; Pacifici and Donati, 2011).

Substances Manufactured for Doping Purposes

Substances can be produced exclusively for doping purposes in pharmacies or in illegal labs, in Italy and abroad. NAS investigations indicate that "corrupt" pharmacists or people with access to pharmacy labs still occasionally prepare such drugs, albeit less frequently than in the past. At the end of the 1990s, for example, a Bologna pharmacist prepared stimulants and sold a variety of other doping products, having contacts with the coaches of several Italian Olympic and Serie A football teams (Int-NAS-16; see case 2a of figure 4.1). A few years afterwards, another investigation of the Bologna NAS singled out a borderline case; that is, a salesman of para-pharmaceutical products who

⁹⁶ Similar evidence emerges also from doping scandals abroad (e.g., D'hont, 2007; Dopingskommission, 2009).

used the lab annexed to his wife's pharmacy to prepare pills of ephedrine, clobenzorex and caffeine, working, however, on a much smaller scale and degree of sophistication than the real pharmacist (NAS-Bologna, 2000: 276-303).

If pharmacists sell the substances they produce directly to the users, they are "producer-retailers." If they sell the same drugs to coaches, trainers or other representatives of sports teams or sports federations or to other doping suppliers, as in the case of the Bologna pharmacist, they act as "producer-wholesalers." Given the explicit performance-enhancing goal of the drugs produced, the production itself and any subsequent exchange are by definition illegal, even though pharmacists are often able to hide the illegal nature of their activities under the cover of their legal profession.

The legal status of the exchange of raw materials before production varies by circumstance. As far as we could reconstruct, the Bologna pharmacist bought the raw materials from legal suppliers (Int-NAS-16). Instead, the salesman of para-pharmaceutical products who used the lab annexed to his wife's pharmacy imported raw materials illegally from Switzerland (NAS Bologna, 2000: 303-6).

Doping substances can also be produced in labs under completely illegal conditions and, in this case, usually consist of counterfeited products (see case 2b of figure 4.1). Known brands make it easier for producers and retailers to market the doping products. There is also a difference in the drugs produced and clientele served. "Real" pharmacists (thus excluding for a moment the case of the salesman) tend to serve elite and professional athletes. Illegal labs instead focus predominantly on body-builders and thus produce above all anabolic steroids (Int-NAS-9).

A few investigations provide evidence of the existence of such illegal labs in Italy. In the investigation "Artificial Body," of the Bologna Branch Office(NAS Bologna, 2000), the existence of labs illegally producing doping products was hinted at in several wiretapped phone conversations but the labs themselves were never identified. An indirect confirmation of the existence of such labs was given by the seizure of numerous drug labels and in particular, Masteron, Equipoise, Goldline Nort-4 injection, Goldline Bolasterone injection, Goldline Nandrolone from P.B. in Bologna. In a previous conversation with a client who was complaining about the quality of Winstrol ampoules, P.B. reassured him about the quality of the lab that had prepared them and was heard saying that "at most they might have been made a mistake with the labels" (NAS Bologna, 2000: 226-7).

In a more recent case, the Brescia Branch Office dismantled a laboratory located near Brescia, which was part of a large network of laboratories set up by a South African national. An employee of the laboratories, a young Israeli chemist, spent several weeks in Brescia to train the main Italian suspect, D.B. (Int-NAS-9). The South African ringleader bought active ingredients primarily from an illegal lab in Moldavia and delivered it to D.B. through a Moldavian courier service specialized in supplying Moldavian products to Moldavian migrants living in Italy. According to the estimates of the Brescia Branch Office, D.B. used 2,000-3,000 liters of active ingredients and produced at least several million pills. Most of the pills were of poor quality, despite the fact that D.B.'s website and the other foreign website of the organization he was part of, were guaranteed by the logo "British Dragon." This is a well-known brand in body-builders' circles and is supposed to guarantee the quality of the steroids sold (Int-NAS-9).

Illegal labs can either sell their products directly to users or to other suppliers. The lab mentioned in the Bologna investigation served primarily the latter, including some large-scale wholesalers, such as P.B. The suspect operating the Brescia lab distributed his own products and other drugs manufactured abroad through a website and thus reached both users and other suppliers (Int-NAS-9).

Doping substances may also have been produced exclusively for doping purposes by pharmacists or illegal labs located abroad. In the above-mentioned year-2000 investigation of the Bologna Branch Office, for example, the main suspect, P.B., purchased doping drugs, among many other channels, from a Greek physician, who prepared them for him (NAS-Bologna, 2000: 428-438). In another NAS investigation in Aosta, a gym manager bought anabolic steroid from a Swiss person who produced the drugs. Even though the Swiss law enforcement agencies followed up on the information shared by the Aosta Prosecutor's Office, the lab was never identified (Int-NAS-9).

As stressed by all NAS respondents, most foreign labs remain unknown to Italian police forces. They seem to be, however, a considerable, if not the largest, source of steroids and other doping substances used by body-builders. At the end of the 1990s, an appointment calendar seized from one of the largest importers, V.G.F., demonstrated that he had contacts with presumably illegal producers in Portugal, Albania, and Poland (Tribunale di Bologna, 2000: 67). More recently, several other suppliers belonging to the category of "gym" also imported steroids produced in foreign illegal labs, with Spain being the source most-often mentioned (NAS Napoli, 2003; Procura della Repubblica di Siracusa, 2010; Tribunale di Bologna, 2004: 125-126).⁹⁷ Our sources indicate that, a large share—albeit inestimable—of the steroids and other doping substances produced in illegal labs are sold via pseudo online pharmacies and other dedicated websites (e.g., Int-NAS-10, 12). These websites are sometimes shut down, above all by the U.S. authorities, but they often re-appear under slightly different names or with a seat in an exotic country.

A recent, very innovative investigation of the Bologna Branch Office identified a network of websites selling anabolic steroids and storehouses of the same substances in different countries in Europe and elsewhere. The central server of the network was based in Slovenia and was run by a Slovenian couple who lived in Austria. Once a

⁹⁷ In some cases, though, NAS officers have difficulties to ascertain whether the doping substances they intercept have been produced by illegal labs or legitimate companies (see chapter 7).

customer placed an order on a website, an automated system transferred the order to one of the storehouses, making sure to pick different storehouses in the case of repeated orders by the same customers to avoid steroid deliveries from the same country. One of the storehouses was based in Northeastern Italy and was identified by the Bologna Branch Office after some packages containing steroids were seized at the border (Int-NAS-13; see figure 4.2). According to the Austrian police who finally arrested the two in December 2011 in close cooperation with NAS and the U.S. DEA, the couple had earned about US\$50 million with the business (*Kurier*, 2011; *DiePresse.com*, 2011).

Figure 4.2. Graphic representation of the network of websites and storehouses of doping products identified in the investigation of the Bologna NAS Branch Office



Source: Our elaboration on the basis of Int-NAS-11.

The Bologna Branch Office was able to trace shipments of steroids ordered through the Slovenian website from China, Thailand and several Eastern European countries. It could not collect any direct information on the producers themselves (Int-NAS-13). Whereas the Eastern European labs are likely to be at least formally illegal, we have no information on the legal status of the production centers located in China and Thailand.

As much as the substances produced in Italy, the substances produced for exclusive doping purposes abroad are likely to be counterfeited. One of our interviewees, for example, recalls that his o and other NAS branch offices recently seized large quantities of nandrolone-based drugs, allegedly produced by the Greek company Norma but containing little or no active ingredient (Int-NAS-9). However, in the current project we have no elements to assess the share of the Italian doping market that is accounted for by counterfeited products. Italy's prosecutor's offices do not always order the analysis of the substances seized and, even if they do, they rely on different laboratories for the analyses, and no centralized register is kept.

What is clear is the fact that a growing number of Italian users take advantage of Internet and order doping substances, primarily steroids, from websites. When those who operate the web-based businesses are located abroad, the users buying steroids bypass the whole Italian distribution chain and become, so-to-say, "users-importers"—in the same way in which illegal drug users living in countries surrounding the Netherlands increasingly go there to buy cannabis or other illegal drugs (Paoli, 2000; Fijnaut and De Ruyver, 2008). However, profiting from the ambiguous legal nature of doping products, the consumers of steroids and other doping substances do not even have to physically move out of the country. From their computer desks, they simply order the drugs they need and have them delivered at home by mail. Judging from the parcels intercepted by NAS, foreign users do not behave differently than Italian users: they too increasingly buy steroids and other doping substances on the internet, even if they may be less targeted by their respective law enforcement agencies than their Italian counterparts (Int-NAS-1, 7 and 25; see also the foreign investigations summarized in chapter 1).

Substances Manufactured for Legitimate Purposes

A large, but not precisely known, share of the doping substances sold in Italy appears to have been produced by a legitimate drug-manufacturer located in Italy or abroad and diverted at some stage from the legal distribution chain. The database on NAS investigations indicates that 85,086,928 doses of doping substances or 96.6% of the total doses seized consist of "drugs authorized in Italy." Only 2,956,637 doses or 3.4% are not authorized. For the reasons explained earlier, there is no way to know which share of the drugs authorized in Italy has been effectively produced by a legitimate drug manufacturer in Italy or abroad. The perception of NAS officers is that the large-scale shipments intercepted as a rule contain legitimate drugs and that counterfeited substances are most likely to be bought by private individuals in small quantities on the internet (Int-NAS-2, 3, 9 10, 16, 25, 26).

At least in principle, the diversion of a legitimate drug that can be used for doping purposes may be decided by the company itself or one of its dependencies. On the basis of an in-depth study of the corporate crime in the pharmaceutical industry in the late 20th century, the Australian scholar John Braithwaite (1993: 525) concluded that "the pharmaceutical industry arguably has the worst record of serious corporate crime of any industry;" hence, we regard the involvement of pharmaceutical companies in the supply of doping products as a possibility. This possibility is also suggested by two criminal investigations. In the early 1980s and 1990s, the Italian subsidiary of the pharmaceutical giant Boehringer delivered large quantities of EPO to Conconi for years, notwithstanding

the fact that his specialization was not the treatment of anemia or cancer but biochemistry applied to sports (Toti, 2003)—the company or any of its representatives were never charged, however. The ongoing proceeding of the Rimini Court, involving the employees and a commercial director of Sandoz Italy, does not in any way prove that the sale of GH for doping purposes was a company policy. However, given the charges raised against the commercial director, the proceeding does suggest that the sale of GH for doping purposes was not just due to the deviant attitudes of a couple of low-level employees (Tribunale di Rimini, 2011; see also *Fatto Quotidiano*, 2011). The latter proceeding also confirms a finding of corporate-crime research (Gobert and Punch, 2003: 30-31; Braithwaite, 1985: 8): excessively ambitious sales goals set for low- and middlelevel employees (and the premiums offered for robust sale increases) may have a powerful criminogenic effect, if there are no strong compliance controls within the company to make sure that the goals are reached by legitimate means.

The off-label sale of GH is by no means a uniquely Italian practice. In the United States, Pfizer, a pharmaceutical giant, agreed to pay in 2007 almost \$35 million in fines to settle federal charges that a rival drug maker, Pharmacia, it had acquired four years earlier had inappropriately marketed another GH-based product, Genotropin, for off-label use (Reuters, 2007). Another Pharmacia subsidiary entered into a deferred prosecution agreement with the U.S. Department of Justice that includes a fine of \$15 million for improper promotion of Genotropin that Pfizer discovered soon after the Pharmacia merger (*Reuters*, 2007). In its fourth settlement over illegal marketing activities since 2002, Pfizer agreed to pay \$2.3 billion in 2009 to settle civil and criminal allegations that it had illegally marketed its painkiller Bextra. According to the *New York Times*, this was "the largest health care fraud settlement and the largest criminal fine of any kind ever" (Gardiner, 2009; see also Rost, 2006).

A 2009 Guardia di Finanza investigation demonstrated also the involvement of the staff of a legitimate pharmaceutical company in the production of EPO and GH. After seizing some rare micro-doses of EPO at a suspect's house, the Guardia di Finanza raided the drug manufacturing company and found 83 bottles containing the active ingredients of EPO and GH that would have been sufficient for the production of 10,000 ampoules of analogous doping products (Capodacqua, 2009).

Rather than dealing directly with controversial subjects, pharmaceutical companies most often simply produce more drugs than can be justified on the basis of the demand for legitimate therapeutic purposes. A few years ago, the Belgian Senate (2005) estimated that about 80% of the global production of EPO (assessed in €4 billion) and GH ended up being misused in sports. The exactness of this estimate might be questionable—indeed some experts (e.g., Jelkmann, 2012, personal communication) have expressed doubts about its accuracy—but Italian anti-doping law enforcement activities indicate how companies deal with over-production. In a recent investigation coordinated by the Brescia NAS Branch Office, two Spanish distributors of an Italian
pharmaceutical company introduced large quantities of Winstrol, an anabolic steroid, on the black market and some of these substances were then smuggled into Italy. Only after being alerted by NAS, did the Italian company interrupt the delivery of the steroids to the two Spanish storehouses (Int-NAS-9). This case illustrates a fundamental weakness in the regulation of the international drug market. Namely, each company produces and sells as much of its own drugs as possible, and there is no overarching regulatory body checking if the quantities produced worldwide correspond at least roughly to the demand for legitimate therapeutic purposes (int-NAS-26).

NAS investigations also show that Italian illegal suppliers, particularly those operating on a large-scale, often receive doping substances from Spain and other countries with supposed lax regulation (see also Donati, 2007: 73-75) and that these substances have been produced by local pharmaceutical companies or from branches, or companies associated with, Italian drug makers. Large-scale shipments of controversial substances, including those that can be used for doping purposes, seem to be often shipped from Spain via Melilla, a Spanish enclave in Morocco that is reported to enjoy particularly lax controls (Int-NAS-9). In one case, for example, large boxes of chorionic gonadotropin and other doping substances were shipped from the Spanish storehouse of an Italian pharmaceutical company to the Italian member of the large criminal organization run by a South African national (Int-NAS-9). While they lack exact information on the senders, NAS officers believe that most diversions are due not to the employees of the drug makers themselves but to the employees and managers of the drug distributors (see case 3a of figure 4.1).

Large-scale Italian suppliers can import substances with performance-enhancing effects that have been legitimately produced in foreign countries using their personal contacts in those countries or in transit countries (Tribunale di Bologna, 2004: 125-126; Procura della Repubblica di Siracusa, 2010). Internet and specifically dedicated websites also allow small-scale traders and users to import these substances directly.

Robberies from the storehouses or trucks of drug distributors can also serve the purpose of diverting legitimate drugs with doping properties onto the black market (see case 3b of figure 4.1). Several NAS investigations show that illegal suppliers of doping products, particularly in the gym world, more than occasionally receive steroids and other drugs that have been stolen or "lost" from storehouses or trucks of drug distributors (e.g., Tribunale di Forli, 2007: 153). In several cases, the thieves have been linked to the world of organized crime and particularly to the Neapolitan camorra and have a network of pharmacies and other drugs are carried out on the basis of tips by employees of drug distributors or the logistic companies working for the distributors. The thieves seem often to know in advance what the storehouses or trucks contain and steal primarily drugs that can be sold at a premium on the illegal market. According to

some NAS respondents (Int-NAS-9 and 26), some companies may also occasionally prefer to place controversial medicines, such as steroids, on the market through a faked robbery, in order to avoid the legal distribution channels, which are subject to many controls.

A 2001 investigations conducted by the Naples Branch Office (not included in the NAS Investigations Database) dismantled a big network specialized in truck robberies and the distribution of the stolen drugs, revealing the complicity of many employees and representatives of the health care sector. The Naples Prosecutor's Office issued eighty-one arrest warrants, targeting 16 pharmacists, four house physicians working for Italy's public health system, six drug wholesalers, two pharmaceutical salesmen and four couriers in addition to the robbers and several truck drivers who were the latter's accomplices. The drugs—not only doping products but also many others, above all Viagra—were first stored in basements in very unhygienic conditions and then distributed through a network of complacent drug wholesalers, pharmaceutical salesmen and pharmacies predominantly located in Naples, Rome, and Foggia and Bari in Apulia. Corrupt physicians provided prescriptions so that the drugs could be sold "legally" and the pharmacists could even claim a reimbursement for the drugs sold from the Italy's public health system (Int-NAS-26 and Marino, 2001).

The NAS officer (Int-NAS-26) who coordinated that investigation recalls that truck robberies began to occur frequently in the mid-1990s, reached their peak at the turn of the century and then suddenly declined in 2004, when the Decree Law 269/2003 introduced the compulsory traceability of all drugs and thus impeded the distribution of stolen drugs through legal channels. Reportedly, truck robberies of pharmaceutical drugs started again in 2007, but on a much smaller scale than in the past.

The diversion of legitimate pharmaceutical substances with performanceenhancing effects may also take place further down the supply chain. As discussed earlier, several hospital employees stole from their workplaces doping substances that had been delivered through legitimate distribution channels and then sold them on the black market, either to users or other suppliers (see case 3c of figure 4.1).

Diversion can also take place in pharmacies. The Mantua pharmacist recently targeted by a criminal investigation is regarded as a full accomplice of the illegal doping practices of a professional cycling team, Lampre (NAS Brescia, 2011 and Pacifici and Donati, 2011; see case 3d of figure 4.1). At the opposite end, as already mentioned, the pharmacists may be absolutely unaware of the non-therapeutic purposes for which some of their customers buy drugs and sell the latter drugs either on the basis of a prescription written by a corrupt physician (see case 3e of figure 4.1) or of a false or stolen prescription. In other cases, the pharmacists may turn a blind eye and not ask detailed questions to his or her customers. This seems, in particular, to be the policy adopted by many Spanish pharmacies, which are allegedly subject to lax regulations and are indicated as a source of doping products in many Italian and foreign investigations. As

Tau, the rider turned witness states "Another fundamental supply channel is represented by Spanish pharmacies, when the amateurs go to Spain, they stock up on doping drugs for the whole team" (Fazzo and Mensurati, 2002b; see also Int-NAS-9 and 16).

The data previously shown about the sales of gonadorelin suggests that diversion can be substantive, accounting for the overwhelming majority of gonadorelin packages sold in Italy. CVD has never collected data about the legitimate sales of other doping substances from Federfarma, the Italian federation of pharmacies. As most of these substances have broader therapeutic usages than gonadorelin, estimating the share of diverted drugs would undoubtedly be more complicated. In Italy, this has been done so far in a single case. After a 1998 investigation of the Turin NAS and Prosecutor's Office proving the diversion of large quantities of EPO and GH from the local public hospitals, the Health Department of the Region Piedmont estimated that about half of the EPO sold in the region with a market value of 18 billion lire (corresponding to almost €9 million) was likely to have been diverted for doping purposes (ANSA, 1999 reported in Donati, Pesce and Glampietro, 2011: 19).

Not only can legitimate drugs be misused for doping purposes, but the active ingredients of doping substances are sometimes included in dietary supplements sold in specialized shops or over the internet. Several NAS interviewees (e.g., Int-NAS-25 and 26) and prosecutors (Guariniello, 2011) pointed out that this is a new market that is not yet sufficiently controlled. Some users may use these dietary supplements with the conscious aim of enhancing their performance or image, while others may inadvertently take them, without being aware of the fact that the supplements contain restricted substances. The NAS Headquarters and the Higher Institute of Public Health have recently launched a joint initiative to systematically analyze dietary supplements bought randomly in different shops throughout Italy with a view to prohibit those containing restricted substances (Int-NAS-25 and 26).

Multiple, Variable and Partially Overlapping Distribution Chains

The preceding analysis shows that the distribution chains of doping products are very different from the six-level hierarchical model (from importers to end-users), which was developed by Preble and Casey (1969) in the late 1960s for the New York heroin market and long considered a correct representation of illegal drug markets in Western countries, and particularly in Italy (Arlacchi and Lewis, 1990). More recent research indicates that contemporary illegal drug markets, too, considerably depart from that model especially in Europe, not least because the abolition of border controls in the Schengen area easily allows users to obtain cheaper drugs from neighboring countries thus reducing the number of distribution levels (Paoli, 2002).

The supply of doping products differs even more radically from Preble and Casey's model. The first and most fundamental difference derives from the fact that the market for doping products entails a vast multiplicity of products, which, unlike the heroin of

their research, can be produced domestically or imported from foreign countries. Moreover, within several classes of products, and especially in the largest, anabolic agents, there are functionally equivalent products that can be easily substituted with each other, even though the final users or their advisors may have their own preferences.⁹⁸ For most classes of products, there are, therefore, multiple sources and the links between them and the users can be established through a variety of alternative distribution chains. Hence, for example, a body-builder can order a steroid directly from an Italian or foreign website; buy it from a gym or dietary supplement shop manager or owner or other retailer; obtain it from a pharmacy through the collusion of a corrupt pharmacist; on the basis of a false or stolen prescription or a prescription written by a corrupt physician; or receive it from a hospital employee who stole it from his or her workplace.

Second, reflecting the multiplicity of products, sources and distribution channels and the increasingly important role of the internet, the length of the distribution chain for the same products may differ radically. Whereas one user may be able to by-pass the entire domestic distribution chain by ordering a specific doping product on a foreign website and receiving it at home by mail, another user of the same product may buy it from a retailer after it has passed through several hands, i.e., several distribution levels. The big investigation conducted by the Bologna Branch Office in the gym world at the turn of the century reconstructed distribution chains for steroids entailing up to seven levels between the importers and users (NAS Bologna, 2000).

Third, departing from typical distributional practices in traditional illegal drug markets, the same suppliers often operate in different distribution chains.⁹⁹ P.B., for example, the main suspect of the 2000 "Artificial Body" investigation of the Bologna Branch Office (Tribunale di Bologna, 2000) bought different products from different channels: he bought the stimulants produced by the dietary supplement salesman at the pharmacy lab of the latter's wife, imported directly doping products produced from a Greek pharmacist and from another Greek source and bought large quantities of steroids from a large-scale supplier, L.S. who bought it from the importer, V.G.F., as well as from V.G.F. himself. More recently, the Mantua pharmacist sold elite riders performance-enhancing drugs that had been delivered through legitimate channels to his pharmacy as well as other doping substances that he had purchased on the illegal market, administered analogous transfusions, helped the athletes arrange contacts with other providers of doping methods, and advised them on how to use performance-enhancing drugs the riders had bought for themselves (NAS Brescia, 2011).

⁹⁸ If considering the larger category of "opioids," there are more but not nearly as many opportunities for substitution than if considering only opium-derived heroin.

⁹⁹ Note that this may not be a departure from the distributional norm for other diverted pharmaceutical products, such as pain killers.

Fourth, many suppliers play different roles even in the distribution chain of the same products. In illegal drug markets, it rarely happens that an importer or wholesaler also sells small quantities of heroin or cocaine to the final users, because the former simply regard the contacts with the latter as too risky (Reuter and Haaga, 1989). In the market of doping products, instead, these contacts are not unusual, particularly in the gym world. To give just one example, despite his large-scale businesses, P.B. also kept on selling steroids and other doping substances in his own gyms (Tribunale di Bologna, 2000; Tribunale di Forlì, 2009).

How Best to Conceptualize the Relationships among the Suppliers?

Whereas the suppliers of doping products may or may not have collaborators or employees and constitute separate illicit enterprises, they are all part of a wider web of relationships linking them to higher or lower-level suppliers or users. The analysis of the different distribution chains has documented that suppliers of doping products, with the partial exception of those exclusively administering doping methods, are part of wideranging and often cross-border networks even when they operate through small (or even one-man) enterprises. This finding is entirely consistent with the literature on illegal markets (e.g., Morselli and Bouchard, 2013) and also corresponds to the reality of legitimate businesses.

However, the fact that doping products are oftentimes also legitimate pharmaceutical products has decisive consequences for the relationships that the suppliers build with each other and with their customers. Unlike suppliers in fully illegal markets, such as those for traditional illegal drugs, the majority of the suppliers of doping products can hide their illegal transactions and their relationships with their "doping partners"—their own suppliers, collaborators, and customers or patients behind the legitimate roles they play in their businesses, organizations, or professions. The embeddedness of doping-related supply-side activities in legitimate professions, roles, and institutional settings often makes unnecessary the development of separate illegal enterprises to run these activities.

As seen earlier, however, some suppliers have trouble finding a professional cover to hide their involvement in the supply of doping products. Some of them have no suitable profession—as in the case of many non-professional body-builders who do not work in the private or public security sector or hijackers attacking trucks to steal performance-enhancing and other drugs. For other suppliers, their profession or occupation is not sufficient to hide the full range of their activities. For many of them, professional affiliations are especially helpful to disguise contacts with users and retailers. For the suppliers working in the health care sector, these affiliations are also helpful to hide upper-level illegal transactions in doping products. Other suppliers, however—e.g., the owners or managers of gyms and fitness centers or the suppliers linked to the organized sports world—are not protected by their profession or occupation when they engage in the production, import (i.e., smuggling), diversion (which often means theft) or distribution of doping products at higher market levels. The trouble is most apparent when these supply-side activities involve anabolic steroids and other products meant for body-builders that have very limited therapeutic value and are therefore more obviously illegal than others. At the higher-market levels and especially for steroids, illegal enterprises may develop that are similar to those operating in other illegal markets, such as the market for heroin, cocaine or other illegal drugs. These are, for example, the enterprises set up by gym owners and managers to import and trade in wholesale quantities of steroids and other doping products for body-builders and those running specialized websites or producing doping substances in illegal labs or conducting robberies on trucks. Some illegal partnerships within or across legitimate organizations engaging in the purchase or sale of doping products may also consolidate to such an extent that they can also be regarded as illegal enterprises.

Stated slightly differently, an analytical complication of the market for doping product (but at the same time also a chance for policy-making) is that the market includes both activities that can be best understood in terms of white-collar crime and others that fit into the category of illicit enterprise, with some overlap between the two concepts.

White-Collar Crime

The very embeddedness of doping supply-side activities in legitimate professions, roles, and institutional settings is suggestive of white-collar crime and the related and partially overlapping concepts of occupational, corporate, and organizational crime. In 1949 Edwin Sutherland (1983) published a seminal book on white-collar crime in which he documented numerous and very serious crimes perpetrated by America's 70 largest private companies and 15 public utility corporations. Whereas the definition of whitecollar crime given in that book has been rightly criticized by later scholars (for a discussion, see Braithwaite, 1985 and Nelken, 2007), Sutherland offered a more straightforward definition in the Encyclopedia of Criminology, also published in 1949. In the encyclopedia Sutherland wrote that "the white-collar criminal is defined as a person with high socioeconomic status who violates the laws designed to regulate his occupational activities" (1949: 511 quoted in Geis, 1982: 34). This definition suggests a clear correspondence to many of the illicit supplier types that we identified earlier. Pharmacists, physicians, high-level employees and officials of health care clinics, pharmaceutical companies, sports teams, and sports federations, veterinarians and elite athletes, meet the requirements of that definition.

Gym owners and managers, managers of dietary supplement shops, breeders, horse drivers, nurses and other low-level health care employees and staff members of sports teams also "violate laws designed to regulate [their] occupational activities," but they less-typically satisfy the requirement of a high socio-economic status. These suppliers of doping products can be understood, instead, as participants in "occupational crime," which Clinard and Quinney (1973: 188) defined in 1973 as the "violation of the criminal law in the course of activities of a legitimate occupation," to cover persons at all levels of the social structure. In a distinction that has become widely accepted in the literature about white-collar crime, Clinard and Quinney contrasted occupational crime with corporate crime, which is said to consist of "offenses committed by corporate officials for their corporations and the offenses of the corporation itself" (1973: 189). The Sandoz Italy commercial director who was alleged to be involved in the sale of GH for doping purposes might provide an example of corporate crime, depending on the basisindependent or institutional—of his actions. The actions of officials, if not staff members, of private sports teams might also be subsumed under the category of corporate crime, depending on whether the teams are "corporations"¹⁰⁰ and, as above, the basis of the individuals' actions. Other suppliers of doping products—such as university professors and sports federation officials—work, instead, for public institutions. Thus, we do not regard them as corporate criminals but consider them, instead, as a manifestation of the broader concept of organizational crime (e.g. Reiss and Tonry, 1993).

Since Sutherland's white-collar crime book, there have been longstanding doubts whether or not all misbehaviors discussed under this rubric can be considered to count as crime. Sutherland (1945) insisted that violations of all types of law, if they are punished with a sanction, can be considered crime (see also Braithwaite, 1985 and Nelken, 2007: 741-42). Other scholars have argued that the misbehaviors discussed by Sutherland and his followers do not always satisfy the legal criteria for crime. Rather they are violations of "regulatory" laws and do not lead to a prosecution in a criminal court (Tappan, 1947; Gobert and Punch, 2003: 9-14). Given the Italian criminal law provisions on doping, both athletes' consumption and the trade of doping products satisfy even the more restrictive interpretation of white-collar crime. In other countries, in which no criminal law provisions on doping exist, one can only apply the label white-collar crime to doping if that label is interpreted broadly to include violations of regulatory laws and sports rules. However, the broader terms of corporate deviance (Punch, 1996) and corporate or organizational wrongdoing or misconduct would still be applicable (Gobert and Punch, 2003: 9-14).

The contested legal status of many exchanges of doping products is in itself typical of white-collar crime. As noted by Clarke (1990), all the illegal practices subsumable under the broad heading of this concept take place in a legitimate business or organizational environment during the course of legitimate activities and therefore

¹⁰⁰ A "corporation" can take many different forms, generally implying the creation of an entity with its own rights and liabilities, distinct from those of its owners. For our purposes we use the term in reference to corporations that are "for-profit" business enterprises. Private teams typically constitute for-profit business enterprises but may or may not incorporate their operations.

have an inherently ambiguous nature that leads to contestability of the offenses charged. On the "bright side," however, white-collar criminals are among the most deterrable types of offenders. As Chambliss (1967) has argued, they satisfy two conditions: they do not have a commitment to crime as a way of life and their offenses are instrumental rather than expressive. White-collar criminals are also more deterrable than underworld criminals because they have more of those things that can be lost by criminal conviction or informal means of stigmatization—status, respectability, money, a job, a comfortable home and family life. As noted by Braithwaite (1985) and Simpson (2002), this view is supported by some quasi-experimental time series and interview studies, which suggest that white-collar offenders are deterred by prosecution. We will come back to this issue in our policy implications.

Illicit Enterprise

The concept of the illicit or illegal enterprise is most often used to describe the producers and traffickers of illegal goods and services, such cocaine or heroin or human smuggling, and the relationships that these producers and traffickers develop with each other (e.g., Smith, 1975; Haller, 1990; van Duyne, 1997). As the criminological literature on illegal markets documents, illegal enterprises face specific constraints on their operations, arising from the illegal nature of the products in which they trade. These constraints have been referred to as "constraints of illegality" (Reuter, 1983). At the end of their analysis of the world heroin market, Paoli, Greenfield, and Reuter (2009: 241) concluded:

In countries with strict enforcement, traffickers and producers are obliged to operate not only without the protections of state institutions, notably the court system, but against those institutions. Illegality then means that the businesses are likely to be small, ephemeral and not vertically integrated, largely relying on preexisting social relationships, such as family ties or bonds of friendship or locality. The factors promoting the development of large firms in the legal portion of the economy—namely, to take advantage of economies of scale and scope—are outweighed in illegal markets by the threats that a strong government poses and the need to reduce visibility.

The illegal enterprises that we have identified in Italy's market for doping products are also subject to the "constraints of illegality" (Reuter, 1983). Operating without the benefits of state institutions, they cannot resort to state institutions to enforce contracts. As a result, property rights are poorly protected and employment contracts cannot be formalized, discouraging the development of large, formally organized and enduring enterprises. Moreover, in operating against the state in a country with strict anti-doping enforcement such as Italy, suppliers of doping products also operate under the presumption of overt government hostility; that is, under the constant threat of incarceration and asset seizure. Much like their counterparts in illegal markets, some suppliers of doping products tend to incorporate illegal relationships and transactions into blood or family relationships to increase the cohesion of their enterprises and reduce their vulnerability to law enforcement efforts (e.g., Reuter, 1983; 1985; Moore, 1974: 15-31). Hence, as in traditional illegal markets, some of the illegal enterprises set by suppliers of doping products are family businesses, that is, they are based on blood or family ties. For example, D.P. was supported by his sister, mother and fiancé (Tribunale di Ravenna, 2004: 123); the earlier mentioned U.S-Nigerian female body-builder based in Sicily fully shared the management of a gym and the import and distribution of doping products with her Italian husband (Procura della Repubblica di Siracusa, 2010: 23-29) and Dr. Ferrari, a prominent physician involved in illegal doping practices allegedly held contacts with his "patients" through his son (Pasqualetto, 2011; MacMichael, 2011).

Even when they are not (entirely) family-based, illegal enterprises specialized in the sale of doping products tend to be small. For example, despite being one of the largest (known) suppliers of anabolic steroids in Italy, L.S. kept on working primarily by himself, delegating menial tasks only to two or three collaborators, including his estranged wife. L.S. was described as a "lone wolf" by a NAS officer who arrested him twice (Int-NAS-9). Even in the latest 2009 investigation, L.S. was reported to travel almost weekly to the Netherlands where he bought doping products and to deliver them mostly personally by car on the way back to his house south of Naples (Int-NAS-9). Likewise, V.G.F., another longtime large-scale supplier, also preferred to carry out the most risky tasks by himself and therefore still travelled around with a van to pick up the parcels of steroids he had delivered at different addresses under fake identities in Italy (Frezzi, 2011; Int-NAS-10). As known from the literature on illegal drug markets, limiting the number of people aware of an illegal business is a frequent strategy of illegal entrepreneurs to reduce their vulnerability to law enforcement efforts (Paoli, Greenfield, and Reuter, 2009).

We know of only one case of a formally organized criminal organization. This is the organization that was headed by the former South African employee of a U.S. pharmaceutical company, purchased doping products, active ingredients and drug labels in several countries, primarily in Moldavia and India, and ran a network of sales representatives and producers of anabolic steroids in different European countries. At the core, this organization also consisted of a family business, as the South African's closest collaborator was his wife. The relationships with the national sale representatives were, instead, rather formalized so much so that the latter can be regarded as true "employees" of the South African national. For example, D.B., the Italian representative of the organization, received a €2,000 monthly basis salary from his foreign boss in addition on a percent on his sales. Further showing his subordination to the organization, D.B. hardly ever bought doping substances or active ingredients by himself but received instead regular deliveries through an informal Moldavian courier service. In the rare cases he bought some raw materials for his lab (e.g., citric acid) in local pharmacies or had postal expenses, he was reimbursed by the organization. D.B. also received readyfor-sale peptide hormones from the Spanish branch of the organization (Int-NAS-9).

The Suppliers' Modus Operandi

Except for the truck hijackers, the suppliers of doping products in Italy are rarely reported to use violence. The non-violent nature of the trade reflects above all the white-collar background of most suppliers and the embeddedness of many supply-side activities in legitimate professional affiliations and relationships. As already mentioned, none of the suppliers considered, except for the truck hijackers and some bouncers (see chapter 3), have criminal records for violent crime.

The analysis of NAS investigations also reveals no conflict among suppliers that the participants felt the need to solve with violence. Except for the thefts, we are aware only of an attempt to openly use violence: it occurred when a Moldavian courier working for the South African's organization tried to hit a Carabinieri officer who had stopped his car (Int-NAS-9). Even occasional disagreements about the quality of the products delivered are usually solved in a rather "civilized," non-violent way, probably reflecting the consensual nature of the exchanges and the interest of all participants in a long-term relationship (e.g., NAS Bologna, 2000).

The anti-doping investigations and our respondents also provide scant evidence of suppliers of doping products bribing or attempting to bribe public officials. Only in one case, a major supplier, P.B., invited two officers who had just seized his doping products "to pretend that nothing had happened, if I give you five million lire [approximately €2,500] each" (Tribunale di Bologna, 2000: 67). As seen earlier, some law enforcement officials did engage in the distribution of such products to finance their own consumption habits and to bring in extra income but they did it on their own initiative, not because they were bribed or in other way offered illicit favors by other suppliers. The literature on illegal markets shows that the corruption of public officials is generally limited in countries with relatively effective governments that regularly enforce the prohibitions enacted (e.g., Paoli, Greenfield and Reuter, 2009: 206-7). However, the almost complete lack of evidence of (even attempted) bribery appears to be a peculiarity of the market for doping products, especially in a country such as Italy with aboveaverage levels of perceived corruption (Transparency International, 2011). Notwithstanding the fact that Italy's enforcement of anti-doping prohibitions has few parallels in the world, the lack of proof of bribery also reflects the low sanctions that are associated with doping offenses. The very fact that P.B. or L.S. have been arrested five or six times since the late 1990s seems to indicate that they were never sentenced to long imprisonment terms. As we will see in chapter 5, though, the lack of bribery does not

mean that the suppliers of doping products have never received protection from public bodies.

Just like the illegal entrepreneurs and the white-collar criminals who are aware that they are doing something illegal (e.g., Packer, 2011), the suppliers of doping products take precautions to hide their activities from law enforcement agencies. Several investigations indicate that especially in the distribution chains servicing body-builders but increasingly also in the trade meant for elite athletes, most suppliers use cover names to refer to doping products or speak only circumspectly on the phone. In the recent proceeding of the Mantua Prosecutor's Office, for example, Nigrelli and the elite riders he treated referred to GH vials as "culatelli" (one of the most prestigious salami made in Italy) or as "Topo Gigio vials", allegedly a well-known nickname in elite cycling (NAS Brescia, 2011: 86). The most experienced suppliers, such as L.S. and V.G.F., not only limit the number of their collaborators and customers but also avoid talking on the phone, preferring to organize instead face-to-face encounters. They also conduct no business via emails or specialized websites (Int-NAS-9 and 16; Frezzi, 2011). Having more collaborators due to his network in several European countries, the above-mentioned South African ring-leader tried to limit to the extent possible the contacts with them. Throughout the NAS investigation that lasted several months, for example, he exchanged only an email with his Italian referent, delegating instead the contacts with the latter to a trusted Spanish collaborator (Int-NAS-9).

For their operators, websites selling doping products also frequently represent an effective protective strategy. Our respondents (Int-NAS-9 and 11) report that they can shut down the websites based in Italy and often identify and pursue their operators but have little means to shut down websites located abroad and even less possibilities to identify the persons operating them, given the differences in the criminal legislation and related enforcement on doping matters and the resulting difficulties in international police and judicial cooperation (see chapter 7). Reflecting these differences, websites specialized in doping products have no counterpart in traditional illegal markets. They constitute, however, a subset of the broader market for online pharmaceutical products, which are also to a large extent counterfeited, just like the doping products (e.g., UNICRI, 2007; WHO, 2012). Whereas online websites can be an effective smokescreen for the suppliers operating them, it is unclear whether they offer long-standing guarantees to their customers. Several investigations began following the observation of online orders or the seizures of suspected parcels shipped by other operators (Tribunale di Siracusa, 2010; Int-NAS-25 and 26).

We note, however, also some considerable differences between the precautions taken by the suppliers of doping products and their counterparts in other illegal markets. Specifically, the former take more limited precautions than the latter. Several suppliers of doping products still speak rather freely on the phone under the thin cover of implausible nicknames (e.g., NAS Brescia, 2011). Many of them, including those who

order doping products on internet, use the regular postal services to have doping products delivered at home or to send them to their customers. They use their personal bank accounts to transfer or receive money for the payment of drug deliveries (e.g., (Tribunale di Ravenna, 2004). Moreover, in contrast to the actions of L.S. and V.G.F., no major drug trafficker would personally move large quantities of drugs, because such drugs would automatically deliver, in case of arrest and asset seizure, a very heavy imprisonment sentence. Finally, if it is true that V.G.F. has been arrested in 2011 with doping products for an estimated market value of over one million euros and his business generated monthly revenues of about €90,000 (Frezzi, 2011), we note also differences in the management of inventories. As argued by Paoli, Greenfield and Reuter (2009: 207-8), these tend to be kept at a minimum in heroin markets in countries with strict enforcement, simply because they are too risky. On the contrary, V.G.F., despite his long-time experience in the trade in doping products, still kept products with a value corresponding to his yearly revenues in a single place.

These differences in the modus operandi can only be explained with the lower sentences foreseen for doping-related offenses and possibly also the lower degree of enforcement of prohibitions. The suppliers of doping products, even when they are fully aware of the illegal nature of their activities, still perceive lower risks of imprisonment and probably also lower arrest and asset seizure rates than the suppliers of illegal goods and services.

Just like legal and illegal entrepreneurs, the suppliers of doping products sometimes aggressively market their goods and services. In a recent proceeding of the Forlì Prosecutor's Office, for example, gym managers and body-building instructors were filmed instigating the use of anabolic steroids among visitors and specifically bodybuilders to build muscle (Tribunale di Forlì, 2007: 135 and 168-170). In many other cases, no such instigation is needed as the users are willing to use these products, whether or not they are fully aware of their harmful consequences.

A peculiarity of the market for doping products, particularly in elite sports, is that these products are often proposed—prescribed, administered, or sold—to adolescent and young adult athletes by more senior and respected individuals, such as physicians, pharmacists, coaches, and sports federation officials, who abuse their positions of authority and the trust of the young athletes and the athletes' parents. Including an Olympic champion, the elite athletes treated by Daniele Faraggiana were, for example, 17 to 25-year-old and one of them had been administered steroids since he was 13 yearold (Donati, 1989: 85).

Changes over Time

In addition to the huge increase in internet sales, which we have discussed earlier, we see two major interrelated changes in the Italian market for doping products: the partial

integration of the market for athletes and body-builders, which has been itself enhanced by the proliferation of specialized websites, as well as growing competition and the almost complete disappearance of market power.

In the past, the market for doping products consisted of two largely separate segments, one targeting body-builders and another exclusive to elite, especially super elite, athletes. Until the beginning of the current century, the situation was quite clear-cut. In Bologna, the market of which has been best investigated and also had extra-regional relevance, the two segments were clearly separate from each other. P.B. and other suppliers of the gym world sold steroids and other substances to the local body-builders, obtaining them from a plurality of channels, mostly illegal (NAS Bologna, 2000). A respected pharmacist provided the physicians of several elite teams and individual athletes with his own Galenic products and other drugs, mostly stimulants, which he had bought primarily through legal channels (Int-NAS-10).

Still today, some types of suppliers are primarily focusing on specific classes of users. The gym owners, managers and body-building instructors primarily service bodybuilders and other gym visitors, whereas staff members of sports teams and sports federation officials target exclusively super elite athletes. Whenever they engage in supply-side activities, athletes and public and private security personnel engaging in body-building also tend to sell doping substances to members of their own sporting groups. Other suppliers, though—i.e., managers of dietary supplement shops, pharmacists, physicians, hospital employees, pharmaceutical companies and their employees and sales representatives and, last but not least, the suppliers with no distinctive profession or occupation—are willing to provide their goods and services to whomever is interested in them and therefore can be considered "generalist" suppliers.

The partially overlapping markets for sales to athletes and body-builders that reside within the larger market for doping products, in their turn, overlap with the legal and illegal segments of the markets for each product. As we have seen earlier, some doping products, such as steroids, hardly have a therapeutic use and their distribution is entirely illegal from their production to final consumption. On the other hand, other doping products are above all drugs with a high therapeutic value, which are legitimately produced by regular drug manufacturers and are diverted onto the illegal doping market at different stages of their distribution chain.

The differentiation of the market for doping products in two clear-cut markets for elite athletes and body-builders has partially faded away in recent years, as a result of three changes: the increased repression; the rise of websites selling doping products; and the spread of doping practices among recreational athletes. We have already described the second and third changes previously and we will fully document the second in chapter 7. Here we note that:

- Elite athletes and their entourage still prefer as much as possible to exploit separate, better-quality channels but as a result of the stricter enforcement of sports-rule and criminal-law anti-doping regulations in Italy and elsewhere, they are increasingly obliged to resort to the same sources and suppliers of other users. Due to the increased repression, sports federation officials, university physicians such as Conconi (Tribunale di Ferrara, 2005) and, despite the recent case of the elite cycling team Lampre (NAS Brescia, 2001), also the managers of sports teams have become more cautious in directly supplying elite athletes with doping products and, instead, leave it up to the athletes themselves to ensure that they are competitive, if necessary by doping.
- Despite the minimal quality guarantees, specialized websites have become an attractive alternative for all types of users vis-à-vis physical suppliers (see above).
- As argued in chapter 2, recreational athletes constitute nowadays a much larger share of the market for doping products than in the past and help integrate the previously separate market segments of elite athletes and bodybuilders. Recreational athletes not only have contacts with both the former, via federations, and the latter, via gyms but also buy from suppliers —e.g., managers or owners of dietary supplement shops, pharmacists, physicians, hospital employees and operators of specialized websites—who also serve elite athletes or body-builders or both. Among these generalist suppliers, a few physicians have come to play a crucial role and serve as a connecting link between elite and recreational athletes and, more rarely, also body-builders. For example, some physicians, like Santuccione (NAS Firenze, 2005) and Ferrari (Pasqualetto, 2011; MacMichael, 2011), exploit the reputation they have built with super elite athletes to attract a larger pool of non-super elite and recreational athletes and thus considerable expand their revenues. Other physicians, such as B.H.E., treat indistinctly athletes, both elite and recreational, and body-builders (Tribunale di Rimini, 2011).

The barriers around the market for elite athletes have not completely disappeared, though. Notwithstanding the growing market integration, doping methods and specifically blood doping, are still reserved for super elite athletes, not least because of their high costs and the expertise and specialized equipment that they require (e.g., NAS Brescia, 2011).

Given the growing integration of the different markets, it is not surprising to see that the relationships among many suppliers of doping products, specifically those that target primarily body-builders, recreational athletes and other users, generally involve competition rather than collusion. The high degree of competition is not only the result of that process of integration but is also due to several other factors: the sheer amount of products available, which can be partially substituted with each other; the multiplicity of channels through which these products can reach the final users and which have incrementally expanded in the last ten years due to the spread of specialized websites; and the above-mentioned constraints of illegality, which make economies of scale and scope unlikely in illegal operations and therefore discourage the development of monopolies or oligopolies (Paoli, Greenfield and Reuter, 2009: 208). The best evidence of competition is the fact that the prices of many doping products, especially steroids, are very low and that many, probably most, suppliers have no ability to exclude others or to set prices, the hallmarks of market power (Katz and Rosen, 1994: chapter 13; see chapter 6).

A large-scale investigation carried out by the Bologna Branch Office (NAS Bologna, 2000) at the turn of the century suggests that, at that time, some importers and wholesalers of anabolic steroids, who were active in all of Italy, had some market power. Reportedly, L.S. and V.G.F. operated on such a large scale that in 1999 and 2000 they were able to set the market prices for some anabolic steroids and GH in different parts of Italy. This market power is hinted at in several phone calls. For example, in one of them L.S. talks to a Catania customer and the latter complains that other local suppliers are selling steroids, such as Deca Durabolin and Testoviron, and GH, at lower prices. The Catania retailer further asks L.S. if he has been supplying other people in the Catania region. L.S. replies that he has been selling some products to another person, however at prices higher than those asked from his phone partner. "At the end of the conversation, G. P. says that he has probably understood who was the other seller and reassures [his phone partner] that it will not happen again, adding that he will explain the issue in more detail in a face-to-face meeting." (ibid: 217). In another conversation, P.B. receives similar complaints from a customer serving the Rome market concerning the product Testoviron. P.B. replies that "the taps have already been turned off" to the other Rome distributors, referring, according to the Bologna Branch Office, to interventions of V.G.F. and L.S. (ibid: 217). On another occasion, P.B. talks to R.F., a distributor in Tuscany, who is looking for an Australian veterinary drug, RWR Drive, for an athlete who is a client of his. However, P.B. does not have the product and reassures his business partner in the following way:

"P.B.: Ah, there is no more, you will see, there is no more.

R.F.: No?

P.B.: It is finished, I am almost positive.

R.F.: But say, you say that you cannot find it in Florence, don't you?

P.B.: No, no. If I do not have it, the others do not have it either, don't worry.

R.F.: Because, because they say that they can find in Florence, I've heard it from some friends

P.B.: Yes, yes, you could find it, but now they no longer can find it, you can trust me.

R.F.: No? You say that if you have finished it, it is finished also ...P.B.: If I have finished it, they have also finished it as a consequence" (NAS Bologna, 2000: 267).

According to the Judge who issued the arrest warrants on the basis of this investigation, the three suppliers, L.S., V.G.F. and P.B., "imposed a cartel at the national level to effectively control competition" (Tribunale di Bologna, 2000: 67). This market control seems very plausible in the case of the Australian veterinary drug, which was very specific and possibly also GH, which was still rare to find at the turn of the century. It is instead more puzzling that L.S. and V.G.F. were also able to control the market for basic steroids, such as Deca Durabolin and Testoviron. From the wiretapped phone conversations it is not positive whether the two suppliers were just boosting or they really had such a market power. What is certain is that, if market power for anabolic steroids ever existed, it has now dissipated as a result of the multiplication of distribution chains and particularly the spread of specialized websites.

Only a few suppliers primarily targeting elite athletes still maintain some limited market power, as the barriers around the market for elite athletes have not completely disappeared, some doping methods require specialized equipment and expertise and some users, primarily elite athletes, put a premium on quality and are therefore willing to pay higher prices for the original products, such as doping substances stolen from hospitals or from drug distributors' storehouses and trucks, which have a guaranteed quality. As we discuss in chapter 6, Michele Ferrari charged high fees to super elite athletes and was able to raise considerable sums—several million euro—with the treatment of his overall clientele (Int-NAS-16).

5. THE ROLE OF SPORTS BODIES AND ORGANIZED CRIME

To fully understand the market relationships among the suppliers of doping products, we focus in this chapter on two very different sets of actors. The first ones are officials of national sports bodies, including in this expression both CONI and sports federations. As earlier mentioned, the latter officials occasionally distributed doping products directly to elite athletes of some disciplines, most notably, track and field and weightlifting. Most often, though, CONI and sports federations officials have "merely" provided protection to doping elite athletes and the latter's suppliers of doping products or have not exercised their supervisory and control functions with due diligence. In doing so, Italian sports body officials often did not behave any differently than their foreign or international counterparts. On more than one occasion, Italian sports body officials enjoyed the support of successive Italian governments.

The second set of actors here analyzed consists of organized crime and underworld members and organizations, whose growing involvement in the market for doping products has repeatedly been denounced by high-level international sports officials in recent years. On the basis of the Italian data, however, we can only partially confirm these worried forecasts, even though they may still be applicable for other countries, especially in Asia. Southern Italian mafia organizations, such as Cosa Nostra, the 'Ndrangheta and camorra, still seem to play a limited role in the market. Nonetheless, many supply-side activities can be also defined as a form of organized crime, as they meet all the requirements of the loose official definitions of organized crime adopted at the international level.

In the cases of both set of actors, we draw from the Italian market and consider the extent to which our findings can be generalized to other nations.

Sports Body Officials as Key Providers of Protection

Protection, here understood as immunity from criminal or sports prosecution, is a key resource in traditional illegal markets and is often bought by the traffickers of drugs and other illicit products with bribes in money or kind to law enforcement officials or other government representatives. As earlier mentioned, bribery has up to now played a limited role in the market for doping products in Italy. Nonetheless, our sources indicate that sports body officials have repeatedly provided protection to the market servicing elite athletes, seemingly out of shared interests in sports success rather than for private monetary gains—and this protection constitutes the most startling peculiarity of Italy's market for doping products. The difficulty is in drawing a clear line between the action of those individuals and the policies and practices of the institutions, writ large. At what point do the collective actions of enough institutional representatives of sufficient rank,

de facto, speak not just for their interests but for those of the institution? Regardless of any formal or legal standing, at what point are the individuals that represent the institution and "the institution" one and the same?

As scandals and criminal proceedings indicate, the representatives of national sports bodies, including some very high-ranking officials, exercised their roles as "protectors" quite openly until the late 1990s. Since then, no cases of overt high-level complicity have come to the fore, but the national sports bodies' apparent lack of interest in a thorough fight against doping still emerges from several criminal proceedings and outright policy choices.

Conconi and His Protectors

A fine line might separate individuals from their institutions, but a request filed in October 2000 by the Prosecutor's Office of Ferrara in the proceedings against Conconi provides evidence of high-ranking individual involvement so much so that it might be difficult to argue against institutional complicity. As already mentioned in the prologue, the prosecutor Pierguido Soprani reconstructed the relationships between CONI and Conconi since late 1970s and concluded that throughout the 1980s three CONI presidents and a secretary general had run a criminal organization together with Prof. Conconi to distribute drugs dangerous to public health to numerous elite athletes (article 445 CP), but could not charge them because of the statute of limitations (Procura della Repubblica di Ferrara, 2000). (As the offense of sporting fraud was established in 1989 and doping was not at that point a criminal offense,¹⁰¹ the Ferrara Prosecutor's Office could not charge Conconi and his associates for the period before 1989 of either offense. It is important to recall, though, that the administration of the substances mentioned in the prosecutor's charges did constitute a violation of the IOC's rules and that CONI, as the Italian National Olympic Committee, was bound to respect and enforce IOC rules. Moreover, in funding doping-related research and the administration of doping products, CONI, a public body, violated its own mission, which we will describe more in detail in chapter 7.) As too much time had elapsed between the alleged activities and the prosecution, the Prosecutor's Office had to dismiss the case but it insisted that this request "does not diminish the social and criminal non-value of the activities proved" (ibid.: 56). Instead, Soprani found no conclusive evidence of the existence of a criminal organization between Conconi and the CONI top leaders after 1989.

The Prosecutor's Office provided detailed evidence of its statements. In particular, it showed that from the very beginning, the relationship between CONI and Conconi was meant to enhance the performance of Italian elite athletes through doping: as the Prosecutor himself wrote: "the relationship between CONI and Conconi was born and was intended to develop, in an institutional context, sports doping practices" (ibid.).

¹⁰¹ It had been introduced as an offense in 1971 but it was then decriminalized in 1981 and was not re-established as a criminal offense until the end of 2000; see chapter 7.

According Donati, a member of our research team, Conconi proposed in the early 1980s that CONI assist selected Italian athletes of endurance sports in improving their performances—an offer that CONI accepted. Donati was then a track and field coach for the Italian Olympic team and was himself approached by Conconi to participate in his treatment program, which basically consisted in blood doping and the administration of testosterone (Donati, 2003).

CONI and Conconi did not make any real effort, at least until the early 1990s to hide the purposes of the covenant that CONI underwrote with the University of Ferrara (de facto Conconi's biochemical institute) in 1981 and which was renewed first each year and then, since 1987, every four years.¹⁰² According to the Ferrara Prosecutor's Office, the managers of the national sports federations and CONI were well aware of Conconi's specialization in analogous transfusions (ibid.: 23). Moreover, other doping practices were clearly mentioned in the scientific programs enclosed to the covenants and in the annual reports of activities. For example, the 1983 scientific program included "a study of the effects of anabolic steroids on various performance components, in male athletes who <u>already take</u> the drug" (ibid: 25, emphasis in original) and the 1983 Annual Report of Activities listed the following three items under the heading "Drugs and Aerobic Performance:"

- Item a, which deals with the effects of the administration of anabolic steroids on the alactacid anaerobic performance and on metabolic power in middle-distance athletes, double-blind study

- Item c, which deals with the effects of benzodiazepines on the shooting precision in biathlon

- Item d, which deals with the effects of benzodiazepines on trampoline jumpers (ibid.: 28).

Other similar documents provide corroborating evidence of doping, for example, showing that anabolic steroids were administered to middle-distance runners throughout the four-year period 1982-1986 (ibid: 38). The Ferrara Prosecutor's Office noted that "CONI top managers who underwrote the Conventions were not only perfectly aware of this [and other doping practices]—we can say "*per tabulas*" (i.e., by documentary evidence) as the practice was listed in Conconi's research programs – but consciously decided that the benefits in terms of competition results were higher and more convenient for CONI itself than the probable harms" (ibid: 38).

¹⁰² At the same time, Conconi also underwrote similar agreements, for similar purposes with numerous sport federations (Procura della Repubblica di Ferrara, 2000: 16).

Conconi's integral role in and for CONI was further enhanced by his appointment as President of the CONI Section for the Ferrara Province in 1981 (ibid.: 8).¹⁰³ Over the years, CONI funded Conconi very generously for a total of about two billion lire (approximately one million euro), from the early 1980s to the late 1990s.¹⁰⁴ CONI also invested some funds to organize several workshops with technicians and experts of the national sports federations to inform them about Conconi's progress and findings (ibid.: 29).

During the late 1980s and early 1990s, the IOC also supported Conconi and his "research" on doping activities. In fact, the IOC funded Conconi— according to media sources (*cycling.news*, 2000) with several million dollars, but the sum is probably exaggerated—to develop a test to discover EPO. Prince Alexander de Merode, who was the president of the IOC Medical Committee, went as far as to repeatedly back Conconi's claim that a urine test for EPO was ready or almost ready and other false statements (Capodacqua, 1993; Eric, 1999).^{105 106}At the Winter Olympics in 1994 in Lillehammer, Conconi gave a talk to IOC members on his research progress and described how he had carried out controlled experiments with 23 recreational athletes with EPO treatment. The raid carried out at his office at University of Ferrara in 1998 revealed that only one of the 23 athletes was recreational (Conconi himself!), whereas the other 22 were elite

¹⁰⁵ Before obtaining funds from the IOC, Prof. Conconi also submitted its project proposal to the CONI Anti-Doping Commission. Despite Pescante's insistence, the commission decided not to fund Conconi's project, because of the latter's low scientific quality and unrealistic promises (personal memory of Donati, who was then the secretary of CONI Anti-Doping Commission).

¹⁰⁶ It is plausible that Conconi circulated such totally unfounded rumors, which he knew would eventually taint his reputation, to discourage other teams from using EPO and thus give a further advantage to the athletes that he treated. According to Erkki Vettenniemi (personal communication, 2012), a Finnish scholar who has studied the use of EPO in Finnish elite winter sports, the Finnish national ski federation and researchers on its payroll resorted to such a strategy ahead of the 1989 Lahti (Finland) Nordic ski world championships.

¹⁰³ Conconi enjoyed high-level connections even beyond CONI. He attended to, and regularly went riding with, Romano Prodi, Italy's Prime Minister in 1996-1998 and in 2006-2008. According to media reports, Prodi seriously considered Conconi as a possible undersecretary for sports for his cabinet in 1996 (Pontani, 1996; Smargiassi, 1996).

¹⁰⁴ With the 1987 four-year long convention, for example, CONI committed itself to transfer to Conconi's institute 410 million lire for the years 1987 and 1988 and 60 million lire (approximately US\$ 46,100 at the exchange rate of the time) for the years 1989 and 1990. In 1987 and 1988 CONI also paid 700 million lire (about US\$ 540,000) to renovate the building where Conconi's institute was located and for the three years, i.e., 1988, 1989 and 1990, it also granted each year additional 100 million lire (US\$ 77,000) to buy new equipment and pay the salary of Conconi's staff and other ordinary expenses. Over the period 1985-1994 CONI also reimbursed Conconi and his staff of many travel costs (for a total of 120 million lire; approximately US\$ 92,000), including many trips that fell beyond the scope of the Convention between CONI and the Ferrara University (e.g., trips to attend computer courses or congresses of scientific societies, meeting with representatives of private companies, to produce films on the IOC's behalf; Procura della Repubblica di Ferrara, 2000: 6-12). Among the equipment bought, there was some that left no doubts about Conconi's doping purposes, such as refrigerated centrifuge and a lab freezer (ibid: 30).

professionals, including at least six professional riders (Donati, 2003). In gratitude for De Merode's support, Conconi had the University of Ferrara confer an honorary degree on his patron. The latter, who was by education an art historian, was allegedly very pleased to receive a natural sciences PhD, albeit *honoris causa* (Int-Oth-2). Conconi was also well connected with UCI, the World Cycling Federation, and served during the 1990s as President of its Medical Commission. According to newspaper reports, Conconi abused that position in 1993 to avoid the disqualification of a rider who had tested positive to an anti-doping test (Toti, 2003).

None of the four CONI top officials indicted by the Ferrara Prosecutor's Office chose to appeal the latter's charges and, surprisingly, at least for outside observers, the charges did not appear to negatively impact the suspects' sports manager or political careers. Although the charges did not yield prosecutions, one might have thought the veracity of the comments of the Prosecutor's Office would have some bearing on the suspects' future success. However, Pescante became undersecretary for sports less than a year after the prosecutor's request was filed (see prologue); Carraro remained President of the Italian Professional Football League and, in the course of 2001, was elected President of the Italian Football Scandal, which proved that many Serie A matches had been rigged (Crosetti, 2006).¹⁰⁷

Carraro's and Pescante's careers suggest that the determination to fight doping consequently in all its manifestations has long not been equally shared throughout Italy's political class, despite the lip-service declarations in the aftermath of a large doping scandal. As indicated by the persistent opposition faced by Prosecutor Soprani in his investigation against Conconi (see prologue), the will to fight doping was also lacking on the part of the judiciary (see also chapter 7). This assessment is also shared by several interviewees (Int-NAS-10; Int-Oth-2) and other observers. After the judge sent back the charges against Conconi and his co-defendants to the Prosecutor's Office for a new formulation, the largest Italian sports daily *La Gazzetta dello Sport* wrote an article entitled "What kind of justice is this?" and stated that "the judiciary is unable to pass sentence on the most scandalous case of doping in Italian history" (quoted in *Spiegel*, 2003). Even according to Centamore ([2011]: 18), a German-Swiss legal scholar who recently evaluated Italy's anti-doping legislation, "the progress of the proceedings [against Conconi] raises suspicions that no serious effort was made to sentence such a high-ranking character as Conconi."

International sports body officials were no more impressed by the accusations of the Ferrara Prosecutor's Office than the majority of Italian policy-makers and public. While Carraro was a member of the IOC Executive Board from 2000 to 2004, Pescante has been since 1994 without interruption an IOC member and was the first Italian to

¹⁰⁷ See http://www.olympic.org/mr-franco-carraro.

become an IOC Vice-President in 2009. Pescante was also first Secretary General (1989-2001) and then President (2001-2006) of the European Olympic Committees (EOC, former Association of the European National Olympic Committees) and served as vice-President of the Association of the National Olympic Committees for the period 2001-2006.¹⁰⁸

The IOC and UCI also failed to distance themselves from Conconi and those who had supported him in Italy after the scandal became public. According to internet sources (fmk, 2011), in 2001 Conconi still served as a member in the IOC's medical committee and remained the president of UCI Medical Commission until 2001 ... with the responsibility to protect the riders' health in cycling!¹⁰⁹

Other Cases of Complicity in the 1980s and 1990s

The protection granted by Italian sports bodies to elite athletes and those administering doping product to them goes beyond Conconi's case. As already mentioned in the introduction, an investigation coordinated by another courageous magistrate, Dr. Guariniello from the Turin Prosecutor's Office led in 1998 to the temporary closure of CONI's Anti-Doping Laboratory in Rome and loss of the IOC accreditation. Questioned by Dr. Guariniello, the scientific director of the laboratory later admitted that the lab carried out thorough tests for all the prohibited substances, in particular, steroids, in only 30% of the urine samples taken from professional football players (Evaluation Team, 2002: 13 and Travaglio, 1998). A Commission of inquiry, which was established by the government and headed by a well-respected lawyer, Carlo Federico Grosso, stated that "practices had developed and facts were committed at the Rome laboratory of analysis and after the matches, when the samples were taken, that violated IOC and CONI rules" (*Adnkronos*, 1998). As a result of this scandal, Pescante stepped down as President of CONI in 1998.¹¹⁰

¹⁰⁸ See http://www.olympic.org/mr-mario-pescante.

¹⁰⁹ No exact data about the length of Conconi's term as a member of the IOC Medical Committee and UCI Medical Commission could be found on either his webpage or the websites of the two organizations.

¹¹⁰ Pursuant the principle of territorial competence, the proceeding was transferred from the Turin to the Rome Prosecutor's Office. After carrying out the necessary investigation, the latter did not pursue the case not having determined on the basis of the elements under scrutiny that a punishable crime had been committed (Council of Europe, 2002: 13). The Prosecutor's Office in Rome has been known since the 1970s with the nickname of "porto delle nebbie," i.e. "the fog port", because it did not press charges in many proceedings against high-level politicians and state representatives, which were transferred to Rome because of the rule of territorial competence.

Moreover, Rome prosecutors and judges were traditionally very close to the world of organized sports, as they often served as judges in sport justice commissions, receiving generous compensations for their services (Int-NAS-26; Int-Oth-2). This close relationship changed only when Italy's Higher Council of the Judiciary, known as CSM (see chapter 7), forbade prosecutors and judges from accepting such extra-judicial tasks.

Faraggiana's diaries, which had been made public twelve years earlier, also showed that the CONI's Anti-Doping Laboratory in Rome was not exercising its mission properly. Indeed, they went one step further than the 1998 investigation conducted by the Turin Prosecutor's Office in suggesting that the lab was used to establish the amount of time required for traces of doping substances to disappear from the urine samples of the individual athletes (Donati, 1989: 84-5)—despite the fact that the IOC had formally banned a wide range of performance-enhancing substances in 1967 and added steroids to that list in 1976 (WADA, 2012). The diaries also indicated that Faraggiana was working closely, on behalf of the Italian Athletics Federation (FIDAL), with another public laboratory that was conveniently located in Pisa not far away from the main FIDAL training site and was run by the Consiglio Italiano delle Ricerche (CNR), the most prestigious public research organization in Italy as well as the main funding agency for scientific research. The Pisa lab routinely examined blood and urine samples of the athletes "treated" by Faraggiana for the same illicit purposes of the Rome lab, possibly documenting serious harms provoked by the doping substances administered. Nonetheless, when the diaries became public, no action was taken against either lab and the labs were not even called to justify their practices. Exchanges of letters between the president of the lab, Dr. Federghini and FIDAL managers document that in 1981 and 1982 the former tried, with the support of the latter, to have the Pisa lab accredited by the IOC (ibid.: 82-84).

As already mentioned, the publication of Faraggiana's diaries and the repeated public complaints of Donati and a few other athletic federation officials did not lead to any criminal or sports law investigation. On the contrary, Primo Nebiolo, who was then the president of both the Italian and worldwide athletics federations (known as International Association of Athletics Federations or IAAF),¹¹¹ ignored the reports and did his best to cover up the scandal in the bud (Donati, 1989). In 1985 Prof. Romano Tordelli, who had been responsible for middle-distance runners for over 15 years, wrote several letters to Nebiolo to inform him of the spread of illegal doping practices within the track and field disciplines in Italy. Among others, Tordelli wrote that the documentation he had collected "demonstrates that the doping practices in FIDAL have reached such a seriousness to hypothesize veritable criminal offenses against the community and the athletes who have undergone such practices, with repeated violations of the sports law and the Italian criminal laws" (Donati, 1989: 92). Tordelli also listed the products administered by Faraggiana, concluding that "the costs of these products, the payment of the physicians administering them, the trips necessary for the purchases, the payment (at least as a partial contribution) of the medical structures needed to control

The Rome Prosecutor's Office has recently improved its reputation. No empirical evaluation of its decisions and output in comparison to those of other offices has ever been carried out (Sansa, 2011).

¹¹¹ For biographical details, See http://en.wikipedia.org/wiki/Primo_Nebiolo

continuously the 'treated' athletes with sophisticated and expensive procedures, the cost of supporting and detox drugs are very high" (ibid.: 92-93). On this basis, Tordelli asked Nebiolo "if these expenses did not represent a demonstration of irresponsible administration of the federation resources."

Tordelli also informed Nebiolo—almost fifteen years before his statements were confirmed by the Ferrara Prosecutor's Office—that "Conconi's position went beyond blood transfusions and that he appears to be active also in the administration of anabolic steroids and testosterone even to athletes who have won medals at the Olympics" (ibid.: 93). Nebiolo and the other FIDAL top managers did not even respond to the Tordelli's early letters. The former replied only when Tordelli sent a letter in copy to all the FIDAL officials. Even then, Nebiolo merely wrote that he had "forwarded the letter to the competent technical and administrative bodies to obtain the necessary clarifications" and later invited Tordelli to a meeting during which no concrete action was taken (ibid: 93-94).

Two years later, in 1986, excerpts of Tordelli's letters were published in a weekly magazine, *L'Espresso* (e.g., *Repubblica*, 1987). Following the scandal provoked by these letters, a few other insiders, athletes and trainers talked openly about doping in interviews. Among others, the elite discus thrower Zerbini reported that "some federation officials before the Los Angeles Olympic Games came to my trainer and me and were very clear. Or you take some substances or you do not attend the Games" (Audisio, 1986). Despite these revelations and charges, Nebiolo was reported repeatedly saying: "I speak about everything but not about doping" (Audisio, 1987a and c). In addition to the strategy of silence, FIDAL removed the trainers who had had the courage to denounce openly the problem of doping. For example, Carlo Vittori, the personal trainer of national hero Pietro Mennea and coach of the Italian national track team, was first prohibited to have any further contact with journalists (Donati, 1989: 88) and then removed from his trainer job (Audisio, 1987b).

In 1989, Pietro Pujia, the winner of 54 national titles in weightlifting sued the Weightlifting Federation for having obliged him to take steroids since he was 13 years old, including before the 1988 Seoul Olympic Games, claiming compensation for damages to his back from the Federation and CONI. The Weightlifting Federation, CONI and some of Pujia's physicians and trainers were prompt in denying all the charges, ostracizing and denigrating him. They did so regardless of the fact that another member of the Olympic weightlifting team, Norberto Oberburger, Olympic champion at the Los Angeles Games, had tested positive to steroids immediately after coming back from the Seoul Games—a fact that the Weightlifting Federation had allegedly tried to hide for several months—

and that Pujia's and Oberburger's intake of doping substances and other drugs were detailed in Faraggiana's diaries (Capodacqua, 1989a and 1989b).

This pattern of denial and isolation of the few whistleblowers repeated itself in the following years. In 1993, an elite track and field athlete, Francesca Delon, filed a report with CONI Anti-Doping Prosecutor's Office that her trainer had pressured her and several other elite athletes to use anabolic steroids, enclosing also the recordings of conversations with the trainer on a tape as proof (Zambardino, 2003a and 2003b). After a series of hearings during which CONI Anti-Doping Prosecutor's Office even managed to ruin the tape, media pressure finally obliged CONI Prosecutor's Office to strike off the trainer and disqualify several athletes the latter had trained—but Delon was marginalized and treated as a traitor (Zambardino, 1994).

In 1994, Donati submitted a dossier to the President and to the General Secretary of CONI, detailing the spread of EPO among professional riders and Conconi's role in such a spread, on the basis of interviews with twelve key-figures of the cycling milieu, including athletes, physicians and team officials. The dossier remained in a drawer for two years, while Conconi was celebrated as the great champion of the struggle against doping. Only in 1996, at the pressure of the media, was CONI forced to admit the existence of the dossier and had to justify why it had disregarded the dossier for two years, had not reported the detailed circumstantial evidence included in the dossier to law enforcement agencies, and had failed to review CONI's cooperation with Conconi (e.g., Capodacqua, 1996b). Eventually, the dossier constituted the impetus for the judicial investigations against Conconi earlier discussed.¹¹²

Sports body officials not only tried to ignore or isolate the few whistleblowers who challenged illegal performance-enhancing practices but occasionally also tried to discredit the whistleblowers' reputations and careers. In early 1997, a few months after the publication of Donati's EPO dossier, Anna Maria Di Terlizzi, a 100m hurdler trained by Donati, tested positive for caffeine. However, the second sample of urine, which was tested in the presence of an expert of Donati and Di Terlizzi's choice, tested negative, indicating that the first sample had been manipulated (e.g., Capodacqua, 1997; *Repubblica*, 1997). On another occasion, CONI officials went as far as sabotaging criminal investigations. In 1996, when NAS officers asked for the collaboration of the CONI Anti-Doping Prosecutor's Office in searching all cycling teams arriving by ferry in Brindisi after the first two stages of the Giro d'Italia in Greece, CONI officials informed the cycling team managers and even Italy's main sports daily, *La Gazzetta dello Sport*, effectively thwarting the raid (Int-NAS-16 and 26; see also Capodacqua, 1996a).

¹¹² Five years earlier, Donati had published a book *Campioni senza valore* (Worthless Champions; 1989) to illustrate his struggle against doping and corruption in sports and the difficulties that he and the few other whistleblowers had encountered. The book was presented to the press in a major bookshop in Rome and during the first week the sales were very successful. Then, the book was suddenly and completely withdrawn from the market—for reasons that were never fully explained by the publisher. The book is now available for free on the internet.

As late as 2000, when the CONI Scientific Committee informed CONI President Gianni Petrucci and the sports federations about the GH anomalies found in the blood samples of 61 super elite athletes, CONI reacted by shutting down the Scientific Commission (*Repubblica*, 2000). Later on, when the data on the GH anomalies were leaked to the press, Petrucci filed a report against unknown persons with the Rome Prosecutor's Office, at the same time as several CONI officials actively looked for incriminating evidence against Donati. Donati was later freed from all accusations. In the same period, Donati was also sued by several employees of the Rome Anti-Doping Laboratory and representatives of the Sports Medicine Federation for slandering the reputation of the lab. When Donati presented the statements of several elite athletes and physicians indicating that the lab had carried out in the 1980s tests to help the former to better tune their intake of doping products, the claimants withdrew their suit and even offered to pay Donati's legal fees.

Episodes like these and the direct evidence emerging from the proceeding against Michele Ferrari led the first-degree judge of the Bologna Court in charge of that proceeding to conclude the following: "Doping is a topic that the world of professional sports does not yet seem to be able to deal with the necessary courage and straight back that a pitiless self-criticism would require" (Tribunale di Bologna, 2004: 18).

The Tolerance of National Sports Bodies since the Turn of the Century

In Italy as elsewhere, national sports federations and the Olympic Committee were forced by scandals to intensify the fight against doping, as the reputation, funding and media attractiveness of the organized sports world were increasingly at stake. No open complicity with doping athletes or the latter's suppliers is possible. Nonetheless, not all officials of Italy's sports bodies, as of today, seem to be equally committed to the struggle against doping. As of 2002, for example, the previously mentioned rider turned witness still reported:

The [cycling] federation knows everything. The Italian riders are selected on the basis of the values of their analyses. Those making the selections for the national teams are the first to ask the sports directors to keep certain athletes "ready" for a certain appointment. When they set up the team for the Olympics, they even gave a "reimbursement" for the drugs. As a sort of expense list. And when the whole national track team was caught with a load of stuff, they convinced the poor T[.] to take responsibility for it, promising him that they would cover him (Fazzo and Mensurati, 2002).

There was obviously no possibility to check independently these serious allegations. What is clear is that the collaboration between sports federations and NAS is far from being optimal. Several NAS officers (e-.g., Int-NAS-9, 25, 26) and prosecutors (e.g., Int-Pro-1 and 3) complain about the repeated lack of collaboration on the part of

some sports federation officials and some NAS investigations also clearly document the sports bodies' lack of anti-doping commitment. Recalling the first criminal investigations on doping, a senior NAS officer told us (Int-NAS-26): "When we started conducting the first anti-doping interventions and progressively realized with surprise how widespread and serious the phenomenon was, we were struck by the fact that no person belonging to the sports world ever came to us to denounce or at least to report facts" (Int-NAS-26). Reflecting on its own "Muscoli e Fiale" investigation concerning the world of professional cycling, for example, the Treviso Branch Office concluded that "some doping cases reported to the FCI [i.e., Italian Cycling Federation] have been blocked thanks to the omission of high-level officials belonging to the disciplinary commissions and other bodies of the sports law" (NAS Treviso, 2009). In another investigation carried out by the Brescia NAS, the manager of Italy's national cycling team was wiretapped while he reassured the coach of a young athlete who was taking performance-enhancing drugs and promised his phone partner that he would take care of doping controls (Quotidiano.net, 2001; Capodacqua, 2000). On another occasion, the team physician of a Serie B football team manipulated the athletes' anti-doping selection procedures—and later accepted a sentence bargaining agreement (*patteggiamento*, see chapter 7) for this charge (Int-NAS-16).

The persistent lack of commitment to anti-doping is also suggested by the continuity of the top management of Italy's organized sports, as illustrated by the earlier mentioned Carraro's and Pescante's careers. In particular, Pescante served as undersecretary for sports for five years, until 2006. "Appointing Pescante to stand guard over sports is a bit like putting a fox in charge of the henhouse"—complained the journalist Marco Travaglio (2005). In his capacity of Italian government supervisor for the 2006 Winter Games in Turin, Pescante repeatedly asked, at the IOC's insistence, for the temporary suspension of the Italian anti-doping law, "because otherwise there is the risk to watch competitions reduced to half" (Tropeano, 2005; see also Vinton, 2005). A consequence of the IOC and Pescante's proposal, which was stopped by the determined opposition of the Health Minister Storace, would have been to wipe out all the ongoing anti-doping criminal proceedings against athletes and their suppliers (Travaglio, 2005).

Continuity with the past is also reflected in the appointment of a few past members of CVD, the body responsible for doping controls among recreational athletes. Among them, for example, in the period 2001-2004, there was a FIDAL physician who had been sentenced by the Milan Court for substituting an athlete's urine sample with his own ahead of a doping test, as well as Prof. Giorgio Santilli, the former President of the Federation of Sports Physicians.¹¹³ In the latter capacity, at the end of the 1990s Santilli was in charge of the Rome Anti-Doping Laboratory and in 1998 stepped down, together with Dr. Pescante, in the aftermath of that scandal. During the following CVD

¹¹³ See http://www.salute.gov.it/dettaglio/pdPrimoPiano.jsp?id=23&sub=3&lang=it.

term (2005 to 2008), Felice Rosati, the Director of the Rome Anti-Doping Laboratory until 1998, served as a CVD member along with Prof. Santilli, in spite of the fact that Rosati had been removed from his job when the laboratory was closed down because of the irregular analyses of football players' urine samples (Moresco, 2005; Int-Oth-2).

Even when there is no direct connection with the past, the appointment of other CVD members raises doubts about the anti-doping commitment of Italy's sports bodies and government, given the appointees' potential conflict of interests. To give just one example, in 2010 the last Berlusconi government appointed two high-level representatives of Italy's cycling federation, including the chief physician, as CVD members (Ministero della Salute, 2012)—despite the fact that CVD is responsible for testing the vast majority of Italy's athletes and cycling is considered one of the sports most polluted by doping (Int-Oth-2; see also chapter 1).¹¹⁴

The law enforcement agencies themselves seem to be not completely immune from potential conflicts of interests, as the sports teams of some agencies traditionally include some of the very best elite athletes in Italy. In a criminal proceeding of the Bolzano Prosecutor's Office (Procura della Repubblica di Bolzano, 2002) two suppliers of anabolic steroids and other doping substances repeatedly hinted at a high-level law enforcement officer who allegedly was their customer and expressed the expectation that the officer would help them retrieve some of the substances that had been seized by another police force. However, the law enforcement officer was not identified and the investigation on the matter was not further pursued. As the training camp of the teams of a law enforcement agency was located nearby, these suspicions were regarded as worthwhile of further investigation by one of our interviewees (Int-Oth-2).

Lastly, the fact that CONI has not yet published the results of its anti-doping tests from 2008 onwards does not testify to a thorough commitment against doping.

In its turn, UNIRE, the public body in charge of regulating horseracing, had a very bad reputation and competed with few others for the title of being the worst managed public agency in Italy. With €111 million debt, in 2009 it had the highest debt rate per employee. Both its top management positions and the position of race judges were often assigned to protégés—respectively of politicians and the UNIRE top management. A witness in the 2003 investigation of the Naples Prosecutor's Office allegedly reported "some UNIRE officials bet on races after the cashiers were closed; they had found ways of stopping the time" (Zunino, 2009). UNIRE was transformed in July 2011 in ASSI, Agenzia per lo sviluppo del settore ippico [Agency for the Development of the Equestrian

¹¹⁴ The names and qualifications of the two members are listed openly on the CVD's website—a confirmation of Italians' scarce awareness of conflicts of interest (see also *Economist*, 2011b): see

http://www.salute.gov.it/antiDoping/paginainternaDoping.jsp?menu=commissione&lang=italiano&i d=131

Sector), in attempt to improve management standards and revive the highly indebted world of horseracing.¹¹⁵

In the meanwhile, the few elite athletes who find the courage to become whistleblowers keep on being harassed and marginalized, while they are punished for their violations of sports rules. Filippo Simeoni, the only rider who explicitly confessed to having received prescriptions of doping substances by Dr. Ferrari and who became the main witness at the Bologna trial, subsequently found employment only in small cycling teams. As late as 2007 he recounts: "Six months suspension, €100,000 of earnings lost, my salary reduced when I came back, I no longer had any great chances. You survive, but you have to swallow a lot. Harassment and humiliations. On the one hand, I was the sinner, on the other the traitor. They held it all against me. I was isolated, a bastard, I deserved nothing." Even Lance Armstrong took time to personally harass Simeoni at the Tour de France. "Lance hated me because I had badmouthed Ferrari. I joined a group of riders in a breakaway. He came to us and said to the others: you can, he can't. He even started singing at me: 'Fool, fool.' Two other mates shouted: 'You are a disgrace, you bite the hand that feeds you.' Even Cipollini did what he could to prevent me from racing, I was dangerous, I had spoken out" (Audisio, 2007).

The Parallels between Doping in Elite Sports and Insider Trading

The analysis just concluded empirically confirms Bette's (2008) thesis of doping in elite sports as "a 'normal accident,' which occurs over and over due to precisely-identifiable social conditions." Despite the media and sports bodies' repeated claims that the athletes testing positive constitute deviant individuals acting alone, Bette convincingly argues that doping practices in elite sports are the results of a "constellation of actors", which set the structural conditions making doping possible and fostering its spread (see also Bette and Schimank, 2000).

Going beyond that, our analysis suggests that doping has long been considered a legitimate practice within the Italian elite sports world, long after the adoption of the first anti-doping provisions by the IOC and a few international sports federations in the 1960s. In other words, our analysis indicates that doping prohibition in sports rules and its criminalization in Italy have not always coincided with its delegitimation. Similar conclusions seem also plausible for other countries, in which doping has not even been fully criminalized (T.M.C. Asser Instituut, 2010; see also chapter 1). In this and other respects, we see interesting and multiple parallels with insider trading, that is, the trading of a corporation's stock or other securities (e.g., bonds or stock options) by individuals with potential access to non-public information about the company. We briefly discuss each of these parallels, dealing last with the lack of synchrony between

¹¹⁵ See http://www.unire.gov.it/index.php/ita/Assi

prohibition/criminalization and delegitimation processes and partially generalizing from Italy's experience to the rest of the world.

Both doping and insider trading are still not regulated uniformly by most countries in the world, even if there is a clear trend toward growing government controls and prohibition. The United States enacted restrictions of insider trading as early as 1934 but "insider trading in the rest of the world markets, with few exceptions, went virtually unregulated prior to the 1980s" (Newkirk, 1998) and despite the recent adoption of insider trading bans in most countries, considerable differences remain in the scope of the provisions and the sentences foreseen (*Economist*, 2012d). Similarly, despite the adoption of the World Anti-Doping Code, some scholars still see considerable differences in the implementation of the WADA and UNESCO rules by the anti-doping panels of the national sports federations and courts (see Hendrickx, 2008, and Henne, 2010). The differences are further exacerbated by the fact that key violations in the Code, such as doping use and trafficking have no parallel in the criminal codes of many countries (see Federal Ministry of the Interior, 2009; T.M.C. Asser Instituut, 2010: 23).

In addition to differences in legislation, there are also differences in enforcement. In the case of insider trading, countries still differ considerably in the degree with which they are ready to enforce their prohibitions, with the United States being perceived to be much tougher than the rest (Coffee, 2007; Economist, 2012d). As we have seen in the previous pages, neither the Italian athletic federation FIDAL nor its international counterpart IAAF showed under Nebiolo's presidency great commitment in enforcing anti-doping rules. According to Hoberman (2012), the IOC showed very little interest in effectively pursuing doping almost until the end of the IOC presidency of Juan Antonio Samaranch (1980-2001). FIFA's more recent abysmal testing record (Hoberman, 2012; see chapter 1) and repeated corruption scandals (Kistner, 2012) suggest that not even the major and richest sports federations are yet seriously committed to controlling doping. National sports federations and other sports governing bodies are likely to differ even more substantially from each other in financial means, the will of their higher ranking officials and political support in implementing IOC and WADA rules. As mentioned in the introduction (see Hoberman, 2012 and Rössner, 2011: 420), governments also vary significantly in their determination and, if developing countries are included, in the means to implement the legislation against doping-related offenses they may have on the books.

Other similarities between doping in elite sports and insider trading involve the controversial nature of the two offenses, the arguments brought forward by policy-makers and the lack of scholarly consensus about the benefits of their regulation. Despite the regulatory efforts in both fields, both the offenses (or sports rule violations) of doping and insider trading remain inherently ambiguous. Even in the United States, many forms of trading by corporate insiders remain legal, if this trading is done in a way that does not take advantage of non-public information. Likewise, the use of the same

substance by the same athlete can be considered or not considered a case of doping depending on whether or not the athlete has a therapeutic use exemption. More generally, there is a thin and arbitrary line between legal and illegal performance-enhancing products, and Italy's Supreme Court has recently defended the argument of Turin Prosecutor Guariniello that the offenses of doping and sporting fraud may also entail the administration of legal drugs not included in the official prohibited list, if these are used off-label, i.e., for purposes different than those officially foreseen, for example to enhance performance (Corte di Cassazione, 2007). In the case of doping, the ambiguity is further enhanced by the fact that sports rules often do not have clear corresponding provisions in government law books.

The main argument in favor of regulating insider trading is fairness, the idea, as former SEC Chairman Levitt once put it, that "'the proverbial little guy' on Main Street should have the same fair chance as the big guys" (quoted in Newkirk, 1998). A similar argument has also been used in the field of anti-doping, even if it is compounded with the protection of athletes' health and, more recently, with the partially overlapping idea of the "spirit of sport." And as in the case of doping (e.g., Kayser et al., 2007), from the 1960s onwards scholars have repeatedly contested the benefits of regulating insider trading (e.g., Manne, 1966; Carlton and Fischel, 1982-83; Leland, 1992).

Most crucially, both doping and insider trading have long been considered legitimate activities within their respective communities and policy-makers' efforts to prohibit/criminalize them have not automatically changed these perceptions. As Clarke noted in a study about financial crime in the City of London, Clarke (1990: 162),

it would have perplexed leading members of these institutions up to the end of the 1950s to be told that they were doing anything reprehensible in acting upon such information. It was precisely because of the access to such information that one was part of the City, and one was part of the City in the clear expectation of making a considerable amount of money.

Even in the United States, the enforcement of insider trading regulation has not always been consistent, and despite a few prominent trials involving Ivan Boesky and Michael Milken (Stewart, 1992), among others, in the 1980s, insider trading has probably remained a frequent practice for hedge funds and other corporations seeking to maximize their earnings on the U.S. securities markets, as suggested by recent trials involving Raj Rajaratnam, the billionaire hedge fund manager who ran Galleon, Rajat Gupta, the former CEO of McKinsey, and other high-level corporate officials (see *Economist*, 2011b and 2012 and Parker, 2011).

Sports success, rather than financial profit, has always been the main motivation for doping in the organized sports world, but the state-doping programs in the former East Germany (Berendonk, 1992; Franke, 1995; Spitzer, 1998) and the repeated scandals in a number of developed Western countries suggest that sports authorities and federation officials in other countries in addition to Italy long regarded doping a de facto legitimate practice or, even if they increasingly had "doubts" about its formal legitimacy, still supported or tolerated it in the pursuit of the higher goal of sports success. For a long time, sports officials were probably even convinced—or at least justified ex post their actions with the idea—of operating for a higher national interest—an excuse that was never available to insider traders. In West Germany, for example, a series of parliamentary hearings and the detailed historical reconstruction of Singler and Treutlein (2010: 202-239) document the attempts of the National Olympic Committee (NOK), the German Sport Federation (DSB), leading sports physicians and several politicians in the mid-1970s to question and even weaken the IOC's prohibition of steroids, minimize or deny the harms associated with their use and, in some cases, even to legalize their administration to elite athletes by physicians. The overall aim of these maneuvers was to secure the "equality of chances" of West German athletes versus their East German counterparts, who were very effectively being doped by East German officials (see also Hoberman, 2011).

Doping scandals involving high-level sports federation officials have taken place even in the low-corruption Scandinavian countries, as the 2001 Lahti scandal shows. A few days before the start of the 2001 Nordic World Championships in Lahti, Finland, the team physician of the Finnish national ski team mistakenly left his bag containing plasma expander, bloody needles and intravenous tubes at a petrol station. A scandal burst when six Finnish skiers tested positive for plasma expander a few days afterwards and the bag was linked to the team physicians and positive tests. Most probably, the athletes had taken EPO, then used plasma expanders to lower their hematocrit levels before the races. A Doping Enquiry Taskforce (2001: 3) set up by the Finnish Ministry of Education to investigate the scandal concluded: "What made the Lahti doping cases serious was not only the large number of perpetrators, six, but also that doping had taken place under the auspices of Finnish Ski Federation coaching." In 2008, Kari-Pekka Kyrö, the former coach of the Finnish national team and the only person sentenced for the 2001 scandal, finally admitted that "in the 1990s there was a pharmacological program in the Finnish Ski Federation" and that Finnish skiers systematically took EPO, GH and plasma expander (Hahn and Häyrinen, 2008).

The scandal affecting the Austrian Ski Federation that burst at the 2006 Turin Olympic Games also suggests that doping has continued to be tolerated at the highest levels even in the current century. As seen in the introduction, this federation hired and protected the trainer Walter Mayer, even after he had been suspended by the IOC, allowed the doping of many of its biathlon and cross-country athletes under Mayer's supervision and set up two hematological "laboratories" to check the athletes' blood values at their training location in Austria and at their premises at the Olympic Village in Turin. After these events became public thanks to the intervention of Italy's law enforcement agencies, the IOC Disciplinary Commission concluded that the whole Austrian Olympic Committee had

breached its obligations under the Olympic Charter, the IOC Code of Ethics and applicable anti-doping regulations ... 1. through its responsibility for the conduct of the Austrian Ski Federation, as well as for the anti-doping rule violations committed by its athletes and support staff at the Torino Olympic Games ...; 2. by failing to prevent Mr. Mayer from participating in the Torino Olympic Games in breach of the IOC's decision against Mr. Mayer after the "Blood Bag Affair"... ; and 3. by failing to implement appropriate organisational changes in an attempt to prevent a repeat of the problems experienced in 2002 (IOC, 2007).

Reflecting on the evolution of insider trading regulation, Nelken (2007: 758) presents this and other white-collar crimes as "index[es] of social change," stressing that social perceptions and legislation are often not synchronized with each other. When he examines the Enron scandal, Nelken makes a few considerations that are also fully applicable to doping in elite sports: "some relevant misbehavior was legally criminal but not widely stigmatized socially, other misconduct was socially disapproved of, but not technically criminal and the line between these was a changing one" (ibid.: 763). In the case of doping in elite sports, this mismatch is further exacerbated by the fact that sports rules are often distinct from state legislation and differ from the latter in their legitimacy and enforcement.

On a more positive note, the parallel between doping and insider trading also suggests that the enactment of state and sports law prohibitions has an impact on the perceived legitimacy of these activities, particularly if the introduction of new sports rules and criminal prohibitions is followed up by their consequent implementation. Both the corporate officials who might be tempted to trade on the basis of insider information and the athletes and their suppliers and protectors within the elite sports worlds are white-collar criminals/wrongdoers par excellence and are therefore sensible to deterrent measures, as they have a lot to lose.

The progressive delegitimation of doping can be clearly seen in the evolution of Italian sports body and federation officials' attitudes and practices described in the previous pages. Whereas in the 1980s high-level sports officials and university centers directly paid by CONI engaged quite openly in the administration of doping products with the open complicity of CONI and at least a few Italian sports federations, sports bodies have become much more cautious since the early 1990s and have set up anti-doping programs, even if, as in the case of corporate insiders, their increased compliance may be largely dictated by a rational assessment of the increased risk rather than the interiorization of the relevant state provisions. We have no Italian data to support changes in the attitudes and behaviors of elite athletes. However, two independent studies focusing on elite cycling in France, Switzerland and Belgium (Brissonneau et al. 2009) and in Australia (Hardie et al., 2010) have come to the conclusion that the attitudes and behaviors of at least the interviewed elite riders had changed considerably since the 1998 Festina affair, the resulting increase in anti-doping controls and progressive delegitimation of doping. As a former Australian elite rider admitted in an interview:

A: Well, I think one of the things that's changed the most with the peloton at the moment is the fact that, back in the old days, everyone would talk about doping, and everyone would talk about what they're on and how much they're having, and this guy's was on this, and this guy's taken that and all this sort of thing and just completely open forum about doping basically. And it's got to the stage now, where if someone gets caught using something, there's guys in the bunch, and everyone just - they're on the outer, they're the ones getting the piss taken out of them, they're the ones that are not get.. that are getting fucked over in the crosswinds, and they're the ones that are getting slowly outed from the sport because socially they're not, they're not one of us anymore. They're the ones ruining the sport.

Q: So, who "we" are has changed?

A: Yes, so as a group we're all changing and trying to push out the cheaters, you know what I mean? That's one of the biggest things that's changed, and one of the ... the things that's moving sport into a cleaner area (Hardie et al, 2010:10; see also Brissonneau et al. 2009).

As we will see in chapter 8, some cautiously optimistic lessons for policy-making can be drawn from the parallel between doping and insider trading.

What is the Role of Underworld and Organized Crime in the Market?

In recent years a number of high-level international sports officials have emphasized the growing presence of the underworld in the market for doping products.¹¹⁶ WADA Director General Howman has repeatedly denounced "the ever-increasing advance of the underworld into sport," adding that "the underworld was making a lot of money from trafficking and distributing prohibited substances … and that the same people who were making a lot of money out of the trafficking of prohibited substances were also making money out of illegal betting and general corruption around the fringes of sport" (WADA, 2010e). Likewise, the IOC President Rogge has repeatedly warned of the danger posed by organized crime, albeit with particular reference to match fixing: "These are mafia links and mafia people and they bet at the same time while manipulating the result of a match" (e.g., Schlink, 2011). In stressing the advance of the underworld, these

¹¹⁶ Several quotes are reported in Hoberman (2012: 2-3).

officials presumably also refer to the well-publicized operations against the trade in steroids carried out by the U.S. DEA and a few other law enforcement agencies (see chapter 1). We consider here the extent to which this analysis is applicable to the Italian case and, more generally, the role of organized crime in the market for doping products in Italy.

The Role of Italian Mafia Organizations

In the questionnaire that feeds the NAS Investigations Database, the NAS officers can note if the investigation they are reporting should be considered a case of "organized crime (common or mafia-type)." None of the 71 supply-related NAS investigations were listed as mafia-type organized crime. Twenty investigations were characterized as "common organized crime"; however, from the explanations and the descriptions provided, the respondents seem to mean "common crime" in at least 10 cases rather than "common organized crime"—the expression "common crime" being much more current in the Italian language than "common organized crime.¹¹⁷

The analysis of the criminal proceedings and the expert interviews confirm the very limited involvement of Southern Italian mafia groups, such as Sicilian Cosa Nostra, the Calabrian 'Ndrangheta and the Neapolitan camorra, in the production and trade of doping products. Among the suppliers considered so far, there is only a specific type that can be traced back to Southern Italian mafia-type organized crime groups: the robbers attacking trucks containing medical drugs, who are often associated with Neapolitan camorra groups (Int-NAS-9 and -26). According to media sources, camorra groups also commissioned the theft of 80,000 EPO ampoules in 2000 in Malta, which were then distributed on the Neapolitan market (Fazzo and Mensurati 2002a).

More indirectly, health care professionals located in the Campania region and stealing from hospitals and pharmaceutical company storehouses seem to be advantaged vis-à-vis their counterparts in other Italian regions because they immediately find a stock of receivers, some of whom are associated with camorra groups and some work independently. The existence of "professional" underworld figures used to deal with many illegal and semi-illegal products, of which doping substances are only a small subset, has made Naples, according to Tau, "the capital" of Italy's market for doping products:

A day a rider of another team, a guy I knew well, told me: 'Why don't you go to Naples to buy it, there, it is very cheap." At that time I used to pay 4,000 EPO units 250,000 lire (approximately, €125), in Naples they sold me 10,000 units for 110,000 lire (€55). There are at least 2,000 characters like Marzano [a policeman who had turned out to being a supplier of doping substances] in Naples, it is an extraordinary

¹¹⁷ A telling detail is the fact than even four investigations exclusively concerning the demand of doping, each of them involving only a single rider, were classified as "common organized crime".

market. Everything gets out from the hospitals. I did at least 30 trips to Naples and I started knowing the people of the [doping] circles (Fazzo and Mensurati, 2002b).

Members of some camorra groups also play an important role in the fixing of horse races, which seems to be particularly common in the area of Naples. As we have seen earlier, the fix can be achieved through the administration of drugs to horses—not only to enhance their performance but also to let them run more slowly than usually (Corbo, 2004). This case can be read as a confirmation of Howman's earlier statement that the same underworld people who trade in doping substances also undermine the integrity of sports through illegal betting.

A few gym and fitness centers located in Calabria and selling steroids and other doping substances to their patrons are also suspected of being the property of persons linked, or perhaps even affiliated, with Calabrian 'Ndrangheta groups (Int-Pro-7). The 'Ndrangheta's suspected involvement in those gyms does not seem to entail, though, any special features in the doping practices within the gyms.

It is worrying that the largest sales of gonadorelin were located in the region of Calabria and in the provinces of Salerno in Campania and Caltanissetta and Palermo in Sicily, in addition to the Novara and Ferrara provinces (see table 2.16). As is well known, the three above-mentioned regions host many organized crime groups associated with the 'Ndrangheta camorra, and Cosa Nostra, respectively. However, as no investigation has so far focused on gonadorelin diversion, we do not know if the exorbitant sales of this hormone only reflect the generous prescriptions and sales of complacent physicians and pharmacists or if, instead, they hint at an involvement of local organized crime groups in gonadorelin distribution.

Aside from these few cases, there is no evidence of traditional mafia organized crime in the market for doping products—despite the economic and political power that mafia groups enjoy in the South of the country (e.g., Paoli, 2003b). As reported in the database, the five investigations carried out in Sicily and one conducted in Calabria do not show any involvement of the local mafia groups.

Neither camorra groups nor the overwhelming majority of the suppliers of doping products identified so far in Italian investigations are active as importers of doping products. Unlike the suspects targeted in the largest above-mentioned foreign investigations, the Italian suppliers do yet appear not, as a rule, sell abroad. The only exception here is represented by a few doctors servicing elite athletes, who indeed have an international clientele and, in one case at least, even occasionally operate abroad (Pasqualetto, 2011; MacMichael, 2011).

Are the Enterprises and Networks of Suppliers a Form of Organized Crime?

NAS officers' uncertainty in characterizing the suppliers of doping products as common organized crime at least partially reflects the common understanding of organized crime
in Italy. Unlike their counterparts in other countries, most Italian policy-makers, law enforcement officers and the public still understand organized crime as a set of stable and large-scale criminal organizations, which are by and large exemplified by Southern Italian mafia organizations and particularly the Sicilian Cosa Nostra (Paoli and Fijnaut, 2004). However, this "Italian" understanding of organized crime is no longer "mainstream" at the international level.

Whereas reference to large-scale organizations allegedly threatening world security is often made in policy documents,¹¹⁸ the official definitions of organized crime are loose and vague. The UN Convention against Transnational Organized Crime of 2000, for example, has clearly adopted a lowest common denominator definition with no strict criteria in terms of number of members and group structure. Article 2, paragraph (a) of the Convention states: "Organized criminal group' shall mean a structured group of three or more persons, existing for a period of time and acting in concert with the aim of committing one or more serious crimes or offenses established in accordance with this Convention, in order to obtain, directly or indirectly, a financial or other material benefit" (United Nations General Assembly, 2000: 25). Serious crime is defined by paragraph (b) of the same article as any offense punishable by a maximum deprivation of liberty of at least four years (ibid.). This means that the incisive investigative methods and other legislative and institutional changes foreseen by the Convention can be also applied to cliques, gangs and networks that are very far removed from the stereotypes of organized crime dominating the media and political discourse (see Paoli, 2008).¹¹⁹ In the academic debate, no reference is made to minimum sentence and organized crime is nowadays simply equated with illegal enterprises or even networks of loose partnerships and individuals trading in illicit products (e.g., van Duyne, 1997, Morselli and Bouchard, 2012).

From the academic perspective, the illicit enterprises set up by some suppliers of doping products, and even many looser partnerships developed by others even within legitimate institutional contexts, can be regarded as a form of organized crime. In a country like Italy in which the illegal trade in doping products is punished with imprisonment from two to six years (see chapter 7), these enterprises would have no difficulty meeting all the requirements of the definition of organized crime contained in the UN Convention. What is crucial to stress, though, is the fact that these "organized crime" enterprises are not the expression of an outside, threatening underworld but are

¹¹⁸ At the end of the UN World Ministerial Conference on Organized Transnational Crime, which took place in Naples in 1994, for example, its participants declared themselves "deeply concerned about the dramatic growth of organized crime over the past decade and about its global reach, which constitute a threat to the internal security and stability of sovereign States" (United Nations General Assembly, 1994: 2).

¹¹⁹ As discussed in Paoli and Fijnaut (2004), European Union executive bodies also pursued an analogous 'double-track' approach.

largely made up of white-collar crime offenders and are, to a considerable extent, internal to the world of sports.

Opening Up the Perspective: From Italy to the Rest for the World

This report has focused solely on the Italian market for doping products and we have collected only limited empirical evidence to assess what happens in other parts of the world. Nevertheless, some evidence from Italian investigations seems to confirm the involvement of organized crime groups in the foreign production of doping substances outside Italian borders. The main supplier of raw materials for the South African suspect running a transnational distribution ring of steroids and GH was a lab run by a Moldavian organized crime group (Int-NAS-9)—whatever the expression organized crime groups exactly means. Foreign investigations also show that criminal groups organize the transcontinental trade in doping products, as in the Operation Cyber Chase (U.S. DEA, 2005), which documented the production of steroids and other controlled substances in India—on the basis of raw materials produced in many other countries, including some European ones—and the marketing of these substances in the U.S. and elsewhere via internet. The theft of 4,650,000 EPO ampoules in Nicosia, Cyprus in 1999 also seems to presuppose the existence of a large organization, capable to receiving such an enormous quantity of drug (Donati, 2009: 16). Media reports also show that criminal organizations, predominantly located in Asia but also active in Europe, engage in match rigging (Hill, 2008). Just like the camorra, some of these groups appear to be simultaneously involved in illegal betting and the supply of doping products, thus presenting a formidable challenge to the integrity of sports.

Italian investigations, however, also indicate that many, if not most, foreign producers and wholesale distributors are not members of an elusive underworld but are former pharmaceutical employees, such as the above-mentioned Southern African suspect, or even belong to pharmaceutical companies operating on the fringe of legality in countries with lax or no regulations. As Howman himself (WADA, 2010e) acknowledges, there is considerable overlap between the market for doping products and that for diverted or counterfeited pharmaceutical products. This overlap is also shown by some recent investigations of foreign law enforcement agencies. For example, the main defendant of U.S. DEA's Operation "Gear Grinder," suspected of having produced more than 70% of the illegal anabolic steroids seized in 2005 in the United States was a pharmaceutical executive and trained veterinarian (Dohrmann and Llosa, 2006).

Evidence from international scandals and foreign investigations also confirm the involvement of many people belonging to the world of sports in the supply of doping products. To mention just an example, at least two sports physicians of the respected University of Freiburg in Germany doped for over a decade until 2007 riders of Germany's largest and most successful cycling team—initially called Team Telekom and

later T-Mobile—in their quality of team physicians. Among the athletes treated there were the two Tour de France winners, Bjarne Riis and Jan Ulrich (Dopingkommission, 2009).

Of course, it may well be that members of veritable long-standing and powerful criminal organizations play an important role in the production and distribution of doping substances in Asia and elsewhere, as international law enforcement officials report. International sports officials' emphasis on organized crime might also be justified from a policy-making perspective with the need to attract national governments' and the world public's attention on the problem of doping and to gain the momentum needed to bring about useful legislative reforms. However, by doing so, international sports' officials should not fall into the trap of abdicating the sports world's responsibility for the problem of doping, presenting it as a problem largely caused by powerful, threatening forces outside the sports world.

If they speak of mafia, they should admit that there is a lot of omertà and conspiracy in the elite sports world, which are not only and not primarily the product of powerful mafia organizations' assaults but are, instead, the result of dynamics internal to the organized sports world. "The doping system is organized along mafia-like lines", stressed WADA founding President Dick Pound, and rightly so (Großekathöfer and Gilbert, 2008). True, the market for doping products generates much less violence than mafia organizations; however, it also produces considerable harms to the physical and psychological integrity of the final users. Moreover, the organized sports world's toleration of doping imposes an extremely high psychological pressure on all its participants to ensure compliance and prevent whistleblowers. The few athletes and team personnel who admit doping practices are ruthlessly marginalized, as it happened in Italy with rider Simeoni. For example, Jörg Jaschke, an Austrian rider who admitted doping and denounced the Freiburg University sports medicine physicians who had helped him dope after the 2007 Team Telekom-T-Mobile scandal and Operacion Puerto, was long harassed and marginalized from professional cycling. For several years Jaschke was unable to find a new team, until he decided to retire from professional cycling (taz, 2011). This experience lead him to conclude that, at least in one respect, the organized sports world's toleration of doping might even be worse than the mafia: "The Mafia protects its people. In cycling, however, those who fall out of line even once are ruthlessly put down" (Kistner, 2007).

In the case of match rigging, veritable criminal organizations may play a more relevant role than in the market for doping products. International sports officials are to be praised for their efforts to draw the attention of governments, law enforcement agencies and public opinion to this worrying phenomenon. In the case of match rigging, too, the IOC and key international sport federations should realize that their own inability to solve internal corruption problems and implement a rigorous integrity policy significantly enhances criminal organizations' chances of rigging matches and competitions. A recent book on the International Football Federation (FIFA) written by a leading German expert (Kistner, 2012) is by no chance entitled "FIFA-Mafia." This title is well justified: to give just an example, between 1989 and 2001 FIFA Marketing Agency, ISL, paid bribes for at least 142 million Swiss francs to high-level sports officials from the IOC, several Olympic Commitees and above all FIFA itself. The former and honorary FIFA president Joao Havelange and his son-in-law were reported receiving at least 21 million Swiss francs with the knowledge of the current FIFA president Joseph Blatter, who was then secretary general (Weinreich, 2012).

In other words, sports body officials should not repeat the mistake often made in the field of organized crime control of presenting the crime in question as an "alien" or "outside" threat. In the 1950s and 1960s, for example, many U.S. politicians and policymakers went as far as to state that U.S. organized crime consisted almost exclusively of a nationwide, centralized criminal organization dominating the most profitable illegal markets and composed of migrants of Italian origin—initially called Mafia (U.S. Senate, 1951) and after the 1963 Congress hearing of the first mafia witness Joe Valachi, La Cosa Nostra (U.S. Senate, Judiciary Committee. 1957). This official view was dubbed as "alien conspiracy theory" by its critics (e.g., Smith, 1975; Moore W., 1974). The latter rightly pointed out that there was a thriving domestic demand for the goods and services allegedly provided by the Mafia and that these goods and services were provided by a plurality of domestic actors.

More recently and in a more sophisticated way, EU policy-makers also presented organized crime as a threat that came predominantly "from the outside." In the 2003 European Security Strategy, the European Council considered organized crime as one of the key threats to Europe, alongside terrorism and regional conflicts and stated the following:

Europe is a prime target for organised crime. This internal threat to our security has an important external dimension: cross-border trafficking in drugs, women, illegal immigrants and weapons accounts for a large part of the activities of criminal gangs. It can have links with terrorism. Such criminal activities are often associated with weak or failing states. Revenues from drugs have fuelled the weakening of state structures in several drug-producing countries. Revenues from trade in gemstones, timber and small arms, fuel conflict in other parts of the world. All these activities undermine both the rule of law and social order itself. In extreme cases, organised crime can come to dominate the state.

These pictures of an alien threat might have been necessary from a policy-making perspective to rally national politicians' and public support for legislation considerably enhancing law enforcement agencies' investigative powers and for institutional reforms overcoming previous police fragmentation. However, they do not reflect an accurate

assessment of the organized crime situation in much of Europe and are not useful as a basis for concrete control efforts.¹²⁰ Like their U.S. counterparts forty years earlier, the EU policy-makers who wrote the above statements forgot that many organized crime activities thrive on the EU citizens' demand and that many EU citizens also actively participate in these organized crime activities. Indeed, some EU nations have become veritable powerhouses in key illegal markets—one just has to recall the role of the Netherlands in production and trade of illegal drugs.

In the case of doping we are even further away from the reality of an alien threat: even if underworld members may increasingly engage in the production and wholesale distribution of doping substances in Asia and elsewhere, most exchanges at the retail level as well as considerable fractions of the different distribution chains linking producers to final users are embedded in legitimate social relationships. As will become apparent in the final chapter, the white-collar crime nature of many doping violations particularly within elite sports— means that alternative regulatory measures beyond the current focus on athletes' testing can and should effectively complement enhanced criminal repression. That is why, rather than emphasizing the underworld's role, we fully agree with another assessment of Howman's (2011: 13):

We must realize that, in most cases, it is not athletes acting alone who defeat everything for which they should stand. They are assisted, counselled, sometimes tricked and occasionally forced into the downward spiral of cheating. Coaches, trainers, medical doctors, scientists, sports administrators—even some misguided parents—all of whom ought to know better, make a mockery of their responsibilities and trivialize the years of training and dedication of the trusting athletes whom they betray. One of our missions at WADA is to make sure that it is not only the athletes who are sanctioned for doping offenses. Athletes are, of course, the instruments in which the doping occurs, but often they are less to blame than the coaches, doctors, lawyers, agents, trainers and others around them.

¹²⁰ For an overview of the many far-reaching legislative and institutional reforms introduced to enhance the fight against organized crime in Europe, see Fijnaut and Paoli (2004) and Fijnaut (2013).

6. REVENUES AND PROFITS

In this chapter we analyze the data available with a view to fulfill the fifth objective of our study: namely, to estimate the financial dimensions of the doping market, including the revenues and profits of different types of suppliers of doping products. As expected, this objective has been the most challenging of the whole project. As is well known in the literature on illegal markets, it is always very difficult to estimate the size of a market that is at least partially illegal (e.g., Reuter and Greenfield, 2001). We hence have no ambition to provide a definitive answer to the research questions implicit in the fifth objective; rather, we make a first attempt to assess the retail revenues and hence financial dimensions of the market.

We proceed in three steps, the first two referring to the market in its entirety and the last focusing on the revenues and profits of different suppliers. First, we estimate the potential market value of the substances seized by NAS and other law enforcement agencies in Italy. Second, we assess the total retail expenditures—or the total financial size of the market—for doping substances, using the consumption estimates developed in chapter 2. We make no attempt, however, to estimate the retail expenditures made to purchase doping methods. Third, we analyze the rather sketchy data collected concerning the revenues and profits of a few illegal suppliers of doping products in Italy. A preliminary condition for the first two steps is the determination of the prices of doping substances—and this is what we begin with.

Our main findings are that, with few exceptions, doping products are relatively cheap, certainly cheaper than illegal drugs, if they are bought at regular pharmacy prices or on the internet. Therefore, the revenues generated by retail exchanges are also relatively modest, representing only a fraction of the revenues raised on the market for cocaine. We acknowledge, however, that our underlying consumption estimates severely underestimate the consumption of some of the most expensive substances and hence the related revenues.

The Retail Price of Doping Substances

As many doping substances consist of regular drugs, they have a legal market price. Moreover, as drugs in Italy are highly regulated, most of them are sold in pharmacies and have an official price, which is the same throughout the country. For all the substances recorded in the NAS Investigations Database, the first step has been to check on the websites of the Agenzia Italiana del Farmaco¹²¹ and Pagine Sanitarie¹²² if they were legally sold in Italy and, in that case, what their official price was. For the substances that

¹²¹ See http://farmaco.agenziafarmaco.it/index.php.

¹²² See http://www.paginesanitarie.com.

have no therapeutic purpose or are not officially traded in Italy (3.4% of the substances seized by NAS), we instead collected the prices on a few internet websites.¹²³

Whereas the existence of official prices represents a major difference vis-à-vis traditional illegal markets, the semi-illegal nature of the doping market implies that there is no certainty about the price paid by the final users. In most cases, in fact, the latter do not buy doping products at the official pharmacy prices. They may pay much more than the official price, if the substance is diverted from the storehouse of a drug manufacturer, distributor, health care center or pharmacy or is sold by a pharmacist-cum-illegal-supplier. Investigations show that some users, particularly those belonging to the elite market segment, are willing to pay a premium to be sure of the quality of the substances they take.

Other users, however, may pay much less than the pharmacy price, if they directly buy on the internet a doping substance that is either counterfeited or produced in countries with lenient regulations or lax enforcement. For example, Deca Durabolin (nandrolone decanoate), a well-known anabolic steroid, is sold legally in Italy in an ampoule containing 25mg/1ml for €12.40 (and as a pre-filled injection at a slightly higher price).¹²⁴ On the internet, however, it is sufficient to pay €10.20 to buy a four times larger package of the same product (2ml ampoule - 100mg/ml), produced by a Greek company called Norma.¹²⁵ Whereas the company seems to be legitimate,¹²⁶ the officers interviewed (Int-NAS-9 and 26) indicate that they have recently seized many Norma products that were of very bad quality, sometimes containing no active ingredient at all.

There is no guarantee, though, that websites always offer cheaper prices. A cartridge of 16 IU of Genotropin, for example, costs, according to Agenzia del Farmaco (as we duly noted in the NAS Investigations Database),¹²⁷ €232.24 in a pharmacy in Italy. On a website¹²⁸, the same package of Genotropin is sold for €159 and on another for €299.¹²⁹

¹²³ Above all, we checked the following websites: http://www.mesomorphosis.com/; http://www.eurobolic.info/ and http://it.steroidset.com/. An important caveat is that websites offering doping products are online one day and disappear the next (see also Swedish National Institute of Public Health, 2010: 15).

¹²⁴ See

http://farmaco.agenziafarmaco.it/index.php?SEARCH=yes&S_DESCR_SPECIALITA=Deca+Durabolin&S _SOSTANZA=&S_DITTA=&SSN=&DSNOTA_AIFA=&GRUPPO_RICETTA=

¹²⁵ See http://www.steroid4u.eu/compra-iniettare-steroidi/deca-durabolinnorma?language=lt. Accessed April 20, 2012.

¹²⁶ See http://www.normahellas.gr/uk/index.asp.

¹²⁷ See http://farmaco.agenziafarmaco.it/index.php?SCHEDA_CONF=yes

¹²⁸ See http://www.steroid4u.eu/compra-umani-ormoni/genotropin-16somatotropin?language=It

¹²⁹ See

http://www.eurobolic.com/index.php?main_page=product_info&products_id=342&language=de; accessed on April 19, 2012.

A further complication is due to the fact that, even if a substance is bought cheaply on the internet, its final retail price may be substantially higher if the substance changes hands several times before reaching the final consumers. In face-to-face transactions, especially in the world of fitness, the final price paid by a user also often reflects his or her own doping experience, shrewdness and financial means. As in the market for illegal drugs, retailers often adjust the prices of their doping products, and therefore their mark-up, to their users. According to a NAS officer, for example, a retailer's mark-up on an ephedrine ampoule may vary between €3 and €30 (Int-NAS-5).

While we are aware of all these caveats, we have had no easy way to remedy the situation. It is beyond the purpose of the present study to make a systematic comparison between the official pharmacy prices of the drugs with potential doping effects and the prices of the same substances sold on the internet. Moreover, even if we had done this, we would still not know which price was finally paid by most users. To assess the financial dimensions of the market, we have simply used official prices for the substances legally available in Italy and the internet prices found on an internet website for the substances not available in Italy would buy them at the official market price, whereas the users of substances not available in Italy would buy them at the official market price, whereas the users of substances not available in Italy would buy them directly from an internet website.

As already mentioned in chapter 2, we did not have enough information to determine the active ingredients contained in about 10% of the packages of doping substances seized by NAS branch offices between 1999 and 2009 and reported in the Database. Therefore, we could not establish the packages' price. To include these packages in the calculation of the doses seized, we have assumed that they would contain the average active ingredients of the packages of the same product (or classes of products). In the same way, here, rather than adding up the prices of the packages identified in detail, we have preferred to calculate the average price of a doping dose for each class of substances. This method has two advantages. First, it allows us to include all the substances reported in the NAS Investigations Database in the estimate of the financial dimensions of the market. Second, this average price can also be applied to the drugs seized by other law enforcement agencies and by NAS, which were not reported in the database.

Table 6.1 shows the average price of the doping doses of the different classes of substances, calculated on the basis of the assumptions just explained. Two things immediately catch the eye. First, the doping doses of most doping substances are very cheap. A dose of anabolic steroids, the class of substance most consumed by far, costs on average €1.12. Second, peptide hormones, growth factors and related substances are much more expensive than all the other substances. In fact, the average price of a dose of such substances is €9.49 but there are huge differences between the prices of the different substances included in such a category. In fact, whereas a dose of GH and other

growth factors (1 IU or .0333 mg) costs on average €13.90, the official price of a dose of insulin (10 IU) is only €0.03. With average price per dose of about €3, EPO and most other related substances are in-between: a dose of EPO (200 IU or 1 mcg) costs €3.09, a dose of chorionic gonadotrophin (1,000 IU), for example, costs €3.27.

Table 6.1 Active ingredients and average price of the doping doses of the different classes of substances seized by NAS between 1999 and 2009, as reported in the Database on NAS Investigations in euros (€)

| Type of cubstance | Active ingredients | Average |
|---|--------------------|------------|
| Type of substance | of one dose | price/dose |
| Anabolic agents (including testosterone) | 10 mg | 1.12 |
| Peptide hormones, growth factors and related substances,* of which: | Variable | 4.76 |
| - EPO and other similar hormones | 200 IU or 1 mcg | 3.09 |
| - GH and other similar hormones | 1 IU or 0.333 mg | 13.90 |
| Related substances**, of which | Variable | 2.50 |
| * Chorionic gonadotrophin | 1,000 IU | 3.27 |
| * Gonadorelin | 1.2 mg | 48.05 |
| * ACTH and other corticotrophins | 0.25 mg | 3.70 |
| * Insulin | 10 IU | 0.03 |
| Beta-2 agonists | 2 mcg | 0.20 |
| Hormones and metabolic modulators | 10 mg | 1.26 |
| Diuretics and other masking agents | 25 mg | 0.40 |
| Stimulants | 25 mg | 0.60 |
| Narcotics | 50 mg | 1.28 |
| Glucocorticosteroids | 25 mg | 0.49 |
| Beta-blockers | 5 mg | 0.26 |

Source: Our calculations on the basis of the Database on NAS investigations.

Notes: *€4.76 constitutes the weighted average price of the substances included in the category of peptide hormones, growth factors and related substances based on the number of substances and types of packages seized by NAS, as reported in the NAS Investigations Database. **€2.50 constitutes the weighted average price of all the related substances belonging to the broader category of peptide hormones, growth factors and related substances based on the number of substances and types of packages seized by NAS, as reported in the NAS Investigations Database.

Only one doping substance, GH, has prices comparable to those of the most expensive illegal drugs and another one, gonadorelin, even exceeds them. In fact, whereas a dose of GH costs ≤ 13.90 , a dose of heroin cost in 2010, the last year for the which the data are available, ≤ 10.49 , a dose of cocaine ≤ 17.29 and a pill of ecstasy

€16.65 (see table 6.2).¹³⁰ With a price per dose exceeding €48, gonadorelin is even more expensive than illegal hard drugs.

The price per dose of EPO and most other related substances are similar to those of a hashish joint and are slightly more expensive than a marijuana joint. However, EPO cannot be bought as a single "micro" dose of 200 IU selected here as a unit; the minimum ampoule contains 1,000 IU and costs €16.54. All other doping substances are cheaper than even marijuana or hashish.

| | Minimum price of a gram/pill | Maximum price of a gram/pill | Average price of a gram/pill | Average price of a dose |
|-----------|---------------------------------|---------------------------------|------------------------------|----------------------------|
| Hashish | 8.9 | 13.5 | 11.2 | 3.73 |
| Marijuana | 7.7 | 9.4 | 8.55 | 2.85 |
| Heroin | 35.5 | 48.4 | 41.95 | 10.49 |
| Cocaine | 57.9 | 80.4 | 69.15 | 17.29 |
| Ecstasy | 14.8 | 18.5 | 16.65 | 16.65 |

Table 6.2 Retail prices of the principal illegal drugs in Italy in euros (\in) – 2010

Source: Our calculations on the basis of the data of the Dipartimento Politiche Antidroga (2012: 191).

In making the comparison between the prices of illegal drugs and doping substances, it is also important to remember that a dose of an illegal drug gives a tangible satisfaction to its users whereas this is not true for all types of doping substances. A dose of stimulants, diuretics and other masking agents, beta-blockers, hormones stimulating the natural production of testosterone or local anesthetics serves its purposes immediately. The two classes of substances mostly frequently seized and most likely to be also used—anabolic steroids and, with the exception of gonadorelin, all other peptide hormones, growth factors and related substances—need to be taken for lengthy periods of time (so-called cycles), sometimes several times a day, before they produce the desired effects.¹³¹ For steroids, a cycle usually lasts 6 to 12 weeks. Then a break of 6-12 weeks follows before a new cycle is begun (see also Parkinson and Evans, 2006; Swedish National Institute of Public Health, 2010: 44). As a rule, two or more steroids are combined during a cycle (Parkison and Evans, 2006). An EPO treatment, for example, can last from a minimum of two to a maximum of four weeks, with weekly

¹³⁰ The Dipartimento Politiche Antidroga (2012: 191) provides prices per street gram for heroin, cocaine, marijuana and hashish. To make the comparison, we have hypothesized—based on the small literature about Italian local drug markets (e.g., Arlacchi and Lewis, 1990; Paoli, 2000)—that one can make four doses out of a gram of heroin or cocaine. The standard street dose of heroin and cocaine, in fact, is called *quartino*, i.e., quarter, even though it often contains less than 0.25 gram. In the case of marijuana and hashish, we have calculated the price of a dose of cannabis by assuming that you can make three joints out of a gram.

¹³¹ Reporting data from an internet survey of 500 U.S. users, Parkinson and Evans (2006) concluded that cycles had become longer in the 2000s than in the previous decade.

dosages oscillating between a minimum of 3,000 IU to a maximum of 6,000 IU. Hence, whereas the price of a single dose of doping substances is relatively cheap, a treatment with EPO or GH, lasting several weeks, can be quite expensive. A low-end two-week EPO treatment of 3,000 IU per week costs about (3,000 IU/200 IU= 15 x 2 x €3.09 =) €92.6.¹³² A high-end treatment four-week treatment of 6,000 IU per week costs about (6,000 $IU/200 IU = 30 \times 4 \times (3.09) (370.3)$. While most elite athletes from resistance disciplines just undergo more than one or two treatments ahead of important competitions, a few elite riders may repeat such treatments up to six times per year, thus spending between €555.5 and €2,221.9, depending on the dosages and length of treatment. Despite the lower doses taken, a treatment with GH can easily be more expensive. According to wiretaps reported in NAS investigations and the advice found on specialized Italian websites,¹³³ Italian body-builders appear to use 10-15 IU of GH per week and thus would spend between €139 and €209, if they buy GH at the pharmacy price. The length of the treatment varies between six and 20 weeks, reflecting the users' financial means, bodybuilding goals and lack of awareness of the harms associated with GH use, and thus can cost between (€13.90 x 10 IU x 6 weeks =) €834 and (€13.90 x 15 IU x 20 weeks =) €4,170. In contrast, a steroid cure, even if it lasts several weeks, remains cheap. A threeweek intake of three doses per day would cost about (3 doses x 21 days x €1.12 =) €70.

The Potential Market Value of the Substances Seized

To estimate the potential market value of the substances seized in Italy, we consider first the data available about the substances seized by NAS and other law enforcement agencies. Despite the CVD's existence, these data have never been systematically recorded by a central agency, let alone made comparable. In chapter 2 we already presented the data relative to the seizures listed in the NAS Investigations Database. There, we concluded that in the period 1999-2009 NAS seized 7,176,780 packages of doping substances corresponding to 1,042 kg of active ingredients¹³⁴ and to 88 million doses of doping products. In this section, we estimate the active ingredients contained in substances seized by other law enforcement agencies during the period 1999 to 2011 and, in such a way, calculate the doses these substances represented on the basis of the parameters set in chapter 2. Next, we do the same with the NAS seizures during 1999-2011 that were not, for whatever reason, included in the database or that were carried

 $^{^{132}}$ We have reached this figure by multiplying the number of doses (3,000 IU x 2 weeks/200 IU) by the price per dose (€9.491).

¹³³ E.g., http://www.massimospattini.it/ORMONEDELLACRESCITAEBODYBUILDING.htm. Accessed June 19, 2012.

¹³⁴ This sum does not include the active ingredients of peptide hormones, growth factors and related substances, because they are not comparable to each other and to the other doping substances.

out after 2009 and add up all the different seizure data. Lastly, we multiply these doses of the different classes of substances seized with their average price.

The Doping Substances Seized by Law Enforcement Agencies Other than NAS

NAS is not the only law enforcement agency carrying out seizures of doping substances in Italy. The Agenzia delle Dogane (i.e., customs) and the Guardia di Finanza (i.e., tax police) often seize packages of doping substances when they cross Italy's borders. The latter force as well as the Polizia di Stato (i.e., Italy's regular police) conduct seizures in the rest of Italian territory. In one case, the Milan Municipal Police also made a very large seizure. The analysis of the law enforcement agencies' websites and of the dopingrelated news of the three main Italian news agencies—*Ansa*, *Agi* and *Adnkronos* allowed us to identify 65 seizures carried out by these forces between 1999 through the end of 2011.

The quality of these data was generally much lower than that of the data included in the NAS Investigations Database. While the Agenzia delle Dogane provides precise data,¹³⁵ the Guardia di Finanza¹³⁶ and Polizia di Stato¹³⁷ give less detail, from time to time merely referring to the collective number of packages of different categories seized.

To make these data comparable with those included in the NAS Investigations Database, we applied the conversion rates between different packages of the same classes of substances (e.g., 5.08 times more active ingredients contained in an ampoule than in a pill of anabolic steroids and 3.00 times in the case of corticosteroids) emerging from the NAS Investigations Database, when we had no exact information on the active ingredients contained in the packages seized by the law enforcement agencies other than NAS. In the few cases (6 out of 65) in which we also had no specific information about the classes of substances seized, we hypothesized that the share of the substance classes identified in the NAS Investigations Database could also be applied to the substances seized by the other law enforcement forces.

On the basis of these assumptions, we tentatively conclude that the other law enforcement forces seized a total of 584.224 packages of doping products between January 1999 and the end of 2011, corresponding to about 111.5 kilogram of active ingredients and to about 10 million doping doses (see table 6.3). The substances seized belong to only four categories of doping substances listed by WADA, i.e., anabolic agents, stimulants, peptide hormones, growth factors and related substances and diuretics. These four categories also account for the bulk of the substances listed in the NAS Investigations Database. The comparison of the last column of table 6.3 with the last

¹³⁵ See

http://www1.agenziadogane.it/ed/motore_ricerca/?XML=/Agenzia_Dogane/_C=eJyLz2HILGGIL8tjcEx PzavKTIx3yU9PzEtliC9kSMxLTMrPyayqSswryWSIz8gscSvNyWEwNGAAAPwEEjY_/_s=0¶m_query =anabolizzanti.

¹³⁶ See http://www.gdf.gov.it/ricerca/ricerca.asp?testoRicerca=anabolizzanti&ok=ok.

¹³⁷ See http://poliziadistato.it/search/sh/.

column of table 2.2, in fact, indicates that the share of the substance classes is roughly the same for the seizures carried out by NAS and by other law enforcement agencies. With 83.2% and 83.3% respectively, anabolic steroids constitutes in both cases the overwhelming category. Steroids are followed by stimulants, which account for 13.0% of the substances reported in the NAS Investigations Database and 11.5% of the substances seized by other law enforcement agencies. The latter have only seized, in percent values, more peptide hormones, growth factors and related substances than NAS (5.2% vis-à-vis 1.8%). This higher value, however, is due only to one large seizure of EPO and GH (with active ingredients corresponding to over 10,000 ampoules!) carried out by the Guardia di Finanza in July 2009 (Capodacqua, 2009).

| Type of substance | Pills, ampoules and other packages seized | Active ingredients seized (mg) | No. of doping doses | % of total doses |
|---|---|-----------------------------------|------------------------|------------------|
| Anabolic agents | 493,713 | 83,048,870 | 8,304,887 | 83.34% |
| Stimulants | 55,404 | 28,568,750 | 1,142,750 | 11.47% |
| Diuretics and other masking agents | 355 | 55,750 | 2,230 | 0.02% |
| Peptide hormones, growth factors and related substances | 34,752 | Not comparable | 514,850 | 5.17% |
| TOTAL | 584,224 | 111,673,370 | 9.964,717 | 100.00% |

Table 6.3 Substances seized by Italian law enforcement agencies other than NAS in 1999-2011

Source: our calculations on the basis of the data retrieved on the websites of the Agenzia delle Dogane, Guardia di Finanza, Polizia di Stato and Milan Municipal Police.

The Total Amount of Doping Substances Seized in Italy and their Potential Market Value

The analysis of the doping-related news of the three main Italian news agencies also allowed us to identify an additional 44 seizures of doping products carried out by NAS and other Carabinieri units, with which NAS branch offices sometimes cooperate (see chapter 7): 11 of them had taken place before the end of 2009 but were not included in the NAS Investigations Database. The rest had taken place from early 2010 to the end of 2011. As the data about these seizures were retrieved from the media, the same restrictions to data quality discussed earlier also apply here.

As shown in table 6.4, we conclude that NAS and other units of the Carabinieri additionally seized 452,721 pills, ampoules or other packages of doping substances, corresponding to about 75 kg of active ingredients and to 7.1 million doping doses in the period 1999-2011, in addition to the data reported in the NAS Investigations Database. These data show an even larger preponderance of steroids, which account for 87% of all the doses seized.

Table 6.4 Substances seized by NAS and other Carabinieri Units in 1999-2011, not reported in the Database on NAS Investigations

| Type of substance | Pills, ampoules and other packages seized | Active ingredients seized (mg) | No. of doping doses | % of total doses |
|---|---|-----------------------------------|------------------------|------------------|
| Anabolic agents | 395,713 | 62,466,970 | 6,246,697 | 86.90% |
| Stimulants | 44,404 | 12,958,750 | 518,350 | 7.20% |
| Diuretics and other masking agents | 354 | 4,425 | 177 | 0.01% |
| Peptide hormones, growth factors and related substances | 12,250 | Not comparable | 423,450 | 5.89% |
| TOTAL | 452,721 | 75,430,145 | 7,188,674 | 100.00% |

Source: our calculations on the basis of the data retrieved from the newsflashes of Ansa, Agi and Adnkronos.

By adding the doses of doping substances seized by NAS and other law enforcement agencies, we come to the conclusion that in the period 1999-2011 approximately 105 million doses have been seized in Italy, corresponding to 8.1 million doses on a yearly average (see table 6.5). This figure is quite approximate, given the uncertainties on the substances and the active ingredients seized but it is the most comprehensive that we could develop. With 84.7%, anabolic steroids account for

| | | | | | | 4000 | 2044 |
|------------------|---------|-----------|----------|-----|--------|-------|------|
| Table 6.5 Doping | doses s | seized in | italy in | tne | period | 1999- | 2011 |

| | Doses sei | ized by NAS a | nd other | Doses | Total | % |
|---|----------------|--------------------|-----------------|-------------------|-------------|---------|
| Type of substance | In database | Out of database | Total NAS/CC | other agencies | Total | 70 |
| Anabolic agents | 74,547,623 | 6,246,697 | 80,794,320 | 8,304,887 | 89,099,207 | 84.68% |
| Peptide hormones, growth factors and related substances | 1,604,608 | 423,450 | 2,028,058 | 514,850 | 2,542,908 | 2.42% |
| Beta-2 agonists | 4,890 | 0 | 4,890 | 0 | 4,890 | 0,00% |
| Hormones and metabolic modulators | 35561 | 0 | 35,561 | 0 | 35,561 | 0.03% |
| Diuretics and other masking agents | 13,339 | 177 | 13,516 | 2,230 | 15,746 | 0.01% |
| Stimulants | 11,655,167 | 518,350 | 12,173,517 | 1,142,750 | 13,316,267 | 12.66% |
| Narcotics | 135 | 0 | 135 | 0 | 135 | 0.00% |
| Glucocorticosteroids | 181,965 | 0 | 181,965 | 0 | 181,965 | 0.17% |
| Beta-blockers | 11 | 0 | 11 | 0 | 11 | 0.00% |
| TOTAL | 88,043,565 | 7,188,674 | 95,232,239 | 9,964,717 | 105,196,956 | 100.00% |
| Yearly average | 8,003,960* | | 7,325,557 | 766,517 | 8,092,073 | |

Source: our calculations on the basis of the data presented earlier.

*1999-2009.

the main share of the substances seized, followed by stimulants (12.7%) and peptide hormones, growth factors and related substances (2.4%) All other classes of substances represent only marginal shares of the total. It is worthwhile noting that the yearly average underestimates the amount of products seized in recent years. However, we could not exclude the early seizures because the data in the NAS Investigations Database are reported by operation and many of these spanned over two or more calendar years.

By multiplying the number of doses seized with the average price, we come to the conclusion that the drugs seized in Italy over the period 1999-2011 had a potential market value of €132 million—on average slightly more than €10.1 million per year (see table 6.6). Given the much higher prices of most peptide hormones and related substances (on average €9.49 per dose), the share of peptide hormones, growth factors and related substances, in terms of potential market value, is six times higher than their share in terms of the number of doses seized (18.3% vis-à-vis 2.4%). As a result of this shift, the share of steroids is reduced from 84.7% to 75.6%. This means, however, that steroids still account for over three-fourths of the substances seized in Italy, even in terms of the potential market value. Due to their low price, the share of stimulants also declines from 12.7% to 6.0%. All other classes of doping substances remain irrelevant.

| Type of substance | Total doses seized | % | Average price | Potential value | % |
|--|-----------------------|---------|------------------|--------------------|---------|
| Anabolic agents | 89,099,207 | 84.68% | 1.12 | 99,612,913 | 75.56% |
| Peptide hormones, growth factors and related substances | 2,542,908 | 2.42% | 9.49 | 24,132,196 | 18.30% |
| Beta-2 agonists | 4,890 | 0% | 0,20 | 978 | 0.00% |
| Hormones and metabolic modulators | 35,561 | 0.03% | 1.26 | 44,700 | 0.04% |
| Diuretics and other masking agents | 15,746 | 0.01% | 0.40 | 6,298 | 0.00% |
| Stimulants | 13,316,267 | 12.66% | 0.60 | 7,963,128 | 6.04% |
| Narcotics | 135 | 0.00% | 1.28 | 173 | 0.00% |
| Glucocorticosteroids | 181,965 | 0.17% | 0.49 | 89,163 | 0.06% |
| Beta-blockers | 11 | 0.00% | 0.28 | 3 | 0.00% |
| TOTAL | 105,196,956 | 100.00% | | 131,849,552 | 100.00% |
| Yearly average | 8,092,073 | | | 10,142,273 | |

Table 6.6 Doping doses seized in Italy in the period 1999-2011 and their potential market value in euros (€)

Source: our calculations on the basis of the data presented earlier.

A Preliminary Estimate of the Financial Size of the Market

By combining our estimates of the average prices of the doses of the different doping products with our estimate of the quantities consumed in Italy (see table 2.15), we can tentatively conclude that about €425 million are spent each year in Italy on doping

products, excluding cannabis and cocaine (see table 6.7). According to our calculations, steroids are worth €245 million, peptide hormones, growth factors and related substances €113 million and stimulants €31 million, followed by the other classes of substances at a great distance.

| | | <u> </u> | | <u> </u> |
|------------------------------------|-------------|----------|--------------|----------|
| Substances | lotal doses | Percent | lotal | Percent |
| Substances | per class | of total | expenditures | of total |
| Anabolic agents | 218,827,251 | 58.9% | 244,648,867 | 57.6% |
| Peptide hormones, growth factors | 23,723,941 | 6.4% | 113,114,670 | 26.6% |
| and related substances | | | | |
| - EPO and other similar hormones | 7,675,907 | 2.1% | 23,488,275 | 5.5% |
| - GH and other similar hormones | 3,767,419 | 1.0% | 52,291,775 | 12.3% |
| - Chorionic gonadotrophin | 12,280,615 | 3.3% | 37,334,620 | 8.8% |
| Beta 2 agonists | 13,141,515 | 3.5% | 2,615,162 | 0.6% |
| Hormones and metabolic modulators | 132,968 | 0.0% | 167,140 | 0.0% |
| Diuretics and other masking agents | 32,446,708 | 8.7% | 12,881,343 | 3.0% |
| Stimulants | 51,775,905 | 13.9% | 30,961,991 | 7.3% |
| Narcotics | 7,000,000 | 1.9% | 8,974,000 | 2.1% |
| Glucocorticosteroids | 21,662,306 | 5.8% | 10,679,517 | 2.5% |
| Beta-blockers | 2,608,696 | 0.7% | 717,391 | 0.2% |
| Total doses/expenditures | 371,319,290 | 100.0% | 424,927,221 | 100.0% |

Table 6.7 Estimated doping substance retail expenditures in euros (€)

Source: Our calculations on the basis presented in the Database on NAS Investigations and the consumption profiles presented in Appendix 2.

Steroids account for about more than half of the total retail expenditures (57.6%), almost as much as their share of the quantities consumed (58.9%; see table 2.15). Due to their relatively low prices (€0.60 per dose), stimulants' share of the retail expenditures (7.3%) is lower than their share (13.9%) of the quantities consumed. Diuretics and other masking agents and glucocorticosteroids also account for a much smaller share (3.0% and 2.5%, respectively) of the expenditures than their share of the quantities consumed (8.7% and 5.8%, respectively). In contrast, peptide hormones, growth factors and related substances represent a much larger share of the expenditures (26.6%) than their share of the quantities consumed (6.4%) due to their high price.

At €425 million, the market for doping products generates substantially lower revenues than the market for illegal drugs. In a back-of-the-envelope calculation, we have in fact estimated the revenues of the Italian cocaine market alone to be €3,685

million.¹³⁸ It is important to stress, though, that by excluding the consumption of GH and gonadorelin, we seriously underestimate the revenues generated by the market for doping products, as the two above-mentioned substances are by far the most expensive.

On the basis of the consumption profiles presented in Appendix 2, we can also estimate how much the different classes of users on average spend yearly to buy doping substances (see table 6.8). On average, athletes appear to spend about €1,936 on a yearly basis, whereas body-builders spend about €3,586. This difference is partially due to the fact that we do not estimate GH and gonadorelin consumption in the case of athletes, as they never were detected in CVD's tests. As we have seen in the previous pages, GH and gonadorelin are the most expensive doping substances. More generally, our estimates reflect the biases of CVD's testing and, in particular, underestimate the share of other peptide hormones and related substances that are difficult to detect in urine samples but are more expensive than other doping substances. To an unknown extent, however, athletes' lower expenditures also reflect the fact that body-builders consume doping substances on a more regular basis and in larger amounts than athletes.

Within the group of athletes, consumption patterns, and therefore also expenditures, vary significantly depending on the discipline and the level at which the athletes compete. Excluding GH, we estimate that a super elite rider (row no. 9 the consumption profiles listed in Appendix 2) spends $\leq 4,202$ for doping substances, twice as much as an average athlete. Reflecting the much heavier consumption patterns and the above-mentioned caveats, we hypothesize that a super elite weightlifter (row no. 10) would invest more than three times as much ($\leq 6,327$) in the purchase of doping substances. It is worthwhile stressing that the amount effectively spent by users may vary considerably depending on whether they purchase cheaper, probably counterfeited, products on the internet or if they are ready to contact suppliers they trust and pay a higher than average price to increase their chances of obtaining a high-quality product.

As we have already done in chapter 2, we emphasize that the consumption profiles on which these estimates are based have only limited external validation.

¹³⁸ To estimate the revenues generated by the retail cocaine market, we have multiplied the estimate of cocaine users (353,000, based on a 2010 past-year prevalence rate of 0.9%; see Dipartmento Politiche Antidroga, 2011: 8) with the average amount consumed by each user, i.e., 30.2 grams of pure cocaine, according to UNODC (2010b: 71), thus reaching a 10.7 tons figure (10,666,600 grams). Although Italian law enforcement agencies do not collect purity data at different market levels, we know from previous studies (e.g., Paoli, 2000) and expert interviews that retail cocaine purity hardly ever exceeds 20% and is probably even lower. This means that the 10.7 tons have to be multiplied by five and thus amount to 53.3 tons (or 53,303,000 grams) of cocaine at 20% purity. As we know that a gram of street-level cocaine costs €69.15 in 2010 (Dipartimento Politiche Antidroga, 2012: 191), we can estimate the retail revenues generated by cocaine retail purchases in €3,685,902,450.

| | Ave | rage | Ave | rage | Supe | r elite | Supe | r elite |
|------------------------------------|---------|-------|--------------|-------|-------|---------|--------------|---------|
| Substances | athlete | | body-builder | | rider | | weightlifter | |
| | doses | exp. | doses | exp. | doses | exp. | doses | exp. |
| Anabolic agents | 302 | 338 | 2,526 | 2,824 | 800 | 894 | 1,600 | 1,789 |
| Peptide hormones, growth factors | 122 | 1 762 | 55 | E 20 | 200 | 2 657 | 260 | 2 /17 |
| and related substances* | 155 | 1,205 | 55 | 520 | 280 | 2,057 | 500 | 5,417 |
| Beta-2 agonists | 88 | 17 | 0 | 0 | 240 | 48 | 200 | 40 |
| Diuretics and other masking agents | 216 | 86 | 1 | 0 | 0 | 0 | 1,200 | 476 |
| Stimulants | 165 | 99 | 394 | 235 | 400 | 239 | 300 | 179 |
| Narcotics | 47 | 60 | 0 | 0 | 160 | 205 | 240 | 307 |
| Glucocorticosteroids | 141 | 69 | 8 | 4 | 320 | 158 | 240 | 118 |
| Beta-blockers | 17 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total doses and expenditures | 1,108 | 1,936 | 2,985 | 3,586 | 2,200 | 4,202 | 4,140 | 6,327 |

Table 6.8 Doses of doping products consumed by an average athlete, an average body-builder, a super elite rider and a super elite weightlifter and related expenditures in euros (€)

Source: Our calculations on the basis presented in the Database on NAS Investigations and the consumption profiles presented in Appendix 2.

*We exclude GH and gonadorelin for athletes, as they were never detected in CVD's samples. Note: totals may not match sums because of rounding.

Therefore, the figures here presented should not be understood as exact estimates of the revenues generated by the Italian market for doping substances or of the amounts spent by different categories of users. They are, instead, merely indicative of their rough order of magnitude.

Our estimates are also partial because they do not include the market for doping methods, for which we have no means to estimate purchase patterns and expenditures. Delivered almost exclusively to super elite athletes, doping methods can be very expensive. Athletes resorting to them need thus to expect a much higher budget than those who merely use doping substances. Recently, doping methods have begun again to be en vogue among super elite riders, as a result of the tests that are now able to detect EPO in blood samples and of the introduction of the biological passport—two changes making the use of EPO riskier (see chapter 2). In recent years, thus, super elite riders tend to use on average less EPO and only in micro-dosages and to resort more frequently to analogous transfusions, which are not detectable. This trend is also reflected in our estimate of the sums spent by a super elite rider in the purchase of doping substances (€4,202). This sum would have been considerably higher a few years ago: Tau, the elite rider-turned-witness, reported that, as of 2002, many of his colleagues would invest "at least €10,000" per year in doping substances (Fazzo and Mensurati, 2002; Tau's estimate, however, also included GH and gonadorelin expenses, which we exclude from our calculations).

It is also important to recall that doping substances represent only an item in the expenses list of the doping athletes, particularly super elite athletes, and/or their teams. In fact, the doping athletes or their entourage also need to pay frequent medical checkups, frequent urine and blood analyses, large amounts of dietary supplements as well as the therapies necessary to treat the frequent pathologies associated with the excessive use of doping substances and methods. In addition, super elite riders frequently buy centrifuges and other equipment to monitor their own blood and heart frequency at night and a special freezing suitcase to preserve their own blood.

Illegal Suppliers' Revenues and Profits

According to several international policy-makers and law enforcement officers, the production and distribution of doping substances and specifically steroids guarantee very high profit margins, usually higher than those that can be made with illegal drug trafficking. For example, Andreas Holzer, a high-level Austrian police officer specialized in anti-doping, stressed in an interview that "the average production of a steroid package costs €0.50 and will be sold for €35 to 40 to the next distribution level" and that "the trade in doping products is much more lucrative [than the trade in illegal drugs]" (Gilbert, 2010). The German Central Office for Customs Investigation Service regards the profits to be earned with the production of doping substances to be "comparable to the trade in illegal drugs" (Zollkriminalamt, 2012). Accordingly, it costs about €750 to import 400 grams of the active ingredient of an anabolic steroid from China, an additional €85 are needed to buy ampoules, and the 400 ampoules can earn about €10,000—a sum ten times higher than the original investment. Our data are only partial; however, they suggest lower profit margins for most suppliers of doping products active in Italy.

Producers' Revenues and Profits

As only a single illegal lab has been seized in Italy, we have no direct data to back the above-mentioned estimates of the average profit margin of the producers of doping substances. What we know is that the employee running that lab, D.B., did not earn much. According to the NAS officer who conducted that investigation (Int-NAS-9), D.B. received a €2,000 monthly base salary from his foreign boss in addition to another €2,000-3,000 representing a percentage of his sales. Most likely, D.B.'s boss, the South African producer running the network of illegal labs in different European countries, had much higher earnings, as probably did the Slovenian couple who ran for several years a big internet distribution network and were finally arrested in December 2011 in Austria (Int-NAS-15). In neither case, however, do we have data to back these plausible assumptions. On the basis of the analysis carried out in chapters 3 and 4, it seems plausible to assume that there are not many suppliers involved in large-scale production in Italy and therefore not many people making a lot of money with this activity.

The other case close to production for which we have data about the suppliers' earnings concern the improper sale of Genotropin (or GH) on the part of a Sandoz Italy commercial director and two sales representatives. The personal gains of the three main suspects were modest. The sales representative who was principally connecting Sandoz Italy to the physician generously prescribing GH to doping athletes and body-builders was wiretapped rejoicing at the prospect of a €5,000 bonus (Tribunale di Rimini, 2011). In addition to the immediate financial gain, the two pharmaceutical representatives probably hoped to be compensated for their "special" efforts with a faster promotion. Still, they risked their professional careers and clean criminal records for a very small sum of money, probably not realizing fully the illegal nature of their actions.

As the Sandoz Italy case well illustrates, the main gain of a doping transaction may not accrue to individuals but to the businesses and institutions the individuals represent. We have no exact data on how much money Sandoz Italy earned out of the improper sale of Genotropin. However, the revenues generated by the unlawful prescriptions of the Rimini doctor were very small in comparison with the company's overall revenues, even if we focus only Sandoz Italy's revenues. (The assessment might have been different if the practices of the Sandoz commercial director and two sales representatives had been replicated in other parts of Italy, but there is no evidence that this was the case).

The revenues are also likely to be corporate, if the substances are produced by a legitimate producer and then diverted to some more or less dubious channels to ultimately reach athletes or other users of doping products. Once again, we have no data to back up this supposition, not least because this diversion often takes place before the substances enter Italian territory and hence the sphere of competence of the Italian anti-doping investigators.

Traders' Revenues and Profits

What we know is that large-scale traffickers and specifically the importers (were able to) generate considerable, but not sensational, revenues. The large-scale 2000 investigation of the Bologna Branch Office detailed many of the purchases and sales of doping products made by P.B. during the period from January 1999 to March 2000. In that period, P.B. was reported to have bought doping substances for almost 286 million lire and to have raised revenues of almost 432 million lire (corresponding to €148,000 and €223,000, respectively, at the exchange rate of the time; see table 6.9). The data for the months September 1999 through January 2000 were considered most realistic, as the NAS officers had by then achieved a better grasp of P.B.'s numerous commercial partners and were constantly monitoring him. In their expert report for the Bologna Prosecutor's Office, Donati and Magrì used these five-month figures to estimate P.B.'s average

monthly expenditures and revenues. By multiplying these figures by 11 months,¹³⁹ they concluded that P.B. had yearly expenditures of about 516 million lire (\in 267,000) and revenues of 783 million lire (\notin 404,000). As shown in table 6.9, the difference between revenues and expenditures amounted to 267 million lire (approximately \notin 138,000 or 34% of the revenues). Donati and Magrì did not, however, regard this percentage as P.B.'s profit, despite the fact that this value would have already been much lower than the profit margins typical of illegal drug markets (e.g., Reuter, 2012). Rather, on the basis of an analysis of the monthly transactions and other evidence, they concluded that a larger share of the expenditures had gone undocumented than that of the revenues and P.B.'s profit margin was around 20-25%. Taking the transactions that were not documented into account, Donati and Magrì assessed P.B.'s real yearly revenues at about 1 billion lire (approximately \notin 515,000).

| Month | Expenditures | Revenues | Difference |
|------------------------------|--------------|-------------|-------------|
| January 1999 | 8,169,000 | | -8,169,000 |
| February 1999 | | 665,000 | 665,000 |
| March 1999 | 3,052,000 | 205,000 | -2,847,000 |
| April 1999 | 2,426,000 | 205,000 | -2,221,000 |
| May 1999 | 0 | 205,000 | 205,000 |
| June 1999 | 10.775,000 | 11,979,000 | 1,204,000 |
| July 1999 | 7,430,000 | 7,909,100 | 479,100 |
| August 1999 | 1,350,000 | 7,349,000 | 5,999,000 |
| September 1999 | 64,295,000 | 75,571,200 | 11,276,200 |
| October 1999 | 43,752,000 | 71,495,500 | 27,743,500 |
| November 1999 | 29,045,000 | 62,894,000 | 33,849,000 |
| December 1999 | 38,683,000 | 49,007,000 | 10,324,000 |
| January 2000 | 58,836,000 | 96,837,000 | 38,001,000 |
| February 2000 | 17,975,000 | 34,382,000 | 16,407,000 |
| March 2000 | 0 | 13,213,000 | 13,213,000 |
| Total | 285,788,000 | 431,916,800 | 146,128,800 |
| Average Sept. 1999–Jan. 2000 | 46,922,200 | 71,160,940 | 24,238,740 |
| Yearly expenditures/revenues | 516,144,200 | 782,770,340 | 266,626,140 |

Table 6.9 Doping substance expenditures and revenues made by P.B. during the period January1999-March 2000 and ascertained by the Bologna NAS Branch Office – in lire

Source: our calculations based on Donati and Magrì, 2001.

*The monthly averages were multiplied by 11 months, because most regular commercial activities, including the sale of doping products, slow down considerably in Italy during the months of August.

On the basis of sketchier data, Donati and Magrì also estimated that another two large-scale suppliers, L.S. and V.G.F., might have raised in those same years at least twice

¹³⁹ This choice is due to the fact that most commercial activities, including the sale of doping products, slow down considerably in Italy during the months of August.

as much revenue, that is, 2 billion lire (approximately €1 million) each. In the 2011 investigation of the Ancona Branch Office, V.G.F. was thought to generate at least €90,000-100,000 monthly, which he then invested in cars, villas and commercial properties (Int-NAS-10). Considering that V.G.F. has for decades been considered one of the largest illegal suppliers of doping substances, these are respectable sums but, as they refer to gross revenues, are not exorbitant, reflecting the low prices of the substances traded.

According to UN data (UNODCCP, 2011: 213), a kilogram of cocaine cost US\$47,250 or about 70 million Italian lire (€35,817) at the wholesale level in 2000. This means that it would have been sufficient to sell less than 30 kilograms of cocaine in order to generate revenues of 2 billion lire (roughly €1 million) in that year—and at the turn of the century several criminal organizations, some of them belonging to Southern Italian mafia groups, were able to import tons of cocaine even in single shipments. In the early 1990s, for example, a coalition of seven 'Ndrangheta groups succeeded in importing at least 11 tons of cocaine in eight different shipments. The last shipment— 5,490 kilos—was seized in March 1994 on the outskirts of Turin (Tribunale di Torino 1994) and counted for several years as the world's largest cocaine seizure ever made outside of production areas.¹⁴⁰ At the above-mentioned wholesale price, this lot alone would have been worth €197 million, generating more than a billion retail revenues once the drug is cut for the final users.

At today's cocaine prices, which are slightly higher, the same sum of 1 million euro—the sum approximately earned by V.G.F. until his arrest in 2012—could be generated by the sale of 23 kilograms. In fact, according to the UNODC,¹⁴¹ a kilogram of cocaine at the wholesale market level cost in Italy in 2009 US\$57,153 or €43,280. For heroin, which is cheaper than cocaine (in 2009 a kilogram cost US\$35,649 or €26,993), the same revenues of one million euro corresponds to the sale of 37 kilograms.

The very fact that V.G.F.'s revenues had remained nominally stable between 2000 and 2011—and hence had declined in real terms— could be a consequence of several investigations targeting him, which might have forced him to scale down his illegal business. The decline in revenues, however, can also suggest that whatever market power V.G.F., L.S. and P.B. might have had at the end of the 1990s has dissipated by now. In fact, as argued in chapter 4, the opening up of internet sales offers such a multiplicity of supply channels to customers that it is no longer possible for any single

¹⁴⁰ Large-scale importers of illegal drugs were not only members of mafia groups. In the late 1990s, a former bank manager, P.C., was responsible for several 400-700 kilogram cocaine shipments and later sold the cocaine to a plurality of wholesale traffickers, including members of Southern Italian mafia groups, who resided in several parts of the country (Tribunale di Milano 1998).

¹⁴¹ The prices of illegal drugs are published online as an appendix of the annual World Drug Report. See http://www.unodc.org/unodc/en/data-and-analysis/WDR-2011.html

seller to set the prices and therefore earn large profits, except for products of restricted use and consumed only by elite athletes.

Further down the distribution chain, we have only sketchy data on the revenues raised by some middle-level suppliers. For example, the Guardia di Finanza agent and his jobless cousin who were based in Trieste and were focused on by the investigation "Triamin" of the Udine Branch Office, sent €48,000 to their partner, the Naples Polizia agent, via post transfers in six months. This sum was also meant to cover the costs incurred by the Naples agent to buy the products, which are not known. Exceeding the agent's yearly gross income, it nonetheless indicates that the trade in doping products can produce interesting side income for those involved in it (NAS Udine, 2009b). The revenues raised by another mid-sized trafficker in Bologna were comparable. In the period between January 2002 and June 2003, D.P. received €145,000 for the anabolic steroids he sold by post to customers outside the Bologna area in addition to what he earned by the distribution of drugs locally via face-to-face contacts (Tribunale di Ravenna, 2004: 126).

The same considerations made earlier can be applied here. These middle-level suppliers belonging to the category of gym were able to earn considerable sums of money, which they could have never acquired with their legitimate professions. However, the revenues remain much lower than those of an illegal drug trafficker working at a comparable level. Whereas we do not have data for Italy, Kilmer and Reuter (2009) estimate that a single, 100% pure, kilogram of heroin is sold at the middle-wholesale level for US\$66,000 in the UK and earns US\$239,000 once it is cut and sold to the final users.

Notwithstanding the lack of precise figures, the NAS interviewees (e.g., Int-NAS-10, 15, 16, 26) agree that retailers and other low-level figures—such as body-building instructors, pharmacists, or nurses diverting drugs from hospital pharmacies—gain an usually modest—extra income in addition to their legal salary with the sale of doping products. Body-builders, in particular, often use the money earned with this trade to finance their own consumption habits.

There are also a few people in Italy, however, who are able to make a lot of money with doping products. These are, above all, the physicians "treating" super elite athletes and a large clientele of anonymous clients with doping methods and other performance-enhancing products. The prominent sports physician who is now being targeted by an ongoing investigation coordinated by the Padua Prosecutor's Office, earned until 2011 at least several million euro yearly (Int-Pro-3; Int-NAS-10). According to Tau, "some sports directors have [also] become rich with doping. Out of an average of 20 riders per team, at least 10 "dope" and each of them spends at least €10,000. You can work out the totals quickly" (Fazzo and Mensurati, 2002). The suppliers of elite athletes not only deal mostly with the most expensive products such as transfusions, GH and EPO, but can also obtain a premium for the alleged high quality of their products. According to

a 2009 investigation by the Guardia di Finanza, the former technical commissioner of the Serbian national team bought a disposable ampoule of CERA [an EPO derivative] in Serbia for €150 and sold in it Italy for €700 (Capodacqua, 2009).

As a result of the focus on the domestic market—in chapters 2, 3 and 4 we have detailed no exports except for the transit of steroid packages bound for U.S. soldiers in Iraq, the scale of the Italian suppliers' activities seems to be smaller than that of their illegal businesses targeted by some recent foreign investigations. A few examples will illustrate this point. The Philadelphia-based internet organization disrupted by the U.S. DEA in 2005 with the Operation "Cyber Chase" was allegedly able to distribute approximately 2.5 million dosage units of doping products per month (U.S. DEA, 2005). Three Mexican companies targeted by the 2006 Operation "Gear Grinder" had allegedly produced more than 70% of the \$56 million worth of illegal anabolic steroids seized annually in the United States (Dohrmann and Llosa, 2006). More recently, even the German and Austrian police and customs were able to confiscate a stock of five million units of steroids, stimulants and hormones in a single seizure (Bundeskriminalamt, 2011; Smolka, 2012, personal communication). In contrast, Italian law enforcement agencies seize on average eight million euro per year.¹⁴²

Legal or illegal Revenues?

Reflecting the semi-illegal nature of the market for doping products, not all the revenues raised are illegal. The suppliers belonging to the category of gym and the body-builders buy the doping products on the illegal market—and therefore their revenues are also fully "black"—by which we mean that they are not declared to the tax authority—just like in a completely illegal market. Hospital employees usually steal doping products or recipes from hospital storehouses or pharmacies, and their profits are therefore always black.

The revenues raised by other illegal doping suppliers—in particular the three other types belonging to the category of health care and their respective wholesalers are not always black, even when they arise from a criminal offense. This represents a further distinctive element of the market for doping products vis-à-vis completely illegal markets such as drugs. The Sandoz Italy commercial director and two sales representatives, for example, did not produce any black market revenue with the sale of GH. As seen earlier, their personal financial gain consisted in the premiums they received from their own company, whereas their company raised its legal sales of GH—albeit with illegal means.

¹⁴² In making the comparison, though, it is important to recall that we do not know how the U.S. DEA calculated the 2.5 million dosage units mentioned in the text and what the packages seized by the German and Austrian police forces effectively contained.

Likewise, most colluding physicians and pharmacists usually earn regular money, which they do not hide—at least not completely—from the tax authorities. (Tax evasion is a frequent "sport" among Italy's independent free-lancers [a category, that includes physicians, lawyers and notaries and other high-level practitioners with their own firm or consulting room] but that's really another story; see Petrini, 2012). Therefore, as in the case of the pharmaceutical company employees, the earnings physicians draw from their illegal doping activities remain rather close to the legal market prices. For example, the physician B.H.E. received a mere €4,000 honorarium from Sandoz for his "marketing" of GH, and although the sentence is less clear on this issue, he issued regular invoices to his patients (Tribunale di Rimini, 2011). Only physicians who have been banned from working with certain sub-sets of athletes, such as Michele Ferrari and Carlo Santuccione need to find subterfuges to hide their profits, if they continue to provide doping advice and services. Media sources report that the former collected his fees through a Swiss public limited company (Pasqualetto, 2011).

7. ANTI-DOPING LAW ENFORCEMENT: LEGISLATION, ACTORS, OUTCOMES, AND THE CHALLENGES AHEAD

The previous chapters have documented the numerous and high-level criminal investigations carried out in Italy on the production and trafficking of doping products. As mentioned in the introduction, these investigations have been made possible by three elements. The first consists of the Anti-Doping Act 376 of 2000 and specifically the wideranging offense of doping that the act established. The latter two elements are of institutional, rather than legal, nature: the existence of NAS, a law enforcement agency specialized in public health issues, and the autonomy of public prosecutors. In this chapter, we review the criminal law provisions of Italy's anti-doping legislation and describe the key institutions active in Italy in the fight against doping. In doing so, we also note the overall poor performance of the Italian judicial system, which partially results from the very autonomy of prosecutors and courts but is also the consequence of a plurality of other factors. We then present some statistical data about the outcomes of Italy's anti-doping criminal law actions (e.g., reports, arrests, convictions) and finally identify five main sets of challenges such actions face in addition to the fundamental one represented by the inefficiency of the overall judicial system. While four challenges are domestic, the fifth one results from the ineffective international police and justice cooperation.

The Criminal Law Provisions of Italian Anti-Doping Legislation

Italy has a strong tradition of legislation in the anti-doping field: in fact, it has enacted no fewer than six anti-doping acts since 1950.¹⁴³ It is beyond the scope of the present study to analyze in detail the evolution of the entire spectrum of anti-doping legislation. We focus here exclusively on the criminal law provisions of the early anti-doping bills, Act 375/2000, and other relevant offenses foreseen by the Italian Criminal Code (CP).

The Early Provisions

The first bill that dealt with the topic of doping was Act 426 of 1942 that established CONI. This made CONI responsible for "the organization and enhancement of national sport and its orientation toward the athletes' improvement with particular consideration for the physical and moral improvement." The original version of Act 426/1942 also explicitly stated that performance-enhancing drugs or substances were not compatible with the core principles of sports fairness, correctness, and integrity, but it did not foresee any specific sanction (Dipani, 2004: par. 2.1).

¹⁴³ To this extensive domestic legislation should be added Italy's ratification of the Council of Europe and UNESCO Anti-Doping Conventions in 1996 and 2007, respectively with Acts 522/1995 and 230/2007.

Doping was defined for the first time as a punishable offense by Act 1099 on "Health safeguards in sports activities" of October 26, 1971. In that bill, doping was established as a misdemeanor, not a felony. The athletes taking part in competitions and making use of performance-enhancing substances that may be harmful to their health (to be defined subsequently in a Ministry of Health Decree) were punished with a fine between 50,000 and 500,000 lire (article 3, section 1). A higher fine between 100,000 lire and 1 million lire¹⁴⁴ was foreseen for those who administered such substances to the athletes (article 3, section 2); the fine was to be tripled if the substances were administered by sports officials or trainers or to minors (article 3, section 3).

Act 1099/1971 has been subjected to several criticisms from legal scholars. These condemned the bill's exclusive focus on sports competition, its failure to prohibit the consumption and administration of doping products during the training phase, and the fact that the bill foresaw no sanction for other possible suppliers, such as physicians and pharmacists (Dipani, 2004, par. 2.1; Arioli and Bellini, 2005: 4ff.; Centamore, [2011]: 11).

De facto, the law never went into effect. A month after its entry into force in March 1972, many public health responsibilities of the national Health Ministry, including those foreseen by Act 1099/1971, were decentralized to regional bodies, and these did not have the means to enforce the bill. Moreover, the Ministry of Health published only in 1975 the list of prohibited substances foreseen by the act and never updated it afterwards (Bertal, Ginsani and Mari, 2003; Dipani, 2004: par. 2.1).

In 1981 Act 689/1981 depenalized the offenses of doping foreseen by Act 1099/1971 and most other misdemeanors, for which only a fine was foreseen. In terms of sanctions, matters did not change significantly: the criminal fine foreseen by Act 1099/1971 was replaced with an administrative sanction, which was also a fine (Dipani, 2004: par.2.1).¹⁴⁵ However, criminal procedural instruments were no longer available for the investigations.

Article 1 of Act 401/1989 ("Measures in the games and illegal betting sector to safeguard fair procedures in competitive sports") introduced the crime of "sporting fraud" into Italian criminal law. This offense is committed by "whoever offers or promises money or other advantages to the participant in a sports competition organized by CONI, UNIRE, or other sports bodies recognized by the Italian State and by the associations belonging to them, in order to achieve a result different from that resulting from a correct and fair competition, or commits other fraudulent acts aimed to the same purpose" (article 1, section 1). In such cases the defendant is to be punished with a prison sentence between a month and a year, and a fine ranging between €258

¹⁴⁴ At the official conversion rate established in 1999, these figures would correspond to ξ 52 and ξ 51,646. However, given the devaluation, this conversion underestimates the significance of the fines in the early 1970s.

¹⁴⁵ As early as 1985, the Ministry of Health classified all transfusions that are not carried out for the serious therapeutic reasons as blood doping, thus outlawing them.

and €1,032 (article 1, section 1). The second section of the same article goes on, stating that "the same sanction is to be imposed also on a competition participant who accepts money or other utility or advantage offered to him or receives a promise of any of these."

The bill was prompted by the first match-rigging scandals in football and the difficulties of applying the general offense of fraud foreseen by article 640 CP to them (Tribunale di Bologna, 2004: 10-11). Over time, this bill was also used to sanction crimes related to doping, albeit in a partially controversial manner. Several Prosecutor's Offices charged suppliers of doping products with the offense of sporting fraud, and the first-degree courts subsequently convicted them, with their verdicts being upheld by higher courts up to the Corte di Cassazione. The first-degree sentence of Dr. Ferrari for the offense of sporting fraud was confirmed by the Bologna Court of Appeals (Corte d'Appello di Bologna, 2006), which however had to apply the statute of limitations. Likewise, in 2007, the Corte di Cassazione (2007) found Giraudo and Agricola, the manager and chief sports physician of the Juventus football team, guilty of the offense of sporting fraud, although it too had to apply the statute of limitations.

With the verdict of January 25, 1996, however, the Corte di Cassazione established that the offense of sporting fraud could not be imposed on athletes who had merely taken doping products, despite the contrary verdicts of lower courts (Dipani, 2004: par. 5.2; Centamore, [2011]: 14-16). One of our respondents, a senior officer working at NAS Headquarters, recalls the difficulties of carrying out the first anti-doping criminal investigations in the 1990s (Int-NAS-26). NAS officers initially referred to Act 1099/1971 but then could not use it to press criminal charges, because the offense foreseen by this act had been depenalized. Therefore, NAS had no choice but to use the offense of sporting fraud, hypothesizing that the doping athletes necessarily also wanted to manipulate the competition outcomes. Even before the final verdict of the Corte di Cassazione, many such proceedings did not end with a conviction, because it was very difficult to prove a causal link between the intake of doping substances and the manipulated performance.

If the doping agent is included among the psychoactive substances indicated in the tables prepared by the Ministry of Health, it is possible to apply Act 162 of June 26, 1990, and the Presidential Decree (DPR) 309 of October 9, 1990 ("Consolidated text of laws governing the control of narcotics and psychotropic substances, prevention, cure, and rehabilitation of the related states of drug dependency"), which foresee sanctions at the administrative and criminal level. Specifically, this bill can be applied to all doping cases involving the three illegal drugs—cannabis, cocaine and heroin—that are also on the WADA Prohibited List. Since 2010, it can also be applied to nandrolone. In fact, the Ministry of Health added in that year this steroid to the list of psychoactive substances to be controlled under the DPR 309/1990 and later amendments, therefore sharply reducing the possibility of its legitimate consumption (Ministero della Salute, 2010b). Legislative Decree 539/1992 as well, implementing EEC Directive 92/26, concerning the classification for the provision of drugs for human use, set out criminal and administrative sanctions for those who provide prohibited drugs to athletes (Italy, 2002: 15). However, these sanctions and the entire legislative decree, except for a single article, have been abolished by article 158 of the more recent Legislative Decree 219 of April 24, 2006.

Other provisions, which sometimes have been resorted to in NAS investigations but are not discussed in the literature, are included in the Presidential Decree (DPR) 43/1973 ("Consolidated text of the legal provisions concerning customs"), the Legislative Decree 178/1991 ("Implementation of European Commission's Directives concerning medicinal products for human use"). The alter decree has been repealed and substituted by Legislative Decree 219/2006, which implemented more recent European Commission directives on similar topics (see below).

Act 376 of December 2000

The problem of doping was fully addressed anew in December 2000 with an *ad hoc* bill— Act 376, "Discipline for the health protection of sports activities and the fight against doping".¹⁴⁶ This still constitutes the backbone of Italy's current anti-doping legislation and is considered "some of the most severe anti-doping legislation worldwide" (Centamore, [2011]: 18). It constituted a reaction to the scandals involving the Rome Anti-Doping Laboratory and Prof. Conconi's biochemical institute at the Ferrara University as well as the deficiencies and collusion shown by CONI in both cases.¹⁴⁷ Therefore, Act 376/2000 primarily addresses elite athletes. With the first investigations on doping in gyms and fitness centers just starting, the Italian law-makers were not yet aware of the increasing spread of the consumption of doping products among bodybuilders and recreational athletes.

For the present purpose, the most relevant part of this bill is article 9, which reintroduces criminal provisions on doping into the Italian legal system. Given the bill's relevance, we start however with a general overview of all the nine substantive articles (the tenth merely concerns the bill's financing). Article 1 begins with a statement of principle: "sports activity is directed to the promotion of individual and collective health and must be inspired by the respect of ethical principles and educational values mentioned" in the 1989 Anti-Doping Convention of the Council of Europe. "Sports

¹⁴⁶ The text of the bill can be read online, in Italian at:

http://www.camera.it/parlam/leggi/00376l.htm and in English at:

http://www.coni.it/fileadmin/_temp_/coni/pdf/legge376_2000_in_inglese.pdf.

¹⁴⁷ In Finland too, the scandal at the 2001 Lahti Nordic World Championships led the Doping Enquiry Taskforce set by the Ministry of Education to support a bill including doping offenses in the Criminal Code. "According to these amendments," the Taskforce wrote, "the administration of doping substances determined in the Criminal Code would be subject to public prosecution. This would primarily criminalise doping by coaches and physicians" (Doping Enquiry Taskforce, 2001: 4).

activity ... cannot be practiced with the aid of techniques, methodology, or substances of any nature that may endanger the psycho-physical integrity of the athletes."

The second section of this article defines doping:

Doping consists of the administration or intake of drugs and biologically or pharmacologically active substances and the adoption or undergoing of medical practices not justified by pathological conditions and capable of modifying the psychophysical or biological conditions of the body in order to alter the athletes' competitive performance.

The third section of this article states that the same practices, if meant to modify the results of anti-doping tests also constitute doping. The fourth section authorizes the intake of prohibited substances or medical practices if they are justified by the athlete's pathological conditions. It is worthwhile stressing that the definition of sports competitions used in this article is broader than that of Act 401/1989, which prohibits sporting fraud only in the competitions organized by CONI, UNIRE, or other sports bodies recognized by the Italian State and by the associations belonging to them (Centamore, [2011]: 24-25).

Article 2 foresees that the drugs, pharmacologically or biologically active substances, and the methods are to be divided in classes established with a Decree by the Ministry of Health in agreement with the Ministry of Cultural Goods and Activities (which is responsible for sports in Italy) upon CVD's proposal. A crucial clause is that the classes of doping drugs, substances, and methods have to be established "also in respect of the provisions of the Strasbourg [i.e., Council of Europe] Convention and the indications of the IOC and other international sports ruling bodies". In fact, the first decrees establishing the list of doping substances and methods were not issued until October and December 2003 (Centamore, [2011]: 40), and in the meantime, contrary to the opinion of some scholars and some courts, Act 376/2000 could only be applied because of the reference to the lists of the Council of Europe Convention, the IOC, and WADA, as finally established by the Corte di Cassazione with a verdict of November 29, 2005 (ibid: 40-46).

Article 3 establishes CVD's functions and composition, which we will consider in the following section. Article 4 entrusts the tasks of carrying out anti-doping controls and a research program about doping substances and methods to one or more laboratories accredited by the IOC and other international sports bodies. Article 5 foresees the involvement of the regions in the prevention of doping and protection of public health in sports activities.

Article 6 has a crucial relevance because it obliges all sports bodies "to adapt their rules" to the bill's provisions, foreseeing sanctions and disciplinary procedures for the athletes who are involved in doping practices or refuse to undergo controls.

Article 7 establishes an obligation for the producers, importers, and distributors of prohibited substances to send annually the data relative to the "quantities produced, imported and distributed and sold to the pharmacies, hospitals, and other authorized structures" for any single drug. Although this article would be essential to assess the absolute size of the legal segment of the market for each doping product and thus begin estimating the relative size of the illegal segment vis-à-vis the legal segment, it has not been enforced yet (Int-Oth-2; see also Evaluation Team, 2002: 36).

Article 8 requires the Ministry of Health to submit an annual report to the Parliament about the implementation of the act.

Finally, article 9, the last substantive one, reintroduces criminal provisions on doping. The article begins with a classical subsidiarity clause: "if the behavior does not constitute a more serious offense." The seriousness of the offense can be measured on the basis of the sanctions foreseen for the offense of doping, imprisonment from three months to three years and a fine from $\xi 2,580$ to $\xi 51,645$ (Dipani, 2004: cap. 2, s 2.2.).

The article further establishes two distinct types of offenses: doping and the trade in doping products, foreseeing two variants for the former. Its first section attributes the offense of doping to

whosoever procures for others, administers, assumes or at any rate encourages the use of drugs or pharmacologically or biologically active substances included in the classes foreseen by article 2, section 1, which are not justified by pathological conditions and are designed to modify the psychophysical or biological conditions of the human organism in order to improve athletes' competitive performance or are directed to modify the controls on the use of such drugs or substances.

The second section foresees the same sanctions for "whosoever adopts or undergoes medical practices," such as blood doping, for the same aims stated in the first section. Both sections foresee some forms of conduct that are typical of athletes and others that are carried out by external persons—i.e., the suppliers, more specifically athletes' support personnel. The latter set of activities is very broad, as it ranges from the procurement to the prescription or administration as well as aiding and abetting, but it is also uncontroversial. More controversially, the act also foresees the punishment of the athlete, but only if there is a specific criminal intent: i.e., if the athletes used doping products in order to modify the athlete's competitive performance or the results of the anti-doping controls. If instead the athlete is unaware of the administration of doping substances or products, he remains a victim.

Several scholars have criticized the criminalization of self-doping, arguing that this prohibition is not justified by the public good that the bill aims above all to protect, i.e., public health (Ferrara, 2004: 122)—especially now that the consumption and possession of illegal drugs for personal use in Italy have been decriminalized (Traversi, 2001: 105).

Other scholars, as well as prosecutors and law enforcement agencies, justify the criminalization of self-doping with the reference to the respect of ethical principles and educational values contained in article 1 and hence the law-makers' will to protect also the public good of the fairness and integrity of sports (Arioli and Bellini, 2005: 73-74; Guariniello, 2011, Int-NAS-26). In defense of the criminalization of athletes' doping, supporters of the current provisions stress, as Turin Prosecutor Guariniello does, "the offenses punishable under the 2000 law are fraudulent" — that is, as already mentioned, there has to be a specific criminal intent.¹⁴⁸ Guariniello further adds that the Italian criminal legislation offers more guarantees to the suspected athletes than the anti-doping sports rules.

According to Marzella (2004 quoted in Centamore [2011]) and Centamore ([2011]), the criminalization of self-doping should have been better justified with the protection of the fairness and correctness of sports, referring not only to the ethical principles of sports but also to economic function of elite sports. Specifically, Centamore ([2011]: 30) argues,

Self-doping is a fraudulent activity, that, next to the violation of the ethical values of sports also possesses an important financial competent. From this perspective, the protection of the 'clean' sports could justify the fight against doping with criminal law means, even though, given the financial aspect, its justification would lie more in the protection of patrimony and competition than in the protection of health.

International policy-makers were long skeptical of the criminalization of athletes' self-doping (see Evaluation Team, 2002: 40; Vinton, 2005). More recently, however, both prominent policy-makers, such as Pound (Großekathöfer and Gilbert, 2008) and a number of scholars (e.g., Rössner, 2009 and 2011) have expressed no principal objections to the criminalization of elite athletes' self-doping.

Regardless of scholars' and policy-makers' doubts, Italian public opinion generally welcomed the criminalization of doping in 2000 (e.g., Audisio, 2000) as a sign of a renewed political will to control this problem, after the many scandals that had plagued Italy's sports world at the end of the 1990s. Since 2002 amendments of this controversial element of Italy's anti-doping law have been repeatedly discussed in the media; however so far no concrete steps have been taken (Centamore, [2011]: 54-55; int-Oth-1 and 2). Whatever the judgment on this issue, it is clear that the Italian law-makers made two omissions in drafting the act's text: they forgot to criminalize the possession and purchase of doping substances as such (Arioli and Bellini, 2005: 75) as well as the athlete's refusal to undergo a control (Evaluation Team, 2002: 40). According to the already mentioned senior NAS officer (Int-NAS-26), a further weakness derives from the

¹⁴⁸ For the analysis of anti-doping legislation and policy, Prosecutor Guariniello has allowed us to openly identify him with his statements made as interviewee.

legal interpretation of the word "athlete" in article 9, section 1. The Italian jurisprudence as well as the Italian people understand this word as referring to the sportspeople who are enrolled in a national sports federation, associated discipline, or Ente di promozione sportiva. Therefore, athletes taking part in competitions without being enrolled in one of these associations cannot be charged with the doping offenses established by article 9, section 1.¹⁴⁹

The seventh section of article 9 establishes the offense of trade in doping products. This states:

Whoever trades with drugs or pharmacologically or biologically active ingredients belonging to the classes referred to by article 2, section 1, through channels different from the public or hospital pharmacies, public dispensaries, and other structures that directly detain drugs meant to be used on patients, is punished with imprisonment from two to six years and with a fine from ξ 5,164 to ξ 77,468.

This rule is intended to tackle illegal suppliers of doping products that operate outside the official distribution channels and because of the profit-making purposes that necessarily accompany a trading activity, it punishes the described types of conduct more severely than those listed in the first section of the same article. It is interesting to recall that this second offense was only introduced into the bill during the parliamentary debate at the suggestion of a few prosecutors, above all Pierguido Soprani from the Ferrara Prosecutor's Office and Giovanni Spinosa from Bologna, who were then coordinating the first seminal investigations on doping. With its verdict of February 20, 2003, the Corte di Cassazione established that a commercial activity such as that referred to in article 9, section 7 requires "continuity ... and at least some elementary organization" (quoted in Arioli and Bellini, 2005: 69). Unlike the basic doping offense, this second offense does not require a specific criminal intent. In order to be punished, the types of conduct foreseen by the seventh section do not need to be aimed at modifying an athlete's competitive performance.

Finally the third section of article 9 foresees some aggravating circumstances, with an increase of the punishment up to a third,

- a) If a health harm derives from the offense
- b) If the offense is committed against a minor

¹⁴⁹ Although the Italian legislation was often criticized for being too extreme, its Swedish counterpart goes even further. In fact, the Swedish Doping Act prohibits all handling of doping substances , including possession and consumption, and punishes these behaviors with fines or sentences of imprisonment up a maximum of four years (six months in the case of consumption offenses) (Swedish National Institute of Public Health, 2010: 10-11). Hungary also introduced in 1999 criminal sanctions for the use, possession and trafficking of doping substances but in 2000 the Constitutional Court cancelled this amendment on the grounds that criminal law should be used only as last resort (Federal Ministry of the Interior, 2009: 18-19).

c) If the offense is committed by a CONI component or employee of a national sports federation, or a society, associations or Ente recognized by CONI.

Additional sanctions are also foreseen for those who practice a health profession and those listed under c of the third section. If sentenced, the former are temporarily suspended from their professions, and the second are permanently banned from the top management of the respective sports bodies.

Given the different sanctions foreseen by article 9, sections 1, 2 and 7, the interception of telephone calls and other communications is allowed only in the case of section 7, i.e., in case of the suspected trade in doping products. According to the already mentioned senior NAS officer (Int-NAS-26), this is a further weakness of Act 376/2000. In fact, to tackle properly the problem of doping in sports, it would occasionally be necessary to wiretap athletes and their entourage, even if the latter do not fully engage in the "trade" of doping products, as established in article 9, section 7. For the same reasons, only suspects of the latter offense can be arrested by the judicial police without an initial authorization of the Judge for Preliminary Investigations. Even in these cases, however, the arrest needs to be confirmed within a maximum period of 48 hours by a judge. Searches and seizures are authorized for both types of offenses. In the case of a suspected violation of the article 9, section 1, the law enforcement agencies are also authorized to carry out personal inspections including, if necessary, taking a blood sample from suspects (Centamore, [2011]: 50-54).

According to the general principles stated in articles 157 and 158 CP, the statute of limitation period is set at five years for all the offenses in article 9. The limitation period runs from the moment of the commission of the offense or, in case of a continuous offense, from the moment the offense was interrupted (Centamore, [2011]: 38).

All the NAS officers and prosecutors officers interviewed are unanimous in stressing the relevance of Act 376/2000 and specifically article 9 in their efforts to control the use, and especially the production and trade, of doping products through criminal law. As we have seen in chapters 3 and 4, some important investigations were carried out even before the enactment of Act 376/2000 but all our respondents insisted that the criminal provisions of article 9 have hugely enhanced their possibility of interventions.

This assessment was confirmed, with four exceptions, by the heads of the 38 NAS branch offices who filled in a questionnaire on their anti-doping activities distributed by the NAS Headquarters. However, the four respondents who did not think that the Act 376/2000 has enhanced anti-doing investigations, belong to NAS Branch Offices (Aosta, Bari, Caserta and Viterbo) that have not been particularly active in

this field. All other respondents praise Act 376/2000 for introducing criminal law sanctions for doping offenses, which have simplified the interpretation of suspects' behavior, and for enabling wiretappings in anti-doping investigations. Twenty-nine out of 38 respondents also state that Act 376/2000 has helped raise the awareness and interest for the problem of doping among prosecutors and judges, who now realize that anti-doping investigations have a solid legal basis and the same prospects of a successful judicial outcome as investigations in other fields.

The Applicable Offenses Foreseen by the Criminal Code

Several offenses established by the Italian Criminal Code (CP) are also considered in the literature applicable to what we call in this report the production or trade of doping products. Indeed, as we will see in the following pages, some of these other offenses— along with several others—have also been concretely applied in anti-doping investigations.

The most relevant one is the offense of "administration of drugs in a dangerous way for public health" (article 445 CP)—the offense charged against Prof. Conconi by the Ferrara Prosecutor's Office. Article 445 CP states: "Whoever, trading, also without license, in medical substances, administers them in type, quality and quantity not corresponding to the medical orders or different from those declared or agreed upon, is punished with imprisonment from six months to two years and with a fine from €103 to €1,032." According to Marchese (2010) and Centamore ([2011]: 17), the applicability of this offense to contemporary cases of doping is restricted by the fact that it presupposes a fraudulent administration—whereas doping in most cases involves fully-consenting athletes. An experienced NAS officer (e.g., Int-NAS-26) also stresses that this article covers only some, by no means all, forms of supply of doping products: for example, given the article's focus on the administration of doping products, the law enforcement agencies could not charge with this offense a pharmacist who was merely selling, but not administering—as article 445 CP requires—a doping substance.

In other cases, the offense established by article 348 CP, "Illegal exercise of a profession", can also be applicable: "Whoever illegally exercises a profession for which a special state authorization is required, is punished with imprisonment up to six months or with a fine between ≤ 105 and ≤ 516 ."

Other articles of the Italian Criminal Code have also been deemed to be applicable in the scholarly literature, especially the different forms injury (article 582 CP and following) and fraud (article 648 CP; Centamore, [2011]: 6-9). As we will see below, they find only limited application.

Public and Criminal Law Institutions Involved in Anti-Doping

Act 376/2000 makes CVD the body principally responsible for coordinating Italy's antidoping policy, except for the latter's criminal law provisions. As we have seen in the previous chapters, NAS carries out the bulk of anti-doping criminal investigations in Italy. In their anti-doping responsibilities, CVD and NAS interact with several other public bodies, being supported, but also occasionally constrained, by the latter.

Commission for the Vigilance and Control on Doping and the Protection of Health in Sports Activities (CVD) and the Other Public Law Bodies

Originally established as a body recognized by the Italian State in 1942, CONI has been since then the body principally responsible for the organization and regulation of the sports world in Italy. The Law Decree of No. 242 of July 23, 1999, ("Reorganization of the National Italian Olympic Committee") redesigned CONI's goals, organization and even position in the sports world and explicitly recognized its public law nature (for more details, see Nicolella, 2008). As Nicolella (2008) maintains, with the reform "CONI consolidates its double position as a public body supervising the whole Italian sporting organization and as an Olympic Committee recognized by the IOC. Two different spheres of tasks and functions thus continue to be united in CONI, deriving from the fact that CONI is part of both the Italian state order and the international sports order." In particular, article 2 of that legislative decree made CONI "responsible, within the sports jurisdiction, for the adoption of measures preventing and suppressing the use of substances that alter the natural physical performance of athletes in sports activities."¹⁵⁰ CONI has been in charge of anti-doping testing of elite athletes since they were introduced by the IOC.

CVD has a much shorter history. In fact, as already mentioned, it was founded by article 3 of Act 376/2000. According to the both the Italian government (2002: 18) and the Council of Europe Evaluation Team (2002: 31), this decision manifests the Italian government's direct assumption of responsibility in prevention and control of doping. It also "seems to indicate that the government doubts the ability of the sports movement to solve the doping problem, a distrust unquestionably related to the most recent cases uncovered in Italy and at international level" (ibid: 31).

The second section of article 3 establishes in detail CVD's composition and the expertise and background of its 20 members; it has partially been amended by article 3 of Act 183/2010. Accordingly, the CVD is composed of

- > five members appointed by the Minister of Health, one of whom is the President
- five members appointed by the Undersecretary responsible for sports at the Prime Minister's Office, one of whom is the Vice-President

¹⁵⁰ http://www.camera.it/parlam/leggi/deleghe/testi/99242dl.htm
- three members of the Conference of the Presidents of Italy's Regions and the autonomous Provinces of Trento and Bolzano
- > a member appointed by CONI
- > a member appointed by the Higher Health Council, and
- an officer of the Comando Carabinieri Tutela per la Salute [i.e., NAS] appointed by the Commander (Ministero della Salute, 2012).

CVD's powers, as listed in article 3, section 1 of the Act 376/2000, are very broad:

CVD

- a) Sets the classes mentioned in article 2, section 1 and revises them, according to the modalities foreseen by article 2, section 3;
- b) Determines, also in conformity with the IOC and other competent bodies and institutions' indications, the cases, criteria and control methodologies of anti-doping controls and singles out the competitions and sports activities for which health controls are carried out by the laboratories referred to in article 4, section 1, considering the characteristics of the competitions and sports activities themselves;
- c) Carries out anti-doping and health promotion controls, through the laboratories referred to in article 4, also using physicians specialized in sports medicine; develops research programs on drugs, substances and medical practices that can be used for doping purposes in sports activities;
- d) Singles out the collaboration forms concerning anti-doping controls with the national Health Service;
- e) Keeps operative contacts with the European Union and the international bodies, guaranteeing the participation in programs of anti-doping interventions.
- f) Can promote information campaigns for the protection of health in sports activities and the prevention of doping, in particular in all state and non-state schools of every type and rank, in collaboration with the public administration, the National Italian Olympic Committees, the national sports federations, the affiliated disciplines, the private and public Enti di promozione sportiva, also using the activities of physicians specialized in sports medicine.

CVD's main activity has so far been the organization of anti-doping tests for recreational athletes, in addition to the update of Italy's prohibited list, which is largely dictated by WADA. Since 2003 CVD has progressively improved its performance and since 2008 has recorded an average 3.8% positive rate, with an astonishing 4.8% of positive tests in 2010 (see table 2.6).¹⁵¹ CVD's 2010 performance was largely due to the fact that Dr. Bellotti, who was then a CVD member, became responsible for planning and organizing the anti-doping tests. In particular, in contrast with the previous practices,

¹⁵¹ CVD's performance is even more astonishing than it first appears. In fact, CVD reports positive tests, whereas WADA's accredited laboratories merely report "adverse analytical findings". From the latter, the positive athletes who have a therapeutic use exemption are ultimately excluded, thus further reducing the 1% average (see WADA 2011a).

Bellotti stopped planning in advance a calendar of anti-doping tests for the whole sporting season but instead selected the competitions for tests not only on the basis of his extensive knowledge of athletes' habits but also on the basis of the results of the immediately preceding tests and of the indications provided by NAS from its investigations. This collaboration is exemplary of what can be achieved through information sharing between anti-doping and law enforcement agencies. Moreover, Bellotti instructed the CVD representatives in charge of carrying out the tests not to reveal the final ranks of the athletes selected for testing until the end of the competitions in order to prevent any leakage from the competition organizers to the athletes (Int-Oth-2).

However, showing the lack of commitment of Italian politicians in anti-doping, the fourth Berlusconi cabinet (2008-11) did not reappoint Bellotti in early 2011 at the end of the CVD's mandate, and the members of the following CVD, who were partially involved in conflicts of interest (see chapter 5), did not show the same competence in pursuing positive athletes. It is a telling detail, for example, that CVD did not test any weightlifters in 2011, although weightlifting is a discipline with a well-known affinity to doping, and carried out very few tests during April and May, two months with a full competition calendar—choices that explain the lower positive rate (3.1%) recorded in 2011 (Ministero della Salute and Istituto Superiore della Sanità, 2012: 2-5; see chapter 2).

Even in the field of testing, CVD does not yet exercise the full powers assigned to it by the law. As already mentioned in chapter 2, an agreement signed in October 2007 by the then Minister of Health and the Minister of Youth Policies and Sports of the second Prodi cabinet (2006-2008) and the CONI President formalized an unofficial division of labor that had taken shape since CVD's establishment in 2000. Despite the fact that article 3, section 1, clause c of the Act 376/2000 clearly states that CVD "carries out antidoping and health promotion controls, through the laboratories referred to in article 4" without reserving any role for CONI, the latter has continued to carry out anti-doping controls of elite athletes, focusing almost exclusively, as described in chapter 2, on the high-end segment, i.e., the approximately 10,000 "super elite" athletes participating or likely to participate in international competitions. In the cited agreement, the three parties "agreed ... to regard the national and international competitive sports activities as the prevalent object of CONI's anti-doping activities." At the same time, the agreement restricted CVD's competencies to recreational athletes. The parties also "agree[d] to consider the non-competitive activities and the competitive activities having no national relevance as the prevalent object of the anti-doping activities of the Commission" (Ministero della Salute, 2007).

Despite the vague wording chosen, the agreement implies that CONI would—de facto exclusively—carry out anti-doping tests of super elite athletes, while CVD would test those whom we labeled in chapter 2 "recreational athletes", that is, athletes taking

part in "competitive activities having no national relevance"¹⁵²—a division of labor that was aggressively defended by CONI when CVD tried to expand its sphere of action (Int-Oth-2). It is hard not to see the merits of the opinion of some observers, including Bellotti (2009) and several respondents (Int-NAS, 25 and 26, Int-Pro-1, 2 and 3 and Int-Oth-2), according to which the 2007 agreement overrules Act 376/2000. Against this background, the agreement appears to be a ploy to protect the elite segment of Italian sports from independent and effective anti-doping tests. As the 2007 agreement was signed by two ministers of the Prodi cabinet, we can also conclude that the latter too, not just right-wing politicians and cabinets, have protected the not always legitimate interests of CONI and the organized sports world.

As a result of the informal division of labor since 2000 and the 2007 agreement, CVD has very limited contacts with international anti-doping bodies, although CVD is entrusted with the maintenance of "operative contacts with the European Union and the international bodies" by article 3, section 1, clause e of Italy's anti-doping act. In fact, CONI, not CVD, has been identified by WADA as the Italian National Anti-Doping Organization (NADO). Reflecting Italians' limited awareness of conflicts of interests (see *Economist*, 2011c), this choice has few parallels among the 34 advanced nations belonging to the Organization for Economic Co-operation and Development (OECD). Only in Iceland, in fact, is the National Olympic Committee (NOC) at the same time the NADO. In all other OECD countries, a separate anti-doping agency has been established, even though in a number of cases the separation is not complete and many, if not most, NADOs seem to be at least partially dependent on NOCs' funding in order to carry out their activities (see T.M.C. Asser Instituut, 2010).

The anomalous division of labor between CVD and CONI can also be questioned in light of the considerable differences in the number of positive tests obtained by the two bodies and their respective communication policies. As mentioned in chapter 2, CONI had obtained a miserable average of 0.63% in the years 2002 to 2007 and has published no data since then (see table 2.5). By contrast, CVD publishes its reports yearly and since 2008 has had a six times higher positive rate than CONI's average rate. A further consequence of this division of labor between CVD and CONI is that anti-doping controls seem to neglect a large share of elite athletes. In fact, if CONI focuses on the 10,000 super elite athletes, and the CVD tests "recreational athletes", the consequence seems to be that most athletes competing in national competitions but not good enough to take part in international competitions, are hardly ever targeted by anti-doping tests. More detailed information on CONI's anti-doping tests would be necessary to wipe this worrying hypothesis.

¹⁵² We presented the number and results of the anti-doping tests carried out by CVD and CONI in chapter 2.

As foreseen by article 4 of the Act No. 376/200, the samples taken during antidoping controls are materially analyzed by the Anti-Doping Laboratory in Rome, the only one in Italy accredited by the IOC. As noted by the Council of Europe Evaluation Team (2002: 20), "the most significant aspect provided for by article 4 of the Law is that the Anti-doping Laboratories be subjected to supervision by the Istituto Superiore di Sanità [Higher Institute of Health], the scientific body of the government which works alongside the Ministry of Health, and that any form of supervision on the part of the sports Organisation[s] be removed." CONI, however, is still responsible for the funding of the laboratory. This is, in fact, formally owned by the Italian Federation of Sports Medicine (FIMS), which however "does not have the necessary funds to run the laboratory" (ibid.: 37). The FIMS's ownership of the laboratory is thus described as "debatable" by the Council of Europe Evaluation Team, which is also critical of "th[e] separation of funding and supervisory bodies" (ibid.: 37).

According to one of our respondents (Int-Oth-2) and Donati himself, who served as CVD member from 2008 to 2010, each doping test costs approximately €500, including the laboratory equipment amortization costs and the personnel costs. We have no recent Italian data to validate these estimates. In 2002, however, CONI provided some figures about its own and the national sports federations' expenses to the Council of Europe Evaluation Team, which then carried out an assessment of Italian anti-doping legislation. CONI reported yearly €5,448,620 in expenses for the entries "samples," "laboratory in Rome" and "laboratories abroad" for the years 1998 and 2000 for a total of total of 22,195 tests (Italy, 2002: 18 and 23-27; see also CONI, 2012). A simple division suggests that a test cost €245, excluding personnel costs. The latter, in fact, are an independent category in the summary table of the Italian government's report, referring to all of the about 50 CONI employees, so that it is not possible to estimate which share of these costs should be attributed to anti-doping controls. However, there are no doubts that the latter are time-consuming: according to the same report, anti-doping controls rely on "the availability of almost 900 doctors trained in the correct [antidoping] procedures" and "thirty per cent of the financial resources ... provided for under the Anti-doping Law are designated for the work of the accredited Laboratories" (Italy, 2002: 20) In light of these data and statements, the above-mentioned estimate of €500 cost per anti-doping test, including the laboratory equipment amortization costs and the personnel costs, seems plausible. ¹⁵³

¹⁵³ Prof. Wilhelm Schänzer (2012, personal communication), head of the Cologne Anti-Doping Laboratory, provided data about the costs of anti-doping analyses, which confirm the plausibility of our estimate. According to Prof. Schänzer, the Cologne Anti-Doping Laboratory charges €150-180 for the analysis of urine samples for the 200-300 substances prohibited in and out of competition. Another €150 is invoiced for each urine EPO test, €100 for each blood test for GH and €40 for the tests related to the biological passport. Schänzer added that there are also sampling, testing and

According to the data reported to WADA, in 2010 the Italian Anti-Doping Laboratory conducted 10,128 tests (WADA, 2011a). These tests presumably include CONI's tests in addition to the 1,115 ordered in that year by CVD (Ministero della Salute, 2011b; see table 2.6). Hypothesizing that each test costs €500, this means that over €5 million were invested in anti-doping controls in 2010 alone, which is in line with the sums reported by the Italian government in 2002 to the Council of Europe Evaluation Team. For 2010, the Italian Anti-Doping Laboratory reported 137 adverse analytical findings, in which it presumably includes the 52 positive results achieved by CVD. This means that on average each of the adverse analytical findings, which, unlike CVD's positive results, still include athletes with therapeutic use exemptions, costs on average almost €37,000.

Both CVD and CONI have so far routinely reported the athletes who tested positive in anti-doping controls to the Rome Prosecutor's Office. According to several respondents (Int-NAS-16 and 26 and Int-Oth-2), the latter office dismisses many, if not most, of these proceedings, without even transmitting them to the appropriate Prosecutor's Offices. Therefore, CVD is planning to change this procedure and start filing reports of positive tests directly, with the help of NAS officers, to the Prosecutor's Offices that have territorial jurisdiction for the offense. CVD and CONI also routinely report positive tests to the Anti-Doping Prosecutor's Office of CONI, which is responsible for initiating disciplinary proceedings against the athletes who tested positive.

Visiting Italy in 2002, when the 2000 anti-doping act was beginning to be implemented and the division of labor between CONI and CVD was being shaped, the Council of Europe Evaluation Team (2002: 34) already noted "an obvious risk of overlapping responsibilities [between CONI and CVD] and a probable diminution in the overall deterrent effect for the same number of controls". As noted in chapter 2, the team also stressed that too few out-of-competition tests were carried out by CONI. The Council of Europe team's other conclusions are worth being quoted at length:

The federations' involvement in the present model seems too great to guarantee an independent system and maximum deterrence. ... The evaluation team believes that unannounced out-of-competition controls should be increased bearing in mind the comments on how to make them effective. The evaluation team also voices its apprehensions concerning domestic co-ordination of the various anti-doping measures owing to the complexity of the system arising from the new legislation and above all the large number of stakeholders. The information contained in Italy's national report is insufficient to answer this concern. It seems that a single independent joint body comprising representatives from both the sports movement and the public authorities might be an effective solution and one which would have the merit of approaching international standards. The evaluation team believes that the setting-up of such a body to carry out controls would avoid unnecessary duplication and produce a more effective and deterrent system for the same financial outlay. In the view of the

transport costs, but he could provide no exact data on them, as the German NADO is responsible for them.

evaluation team there is no guarantee that the present CONI commission will be independent (Evaluation Team, 2002: 34-35).

In other words, the Council of Europe team called, as we also do, for the centralization of anti-doping testing and other policy tasks in CVD, which is the only body that can guarantee the necessary independence vis-à-vis the organized sports world.

Carabinieri Command for Health Protection (NAS)

Comando Carabinieri per la Tutela della Salute, better known as NAS, (the acronym of the original name, Nuclei Anti-Sofisticazioni e Sanità, i.e., Anti-adulteration and Health Units), is a unit specialized in health issues that makes up a separate section ("comando") of the Arma dei Carabinieri, one of Italy's two military police forces.

NAS was established in 1962 to deal primarily with the problem of food adulteration, which then began to raise social alarm. Initially, they consisted of a senior Carabinieri officer seconded to the Ministry of Health and 40 officers in six cities (Milan, Padua, Bologna, Rome, Naples and Palermo; see Carabinieri, 2012). Since the early 1960s, this specialized police unit has progressively expanded and now employs about 1,100 staff members. About 80-100 officers work at the NAS Headquarters in Rome. This includes the Operations and Analysis Departments in addition to the central administration, training and logistics offices (Int-NAS-25). The remaining personnel are active in one of the 38 individual NAS branch offices, which enjoy a high degree of operational independence and are distributed throughout the territory of Italy. The 38 branch offices form three main groups—North, Center and South—whose coordinators, three senior NAS officers, are located in Milan, Rome and Naples, respectively (NAS, 2012). The large majority of NAS personnel are low-level officers. Out of 1,000 officers, only 30-35 of them are senior officers (Int-NAS-25 and 26; Ministero della Difesa, 2008).

Formally renamed Carabinieri Command for Health Protection in 2005, NAS often cooperates closely with the provincial Carabinieri Commands and receives support from the latter whenever needed, for example, when they need extra manpower to carry out simultaneous searches. However, the NAS still work under the direct authority of the Ministry of Health. Their personnel comes from the Carabinieri ranks —and as such has the qualification of "officer of the judiciary police" with the resulting power to conduct a criminal investigation—but additionally takes part in specialization courses at the Ministry of Health. Thanks to such training, NAS officers also obtain the qualification and authority of "health inspector": this means that they can access—at all times—all the places where the food for human use is produced, administered, stored or sold (see Ministero della Difesa, 2008).

Throughout the years, NAS has expanded its authority and currently have four main areas of work: health (including all types of legal drugs), food, workplace safety and doping (see Ministero dell'Interno, 2006). Doping and health matters have increasingly become important priorities in the last few years. The rising problem of counterfeited drugs represents the interface between the latter two areas.

In the double capacity as officers of the judiciary police and health inspectors, NAS officers carry out both criminal investigations as well as administrative controls on the above-mentioned four topics in a variety of institutions, ranging from all the companies engaged in the food production and distribution sectors to hospitals and other health care centers, from physicians' practices and pharmacies to nursing homes and drug manufacturers and distributors. Many of these administrative controls are increasingly dictated by EU directives and soft law.¹⁵⁴ NAS officers are occasionally confronted with the contradictions of this double role as officers of the judiciary police and health inspectors. As officers of the judiciary police, they are subordinated to the prosecutor who formally coordinates—de facto most often delegates them—a specific criminal investigation. As health inspectors, they have the primary aim of protecting citizens' health and, to fulfill such an aim, they may need, for example, to publish a warning about the danger of a specific product. Through the Ministry of Health, NAS are, in fact, part of the EU-wide Rapid Alert System for Food and Feed, which was established in 2002 by the Council of the European Union to allow food and feed control authorities to exchange information about serious health risks and control measures in a quick and effective way (NAS, 2012).¹⁵⁵ In a few cases, such warnings have displeased the prosecutors coordinating the related criminal investigations. The latter tend to regret the breach of investigative secrecy not fully realizing that NAS has no choice, as EU law is higher ranked than criminal law.

NASs first investigations on doping began almost casually in the late 1980s, when evidence of doping practices emerged in the course of investigations dealing with the theft of drugs from hospitals or other health centers or medical frauds, for example, on the basis of false prescriptions. They then slowly gained steam in some of the NAS branch offices and especially in Bologna (see Istituto Superiore di Sanità, 2009). As seen in chapters 3, 4 and 5, the latter office already took a vanguard role in this field in the 1990s, carrying out several large-scale and/or high-level investigations, such as the investigations in the year 2000 into the trade of steroids and other doping substances in 128 gyms in several Italian regions and the two investigations concerning Prof. Conconi and Dr. Ferrari. According to an experienced officer (Int-NAS-10), the vanguard role played by the Bologna Branch Office is due to a combination three factors: 1) its very skilled leadership , which established the branch office's excellent reputation with the local prosecutors; 2) the branch office heads' active promotion of anti-doping investigations and 3) the presence of suppliers of doping products in Bologna and

¹⁵⁴ Soft law is the term applied to EU measures, such as guidelines, declarations and opinions, which, in contrast to directives, regulations and decisions, are not binding on those to whom they are addressed.

¹⁵⁵ See http://ec.europa.eu/food/food/rapidalert/rasff_legal_basis_en.htm.

surroundings, who had a regional and even national relevance and therefore made prominent investigations possible. Whatever the reasons for the vanguard role, there is no doubt that the Bologna Branch Office has been a training ground for many NAS officers who have been responsible for some of the most penetrating anti-doping criminal investigations not only in Bologna itself but also at other branch offices, such as those in Brescia, Florence and Padua.

A questionnaire sent from the NAS Headquarters and filled in by all 38 NAS branch offices indicates that their involvement in anti-doping investigations has remained uneven—and that anti-doping still constitutes a relatively minor task for NAS. In fact, out of about 1,000 persons working in the 38 branch offices, only 14% of them are involved in anti-doping investigations—with percentages ranging from a minimum of 5% to a maximum of 30%. Only three branch offices indicate that a full-time equivalent officer is assigned to anti-doping activities, followed by another three where an officer works 70% or 80% of his time on anti-doping issues. In total, we estimate that 47 fulltime equivalents work yearly on anti-doping investigations, corresponding to 4.3% of the NAS's overall personnel. It is hence clear that, despite their occasional media relevance, anti-doping investigations remain only one of the many activities carried out by NAS.

As the gross salary costs of a NAS officer is about €30,000 per year, we estimate that the direct personnel costs of NAS anti-doping investigations are approximately €1,410,000. Even if we account for overhead at NAS Headquarters and working costs, NAS anti-doping action accounts for about a third of the €5,450,000 invested yearly in testing by CONI and CVD.

According to the information collected with the questionnaire, NAS investigations led to the reporting of 3,794 suspects and to the arrest of 446 for doping-related charges in the eleven years from 2000 to 2011. As in the case of personnel, the output of anti-doping investigations is not equally distributed among the 38 branch offices. Within the same time frame, NAS carried out 7,083 searches and conducted 823,878 hours of wiretapping, with the same uneven distribution observed for the reports.

Our Database on NAS Investigations indicates that NAS anti-doping investigations have so far largely focused on the body-building and gym sector. In fact, out of a total of 71 investigations reported in the database, 43 exclusively concern body-building, six body-building and gyms and three gyms alone. The only other sport repeatedly targeted by NAS in its investigations appears to be cycling (see table 7.1). However, the database does not provide an exhaustive picture of NAS investigations even during the period 1999 through 2010 and does not include some early key investigations not related to body-building, such as those concerning Prof. Conconi, Dr. Ferrari and the Bologna pharmacist, P.L. who all served athletes (and in the case of the Bologna pharmacy also trainers and team physicians) of different sports disciplines.

| Sports type | No. |
|---|-----|
| Body-building | 43 |
| Body-building and gym sector | 6 |
| Gym sector | 3 |
| Body-building and cycling | 1 |
| Body-building, triathlon and cycling | 1 |
| Body-building and gym sector, cycling and | 1 |
| boxing | |
| Gym sector and combat sports | 1 |
| Gym sector and cycling | 1 |
| Gym sector and tennis | 1 |
| Cycling | 9 |
| Cycling, triathlon and swimming, rowing, | 1 |
| skating, tennis | |
| Cycling and track and field | 1 |
| Riding | 2 |
| Total | 71 |

Table 7.1 Sport disciplines/contexts involved in NAS investigations as reported in the Database onNAS Investigations - 1999-2010

Source: our calculations on the basis of the Database on NAS Investigations.

Over the years, NAS Headquarters have developed an increasingly close collaboration with CVD. The presence of a NAS officer in the CVD membership was not foreseen by Act 376/2000, but the cooperation was later formalized by Act 183/2010, which provided a NAS representative to be a member of CVD, and this cooperation has intensified recently. Since 2011, NAS officers often accompany incognito the CVD emissaries who are in charge of anti-doping tests. In their capacity as health officers, NAS personnel have the right to attend such tests. In their capacity as judicial police officers, they have the duty to report a suspected offense, such as a positive test or the omission of a test, to the local prosecutor's office.

The close cooperation between CVD and NAS is also exemplified by the organization of a specialized anti-doping training course for 138 NAS officers, which was funded by CVD. The course participants obtained the title of "anti-doping investigative inspector" (Ministero della Salute, 2010c). Another training course is planned for the fall of 2012 (Int-Oth-2).

Other Police Agencies

As already mentioned in the previous chapters, NAS is not the only law enforcement agency carrying out anti-doping investigations in Italy. The field is, in fact, quite crowded. In addition to the Carabinieri, of which the NAS is part, there is another general police agency, the Polizia di Stato, next to the Guardia di Finanza, Italy's tax and financial police, and the Agenzia delle Dogane, i.e., customs. In particular, the latter agency often intercepts packages containing doping substances when they enter or exit Italian territory; however it rarely pursues further the related investigations itself but rather passes them on to another police force. The Guardia di Finanza is also present at the border but. along with the Italian police, also conducts investigations throughout Italy.

As shown in table 7.2, seizures by the Polizia di Stato, Guardia di Finanza and Agenzia delle Dogane account for less than 10% of the doping substances confiscated in Italy between 1999 and 2011. NAS, by contrast, carries out the overwhelming majority of seizures (90.5%). However, it is worth noting that the data about the seizures of other police forces are of lower quality than the NAS data, and we therefore might underestimate the contribution of other police forces.

Table 7.2 Doping doses seized in Italy by NAS, Carabinieri and other police forces in the period1999-2011

| | NAS and other Carabinieri units | Other police forces | Total |
|-------------|------------------------------------|------------------------|-------------|
| Total doses | 95,247,978 | 9,964,717 | 105,212,695 |
| Percent | 90.5% | 9.5% | 100.00% |

Source: our calculations on the basis provided by the NAS Headquarters (2012) and retrieved from the websites of the Agenzia delle Dogane, Guardia di Finanza, Polizia di Stato and Milan Municipal Police and from the newsflashes of Ansa, Agi and Adnkronos.

In the field of anti-doping as in other fields, there is little cooperation, and more rivalry, among Italian police forces so that there is hardly any exchange of data. NAS officers (Int-NAS-25 and 26), in particular, regret that the Agenzia delle Dogane do not automatically transfer to NAS all the cases initiated with the seizure of a package of doping substances at an entry or exit point. The Agenzia delle Dogane instead often forwards such cases to the Guardia di Finanza, with which it has a close relationship because the latter is also present at the border. The NAS Headquarters have, however, recently intensified their cooperation with the Agenzia delle Dogane in the field of antidoping and, more generally, in the fight against the trade in (counterfeited) pharmaceuticals.

Prosecutor's Offices and Courts: Independence ...

Unless the suspects are minors, the prosecutors who can take charge of an anti-doping investigation are part of one of the 166 prosecutor's offices located at one of Italy's 166 local trial courts of first instance, the Tribunali ordinari (Ministero della Giustizia, 2012).

Prosecutors are free to choose the agency to which they want to assign an investigation. In the field of anti-doping, all the seven prosecutors interviewed (Int-Pro-1-7) recognize—and, with a partial exception (see below), admit they are dependent upon—NAS's specialized competence. Unless another police unit conducts the initial seizure or reports a doping-related *notitia criminis* (i.e., the notice that a crime has been committed), Italian prosecutors tend to delegate anti-doping investigations to NAS, as

both the prosecutors and NAS officers interviewed testify.¹⁵⁶ However, the prosecutors are under no obligation to do so and may also cooperate with another police agency if they want. Among the prosecutors interviewed, Dr. Guariniello is the only one who sometimes prefers to work, for very complex investigations, with the judicial police officers based in his prosecutor's office: the latter are generalist officers belonging to either the Polizia di Stato or the regular Carabinieri Commands, and Dr. Guariniello has established over the years a very close and trustful working relationship with them.

According to the Italian code of criminal procedure, the prosecutors have the exclusive power to initiate a criminal proceeding, have full responsibility for the related investigations and give binding instructions to the police concerning what, whom, where and how to investigate (Illuminati, 2000: 113; Illuminati, 2005: 937-39; Davigo and Sisti, 2012: 41-56). Despite the legal requirements, "in daily practice it is very unusual for the prosecutor to carry out directly all investigative acts" (Illuminati, 2005: 939). Whereas prosecutors personally conduct all the investigative acts for major offenses (e.g., terrorism), in the case of lighter offenses they only provide general guidelines to the police and sometimes do "not give any instruction and ... leave the police complete freedom of movement" (ibid.). Both the NAS officers and, with the exception of Dr. Guariniello, the prosecutors interviewed confirm the latter practices in the field of antidoping. Even when the prosecutors provide general guidelines to NAS or other law enforcement officers, the latter enjoy a very high degree of autonomy in the daily management of the investigations. Police officers have the power to search and seizure only in flagrante delicto (in the act) or in other urgent situations; they need the authorization of a prosecutor in all other cases. In the case of wiretapping, the prosecutors themselves have to ask for authorization from the judge of preliminary investigations. The latter also issues arrest warrants at the request of the prosecutor and reviews and authorizes the prosecutor's charges before the trial can start (Illuminati, 2000: 113-4).

Among our interviewees, only Dr. Guariniello and his team insist on remaining fully in charge of criminal investigations in the field of anti-doping and other fields. Guariniello, for example, stated that "he is very cautious in applying for wiretapping, because, when he decides to conduct wiretaps, he also listens to all of them himself." Another peculiarity of Dr. Guariniello's working method is the fact that he involves external consultants from the very beginning of an investigation, authorizing them also to take part in searches so that no piece of evidence may remain uncollected. The external consultants appointed by Guariniello also receive a copy of all the evidence

¹⁵⁶ This thesis is based not only on the seven interviews with prosecutors carried out in the course of this project but also on Dr. Donati's extensive experience as a consultant for prosecutor's offices in anti-doping investigations, as well as his informal exchanges with the prosecutors and judges taking part in the first anti-doping training course organized jointly by CVD and the Higher Council of the Judiciary (known under the Italian acronym of CSM) in 2008.

collected and of the documents produced by the investigators and take part in the frequent meetings with the investigators and Guariniello's team of prosecutors. Dr. Guariniello's exceptional working method is, in fact, made possible by the organization of the Turin Prosecutor's Office. For the last few years this has been composed of seven "specialized groups", and Guariniello heads the group specialized in workplace safety and consumer protection, which is composed of 12 prosecutors (Procura della Repubblica presso il Tribunale di Torino, 2012).

Lacking such specialized teams, most other prosecutor's offices tend to delegate investigations to NAS or other police forces and to involve external consultants when they receive the final report of investigations in order to assess the evidence contained in such reports. This approach works fine with routine investigations, but in a specialized field such as that of anti-doping, where technical knowledge is often required, it occasionally leads to the inadvertent dismissal of important pieces of evidence, as the consultants do not contribute to the collection of evidence and are only called in after the investigation itself is finished.

As these different prosecutorial strategies indicate, most Italian prosecutors enjoy a high degree of autonomy in organizing their investigations and relationships with police forces as they deem appropriate within the broad parameters set by Italian procedural law. Aware of the abuses committed by the prosecutors controlled by the Minister of Justice during the fascist period, the drafters of the 1948 Italian Constitution rejected a nation-wide hierarchical organization of prosecutors (Illuminati, 2000: 111). Unlike its counterparts in other countries, the Italian Ministry of Justice has no authority to issue directives to the prosecutor's offices and presidents of the local trial courts have only limited coordinating powers (Di Federico, 2004; Fabri et al., 2003: 277-78; CEPEJ 2007: 18). As Illuminati notes (2000: 111), "the power to prosecute is diffused and not centralised."

Each prosecutor's office and trial court also enjoys a high degree of managerial autonomy.¹⁵⁷ Prosecutor's offices' and trial courts' organization plans are subject only to the approval of the Consiglio Superiore della Magistratura (Italian Higher Council for the Judiciary, known by the Italian acronym of CSM) (CEPEJ, 2007: 18). This self-governing body of the judiciary was established by the 1948 Constitution, and two-thirds of its membership is composed of judges and prosecutors (collectively known in Italy as magistrates) elected by their colleagues.¹⁵⁸ At present it consists of 27 members.

¹⁵⁷ A little telling detail is that there seems to be not even a common nation-wide template in which to write prosecutorial charges or court verdicts.

¹⁵⁸ More specifically, the Constitution provides that two-thirds of the members must be magistrates and that one-third of the members be elected by Parliament among law professors and lawyers with 15 years of professional experience. It further provides that the CSM be presided over by the President of the Republic –de facto only a symbolic presidency—and include among its

CSM is also responsible for all decisions concerning judges and public prosecutors from recruitment to retirement (promotions, transfers, discipline, disability etc.). The Ministry of Justice, by contrast, has only limited powers. The Italian Constitution explicitly assigns the Ministry of Justice two tasks: a) the "organization and functioning of the services of the justice system;" and b) the prerogative of initiating disciplinary proceedings against magistrates. As in other countries in continental Europe, the Ministry of Justice is also responsible for preparing and running the budget of the entire judiciary and prison system and also recruits most of the non-judicial personnel of the courts and prosecutor's offices (Di Federico, 2004: 11).

According to Di Federico, director of the Research Institute on Judicial Systems at the National Research Council (CNR), "the role of the Italian Minister of Justice is much weaker than that of his colleagues in other countries of Western continental Europe" (ibid: 11), whereas the independence of Italian prosecutors and judges is particularly emphasized: "Among the civil law countries with a consolidated democratic system," Di Federico continues, "Italy is certainly the one where judicial independence has acquired the highest recognition both in terms of the amplitude of the law provisions formally intended for its protection and in terms of the way in which those provisions have been interpreted" (ibid.: 2). Pending since 2006 the establishment of an independent School of the Judiciary (Ministero della Giustizia, 2012), CSM has been solely responsible for the initial education of the Italian magistrates (CEPEJ, 2007: 17 ff.). Moreover, unlike other countries, Italian prosecutors and judges were until 2007 subject to only very limited evaluation. As Fabri et al. (2003: 63) note, formally, the career of judges "should be based on both merit and seniority, in practice, after several reforms that were passed in the 1960s and the 1970s, career advancement in status and salary are based only on seniority" (see also Davigo and Sisti, 2012: 90-3). Only in 2006 were provisions introduced establishing a new system of evaluation of prosecutors' and judges' professionalism, capabilities, competences and productivity (European Commission for the Efficiency of Justice 2007: 17).

In particular, Di Federico goes on, "Italy is the only democratic country where public prosecutors enjoy the same guarantees of independence as judges" (ibid.). Italian prosecutors have, in fact, the same background, career path and salary of judges.¹⁵⁹ After a competitive selection, young law graduates are hired to become either prosecutors or judges—which of these they become is decided on basis of the vacancies at any particular moment in time and, in the course of their career, may ask to be transferred from one court or prosecutor's office to another. Like judges, Italian prosecutors are totally independent of the Minister of Justice, whereas CSM is uniquely responsible for

members the President of the Supreme Court of Cassation and the General Prosecutor of Cassation. The elected members of the judiciary are renewed *in toto* every four years.

¹⁵⁹ Italian prosecutors earn as much as judges of the same seniority, whereas in many countries that are members of the Council of Europe, they earn considerably less. See CEPEJ (2010).

all the decisions concerning their careers. To give a term of comparison, French and German prosecutors are, instead, subordinated to the respective Ministries of Justice, and in France, where there is also a self-governing body for the judiciary, the section for prosecutors of the latter body has only advisory powers (Di Federico, 2004: 12; Kilchling, 2000).

This situation has both pros and cons. In a country in which politicians have been all too prone to exercise undue influence on prosecutorial and judicial decisionmaking,¹⁶⁰ prosecutors' and judges' independence is a crucial element in the effort to guarantee the impartiality of the judiciary and the equality of all citizens in front of the law. Judicial independence has also enabled penetrating criminal investigations against powerful politicians and state representatives in office not only in the field of anti-doping but also in the area of corruption and organized crime; these investigations have few parallels in other countries. One just has to recall the two trials against Giulio Andreotti, which began in the early 1990s. Andreotti has been one of Italy's most important politicians in the post-war period: he has been a member of parliament since 1948, prime minister seven times, and a government minister countless times. In 1993 he was accused of membership in a mafia-type criminal organization (Cosa Nostra) by the Palermo Prosecutor's Office and of having ordered the murder of a journalist by the Perugia Prosecutor's Office. After eight years of trials, Andreotti was finally not convicted. However, the Palermo judges concluded that there was proof that Andreotti had supported Cosa Nostra until 1980 but had to apply the statute of limitations until that period (e.g., Tranfaglia, 2001)—the frequent outcome, as we have seen, of many prominent trials in Italy.¹⁶¹ More recently, Silvio Berlusconi, even when he was Italy's Prime Minister, was repeatedly charged with serious offenses above all by the Milan Prosecutor's Office. These repeated charges led to an impasse between two state powers that can hardly be imagined in any developed country: Berlusconi neither stepped down nor was he able to curb the prosecutors' autonomy.¹⁶²

¹⁶⁰ A blatant example of such pressure is represented by the ministerial inspections sent by the first Berlusconi cabinet to the Milan's Prosecutor's Office in 1994 and 1995 in an attempt to sabotage the anti-corruption ongoing investigations ("Mani Pulite") of that office (Travaglio, n.d.). In most cases, though, such undue pressures take place more covertly and with the acquiescence of the magistrates.

As already mentioned, the Rome Prosecutor's Office was long known by the nickname of "porto delle nebbie," i.e. "the fog port", because many local prosecutors and judges had close links with politicians of the majority parties and did not press charges against them or their patrons. For the acquiescence of a large part of the judiciary to the dominant political class until the 1960s, see Di Lello (1994).

¹⁶¹ See also Paoli (2003) for a general overview of the relationship between mafia organizations and political power.

¹⁶² Berlusconi finally stepped down in November 2011, but he only did it under the pressure of the international markets worried about the euro crisis and Italian public debt, not because of the criminal charges he faced. As a matter of fact, Berlusconi has not yet been found guilty of any

In a similar fashion, the charges raised against three presidents and the secretary general of the Italian National Olympic Committee hardly have any foreign parallel in the field of anti-doping (Procura della Repubblica di Ferrara, 2000). Comparable charges against top sports officials were raised only against the leaders and a few executors of the state doping program in the German Democratic Republic (DDR)—but only after that political regime had collapsed and at the hand of West German prosecutors and judges (Berendonk, 1992; Franke, 1995; Spitzer, 1998). We will probably never know if the high degrees of collusion and involvement in anti-doping activities revealed in the proceeding against Pescante and other CONI officials are uniquely Italian or instead similar practices occurred elsewhere but have never been brought to light by a judicial investigation (Procura della Repubblica di Ferrara, 2000; Tribunale di Ferrara, 2003). In other words, we will never know to what extent the discovery of such high-level collusion is due to the fierce independence of the Italian prosecutors and the moral courage of a few of them, such as Dr. Pierguido Soprani who, based at the Ferrara Prosecutor's Office, led the case against Conconi and Pescante and the other CONI officials amid incredible difficulties. In the field of anti-doping, other very courageous and determined magistrates have been Dr. Giovanni Spinosa, who brought Michele Ferrari to trial and coordinated several early anti-doping investigations in Bologna, and Dr. Raffaele Guariniello, who ordered the searches at the CONI's anti-doping lab in 1998 and at the Turin Olympic Games in 2006 and successfully pressed charges against the chief manager and physician of Italy's most powerful football team, Juventus.¹⁶³

The advantages of Italian prosecutors' independence are evident in the case of the planning of the raid at the 2001 Giro d'Italia by the Florence Branch Office and Prosecutor's Office. The NAS officer who then took charge of the raid visited a Florence

charges raised against him. In several of his proceedings, the statute of limitations expired as well, the last being a bribery case that was thrown out by a court in Milan in February 2012 (Povoledo, 2012). Berlusconi is currently on trial on charges of abuse of power and paying for sex with an underage nightclub dancer (Povoledo, 2012).

¹⁶³ Dr. Guariniello's reputation is not only due to these anti-doping proceedings as he has been a pioneer in many white-collar crime investigations as well. For example, in early 2012 a court in Turin accepted Guariniello's request to sentence the former owner and director of Eternit Italy, the Italian subsidiary of a Swiss-Belgian industrial group, which had produced asbestos in a Piedmont city and other sites in Italy (and elsewhere). Guariniello demanded twenty years in jail for both men, for "causing a continuing disaster in health and environment" and for willfully neglecting safety regulations in the workplace. As Waterman (2012) writes, "he is to be admired for being the first public prosecutor in Europe, perhaps even in the world, to undertake such an important prosecution – and of such breath-taking scale."

Less than one year earlier, Guariniello's investigations had led to the first-degree sentencing of the chief executive of German steelmaker ThyssenKrupp's Italian unit, Herald Espenhahn and five other managers. The court ruled they should be held responsible for a fire that had killed seven workers in 2007. Espenhahn was convicted of murder and sentenced to 16-1/2 years in jail, the other five managers were convicted on manslaughter charges and received 10-year plus sentences and the company was fined €1 million (\$1.45 million; e.g., Associated Press, 2011).

prosecutor, showing him the many syringes and empty drug packages left by the riders and their support personnel in the hotels close to Florence during a Giro stage in Tuscany (Int-NAS-16). He, therefore, suggested that the prosecutor organize searches at the end of a subsequent stage to see what products the riders were effectively using. With the bag containing the retrieved material, the prosecutor immediately made a call to the Florence Chief Prosecutor and came back to the NAS officer after 10 minutes saying: "Yes, we'll do it" (Int-NAS-16). It is hardly imaginable, although we have no direct proof of it, that a raid at one of the largest national sports events would have been decided on in such a speedy and uncomplicated way elsewhere.

This episode, however, also shows a disadvantage of Italian prosecutors' independence, the lack of coordination. In fact, the effectiveness of the Florence NAS Branch Office's raid ended up being undermined by a contemporaneous raid among the Giro riders organized by the Padua Prosecutor's Office. In the small town of San Remo the presence of so many law enforcement officers during the Giro stage did not go unnoticed; noticing the arrival of the police officers, many riders and support personnel probably had the time to get rid of most of the prohibited substances and equipment they were carrying with them (Int-NAS-16; see also NAS Firenze, 2003).

The Council of Europe team that evaluated Italian anti-doping legislation and policy in 2002 also noted the lack of a clear strategy in anti-doping criminal law interventions:

Apart from describing general statutory provisions, Italy's national report does not clearly state Italy's strategy for controlling the import, movement, possession, distribution and sale of banned doping agents. The meetings of the evaluation team with police, judicial and customs representatives during the visit showed that action was being taken in this field and had produced practical results, but its organisation remains vague in the minds of the authors of the national report. Indeed, the positive results noted by some of the people to whom we spoke seemed due more to personal initiatives or random factors than to co-ordinated and systematic organization (Evaluation Team, 2002: 35-6).

Given the lack of prioritization, coordination and evaluation of prosecutorial action, criminal investigations in anti-doping and other fields end up depending to a considerable degree on the good will and dedication of the individual prosecutors, despite the fact that Italy formally subscribes to the so-called principle of legality: accordingly, prosecution is mandatory, unless there is a manifest lack of sufficient evidence to institute a proceeding (Illuminati, 2000: 111). One example will suffice to clarify this point. Even though other Serie A and Serie B football clubs were repeatedly reported to be following Juventus' medical practices that were eventually considered to be doping and sporting fraud by Italy's Supreme Court (Corte di Cassazione, 2007; see also chapters 2 and 3), no other prosecutor has followed in Guariniello's footsteps and launched an investigation on this topic. The arbitrariness is further increased by the fact

that the initial reports of a police force or a citizen are supposed to be assigned by chance to prosecutors, and specifically to the one of them who is "on duty." These arrangements are particularly negative in the specialized and highly technical field of doping. In the interviews, several NAS officers and prosecutors interviewed noted that not all prosecutors are equally interested in anti-doping investigations and some of these are not even familiar with the specialized anti-doping legislation (see infra).

Prosecutor's Offices and Courts: ... and Poor Performance

The "anarchy" of the Italian judicial system is an important element, by no means the exclusive one, to explain the very poor performance of the entire Italian judicial system. Other relevant factors are the personnel shortages, the disorganization of prosecutor's offices and trial courts and, in criminal matters, the generous protections granted to defendants by Italian criminal procedural law.

As for the personnel shortages, it is enough to recall that in 2011 courts and prosecutor's offices lacked on average 15% of their judicial personnel (Severino, 2012). Equally serious was until a few years ago the lack of non-judicial personnel, which, for example, averaged 11% in 2002 (Ministro della Giustizia, 2002: 19-27). Two pieces of information are also sufficient to illustrate the disorganization of prosecutor's offices and trial courts: computerization has proceeded slowly (Conti and Fabri, 2006), albeit with some recent improvements (Severino, 2012) and 2,000 judicial offices are currently spread out over 3,000 buildings, a fact that, according to the Minister of Justice herself, "the country can no longer afford" (ibid.).

The personnel shortages and poor organization of the prosecutorial offices also imply a heavy toll for anti-doping investigations. For example, the Mantua Prosecutor's Office formally charged the Mantua pharmacist and the riders and managers of the elite cycling team Lampre in April 2012 on the basis of an investigation started in November 2008. After NAS and the consultants concluded their reports in September 2010, the prosecutor in charge of the proceedings needed a year and half just to formalize his charges and submit them to the judge for preliminary investigations, due to the lack of administrative support and other tasks. Likewise, as we have seen in the prologue, it took the Turin Prosecutor's Office over two years to formally charge the Austrian athletes and their support personnel for the possession of the doping substances and equipment found during the raid at 2006 Turin Olympics and the competent court issued a first-degree verdict only in July 2012 (Int-Pro-1; Adnkronos, 2012). Considering the fact that the statute of limitations period is set at five years for the offenses foreseen in article 9 of Act 376/2000 from the moment of the commission of the offense and three stages of trial foreseen by Italian procedural code, chances are high that no final conviction will be issued in either the Mantua or Turin proceeding because the statute of limitations has expired.

The generous protections to defendants are a consequence of the introduction of a new code of criminal procedure in 1989. This reform was meant to introduce a fullyfledged accusatorial system into a Continental legal system, but it came up against the reluctance of the judges and prosecutors working in the system to lose control of the trial. The result was, according to Nelken (2004: 13-4), that

the new protections for the accused that characterise the adversarial system were simply added to the previous ones characteristic of the older inquisitorial type of system. The system now seeks to incorporate protections designed to foreground the forensic heat of the adversarial trial together with reliance on double checking by different judges in the three stages of trial that include the right to a full rehearing of the facts on appeal. Even relatively trivial criminal cases can need to be viewed by as many thirty people with legal training. Bureaucratic procedural requirements include complex notification rules for all parties to the trial that can be easily manipulated if the accused changes his address or lawyer regularly. What this means is that there is little incentive for lawyers to use any of the alternatives to trial. By holding out and exploiting all procedural rights there is a good chance that the case will be timeblocked before it runs its full course of all three trial stages (see also Davigo and Sisti, 2012).

The code of criminal procedure also sets complicated rules to establish which judge has territorial jurisdiction to hear a case (articles 8 and 9).¹⁶⁴ On the basis of these rules, anti-doping proceedings, as much as other criminal proceedings, are often split in several tranches, each to be heard by a different court. In such a way, the overall picture reconstructed by police officers and prosecutor often gets lost, and courts have trouble understanding the larger context within which the conduct of "their" defendant took place. In particular, because of the frequent fractioning of anti-doping proceedings, it becomes very difficult to prove the existence of a criminal organization between defendants tried by different courts (Int-NAS-25 and 26).

According to the data reported by the Italian Minister of Justice Paola Severino (2012), as of June 2011 there were over 9 million judicial proceedings waiting for trial. Whereas the number of criminal law proceedings waiting for trial is "only" 3.4 million and is thus considerably lower than the 5.5 million civil law proceedings, the consequences of this backlog are particularly dire. In fact, 28,000 people are being held in prisons while awaiting trial, amounting to 42% of the whole prison population (ibid.). According to Severino, a civil law proceeding lasts on average seven years and three months and a criminal law case four years and nine months.¹⁶⁵ Writing in 2004, Di Federico (2004: 10) noted that a considerable number of criminal proceedings last more

¹⁶⁴ The code can be consulted online: http://www.altalex.com/index.php?idnot=2031

¹⁶⁵ The Bank of Italy estimates that the inefficiency of the civil judicial system has a negative impact on the overall GDP corresponding to 1% (quoted in Severino, 2012).

than 10 years, and 130,000 criminal proceedings had been thrown out of court in 1998 alone under the statute of limitations. Against this background, it becomes more understandable why defendants who can afford good lawyers—starting with former Prime Minister Berlusconi, who is Italy's richest man, but including also the physicians, pharmacists and sports officials involved in anti-doping proceedings—can escape convictions by having their cases thrown out of court under the statute of limitations.

Among the nations of the European Union, Italy has always received, year after year, by far the highest number of monetary sanctions for the violations of article 6, section 1 of the European Convention on Human Rights, which requires that judicial proceedings be terminated in a reasonable time (ibid. and CEPEJ, 2010). As late as 2008, the last year for which the data are available, Italy was condemned 54 times, a fact that, according to the European Commission for the Efficiency of Justice (CEPEJ, 2010: 141), "reveals that the structural difficulties of this state have not been solved so far." Reflecting on the poor performance of the Italian judicial system, the then Prosecutor General at the Naples Court of Appeals, Renato De Tullio (2002: 14-15), noted that this situation generates "the certainty of impunity in criminal matters and the uselessness of judicial interventions in civil matters, which is what is hoped by offenders and debtors and feared by victims and creditors." Despite the touch of Southern Italian emphasis, it is hard to disagree.

Offenses, Suspects, Defendants and Verdicts

In this section, we attempt to quantify Italy's criminal action against doping. We consider first the offenses reported and charged, the number of suspects and defendants and outcomes of the anti-doping criminal proceedings initiated in Italy.

Offenses and Suspects Reported by NAS

As already mentioned, NAS reported 3,794 suspects to public prosecutors and arrested 446 persons for doping-related offenses in the period 2000-2011. Interestingly, the suspects were reported or arrested not only for the offense of doping, trade in doping products or sporting fraud but for many other offenses, few of which are associated in the scholarly literature with doping. Our Database on NAS Investigations does not always provide the number of suspects reported or arrested for each offense but shows how frequently the different offenses were referred to in the 80 investigations listed. After the offenses of doping and trade in doping products, which were resorted to in 58 investigations, the most frequently applied offense was "receiving" (article 648 CP), which was mentioned in 40 investigations, followed by the "administration of drugs in a dangerous way for public health" (article 445 CP) and the "illegal exercise of a profession" (article 348 CP), which were used in 32 and 31 cases respectively (see table 7.3). Reports were also done in 25 investigations for two successive legislative decrees implementing different European directives concerning medicinal products for human

| | - | No. |
|--|---|-----|
| Offenses foreseen by th | e Criminal Code | |
| Article 314 CP | Embezzlement | 4 |
| Article 322 CP | Instigation to corruption | 1 |
| Article 326 CP | Revelation of government secrets | 1 |
| Article 348 CP | Illegal exercise of a profession | 31 |
| Article 379 CP | Aiding and abetting | 1 |
| Article 416 CP | Criminal organization | 18 |
| Article 443 CP | Trade or administration of tainted drugs | 13 |
| Article 445 CP | Administration of drugs in a dangerous way to public health | 32 |
| Article 469 CP | Counterfeiting of stamps of public authentication or certificates | 1 |
| Article 476 CP | "Falsità materiale" (alteration or forgery of documents) committed by the civil servant in public acts | 1 |
| Article 477 CP | "Falsità materiale" (alteration or forgery of documents) committed by the civil servant in administrative certificates or authorizations | 7 |
| Article 483 CP | "Falsità ideologica" (making false statements) committed by a private person in a public act | 2 |
| Article 586 CP | Death or injury as a consequence of other crime | 1 |
| Article 624 CP | Theft | 5 |
| Article 640 CP | Fraud | 11 |
| Article 648 CP | Receiving | 40 |
| Offenses foreseen by sp | ecial acts | |
| Article 9 of Act 376/2000 | Doping | 58 |
| Article 9 of Act 401/1989 | Sporting fraud | 5 |
| Article 73 DPR 309/1990 | Illicit production, trafficking and detention of narcotics or psychotropic substances | 18 |
| Article 282 and 295 of DPR 43/1973 | Consolidated text of the legal provisions concerning customs ("Smuggling in the movement of goods across land borders and customs points" and "Aggravating circumstances of smuggling") | 2 |
| Article 6, 8 and 23 of Legislative Decree 178/1991 Article 6, 50 and 147 of | Implementation of European Commission's Directives concerning medicinal products for human use (later repealed by Legislative Decree 219/2006) Implementation of European Commission Directive | 20 |
| Legislative Decree 219/2006 | 2001/83/CE (and successive amendments) on the community code relating to medicinal products for human use and of Directive 2003/94/CE laying down the principles and guidelines of good manufacturing practice in respect of medicinal products for human use | 5 |

Table 7.3 Offenses reported in the Database on NAS Investigations – 2000-2009

Source: Database on NAS Investigations (2012).

use (Legislative Decrees 178/1991 and 219/2006) and in 18 cases for the consolidated act on illegal drugs (DPR 309/1990 and successive amendments). More rarely, NAS investigators also proposed prosecutors to apply several other offenses.

Proceedings Initiated and Persons Charged

According to data calculated by the Italian Statistical office (Istat) for this report, 313 criminal proceedings were initiated by the prosecutor's offices, among others, for the offense of doping foreseen by Act 376/2000 between 2001 and 2009, 35 on average per year. Over the years, there has been a considerable increase in the number of proceedings: whereas only 14 proceedings were initiated on average in the period 2001-2005, this figure grows to 61 for the period 2006-2009 (see table 7.4). Throughout the period, the same number of proceedings approximately involved charges under section 1 (generic doping offenses) and 7 (illegal trade in doping substances) of article 9 of the Act 376/2000: 150 versus 163. We do not know, however, the exact number of the offenses charged.

In total, 286 persons were charged for the offense of doping and/or less serious related offenses, on average 32 persons per year throughout the period 2001-2009 (see table 7.4). By comparing the number of defendants for whom doping was the most serious offense charged¹⁶⁶ in the periods 2001-2005 and 2006-09 we note the same increase in prosecutorial action noted for the proceedings: there were 16 such defendants on average per year in the first period and 51 in the second.

From 2006 onwards we also know the exact number of persons charged (whereas until then only the most serious offense was recorded for each defendant). In total 683 persons were charged for doping in the period 2006-09, 253 for the generic offenses foreseen by the first section and 430 for the trade in doping products foreseen by the seventh. On average, during these four years, 171 people were charged, 63 for the first section and 108 for the seventh. This datum is interesting in two ways. First, it shows that quite a considerable number of people are charged for doping offenses on a yearly basis. Second and quite unexpectedly, more people were charged for the illegal trade in doping products than for the more frequent and less serious conduct prohibited by section 1 of article 9. This second finding is however less surprising than it seems at first. In fact, the offenses foreseen under the first section of article 9 focus on athletes and their support personnel and must be aimed at enhancing performance. In contrast, the offense of trade in doping products covers the entire spectrum of the market, including the transactions targeting body-builders and other non-competitive users.

¹⁶⁶ Istat can also only provide data about the persons charged for the most serious offense in each proceeding until 2006. This means that all the defendants of that proceeding are associated with the most serious offense, even if they were not charged for it.

| | Section 1 | | | | Section 7 | | | Total | |
|-----------------|-------------|----------------------|-----------------------------------|-------------|----------------------|-----------------------------------|-------------|----------------------|-----------------------------------|
| | Proceedings | Persons charged A | Exact no. persons charged B | Proceedings | Persons charged A | Exact no. persons charged B | Proceedings | Persons charged A | Exact no. persons charged B |
| 2001 | 1 | 2 | | 0 | 0 | | 1 | 2 | |
| 2002 | 3 | 2 | | 1 | 3 | | 4 | 5 | |
| 2003 | 9 | 4 | | 9 | 7 | | 18 | 11 | |
| 2004 | 14 | 11 | | 8 | 7 | | 22 | 18 | |
| 2005 | 10 | 15 | | 15 | 30 | | 25 | 45 | |
| 2006 | 31 | 36 | 76 | 42 | 30 | 156 | 73 | 66 | 232 |
| 2007 | 19 | 7 | 40 | 34 | 28 | 116 | 53 | 35 | 156 |
| 2008 | 27 | 21 | 73 | 22 | 25 | 44 | 49 | 46 | 117 |
| 2009 | 36 | 23 | 64 | 32 | 35 | 114 | 68 | 58 | 178 |
| Total 2001-09 | 150 | 121 | n.a. | 163 | 165 | n.a. | 313 | 286 | n.a. |
| Average 2001-09 | 17 | 13 | n.a. | 18 | 18 | n.a. | 35 | 32 | n.a. |
| Total 2001-05 | 37 | 34 | n.a. | 33 | 47 | n.a. | 70 | 81 | n.a. |
| Average 2001-05 | 7 | 7 | n.a. | 7 | 9 | n.a. | 14 | 16 | n.a. |
| Total 200609 | 113 | 87 | 253 | 130 | 118 | 430 | 243 | 205 | 683 |
| Average 2006-09 | 28 | 22 | 63 | 33 | 30 | 108 | 61 | 51 | 171 |

Table 7.4 Number of criminal proceedings including the offenses foreseen by article 9, section 1 or 7 Act 376/2000, number of persons charged for whom one of the offenses was the most serious offenses charged (A) and exact number of persons charged for each offense (B)– 2001-2009

Source: Istat (2012).

Table 7.5 Number of criminal proceedings including the offenses foreseen by Act 401/1989 and articles 348 and 445 of the Italian Criminal Code, number of persons charged for whom one of the selected offenses was the most serious offense charged (A) and exact number of persons charged for each offense (B)–1990-2009

| | Article 1 Act 401/1989 | | | Article 348 CP | | | Article 445 CP | | |
|-----------------|------------------------|----------------------|-----------------------------------|----------------|----------------------|-----------------------------------|----------------|----------------------|-----------------------------------|
| | Proceedings | Persons charged A | Exact no. persons charged B | Proceedings | Persons charged A | Exact no. persons charged B | Proceedings | Persons charged A | Exact no. persons charged B |
| 1990 | 0 | 0 | n.a. | 181 | 200 | n.a. | 3 | 1 | n.a. |
| 1991 | 0 | 0 | n.a. | 293 | 345 | n.a. | 6 | 9 | n.a. |
| 1992 | 0 | 0 | n.a. | 396 | 496 | n.a. | 9 | 7 | n.a. |
| 1993 | 0 | 0 | n.a. | 402 | 499 | n.a. | 3 | 5 | n.a. |
| 1994 | 0 | 0 | n.a. | 537 | 643 | n.a. | 9 | 7 | n.a. |
| 1995 | 24 | 6 | n.a. | 633 | 716 | n.a. | 6 | 7 | n.a. |
| 1996 | 27 | 30 | n.a. | 498 | 579 | n.a. | 8 | 20 | n.a. |
| 1997 | 21 | 66 | n.a. | 651 | 706 | n.a. | 19 | 13 | n.a. |
| 1998 | 39 | 9 | n.a. | 588 | 674 | n.a. | 18 | 7 | n.a. |
| 1999 | 27 | 21 | n.a. | 596 | 747 | n.a. | 30 | 18 | n.a. |
| 2000 | 33 | 3 | n.a. | 440 | 537 | n.a. | 12 | 4 | n.a. |
| 2001 | 75 | 33 | n.a. | 645 | 657 | n.a. | 22 | 17 | n.a. |
| 2002 | 69 | 54 | n.a. | 577 | 626 | n.a. | 27 | 17 | n.a. |
| 2003 | 129 | 30 | n.a. | 650 | 722 | n.a. | 18 | 9 | n.a. |
| 2004 | 129 | 39 | n.a. | 673 | 748 | n.a. | 28 | 10 | n.a. |
| 2005 | 207 | 96 | n.a. | 703 | 810 | n.a. | 29 | 12 | n.a. |
| 2006 | 46 | 42 | 94 | 719 | 718 | 1,162 | 55 | 15 | 199 |
| 2007 | 82 | 83 | 148 | 925 | 889 | 1,320 | 32 | 18 | 82 |
| 2008 | 98 | 86 | 183 | 831 | 790 | 1,145 | 37 | 17 | 73 |
| 2009 | 137 | 131 | 236 | 942 | 936 | 1,469 | 28 | 9 | 36 |
| Total 1990-2009 | 1,143 | 729 | n.a. | 11,880 | 13,038 | n.a. | 399 | 222 | n.a. |
| Aver. 1990-2009 | 57 | 36 | n.a. | 594 | 652 | n.a. | 20 | 11 | n.a. |
| Total 2001-09 | 972 | 594 | n.a. | 6,665 | 6,896 | n.a. | 276 | 124 | n.a. |

| Average 2001-09 | 108 | 66 | n.a. | 741 | 766 | n.a. | 31 | 14 | n.a. |
|-----------------|-----|-----|------|-------|-------|-------|-----|----|------|
| Total 200609 | 363 | 342 | 661 | 3,417 | 3,333 | 5,096 | 152 | 59 | 390 |
| Average 2006-09 | 91 | 86 | 165 | 854 | 833 | 1,274 | 38 | 15 | 98 |

Source: Istat (2012).

Between 1990 and 2009, 1,143 proceedings were initiated under article 1 of Act 401/1989 and 729 persons were charged in a proceeding in which the offense of sporting fraud was the most serious offense charged, on average 37 proceedings and 86 persons per year (see table 6.5). As in the case of doping offenses, there has been an increase in prosecution in the period 2006-2009. In fact in those four years, we know that on average 91 proceedings were initiated and 86 people were charged, for whom sporting fraud was the most serious offense. For the period 2006-2009 we also know the exact number of people charged with sporting fraud, namely, 661, corresponding to 165 each year. However, we do not know exactly how many of these proceedings and persons charged are related to doping, even if the previous analysis has shown that particularly before the passage of Act 376/2000 the offense of doping fraud was used to prosecute doping practices.

The same caveats apply to the data concerning the two articles of the criminal code most closely related to doping, "administration of drugs dangerous to public health" (article 445 CP) and "abusive exercise of a profession" (article 348 CP). In the period 2006-2009, 3,417 and 153 criminal proceedings included either the first offense or the second offense (854 and 38 on average per year, respectively) and 5,096 and 390 persons were charged (on a yearly basis 1,274 and 98, respectively). However, a large number of them— in the case of article 348 the overwhelming majority—are not related to doping, and the data provide no clues to differentiate the doping-related proceedings from those that are unrelated.

Court Verdicts

It is not exactly known how many convictions Italian courts have handed down for doping and related offenses. Istat records only final convictions and according to its data there was no final conviction for doping in the years 2007-2009. This outcome is not surprising considering the fact that few anti-doping proceedings were started before 2004 because of the uncertainties concerning the list of doping substances and methods (which was first published in late 2003; see Centamore, [2011]: 40) and that a criminal proceeding lasts on average four years and nine months (Severino, 2012). In other words, many of the antidoping proceedings reviewed in chapters 3, 4 and 5 have not yet gone through all three levels of Italy's court system. Moreover, we know from other sources, including our interviewees (Int-Pro-1-7), that several courts have handed down several convictions and acquittals in the first instance even if we lack a full picture. In particular, the 30 respondents to Centamore's survey indicated that at least 30 convictions under article 9 of Act 376/2000 were issued in the period 2001-2007 in their judicial districts (17 in district of the Padua Prosecutor's Office, and nine and four in the districts of the Florence and Milan Court of Appeals, respectively). Centamore's respondents also added that the trial ended with the acquittal of the defendants in at least four other cases (Centamore, [2011]: 57-58). Our interviewees (Int-NAS-16; Int-Pro-5) also indicated other non-final convictions for

doping offenses, for example the four month suspended prison sentence and €4,000 fine imposed on football player Fernando Couto in 2007 (AFP, 2007), and the conviction of the masseur of the Mercatone cycling team who had been caught with doping substances during the 2001 Giro d'Italia raid in San Remo (Tribunale di San Remo, 2005).

To our knowledge, the additional sanctions foreseen by the third section of article 9 have been applied only once, in the first-degree verdict of the Bologna Court against Michel Ferrari (Tribunale di Bologna, 2004).

From Istat data, we know that in the period 2007-2009 Italian courts issued 50 final verdicts for sporting fraud (see table 7.5). In particular, in 17 verdicts courts imposed only a fine and in three others, a prison sentence shorter than a month. There were also some heavy sentences, though, including five of imprisonment between 5 and 10 years and ten of more than 10 years of imprisonment. We do not know, however, how many of these verdicts effectively concern doping as opposed to other cases of sporting fraud.

Table 7.5 Persons convicted with a final verdict for the offense of sporting fraud and related penalties* - 2007-2009

| | Fine | < 1 month | 2-3 years | 5-10 years | > 10 years | Total** |
|-------|------|-----------|-----------|------------|------------|---------|
| 2007 | 6 | 2 | | 2 | 4 | 18 |
| 2008 | 10 | 3 | | 2 | 4 | 25 |
| 2009 | 1 | | 1 | 2 | 2 | 7 |
| Total | 17 | 3 | 1 | 6 | 10 | 50 |

Source: Istat (2012).

*We report only the classes of penalties for which a verdict was listed.

**The total number of persons convicted is higher than the sum of the individual penalties because not all verdicts specify a sentence for each separate offense.

From both the interviews and the proceedings collected, we also know that at least 20 bargaining agreements (in lieu of conviction) were made over the past years for the offenses of doping or trade in doping products, including in the proceedings resulting from the 2001 raid at the Giro d'Italia and those known as "Oil for Drug", "Athena" and "Triamin" (Int-NAS-1, 2, 3, 9, 10, 13, 14 and 16; Tribunale di San Remo, 2005; Tribunale di Bergamo, 2010). Centamore's respondents also reported that the prosecutors and defendants had reached bargaining agreements in at least six proceedings involving the same offenses (six in districts of the Florence Court of Appeals and one in Padua district; see Centamore, [2011]: 57-58). A bargaining agreement (*patteggiamento*) is a form of diversion: it consists of an exchange between a reduced sentence and the defendant's waiver of the trial that is approved and issued by a judge. The sentence is to be reduced up to one-third of the applicable sentence, provided the latter does not exceed five years of imprisonment. *Patteggiamento* is similar to the U.S. plea bargain but it differs from the latter in that the defendant in Italy is not required to plead guilty. Therefore, the court verdict that imposes the sentence agreed by the two parties is not a conviction, since the

prosecutor does not prove the defendant's guilt during the trial and the judge, notwithstanding his supervision of the agreement, only summarily ascertains the offense (Illuminati, 2002: 116-18; Davigo and Sisti, 2012: 126-36).

The 30 respondents in Centamore's survey also indicate that at least 83 anti-doping proceedings (with charges based on article 9 of Act 376/2000) were suspended in the period 2001-07 due to lack of sufficient evidence or the statute of limitations (Centamore, [2011]: 57-58). In the previous chapters, we also noted the devastating effects of the statute of limitations on several prominent and less prominent anti-doping proceedings. Some of them did not even end with a verdict, whereas in other cases convictions in the first instance were not confirmed by higher courts. For example, the Ferrara Court had to dismiss the proceeding against Prof. Conconi, despite "the seriousness and convergence of all the evidence" (Tribunale di Ferrara, 2003: 46) because the limitation period had begun. The well-documented charges against three CONI Presidents for colluding with Prof. Conconi in distributing drugs in a dangerous way to public health (article 445 CP) did not even reach the court hearing (Procura della Repubblica di Ferrara, 2000). In the case against Dr. Ferrari, the Bologna Court of Appeals did not confirm his conviction in the first instance for sporting fraud due to the limitation period, despite the existence of "an imposing series of circumstantial evidence" (Corte d'Appello di Bologna, 2006). For the same reasons, the Rome Court of Appeals annulled in 2011 the whole proceeding against I.I., fiancé and manager of the female body-builder who had died in Rome in 2004, after I.I. had received a six-year prison sentence in the first instance for the abusive exercise of a profession and the administration of dangerous drugs (article 348 and 445 CP; Gazzetta di Modena, 2012).

On the basis of the more precise data provided by NAS and Istat, we can thus confirm the conclusions reached by Centamore in his evaluation of Italian anti-doping criminal legislation. On the one hand, the number of proceedings initiated is "relatively high." On the other hand, the majority of these proceedings "do not end with a verdict but are terminated for different reasons. Among them, in addition to the difficulty of collecting hard evidence, procedural impediments are presented, some of which are probably related to the beginning of the limitation period" (Centamore, [2011]: 61).

Although the Italian judicial system is hardly able to exercise its fundamental function of sanctioning illegal behaviors, our judgment is not entirely negative. As Giuseppe Maria Berruti (2011), a high-level Italian judge, notes, criminal prosecution has become "a means of social knowledge" and therefore exercises an important "sociological function", so much so that Berruti speaks of a "nemesis of the [Italian] criminal trial": "the trial hardly convicts or acquits [its defendants]. It does not have the time. Rather, it makes facts known even beyond their juridical relevance. It makes people discuss and reflect."

This positive, albeit residual, function of law enforcement is particularly evident in the case of doping. Even when they do not end in a final conviction, Italian anti-doping criminal investigations provide the necessary evidence for successful disciplinary proceedings under sports rules. This point is vividly shown by the statistics produced by Ulrich Haas (personal communication, 2012), based on the cases he has reviewed as judge at CAS. Accordingly, Italy is virtually the only country initiating proceedings against athletes' support personnel, with over 90% of such cases. During an informal conversation, Haas made an important point: Italian law enforcement agencies are very good in collecting the evidence, as they can conduct criminal investigations on doping matters. They are very slow in processing the cases, so that the statute of limitations runs out on many of them. From the perspective of sports arbitration, however, it is not relevant whether the Italian criminal proceedings end with a conviction or not. Rather it is important that sports federations and CAS receive information. From this point of view, Haas concluded, Italy is very effective.

As we will discuss in the final chapter, these observations further indicate the potential of close cooperation between law enforcement and anti-doping agencies.

The Challenges of Anti-Doping Law Enforcement

We identify five main sets of difficulties faced by the current anti-doping law enforcement in Italy in addition to the fundamental challenge deriving from the inefficiency of the Italian judicial system, which we have discussed in detail in the previous pages. The first challenge set concerns the Act 376/2000 and related legislation; the second set results from prosecutors' and judges' insufficient knowledge of the problem of doping and anti-doping legislation; the third is due to the limited cooperation with sports authorities, the fourth concerns CVD's role in Italy's anti-doping policy and the fifth relates to the problems of international police and judicial cooperation. In dealing with first four domestic challenges, we first summarize the opinion of our respondents and then present our own position and make recommendations to Italian policy-makers. For the final challenge, we discuss the difficulties faced by Italian law enforcement agencies and prosecutors but wait to discuss our recommendations until the final chapter, when we consider the lessons to be learned from this case study.

The Shortcomings of Act 376/2000

As mentioned earlier, specialized prosecutors and law enforcement officers are unanimous in assessing very positively Act 376/2000 and emphasizing that it has significantly enhanced anti-doping investigations in Italy. They thus only criticize—or better suggest how to improve—some specific aspects of the act. A few NAS officers and prosecutors (Int-NAS-26; Int-Pro-4 and -5) criticize the link that article 9, section 7 of Act 376/2000 makes between the trade in doping substances and the unauthorized trade in legitimate drugs for human use. The latter is, in fact, a mere administrative infraction, and linking article 9, section 7 of Act 376/2000 with it often weakens the criminal prosecution of doping practices, particularly in the eyes of prosecutors and judges who are not experienced in the field of anti-doping (Int-NAS-26). The above-mentioned NAS officer and other respondents (e.g.,

Int-NAS-10, -25 and -26) also regret that Act 376/2000 does not allow the use of undercover agents. They also consider a serious deficiency of the act that it does not allow wiretapping of athletes and their support personnel suspected of anti-doping practices under article 9, section 1 of Act 376/2000. (The act does allow wiretapping for crimes covered by article 9, section 7.) These respondents emphasize that on some occasions wiretapping constitutes the only means to cast light on the illegal practices in the sports world. Along the same lines, the NAS officers and many of the prosecutors interviewed (Int-Pro-2-6) plea for the full equivalence of the illegal trade in doping products with the trafficking of illegal drugs, including the establishment of a specific offense of criminal organization for the purpose of trading in doping products as it already exists for drug trafficking (article 74 DPR 309/1990). The proponents of such change anticipate that, on the basis of the new provision, judges would more frequently authorize wiretapping in anti-doping proceedings than they do now (Int-Pro-3).

The most controversial part of Act 376/2000 is the criminalization of athletes for their use of doping products. Whereas there is no consensus among scholars and policy-makers, most Italian law enforcement officers and prosecutors specialized in anti-doping have no problems with it. As a matter of fact, a few NAS officers and prosecutors (Int-NAS-9; Int-Pro-5) believe that the Italian law does not go far enough. Specifically, they regret that article 9, section 1 of Act 376/2000 does not also allow the criminal prosecution of recreational athletes using doping substances or methods. In fact, in the Italian jurisprudence only athletes enrolled with a sports federation, associated discipline or Ente di promozione sportiva are considered to be addressed by article 9, section 1 of Act 376/2000 (Int-NAS-9; Int-Pro-5). These and other experts (e.g., Dipani, 2004) also regret that the Act 376/2000 provides no incentives to athletes—in terms of a sanctioning benefit or a prosecution waiver—to collaborate with judicial authorities. However, as Guariniello notes, an incentive to collaborate is subordinated to the criminal liability for the consumption (or possession) of prohibited substances.

While we share the latter criticism, we have an intermediate position concerning the criminalization of doping athletes. On the one hand, we recognize an individual right to self-harm, all the more so that this right has long been recognized by the Italian anti-drug legislation, which foresees only administrative sanctions for the possession of illegal drugs for personal use. The longer evolution of illegal drug policies also demonstrates the many harms that result from the criminalization of illegal drug use (e.g., Paoli, Greenfield and Reuter, 2009; Stevens, 2012). On the other hand, athletes using doping products do not only harm themselves but also cheat and manipulate the results of sports competitions— conduct that justifies the criminalization of doping athletes. We would thus be in favor of repealing the criminalization of athletes using doping products only if the offense of sporting fraud would be reformulated (in Italy or introduced in other countries), in such a way that the doping athletes could be charged and sentenced for sporting fraud instead of doping. (Along similar lines, Rössner (2009; 2011) has called for the introduction of the

offense of sporting fraud through doping in Germany. Rössner also wrote a bill containing such an offence, which the Bavarian Minister of Justice Beate Merk presented to the German Second Chamber in 2007 without finding a supporting majority.)

In our view, another weakness of Act 376/2000, which no interviewee mentioned, derives from its focus on doping in elite sports. The criminal provisions of Act 376/2000 were not inspired by the awareness of the spread of doping practices in the recreational sports world, did not anticipate the mass distribution of doping substances via the internet and therefore do not mention the import of these substances from abroad or address the law enforcement officers' difficulties in securing proof from abroad to back charges in Italy (Int-NAS-26; see also infra).

Prosecutors' and Judges' Insufficient Knowledge of Doping and Anti-Doping

As both NAS officers and the prosecutors themselves testify, single prosecutors and judges differ significantly in their awareness of the problem of doping and in their familiarity with the anti-doping legislation. Answering a specific question of the questionnaire sent by the NAS Headquarters, nine out of 38 branch offices declared that even the introduction of Act 376/2000 had not stimulated a growing interest of the judiciary in the topic of doping. During the interviews, a few NAS officers recalled that they had reported doping-related offenses to the prosecutors with jurisdiction without ever receiving any feedback (Int-NAS-8, 9 17 and 18). A few years back, the Council of Europe Evaluation Team (2002: 36) also observed that "[police] co-operation with the judiciary seems quite difficult to achieve in certain cases."

More generally, NAS officers stress that there are considerable differences between prosecutor's offices and individual prosecutors in terms of their interest in anti-doping investigations and that it is crucial to identify an interested and competent prosecutor to work with for the success of an investigation (e.g., Int-NAS-10, 16, 25 and 26). Even five out the seven prosecutors interviewed (Int-Pro-1, 2, 3, 4 and 5) confirm that many of their colleagues and judges have difficulties understanding the dynamics and harmfulness of the distribution, administration or consumption of doping products. For example, whereas they all understand the simplest cases of doping, such as the use of stimulants before a competition to enhance performance, many prosecutors and judges have troubles recognizing a hormone-based treatment during training as a doping offense under article 9, section 1 of Act 376/2000, as the hormone treatment only boosts an athlete's performance indirectly and cumulatively (Int-Pro-3). One of our interviewees, a chief prosecutor, recalls that he once had to secure the coordination of an anti-doping investigation that a younger colleague was terminating without realizing its relevance and potential (Int-Pro-4).

Prosecutors and judges have themselves expressed the need to receive training on anti-doping; to start fulfilling this demand, CVD and CSM jointly organized in 2008 a specialized training course of both groups. All together, 64 magistrates attended the course—and all of them appreciated it (Int-Pro-2 and -6 and personal communication to

Donati, who was one of the course lecturers). A new course is planned for December 2012 (Ministero della Salute, 2010c).

Fully aware of the technical knowledge necessary to master complicated proceedings on doping or health issues, Dr. Guariniello from the Turin Prosecutor's Office has repeatedly suggested the establishment of nation-wide prosecutor's offices specialized in health matters and work-related injuries, modeled after the existing Direzione Nazionale Antimafia, a body in charge of coordinating anti-mafia investigations throughout Italy (e.g., *Repubblica*, 2011). Guariniello's ideas are not uncontroversial among his colleagues (e.g., Int-Pro-5). Answering a specific question about the idea of establishing sections specialized in anti-doping investigations in Centamore's survey, none of the seven respondents supported the proposal. Most of them argued that there are not sufficient anti-doping proceedings to justify such a step (Centamore [2011]: 55-60). Dr. Guariniello himself realizes that the establishment of specialized sections is feasible only in the larger prosecutor's offices as there is no room for specialization in the smaller ones. That is why he suggests the idea of establishing a national specialized prosecutor's office on health issues.

We support Dr. Guariniello's proposal, which goes in the same direction of specialized prosecutor's offices established in other countries or territories, such as Austria and, in Germany, the states Bavaria (Gräber, 2011) and Baden-Württemberg (Justizministerium Baden-Württemberg, 2012). As long as such a specialized prosecutor's office is not established, the training of police officers, prosecutors and judges remains the main venue to raise the awareness of the problem of doping and spread some detailed knowledge about the criminal law instruments available.

Under the current system, prosecutors and judges are largely dependent on NAS officers and/or external consultants for specialized knowledge. NAS themselves may need to resort to consultants given the wide array of doping substances and methods, and the need to reconstruct the effects pursued by the users, the side effects, the therapeutic and doping dosages of each product and different combinations of products in a criminal proceeding. The task of these consultants is to make sure that evidence is collected in a systematic and incontrovertible way so that it can withstand the challenges of the defense lawyers. In prominent trials, the latter also appoint consultants with the main task of questioning the solidity of the evidence collected by the police and prosecutor.

Selecting competent and independent consultants is not an easy matter. Even if they are university professors, those who are knowledgeable about doping products mostly have close contacts with the sports world and therefore know athletes, physicians, team managers or sports federation officials who might be interested directly or indirectly in the proceeding. A further difficulty arises from the fact that in important proceedings, defense lawyers can afford to pay much higher fees to consultants than the prosecutor's offices or courts can. As a result of this gap, defense consultants are often considerably more experienced than those of the prosecution. In more than one case, consultants initially working for the prosecutor's offices or courts were later hired by defense lawyers, thus sharing an insider's knowledge of the prosecution strategies with the latter (Int-Pro-1, 3, 4).

As mentioned earlier, consultants' expertise has not yet been fully exploited in many anti-doping proceedings in Italy. Perhaps due to limited funds, many prosecutors tend to engage consultants only for specific aspects and at the end of the investigations carried out by the police, thus losing much precious input that the consultants might have given in earlier phases (Int-Pro-1). As Guariniello has suggested, we believe that it is crucial to engage trusted and competent consultants from the early phases of anti-doping investigations.

The Limited Cooperation between Sports Bodies and Law Enforcement Agencies

Even leaving aside the cases of sports bodies' open protection of doping in elite sports discussed in chapter 5, several NAS officers (e-.g., Int-NAS-9, 25, 26) and prosecutors (e.g., Int-Pro-1 and 3) still lament the persistent lack of collaboration on the part of some sports federation and other sports body officials.

The cooperation between sports bodies and CONI, on the one hand, and police and prosecutor's offices, on the other, seems to have improved slightly in more recent years. As already mentioned, CVD and CONI automatically report all cases of athletes testing positive to the Rome Prosecutor's Offices. In Centamore's survey, the representatives of six prosecutor's offices indicated that they had initiated some recent anti-doping proceedings on the basis of reports by the sports federations (Centamore [2011]: 59). Despite these positive examples, Centamore concludes that "the limited reporting of all concerned parties is regarded as one of the major reasons for the difficulties in the prosecution. This is above all to be explained with the fact that the cooperation between federations and the government agencies is not trouble-free" (ibid.: 61).

Both NAS officers and prosecutors are very interested in a closer cooperation with sports federations and CONI, rightly pointing out that both parties could draw advantages from it (e.g., Int-NAS-1, 9, 10, 16, 25 and 26; Int-Pro-1 and 6). On the one hand, sports bodies are much quicker in dealing with anti-doping proceedings, and the latter's sanctions are usually more certain and effective: a two-year ban from competitions imposed after a few months can "hurt" an elite athlete much more than a two-year suspended prison sentence imposed five or six years after the fact. On the other hand, Italian police and prosecutors have much more effective means to collect evidence which can be also used in sports anti-doping proceedings. We obviously share these views.

CVD's Deficient Coordination of Italy's Anti-Doping Policy

As we have seen earlier, since 2008 CVD has progressively established a close pattern of cooperation with NAS, with a high representative of the latter being a formal CVD member (Int-NAS-26). Whereas this cooperation is undoubtedly positive, it is less praiseworthy that since its establishment in 2001, CVD has not yet sought contact with other police forces, in

particular with customs, which carry out numerous seizures of doping substances at the borders. The present study, for example, constitutes the first attempt to monitor antidoping criminal action in Italy and its outcomes. CVD has never required Italy's police forces to submit data about the seizures of doping products nor requested the Italian Ministry of Justice or Istat data about the number of indictments and verdicts filed for doping-related offenses (Int-Oth-1).

In our opinion, CVD should become responsible for the monitoring of anti-doping criminal action against doping, regularly inviting all parties to take part in meetings to exchange data and views about successes and impediments.

Even though conflicts of interest have overshadowed the appointment of several CVD members (see chapter 5), we further believe that CVD, as an agency of the Ministry of Health, is much better placed to organize anti-doping tests than CONI. We thus propose to repeal the 2007 agreement between the then Minister of Health, Minister of Youth and Sports Activities and CONI President and to go back to the provisions of Act 376/2000. Such a step would have at least three different benefits. First, unlike in the present situation, no sets of elite athletes would be neglected. Second, CVD could decide on a yearly basis what portions of the anti-doping tests budget would be devoted to the different classes of athletes. Third, the anti-doping tests of all athletes could profit from, and provide input to, criminal anti-doping investigations, strengthening the pattern of cooperation with NAS initiated when Dr. Bellotti and Dr. Pacifici took charge of anti-doping testing.

An institution can never be better than its members. To improve CVD's action and, more generally, anti-doping policies in Italy, it is therefore crucial to appoint as CVD members competent and independent experts who are committed to the control of doping practices and to the minimization of the resulting public health problems; at the same time these experts must be untainted by even the suspicion of a conflict of interest.

The Challenges of International Police and Judicial Cooperation

In addition to the domestic challenges, Italian criminal law action against doping is hampered by the serious difficulties in international police and judicial cooperation. These difficulties result, first of all, from the fact that few other countries in Europe and elsewhere recognize doping as a criminal offense and, if they do so, they only recognize the illegal trade in doping products, but not an athlete's use of performance-enhancing products, as a criminal offense (for a review of the legislation in other countries, see Federal Ministry of the Interior, 2010). Italian prosecutors (Int-Pro-1-7) and NAS officers (Int-NAS-1, 2, 9-11; 16 and 25-26) recall that they often receive negative replies, or no reply at all, from foreign prosecutor's offices, when they send rogatory letters to request the latter's cooperation in an anti-doping investigation. As Dr. Guariniello (2011) noted in a 2011 symposium,

Th[e] discrepancy [in legislation] leads to highly negative effects. We need only consider that doping often constitutes a phenomenon with deep and widespread international

ramifications. It is therefore easy to understand that, during most prosecutions for the crime of doping, it has been necessary to carry out actions in other countries for the success of the investigation and we have therefore sent formal written requests to foreign legal authorities for communication and notification purposes and also for the purposes of evidence-gathering. The outcome of these requests has unfortunately often been disappointing, even in Europe: in some cases the response was inadequate; in others it was late (even years late); in other cases, no response was received at all.

Some prosecutors (Int-Pro-1, 3, 4) have thus even stopped filing rogatory letters or do so only very rarely, to avoid wasting time. In particular, NAS officers (Int-NAS-9 and 11) report that it is very difficult to persuade a foreign judicial authority to shut down a website selling steroids and other doping products to Italian customers. Even in the few cases in which the website is closed, it re-appears after a few days with a new IP address in another country.

Next to the problem resulting from the heterogeneity of national criminal legislation on doping matters, complicated and slow bureaucratic mechanisms further hamper the cooperation between prosecutors in anti-doping and other criminal matters. When a prosecutor wants to request evidence or an investigative act from a foreign counterpart, he (or she) has to submit his (or her) rogatory letter to the Ministry of Justice, which then translates the letter and sends it to its counterpart in the selected country; the latter ministry finally forwards it to the prosecutor's office with jurisdiction. The answers, if sent at all, also go through the same lengthy procedure. According to our Italian interviewees (Int-Pro-1-7 and Int-NAS-1, 2, 9-11; 16 and 25-26), Eurojust, an agency of the European Union set up in 2002 to intensify and facilitate cooperation among the prosecutors of the 27 EU Member States, has only marginally improved the situation. Whereas the Eurojust national members may facilitate the initial contact, the requesting prosecutor still has to write a normal rogatory letter, which follows the usual procedures.

The NAS officers with more international experience (int-NAS-11, 16 and 26) are more positive about their cooperation with colleagues in other countries: over the years, trusted personal relationships have developed, which are often based on the recognition of Italian NAS officers' lengthy experience in anti-doping criminal investigations. As much as possible, these police officers help each other, and since 2009 Interpol's anti-doping section has become a useful reference and connecting point between police officers from different countries involved in anti-doping investigations. However, despite the informal ties, police officers are required to go through the official rogatory channels controlled by prosecutors, when they need evidence for a trial.

In addition to difficulties of the international police and justice cooperation, Guariniello (2011) criticizes the lack of information exchanges on the doping-related case law in different countries:

The newspapers often give an account of criminal investigations brought in this or that country. But it is then virtually impossible to find out the outcome of the proceedings instigated as a result of those investigations. In such cases it would instead be very

useful to exchange procedures and, in particular, verdicts handed down in the field of doping by judges around the world.

In following chapter, we suggest that, among other things, setting up such an international database could become a new task for WADA.

8. SYNTHESIS OF FINDINGS AND LESSONS FOR POLICY-MAKING

The present study draws its main motivation from the growing dissatisfaction of WADA and numerous international and national policy-makers with the traditional anti-doping approach. Whereas the latter has squarely focused on athletes' testing, law enforcement action and intelligence sharing between law enforcement agencies and national anti-doping organizations are now being presented—in the words of WADA President John Fahey—as "the future of anti-doping" (UK Antidoping, 2011).

In this study, we have examined Italy's anti-doping criminal law experience with the general aim of better understanding the production and trade of doping products and exploring the challenges of reducing their supply. Since the late 1990s, in fact, Italy has played a pioneering role in the criminal law control of doping, and numerous investigations have shed light in Italy on different facets of the problem of doping and specifically of the supply of doping products. By analyzing an extensive sample of these primary sources and interviewing over 30 police officers and prosecutors who have been in charge of them, we have mapped the distribution system of doping products from producers to final users in Italy and built a typology of suppliers, identifying their motivations, modus operandi and mutual relationships and assessing their revenues and profits. On the basis of the same and other secondary sources, we have also evaluated the legislative bases, actors and outcomes of Italy's anti-doping criminal law action, identifying a series of challenges that this action faces. To provide necessary context for assessing the supply of doping products, we have also estimated the size and financial dimensions of the Italian market for doping products—to our knowledge our study constitutes the first attempt to estimate these aspects of a national market for doping products.

Conceptually, our starting assumption has been to consider doping in terms of a market, and specifically as a semi-illegal market, at least from the point of view of criminal law. Contrary to what happens in the market for traditional illegal drugs, such as heroin and cocaine, the legal status of most doping products varies contextually. A drug may begin its "life" as a legal product at one end of the supply chain and conclude its "life" as an illegal product at the other. In particular, the effective legal status of a supply-side activity varies along the distribution chain and, for the same activity, from country to country. Even within each country, differences depend on the products exchanged, the final uses of the products, the applicable offenses, and the good faith of some suppliers.

What are the main findings of our case study and, above all, which generic conclusions and lessons can be drawn from Italy's anti-doping criminal law experience for the "future of anti-doping"?
Findings on Italy's Market for Doping Products and Anti-Doping Policy

We summarize below the main findings of our project, organizing them into eight topics: doping products and their harms; our estimates of the numbers of users and the size of the market; the suppliers' main characteristics and types; the distribution chains and market relationships; the role played by organized sports world and organized crime in the supply of doping products; our estimates of the revenues of the overall market for doping products as well as the revenues and profits of the suppliers; the legislation and the institutional actors underpinning Italy's anti-doping policy and the latter's outcomes and related challenges.

Doping Products and their Harms

The Italian market encompasses the full range of the doping substances and methods (i.e., collectively referred to as products) that the IOC, since the late 1960s, and WADA, since 2001, have prohibited in sports. The availability of the substances is proven by the seizures carried out by NAS (the current official denomination is Carabinieri Command for Health Protection). This is a separate unit ("comando"), specialized in health issues, of the Arma dei Carabinieri, one of Italy's two military police forces. During the 11-year period 1999-2009, NAS seized over 7 million packages of doping substances, and we estimate these quantities correspond to over 1,000 kilograms of active ingredients and to 88 million doping doses of these substances.¹⁶⁷ With 83% of the doses, anabolic agents constitute the lion's share of the doping substances seized by NAS. The 88 million figure does not include cannabis and cocaine, which fall outside NAS' competences, even though they are on IOC and WADA's prohibited list. Anti-doping investigations also indicate the frequent administration of doping methods and particularly of autologous and heterologous transfusions.

Additionally, Italy' anti-doping investigations corroborate the findings of the international scientific literature about the harmfulness of the use of doping products. In particular, several key investigations originated from the suspicious death of a young athlete or body-builder suspected of using steroids and other doping products, and at least one court ruling proved the causal connection between the abuse of steroids and the death of a female body-builder. Anecdotal evidence suggests that further harms derive from the frequent, often unsupervised, mixing of different products, including illegal drugs and counterfeited doping substances, and the circumstances of use.

Demand

Despite the persistent international policy focus on doping among the few elite athletes taking part in national or international competitions, doping has become a veritable public health issue. If we consider all substances included in the WADA Prohibited List, we

¹⁶⁷ For the units of measure adopted in calculating the doping doses of the different substances, see chapter 2.

conservatively estimate 253,700 users of doping products in Italy. If we exclude cannabis and cocaine, we reach the lower estimate of 218,700 users. Even the lower figure of 218,700 users of doping products is comparable to the number of heroin misusers estimated in Italy (218,425 people based on a prevalence rate of 5.5 per thousand among residents aged 15-64; Dipartimento Politiche Antidroga, 2011: 78).¹⁶⁸ However it is somewhat lower than the estimated number of cocaine users (353,000 people based on a 2010 past-year prevalence rate of 0.9%) and dramatically lower that the estimated number of cannabis users (over 2 million users of cannabis based on a last-year prevalence rate of 5.2%; ibid., 2011: 8).

In particular, we have identified and estimated two major components of the demand for doping products: athletes who constitute 73% of the users (or 69% if cannabis and cocaine are excluded) and body-builders, who account for 27% (or 31% if cannabis and cocaine are excluded). These estimates are based on different data sources. For athletes, we have relied on the rates of positive results on the total tests carried out by Italy's Anti-Doping Commission (CVD)¹⁶⁹ among recreational athletes, defined as those who take part in sub-national competitions. These rates are about three times higher than the rates on average reported by WADA-accredited Anti-Doping Laboratories (e.g., WADA)¹⁷⁰ and five to six times higher than the latest rates published by the Italian National Olympic Committee (CONI) with reference to its own anti-doping tests (CONI, 2012). In fact, CVD's rates averaged 3.8% in the last two years for which the data are available, 2010 and 2011. We have applied these rates to the Italian Statistical Office's (Istat's) estimate of 4,690,000 athletes aged 15 or older (Istat, 2007: 3), reaching thus an estimate of 184,000 athletes using at least one of the doping substances prohibited by WADA. Excluding those testing positive for cannabis or cocaine, we come up with the lower figure of 150,000 doping athletes.

Whereas we have had no means to estimate separately the number of elite and recreational athletes, we have identified about 10,000 "super elite" athletes: i.e. those who participate or have very good chances of participating in international competitions and are therefore most likely to be targeted by CONI's anti-doping tests. Even if they are most frequently tested—CONI carries out on average 10 times more tests than CVD—the super elite constitute a tiny minority of the total number of athletes and even of those who use doping substances or products. Nonetheless, the super elite athletes who have tested

¹⁶⁸ Our estimate of the number of users of doping products is more than twice as large as the estimated number of heroin users emerging from the last population survey (98,000 people based on a 2010 past-year prevalence rate of 0.25%; see Dipartimento Politiche Antidroga, 2011: 8).

¹⁶⁹ The official Italian name is Commissione per la vigilanza ed il controllo sul doping e per la tutela della salute nelle attività sportive (Commission for the Vigilance and Control on Doping and the Protection of Health in Sports Activities), which is shortened in CVD.

¹⁷⁰ Moreover, CVD's data refer to positive results whereas WADA (2011a: 1) merely reports "adverse analytical findings", from which the cases of users with a Therapeutic Use Exemption need to be subtracted.

positive for doping products, or have been suspected of taking such products but have never been caught, constitute powerful negative role models for the millions of recreational athletes, non-competitive sportspersons and physically inactive people. If they become coaches or officials of sporting organizations, super elite and elite athletes who used doping products during their sporting careers are likely to socialize future generations of promising athletes into accepting such illegal practices.

We emphasize that our estimate of the number of athletes using doping substances is very conservative, as it is based on the results of anti-doping tests of urine samples, which cannot detect many current doping products, such as growth hormone (GH) and gonadorelin. As these tests are taken immediately after competitions, we also underestimate the use of other doping substances consumed out of, rather than in, competition. We also have no means to estimate the number of athletes using doping methods as opposed to doping substances, but we suppose that there are not many athletes who exclusively use the former without the latter.

For body-builders, we base our estimate on a screening of a wide sample of Italy's gyms carried out in 2007 by the Ministries of Sports and Social Solidarity and the findings of many NAS investigations that have targeted gyms. On the basis of these data sets, we conclude that 16.25 of all Italian gyms with body-building equipment have been involved in the distribution of doping substances and that one third of the potential body-builders attending them—about 68,700—use on an occasional or habitual basis doping products, primarily anabolic steroids alone or in combinations with other doping substances (such as stimulants and GH).

We have had no means to estimate the consumption of doping substances among the remaining non-competitive sportspersons and physically inactive people. Despite the lack of clear evidence, we hypothesize that the consumption of doping products among non-competitive sportspeople and those who do not engage in any sport has grown in recent years, as a result of the general medicalization of society and the growing emphasis on performance (e.g., Ehrenberg, 1991; Gasparini, 2004; Hoberman, 2005).

In a preliminary attempt to scope the quantities consumed, we have developed average consumption profiles of 100 hypothetical users of doping substances (excluding cannabis and cocaine), drawing from the extensive experience of a member of the research team (Donati) as coach of several Italian national teams, CONI and CVD official and consultant to over 15 anti-doping criminal investigations. We have had our consumption profiles validated by two Italian experts Dr. Bellotti and Dr. Pacifici, a former and current member of CVD (respectively) with responsibility for anti-doping testing. The bodybuilders' consumption profiles are also consistent with the dosages described in the international literature (e.g., Parkinson and Evans, 2006). With these exceptions, our consumption profiles lack external validation: we thus present them as a work in progress, hoping to obtain feedback and suggestions for improving them from other experts worldwide. On the basis of the 100 profiles, we estimate that on a yearly basis over 371 million doping doses are consumed annually in Italy. Among them, steroids represent the lion's share with 59% of the market, followed by stimulants with 14%. Our calculations also show that body-builders account for a very large share of the market (55%), even if they represent only 31% of the users. Body-builders, in fact, consume steroids and other doping products continuously throughout the year, and some of them take very large dosages, whereas athletes are usually more selective in their choices of doping products and, depending on the products, take them only during training, for a few weeks or months, or just before a competition. Despite their imprecision, these calculations confirm the earlier statement that doping is above all a public health problem and not just a problem of elite sports.

Suppliers

At the risk of some oversimplification, the illegal suppliers of doping products we have singled out from the investigations carried out by NAS and other police forces are mostly male, Italian citizens and, with few exceptions, rarely have criminal records. With the exception of hijackers who steal doping substances from trucks and a few others, most suppliers of doping products also have a legitimate professional position. On the basis of the latter criterion, we have identified ten main types of illegal suppliers of doping products in Italy and grouped them in five main categories, providing detailed examples in chapter 3 for each type. The first category, "gym," consists of the two types of illegal suppliers who are most heavily represented in the investigations considered: gym managers or owners and body-building instructors, on the one hand, and managers or owners of dietary supplement shops, on the other hand. The second category, "health care," consists of four types: pharmacists, physicians, hospital employees and employees or sale representatives of pharmaceutical and para-pharmaceutical companies (including not only manufacturers but also distributors). Two other types, staff members of sports teams and federations compose the third category, which we refer to as the "organized sports world". The fourth category refers to the world of horseracing and includes breeders, veterinarians, and drivers. The fifth category, which we term "use", consists of athletes, body-builders, and their close relatives. Finally, we include an "other" category for those suppliers who cannot be distinguished on the basis of a specific profession or occupation.

Unlike drug traffickers or dealers, not all suppliers of doping products are driven by profit. Non-financial motives—usually sports success—play a larger part for suppliers belonging to the organized sports world and for suppliers who are athletes.

Distribution Chains and Market Relationships

To clarify the (often variable) market position of the different types of suppliers, we have identified the sources and distribution levels of the different doping products,

distinguishing between doping substances and methods on the one hand, and among different doping substances, on the other. In the case of doping methods, we conclude that there is hardly a distribution system as these methods are administered using legitimate and often banal medical instruments.

All doping substances, by contrast, entail a distribution system that has a changing number and type of suppliers depending on the substances and quantities traded and the degree of entrepreneurship of the final users. The legal status of the exchanges and transactions also varies. Some substances, above all steroids, are produced exclusively for doping purposes in pharmacies or in illegal labs, in Italy or abroad. A large, but not precisely known, share of the doping substances sold in Italy appear to have been produced by legitimate drug manufacturers located in Italy or abroad and to have been diverted at some stage from the legal distribution chain. As Italian anti-doping investigations prove, the diversion can take place at different levels of the distribution chain. Employees or managers of the Italian or foreign drug manufacturers or their distributors may decide to divert some of the legal production to the illegal market. Drugs may also be stolen from storehouses or trucks of drug distributors or from hospitals or, more rarely, pharmacies by personnel of these institutions or by external thieves in Italy and abroad. Italian and foreign pharmacists may also purposively divert doping products, but they may also be unaware of the non-therapeutic purposes for which some of their customers buy drugs and sell the latter drugs either on the basis of a prescription written by a corrupt physician or of a false or stolen prescription. In some foreign countries, pharmacists may be allowed by the domestic laws to sell drugs, whose sale and use are instead restricted in Italy.

Given the multiplicity of doping products available and the fact that, within each class, several products are functionally equivalent, users can obtain their products of choice from a variety of retailers representing the final link of alternative distribution chains. Doping products' availability has been tremendously increased by the spread of websites selling steroids and other doping products on the internet, so much so that users can nowadays bypass the whole domestic distribution chain and comfortably order doping products on the internet and have them delivered by mail at home.

Unlike illegal drug traffickers or dealers, the majority of the suppliers of doping products can hide their illegal transactions and their relationships with their "doping partners"—their own suppliers, collaborators, and customers or patients—behind the legitimate roles they play in their businesses, organizations, or professions. The embeddedness of doping-related supply-side activities in legitimate professions, roles, and institutional settings often makes unnecessary the development of separate illegal enterprises to run these activities. The very embeddedness of doping supply-side activities in legitimate professions, roles, and the related and partially overlapping concepts of occupational, corporate, and organizational crime.

Some illegal suppliers, though, have trouble finding a professional cover to hide the production, import (i.e., smuggling) and wholesale distribution of doping products outside the regular channels or the product diversion from the latter. At the higher levels of the market and especially for steroids, illegal enterprises sometimes develop that are similar to those operating in illegal drug markets. Like the latter, the former at least in Italy tend to remain small and incorporate illegal relationships and transactions into blood or family relationships to reduce their vulnerability to law enforcement efforts (e.g., Reuter, 1983; 1985; Moore, 1974: 15-31).

Reflecting the white-collar background of most suppliers, the suppliers of doping products in Italy are rarely reported to use violence, except for the truck hijackers. Except for a single, not well-organized attempt, the anti-doping investigations and our respondents also provide no evidence of suppliers of doping products bribing or attempting to bribe public officials. Even if they do not resort to violence or bribes, some suppliers of doping products cheat their "customers" — probably to a larger extent than their counterparts in illegal markets. Particularly in elite sports, different types of suppliers—e.g., physicians, pharmacists, coaches, and sports federation officials—abuse their positions of authority and the athletes' and the latter's parents' trust by prescribing, selling or administering the athletes doping products and convincing them of the necessity and harmlessness of doping products.

The Role of National Sports Bodies and of Organized Crime

The most startling peculiarity of Italy's market for doping products is the protection that officials and staff members of sports authorities, such as CONI and key sports federations, have repeatedly provided to the market servicing elite athletes—in addition to serving as outright suppliers of doping products in a small number of well-documented cases. As scandals and criminal proceedings indicate, the representatives of national sports bodies, including some very high-ranking officials, exercised their roles as "protectors" quite openly until the late 1990s. Since then, no cases of overt high-level complicity have come to the fore, but the national sports bodies' apparent lack of interest in a thorough fight against doping still emerges from several criminal proceedings and outright policy choices.

On the contrary, the analysis of the criminal proceedings and the expert interviews indicate a very limited involvement of Southern Italian mafia groups in the production and trade of doping products. Among the suppliers considered so far, there is only a specific type that can be traced back to Southern Italian mafia-type organized crime groups: the hijackers stealing doping substances from trucks, who are often associated with Neapolitan camorra groups. Members of some camorra groups also play an important role in the fixing of horse races, which is often achieved by doping the horses. These practices thus confirm WADA's worried analyses that the same underworld people who trade in doping substances also undermine the integrity of sports through illegal betting.

The illicit enterprises set up by some suppliers of doping products and the looser partnerships developed by others even within legitimate institutional contexts meet, at least in Italy, all the requirements of the definitions of organized crime set forward at the international level, above all by the 2000 UN Convention against Transnational Organized Crime. Regardless of the labels chosen, one should not forget the fact that, with the exception of a limited number of underworld characters, most suppliers of doping products have a legitimate professional background, with a non-negligible share of them belonging to the organized sports world.

Revenues and Profits

Judging on the basis of their legal market prices, the doping doses of most doping products are cheaper than those of illegal hard drugs, such as heroin and cocaine. There are only two exceptions: GH, an 1 IU of which costs slightly more than a retail dose (0.25 grams) of heroin (\in 10.49) and slightly less than a dose (again 0.25 grams) of cocaine (\in 17.29 see Dipartimento Politiche Antidroga, 2012: 191); and gonadorelin, whose price per dose (\in 48) even exceeds that of heroin and cocaine. The price per dose of EPO (\in 3.09 per 200 IU) and most other related substances are similar to those of a hashish joint (\in 3.73) and are slightly more expensive than a marijuana joint (\in 2.85). All other doping substances are cheaper than even marijuana or hashish. For example, a 10 mg dose of steroids costs \in 1.12.

We stress, however, some important caveats in our analysis. Most users do not buy doping products at the official pharmacy prices. They may pay much more than the official price, if the substance is diverted from the storehouse of a drug manufacturer, distributor, health care center or pharmacy or is sold by a pharmacist-cum-illegal-supplier, hoping to obtain an original, high-quality product. Other users, however, may pay much less than the pharmacy price, if they directly buy on the internet a doping substance that is either counterfeited or produced in countries with lenient regulations or lax enforcement.

Using the official pharmacy prices and, for the few substances not officially traded in Italy, their internet prices, we estimate the potential market value of the doping substances seized in Italy by all law enforcement agencies during the period 1999-2011 in €132 million.

Using the same price information and the earlier estimates of the quantities consumed, we estimate the yearly revenues generated by the Italian market for doping products at about €537 million. Steroids account for about €245 million or 46% of the total revenues, thus less than their share of the quantities consumed (58.9%) due to steroids' relatively low prices. For the opposite reasons, peptide hormones, growth factors and related substances represent a much higher share of the total revenues (41.9% or €225 million) than their share of the quantities consumed (6.4%) due to their high price.

We stress that our estimates are very conservative, as we do not estimate athletes' consumption of the two most expensive doping substances, GH and gonadorelin, as they were never detected in CVD's tests. More generally, our estimates reflect the biases and

limits of CVD's testing and, in particular, underestimate the share of other peptide hormones and related substances that are difficult to detect in urine samples but are more expensive than other doping substances. Despite these caveats, the revenues generated by the market for doping products probably remain considerably smaller than the revenues of the illegal drug market. To have a comparison, we estimate the retail revenues of the Italian cocaine market at about ξ 3,685 million.

Anti-Doping Law Enforcement: Legislation and Actors

All law enforcement officers and experts agree that the introduction of wide-ranging antidoping criminal provisions with Act 376/2000 boosted criminal investigations on doping. We should not lose sight, however, of the fact that NAS and prosecutor's offices conducted several penetrating investigations even before the adoption of this act, resorting to suitable provisions in the Italian Criminal Code and to the offense of sporting fraud, which was introduced with Act 401/1989.

Act 376/2000 establishes three distinct types of doping offenses. The first two concern both athletes and their support personnel for procuring, administering, assuming or even encouraging the use of doping substances or methods, with the aim of improving an athlete's competitive performance or to modify the results of an anti-doping test (article 9, sections 1 and 2). The third offense is the most innovative, as it tackles illegal suppliers who trade in doping substances outside the official distribution channels (article 9, section 7). Imprisonment from three months to three years and a fine from €2,580 to €51,645 are the sanctions foreseen for the first two offenses; imprisonment from two to six years and a fine from €5,164 to €77,468 are foreseen for the third offense. Given the differences in sanctions, interception of telephone calls and other communications is allowed only for the third offense.

Act 376/2000 cleverly foresees three aggravating circumstances, in particular if the offender is "a CONI component or employee of a national sports federation" and also provides additional sanctions for them and those practicing a health profession.

Act 376/2000 can also be praised for setting up a 20-member national anti-Doping Commission, CVD, even before the establishment of a NADO was requested by WADA. CVD is entrusted by Act 376/2000 with the development and update of Italy's own prohibited list, the organization of anti-doping controls and the maintenance of operative contacts with the European Union and the international bodies. However, CVD's role has been obscured by CONI, which has managed to remain in charge of anti-doping tests of elite athletes in Italy and to be recognized as Italy's NADO by WADA—despite the fact that CVD's testing effectiveness is much higher than CONI's. Although CVD has developed in recent years close collaboration with NAS, a representative of which is a CVD member, it has not played a major role in the criminal action against doping. Intelligence sharing between CVD and NAS has only begun in 2008. Not surprisingly, two other institutions have played pivotal roles in the anti-doping law enforcement in Italy: NAS and prosecutor's offices. NAS consist of 38 centers composing a separate unit of the Carabinieri, which is composed of about 1,100 members and operates under the direct authority of the Ministry of Health.

Anti-doping constitutes only one of the NAS' tasks. According to a survey among the 38 NAS directors, only 14% of the local personnel are involved in anti-doping investigations, amounting to 14 full-time equivalents per year. Notwithstanding the limited human resources invested in anti-doping investigations, in eleven years from 2000 to 2011, NAS investigations led to the report of 3,794 suspects and to the arrest of 446 persons for doping-related charges. Over the years, NAS have also been responsible for about 90% of the seizures of doping products carried out in Italy. However, NAS have no exclusive competence in this field, and Italy's other police forces have also been active.

We estimate the direct personnel costs of NAS anti-doping investigations in about €1,410,000 yearly. Even if we account for overhead at NAS Headquarters and working costs, NAS anti-doping action accounts for about a third of the €5,450,000 invested yearly in testing.

Italy's penetrating criminal investigations against state representatives in office in the field of anti-doping (as well as of corruption and organized crime) would have most likely not been possible, if Italy's prosecutors had not been fully independent of the executive branch of government. The extreme independence of prosecutors, however, entails not only advantages but also some serious disadvantages, such as the lack of prioritization, coordination and evaluation of prosecutorial action. Despite Italy's adherence to the principle of legality, criminal investigations in anti-doping and other fields end up depending to a considerable degree on the good will and dedication of the individual prosecutors. This is particularly dire in a technical and specialized field such as that of doping, where not all prosecutors are equally aware of the problem and familiar with the special legislation.

Anti-Doping Law Enforcement: Outcomes and Challenges

Together with personnel shortages, the disorganization of prosecutor's offices and courthouses and, in criminal matters, the generous protections granted to defendants by Italian criminal procedural law, prosecutors' (and judges') independence contribute to the very poor performance of the entire Italian judicial system. This problem also manifests itself in the field of anti-doping.

According to data calculated by the Italian Statistical office (Istat) for this report, 313 criminal proceedings were initiated by the prosecutor's offices for the offense of doping foreseen by Act 376/2000 (sometimes in combination with other crimes) between 2001 and 2009, 35 on average per year. For the period 2006-2009, we also know that a total of 683 persons were charged for doping. (We also have data on other offenses applied, but we do not know how many of these cases effectively concern doping). Even though we lack

exact estimates, the number of final verdicts on the basis of Act 376/2000 appears to be much more limited. We identify three main explicative factors to explain this imbalance. First, not many anti-doping criminal proceedings were started before 2004 because CVD published its prohibited list only at the end of 2003 and, as a result, many anti-doping proceedings are still ongoing (in Italy there are three stages of trial, and a criminal proceeding lasts on average four years and nine months; Severino, 2012). Second, many trials end up with a bargaining agreement, which is formally not a conviction and is not recorded by Istat in relation to doping. Third and most seriously, the statute of limitations expires on many proceedings before a final sentence is issued. Taking advantage of the inefficiency of the Italian judicial system and the generous protection granted by Italian procedural code, many defendants—in particular those who can afford good defense lawyers—are able to avoid a conviction in such a way.

Even when they end with a criminal conviction, Italian criminal investigations often lead to sport disciplinary proceedings, not only against athletes but also against the latter's support personnel.

In addition to the inefficiency of the overall judicial system, we have identified five challenges that hamper anti-doping criminal action in Italy. Four of them are domestic; the last one concerns the difficulties of an effective international police and justice cooperation. In particular, these result from both the heterogeneity of national criminal legislation on doping matters and the complicated and slow bureaucratic mechanisms regulating exchanges between prosecutors of different countries in anti-doping and other criminal matters.

Generic Conclusions and Lessons for Policy-Making

In this section, we consider the extent to which our findings on Italy can be generalized to other countries by comparing them with the international literature on doping (both academic and grey). Drawing on the findings of the present study, the international literature as well as the research on illegal drug policy and crime control, we also propose lessons for the world's anti-doping policy-making.

Doping Products and their Demand

> The super elite athletes targeted by CONI, the IOC and WADA represent a tiny minority of total users of doping products or even the total number of athletes using such products. From a public health perspective it hardly makes sense to focus predominantly on super elite athletes, and it would be advisable to broaden the policy focus to include recreational athletes and non-competitive sportspeople.

Whereas Italian top elite athletes number only about 10,000, we estimate that there are 185,000 athletes and 69,000 body-builders using doping in products in Italy for a total of 254,000 users. Even if the top elite athletes would all take illegal performance enhancing drugs—an assumption that is obviously unrealistic—they would represent only 3.9% of the

total number of users of doping products. It is also important to recall that the figure of 254,000 underestimates the total demand, as it reflects the positive rates of official antidoping tests and does not account for use among non-competitive sportspersons other than body-builders and physically inactive people. With a more encompassing estimate of the demand for doping products, the share of top elite athletes among users would be even more marginal. Despite the lack of precise data, the share of elite athletes out of the total population of recreational and elite athletes and the total number of users of doping products is not likely to be much different in other countries.

Doping substances are used for many different purposes, not just to enhance performance and produce a range of effects, including some short-term effects perceived as positive by the users and short-term and long-term adverse effects. These effects are not yet well understood in the literature and more research is needed to anticipate and treat them. On the basis of solid research results, WADA could also better defend its choices of prohibiting certain substances or methods.

As our study and the international literature indicate (e.g., Parkinson and Evans, 2006; Kanayama, Hudson and Pope, 2008), performance enhancement is not the exclusive or main goal of many users of doping products. Most of the heaviest users, i.e., body-builders, use doping substances for image-enhancing, rather than for performance-enhancing, purposes. The international literature also shows that doping products are used for additional purposes, e.g., in the case of steroids, to enhance aggressiveness or courage and the feeling of omnipotence (e.g., Kindlundh et al. 1998; and Chantal, Soubranne and Brunel, 2009; Swedish National institute of Public Health, 2010: 56-57). Users also occasionally use some of the substances on the WADA's Prohibited List for their psychoactive effects. These are documented in several doping substances— for example, stimulants— even leaving aside cannabis, cocaine and opiates.

Not only positive but also negative effects are associated with the regular intake of doping products. As shown by a growing body of literature and indirectly confirmed by the present study, the use of steroids produces multiple and serious adverse consequences. The harmful effects associated with other substances have been studied less systematically, but the available evidence suggests that some of them might be at least as harmful as steroids. More research is needed to ascertain the short- and long-term effects of all doping substances. More research is also necessary to understand the effects of polypharmacy, which are as yet little understood in the literature. The few existing studies (for a review, see Dodge and Hoagland, 2011) show that the severity of the undesired effects depends on a variety of factors, from the type and combination of products taken, the dose and duration of administration, as well as the gender of the person taking them. Even less is known about the effects of counterfeited products. Worryingly, a study in the Netherlands (de Hon and van Kleij, 2005) has shown that at least 50-60% of the products illegally obtained do not contain what is declared on the label. As de Hon and van Kleij

(2005: 7) note, "the dosages of these products are completely unpredictable, which means that the side effects that are encountered are likewise unpredictable. In some instances, the lack of hygiene surrounding the places where these products are processed poses an additional health risk." De Hon and van Kleij (ibid.) appropriately conclude that "as long as there are no quantitative data available on the health damage that occurs as a result of doping use, a well-balanced decision on the possible introduction of alternative approaches cannot be made."

Siven the similarities and partial overlap between doping substances and legal and illegal psychoactive drugs (such as alcohol, tobacco, heroin, cocaine and other illegal drugs), doping-focused demand-side interventions could profit from the best practices developed to prevent and reduce the demand for legal and illegal psychoactive drugs and the harms associated with their consumption.

Even leaving aside cannabis, cocaine and opiates, several substances on the WADA's Prohibited List, such as stimulants and steroids, produce psychoactive effects. Just like the most dangerous illegal drugs, these doping substances also have the potential to produce physical and/or psychological dependence in a significant share of their users (e.g., Kanayama and Pope, 2012). Given these similarities and partial overlap, we are convinced that anti-doping control and prevention efforts could profit from the best practices developed in the field of alcohol, tobacco and illegal drugs to prevent and reduce their demand and harms.

Sweden has gone as far as to pursue an integrated approach to deal with all legal and illegal psychoactive substances, including doping. In 2010, in fact, the Swedish government approved the bill "A Cohesive Strategy for Alcohol, Narcotic Drugs, Doping and Tobacco (ANDT) Policy" "to facilitate state management of public support in the ANDT sphere, to improve coordination and cooperation and to develop a cohesive view of the common factors underlying the origins of the problems and their solutions" (Ministry of Health and Social Affairs, Sweden, 2010). While this integrated approach has not yet been evaluated, it seems potentially promising. At the very least, in the field of prevention, antidoping interventions could profit from the best practices already developed in the prevention of illegal drug and alcohol misuse. In some cases, anti-doping interventions could also easily be integrated with drug and alcohol prevention initiatives: in all three fields, in fact, the most effective universal prevention interventions are those that enhance life-skills rather than the more traditional information campaigns in schools (EMCDDA, 2011: 27-28; Singler and Treutlein, 2001; Singler, 2011).

> Many users of doping products seem to be not sufficiently aware of the adverse effects deriving from their consumption patterns. It is thus necessary to provide reliable, evidence-based information about the harms associated with doping products particularly

through targeted campaigns directed at potential and current users and, more generally, to develop a harm reduction approach in sports.

Despite the lack of specific empirical studies on the issue, Italian criminal investigations have repeatedly shown that users rely almost exclusively on word of mouth or internet forums to decide which products and in which dosages they should take. The situation does not appear to be fundamentally different in other countries. There too, users and prospective users gather a large amount of information from friends and are overconfident in the information they have received from their friends and via the internet (e.g., Hon and van Kleij, 2005; Larance et al., 2008). According to the Swedish National Institute of Public Health (2011: 67), "the degree to which information on these discussion forums are based on science varies and the full panorama of effects are rarely conveyed. A large part of the knowledge conveyed via the websites above is detailed and based on personal experience, assumptions and rumours."¹⁷¹

In Italy and elsewhere, only a small minority of the users, primarily elite athletes, have access to the advice of complacent physicians or pharmacists. However, given the subordination of these physicians and pharmacists' professional ethics to the goals of sports success or personal or institutional profit, even their advice is no guarantee of protection from the adverse effects of doping products (in addition to the examples discussed in the previous pages, see also Waddington, 2011).

In Italy, no government agency or sports body has ever systematically informed current and potential users of doping products of the harms associated with these products. Only two anti-doping hot-lines have been established, one by CVD and the other more recently and more successfully by the Health Sanitary System of the Modena Province (Int-Other-1 and 2). Other countries, particularly in Northern Europe, have been more active, going beyond the anti-doping phone and internet hot-lines, which have been set up in a number of countries (e.g., Denmark, Sweden, The Netherlands; see Anti Doping Denmark et al., [2012]: 75, 78, 81). In 2012, the Dutch Ministry of Health, Welfare and Sport, for example, specifically established a specific website – www.internetpillen.nl – providing information about the risks of fake/counterfeit pills, which are often supplied via the internet (Anti Doping Denmark et al., [2012]: 95). Additionally, the Dutch and Danish anti-doping authorities and the county of Stockholm recently launched multi-media information campaigns targeting young men working out in fitness centers. A peculiarity of the Dutch campaign was the emphasis on harm reduction. The Danish and Swedish campaigns also aimed at informing and training fitness instructors (including those in training) and the owners of fitness centers. Anti Doping Denmark, for example, also produced a fitness handbook with advice and guidelines on anti-doping for fitness

¹⁷¹ See also the 2012 comparative report "Strategy for Stopping Steroids" produced by the antidoping agencies of five EU countries (Denmark, Sweden, The Netherlands, Poland, Cyprus) under the aegis of Anti Doping Denmark (2012: 78).

personnel (ibid.: 73-87). In turn, the Polish and Cypriot anti-doping authorities launched information campaigns targeting recreational and elite athletes (ibid: 88-91).

Building on these seminal experiences, other domestic and supranational antidoping bodies could also consider setting up websites and media campaigns providing objective information and advice to current and potential users of doping products, their relatives and other stakeholders. As in Denmark and in Sweden, they should also consider involving gyms and fitness centers in anti-doping prevention to make sure that the prevention and information campaigns reach many users. If they decide to do so, they are probably likely to find interested partners. The European Health and Fitness Association (EHFA, 2012), the leading umbrella organization representing the entire gym and fitness sector in Europe, issued a press release in early 2012 "to demand co-operation with antidoping authorities." The EHFA also established an Anti-Doping Charter which states the following:

The European health and fitness sector is committed to improving the health of European citizens and as such it is fundamentally opposed to the use of doping and other performance-enhancing substances that harm health. EHFA and its members commit to do their utmost to eradicate doping practices and will cooperate with the EU Commission, doping agencies, authorities and governments in studying and implementing the most effective policies, campaigns and measures to combat doping. The sector commits to educate and inform its employees and customers, and to provide information and guidance for operators to have in place effective anti-doping measures (ibid.)

Sports authorities and governments should also deal with what Coakley and Pipe (2009: 218) call "the deep hypocrisy involved in elite power and performance sports." That is, they should start critical discussions on the use of currently accepted performanceenhancing strategies, such as injecting painkilling drugs, hydration strategies, playing with pins in broken bones and with high-tech casts to hold broken bones together during competitions. The Italian Supreme Court officially labeled as doping the off-label misuse of legitimate drugs when it reviewed the verdict of the Turin courts against the manager and chief physician of the Juventus football club (Corte di Cassazione, 2007). Those proceedings, as well as research in other countries (e.g., Waddington, 2011), indicate that abuse of legitimate drugs and other accepted performance-enhancing strategies are common. Rightly, Coakley and Pipe (2009: 219) argue that they foster a sports culture in which the use of doping products is defined as logical and courageous.

To deal with these contradictions, which undermine the rationale of anti-doping provisions, a harm reduction approach is necessary, in which the emphasis is no longer placed exclusively on the goals, i.e., the medals to be won, but also on the means to reach these goals and the possible harms associated with them. As suggested by Coakley and Pipe (2009: 218-9), specific measures implementing such a harm reduction approach would

include allowing athletes to play only if they have been certified as "well" (not simply "able to compete") by two independent physicians, establishing health and injury education programs for young athletes and establishing rules clearly indicating that certain risks to health are undesirable and even unnecessary.

Heavy users, to be found especially among body-builders and the athletes of specific disciplines, such as weightlifters, disproportionately suffer more harms than other users. It is therefore sensible to develop control and treatment programs specifically focusing on them.

Italian criminal investigations and our own consumption profiles confirm what is known from the international literature: namely, that body-builders and some categories of athletes, such as weightlifters and throwers, have tended since at least the 1980s to consume doping products in larger dosages and more frequently than other users. The international literature also indicates that these users are likely to suffer the most harms (e.g., Kanayama et al., 2003 and 2008; Singler and Treutlein, 2010: 186-97).

As far as controls in fitness centers are concerned, Denmark has probably gone the furthest of all other European countries. In fact, on the basis of the 2005 Act on Promotion of Doping-Free Sport, the Danish anti-doping agency has the authority to enter into antidoping agreements with fitness centers and other private or public institutions that offer sports and related activities, ensuring that these centers and institutions undertake doping controls and impose sanctions in accordance with the guidelines that apply to Danish sports federations, i.e. in accordance with the WADA Code. In June 2010, 50% of all commercial fitness centers had a doping control agreement with Anti Doping Denmark (Anti Doping Denmark et al., [2012]: 56). Since July 2008, Danish fitness centers are obliged to display clear signs indicating whether they have entered into a collaboration agreement with Anti Doping Denmark, and the police can impose sanctions on any centers that fail to comply with the rules (ibid.: 38-39). On the basis of the cooperative agreements, Anti Doping Denmark has authority to carry out tests in fitness centers. Confirming the seriousness of the problem, this testing activity has shown that approximately one out of five of the fitness visitors tested had used prohibited substances, primarily steroids, a percentage that has remained constant over the past five years (ibid.: 56).¹⁷² A positive doping test results in two years' suspension from the center.

The Danish approach remains controversial. For different reasons, none of the other countries that participated in the Strategy for Stopping Steroids project (Sweden, the Netherlands, Poland and Cyprus) has introduced doping tests in fitness centers, despite the

¹⁷² It must be stressed that the selection process is not random: test personnel chooses the fitness center visitors to be tested who are most likely to have used drugs. The proportion of positive cases is therefore not representative of the total number of centers visitors (Anti Doping Denmark et al., [2012]: 56).

fact that the project included "anti-doping organisations and countries that are among the leaders in anti-doping work in the fitness sector" (ibid.: 7).

Whether or not anti-doping controls in gyms and fitness centers are established, it is clear that the athletes and body-builders who began using steroids and other drugs in large quantities in the 1980s are now entering middle age and are likely to suffer from the long-term psychiatric and medical consequences of this form of substance abuse (Kanayama, Hudson and Pope, 2008). It is therefore necessary to develop treatment programs specifically targeting this class of substance abusers. In the Netherlands efforts have been made since the 1990s to offer specialized treatment to the users of doping products and an Anabolics Clinic was set up in 2010 (Anti Doping Denmark, 2012: 115-6). Likewise, in Sweden, two public hospitals offer specialized treatment for steroid abuse. Their experience suggests that both the (former) users and the normal physicians treating them often fail to recognize that specific complaints are linked to (past) steroid use (ibid.: 121-3). "With a lack of a holistic approach, various side-effects are most often treated rather than the whole" (Swedish National Institute of Public Health, 201: 76). However, the methods and experience that do exist are as yet sparsely documented, and the research on effective treatment methods is still very limited (ibid.).

Our study has also shown that several athletes, such as those treated by Faraggiana, were doped directly by physicians of Italian national sports federations and therefore under the indirect responsibility of the Italian National Olympic Committee (CONI), which is a public body. Among them, Pietro Puja went as far as to sue the Italian Weightlifting Federation and CONI in 1989 for having obliged him to take steroids since he was 13 years old, including before the 1988 Seoul Olympic Games. Puja's aim was to obtain compensation for his back problems. Although we do not know the final outcome of that trial, we are convinced that the Italian government—and by extension all governments in a similar situation—have the moral duty to provide adequate treatment to athletes who doped and were doped in the name of a misconceived national pride.

In Germany a special bill was passed in 2002 to provide financial support to the "doping victims" of the former German Democratic Republic (GDR). On the basis of that bill, more than 300 athletes received compensation (Müller-Platz, Boos and Müller, 2006: 20). Even if no systematic state doping program was ever established in Italy and other Western countries as in the GDR, Western national sports federations and Olympic Committees, and indirectly, the national governments that profited from doped athletes' international victories, are under the moral obligation to support the ageing athletes who are now suffering the long-term consequences of their past doping practices.

Supply

> A semi-illegal market for doping products is likely to have developed in all countries in which there is a widespread demand for such products. There is a need to know more

about the extent, organization and dynamics of semi-illegal markets for doping products in other countries.

As seen in the introduction, the academic and grey literature and the numerous scandals periodically involving elite athletes demonstrate that there is a demand for doping products among elite and recreational athletes and non-competitive sportspeople in other countries as well. It is enough to recall that some tens of millions of individuals are estimated worldwide to have used steroids alone, reflecting an average lifetime prevalence of steroid use of at least 3% in young men (Kanayama et al., 2009). Although the prevalence of other substances is less well researched, it is probable that the users of these substances also add up to a few million users worldwide.

You do not have to be trained in economics to suppose that if there is a demand, there is also a supply. For a considerable share of the users in numerous countries, it may still be possible to obtain these substances through legal channels. In a 2006 survey of fitness center visitors in Germany, for example, almost half of the users of anabolic steroids reported that they were able to obtain the drugs legally from physicians by prescription or directly from pharmacies without prescription (Striegel et al., 2006). In most countries, though, next to legal channels, illegal distribution channels are bound to have developed—not unlikely those brought to light by Italian criminal investigations.

The exact configuration of the different national markets for doping products obviously needs to be ascertained through empirical studies. It may well be that not all types of suppliers singled out in our case study of Italy are active in other countries (e.g., hijackers stealing medical drugs from trucks). In Italy as well as in other countries, the share of doping substances illegally produced versus diverted also needs to be assessed more precisely than we could do in the present study.

The role of national sports bodies in the supply of doping products also needs to be examined empirically in each national context. It could well be that, given Italy's high levels of general corruption (Transparency International, 2011), the complicity and tolerance long shown by Italian sports bodies have no exact parallel elsewhere. Given the foreign cases discussed in chapter 5, however, other national sports bodies, governments and observers, should not however be too quick in downplaying the wheeling and dealing of Italian sports body officials as uniquely Italian.

Notwithstanding the need to know more about the specifics of each individual (sub)-national market, it seems safe to hypothesize that a semi-illegal supply of doping products—that is, a supply consisting of both legal and illegal distribution channels—has also developed in the overwhelming majority of countries where doping products are consumed. Even in countries where the trade and distribution of doping substances do not constitute a separate offense, the suppliers and in particularly the importers of these substances are likely at the very least to violate provisions regulating the distribution and import of pharmaceutical drugs. As we have seen in chapter 7, some of the offenses reported by NAS in their anti-doping investigations refer to Italian acts implementing EU

directives concerning customs or medicinal products for human use (e.g., European Commission Directive 2001/83/CE and Directive 2003/94/CE). These directives are bound to have been implemented also in other EU countries.

Users of doping products can obtain them through a multiplicity of channels linked to different distribution chains, among which the internet has become increasingly relevant. Given the large variety of products, their widespread availability and the lessons to be drawn from the "war on drugs," supply-side interventions in the field of doping must be given realistic objectives, drawing from the realization that no doping-free world is possible.

The previous analysis has demonstrated ad abundantiam that Italian users of doping products often have multiple sources available for products of the same class. In Italy as elsewhere the product availability has been greatly enhanced by the internet. As of April 2012, for example, a Google search for "buy steroid" delivered 13,700,000 hits, up from 4 million hits in 2000 and 5 million hits in 2010-/11 (see also GAO, 2005).¹⁷³ Vis-à-vis illegal drugs, the availability of doping products is further increased by the fact that many doping substances have functional equivalents: for example, if a specific brand of steroids is temporarily unavailable, users can easily find plenty of alternatives available on the market, original and counterfeited.

Most academics and a growing number of policy-makers agree that it is not possible to eliminate or even reduce consistently the availability of illegal drugs through supplyoriented policy interventions, which usually mean criminal prosecution, interdiction of the drugs at the border and, in producing countries, eradication (and alternative development). It is enough to recall that despite the one trillion dollars (Mendoza, 2010) spent by the US government on the war on drugs, the prices of the two major hard drugs, heroin and cocaine, has declined consistently from the 1980s onwards, suggesting an increase in their availability (Reuter, 2012). Even if local reductions in opium or coca production are possible, the illegal drug industry is like a balloon: when it is "squeezed" or curbed in one location, it tends to "bulge" or re-emerge in another location (Paoli, Greenfield, and Reuter, 2009; see also, Dorn, 1992; Friesendorf, 2007; Nadelmann, 1989; and Seccombe, 1995). These views, long held by critical scholars and observers, are finally also becoming accepted among politicians and policy-makers. Made up of many former heads of state and government, the Global Commission on Drug Policy (2011: 2) declared in 2011 the war on drugs a failure: "Vast expenditures on criminalization and repressive measures directed at producers, traffickers and consumers of illegal drugs have clearly failed to effectively curtail supply and consumption." Serving heads of state in Latin America, most vocally the president of Guatemala, Otto Perez Molina, have made these views their own, calling for

¹⁷³ The earlier figures were stated by Holz, an Interpol officer specialized in anti-doping issues at a WADA Foundation Board Meeting in November 2010 (WADA, 2010e).

alternatives to prohibition (Haddow, 2012). While the Obama administration still resists fundamental changes to U.S. drug polices, even the current U.S. drug czar, Gil Kerlikowske (2012) conceded that an approach based "on 'War on Drugs' law enforcement centric mentality ... is not humane, effective, or grounded in evidence."

Whereas the "war on drugs" expression and mentality is increasingly questioned in the field of drug policy, a growing number of national and international policy-makers have recently advocated a "war on doping": among them, IOC President Jacques Rogge (Blackshaw, n.d.; AFP, 2002), UCI President Pat McQuaid (*Winnipeg Free Press*, 2006, MacMichael, 2011), UNESCO Director General Koichiro Matsuura (UNESCO, 2007) and the European Commission (2006). Although it is not always clear what is meant with this expression, we believe that it carries a lot of baggage and should be avoided. The war on doping can hardly be given the same goal as the war on drugs, i.e., the elimination of doping substance production (UNGASS, 1997), because most doping substances are, unlike heroin or cocaine, regular, sometimes life-saving, medical drugs. Their complete elimination is thus not even desirable.

Even if it were, it would not be possible. Given the characteristics of the market for doping products, criminal prosecution and interdiction alone are even less likely to be successful in reducing significantly the availability of doping products than they have been in the case of illegal drugs. Many doping substances and all the equipment necessary for doping methods are produced legitimately and only later diverted and/or misused for doping purposes. Even when the substances are produced illegally, the production often takes places in kitchen labs that almost anybody with some basic chemical knowledge can set up and run. Equally hopeless are the chances of eliminating the (illegal) trade. Even in Sweden, a nation seeking to achieve a "society free from illegal drugs and doping" (e.g., Ministers of Health and Social Affairs, Sweden, 2010: 3), customs is able to check only 0.1% of the around 250,000 packages arriving daily at Sweden's main international airport (Swedish National Institute of Public Health, 2010: 64). The U.S. General Accounting Office (GAO; 2005: 7) also admitted that "the sheer volume of mail [arriving daily at the US international airports], along with the steps illegal steroid suppliers use to disguise their product and the labor intensive nature of the inspection process itself, present formidable challenges to CPB [U.S. Customs and Border Patrol Agency] in its efforts to interdict the entry of anabolic steroids into the United States."

These considerations do not mean, however, that all supply-side interventions are useless. They do mean, as even IOC President Rogge concedes, that "we cannot win the war on doping" (*AFP*, 2002). Given the IOC's record in anti-doping (see below), some observers might fear that Rogge's argument is just an excuse to justify the IOC and WADA's meager testing results, but the same point is also made by academic scholars, such as Bette (2010: 165): "we must first of all realize that the complete elimination of the doping problem is not in sight" (see also Jacobs and Samuels, 1994-95).

Admitting the limits of current policies does not also mean advocating the legalization of doping, however. Unless we are prepared to allow even minors to use all doping substances and methods in the most dangerous possible dosages and combinations, no full legalization of doping products or illegal drugs is possible (see Courtwright, 2001). And if a market is highly regulated, as the market in doping products would inevitably be if it were legalized, incentives unavoidably develop to bypass restrictive regulations (for example to protect minors) and trade in these products illegally. Moreover, as Wiesing (2011) has convincingly argued, legalization would not reduce restrictions on athletes' freedom, because sports authorities would still need to make sure that athletes take only the permitted and not the prohibited, more dangerous, products. At the same time, athletes would be forced to take additional avoidable health risks, as they would take ever larger doses, or more dangerous types, of doping products in order to remain competitive, and the sports world would definitively lose its role model function.

Drawing on these realizations, national governments, international sports authorities and organizations should be committed to adopting a mix of policy interventions: in this mix, standard supply-side interventions, such as criminal prosecution and interdiction, are absolutely necessary to signal society's disapproval of certain behaviors, to identify and punish suppliers (effectively deterring those with a white-collar background) and to promote the development of a market that causes the least possible harm to users, the organized sports world, other stakeholders and society in general. In drug policy, for example, a multi-pronged or integral policy approach is now being pursued within the EU, in which law enforcement is one of its components along with prevention, treatment, harm reduction and reintegration (EMCDDA, 2011). In anti-doping and other fields, policy-makers should not lose sight of the fact that all interventions and particularly criminal prosecution not only have expected benefits but are also likely to cause unintended harms; they should not forget that the ultimate aim of policy must be to minimize the overall harm deriving from the problem itself and the policy interventions (MacCord, 2003; Greenfield and Paoli, 2011). Going back to the founder of criminology, Cesare Beccaria, for example, criminological research shows that the celerity and certainty of punishment, not its severity, are most effective in fostering deterrence—in this respect it is obvious that Italy scores abysmally—, whereas the severity of punishment causes the most harm (wright, 2010). And as the expected benefits of policy interventions do not always materialize and the unintended harms are hard to predict in advance, the interventions should also be thoroughly evaluated after the first few years of implementation and then on a regular basis afterwards.

While looking for the right mix of policy interventions, policy makers tackling the problem of doping might draw useful lessons from the history of the international drug control regime. Whereas recent history forcefully demonstrates the difficulty of reducing the demand for illegal drugs through supply-side interventions, the policy and market developments in the 1920s and 1930s indicate that these interventions heavily impact the

types and modus operandi of the suppliers, wiping out the least harmful and most deterrable suppliers and thus inadvertently provoking harm. In those two decades, in fact, the League of Nations was quite effective in using the power of adverse publicity and managed to convince large pharmaceutical companies to reduce diversion and cut heroin production drastically. Coupled with the criminal law restrictions enforced by national governments, the League's successful interventions transformed the market. In the early 1920s, the illicit trade in narcotics depended to a large extent on diverting legally manufactured drugs. Underworld members were typically located at the bottom of the drug-manufacturing and marketing system. In combination with manufacturers and numerous middlemen and retail outlets, they diverted a portion of the product to non-medical consumers. By the beginning of World War II, however, professional criminals were almost alone at the beginning of the process, owning clandestine factories around the world and resorting to extensive violence and corruption to promote and defend their business (Block, 1989; Meyer and Parssinen, 1998; Paoli, Greenfield and Reuter, 2009).

> The embeddedness of exchanges of doping products in legitimate relationships and the white-collar background of many suppliers and elite athletes constitute opportunities for controlling doping that have not yet been sufficiently exploited.

As argued in chapters 3 and 4, many, if not most, suppliers of doping products in Italy have legitimate professions and occupations and meet the most stringent legalistic requirements of the definition of white-collar crime (e.g., Tappan, 1947; Gobert and Punch, 2003). The same is certainly true for many elite athletes. The few existing studies touching on the supply of doping products in other countries also confirm the embeddedness of doping exchanges in legitimate relationships (e.g., Laure and Binsinger, 2005; Striegel et al., 2006; Brissonneau, 2007; Fincoeur, 2009 ; see chapter 1). Even in countries with no specific criminal offense of doping, many suppliers of doping products and elite athletes can thus be regarded as white-collar criminals, if the term "white-collar crime" is understood in a broad way to encompass not only criminal offenses but also violations of regulatory laws and sports rules, as is often done in the white-collar crime debate (e.g., Nelken, 2008). As white-collar criminals, both the suppliers of doping products and elite athletes are more vulnerable to the deterrent effects of criminal prosecution than ordinary offenders, because they have much more to lose than the latter—as the parallel between doping and insider trading suggests.

Among white-collar crime scholars and policy makers there has been a longstanding opposition between those favoring a deterrence approach and those promoting compliance approaches, between punishment and persuasion (Reiss, 1984; Hawkins, 1984; Pearce and Tombs, 1990; Snider, 1990). On the basis of his research into the success and failure of regulation in different industries and businesses, Braithwaite has fruitfully suggested to go beyond this opposition. In his view, interventions aimed at securing businesses' compliance need to be combined and reinforced with other sanctioning interventions aimed at deterrence. This mix is known as "responsive regulation" and can best be achieved through an "enforcement pyramid" (Ayres and Braithwaite, 1992: 35). As Braithwaite (2011: 475) notes, "the paradox of responsive regulation is that by having a capability to escalate to tough enforcement, most regulation can be about collaborative capacity building." At the bottom of the pyramid, attempts are initially made to coax compliance by persuasion. Moving up the enforcement pyramid, increasingly severe interventions are used when dialogue or more modest sanctions fail. In the case of a recalcitrant company, for example, a regulator might escalate from persuasion to a warning, to civil sanctions, to criminal sanctions and up to the temporary suspension or permanent revocation of a license to operate.

With a few adaptations, Braithwaite's enforcement pyramid could be easily extended to the control of doping in sports. Consisting of education and prevention, the lowest levels of the pyramid are already present in a large number of countries, at least in law books and policy documents (see, e.g., Anti Doping Denmark et al., [2012]). The higher levels of the pyramid, i.e., a range of increasingly more punitive approaches and sanctions, by and large still need to be developed. The first step, which has already been taken in Italy but not in many other countries, would be to introduce criminal offenses and sanctions specifically targeting suppliers of doping products. Criminal sanctions should by no means be limited to fines or imprisonment. Appropriately, the Italian anti-doping criminal legislation foresees additional sanctions for health practitioners, and for CONI and sports body officials, even though, to our knowledge, an additional sanction has been applied only once (Tribunale di Bologna, 2004; see chapter 7).

In addition or in parallel to criminal sanctions, national and international sports authorities could also impose punitive sanctions to target sports federations and teams providing doping products to their athletes or encouraging or tolerating their athletes' doping practices. The current World Anti-Doping Code is very vague in this respect and sets no specific sanction against sports bodies or other institutions of the organized sports world, except for teams involved in a team sport.¹⁷⁴ However, sports (and criminal) sanctions against sporting bodies have the potential to be at least as, if not more effective than, criminal sanctions against individuals. Dick Pound (2011b), for example, suggested that the IOC should ban a national team or even an entire country from participating in Olympic Games, if a sports federation or the entire national Olympic Committee did not prove to be making serious efforts in controlling doping. Either the IOC, the national

¹⁷⁴ Article 11, § 2 merely establishes that "if more than two members of a team in a Team Sport are found to have committed an anti-doping rule violation during an Event Period, the ruling body of the Event shall impose an appropriate sanction on the team (e.g., loss of points, Disqualification from a Competition or Event, or other sanction) in addition to any Consequences imposed upon the individual Athletes committing the anti-doping rule violation." Article 12 adds that "nothing in the Code precludes any Signatory or government accepting the Code from enforcing its own rules for the purpose of imposing sanctions on another sporting body over which the Signatory or government has authority."

Olympic Committee, NADO or government could impose what Braithwaite calls "corporate capital punishment", i.e., the permanent revocation of a sporting body's license to operate.

Such suggestions are in line with the sociologists' insight that doping in elite sports is far more than the behavior of deviant individuals and results from the interaction of different actors, who form a "constellation" which includes the organized sports world, the public, the mass media, and economic and political actors (Bette and Schimank, 2000; Waddington, 2000; Bette, 2008). The corollary of such analyses is that doping in professional sports can only be reduced through "constellation management", as opposed to relying only on repressive or preventive intervention focusing on individual athletes (Bette, 2010: 169-70). Along similar lines, to curb the supply of doping products to noncompetitive sportspeople, the most punitive sanctions could consist of suspending or revoking the operating license of a gym or fitness center whose managers or employees have been repeatedly involved in the supply of doping products.

We emphasize that governments have more leverage in securing anti-doping compliance in elite sports than they do in industries, simply because most national sports federations, with the exception of the football federations and a few others, depend on government funding. As Bette (2010: 169-70) also points out, "a lot could be achieved with money that either you either make available to sports organizations or withdraw in case of observed deviance or lack of cooperation." Bette also clearly states the rationale for such an approach (ibid.): "subsidizing the organized elite sports can only be legitimate for policymakers because the sports world has given itself its own rules and behavioral codex, which do not violate existing government laws." Through their funding, government bodies could easily create incentives for serious anti-doping interventions, for example, by making the allocation of funding dependent on the implementation of specific anti-doping interventions and demanding the reimbursement of funding if these interventions are not implemented. Investigating the doping scandal at the 2001 Lahti (Finland) Nordic World Championships (see chapter 6), the Doping Enquiry Taskforce (2001: 3) set up by the Finnish Ministry of Education argued that "A federation is always responsible for its own activities," and proposed that the ministry "refrain from paying one million FIM of the 4.52 million granted to the Ski Federation for 2001 because of the failure to comply with the conditions for government aid. In addition, future aid should be dependent on the anti-doping action of the Federation in the coming years." The Ministry of Education enforced the Taskforce's suggestions. Appropriately, the IOC Disciplinary Commission imposed a US\$1 million fine on the Austrian Olympic Committee after the 2006 doping scandal at the Turin Olympic Games (IOC, 2007).

The problem is, however, that successive Italian governments (see chapter 5) and probably many of their counterparts abroad have not yet shown the will to fully make use of their power, because they are also interested in medals at Olympic Games and other major international competitions. As Hoberman (2011) convincingly showed in the case of

West Germany, success in top sports competitions has all too often been regarded as a "national priority"—and national Olympic committees and sports federations seem to have been given the mission to achieve that goal regardless of the means, including doping. Playing on the old Latin saying "pecunia non olet" (i.e., money does not stink), one has alas to conclude that "decora non olent", i.e., medals also do not stink, that is, are to be won even with prohibited means, including corruption, manipulation of competition and anti-doping test results, and the use of doping products (see Singler, 2011: 51-54).

In other words, effective supply-side interventions, including but going beyond criminal prosecution, are possible. These interventions can reduce both the trade and use of doping products, especially in the organized sports world, but they presuppose a political will that many governments and sports ruling bodies (see below) have yet to show consistently.

> The organized sports world has not always been committed and is, despite the best intentions of WADA's leadership, unable to detect and prosecute suppliers of doping products. Therefore national governments need to intervene directly, through a system of incentives and sanctions, to make sure that the suppliers of doping products are tackled by both cases under sports rules and criminal law proceedings.

Our analysis demonstrates that top-level officers of CONI and key sports federations have long tolerated and even fostered doping practices of elite athletes in Italy. The foreign cases briefly discussed in chapter 5 show that this tolerance and complicity are not uniquely Italian phenomena. Even if there is no clear evidence that they have openly fostered doping practices, the impression is that other national sports ruling bodies are not yet seriously committed to the detection and prosecution of suppliers of doping products. As in the case of insider trading, doping and its supply have long been considered de facto legitimate activities even after the introduction of the first generalized prohibitions in the 1960. In a 2011 hearing of the German Federal Parliament Sports Commission, Dr. Katja Mühlbauer, the head of the first German prosecutor's office specialized in anti-doping, assessed as follows the German sports federations' cooperation in anti-doping:

I will answer first the question concerning the federations' reporting [of doping suspicions]. There has been no reporting by federations. In two and half years we have received no reports. I need now to qualify this statement in two ways. There were two contacts, which however were organized in such a way that all that could be disclosed was already disclosed in advance, to inform all suspects. Especially in the second case, there was first a contact with NADA (Germany's NADO), and there it was reported that there might be also something for the prosecutor's office, and then we were contacted. But at that moment all the suspects had already been informed. For us, it would be important that we receive a report by a federation, before the suspected athletes, trainers, physicians, physiotherapist or whoever might be suspected are informed. Only then can we act in a meaningful way according to criminal procedural law. All in all, we

have found a rather hostile attitude from the sports federations. In the beginning we looked for contacts, but our efforts were more or less directly rejected. The prosecutor's office was not welcome there" (Sportausschuss, 2011: 36; see also Singler, 2011).

As Coakley and Pipe (2009: 218) put it, "it is not possible to effectively control the use of performance-enhancing substances when federations and teams encourage general overconformity to the norms of the sports ethic." Our analysis of the IOC's longstanding support of Prof. Conconi also indicates that international sports authorities have long lacked commitment to anti-doping (see chapter 5). Other scholars and observers confirm our findings. Houlihan (1999: 184), for example, notes that for a long time there was a "lack of enthusiasm among senior members of the IOC for an intensive anti-doping programme." Even Dick Pound (2011b), former IOC vice-president and founding president of WADA, is very critical:

The response to doping in sport, on the part of sports authorities and governments, did not come until long after the phenomenon was recognized as a serious problem in virtually every sport. Years and years and years of endemic doping in cycling passed almost without notice and, when it was noticed, it was denied or passed off as an isolated aberration. The growing use of anabolic steroids, stimulants and other doping methods in other sports were met with institutional denial, individual lies and inconsequential sanctions. Testing was introduced with enormous reluctance and testing programs were normally limited to in-competition tests, in which a positive test was, in effect, failure of an intelligence test as much as a doping test.

In particular, it has been suggested that the IOC's longstanding neglect of doping was driven by its growing concern with commercial issues, since effective controls would expose major athletes and alienate Olympic corporate sponsors (Hoberman 2001: 245; see also MacAloon, 2001: 213). This critical view of the IOC was reinforced by persistent allegations of suppressed positive test results and reported positive tests for which no action was taken at several Olympic Games during the 1980s (Hanstad, Smith and Waddington, 2008: 230). At the Moscow Olympics in 1980, for example, no positive test results were reported, but the urine samples were re-tested after the Games by the German drug-testing expert Prof. Manfred Donike, who found that 20% of the samples tested positive for testosterone (Teetzel, 2004 quoted in Hanstad, Smith and Waddington, 2008: 231). More recently, concerns about the effectiveness of Olympic drug testing, including possible manipulation of athletes' urine and blood samples by WADA-accredited laboratories, were also raised in connection with the 2008 Beijing Olympic Games (McGraht, 2008).

Even if they are determined, national and international sports ruling bodies often do not have the means to detect and prosecute suppliers. To quote Pound (2011b) again:

In the case of doping, there are many measures which sport organizations have no legal power to take or adopt. They cannot enter premises to seize evidence. They cannot tap or intercept phone and other messages which might be evidence of corruption. They cannot compel the giving of evidence under oath. They cannot seize funds. They cannot require the licensing of organizations or individuals beyond the scope of their own jurisdiction. They cannot demand access to information in the possession of public officials. They cannot demand or obtain banking records or records of transfer of funds. These measures are, uniquely, in the hands of public authorities.

Although three of the eight doping violations included in the World Anti-Doping Code also address suppliers, WADA itself admits that the current control regime has "focus[ed] squarely on athletes."

Driven by growing skepticism towards the IOC's and international sports federations' self-regulation, from the 1990s national governments have progressively taken some responsibility for anti-doping. The establishment of WADA in 1999 constitutes the high point of this trend so far. WADA has, in fact, been funded on an equal basis by governments and by the IOC, and its governing bodies, the Council and the Executive Committee, both have equal representation from governments and the IOC. The moment might have come for governments to realize that even WADA, despite the best intentions of WADA's leadership, cannot tackle the supply of doping products and that they have to take even more direct responsibility for this task.

In doing so, governments should be driven not only by the pursuit of effectiveness in doping control but also by the pursuit of fairness. Francesca Delon, one of the few athletes who found the courage to report her trainer to the CONI Anti-Doping Prosecutor's Office for advising her and other athletes to take steroids and other doping substances, rightly noted the following:

I told only the truth to the judge. I did it because whenever there is a case of doping, people say: It is the athlete's fault, and the athlete is found guilty, is punished. And rightly so. However, I ask myself: And those behind the scenes, when do they pay? Because those who advise and propose [the use of doping products] are at least as guilty as the athlete who agrees to take them. It is right to share the burden, as the trainer is very important for a boy or girl [playing sports], has an enormous power of persuasion (Zambardino, 1993a).

Driven by the simultaneous pursuit of effectiveness and fairness, governments should also make sure that the few athletes who have the courage to become whistleblowers are protected from the revenge of their trainers, employers and colleagues and are able to continue pursuing their sporting careers.

Policy

Anti-doping law enforcement is more effective than testing in documenting sports rule violations by athletes' support personnel, revealing the mechanisms and actors involved in the supply of doping products and deterring at least some of the latter. Criminal investigations can also provide the necessary evidence to build the cases for sports rule proceedings against athletes and their support personnel. However, they presuppose an integrated approach with no a priori distinction between the use of doping products in elite sports and other contexts.

By comparing NAS and testing costs and estimating that the former are about a third of the latter, we have shown that criminal investigations, even if they are substantial and continuous such as in Italy, are much cheaper than testing. The difference in costs has also been emphasized by high-level WADA officers. In a 2011 speech, WADA President Fahey noted that law enforcement action and intelligence sharing between law enforcement agencies and national anti-doping organizations constitute not only the future of anti-doping but are "far less expensive than taking blood and urine and going to laboratories" (e.g., UK Antidoping, 2011).

Law enforcement action is not only cheaper but also more effective. As Turin prosecutor Guariniello (2011) notes, "In Turin, during the 2006 Winter Olympics, it took one night of raids to collect items that a thousand tests carried out by a renowned laboratory on urine and blood samples had failed to bring to light." Referring to the same event, Prof. Arne Ljungqvist (2010), WADA Vice-President and the head of the IOC Medical Commission, echoes Guariniello: "if there had not been the Italian law, the case would have never been detected, as all athletes tested negative. You can draw your own lessons from it."

The few other national law enforcement agencies that have granted jurisdiction in the field of anti-doping also report positive experiences, with a rapid increase in the number of investigations, suspects and substances seized (for Denmark, see Andersen, 2012; Anti Doping Denmark et al, [2012]: 100-01; for Australia, ASADA, 2012; for Austria, Holzer, 2011; for Germany, Gräber and Mühlbauer, 2011).

Some NADOs also highly praise the cooperation with law enforcement agencies. In its 2010-11 Annual Report, for example, the Australian Anti-Doping Agency (ASADA) wrote the following:

Good relationships between ASADA and relevant government and non-government agencies are critical to eliminating doping in sport. One of our vital partnerships is with the Australian Customs and Border Protection Service (Customs), the agency responsible for seizing importations of prohibited substances entering Australia. During the year, we continually received assistance from Customs while also working collaboratively on a number of individual investigations. In 2010–11 we analysed 2,968 referrals of performance and image-enhancing drugs (ASADA, 2012: 51).

The disproportionate number of cases involving athletes' support personnel that originated from Italian investigations and have been dealt by CAS (Haas, personal communication, 2012; see chapter 7) further indicates the potential of intelligence and evidence sharing between anti-doping and law enforcement agencies. Criminal proceedings are slow and, especially in Italy, may not even end up with a conviction. However, law enforcement agencies have investigative methods, such as searches and wiretapping, that are not available to sports ruling bodies. Despite their limited powers, the latter can rapidly impose sanctions, such as a competition ban, that are much more effective against elite athletes and their teams than the prospect of having to pay a fine or even serving time in prison two or three years after the start of an investigation. (As noted earlier, however, the World Anti-Doping Code does not yet foresee effective sanctions for sports organizations other than teams.)

Not only can NADOs profit from cooperation with law enforcement, but law enforcement can profit as well. In 2010, for example, Danish customs (SKAT) decided to target doping substances in its control work, after having started collaborating closely with the local NADO; this led to an increased awareness of the problem among SKAT officers and a rapid increase in seizures. Building upon these initial experiences, in 2010 Danish customs decided to prioritize the trade in doping substances and set up an impressive nationwide campaign, which included the following measures

- further training of customs officers in doping-related matters
- further training of sniffer dogs to teach them to detect doping substances
- targeted control operations throughout Denmark at airports, ports, border crossings and mail and courier centres
- increased collaboration with key individuals at mail and courier centres who can alert SKAT to suspicious consignments
- risk analyses and blocking of consignments in the customs clearance systems, profiling of individual persons connected with doping substances, chemicals, ampoules and equipment and other items that can be used for illegal production of doping substances
- post-analysis of doping cases by SKAT
- creation of a relevant contact network with other authorities in Denmark and abroad, including customs authorities and the police
- preventive measures such as information campaigns, lectures, creation of a page on SKAT's website for preventive information, etc.
- collaboration on projects involving white-collar crime on the Internet
- targeted PR [public relations] regarding anti-doping work
- a focus on doping by police officers who investigate and deal with doping cases to enable prosecution of the parties involved (Anti Doping Denmark et al. [2012]: 101).

This impressive program could serve as inspiration for any customs agency that intends to intensify its anti-doping activities. However, law enforcement action and intelligence sharing between law enforcement agencies and national anti-doping organizations presuppose that the latter and WADA are willing —and have the financial

and personnel means—to go beyond their current focus on doping in elite sports and address instead the entire spectrum of misuse of doping products for performance or image enhancing purposes and the related channels of supply. In fact, law enforcement agencies cannot know in advance if a supplier is servicing elite or recreational athletes or noncompetitive sportspeople. Indeed, as the Italian experience shows, many suppliers, with the partial exception of those belonging to the organized sports world, are happy to make money by offering their drugs and services to different types of users.

Criminal investigations are hampered by the lack of harmonized cross-national criminal legislation. Given the cross-national nature of many doping exchanges, comparable offenses and sanctions need to be introduced in order to prevent criminal investigation from stopping at the national borders.

As shown in chapter 7, many law enforcement officers in Italy complain about the difficulties of international cooperation. These assessments are echoed by their foreign counterparts. For example, Andreas Holzer (2011: 14), head of the Special Commission Doping of the Austrian Federal Criminal Police Office (BKA), recently stated: "Different legal bases and provisions in the countries make international cooperation relatively difficult: the trade in doping products works like the trade in drugs, and there should also be international cooperation in the fight against the former [as there is in the fight against the latter]." Asked to assess the availability of steroids over the Internet, the U.S. General Accounting Office came to the following conclusion:

There is a readily available supply of steroids worldwide, because in most countries, anabolic steroids can be sold legally without a prescription. Thus many foreign distributors do not violate the laws of their countries when they sell these substances to people in the United States. As a result, US law enforcement agencies have difficulty in obtaining assistance from their foreign counterparts in investigations of such distributors (GAO, 2005: 5).

Even Mathieu Holz (2012), the Interpol officer responsible for anti-doping, complained about "the lack of priority in many states and a not harmonized regulation in the field"— despite the fact that article 8 of the 2005 UNESCO Convention against Doping in Sport (2011) calls on State Parties to "adopt measures against trafficking to athletes."

The persistent differences in anti-doping legislation, even within the EU, forcefully demonstrated by a survey carried out in 2009 by the German Federal Ministry of the Interior among 20 EU Member States on the criminal liability for the possession of substances prohibited under the UNESCO Convention. The German Federal Ministry concluded:

Member States have very different opinions in particular on the penalties under sport

and criminal law. Views range from strict bans against the possession of doping agents to an outright rejection of criminal liability. Between these poles there are various approaches which only partly penalize the possession of doping agents. In many countries the possession of some substances listed in Annex 1 of the UNESCO Convention is not punishable. Many substances are, however, subject to general provisions, e.g. laws on medicinal products, which also ban the possession of these substances. Other countries impose bans on the possession of doping agents only if it can be established that the accused intended to pass them on or sell them (e.g. in Denmark, Finland and the Netherlands). In some countries it is not punishable to possess doping agents, but athletes may be required to pay fines and lose their licence (Spain).¹⁷⁵

The survey also uncovered significant differences regarding the banned substances. While some countries ban all prohibited substances listed in Annex 1 of the UNESCO Convention, others only refer to certain substances or groups of substances. "There is no general trend in this field," concluded the German Federal Ministry of the Interior (2009: 3).

In a more systematic way, Parzeller and his colleagues (2009-10) compared the antidoping legislation of five European countries and came to slightly more positive conclusions. Regardless of the private or public law position of sports, they noted efforts in all selected countries to fight doping in sports with criminal law means and to address also the athletes' support personnel and therefore heterogeneous doping. They noted, however, that the relevant criminal law provisions had been often included in special laws (such as the ant-doping act or act regulating the sale and administration of medical drugs), and there were significant differences in sanctions (ibid.: 321-22).

From this review of law enforcement experts' opinions and the juridical literature, it is evident that law enforcement action against doping supply cannot reach its full potential if the relevant domestic legislation is not harmonized, building on the efforts made so far by several countries. At the very least, pending such a harmonization process, domestic law enforcement officers should be informed about those offenses covered by other countries' special laws which might at least partially correspond to similar domestic legislation. This seems to be a key aim of the review of worldwide anti-doping legislation—and specifically the provisions concerning trafficking and distribution—commissioned by UNESCO and WADA from Prof. Barrie Houlihan (WADA, 2009 b). This review was originally due at the end of 2009 but, most likely due to data collection difficulties, has not yet been published.

¹⁷⁵ A clear majority only emerged about the criminal liability for the possession of doping agents by athletes. Thirteen (13) out of twenty (20) countries stated that they had no intention to introduce such a liability for athletes, going beyond general provisions against prohibited substances. The two most recurrent reasons for such a stance were that "the sports movement should handle these problems within the sports" and that "the equality principle would be violated if athletes and nonathletes were treated differently, i.e. if only athletes were punished for the possession of certain substances." Italy did not answer the survey.

> To be conducted effectively, criminal investigations require specialized knowledge on the part of the relevant police officers and prosecutors. Various measures can and should be taken to develop such specialized knowledge.

The previous chapters have forcefully shown the fundamental role played by NAS in Italy's anti-doping investigations. Chapter 7 has also indicated the key contribution that can be made by the experts appointed to serve as consultants in criminal proceedings. These findings confirm a point also made by Turin prosecutor Guariniello (2011), namely, that "good legislation alone is not enough to combat doping." To make sure that the laws are enforced, Guariniello has proposed some operational guidelines based on his experience in the field:

- specialisation of magistrates (prosecutors, judges)
- searches and wiretaps
- immediate appointment of expert witnesses with a view to their active participation in preliminary investigations
- presence of expert witness reports in the records (inspections, searches, summary information, analysis of telephone conversations, interviews)
- establishment of an ongoing relationship with expert witnesses: regular joint meetings with expert witnesses in the various fields (medicine, chemistry, pharmacology) to request information and guidelines to help conduct investigations, to understand the evidence required, to guarantee consistency and the exchange of information, to speed up the filing of expert witness reports (and if necessary of interim reports)
- participation of the Public Prosecutor of First Instance in the appeal
- exchange of investigation protocols and experiences acquired between prosecutors' offices
- ongoing relationship with Judicial Police bodies
- joint training opportunities for magistrates and inspectors (technical subjects, interpretation of rules, activities of the Judicial Police) (Guariniello, 2011).

Another option that has also been discussed in chapter 7 and advocated by Guariniello is the establishment of prosecutor's offices specialized in doping or healthrelated offenses. Two such specialized offices have been recently established in two southern German states, namely Bavaria and Baden-Württemberg in 2009 and 2011. The records of the older Bavarian prosecutor's office vividly demonstrates the veritable leaps forward in the criminal prosecution of doping that can be achieved when a specialized team is set up, even in the absence of legislative changes (Gräber, 2011).

General

We still have insufficient knowledge about many key facts and trends related to doping. In order to develop and implement effective prevention and control policies, it is

necessary to set up, under WADA's coordination, national and international monitoring systems of the demand and the supply of doping products and of anti-doping policies. Even in a country such as Italy, which has shown over the years an unusual awareness for the problems of doping, many important data about this problem still remain uncollected. For example, some NAS officers (Int-NAS-10 and 25) noted that they are occasionally informed of emergency admissions seemingly caused by the abuse of steroids or other products, but that there is no protocol making sure that all suspicious admissions are recorded and reported. Until the present study, no effort had been made to centralize and make comparable the data about the substances seized by Italy's police forces.

The Swedish government has recently fully recognized the need for a comprehensive monitoring system on doping. In fact, one of the key provisions contained in the 2012 Action Plan for Alcohol, Narcotics, Doping and Tobacco (ANDT) policy consists of the development of a functioning national monitoring system for the ANDT strategy (Government Office of Sweden, 2012).

Ideally, the new national and international monitoring systems should collect data on the following items:

- on the demand side:
 - the number of respondents in household, school and gym surveys admitting the use of steroids and other doping products
 - the types and quantities of doping products consumed and
 - the number of doping-related emergency admissions and deaths;
- on the supply side:
 - the amounts of doping substances seized on the basis of standardized units so that the amounts can be added and compared
 - the share of counterfeited products out of those seized and sold
 - the prices of the different products, distinguishing between prices of substances at the wholesale and retail level
 - the share of the worldwide production of some key drugs, such as steroids, EPO and GH being misused for doping purposes
 - new products entering the market; and
- concerning anti-doping policies:
 - doping related criminal offenses and sanctions foreseen in different countries
 - the number of criminal proceedings and their outcomes (reports, suspects, defendants, case law and sanctions).

Some of the above-mentioned demand-related data are already being collected in several countries, albeit not always in a consistent and comparable manner. A number of countries, particularly in Scandinavia but also elsewhere (e.g., the Netherlands and USA; see Anti Doping Denmark et al., [2012]; Johnston et al., 2012), routinely survey high-school

students and/or households about their use of steroids, as has also taken place in Italy with the Italian Drugs and Alcohol Population Survey in 2007 (see chapter 2). Whereas the Italian government has never officially published its 2007 household survey data and has stopped collecting them in a more recent survey, other nations do publish these data in national reports, but the latter have never been centralized. Data about steroid use among 15-16 year old adolescents have instead been collected in a standardized way in several waves since 1997 as part of the European School Survey on Alcohol and Other Drugs (ESPAD). In 2007, the study comprised 35 countries and more than 100,000 students (Hibell et al., 2009; see also Hibell et al., 1997 and 2000). Given the concentration of doping use in gyms and fitness centers, it would also be advisable to organize periodic surveys among their patrons, as already happens in Sweden (Swedish National Institute of Public Health, 2010: 33). Ideally these surveys should be conducted on the basis of a standardized questionnaire to be used in different countries.

Very little information is as of yet available on other demand-side data. As discussed in the preceding pages, only a few studies have collected episodic data on the types and quantities of substances consumed and users' polypharmacy (e.g., Parkinson and Evans, 2006; Perry et al., 2011); they have, however, used different methodologies so that their results are not directly comparable. We are not aware of any country publishing data on doping-related emergency admissions and deaths.

As far as demand-related data are concerned, WADA or other bodies willing to set up such an international monitoring system could rely upon existing regional networks, such as ESPAD. These bodies could also take contact with the European Monitoring Centre on Drugs and Drug Addiction (EMCDDA), an EU agency that was set up in 1993 to provide the European Community (now EU) and its Member States with "factual, objective, reliable and comparable information at European level concerning drugs and drug addiction and their consequences" (EMCCDA, 2012). Since then, the EMCDDA has dramatically improved the quantity and quality of the data available, particularly about the demand for illegal drugs, setting up a network of national Focal Points in the EU's 27 member States and its associated countries (Norway and Turkey; see EMCDDA, 2011). In the last few years, the EMCDDA has also been attempting to develop and collect indicators concerning drug supply. Alternatively, WADA and other bodies could also enhance the existing cooperation with the United Nations Office on Drugs and Crime (UNODC), which also collects data on illicit drug demand and supply from the states that are party to the three UN conventions which constitute the pillars of the international drug control regime (see UNODC, 2012).

Given the more limited scope, the data collected by the EMCDDA through its networks of Focal Points are of better quality than those collected by UNODC. If WADA could reach an agreement with the EMCDDA, it might be able to set up a monitoring system at least for the prevalence of steroids in the general or school populations, the number of doping-related deaths and emergency admission in large parts of Europe or all over the world in a relatively timely and cost-effective manner. If these data already exist at the national level, the EMCCDA's national Focal Points would only have to add an item to their data collection protocols. If the data do not yet exist, the joint requests of WADA and EMCDDA might stimulate the collection of such items over time, setting up the positive dynamics that also enhanced the collection of drug-related data. A similar attempt, even if localized on a single continent, could become the cornerstone of a worldwide monitoring system. Countries like Australia and the United States that are already collecting data on the consumption of doping products would most likely be interested in contributing to it.

Aware of EMCDDA's difficulties in setting up indicators for drug supply trends, we anticipate greater hurdles in collecting comparable supply-side data than in collecting data on demand. As far as illegal drugs are concerned, in fact, law enforcement agencies have their own data collection and storing procedures, which are difficult to standardize because they usually reflect the requirements of different criminal justice systems. Nonetheless, WADA's eventual efforts to set up an international monitoring system of the supply of doping products might profit from the very novelty of the topic, as national data collection procedures might not be yet rigidly institutionalized as in the case of illegal drugs.

Data about the amounts of doping substances seized serve to monitor both the supply and policy outcomes. Given the multiplicity of products and different packaging available, WADA's crucial responsibility is to establish standardized units of measure, similar to the doping doses "invented" by NAS and Donati, to make sure that the seizure data from the individual countries can be compared and combined.

Whereas it is up to academic scholars to research the adverse effects of the different doping products, the national and international monitoring systems should collect data on the quality of the products seized and (if possible) sold, that is, the share of counterfeited products out of the total amount seized and sold. By collecting information on specialized websites, the national governments, NADOs and/or WADA could also rather easily collect information on the prices of the different products. If these internet data were complemented with data drawn from criminal investigations, those responsible for the monitoring systems could also distinguish between wholesale and retail prices. As happens in the field of illegal drugs (DEA, 2012), sample purchases could be arranged at regular intervals to monitor the prices and quality of the substances bought.

The national governments, NADOs and/or WADA could also develop early warning systems to monitor the new substances entering the market, as was done by De Hon & Van Kleij (2005) for the Netherlands. These two researchers regularly accessed internet forums to become aware of the new products being consumed. Internet searches, eventually supplemented by criminal investigations, could complement well the activities of the European Observatory for New Doping Substances established in 2011 at the German Sport University (2011) in Cologne, Germany. This observatory aims to obtain timely information about new drugs produced by the pharmaceutical industry that can be misused for doping purposes.

If it decides to establish an international early warning system, WADA could again profit from the EMCDDA's experience, which collects data on new psychoactive substances within EU jointly with Europol (EMCDDA, 2012). EMCDDA not only warns its national Focal Points about the availability of new substances, it can also collect information on these substances through the Focal Points. In at least one case, EMCDDA has collected data on a psychoactive substance that is also used for doping purposes, GHB or γ-Hydroxybutyric acid (EMCDDA, 2002).

Last but not least, national and international policy-makers are called on to collect data about the share of the worldwide production of some key drugs, such steroids, EPO and GH being misused for doping purposes. For some drugs with limited therapeutic value, such as gonadorelin, estimating this share could be rather straightforward, once the global production figures become available. For other drugs with multiple therapeutic usages, it would be much more difficult to monitor the share of legitimately-produced drugs that end up on the doping market. However, such estimates are crucial to negotiate a reduction of global drug production with pharmaceutical companies or at the very least to convince these companies to introduce more effective controls to cut down diversion.

We are not in a position to assess the extent to which national monitoring systems concerning anti-doping policies are already in place. The international monitoring system would have to be set up almost from scratch. However, the technical challenges are less daunting than for supply-side data; setting up an international monitoring system on anti-doping policies and their outcomes is primarily a question of political will. As far as we know, WADA and UNESCO have only commissioned a report on doping related legislation and sanctions from Barrie Houlihan from Loughborough University, but the report has not been published yet (WADA, 2011c). Beyond legislation, WADA could start requesting, and publishing on its website, data about the number of doping-related suspects and proceedings as well as the outcomes of those proceedings from the states party to the UNESCO Convention on a voluntary basis and then formalize the requirements after a trial period. Alternatively, WADA could instruct its NADOs to collect such data. Through the NADOs, WADA could also obtain copies of the verdicts of doping-related criminal proceedings and publish them on its website, after deleting all personal identification data, as it already does for CAS decisions.

We are convinced that with time such a monitoring system would not only give a much better overview of the different facets of the doping problem and related policy responses worldwide and allow evidence-based evaluations of the policy effectiveness but could also reciprocally stimulate national policy-makers to emulate the best practices of other countries.

Concluding Remarks: WADA at a Crossroads

We are fully aware of the fact that many of the above-mentioned suggestions and lessons for policy-making fall outside the scope of WADA's current mandate. Nonetheless, we are convinced that WADA can play a crucial role in campaigning to implement them.

In our view, WADA, along with its funding bodies and sponsors, finds itself at a crossroad. Pursuant to its current mandate, WADA may continue to focus on elite sports, as it has done until now. If its mandate were to be expanded, however, WADA could attempt to tackle the problem of doping in all its aspects. Remaining focused on elite athletes' testing means neglecting the reality of the public health problem represented by the spread of doping product use among recreational athletes and noncompetitive sportspeople. In our view, a broader approach could also help better contain the problem of doping in sports. Our analysis of the Italian market for doping products has clearly shown that there is no clear-cut separation between elite and recreational sports. As argued in the previous pages, criminal prosecution and other supply-side interventions can deliver positive results but presuppose an integrated approach, with no a priori distinction between doping in sports and other contexts. In fact, the law enforcement agencies and other bodies eventually called on to implement such interventions cannot know in advance who the final customers of the suppliers they investigate are. To quote once more the Italian Prosecutor Guariniello (2011), "numerous investigations and verdicts have shed light on the criminality of the trade in performance-enhancing substances, even if the trader has no intention of altering the competitive performance of athletes. This situation is exemplified by the trade directed at users who do not take part in competitive activities even though they attend fitness clubs or take part in sporting activities."

To enable WADA to adopt a broader approach encompassing different aspects of the doping problem, national governments are called on not only to broaden WADA's mandate but also to provide it with sufficient resources to manage the new tasks and operate effectively. "The sport industry is estimated now to be an \$800 billion a year business," WADA Director General Howman (2011) notes. Referring to the yearly amounts worldwide invested in anti-doping, he goes on: "Spending \$300 million to protect the integrity of such a business does not seem to be an awful amount of money. In fact, one could easily mount an argument that sport is not spending enough to defeat the biggest scourge it currently confronts."

Alas, since 1999 many national governments have not shown persistent commitment in supporting WADA's activities. Governments, for example, often fail to pay their promised contributions on time, sometimes not paying at all, or oppose even modest increases in WADA's budget (Sportausschuss, 2011: 12).¹⁷⁶ Since the IOC has a policy of

¹⁷⁶ In 2012, for example, WADA (2012b) invoiced national governments US\$13,201,048 but received only US\$10,613,946, thus US\$2,596,102 less than expected. As the IOC pays only matching
only matching payments that governments have already made to WADA, when governments fail to pay a certain amount, the IOC also refuses to pay the same amount; as a result, WADA loses twice the amount the governments have held back (WADA, 2012c). In such a way, governments prevent WADA from fulfilling properly even its current mandate—for example due to financial restrictions, not all samples are tested for EPO (Howman, 2011).

To quote once again Pound (2011a):

How committed are both governments and sports authorities to the fight against doping in sport, as measured by how much they are willing to support the activities of WADA? My experience is that the sports authorities in particular are unwilling to recognize the importance of and to support robust anti-doping programs. The Government members of WADA are consumed by finding ways to reduce their expenditures, rather than to increase them.

We regularly encounter statistical manipulation by governments. When the absolute numbers are ridiculously low, given the challenges faced in the fight against doping in sport, people point to percentages, rather than numbers. An annual budget of US\$25 million, to cover 215 countries is miniscule. If we wish to increase a budget category from, say, \$6 million to \$12 million, the absolute amount of \$6 million, divided by two, to result in governments paying, collectively, \$3 million, is minimal. But, instead, they resort to percentages, screaming that it represents a 100% increase. This is particularly the case for governments, which, in my view, confuse, perhaps deliberately, effective programming and budget management. This put in play their real commitment to the fight against doping in sport.

At the same time, all parties, both government and sport, are continually calling upon WADA to increase its activities, but they are unwilling to pay for such activities.

Parties, particularly the sport side of the equation, are continually looking for ways to transfer their responsibility for anti-doping activities to someone else, whether WADA or governments.

If governments and sports ruling bodies do not show a more consistent engagement against doping, they should not be surprised if the outcomes of anti-doping policies are disappointing.

funds, WADA thus faced an unexpected loss of over 5 million dollars corresponding to about 20% of its budget.

APPENDIX 1.

Suppliers

- Gender
- Age at the time of investigation
- Education at the time of investigation
- Ethnicity/nationality/country of residence
- Involvement in producing/trafficking doping products, including the level or stage of the market and role in producing/trafficking enterprises, if relevant
- Background and possible role in elite or recreational sport (e.g., professional criminal, physician, team manager, professional or recreational sportsman, student)
- Criminal records
- "Criminal career" (e.g., how did the offender start producing/trafficking doping products; was h/she involved in any other related or unrelated criminal activities?)
- Motivation (e.g., money, medals, prestige, other)

Enterprises and modus operandi (For each item, we are interested in both the current state of play and in trends or shifts over time.)

- Composition and stability of producing/trafficking enterprises (including number of "employees," duration of "employment" relationships and duration of overall enterprise)
- Level or stage of market at which enterprises operate (wholesale, middle, retail)
- Doping products produced/trafficked
- Production/trafficking throughput, consisting of scale (minimum, maximum and average quantity of substances produced/trafficked) and frequency
- Production/trafficking techniques (e.g., use of labs, techniques, smuggling, marketing and other sales techniques, dilution or "cutting," internet use)
- Production/trafficking sites (e.g., legitimate pharmaceutical businesses, homes, gyms, professional premises, schools and universities, internet, others)
- Sources of financing for production and trafficking enterprises (e.g., reinvestment of doping revenues or revenues from other crimes, misappropriation of university/public funds, misuse of sport team funds, legitimate income, other)
- Sources of products (diversion v. black market; domestic v. foreign)
- Efforts to conceal doping business/degree of secrecy, including adaptive responses to law enforcement and judicial actions
- Use or threat of use of violence
- Use of corruption
- Revenues, profits, shares of profits spent and saved, and location of spending and savings (do funds flow out of or remain in Italy?)

Products and markets (For each item, we are interested in both the current state of play and in trends or shifts over time.)

- Doping products, i.e., substances and methods, produced/trafficked
- Market levels or stages for each product

- Throughput of products at each market level or stage, accounting, if possible, for product dilution or "cutting"
- Costs of production/trafficking at each market level or stage
- Prices of products at each market level or stage
- Estimation of number of production/trafficking enterprises for each product and at each market level or stage
- Relationships among enterprises (e.g., collaboration or competition)
- Degree of integration of market for each doping product with markets for other doping products and other legal and illegal drugs
- Number of users of main doping products, distinguishing, if possible, between past and current users and between occasional and heavy users
- Amounts used, distinguishing between occasional and heavy users

Control efforts (For each item, we are interested in both the current state of play and in trends or shifts over time.)

- Number of anti-doping investigations, reports, and arrests per year and per regional unit of the NAS (Nuclei Antisofisticazioni e Sanità) of the Carabinieri
- Number of anti-doping investigations, reports, and arrests per year by other police units or law enforcement authorities
- Resulting convictions and sentences, including the nature of sentences (e.g., monetary fines, losses of titles, imprisonment)
- Personnel and other resources devoted to anti-doping per NAS unit
- Relationships between NAS/anti-doping units and judicial authorities (What priority do prosecutors and judges give to anti-doping investigations? How have their attitudes changed over time? Do they appear to be adhering to a particular policy or are their actions more reflective of single personalities?)
- Relationships between NAS/anti-doping units and the Commissione per la Vigilanza ed il controllo sul Doping e per la tutela della salute nelle attività sportive (hereafter CVD)
- Number of criminal investigations arising from anti-doping tests of athletes
- Relationships between NAS/anti-doping units and international police agencies
- Number of anti-doping investigations in Italy that originate from, or involve some amount of international cooperation
- Challenges that anti-doping law enforcement and judicial authorities face, especially with respect to supply control

REFERENCES

Adnkronos. 1998. Commissione Grosso: Doping, 'Federcalcio Corresponsabile'. Online available at:

http://www.adnkronos.com/Archivio/AdnAgenzia/1998/10/14/Sport/COMMISSIONE-GROSSO-DOPING-FEDERCALCIO-CORRESPONSABILE_172900.php.

- ----. 2012. Torino: Doping 2006 a casa Austria, tre condanne e 6 assoluzioni.
- AFP. 2002. IOC cannot win doping war, says Rogge. Online available at:
 - http://archives.dawn.com/2002/01/01/spt14.htm
- ———. 2007. Couto Receives Suspended Prison Sentence for Doping. Online available at: http://www.soccerway.com/news/2007/April/02/couto-receives-suspended-prisonsentence-for-doping/.
- ———. 2011. WADA chief says more must be done in doping fight. November 14. Online available at:

http://www.google.com/hostednews/afp/article/ALeqM5g9YYPqsDJbXuqeugjD3f7IL9q 0FQ?docId=CNG.f8a1357252414e391fa429a67d8b9601.4a1.

- Akinde, Michael. 2006. Cycling's Winter of Discontent. The Reason Why. *Daily Peloton*. Online available at: http://www.dailypeloton.com/displayarticle.asp?pk=10163.
- Anti Doping Denmark, Dopingautoriteit, STAD, Instytut Sportu and CyADA. [2012.] Strategy for Stopping Steroids. Online available at:

http://www.antydoping.pl/upload/2012/strategy_for_stopping_steroids_report_web.p df.

- Arioli, Giovanni and Vincenza Bellini. 2005. *Disposizioni penali in materia di doping*. Milan: Giuffré.
- Arlacchi, Pino and Roger Lewis. 1990. *Imprenditorialità illecita e droga. Il mercato dell'eroina a Verona*. Bologna, Il Mulino.
- Ashenden M., C. Gough, A. Garnham, C. Gore and K. Sharpe 2011. Current Markers of the Athlete Blood Passport Do not Flag Microdose EPO Doping. *European Journal of Applied Physiology* 111(9): 2307-2314.
- Associated Press. 2008. Doping Inquiry Is Halted. October 3. Online available at: http://query.nytimes.com/gst/fullpage.html?res=9F07EFDD113FF930A35753C1A96E9C 8B63.
- ———. 2001. Italian Reports: Thyssenkrupp Executives Convicted. April 15. Online available at:http://www.boston.com/business/articles/2011/04/15/italian_reports_thyssenkrup p_executives_convicted/
- ASADA, Australian Sports Anti-Doping Authority. 2012. 2010:11 Annual Report. Online available at:

http://www.asada.gov.au/publications/annual_reports/asada_annual_report_2010_11 /downloads/ASADA_annual_report_2010_11.pdf.

Audisio, Emanuela. 1986. I sussurri dopo la droga. *La Repubblica*. March 1986: 18. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/1986/03/20/sussurri-dopo-la-droga.html.

— — . 1987a. A un anno da Seoul lo sprint azzurro e' di nuovo nel caos. La Repubblica.
 October 29: 26. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/1987/10/29/un-anno-da-seoul-lo-sprint.html.

- ———. 1987b. "Hanno ucciso l'atletica." La Repubblica. December 16: 49. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/1987/12/16/hanno-uccisoatletica.html.
- ———. 1987c. Nebiolo fugge nel silenzio. La Repubblica. December 24: 17. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/1987/12/24/nebiolo-fuggenel-silenzio.html.
- — —. 2000. Ora la legge apre una nuova era Abbiate la forza di applicarla. La Repubblica. November 18: 58. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2000/11/18/ora-la-leggeapre-una-nuova-era.html.
- ———. Ho parlato, mi hanno distrutto ma adesso la svolta è matura. La Repubblica. May 9: 58. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2007/05/09/ho-parlato-mi-hanno-distrutto-ma-adesso.html.

- Ayres, Ian and John Braithwaite. 1992. *Responsive Regulation: Transcending the Deregulation Debate*. New York: Oxford University Press.
- Backhouse, Susan, Jim McKenna, Simon Robinson and Andrew Atkin. 2007. International Literature Review: Attitudes, Behaviours, Knowldege and Education – Drugs in Sport: Past, Present and Future. Online available at: http://www.wadaama.org/rtecontent/document/Backhouse_et_al_Full_Report.pdf.
- Baker, J. S., M. Graham and B. Davies. 2006. Gym Users and Abuse of Prescription Drugs. Journal of the Royal Society of Medicine, 99: 331-333
- Bannenberg, Britta and Dieter Rössner. 2006. Straftat gegen den Wettbewerb. Plädoyer für den Einsatz des Strafrechts bei Dopingverstößen. In Weinreich, J. ed., Korruption im Sport. Mafiöse Dribblings, Organisiertes Schweigen, Leipzig: Forum: 214-227.
- Bassons, Christophe. 2000. Positif. Paris: Stock.
- *BBC*. 2009. Boonen banned from Tour de France. Online available at:
 - http://news.bbc.co.uk/sport2/hi/other_sports/cycling/8041462.stm
- Beel, A., B. Maycock and N. McClean. 1998. Current perspectives on anabolic steroids. *Drug Alcohol Review*. 17, 87–103.
- Bellotti, Pasquale. 1999. Perizia del dottor Pasquale Bellotti e del centro di ematologia dell'ospedale Careggi di Firenze
- ----. 2009. Relazione al II° Master Intensivo per Ispettore Investigativo Antidoping.
- Bergonzi, Pier und Ernst Kindhauser. 2001. Die seltsamen Methoden des «Dottor Mito» *Die Weltwoche*, No. 38/2001. Online available at:
- http://www.weltwoche.ch/ausgaben/2001-38/artikel-2001-38-die-seltsamen-me.html. Berendonk, Brigitte. 1992. *Doping: von der Forschung zum Betrug*. Hamburg: Rowohlt.
- Berruti, Giuseppe M. 2011. Perché i magistrati sono protagonisti. *La Repubblica*. July 27: 28. Online available at:
 - http://ricerca.repubblica.it/repubblica/archivio/repubblica/2011/07/27/perchemagistrati-sono-protagonisti.html.
- Bette, Karl-Heinrich. 2011. Sportsoziologische Aufklärung: Studien zum Sport der modernen Gesellschaft. Bielefeld: transcript.

- Bette, Karl-Heinrich and Uwe Schimank. 2000. "Doping als Konstellationsprodukt. Eine soziologische Analyse". In: Gamper, M., Mühlethaler, J., Reidhaar, F. (ed.): Doping. Spitzensport als gesellschaftliches Problem. Zürich: NZZ: 91-112.
- ———. 2006. *Doping im Hochleistungssport. Anpassung durch Abweichung*. Frankfurt: Suhrkamp.
- Blackshaw, Ian. N.d. Winning the War on Doping. Online available at: http://www.asser.nl/default.aspx?site_id=11&level1=13910&level2=13974&level3=&te xtid=35949.
- ———. ISLJ Opinion: WADA Should Ban Athletes Who Take Recreational Drugs. Online available at:

http://www.asser.nl/default.aspx?site_id=11&level1=13910&level2=13974&level3=&te xtid=35961.

- Blumenthal, Zachary. 2010. The punishment of all athletes: the need for a new worldantidoping code in sports. *Journal of International Business & Law*, 9, 201-230.
- Bolding, G., L. Sherr, and J. Elford. 2002. Use of anabolic steroids and associated health risks among gay men attending London gyms. *Addiction* 97:195–201.
- Bouchard, Martin and Carlo Morselli. 2013. Opportunistic Structures of Organized Crime. In L. Paoli. ed., *Oxford Handbook of Organized Crime*. New York. Oxford University Press.
- Braithwaite, John. 1984. Corporate Crime in the Pharmaceutical Industry. London: Routledge.
- ———. 1985. White Collar Crime, Annual Review of Sociology, 11, 1-25.
- ———. 1993. The Transnational Regulation of the Pharmaceutical Industry. Annals of the American Society of Political Sciences, 535, 12-30.
- Braithwaite, Valerie and John Braithwaite (s.d.). *An evolving compliance model for tax enforcement.* Online available at:
 - http://vab.anu.edu.au/pubs/1/anevolvingcompliance.pdf

Berwick, Andrew (Anders Behring Breivik). 2011. A European Declaration of Independence. London. Online available at: http://unitednations.ispnw.org/archives/breivikmanifesto-2011.pdf.

- Brissonneau, Christophe. 2007. "Le dopage dans le cyclisme professionnel au milieu des années 1990: une reconstruction des valeurs sportives." *Déviance et Société*, 2: 129-148.
- Brissonneau, Christophe, Olivier Aubel and Fabien Ohl. 2008. *L'épreuve du dopage. Sociologie du cyclisme professionnel*. Paris: Presses Universitaires De France.
- Brissonneau, C., Jacques Defrance, Bertrand Fincoeur, Vanessa Lentillon-Kaestner, and Fabien Ohl. 2009. *Carrière sportive et socialisation secondaire en cyclisme sur route : les cas de la Belgique, la France et la Suisse*. Lausanne: World Anti-Doping Agency.
- Brown, Gregor and Ben Abrahams. 2007. First Edition Cycling News, December 18, 2007: Santuccione banned for life. *Cycling News*. Online available at:

http://autobus.cyclingnews.com/news.php?id=news/2007/dec07/dec18news.

- Buckley W. E., C. E. III Yesalis, K.E. Friedl, W.A. Anderson, A.L. Streit and J.E. Wright. 1988. Estimated prevalence of anabolic steroid use among male high school seniors. *Journal* of the American Medical Association, 260, 3441–5.
- Bundeskriminalamt. 2011. Operation "Sladge-Hammer" und "International Pharmaceuticals". Online available at:

http://www.bmi.gv.at/cms/BK/presse/files/2_2_2011_Operation_Sladge_Hammer_un d_intern_Pharmaceuticals.pdf.

- Camoni, Laura, Mario Franco, Lucia Pugliese, Maurizio Biondi, Giovanni Rezza. 1997. Gli steroidi anabolizzanti come sostanza d'abuso. *Bollettino Per Le Farmacodipendenze E L'alcoolismo*. XX (4).
- Capodacqua, Eugenio. 1989a. Obbligati a prendere steroidi. *La Repubblica*. October 13: 38. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/1989/10/13/obbligatiprendere-steroidi.html.

- — . 1989b. Seul, fu anche doping italiano. La Repubblica. October 12: 38. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/1989/10/12/seul-fuanche-doping-italiano.html.
- ———. 1993. I due Conconi. La Repubblica. November 4: 25. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/1993/11/04/dueconconi.html.
- ———. 1996a. 'Attenti, vi aspettano fate sparire tutto'. *La Repubblica*. October 26: 42. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/1996/10/26/attenti-vi-aspettano-fate-sparire-tutto.html.

———. 1996b. Tutti i veleni finiscono in Procura. La Repubblica. November 1: 46. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/1996/11/01/tutti-veleni-finiscono-in-procura.html.

- ———. 1997. La Repubblica: March 15: 51. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/1997/03/15/il-laboratoriodei-misteri.html.
- ———. 2000a. Accuse choc da Ferrara: il Coni dietro al doping. La Repubblica. Online available at: http://www.repubblica.it/online/sport/pantapro/con/con.html?ref=search.
- — —. 2000b. Doping, non c'è solo Pantani inchiesta sul ct Fusi e Tonkov. La Repubblica.
 December 21: 57. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2000/12/21/doping-non-
- solo-pantani-inchiesta-sul.html. ———. 2001. Processo al dr. Ferrari E si riapre il caso gH. *La Repubblica*. February 13: 54.

Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2001/02/13/processo-al-drferrari-si-riapre-il.html.

———. 2002a. Brescia, inchiesta sul calcio il caso Guardiola nel mirino. La Repubblica. June 6:
 58. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2002/06/06/brescia-inchiesta-sul-calcio-il-caso-guardiola.html.

— — . 2002b. Il medico dei ciclisti al farmacista Hai il Dhea? Voglio 30 scatole. La Repubblica.
 April 27: 46. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2002/04/27/il-medico-deiciclisti-al-farmacista-hai.html.

— — —. 2003. Il file Dblab con i valori del sangue alterati. La Repubblica. November 20: 60.
 Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2003/11/20/il-file-dblab-con-valori-del-sangue.html.

- — . 2009. Padova, inchiesta doping arrestato dirigente Serbia. La Repubblica. November 20: 60. Online available at: http://www.repubblica.it/2009/07/sport/ciclismo/dopingct-serbia/doping-ct-serbia.html.
- Carabinieri. 2012. Comando Carabinieri per la tutela della salute. Online available at: http://www.carabinieri.it/Internet/Cittadino/Informazioni/Tutela/Salute/default.htm.
- Carlton, Dennis W. and Daniel Fischel. 1982-83. The Regulation of Insider Trading. *Stanford Law Review* 35: 57.
- CAS, Court of Arbitration for Sport. 2008. Arbitral Award delivered by the Court of Arbitration of Sport. CAS 2008/A/1516 WADA v/CONI, FITET and Piacentini. Online available at: http://www.wada-ama.org/rtecontent/document/CAS_2008_A_1516.pdf.
- Cascella, Paola. 2008. Anabolizzanti Marco Verzelli di nuovo in manette. July 30: 7 of the Bologna section. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2008/07/30/anabolizzantimarco-verzelli-di-nuovo-in-manette.html.
- Casoni, I. G. Ricci, E. Ballarin, C. Borsetto, G. Grazzi, C. Guglielmini, F. Manfredini, G. Mazzoni,
 M. Patracchini, E. De Paoli Vitali, F. Rigolin, S. Bartalotta, G.P. Franze, M. Masotti and F.
 Conconi, F. 1993. Hematological indices of erythropoietin administration in athletes.
 International Journal of Sports Medicine 14(6): 307-311.
- Centamore, Rosario. [2011]. Gutachten Italien. In Markus Parzeller, ed., Rechtsvergleich der strafrechtlichen Normen und der strafprozessualen Verfolgung des Dopings im Leistungs- und Spitzensport in Deutschland, Frankreich, Italien, Schweiz und Spanien. Bonn: Bundesinstitut für Sportwissenschaft.
- CEPEJ, European Commission for the Efficiency of Justice of the Council of Europe. 2007. *Monitoring and Evaluation of Court System*: A Comparative Study Report prepared by the Research Team, Gar Yein Ng, Marco Velicogna and Cristina Dallara and discussed by the CEPEJ-GT-EVAL at their 8th meeting. Online available at:
 - http://www.coe.int/t/dghl/cooperation/cepej/series/Etudes6Suivi_en.pdf.
- ———. 2010. European Judicial Systems. Edition 2010 (data 2008): Efficiency and Quality of Justice. Online available at:

http://book.coe.int/EN/ficheouvrage.php?PAGEID=36&lang=EN&produit_aliasid=2341.

Chambliss, William J. 1967. Types of deviance and the effectiveness of legal sanctions.

- Wisconsin Law Review. Summer: 703-19.
- Chantal, Y., R. Soubranne and P.C. Brunel. 2009. Exploring the social image of anabolic steroids users through motivation, sports personship orientations and aggression. *Scandinavian Journal of Medicine & Science in Sports* 19(2): 228–234.
- Chiusano, Mattia. 1993. Test sul sangue a Lillehammer, con prudenza La Repubblica. March 19: 30. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/1993/03/19/test-sul-sangue-lillehammer-con-prudenza.html.

- ———. 2000. Medaglie nella tempesta. La Repubblica. October 15: 57. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2000/10/15/medaglienella-tempesta.html
- Christiansen, Ask V. 2005. "The Legacy of Festina. Patterns of Drug Use in European Cycling since 1999." *Sport in History*, 25 (3), 497-514.

Clarke, Michael. 1990. Business Crime: Its Nature and Control. Oxford: Polity Press.

Clinard, Marshall, and Richard Quinney, 1973. Criminal behavior systems: A typology (2nd ed.). NewYork: Holt, Rinehart and Winston.

- Coackley, Jay and Elisabeth Pipe. 2009. Sport in Society: Issues and Controversies. Boston: McGraw Hill.
- Coffee, John C. 2007. Law and the Market: The Impact of Enforcement. *Columbia Law and Economics Working Paper No. 304.* Online available at: http://heinonline.org/HOL/Page?handle=hein.journals/pnlr156&div=15&g_sent=1&coll ection=journals.
- Conconi, F., I. Casoni, F. Manfredini, G. Mazzoni, G. Grazzi, C. Guglielmini, E. Ballarin, C. Borsetto, D. Buzzoni, G. Guerra, G. Ricci, M. Dapporto, F. Rigolin. 1994. Est-il possible de déceler la prise d'érythropoiétine en sport? In P. Hemmersbach, K.I. Birkeland, eds. Blood samples in doping control: proceedings of the Second International Symposium on Drugs in Sports. Towards the use of blood samples in doping control. Oslo: Pensumtjeneste: 133-140.
- CONI, Comitato Olimpico Nazionale Italiano. 2008. *I numeri dello sport. Monitoraggio CONI_FSN-DSA.* Online available at:

http://www.coni.it/fileadmin/ops2008/Tavole_Nazionali_Sintetiche_FSN-DSA__2008.pdf.

———. 2012. Dati statistici. Online available at: http://www.coni.it/index.php?dati_statistici. Online available at:

http://www.coni.it/fileadmin/_temp_/coni/pdf/controlli_statistici_1987_2000.pdf.

CONI, Comitato Olimpico Nazionale Italiano and Censis Servizi. 2008. I Rapporto Sport & Società. 1 November. Online available at:

http://www.coni.it/fileadmin/ops2008/09/ReportSport_e_Societ_2008_01.pdf.

- Conference of Parties to the International Convention against Doping in Sport. 2011. Implementation of Article 8 of the International Convention against Doping in Sport. Item 7.2 of the Provisional Agenda. ICDS/3CP/Inf.2. November 1. Online available at: http://unesdoc.unesco.org/images/0021/002140/214045e.pdf.
- Contini, Francesco and Marco Fabri. 2006. Tecnologie e organizzazione giudiziaria in Italia e in Europa. *Sociologia del Diritto*, 2, 129-140.
- Cnn.com. 2006. Rumsas receives suspended sentence. Online available at: http://edition.cnn.com/2006/SPORT/01/26/cycling.rumsas/.
- Corbo, Antonio. 2004. Delitti, bicarbonato e cocaina in vent' anni di business e sangue. *La Repubblica*. December 23: 2 of the Naples section. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2004/12/23/delittibicarbonato-cocaina-in-vent-anni-di.html.
- *Corriere della Sera, Il.* 2005. Doping al Tour, arrestato Dario Frigo. Online available at: http://www.corriere.it/Primo_Piano/Sport/2005/07_Luglio/13/frigo.shtml.
- ———. 2009. Culturista uccide a coltellate la moglie. Online available at: http://archiviostorico.corriere.it/2009/aprile/18/Culturista_uccide_coltellate_moglie_c o_7_090418011.shtml.
- Corte d'Appello di Bologna, Prima Sezione Penale. Sentenza in data 22 maggio 2006. N 2005/0831 R.G.
- Corte Suprema di Cassazione, Sezione Seconda Penale. 2007. Sentenza sul ricorso proposto dalla Procura Generale presso la Corte d'Appello di Torino e dal difensore dell'imputato A.G. avverso la sentenza emessa dalla Corte d'Appello della stessa città in data 14 dicembre 1985. Sentenza n. Reg. Gen. N. 19255/06.
- Courtwright, David T. 2001. *Forces of Habit: Drugs and the Making of the Modern World*. Cambridge: Harvard University Press.

Crosetti, Maurizio. 2006. Cinquanta indagati diciotto gare sospette. La Repubblica. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2006/05/11/cinquanta-indagati-diciotto-gare-sospette.html.

Crowe, Jerry. 2001. Dr. Robert Kerr; Center of Controversy Over Steroids for Athletes: Obituaries. *Los Angeles Times*. Online available at: http://articles.latimes.com/2001/jan/05/local/me-8650.

CVD, Commissione per la vigilanza ed il controllo sul doping e per la tutela della salute nelle attività sportive. 2009. Quaderni didattici del Corso per Ispettori antidoping, Roma Istituto Superiore di Sanità, September 28-October 1.

- cyclingnews.com. 2000. News for November 4 2000. Online available at: http://autobus.cyclingnews.com/results/2000/nov00/nov4news.shtml
- Davigo, Piercamillo and Leo Sisti. 2012. Processo all'italiana. Roma: Laterza.

DCMS, Department for Culture, Media and Sport. 2009. Consultation on Establishing a Modernised UK Anti-Doping Organisation. Online available at: http://www.culture.gov.uk/images/consultations/NADO_consultation.pdf.

DEA, U.S. Drug Enforcement Administration. 2012. Stride data. Online available at: http://www.justice.gov/dea/stride_data.html

De Arcangelis, Irene. 2006. Doping per truccare corse di cavalla. La Repubblica. May 5: 6 of the Naples section. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2006/05/05/doping-per-truccare-corse-di-cavalli.html.

— — . 2008. La farmatruffa del doping ricette fasulle: sette arresti. La Repubblica. November 27: 2 of the Napoli section. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2008/11/27/la-farmatruffadel-doping-ricette-fasulle-sette.html.

- De Hon, O. and R. van Kleij. 2005. Kwaliteit van Illegale Dopingmiddelen. Capelle aan de IJssel: Nederlands Centrum voor Dopingsvraagstukken. Online available at: http://www.dopingautoriteit.nl/media/files/documenten/Kwaliteit%20Illegale%20Dopingmiddelen.pdf.
- de Mondenard, Jean-Pierre. 1984. Drogues et dopages, Paris : Chiron.
- ———. 2004. *Dictionnaire de Dopage*, Paris: Masson.
- ———. 2009. *La grande imposture*. Paris: Hugo&C.
- De Paoli Vitali, E. C. Guglielmini, I. Casoni, M. Vedovato, P. Gilli, A. Farinelli, G. Salvatorelli, G.and F. Conconi. 1988. Serum erythropoietin in cross-country skiers. *International Journal of Sports Medicine* 9(2): 99-101.

D'Hont, Jef. 2007. Memoires van een wielerverzorger. Leuven: Van Halewyck.

DiePresse.com. 2012. Millionengewinn mit Doping: Ehepaar in Kärnten verhaftet. January 1. Online available at :

http://diepresse.com/home/sport/mehrsport/720535/Millionengewinn-mit-Doping_Ehepaar-in-Kaernten-verhaftet.

Di Federico, Giuseppe. 2004. Independence and Accountability of the Judiciary in Italy. The Experience of a Former Transitional Country in a Comparative Perspective. Online available at:

http://siteresources.worldbank.org/INTECA/Resources/DiFedericopaper.pdf. Also published in in Sajò Andras, ed., *Judicial Integrity*, Leiden: Koninklijke Brill: 181-205.

———. Ed. Ordinamento giudiziario: uffici giudiziari, CSM e governo della magistratura. Padova: CEDAM.

Di Lello, Giuseppe. 1994. Giudici. Palermo: Sellerio.

Dipani, Danilo. 2004. Aspetti penalistici del doping sportivo. Tesi di laurea. Online available at: http://www.overlex.com/tesi_doping_indice.asp.

Dipartimento Politiche Antidroga. 2010. Relazione annuale al Parlamento sull'uso di sostanze stupefacenti e sulle tossicodipendenze in Italia. Dati relativi all'anno 2009 e elaborazioni 2010. Online available at:

http://www.politicheantidroga.it/media/333133/relazione%202010.pdf.

Donati, Sandro. 1989. Campioni senza valore. Firenze: Ponte alle Grazie.

———. 2003. Anti-doping: The fraud behind the stage. Ergogenics. Online available at: http://www.ergogenics.org/donati.html

- ———. 2005. Relazione al Parlamento sullo stato delle tossicodipendenze: confronto dei risultati delle due ricerche IPSAD ed ESPAD. Report prepared for the Comitato Scientifico del Ministero.
- ———. 2007. World Traffic in Doping Substances. Online available at: http://www.wadaama.org/Documents/World_Anti-

Doping_Program/Governments/WADA_Donati_Report_On_ Trafficking_2007.pdf.

- Donati, Sandro, Caterina Pesce and M. Giampietro. 2011. *Prevenire il doping tra gli studenti*. Rome.
- Dohrmann, George and Luis Fernando Llosa. 2006. Operation Gear Grinder shut down a flourishing drug business in a BALCO-scale investigation of major steroid trafficking. *Sports Illustrated*. April, 24. Online available at:

http://sports illustrated.cnn.com/vault/article/magazine/MAG1110809/index.htm.

- Doping Enquiry Taskforce. 2011. Report. May 23. Online available at: http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2001/liitteet/opm_57_dopi ng_en.pdf?lang=fi
- Dopingkommission. 2009. Abschlussbericht der Expertenkommission zur Aufklärung von Dopingvorwürfen gegenüber Ärtzen der Abteilung Sportmedizin des Universitätsklinikums Freiburg. Online available at: http://www.uniklinikfreiburg.de/presse/live/abschlussbericht/Abschlussbericht.pdf.
- Dorn, Nicholas. 1992. Clarifying options on drug policy. In Pat A. O'Hare, Russell Newcombe, Alan Matthews, Ernst C. Buning, & Ernest Drucker, eds., *The reduction of drug-related harm.* London: Routledge: 108-121.
- Dorn, Nicholas, Michael Levi and Leslie King. 2005. *Literature Review on Upper Level Drug Trafficking*. Home Office Online Report 22/05.
- Dunning, E. 1986. The Dynamics of Modern Sport: Notes on the Achievement-Striving and the Social Significance of Sport. In N. Elias and E, Dunning, eds., *Quest for Excitement*. Oxford: Blackwell.
- DuRant, R. H., C.S. Ashworth, C. Newman and V.I. Rickert. 1994. Stability of the relationships between anabolic steroid use and multiple substance use among adolescents. *Journal of Adolescent Health: Official Publication of The Society for Adolescent Medicine*, 15(2), 111–116.
- *Economist, The*. 2011a. Silvio Berlusconi and the law: Back in the dock. February 16. Online available at:

http://www.economist.com/blogs/dailychart/2011/02/silvio_berlusconi_and_law.

- — . 2011b. Raj Rajaratnam's insider trading: Away with you. *The Economist*, October 13.
 Online available at: http://www.economist.com/blogs/schumpeter/2011/10/raj-rajaratnam%E2%80%99s-insider-trading.
- ----. 2011c. Renaissance men. June 9. Online available at: http://www.economist.com/node/18780841.
- ----. 2011d. Tipping the scales: The fight against crooked trading gathers pace. Oct.15. Online available at: http://www.economist.com/node/21532280.
- ———. 2012. Seven down, many more to go. January 18. Online available at: http://www.economist.com/blogs/schumpeter/2012/01/insider-trading.
- Ehrenberg, Alain. 1991. Le culte de la performance. Parijs: Calmann-Lévy.
- Elkin, S.L., S. Brady and I.P. Williams. 1997. Bodybuilders Find It Easy to Obtain Insulin to Help Them in Training. *British Medical Journal*, 26, 314(7089):1280.
- EMCDDA, European Monitoring Centre on Drugs and Drug Addiction. 2002. Report on the risk assessment of GHB in the framework of the joint action on new synthetic drugs. Luxembourg: Office for Official Publications of the European Communities. Online available at: http://bookshop.europa.eu/is-bin/INTERSHOP.enfinity/WFS/EU-Bookshop-Site/en GB/-/EUR/ViewPDFFile-

OpenPDFFile;pgid=y8dIS7GUWMdSR0EAIMEUUsWb0000E-15-

WQB;sid=56A6JK1836E6K-

ER5ICkg89ZqsMkVqqv4XM=?FileName=TD3901045ENC_002.pdf&SKU=TD3901045ENC _PDF.

- ———. 2011. Annual Report 2011. The state of the drugs problem in Europe. Online available at: http://www.emcdda.europa.eu/publications/annual-report/2011.
- ———. Early warning system. Online available at:

http://www.emcdda.europa.eu/themes/new-drugs/early-warning

- Eric, Josezf. 1999. Chercheur du CIO et faiseur de champions. Conconi, roi de l'hémotransfusion, est soupçonné de dopage en Italie. *Liberation*. Online available at: http://www.liberation.fr/sports/0101288625-chercheur-du-cio-et-faiseur-dechampions-conconi-roi-de-l-hemotransfusion-est-soupconne-de-dopage-en-italie.
- Escriva, Jean-Pierre. 2001. Sport intensif et dopages entre normes et déviances. *Sociétés contemporaines*, 44, 129-147.
- European Commission. 2006. Community Support Plan to Combat Doping in Sport. Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions: Community support plan to combat doping in sport. COM(99) 643. Online available at: http://europa.eu/legislation_summaries/education_training_youth/sport/l35003_en.ht m
- ———. 2007. White Paper on Sport (SEC (2007) 932. Online available at:

http://ec.europa.eu/sport/white-paper/doc/wp_on_sport_en.pdf.

———. "Doping." Online available at: http://ec.europa.eu/sport/what-we-do/doc29_en.htm.

European Health and Fitness Association. 2012. European fitness sector demands co-operation with anti-doping authorities after research results are released. Press release. Brussels. March 5. Online available at:

http://www.ehfa.eu/uploads/media/EHFA_Press_Release_FAD_5_March_2012.pdf. European Union Council. 1997. Action Plan to Combat Organized Crime adopted by the Council on 28 April 1997, *Official Journal of the European Communities*, 15.8.1997, C 251: 1-16. ———. 1998. Joint Action of 21 December 1998 adopted by the Council on the basis of Article K.3 of the Treaty on European Union, on making it a criminal offence to participate in criminal organisation in the Member States of the European Union, Official Journal of the European Communities, 29.12.1998, L 351: 0001 – 0003.

———. 2003. A Secure Europe in a Better World: European Security Strategy. December 12.Online available at: http://europa.eu/legislation_summaries/justice_freedom_security/fight_against_organ ised_crime/r00004_en.htm.

- Evaluation Team. 2002. Report of the Evaluation Team. In Council of Europe, ed., Italy: Compliance with Commitments Project -- Respect by Italy of the Anti-Doping Convention. Report by Italy and the evaluation team: 31-43. Ref. T-DO (2002) 36. Online available: http://www.coe.int/t/dg4/sport/commitments/antidoping/T-DO_2002_36_EN_eval_Report_Commit_Italy.pdf.
- Evans, Nick. A. 1997. Gym & Tonic: a profile of 100 male steroid users. *British Journal of Sports Medicine* 31: 54–58.
- ———. 2004. Current concepts in anabolic-androgenic steroids. *American Journal of Sports Medicine* 32: 534–542.
- Fabri, M., D. Carnevali, F. Contini, C. Dallara and F. Sibilla. 2003. Quality and Justice in Italy, in *The administration of Justice in Europe: Towards the development of quality standards*, M. Fabri, P. M. Langbroek and H. Pauliat, eds., Bologna: Lo Scarabeo.
- Fainaru-Wada, M. and W. Lance. 2006. Game of Shadows: Barry Bonds, BALCO, and the Steroids Scandal that Rocked Professional Sports. New York: Gotham.
- *Fatto Quotidiano, II.* 2011. L'Emilia Romagna travolta anche dallo scandalo doping. Online available at: http://www.ilfattoquotidiano.it/2011/06/09/lemilia-romagna-travolta-anche-dallo-scandalo-doping/116833/.
- Fazzo, Luca and Marco Mensurati. 2002a. Doping, la rotta della camorra così si riforniscono atleti e cavalla. *La Repubblica*. June 1: 48. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2002/06/01/doping-larotta-della-camorra-cosi-si.html.
- — . 2002b. Un pentito contro Simoni Doping nel Giro che ha vinto. La Repubblica. May 30:
 53. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2002/05/30/un-pentito-contro-simoni-doping-nel-giro.html.

Federal Ministry of the Interior. 2009. Survey among EU Member States on the Criminal Liability of Athletes for the Possession of Doping Agents. Results - German initiative - As of July 2008.Unpublished document.

Ferrara, Santo D. 2004. *Doping Antidoping*, Padova: Piccin.

- Fijnaut, Cyrille and Brice De Ruyver. 2008. *Voor een gezamenlijke beheersing van de drugsgerelateerde criminaliteit in de Euregio Maas-Rijn*. Liège: Euregio Maas-Rijn.
- Fincoeur, Bertrand. 2009. Lutte antidopage et cyclisme à deux vitesses: évolution du rapport au dopage chez les cyclistes belges depuis l'affaire Festina. *Revue internationale de criminologie et de police technique et scientifique*, LXII: 207-220.
- FIAL, Federazione Italiana Atletica Leggera. 2012. Tutela della salute: normative: Le norme che regolano l'accertamento dell'idoneità. I link alla documentazione antidoping nazionale ed internazionale, il contatto del telefono verde e antidoping. Online available at: http://www.fidal.it/content/Tutela-della-salute-normativa/49875.

- Fineschi V, I. Riezzo, F. Centini, E. Silingardi, M. Licata, G. Beduschi and S.B. Karch. 2007. Sudden cardiac death during anabolic steroid abuse: morphologic and toxicologic findings in two fatal cases of bodybuilders. *International Journal of Legal Medicine*, 121(1):48-53.
- FIPE, Federazione Italiana Pesistica. 2012. Cenni storici. Online available at: http://www.federpesistica.it/it/index.php?option=com_content&view=category&layou t=blog&id=82&Itemid=459.
- Fisher, Ian and Juliet Macur. 2006. Olympics: Drug tests negative as Games near end. *The New York Times*. February 24. Online available at:

http://www.nytimes.com/2006/02/24/sports/24iht-olydrugs.html.

- Fmk. 2011. Tough On Doping, Tough On The Causes Of Doping Francesco Conconi and the Introduction of the H-test. Online available at: http://www.podiumcafe.com/2011/2/16/1997823/tough-on-doping-tough-on-thecauses-of-doping-francesco-conconi-and.
- Franke, Werner W. 1995. Funktion und Instrumentalisierung des Sports in der DDR:
 Pharmakologische Manipulationen (Doping) und die Rolle der Wissenschaft, in
 Deutscher Bundestag, ed. Bericht der Enquete-Kommission Aufarbeitung von Geschichte
 und Folgen der SED-Diktatur in Deutschland, vol. III/2: 905-1143.
- Frezzi, Talita. 2011. Smantellato maxi traffico internazionale di anabolizzanti. Sessantenne anconetano in manette. *Fatto e Diritto*. Online available at: http://www.fattodiritto.it/smantellato-maxi-traffico-internazionale-di-anabolizzanti-sessantenne-anconetano-in-manette/.
- Friesendorf, Cornelius. 2007. U.S. foreign policy and the war on drugs: displacing the cocaine and heroin industry. London: Routledge.
- Gamba, Emanuele. 2004. L' ombra doping su 4 anni di Juve. *La Repubblica*. November 27: 14. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2004/11/27/ombra-doping

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2004/11/27/ombra-doping-su-anni-di-juve.html.

- GAO, U.S. Government Accounting Office. 2005. Anabolic Steroids Are Easily Purchased Without a Prescription and Present Significant Challenges to Law Enforcement Officials.
 GAO-06-243R Anabolic Steroids. Online available at: http://www.gao.gov/new.items/d06243r.pdf.
- Gardiner, Harris. 2009. Pfizer Pays \$2.3 Billion to Settle Marketing Case. *The New York Times*. September 2. Online available at:

http://www.nytimes.com/2009/09/03/business/03health.html.

- Gasparini, William. 2004. Le corps performant par le dopage. Notes sociologiques. *Drogues, santé et société, 3* (1), 57-68.
- Gaumont, Philippe. 2005. Prisonnier du dopage. Paris: Grasset & Fasquelle.
- *Gazzetta di Modena, La*. 2012. Gli anabolizzanti, la morte della sua donna e un iter giudiziario lungo otto anni. Online available at:

http://gazzettadimodena.gelocal.it/cronaca/2012/01/13/news/gli-anabolizzanti-la-morte-della-sua-donna-e-un-iter-giudiziario-lungo-otto-anni-1.3062695.

- Geis, Gilbert. 1992. White-Collar Crime: What is It?, in K. Schlegel and D. Weisburg, eds., *White-Collar Crime Reconsidered*. Boston: Northeastern University Press: 31-52.
- German Sport University Cologne. 2011. Erste Europäische Beobachtungsstelle für neue Dopingsubstanzen. Press Release no. PM1152. August 4. Online available at: https://www.dshs-

koeln.de/wps/portal/de/home/institutions/press/aktuelles/pressemeldungen/pm1152 ?WCM_PORTLET=PC_7_D5U2

- Gilbert, Cathrin. 2010. Spiegel-Gespräch: Wie die Mafia. *Der Spiegel*. 49: December 6. Online available at: http://www.spiegel.de/spiegel/print/d-75477023.html.
- *Giorno, Il.* 2011. Doping: arrestato Seccarecci, body builder. October 11. Online available at: http://www.ilgiorno.it/milano/cronaca/2011/10/11/598315-doping.shtml.

Global Committee on Drug Policy. War on Drugs. Report. Online available at: http://www.globalcommissionondrugs.org/wp-

content/themes/gcdp_v1/pdf/Global_Commission_Report_English.pdf.

Gobert, James and Maurice Punch. 2003. *Rethinking Corporate Crime*. London: Butterworths. Government Offices of Sweden. 2012. Measures targeting children and young people and reduced cannabis abuse prioritised in the Government's ANDT policy 2012. Online available at: http://www.sweden.gov.se/sb/d/15471.

Gräber, Kai. 2011. Die bayerische Schwerpunktstaatsanwaltschaft Doping: Ein Erfahrungsbericht. Speech at the international symposium "Sportmedizin und Doping in Europa." Freiburg, September 12-14.

Graham, M. R., B. Davies, F.M. Grace, A. Kicman, and J.S. Baker. 2008. Anabolic steroid use: patterns of use and detection of doping. *Sports Medicine*, *38*(6), 505–525.

Graham, Michael R. and Paul Ryan, Julien S. Baker, Bruce Davies, Non-Eleri Thomas, Stephen-Mark Cooper, Peter Evans, Sue Easmon, Christopher J. Walker, David Cowan and Andrew T. Kicman.² 2009. Counterfeiting in performance- and image-enhancing drugs. *Drug Testing and Analysis*, 1(3): 135-142.

Greenfield, Victoria A. and Letizia Paoli. 2012. 'If Supply-Oriented Drug Policy is Broken, Can "Harm Reduction" Help Fix It?'. *International Journal of Drug Policy*, 23(1): 6-15.

Groleau, Christopher S. 2009. Weird science: a look at the World Anti-doping Agency's questionable testing methods and the need for change to protect international athletes. *Quinnipiac Health Law Journal* 13: 85-116.

Großekathöfer, Maik and Cathrin Gilbert. 2008. Wir haben zu wenig Waffen. *Der Spiegel* 48. December 1. Online available at: http://www.spiegel.de/spiegel/print/d-62332847.html

Guariniello, Raffaele. 2011. Anti-Doping Investigations in Italy: Football and the 2006 Turin Olympic Games. Speech at the international symposium "Sportmedizin und Doping in Europa." Freiburg, September 12-14.

Haddow, Douglas. 2012. Did Cartagena mark the beginning of the end of the war on drugs?. *The Guardian*. April 18. Online available:

http://www.guardian.co.uk/commentisfree/2012/apr/18/cartagena-war-on-drugs.

Hahn, Thomas and Thomas Kistner. 2003. Doping-Affäre: Ski-Trainer Walter Mayer festgenommen. *Süddeutsche Zeitung*. Online available at: http://www.sueddeutsche.de/sport/doping-affaere-ski-trainer-walter-mayerfestgenommen-1.395208.

- Hahn, Thomas and Raiko Häyrinen. 2008. Doping im finnischen Skisport. Die schmutzigen Neunziger. *Süddeutsche Zeitung*. June 25. Online available at: http://www.sueddeutsche.de/sport/doping-im-finnischen-skisport-die-schmutzigenneunziger-1.203060.
- Haller, Mark. 1990. Illegal Enterprise. A Theoretical and Historical Interpretation. *Criminology*, 28/2: 207-35.

- Handelsman, D.J. and L. Gupta. 1997. Prevalence and risk factors for anabolic-androgenic steroid abuse in Australian high school students. *International Journal of Andrology*, 20, 159–164.
- Hanstad, Dag V. and Sigmund Loland. 2009. Elite Level Athletes' Duty to Provide Information on Their Whereabouts: Justifiable Anti-doping Work or an Indefensible Surveillance Regime? *European Journal of Sport Sciences*, 9(1):3-10.
- Hanstad, Dag V., Andy Smith and Ivan Waddington. 2008. The Establishment of the World Anti-Doping Agency : A Study of the Management of Organizational Change and Unplanned Outcomes. *International Review for the Sociology of Sport,* 43: 227-249.
- Hard, Matthew. 2010. Caught in the net: athlete's rights and the World Antidoping Agency. Southern California Interdisciplinary Law Journal, 19: 533-564.
- Hardie, Martin, David Shilbury, Ianto Ware and Claudio Bozzi. 2010. I Wish I was Twenty One Now – Beyond Doping in the Australian Peloton. *Victoria: Deakin University faculty of Business and Law.* Online available at: http://www.newcyclingpathway.com/wpcontent/uploads/2010/09/21-NOW-FINAL-.pdf.
- Harris, Gardiner. 2009. Pfizer Pays \$2.3 Billion to Settle Marketing Case. September 2. *The New York Times*. Online available at:

http://www.nytimes.com/2009/09/03/business/03health.html.

- Harth, W., K. Seikowski, B. Hermes, and U. Gieler. 2008. New lifestyle drugs and somatoform disorders in dermatology. *Journal of the American Academy of Dermatology, 22*(2), 141–149.
- Hartmann, Peter. 2003. Dottore Mabuse und die Nackte van Goya. Conconi-Prozess endet mit Freispruch. *Neuer Zürcher Zeitung*. November 21. Online available at: http://www.nzz.ch/aktuell/startseite/newzzDN9U3129-12-1.333417
- Henderson, Jon. 2001. The 10 greatest cheats in sporting history. *The Observer*. Jon July 8. Online available at:

http://observer.guardian.co.uk/toptens/story/0,,1079053,00.html.

- Henne, Kathryn E. 2009. The Origins of the International Olympic Committee Medical Commission and its Technocratic Regime: An Historiographic Investigation of Anti-Doping Regulation and Enforcement in International Sport. Final Report. December 31.
 Online available at: oc.rero.ch/lm.php?url=1000,44,38,20100301152359-AF/2009_-_The_Origins_of_the_International_Olympic_Committee_Medical_Commission_-_HENNE_K.pdf
- Hibell, B., B. Andersson, S. Ahlström, O. Balakireva, T. Bjarnason, A. Kokkevi et al. 2000. The 1999 ESPAD report: alcohol and other drug use among students in 30 European countries. Stockholm: Swedish Council for Information on Alcohol and Other Drugs.
- Hibell, B., B. Andersson, T. Bjarnason, A. Kokkevi, M. Morgan and A. Narusk. 1997. The 1995
 ESPAD report: alcohol and other drug use among students in 26 European countries.
 Stockholm: Swedish Council for Information on Alcohol and Other Drugs.
- Hibell, B., U. Guttormsson, Salme Ahlström, O. Balakireva, T. Bjarnason, A. Kokkevi et al. 2009.
 The 2007 ESPAD report: substance use among students in 35 European countries.
 Stockholm: Swedish Council for Information on Alcohol and Other Drugs.
- Hildebrandt, T., J. Langenbucher, S. Carr, P. Sanjuan, and S. Park. 2006. Predicting intentions for long-term anabolic-androgenic steroid use among men: a covariance structure model. *Psychology of Addictive Behaviors, 20*(3): 234–240.
- Hill, Declan. 2008. The Fix: Soccer and Organized Crime. McClelland & Stewart.

- Hoberman, John M. 2001. How Drug Testing Fails. The Politics of Doping Control. In Wilson, W. and E. Derse, eds., *Doping in Elite Sport*. Champaign: Human Kinetics: 241-74.
- — . 2002. A Pharmacy on Wheels: Doping and Community Cohesion among Professional Cyclists Following the Tour de France Scandal of 1998. In Møller, V. and J. Nauright, eds., *The Essence of Sport*, Odense: UP of Southern Denmark: 107-127.
- ———. 2005. Testosterone Dreams: Rejuvenation, Aphrodisia, Doping. Los Angeles: University of California Press.
- ———. 2011a. "Athletes in handcuffs?" The criminalization of doping. In Mike McNamee and Verner Møller, eds. *Doping and Anti-Doping Policy in Sport: Ethical, Legal and Social Perspectives*. London: Routledge: 99-110.
- ----. 2011b. Il costo dei record. Sds, Scuola dello sport XXIX (86): 3-9.
- ----. 2012. Doping, Gambling, and the Decline of the IOC- Mimeo.
- ———. N.d. Preliminary Report: Lance Armstrong and the Doping Culture of the Tour de France. Mimeo.
- Houlihan, Barrie. 2001. Sport, Policy and Politics: A Comparative Analysis. London: Routledge.
- ———. 2002. Dying to Win: Doping in Sport and the Development of Anti-doping Policy. Strasbourg: Council of Europe.
- Howman, David. 2011. Current Challenges and Issues of Anti-Doping. Speech held at PCC Conference, New York. December 1. Online available at: http://www.wadaama.org/Documents/News_Center/Speeches_Presentations/2011/WADA_DHowman_ PCC_Current_Challenges_and_Issues_for_Anti-Doping_2011_12_01.pdf
- — . World Sports Law Report. Tackling Doping in Sport 2011. Twichenham Stadium. March 16-17. Online available at: http://www.playthegame.org/knowledge-bank/articles/wada-warns-against-criminals-taking-control-in-sport-5125.html.
- Huestis, Marilyn A. Irene Mazzoni and Olivier Rabin. Cannabis in Sport—Anti-Doping Perspective. *Sports Medicine* 41(11): 949-966.
- IOC, International Olympic Committee. 2007a. Summary of the IOC disciplinary commission recommendations regarding the National Olympic Committee of Austria (Österreichisches Olympisches Comité ÖOC). Online available at: http://www.olympic.org/Documents/Reports/EN/en report 1183.pdf.
- — . Torino 2006: Six Austrian athletes declared permanently ineligible. Press release. April 25. Online available at: http://www.olympic.org/news?articleid=54762.
- Italy. 2002. Report by Italy. In Council of Europe, ed., Italy: Compliance with Commitments Project -- Respect by Italy of the Anti-Doping Convention. Report by Italy and the evaluation team: 3-30. Ref. T-DO (2002) 36. Online available at: http://www.coe.int/t/dg4/sport/commitments/antidoping/T-DO_2002_36_EN_eval_Report_Commit_Italy.pdf.
- Istat. 2007. La pratica sportiva in Italia: Anno 2006. Online available at: http://www.coni.it/fileadmin/ops2008/Istat_sport_2006_Presentaz_070620.pdf.
- Istituto Superiore di Sanità. 2009. Quaderni didattici del Corso per Ispettori antidoping. Roma: Istituto Superiore di Sanità.
- Illuminati, Giulio. 2000. Italy. In T. Vander Beken and M. Kilchling. eds., *The Role of the Public Prosecutor in the European Criminal Justice System*. Brussel: Koninklijke Vlaamse Academie van België voor Wetenschappen en Kunsten: 111-124.
- ———. 2005. Italy. In P. Tak., ed., *Tasks and Powers of the Prosecution Services in the EU Member States*, vol. II: 935-954. Nijmegen: Wolf.

- Jacobs, James and Bruce Samuels. 1994-95. The Drug Testing Project in International Sports: Dilemmas in an Expanding Regulatory Regime. *Hastings International & Company Law Review* 18: 557-589.
- Jones, Jeff and Tim Maloney. 2004. Pantani dead at 34. *Cyclingnews.com*. Online available at: http://autobus.cyclingnews.com/news.php?id=news/2004/feb04/feb15news1.
- Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. 2012. *Monitoring the Future national survey results on drug use, 1975-2011. Volume I: Secondary school students*. Ann Arbor: Institute for Social Research, The University of Michigan.
- Josti, Gianfranco. 1994. Moser: " non vedo l' ora di riprovarci." *Corriere della Sera*. January 17: 34. Online available at:

http://archiviostorico.corriere.it/1994/gennaio/17/Moser_non_vedo_ora_riprovarci_c o_0_940117184.shtml.

Justizministerium Baden-Württemberg. 2012. Schwerpunktstaatsanwaltschaft zur Verfolgung von Dopingstraftaten eingerichtet. April 4. Online available at:

http://www.justiz-bw.de/servlet/PB/menu/1275867/index.html?ROOT=1153239 Kanayama, G., M. Boynes, J. I. Hudson, A. E. Field and H.G. Pope Jr. 2007. Anabolic steroid

abuse among teenage girls: an illusory problem? Drug Alcohol Depend, 88: 156–62.

Kanayama, G., A.J. Gruber, H.G. Pope, J.J. Borowiecki and J.L. Hudson. 2001. Over-the-Counter Drug Use in Gymnasiums: An Underrecognized Substance Abuse Problem? *Psychotherapy and Psychosomatics,* 70: 137–40.

Kanayama, Gen, James I. Hudson and Harrison G. Pope. 2009. Features of men with anabolic androgenic steroid dependence: a comparison with nondependent AAS users and with AAS nonusers. *Drug and Alcohol Dependence*, 102: 130–137.

Kanayama, Gen, James I. Hudson and Harrison G. Pope Jr. 2008. Long-term psychiatric and medical consequences of anabolic-androgenic steroid abuse: a looming public health concern? *Drug and Alcohol Dependence*, 98: 1–12.

Kanayama, Gen, Harrison G. Pope, G. Cohane and James I. Hudson. 2003. Risk factors for anabolic androgenic steroid use among weightlifters: a case-control study. *Drug and Alcohol Dependence*, 71(1): 77–86.

Kanayama, Gen and Harrison G. Pope Jr. 2012. Illicit use of androgens and other hormones: recent advances. *Current Opinion in Endocrinology, Diabetes and Obesity*, 19(3):211-9.

- Kanayama Gen, Harrison G. Pope Jr. and James I. Hudson. 2001. 'Body image' drugs: a growing psychosomatic problem. *Psychotherapy and Psychosomatics*, 70: 61–5.
- Kanayama, Gen, Kirk J. Brower, Ruth I. Wood, James I. Hudson & Harrison G. Pope. 2009. Anabolic–androgenic steroid dependence: an emerging disorder. *Addiction*, 104: 1966–1978.

Kashkin, K. B. and H. D. Kleber. 1989. Hooked on hormones? An anabolic steroid addiction hypothesis. *Journal of the American Medical Association, 262*(22): 3166–3170.

- Katz, Michael L. and Harvey S. Rosen. 1994. *Microeconomics*, 2nd Ed. Burr Ridge, IL: Irwin.
- Kayser, B., A. Mauron, and A. Miah. 2007. Current Anti-Doping Policy: A Critical Appraisal. *BMC Medical Ethics*, 8: 2.
- Keane, H. 2005. Diagnosing the male steroid user: drug use, body image and disordered masculinity. *Health (London), 9*(2): 189–208.
- Kerlikowske, R. Gil. 2012. Principles of Modern Drug Policy. Statement of the Government of the United States of America World Federation Against Drugs 3rd World Forum, May 21. Online available at: http://www.whitehouse.gov/ondcp/news-releases-

remarks/principles-of-modern-drug-policy-directors-remarks-at-the-world-federation-against-drugs.

- Kilchling, Michael. 2000. In Tom Vander Beken and Michael Kilchling. eds., *The Role of the Public Prosecutor in the European Criminal Justice System*. Brussel: Koninklijke Vlaamse Academie van België voor Wetenschappen en Kunsten: 73-94.
- Kilmer, Beau and Peter Reuter. 2009. Prime Numbers: Doped. Foreign Policy November/December: 34-35. Online available at:
- http://www.foreignpolicy.com/articles/2009/10/19/prime_numbers_doped. Kindlundh, D.P., D. G. Isacson, L. Berglund and F. Nyberg. 1998. Doping among high school students in Uppsala, Sweden: a presentation of the attitudes, distribution, side effects,

and extent of use. Scandinavian Journal of Social Medicine, 26: 71-74.

Kistner, Thomas. 2007. Jaksches Weg zum Geständnis Sicherheit für den Kronzeugen. Süddeutsche Zeitung. July 1. Online available at: http://www.sueddeutsche.de/sport/jaksches-weg-zum-gestaendnis-sicherheit-fuerden-kronzeugen-1.867286.

———. 2012. FIFA-Mafia: Die schmutzigen Geschäfte mit dem Weltfußball. Munich: Droemer Knaur.

- Kläber, Mischa. 2010. "Doping im Fitness-Studio". Die Sucht nach dem perfekten Körper. Bielefeld: transcript.
- Kokkevi, A., A. Fotiou, A. Chileva, A. Nociar and P. Miller. 2008. Daily exercise and anabolic steroids use in adolescents: a cross-national European study. *Substance Use and Misuse*, 43: 2053–2065.
- Korkia, P. and G.V. Stimson. 1997. Indications of Prevalence, Practice and Effects of Anabolic Steroid Use in Great Britain. *International Journal of Sports Medicine*, 18: 557–62.
- Koert, A.W.A. and R. van Kleij. 1998. *Handel in doping: Een verkennend onderzoek naar de handel in dopinggeduide middelen in Nederland*. Nieuwegein: Arko.
- Kornbeck, Jakob. 2009. Europäische Harmonisierung der Dopingbekämpfung? Paper presented at "Dopingbekämpfung im Sport als gesamteuropäische Aufgabe," Europäische Akademie Otzenhausen, October 23-24.
- Kraska, P., C. Bussard and J. Brent. 2010. Trafficking in Bodily Perfection: Examining the Late-Modern Steroid Marketplace and its Criminalization. *Justice Quarterly*, 27, 2: 159-185.
- Krejza, Michal. 2009. Criminalisation of Trade in Doping Substances. Speech held at the Eu Cnference on Anti-Doping. Athens, 13-15 May. Online available at: http://ec.europa.eu/sport/library/documents/c2/michal krejza speech.pdf
- Kurier, Der. 2011. Doping-Dealer Pärchen in Kärnten verhaftet. December 31.
- Labre. M. P. 2002. Adolescent Boys and the Muscular Male Body Ideal. *Journal of Adolescent Health*, 300(4):233-42.
- Lager, Göran and Arne Ljungqvist. 2011. *Doping's Nemesis Arne Ljungqvist*. Cheltenham:. Sports Books.
- Lambert, M.I., S. D. Titlestad and M. P. Schwellnus. 1998. Prevalence of androgenic-anabolic steroid use in adolescents in two regions of South Africa. South African Medical Journal, 88: 876-880.
- WADA to Consider Change of Status for Cannabis *The Age*. Online available at: http://www.theage.com.au/sport/wada-to-consider-change-of-status-for-cannabis-20120502-1xzg9.html

- Larance, B., L. Degenhardt, J. Copeland and P. Dillon. 2008. Injecting risk behaviour and related harm among men who use performance- and image-enhancing drugs. *Drug Alcohol Review*, 27(6): 679–686.
- Laub, John H. and Robert J. Sampson. 2003. *Shared Beginnings, Divergent Lives: Delinquent Boys at Age 70.* Cambridge: Harvard University Press.
- Leland, Hayne E. 2002. Insider Trading: Should it Be Prohibited? *Journal of Political Economy*, 100 (4): 859-887.
- Leone, Liliana. 2010. Valutazione progetto palestra sicura: prima rilevazione regione Emilia Romagna. Presentation made at the *Direzione Generale Sanità e Politiche Sociali Regione Emilia-Romagna, Bologna. February 2.*
- ———. 2010. Rapporto finale di valutazione del progetto sperimentale "Palestra Sicura" Regione Emilia Romagna. Draft. June 30.
- Ljungqvist, Arne. 2009. Opening Address at the UNESCO "Conference of Parties to the International Convention against Doping in Sport." Mimeo.
- — . 2010. Der Anti-Doping-Kampf als Aufgabe des IOC. In Werner Blumenthal, ed., Der Kampf gegen Doping: Die gesellschaftliche Verantwortung von Sport und Politik auf Nationaler und internationaler Ebene. Sankt Augustin/Berlin: Konrad-Adenauer-Stiftung e.V: 19-36. Online available at: http://www.kas.de/wf/doc/kas_20651-544-1-30.pdf?100929165220
- Longman, Jere. 1998. IOC Ban on Marijuana Now Subject to Debate. *The New York Times*. February 12. Online available at:

http://www.nytimes.com/specials/olympics/nagano/sno/021298oly-marijuana.html.

- ———. Unbelievable Performances: A special report. Widening Drug Use Compromises Faith in Sports. *The New York Times*. December 26. Online available at: http://www.nytimes.com/1998/12/26/sports/unbelievable-performances-specialreport-widening-drug-use-compromises-faith.html?src=pm.
- Lucidi, F., C. Grano, L. Leone, C. Lombardo and C. Pesce. 2004. Determinants of the intention to use doping substances: An empirical contribution in a sample of Italian adolescents. *International Journal of Sport Psychology, 35,* 133-148.
- Lüdke, S., M. Sauer, M. Paul, and W. Schänzer. 2007. The Cologne Import Information System: A Tool to Highlight Long Term Trends in the Black Market for Drugs and Doping Substances. In: Schänzer, W., H. Geyer, A. Gotzmann, and U. Mareck, eds., *Recent Advances in Doping Analysis*. Köln: Sportverlag Strauß: 441-444.
- Lundby, Carsten, Paul Robach and Bengt Saltin. 2011. The Evolving Science of Detection of 'Blood Doping'. *British Journal of Pharmacology*, 165: 1306-1315.
- ———. 2012. Are the Anti Blood Doping Efforts Effective? Present and Future. *British Journal of Pharmacology*, accepted. doi: 10.1111/j.1476-5381.2011.01822.x1
- Lyttman, Jean. 2010. Bodybuilding and The Olympics: An Ongoing Controversy. Online available at: http://buildmusclemassnow.com/bodybuilding-and-the-olympics-an-ongoing-controversy/.
- McGrath, Matt. 2008. Concerns over Olympic drug test. *BBC News*. July 21. Online available at: http://news.bbc.co.uk/2/hi/science/nature/7516484.stm.
- MacAloon, J. 2001. Doping and Moral Authority: Sports Organizations Today. In W. Wilson and E. Derse, eds., *Doping in Elite Sport*, pp. 205–24. Champaign, IL: Human Kinetics.
- MacMichael, Sam. 2011. Italian press says Armstrong secretly paid Ferrari via Swiss company. *Road.cc*. Online available at: http://road.cc/content/news/44348-italian-press-saysarmstrong-secretly-paid-ferrari-swiss-company.

Mayer, Walter. 2010. ... und plötzlich war ich ein Verbrecher - Die Machenschaften der Funktionäre im Leistungssport und die große Frage, ob dieser denn nicht pervers ist. Wien: Egoth.

McNamee, Mike and Verner Møller, eds. 2011. *Doping and Anti-Doping Policy in Sport: Ethical, Legal and Social Perspectives*. London: Routledge.

Macur, Juliet. 2006. 2006 Olympic Winter Games: Drug Testing; Looking For Doping Evidence, Italian Police Raid Austrians. *The New York Times*. February 19. Online available at: http://select.nytimes.com/gst/abstract.html?res=F40714FF3A5A0C7A8DDDAB0894D.

Maillo, L. 2008. Anaphylactic shock with multiorgan failure in a cyclist after intravenous administration of Actovegin. *Annals of Internal Medicine*. Mar 4;148(5): 407.

Manne, Henry. 1966. Insider Trading and the Stock Market. New York: The Free Press.

Marchese, Tommaso. 2010. *Il doping nell'ordinamento generale e in quello sportivo,* Bari: Cacucci.

Marino, Giovanni. 2011. I farmaci della camorra. *La Repubblica*. May 23: 24. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2001/05/23/farmaci-della-camorra.html.

MacMichael, Simon. 2011. UCI President Pat McQuaid insists cycling is winning the war against the dopers. *Road.cc*. ONline available at: http://road.cc/content/news/44660-uci-president-pat-mcquaid-insists-cycling-winning-war-against-dopers.

McCabe, S.E., K. J. Brower, B. T. West, T. F Nelson and H. Wechsler. 2007. Trends in nonmedical use of anabolic steroids by U.S. college students: results from four national surveys. *Drug and Alcohol Dependence*, 90: 243–251.

McCord, Joan. 2003. Cures that Harm: Unanticipated Outcomes of Crime Prevention Programs. Annals of the American Academy of Political and Social Science, 587, 16-30.

McQuaid, Patrick. 2011. Implementing the Anti-Doping Policy of the Union Cycliste Internationale. Presentation made at the International Symposium Sports Medicine and Doping in Europe. September 12-14, 2011. Freiburg.

Melia, P., A. Pipe and L. Greenberg. 1996. The use of anabolic-androgenic steroids by Canadian students. *Clinical Journal of Sport Medicine*, 6: 9–14.

Mendoza, Martha. 2010. US War On Drugs Has Met None Of Its Goals: AP Impact. Huffington Post. Online available at: http://www.huffingtonpost.com/2010/05/13/us-war-ondrugs-has-met-n_n_575351.html

Mercy, M. 2004. "Geen alternatief voor doping." *De Standaard*, December 9. Online available at: http://www.standaard.be/artikel/detail.aspx?artikelid=G78ASA03

Ministero della Difesa. 2009. Decreto del 26 febbraio 2008: Riordino del Comando carabinieri per la tutela della salute. *Gazzetta Ufficiale* 102. May 5. Online available at: http://lexambiente.it/polizia-giudiziaria/213/5122-

Polizia%20Giudiziaria.%20Carabinieri%20NAS.html.

Ministero della Giustizia. 2002. Relazione del Ministero sull'amministrazione della giustizia per l'inaugurazione dell'anno giudiziario 2002. Online available at:

<a>http://giustizia.it/studierapporti/ag2002/ag2002MG_ndx.htm>.

———. 2012. Giustizia Map. Online available at:

http://www.giustizia.it/giustizia/it/mg_4.wp?facetNode_1=3_2&selectedNode=3_2_4.

Ministero del Lavoro, della Salute e delle Politiche Sociali. 2009. Reporting System Doping – Antidoping. Anno 2008. Allegato II Relazione al Parlamento sullo stato di attuazione della legge 14 dicembre 2000, n. 376. Online available at: http://www.salute.gov.it/imgs/C_17_pubblicazioni_1192_ulterioriallegati_ulteriorealle gato_1_alleg.pdf.

- Ministero della Salute. 2007. Atto di intesa per la lotta al doping tra il Ministro della Salute, il Ministro delle Politiche Giovanili ed Attività Sportive ed il Presidente del CONI. October 16. Online available at:
 - http://www.salute.gov.it/imgs/C_17_pubblicazioni_704_allegato.pdf.
- ———. 2010a. Dati sull'attività di controllo antidoping: Anno 2009. Allegato II della Relazione al Parlamento. Online available at: http://www.salute.gov.it/antiDoping/archivioDocumentiDoping.isp?lingua=italiapo&m
 - http://www.salute.gov.it/antiDoping/archivioDocumentiDoping.jsp?lingua=italiano&m enu=documentazione.
- — . 2010b. Decreto 11 giugno 2010: Aggiornamento e completamento delle Tabelle contenenti l'indicazione delle sostanze stupefacenti e psicotrope relative a composizioni medicinali, di cui al Decreto del Presidente della Repubblica 9 ottobre 1990, n, 309, e successive modificazioni ed integrazioni con l'inserimento dello steroide anabolizzante nandrolone. *Gazzetta Ufficiale*, serie generale n. 145 of June 24, 2010. Online available at: http://www.normativasanitaria.it/jsp/dettaglio.jsp?id=34277.
- — . 2010c. Relazione al Parlamento sullo stato di attuazione della legge 14 dicembre 2000,
 n. 376 nonché sull'attività svolta dalla Commissione per la vigilanza ed il controllo sul *doping* e per la tutela della salute nelle attività sportive Anno 2009. Online available at:

http://www.salute.gov.it/antiDoping/archivioDocumentiDoping.jsp?lingua=italiano&id =1449.

 — — . 2011a. Dati sul consumo di farmaci e prodotti salutistici (non vietati per doping) da parte degli atleti controllati - Anno 2010. Allegato III della Relazione al Parlamento. Online available at:

http://www.salute.gov.it/imgs/C_17_pubblicazioni_1614_ulterioriallegati_ulteriorealle gato_2_alleg.pdf.

———. 2011b. Dati sull'attività di controllo antidoping - Anno 2010. Allegato II della Relazione al Parlamento. Online available at:

http://www.salute.gov.it/antiDoping/archivioDocumentiDoping.jsp?lingua=italiano&m enu=documentazione.

- ———. 2012. Commissione nazionale. Online available at: http://www.salute.gov.it/antiDoping/paginainternaDoping.jsp?menu=commissione&la ng=italiano&id=131.
- Ministero della Salute and Istituto Superiore di Sanità. 2012. Reporting System Doping Antidoping 2011. Online available at:

http://www.salute.gov.it/imgs/C_17_pubblicazioni_1732_allegato.pdf.

Ministero della Solidarietà Sociale. 2006. *Relazione annuale al parlamento sull'uso di sostanze stupefacenti e sulle tossicodipendenze in Italia - 2005*. Online available at:

http://www.politicheantidroga.it/media/187573/relazionealparlamento2005.11890848 17.pdf.

Ministero dell'Interno. 2006. Decreto 28 aprile 2006: Riassetto dei comparti di specialità delle forze di polizia. Online available at:

http://www.interno.it/mininterno/export/sites/default/it/sezioni/servizi/legislazione/p olizia/legislazione_769.html.

Ministero dello Sport e Ministero della Solidarietà Sociale. 2008. *Censimento delle palestre* esistenti nelle Regioni Apulia, Emilia Romagna, Latium, Trentino Alto Adige and Veneto. Roma, mimeo.

Ministry of Health and Social Affairs, Sweden. 2010. A cohesive strategy for alcohol, narcotic drugs, doping and tobacco (ANDT) policy - A summarised version of Government Bill 2010/11:47. Online available at:

http://www.sweden.gov.se/content/1/c6/18/03/81/d054fbfb.pdf.

Mitchell, George J. 2007. Report to the Commissioner of Baseball of an Independent Investigation into the Illegal Use of Steroids and Other Performance Enhancing Substances by Players in Major League Baseball. December 13. Online available at: http://graphics8.nytimes.com/packages/pdf/sports/mitchell_report_20071213.pdf.

- Mitten, Matthew J. 2009. Legal Issues Arising out of Blood Testing for Human Growth Hormone. *Drug Testing and Analysis*, 1: 434-6.
- Møller, Verner. 2008. The Doping Devil. Copenhagen: Books on Demand.
- Moore, Mark H. 1974. *The Effective Regulation of an Illicit Market in Heroin*. Lexington, Mass.: Lexington Books
- Moore, William H. 1974. *The Kefauver Committee and the Politics of Crime, 1950–1962*. Columbia, University of Missouri Press.
- Mørbekerg, Jakob. 2011. Nordic Winter Sports, Biological Passport, and the Legal Challenges Presentation made at the International Symposium Sports Medicine and Doping in Europe. September 12-14, 2011. Freiburg.
- Moresco, Gianluca. 2005. Plebiscito per Petrucci ma col pasticcio Di Centa. *La Repubblica*. May 20: 56. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2005/05/20/plebiscito-per-petrucci-ma-col-pasticcio-di.html.

— — . 2005b. Rosati e Santilli tornano i soliti noti dell' antidoping. La Repubblica. April 11: 51.
 Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2005/04/11/rosati-santilli-tornano-soliti-noti-dell-antidoping.html.

- Müller, Eugenio, Giovanni Melioli and Francesco Minuto. 2002. Perizia per conto della Procura della Repubblica presso il Tribunale di Torino sul caso GH.
- Müller, Rudhard. 2010. History of Doping and Doping Control. In: Detlef Thieme and Peter Hemmersbach, eds., *Doping in Sports: Handbook of Experimental Pharmacology 195*. Berlin: Springer. Online available at:

http://www.anabolicsteroidcalculator.com/resources/articles/ebooks/doping/chapter1.pdf

Müller-Platz, Carl, Carsten Boos und R. Klaus Müller 2006. Doping beim Freizeit- und Breitensport. Berlin: Robert-Koch-Institut. Online available at:

http://www.drogenbeauftragte.de/fileadmin/dateien-

dba/DrogenundSucht/Medikamente/Bilder/Downloads/Doping_beim_Freizeit-_und_Breitensport_060901_Drogenbeauftragte.pdf

- Nadelmann, Ethan A. (1989). Drug prohibition in the United States: Costs, consequences, and alternatives. *Science*, 245, 939-947.
- NAS, Comando Carabinieri per la Sanità. Reparto Analisi. 2011. Definizione delle dosi delle sostanze dopanti. Mimeo.
- NAS Bologna, Comando Carabinieri per la Sanità. Nucleo Antisofisticazioni e Sanità di Bologna. 2000. procedimento penale a carico di S. M. + altri. Atti relativi all'indagine delegata sul

commercio clandestino di sostanze ormonali e a effetto anabolizzante destinate al doping umano. Informativa conclusiva. Rif. Proc. Pen. n. 1701/99-21 RGNR. June 21.

NAS Brescia. 2011. Comando Carabinieri per la Sanità. Nucleo Antisofisticazioni e Sanità di Brescia. Informativa finale sull'esito delle indagini effettuatenei confronti di G.N. + altri.

NAS Firenze, Comando Carabinieri per la Sanità. Nucleo Antisofisticazioni e Sanità di Firenze. 2003. Informativa finale sull'esito delle indagini effettuate: Operazione Quadrifoglio.

— — . 2005. Indagine Oil for drug." Informativa conclusiva sull'esito delle indagini.
 NAS Napoli, Comando Carabinieri per la tutela della salute. Nucleo Antisofisticazioni e Sanità di Napoli. 2003. *Comunicazione notizia di reato (ex art. 347 CPP)* alla Procura della Repubblica di Santa Maria Capua Vetere. Procedimento penale n. 10493/2002 RGNR.

NAS Padova, Comando Carabinieri per la tutela della salute. Nucleo Antisofisticazioni e Sanità di Padova. 2009. Operazione "Flebo": Utilizzo di sostanze dopanti nel ciclismo e nel rugby. Relazione al 2° Master Investigativo Antidoping. Rome, November 3.

NAS Treviso . 2009. Indagine "Muscoli e Fiale". Relazione al 2° Master Investigativo Antidoping. Rome, November 3.

NAS Udine. 2009a. California. Relazione al 2° Master Investigativo Antidoping. Rome. ———. 2009b. Triamin. Relazione al 2° Master Investigativo Antidoping. Rome.

Newkirk, Thomas C. 1998. Speech by SEC Staff: Insider Trading – A U.S. Perspective. Online available at:

http://www.sec.gov/news/speech/speecharchive/1998/spch221.htm#FOOTNOTE_52.

Nelken, David. 2004. Using the Concept of Legal Culture. *Australian Journal of Legal Philosophy,* 29: 1-26.

———. 2007. White Collar Crime. In Mike Maguire, Rod Morgan and Robert Reiner, eds., *The Oxford Handbook of Criminology*. 4th ed. Oxford: Oxford University Press: 733-770.

New York Times, The. 1994. Olympic Drug Tests Ignored. August 23. Online available at: http://www.nytimes.com/1994/08/23/sports/sports-people-olympics-olympic-drugtests-

ignored.html?n=Top%2fReference%2fTimes%20Topics%2fSubjects%2fT%2fTests%20an d%20Testing

- Nicolella, Gabriele. 2008. L'ordinamento sportivo e le organizzazioni collettive: il CONI. Online available at: http://www.altalex.com/index.php?idnot=42496.
- Nilsson, S., A. Biagi, B. Marklund and B. Fridlund. 2001. The prevalence of the use of androgenic anabolic steroids by adolescents in a county of Sweden. *The European Journal of Public Health*, 11, 195–197.

Numa, Massimo. 2010. Anabolizzanti, poliziotti in manette: Il traffico passava dalle loro mani: 21 agenti denunciati in tutta Italia. *La Stampa*. Online available at:

http://www3.lastampa.it/torino/sezioni/cronaca/articolo/lstp/280202/.

Nuovo ciclismo, Il. 2007. L'allarme di Botrè (FMSI): 400.000 italiani assumono doping. Online available at: http://ilnuovociclismo.forumfree.it/?t=21223457.

NZZ, Neuer Zürcher Zeitung. 2000. EPO für alle: Conconi soll sich EPO gespritzt haben - Ende der Befragungen in Lille. November 3. Online available at:

http://www.limmatsharks.com/presse/nzz001103.html

———. 2004. Ein belastender Freispruch Conconis. Online available at: http://www.nzz.ch/aktuell/startseite/newzzDRRCIMIZ-12-1.226964

Oldersma, F., J. Snippe and B. Bieleman. 2002. *Doping en handel: Onderzoek naar aard en omvang van dopinghandel en ontwikkeling van indicatoren*. Groningen/Rotterdam: Bureau Intraval.

- Packer, George. 2011. A Dirty Business: New York City's top prosecutor takes on Wall Street crime. June 27. Online available at: http://www.newyorker.com/reporting/2011/06/27/110627fa_fact_packer#ixzz1r6YB8j N7.
- Pacifici, Roberta and Alessandro Donati. 2011. Consulenza tecnica nel procedimento penale 5876/08 Procura di Mantova. Mimeo.
- Pallesen, S., O. Josendal, B. H. Johnsen, S. Larsen and H. Molde. 2006. Anabolic steroid use in high school students. *Substance Use Misuse*, 41: 1705–1717.
- Paoli, Letizia. 2000. Pilot Project to Describe and Analyse Local Drug Markets First Phase Final Report: Illegal Drug Markets in Frankfurt and Milan. Lisbon: EMCDDA.
- ———. 2002a. Flexible Hierarchies and Dynamic Disorder: The Drug Distribution System in Frankfurt and Milan. *Drugs: Education, Prevention and Policy*, 9 (2): 143-151.
- ———. 2002b. The Paradoxes of Organized Crime. Crime, Law and Social Change, 37(1): 51-97.
- — . 2003a. Die unsichtbare Hand des Marktes: Illegaler Drogenhandel in Deutschland, Italien und Russland. Kölner Zeitschrift für Soziologie und Sozialpsychologie, Sonderheft 43: 356-383.
- ———. 2003b. *Mafia Brotherhoods: Organized Crime, Italian Style*. New York: Oxford University Press.
- ———. 2008. Organized Crime: New Label, New Phenomenon or Policy Expedient? International Annals of Criminology, 46 (1/2): 37-60.
- ———. Editorial: Doping and Anti-Doping: Neglected Issues in Criminology. *European Journal of Crime, Criminal Law and Criminal Justice,* forthcoming.
- ———. 2013. ed. *Oxford Handbook of Organized Crime*. New York: Oxford University Press.

Paoli, Letizia and Cyrille Fijnaut. 2004. Introduction to Part I: The History of the Concept. In Cyrille Fijnaut and Letizia Paoli, eds. *Organised Crime in Europe: Concepts, Patterns and Policies in the European Union and Beyond*: 21-46. Dordrecht: Springer.

- Paoli, Letizia and Peter Reuter. 2007. Drug Trafficking and Ethnic Minorities in Western Europe. *European Journal of Criminology*, 5: 13-37.
- Paoli, Letizia, Victoria A. Greenfield and Peter Reuter. 2009. *The World Heroin Market: Can Supply Be Cut?* New York: Oxford University Press.

Paoli, Letizia and Andreas Singler, eds. 2013. Sportsmedizin und Doping in Europa. Bonn: Bisp.

Pärssinen M., U. Kujala, E. Vartiainen, S. Sarna and T. Seppälä. 2000. Increased premature mortality of competitive powerlifters suspected to have used anabolic agents. *International Journal of Sports Medicine*, 21(3):225-7.

Parkinson, Andrew B. and Nick A. Evans. 2006. Anabolic androgenic steroids: a survey of 500 users. *Medicine and Science in Sports and Exercise, 38*(4): 644–651.

- Parzeller, Markus, Cornelius Prittwitz, Hansjürgen Bratzke, Maria Caldarelli, Rosario
 Centamore, Monica Lapetra Costa, Benno Flaig, Hannah-Silvia Heise, Dominik Kloka,
 Johannes Laux, Sabrina Prittwitz, Christoph Raschka, Andreas Roebel, Christiane
 Rüdiger, Maren Wenk and Barbara Zedler. 2009/10. Rechtsvergleich der
 strafrechtlichen Normen und der strafprozessualen Verfolgung des Dopings im
 Leistungs- und Spitzensport in Deutschland, Italien, Frankreich, Schweiz und Spanien.
 BISP-Jahrbuch Foschungsförderung 2009/10: 315-326.
- Parzeller, Markus, ed. 2011. Rechtsvergleich der strafrechtlichen Normen und der strafprozessualen Verfolgung des Dopings im Leistungs- und Spitzensport in Deutschland, Frankreich, Italien, Schweiz und Spanien. Bonn: Bundesinstitut für Sportwissenschaft.

Pasqualetto, Andrea. 2011. Ricchi con i super atleti dopati» Sotto accusa le banche svizzere. Corriere della Sera. Online available at:

http://archiviostorico.corriere.it/2011/settembre/21/Ricchi_con_super_atleti_dopati_c o_9_110921008.shtml.

- Pearsall, Judy. Ed. 1998. *The New Oxford Dictionary of English*. New York: oxford University Press.
- Pearson, Geoffrey and Dick Hobbs. 2001. *Middle Market Drug Distribution*. London: Home Office Research, Development and Statistics Directorate.
- Perry, P. J., K. H. Andersen, and W. R. Yates. 1990. Illicit anabolic steroid use in athletes: a case series analysis. *American Journal of Sports Medicine* 18: 422–428.
- Perry, P.J., E. C. Kutscher, B. C. Lund, W.R. Yates, T. L. Holman and L. Demers. 2003. Measures of aggression and mood changes in male weightlifters with and without androgenic anabolic steroid use. *Journal of Forensic Science*, 48: 646–651.
- Perry P.J., B.C. Lund, M.J. Deninger, E.C. Kutscher, and J. Schneider. 2005. Anabolic steroid use in weightlifters and bodybuilders: an internet survey of drug utilization. *Clinical Journal of Sport Medicine* 15(5):326-30.
- Peters, C., T. Schulz and H. Michna, eds. 2002. *Biomedical Side Effects of Doping*. Project for the European Union. Cologne: Sport und Buch Strauss.
- Peterson, Anna. 2010. But she doesn't run like a girl ..: the ethic of fair play and the flexibility of the binary conception of sex. *Tulane Journal of International and Comparative Law, 19:* 315-330.
- Petrini, Roberto. 2012. 2012: già sottratti 190 milioni così evadono i professionisti. May 12. Online available at:

http://www.repubblica.it/economia/2012/05/11/news/dossier_fisco-34892200/?ref=HREC1-4.

- Petróczi, A., J. Mazanov, T. Nepus, S.H. Backhouse and D.P. Naughton. 2008. Comfort in Big Numbers: Does Over-Estimation of Doping Prevalence in Others Indicate Self-Involvement? *Journal of Occupational Medicine and Toxicology*, 3:19.
- Pontani, Aligi. 1996. Un totoministri anche per il CONI. *La Repubblica*. May 11: 42. Online available at:
 - http://ricerca.repubblica.it/repubblica/archivio/repubblica/1996/05/11/un-totoministri-anche-per-il-coni.html.
- Pope Harrison G. and Brower K. J. 2009. Anabolic–androgenic steroidrelated disorders. In: Sadock B., Sadock V., eds. *Comprehensive Textbook of Psychiatry*, 9th edn. Philadelphia, PA: Lippincott Williams & Wilkins: 1419–31.
- Pope, Harrison G. and David L. Katz. 1994. Psychiatric and Medical Effects of Anabolic-Androgenic Steroid Use: A Controlled Study of 160 Athletes. *Archives of General Psychiatry*, 51(5): 375-382.
- Pope, Harrison G., Katarine A. Phillips and Roberto Olivardia. 2000. *The Adonis Complex: The* Secret Crisis of Male Body Obsession. New York: Free Press.
- Pope Harrison G., R. Olivardia, A.J. Gruber, J. Borowiecki. 1999. Evolving ideals of male body image as seen through action toys. *International Journal of Eating Disorders*, 26: 65–72.
- Pound, Richard W. 2011a. WADA A Success Story? Presentation Made at the Freiburg Symposium" Sports medicine and Doping. Freiburg. September 12-14.
- — —. 2011b. Responses to corruption in sport. Speech at Play the Game. Cologne, October 3 6.

- Povoledo, Elisabetta. 2012. Italian Court Throws Out Case Against Berlusconi. *The New York Times*. February 25. Online available at: http://www.nytimes.com/2012/02/26/world/europe/bribery-case-against-berlusconi-is-thrown-out.html? r=1.
- Preble Edward and John J. Casey. 1969. Taking Care of Business, the Heroin User's Life on the Street. *International Journal of the Addiction*, 4: 1-24.
- Pressi, Luigi. 1996. Deposizione presso i carabinieri del NAS di Firenze, nell'ambito dell'indagine giudiziaria della Procura della Repubblica di Arezzo, poi trasmessa per competenza presso la Procura della Repubblica di Firenze.
- *PR Newswire*. 2004. Lance Armstrong Response to Dr. Michele Ferrari Italian Court Decision. Online available at: http://www.prnewswire.co.uk/cgi/news/release?id=131301.
- Procura della Repubblica di Bergamo. 2009. Richiesta di applicazione di misure cautelari nei confronti di Punzone + altri. Procedimento 8992/01 RGNR.
- Procura della Repubblica di Bolzano. 2002. Richiesta di applicazione di misure cautelari nei confronti di P.M. + 5. R.G.N.R. 503/02.

Procura della Repubblica di Ferrara. 2000. Richiesta di archiviazione parziale. Procedimento penale control Pescante Mario + 13 altri. N. 893/99/21 R.G. notizie di reato/Mod. 21.

- *Quotidiano.net.* 2001. Doping: rinvio a giudizio per 18 persone nel mondo del ciclismo. Online available at: http://qn.quotidiano.net/2001/05/02/2111814-Doping-rinvio-a-giudizio-per-18-persone-nel-mondo-del-ciclismo.shtml.
- Read, Brent. 2010. WADA ignore calls for change, confirming cannabis will remain a banned substance in sport. *The Australian*. Online available at: www.foxsports.com.au/othersports/wada-ignore-calls-for-change-confirming-cannabis-will-remain-a-bannedsubstance-in-sport/story-e6frf56c-122594351485.
- Rechtskommission des Sports gegen Doping. 2005. Abschlussbericht zu möglichen gesetzlichen Initiativen für eine konsequente Verhinderung, Verfolgung und Ahndung des Dopings im Sport. Frankfurt: Deutscher Olympischer Sportsbund. Online available at: http://www.dosb.de/fileadmin/fmdosb/downloads/dosb/endfassung abschlussbericht.pdf
- Reiss, Albert J. Jr. and Michael Tonry. 1993. Organizational Crime. In Albert J. Reiss and Michael Tonry, eds. Crime and Justice - *Beyond the Law: Crime in Complex Organizations*. Chicago, vol. 18. University of Chicago Press: 1-10.
- *Repubblica, La.* 1987. Doping Tordelli accusa la Fidal. August 30: 45. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/1987/08/30/dopingtordelli-accusa-la-fidal.html.
- ———. 1997. Per il caso Di-Terlizzi richiesta nuova perizia. April 9: 50. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/1997/04/09/per-il-caso-diterlizzi-richiesta-nuova.html.
- ———. 1999. Moser ai Nas è vero, ho fatto emotrasfusione. April 25: 48. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/1999/04/25/moser-ai-nasvero-ho-fatto-emotrasfusione.html.
- ———. 2000. E il Coni smantella la sua Commissione. October 27: 12. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2000/10/27/il-conismantella-la-sua-commissione.html
- — . 2001. Il giudice: Guandalini cedette farmaci dopanti. April 5: 4 of Bologna section.
 Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2001/04/05/il-giudice-guandalini-cedette-farmaci-dopanti.html.

- — —. 2002. Il lungo elenco del nandrolone. March 21: 54. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2002/03/21/il-lungoelenco-del-nandrolone.html.
- — —. 2004a. Al macello gli animali malati. January 22: 4 of the Palermo section. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2004/01/22/almacello-gli-animali-malati.pa_013al.html.
- — . 2004b. Dagli anabolizzanti all' infarto muore ex star del baseball Usa. October 12: 59.
 Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2004/10/12/daglianabolizzanti-all-infarto-muore-ex-star.html.

- ———. 2005. 'Gillet sapeva di doparsi'. August 4: 4 of the Bari section. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2005/08/04/gillet-sapevadi-doparsi.html.
- ———. 2008. Corse truccate, cavalli dopati Nuova tegola sull'ippica italiana. Online available at: http://www.repubblica.it/2008/12/sezioni/sport/ippica-indagine/ippicaindagine/ippica-indagine.html?ref=search.
- ———. 2010. Rapinavano Tir in tutta Italia, sette arresti. Online available at: http://napoli.repubblica.it/cronaca/2010/02/23/news/rapinavano_tir_in_tutta_italia_s ette_arresti-2621979/index.html?ref=search.
- ———. 2011. La vittoria più importante del pm d'assalto Ma il mio pool rischia lo smantellamento. April 17: 10. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2011/04/17/la-vittoria-piuimportante-del-pm.html.
- *Resto del Carlino, II.* 2011. Preso il "capo dei capi" del traffico di doping. August 24. Online available at: http://www.ilrestodelcarlino.it/pesaro/cronaca/2011/08/24/567854doping_arrestato.shtml.
- Reuter, Peter. 1983. *Disorganized Crime: The Economics of the Visible Hand*. Cambridge, Mass.: MIT Press.
- — . 1985. The Organization of Illegal Markets: An Economic Analysis. Washington, D.C.: Natonal Institute of Justice. *Reuters*. 2007. Pfizer to pay \$35 mln in Genotropin settlements. April 2. Online available at:

http://www.reuters.com/article/2007/04/02/idUSWNAS544720070402.

- Reuter, Peter and John Haaga. 1989. *The Organization of High-Level Drug Markets: An Exploratory Study*. Santa Monica, CA: RAND.
- Reuter, Peter and Victoria Greenfield. 2001. Measuring Global Drug Markets; How Good are the Numbers and Why Should We Care About Them. *World Economics* 2(4): 159-173.
- Reuters, Peter. 2007. Pfizer to pay \$35 mln in Genotropin settlements. Online available at: http://www.reuters.com/article/2007/04/02/idUSWNAS544720070402.
- Rössner, Dieter. 2009. « Sportbetrug » und Strafrecht : Notwendige Differenzierung und kriminalpolitische Überlegungen. In Stefan Niebl, Nils Kassebohm and Hans Lilie, eds. *Festschrift für Volkmar Mehle*. Baden-Baden : Nomos : 567-579.
- ———. 2011. Der Sport im Strafrecht und Strafprozessrecht. In: Jens Adolphsen, ed., Sportrecht in der Praxis. Stuttgart: Kohlhammer: 399-427.
- Rost, Peter. 2006. The Whistleblower: Confessions of a Healthcare Hitman. Soft Skull Press.

- Rudolph, Holly. 2009-2010. Horse sense and high competition: procedural concerns in equestrian doping arbitration. *Kentucky Journal for Equine, Agriculture, and Natural Resources Law,* 2 (1): 47-80.
- Ryan, Brian. 2011. Italian judge set to decide if 32 named in Mantova doping investigation should go on trial. Online available at: http://www.cyclingnews.com/news/italianjudge-set-to-decide-if-32-named-in-mantova-doping-investigation-should-go-on-trial.
- Quaglio G., A. Fornasiero, P. Mezzelani, S. Moreschini, F. Lugoboni and A. Lechi. 2009. Anabolic steroids: dependence and complications of chronic use. *International Emergency Medicine*, 4(4):289-96.
- Sansa, Ferruccio. 2011. Bentornati nel porto delle nebbie. *Il Fatto Quotidiano*. Online available at: http://www.ilfattoquotidiano.it/2011/08/16/bentornati-nel-%E2%80%9Cporto-delle-nebbie%E2%80%9D/151406/.Savulescu J., B. Foddy and M. Clayton. 2004. Why We Should Allow Performance Enhancing Drugs in Sport. *British Journal of Sports Medicine* 38: 666-670.Schlink, Leo. 2011. Mafia big threat for 2012 London Olympics. *The Telegraph*. Online available at: http://www.dailytelegraph.com.au/sport/more-sports/mafia-big-threat-for-2012-london-olympics/story-e6frey6i-1226013990795.
- Schnädelbach, Dietrich. 2010. Tipologie di medicinali contraffatti: Molte forme diverse, lo stesso pericolo. In Domenico Di Giorgio, ed., *Farmaci contraffatti. Il fenomeno e le attivitá di contrasto*. Milano: Tecniche nuove: 31-35.
- Schneider, A. and R. Butcher. 2001. An Ethical Analysis of Drug Testing. In W. Wilson and E. Derse eds., *Doping in Elite Sports*. Champaing III.: Human Kinetics.
- Seccombe, R. 1995. Squeezing the balloon: international drugs policy. *Drug and Alcohol Review*, 14(3), 311-316.
- Severino, Paola. 2012. Relazione del guardasigilli sull'amministrazione della Giustizia nell'anno 2011: Anno 2012. Online available at:

http://www.giustizia.it/giustizia//it/mg_6_9.wp?contentId=NOL57984.

- Simon, Perikles. 2010. Faktenauflistung und Thesen für den Sportausschuss des Deutschen Bundestages, Session of November 10.
- ———. 2011. How Many Athletes Dope? Doping and Prevalence. Presentation made at the Symposium Internationales Symposium "Sportmedizin und Doping in Europa". Freiburg. September 12-14.
- Simon, Perikles, Hanno Striegel, F. Aust, K. Dietz and R. Ulrich. 2006. Doping in Fitness Sports: Estimated Number of Unreported Cases and Individual Probability of Doping. *Addiction* 101(11): 1640–1644.

Singler, Andreas. 2011. Dopingprävention – Anspruch und Wirklichkeit. Aachen: Shaker.

- ———. 2012. Doping und Enhancement. Interdisziplinäre Studien zur Pathologie gesellschaftlicher Leistungsorientierung. Göttingen: Cuvillier.
- Singler, Andreas and Gerhard Treutlein. 2001. *Doping. Von der Analyse zur Prävention*-Vorbeugung gegen abweichendes Verhalten in soziologischem und pädagogischem Zugang. Aachen: Meyer & Meyer.
- ———.2010. Doping im Spitzensport. Sportwissenschaftliche Analysen zur nationalen und internationalen Leistungsentwickung. Aachen: Meyer & Meyer, 5th ed.
- Sjöqvist, F., M. Garle and A. Rane. 2008. Use of doping agents, particularly anabolic steroids, in sports and society. *Lancet*, *371*(9627): 1872–1882.
- Smargiassi, Michele. 1996. Il professore in bici vola a quaranta all' ora. *La Repubblica*. April 21: 3. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/1996/04/21/il-professore-in-bici-vola-quaranta-all.html .

- Smith, Dwight Jr. 1975. The Mafia Mystique. New York: Basic Books.
- Smith, Ian. 2012. Why WADA should not ban athletes for recreational drug use. Online available at:

http://www.asser.nl/default.aspx?site_id=11&level1=13910&level2=13974&level3=&te xtid=35960.

- Soek, Jan. 2006. The Strict Liability Principle and the Human Rights of Athletes in Doping Cases. The Hague: Asser.
- Sottas P.E., N. Robinson, G. Fischetto, G. Dollé, J.M. Alonso and M. Saugy. 2011. Prevalence of Blood Doping in Samples Collected from Elite Track and Field Athletes. *Clinical Chemistry*. 57(5):762-9.
- Spezia, Luigi. 2001. Guandalini condannato a due anni. *La Repubblica*. March 16: 1 of the Bologna section. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/2001/03/16/guandalini-condannato-due-anni.html.

- ———. 2009. Maxi-inchiesta sul doping Verzelli di nuovo arrestato. March 29: 7 of the Bologna section. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2009/03/26/maxi-inchiesta-sul-doping-verzelli-di-nuovo-arrestato.html.
- *Spiegel, Der*. 2003. Conconi-Prozess abgebrochen: Schwarzer Tag für Italiens Anti-Doping-Kampf. March 23. Online available at:

http://www.spiegel.de/sport/sonst/0,1518,242164,00.html.

- Spitzer, Giselher. 1998. Doping in der DDR. Ein historischer Überblick zu einer konspirativen Praxis. Köln: Strauss.
- Sportausschuss des Deutschen Bundestages. 2011. Wortprotokoll. 34. Sitzung. Online available at:
- Stevens, Alex. 2010. *Drugs, Crime and Public Health: The Political Economy of Drug Policy*. London: Routledge.
- Stewart, James. 1992. Den of Thieves. New York: Simon and Schuster.

Stirling, Ashley E. and Gretchen A. Kerr. 2006. Perfectionism and Mood States among Recreational and Elite Athletes. *Athletic Insight*. 8 (4): 13-27. Online available at: http://www.athleticinsight.com/Vol8Iss4/PerfectionismPDF.pdf.

Striegel, H., Perikles. Simon, S. Frisch, K. Roecker, K. Dietz, H.H. Dickhuth and R. Ulrich. 2006. Anabolic Ergogenic Substance Users in Fitness-Sports: A Distinct Group Supported by the Health Care System. Drug and Alcohol Dependence, 81: 11–19.

Striegel, H. R. Ulrich and Perikles. Simon. 2010. Randomized Response Estimates for Doping and Illicit Drug Use in Elite Athletes. *Drug and Alcohol Dependence* 106(2-3): 230-232.

- Sutherland, Edwin H. 1945. Is White-Collar Crime Crime?. American Sociological Review 10 (2): 132-39.
- ———. [1948] 1983. *White-Collar Crime: The Uncut Version*. New Haven: Yale University Press. Swedish National Institute of Public Health. 2010. *Doping in Sweden An inventory of its*
 - *spread, consequences and interventions*. Östersund: Swedish National Institute of Public Health. Online available at: http://www.fhi.se/PageFiles/10951/R2010-21-Doping%20in%20Sweden-webb.pdf.
- Sunday Times, The. When the Lying Had to Stop. October 28. Online available at: http://www.sunday-times.co.uk/news/pages/Sunday-Times/frontpage.html?2387908

Taylor, Peter and Chris Gratton. 2000. *The Economics of Sport and Recreation: An Economic Analysis*. London: Routledge.

Tappan, Paul W. 1947. Who is the Criminal? *American Sociological Review* 12: 96-102.

- taz, 2011. "Die Angst f\u00e4hrt im Hintergrund immer mit." April 23. Online available at: http://www.taz.de/1/archiv/digitaz/artikel/?ressort=hi&dig=2011%2F04%2F23%2Fa00 29&cHash=cf04ad32b6
- Teetzel, S. 2011. Rules and reform: eligibility, gender differences, and the Olympic Games. *Sport in Society*, 13 (3): 386-398.
- Teitler, Steven and Herman Ram. 2008. Analyzing the New World Anti-Doping Code: A Different perspective. *The International Sports Law Journal*, 1-2. Online available at: http://findarticles.com/p/articles/mi_m2ABX/is_1-2/ai_n42367138/?tag=content;col1
- *Telegraph, The*. 2001. Davids and Couto hit with FIFA bans. Online available at: http://www.telegraph.co.uk/sport/football/international/3006500/Davids-and-Coutohit-with-FIFA-bans.html.
- ———. 2011. International Cycling Union to ban dopers from team staff. June 17. Online available at:

http://www.telegraph.co.uk/sport/othersports/cycling/8582665/International-Cycling-Union-to-ban-dopers-from-team-staff.html.

- Thevis, Mario., M. Sauer, H. Geyer, G. Sigmund, U. Mareck and Wilhelm. Schänzer. 2008.
 Determination of the Prevalence of Anabolic Steroids, Stimulants, and Selected Drugs
 Subject to Doping Controls among Elite Sport Students Using Analytical Chemistry.
 Journal of Sports Science, 26: 1059–1065.
- Thevis, Mario., H. Geyer, A. Thomas and Wilhelm. Schänzer. 2011. Trafficking of drug candidates relevant for sports drug testing: detection of non-approved therapeutics categorized as anabolic and gene doping agents in products distributed via the Internet. *Drug Testing & Analysis*, 3 (5): 331-336.
- Thiblin I, Kristiansson M, Rajs J. 1997. Anabolic androgenic steroids and behavioural patterns among violent offenders. *Journal of Forensic Psychiatry* 8: 299–310.
- Thiblin, I. and T. Parlklo. 2002. Anabolic androgenic steroids and violence. *Acta Psychiatrica Scandinivica Supplementum*, 412: 125–128.
- Tirrò, Sergio and Luisa Valvo. 2010. Tipologie di medicinali contraffatti: Molte forme diverse, lo stesso pericolo. In Domenico Di Giorgio, ed., *Farmaci contraffatti. Il fenomeno e le attivitá di contrasto*. Milano: Tecniche nuove: 27-30.
- T.M.C. Asser Instituut. 2010. The implementation of the WADA code in the European Union. Report commissioned by the Flemish Minister responsible for sport in view of the Belgian Presidency of the European Union in the second half of 2010. Online available at:

http://www.asser.nl/upload/documents/9202010_100013rapport%20Asserstudie%20 %28Engels%29.pdf

- Todd, Jan and Terry Todd. 2001. Significant Events in the History of Drug Testing and the Olympic Movement, 1960-1999. In Wayne Wilson and Edward Derse, eds. *Doping in elite sport: the politics of drugs in the Olympic movement*. Champaign: Human Kinetics. 65-126.
- Toti, Giuseppe. 2002. Caso GH, tre sport nel mirino. *Corriere della Sera*. March 7: 44. Online available at:

http://archiviostorico.corriere.it/2002/marzo/07/Caso_tre_sport_nel_mirino_co_0_020 3075649.shtml

———. 2003. Caso Conconi, indietro tutta. Corriere della Sera. March 26: 46. Online available at:

http://archiviostorico.corriere.it/2003/marzo/26/Caso_Conconi_indietro_tutta_co_0_0 30326239.shtml.

- Tranfaglia, Nicola. ed. 2001. *La sentenza Andreotti. Politica, mafia e giustizia nell'Italia contemporanea*. Milano: Garzanti.
- Transparency International. 2011. Corruption Perceptions Index. Online available at: http://cpi.transparency.org/cpi2011/results/.
- Travaglio, Marco. N.d. La Cronistoria di Tangentopoli. Online available at: http://files.meetup.com/213341/La%20Cronistoria%20di%20Tangentopoli_Marco%20T ravaglio.pdf.
- ———. 1998. Provette sparite, un blitz al Coni. La Repubblica. August 21: 46. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/1998/08/21/provettesparite-un-blitz-al-coni.html.
- ———. 2005. Viva Storace bananas. L'Unità. October 6: 12. Online available at: http://cerca.unita.it/ARCHIVE/xml/175000/171330.xml?key=marco+travaglio&first=14 61&orderby=1.

Traversi, Alessandro. 2001. Diritto penale dello sport. Milan: Giuffré.

- Tribunale di Bologna. 2000. Ordinanza di custodia cautelare nei confronti di P.B. + altri.
- Tribunale di Bologna. 2004. Sentenza nei confronti di Ferrari Michele + 3. October 1. No. 2997/97 R.G. notizie di reato.
- Tribunale di Ferrara. 2003. Sentenza nei confronti di Conconi Francesco + altri. No. 893/99 RGNG. November 19.
- Tribunale di Forlì. 2009. Ordinanza di custodia cautelare nei confronti di V.M. +altri. No. 3870/07 RGNR.
- Tribunale di Milano. 1998, Sentenza nella causa penale a carico di M.B.+ 2, 29 settembre.
- Tribunale di Ravenna, 2004. Ordinanza applicative di misure cautelari nei confronti di M.A. + 73. N. 619/2003 21 R.G.N.R.
- Tribunale di San Remo, Sezione Penale. 2005. Setenneta a sguito di rto abbreviato nel procedimento penale nei confronti di D.P. D. + altriSentenza n. 362/05., N. 2336/03 RGNR.
- Tribunale di Rimini, Ufficio dei Giudici per le Indagini Preliminari. 2011. Ordinanza di custodia cautelare nei confronti di V.E. B. + 4. No. 2898. RGNR.
- Tribunale di Siracusa, Ufficio del Giudice per le Indagini preliminari. 2010. Ordinanza di custodia cautelare nei confronti di A.G. + altri. Proc. n. 857807/07 RGNR e Proc n. 16/2010 RGGGIP.
- Tribunale Ordinario di Torino, Sezione Prima Penale. Sentenza nei confronti di A.G. + 1. No. 63700 R.G. notizie di reato.
- Tribunale Ordinario di Torino, sezione dei giudici per le indagini preliminari. 1994, Ordinanza di custodia cautelare in carcere nei confronti di B.S. + altri, 23 giugno.
- ———. 2009. Sentenza nei confronti di A.C. + 2 . Proc. 2115/06 RGNR.
- Tropeano, Luigi. 1985. Olimpiadi: La guerra del doping. *La Stampa*. October 18: 35. Online available at:

http://newrassegna.camera.it/chiosco_new/pagweb/immagineFrame.asp?comeFrom=rassegna¤tArticle=8T2K3.

UK Antidoping. 2011. Future of anti-doping is in intelligence says WADA President February 17. Online available at:

http://www.ukad.org.uk/news/article/anti-doping-press-conference.

- UNICRI. 2007. Counterfeiting: A Global Spread, a global threat. Online available at: http://www.unicri.it/news/2007/0712-3_counterfeiting_crt_foundation/
- UNODC, 2012. World Drug Report. New York: United Nations. Online available at: http://www.unodc.org/documents/data-andanalysis/WDR2012/WDR 2012 web small.pdf
- UNESCO, 2007. International Convention against Doping in Sport: 41 States will take part in first Conference of States Parties. January 5. Online available at: http://portal.unesco.org/en/ev.php-
 - URL_ID=36311&URL_DO=DO_TOPIC&URL_SECTION=201.html
- United Nations General Assembly. 1994. *Report of the World Ministerial Conference on Organized Transnational Crime*. A/49/748, 2 December. Available online at: http://www.imolin.org/imolin/en/naples.html.
- — . 2000. Report of the Ad Hoc Committee on the Elaboration of a Convention against Transnational Organized Crime on the Work of its First to Eleventh Session. A/55/383. 2 November. Available online at:

http://www.undcp.org/palermo/convmain.html.http://www.undcp.org/palermo/conv main.html. Accessed

- UNGASS, United Nations General Assembly Special Session. 1997. Political Declaration of the General Assembly. A/S-20/4 chapter V, Section A, clause 19. Online available at: http://www.un.org/ga/20special/poldecla.htm.
- UNOCCP, United Nations Office for Drug Control and Crime Prevention. 2001. *Global Illicit Drug Trends 2001*. N.p. United Nations.
- USADA, U.S. Anti-Doping Agency. 2012a. Anti-Doping Rules Violations. Letter sent by U.S.ADA on June 12 to Mr. Johan Bruyneel and others.
- ———. 2012b. Members Of The United States Postal Service Pro-Cycling Team Doping Conspiracy, Dr. Garcia Del Moral, Dr. Ferrari And Trainer Marti Receive Lifetime Bans For Doping Violations. July 10. Online available at: http://www.usada.org/media/sanction-usps7102012
- U.S. DEA, Drug Enforcement Administration. 2005. News Release: International Internet Drug Ring Shattered -- E-Traffickers Arrested: Indian/Costa Rican/Canadian Cyber Criminal Alliances Shut Down. Online available at:
 - http://centrostudi.gruppoabele.org/doping/?q=node/187.
- ----. 2007. DEA Announces Largest Steroid Enforcement Action in U.S. History. Online available at: http://www.justice.gov/dea/pubs/pressrel/pr092407.html.
- U.S. Senate. 1951. *Third Interim Report of the Special Committee to Investigate Organized Crime in Interstate Commerce (Kefauver Committee)*. 81st Cong., 2d sess. Washington, D.C., U.S. Government Printing Office.
- U.S. Senate, Judiciary Committee. 1957. *Investigations on Improper Activities in the Labor or Management Field.* Hearings. Washington, D.C., U.S. Government Printing Office.
- Van der Beken, Tom and Michael Kilchling, eds. 2000. *The Role of the Public Prosecutor in the European Criminal Justice Systems.* Brussels: Koninklijke Vlaamse Academie van België voor Wetenschappen en Kunsten.
- Van Duyne, Petrus. 1997. Organised Crime, Corruption, and Power. *Crime, Law and Social Change*, 26: 201-38.

- *VeloNews.com.* 2011. UCI to ban doping violators from team staff positions. June 17. Online available at: http://velonews.competitor.com/2011/06/news/uci-to-ban-doping-violators-from-team-staff-positions_179000.
- Vinton, Nathaniel. 2005. Olympics; I.O.C. Ends Opposition To Italy's Doping Laws. *The New York Times*. October 29. Online available at: http://select.nytimes.com/gst/abstract.html?res=F00C16F7355B0C7A8EDDA90994DD4 04482.
- Voet, Willy. 2000. Prikken en slikken: 30 jaar doping in de wielersport. Baarn: De Fontein.
- WADA, World Anti-Doping Agency. 2003. Executive Committee Defines WADA Key Priorities. September 23. Online available at: http://www.wada-ama.org/en/News-Center/Pressrelease/Executive-Committee-Defines-WADA-Key-Priorities1/.
- ———. 2009a. 2008 Adverse Analytical Findings and Atypical Findings Reported by Accredited Laboratories - Overview of Results. Online available at: http://www.wadaama.org/Documents/Science_Medicine/Anti-
 - Doping_Laboratories/WADA_LaboStatistics_2008.pdf.
- ———. 2009b. Minutes of the WADA Executive Committee Meeting. May 9. Montreal. Online available at:

http://www.wada-

ama.org/Documents/About_WADA/ExecutiveCommittee_Minutes/WADA_ExecutiveCommitteeMinutes_200905_EN.pdf.

- ———. 2009c. World Anti-Doping Code. Online available at: http://www.wadaama.org/Documents/World_Anti-Doping_Program/WADP-The-Code/WADA_Anti-Doping_CODE_2009_EN.pdf.
- ———. 2010a. 2009 Adverse Analytical Findings and Atypical Findings Reported by Accredited Laboratories - Overview of Results. Online available at: http://www.wadaama.org/Documents/Science_Medicine/Anti-Doping Laboratories/WADA LaboStatistics 2008.pdf.
- ———. 2010b. Investigations and Trafficking. Online available at: http://www.wadaama.org/en/Anti-Doping-Community/Governments/Investigation--Trafficking/.
- ———. 2010c. Minutes of the WADA Executive Committee Meeting. May 8. Montreal. Online available at: http://www.wadaama.org/Documents/About WADA/ExecutiveCommittee Minutes/WADA ExCo Minut
 - ama.org/Documents/About_WADA/ExecutiveCommittee_Minutes/WADA_ExCo_Minut es_2010May8_Final_ENG.pdf.
- ———. 2010d. Minutes of the WADA Executive Committee Meeting. November 20. Montreal. Online available at: http://www.wadaama.org/Documents/About_WADA/ExecutiveCommittee_Minutes/WADA_ExCo_Minut es 20Nov2010 EN.pdf.
- ———. 2010e. Minutes of the WADA Foundation Board Meeting. November 21. Montreal.
 Online available at:
 - http://www.wada-

ama.org/Documents/About_WADA/FoundationBoard_Minutes/WADA_FB_Minutes_21 Nov2010_EN.pdf.

- ———. 2011a. 2010 Adverse Analytical Findings and Atypical Findings Reported by Accredited Laboratories - Overview of Results. Online available at: http://www.wadaama.org/Documents/Resources/Statistics/Laboratory_Statistics/WADA_2010_Laborato
 - ry_Statistics_Report.pdf.

- — —. 2011b. Minutes of the WADA Executive Committee Meeting. May 14. Online available at: http://www.wadaama.org/Documents/About_WADA/ExecutiveCommittee_Minutes/WADA_ExCo_Minut
- es_2011_14May_EN.pdf. ———. 2011c. Minutes of the WADA Executive Committee Meeting. 19 November. Online available at: http://www.wadaama.org/Documents/About_WADA/ExecutiveCommittee_Minutes/WADA_ExCo_Minut es 19Nov2011 ENG FINAL.pdf
- ———. 2011d. WADA and WCO sign ground-breaking partnership June 27. Online available at: http://www.wada-ama.org/en/News-Center/Articles/WADA-and-WCO-sign-groundbreaking-partnership/.
- — —. 2011e. WADA releases guidelines for investigations and evidence sharing. May 15.
 Online available at: http://www.wada-ama.org/en/News-Center/Press-release/WADA-Releases-Guidelines-to-Improve-Investigation-Cooperation-and-Intelligence-Sharing/.
- ———. 2012a. A Brief History of Anti-Doping. Online available at: http://www.wadaama.org/en/About-WADA/History/A-Brief-History-of-Anti-Doping/.
- ———. 2012b. Contributions to WADA's Budget 2012. Online available at: http://www.wadaama.org/Documents/About_WADA/Funding/WADA_Contributions_2012_update_EN.p df.
- ———. 2012c. Funding. Online available at: http://www.wada-ama.org/en/About-WADA/Funding/.
- ———. 2012b. Priorities. Online available at: http://www.wada-ama.org/en/About-WADA/History-Mission-Priorities-and-Strategic-Plan/Priorities/.
- — —. 2012c. The 2012 Prohibited List International Standard. Online available at: http://www.wada-ama.org/Documents/World_Anti-Doping_Program/WADP-Prohibited-list/2012/WADA_Prohibited_List_2012_EN.pdf.
- ———. 2012d. Questions & Answers on the Athlete Biological Passport. Online available at: http://www.wada-ama.org/en/Science-Medicine/Athlete-Biological-Passport/Q--A-onthe-Athlete-Biological-Passport/.
- ———. 2012e. Strategic Plan. Online available at: http://www.wada-ama.org/en/About-WADA/History-Mission-Priorities-and-Strategic-Plan/Strategic-Plan/.
- Waddington, Ivan. 2000. Sport, Health and Drugs. London: E&FN Spon.
- ———. 2011. Client control and the limits of professional autonomy: or why do sports physicians dope athletes? Paper presented at the symposium: "Doping and Sports medicine", Freiburg, 12.14 September.
- Waddington, Ivan and Andy Smith. 2009. *An Introduction to Drugs in Sport*. Milton Park: Routledge.
- Wanjek, B., J. Rosendahl, B. Strauss and H.H. Gabriel. 2007. Doping, drugs and drug abuse among adolescents in the State of Thuringia (Germany): prevalence, knowledge and attitudes. *International Journal of Sports Medicine*, 28: 346–353.
- Wassink, H., B. Coumans and O. De Hon. 2010. *Gezondheidsrisico's illegale doping via internet*. Dopingautoriteit, Capelle a/d IJssel.
- Watermann, Yvonne. 2012. Turin: the largest asbestos trial ever. *Catherine Higgings Law Firm*. Online available at: http://www.chigginslaw.co.uk/2012/02/turin-the-largest-asbestos-trial-ever/.

- Weinreich, Jens. 2012. Blatter wusste von Schmiergeldzahlungen. *Neue Zürcher Zeitung*. July 13. Online available at: http://www.nzz.ch/aktuell/sport/fussball/brisante-sachverhalte-1.17347808
- WHO, World Health Organization. 2012. General information on counterfeit medicines. Online available at:

http://www.who.int/medicines/services/counterfeit/overview/en/.

- Wiener Zeitung. 2011. Doping-Prozess: Walter Mayer verurteilt. Online available at: http://www.wienerzeitung.at/nachrichten/sport/doping/390055_Doping-Prozess-Walter-Mayer-verurteilt.html.
- Wiesing, Urban. 2011. Should performance-enhancing drugs in sport be legalized under medical supervision? *Sport Medicine*. 41(2):167-76.
- Winnipeg Free Press. 2006. World cycling chief declares "unconditional war" on doping. September 9. Online available at:

http://www.winnipegfreepress.com/historic/31775524.html

- Woerdeman J., O. de Hon, M. Levi and W. P.de Ronde. 2010. Anabolic androgenic steroids in amateur sports in the Netherlands. *Nederlands Tijdschrift voor Geneeskunde*: 154: A2004.
- Wright, Valerie. 2010. Deterrence in Criminal Justice: Evaluating Certainty vs. Severity of Punishment. Online available at:

http://www.sentencingproject.org/doc/Deterrence%20Briefing%20.pdf.

- Yesalis, Charles E. and Michael S. Bahrke. 2005. Anabolic Steroid and Stimulant Use in North American Sport between 1850 and 1980. *Sport in History*, 25 (3): 434-451.
- Yesalis, Charles E., N.J. Kennedy, A.N. Kopstein and M.S. Bahrke. 1993. Anabolic-androgenic steroid use in the United States. *Journal of the American Medical Association*, 27: 1217–1221.
- Zambardino, Vittorio, 1993a. Controlli a pioggia sugli atleti padovani. *La Repubblica*. November 28: 26. Online available at:

http://ricerca.repubblica.it/repubblica/archivio/repubblica/1993/11/28/controllipioggia-sugli-atleti-padovani.html.

- ———. 1993b. La verità di Francesca. La Repubblica. December 1: 30. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/1993/12/01/la-verita-difrancesca.html.
- ———. 1994. Benvenuti e i casi di doping ' Sospeso a vita chi sbaglia'. La Repubblica. August 11: 32. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/1994/08/11/benvenuti-casidi-doping-sospeso-vita.html.
- Zhao, J., T. Stockwell and S. Macdonald. 2009. Non-response bias in alcohol and drug population surveys. *Drug and Alcohol Review*, 28(6): 648-57.
- Zinser, Lynn. 2006. 2006 Olympic Winter Games -- Police Action; Used Syringes Among Items Seized in Raid. *The New York Times*. February 20. Online available at: http://select.nytimes.com/gst/abstract.html?res=F50B17FA3A5A0C738EDDAB0894DE4 04482.

Zollkriminalamt. 2012. Gewinnspannen. Mimeo.

Zunino. Corrado. 2007. Camorra, l'ippodromo in ostaggio. "Qui adesso comandiamo noi" *La Repubblica*. December 21. Online available at:
http://www.repubblica.it/2007/12/sezioni/cronaca/ippodromo-malavita/ippodromo-malavita.html?ref=search.

———2009. Sperperi e illegalità così l' ippica italiana è diventata un debito: La Repubblica. November 23: 21. Online available at: http://ricerca.repubblica.it/repubblica/archivio/repubblica/2009/11/23/sperperi-

illegalita-cosi-ippica-italiana-diventata.html.