

# Handbook of Research on Technoethics

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# Chapter V

## The Ethics of Human Enhancement in Sport

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### **ABSTRACT**

*This chapter outlines a technoethics for sport by addressing the relationship between sport ethics and bioethics. The purpose of this chapter is to establish the conditions in which a technoethics of sport should be approached, taking into account the varieties and forms of technology in sport. It also provides an historical overview to ethics and policy making on sport technologies and contextualises the development of this work within the broader medical ethical sphere. It undertakes a conceptualisation of sport technology by drawing from the World Anti-Doping Code, which specifies three conditions that determine whether any given technology is considered to be a form of doping. In so doing, it scrutinizes the 'spirit of sport', the central mechanism within sport policy that articulates a technoethics of sport. The chapter discusses a range of sport technology examples, focusing on recent cases of hypoxic training and gene doping.*

### **INTRODUCTION**

If one examines the history of modern sport, the importance attributed to discussions about the ethics of technological development is unclear. This is surprising since, via the technology of performance enhancement, ethical discussions about sport technologies are among the most visible of topics politically and culturally. Instead, there is evidence of a struggle to implement a

specific ethical view on doping, which functions as an assumed, rather than contested ethical terrain. This struggle is exhibited through the rhetoric of anti-doping policy and the governmental processes that underpin anti-doping. For instance, in 1998 the World Anti-Doping Agency was conceived as a result of growing criticisms that anti-doping work should be separate from the International Olympic Committee. Between 1999 and 2002, one of the major struggles of WADA

was to achieve the signatures and commitments of participatory governments and sports federations. In this instance, the ethical struggles were never about the soundness of anti-doping arguments, but the ethics of implementation and policy-making. The alleged ethical consensus that surrounds this anti-doping work shapes the conditions within which ethical debates about technology in sport have taken place and prescribes the limits of ethical inquiry that surround the governance of elite sports.

As further illustration of this disinterest in the technoethics of sport, one can observe that nearly no research has been funded from sports organizations to investigate the ethics of technology in sport. Some exceptions include research conducted at the Hastings Center (New York) since the 1980s under the direction of its current President, Thomas H. Murray. Murray's contribution as a long-standing contributor to various sports-related doping authorities is notable, though it is also exceptional. Despite the projects funded through the Hastings Center, ethical reasoning on this issue appears to be of limited interest to sports policy makers. The evidence suggests that there is nearly no political weight behind the interests to question fundamental ethical issues about performance enhancement. Rather, this kind of ethics functions as a form of rhetoric that seeks to endorse an already assumed ethical stance: that doping is wrong.

These circumstances can be contrasted with the academic study of sport ethics and philosophy, which has developed steadily since the 1970s. The *Journal of the Philosophy of Sport* (Human Kinetics) and the recent addition of the journal *Sport, Ethics & Philosophy* (Routledge) is evidence of a burgeoning community of ethicists who are interested in sport issues. Some of these authors have written about the ethics of technology (see Miah & Eassom 2002), though the majority of contributions have been focused on doping specifically. In recent years, this community has expanded into two notable areas of applied phi-

losophy—the philosophy of technology and the philosophy of health care, or technoethics and bioethics. In particular, the latter has developed an interest in sport via the doping issue, particularly to inform ethical debates about the ethics of human enhancement. Recent contributions from such prominent bioethicists as Nick Bostrom, Ruth Chadwick, John Harris and Julian Savulescu are some indication of how sport enhancement issues have reached the mainstream readership within bioethics.<sup>1</sup>

Accompanying these developments is a range of new technologies that promise to raise difficult questions about the ethics of performance in elite sports. For instance, over the last five years, there has been considerable attention given to the prospect of 'gene doping' (World Anti-Doping Code, 2004), the application of gene transfer technology to the athlete. Gene doping raises a number of new questions about the morality of (anti)doping and the parameters of the 'drug war' in sports (Miah, 2004; Tamburrini & Tannsjo 2005). Such technology places demands on sporting authorities that have, hitherto, not been encountered, calling into question the limits of the anti-doping movement. For instance, gene doping presents the possibility of enhancing athletes in a manner that is minimally invasive and sufficiently safe. If such conditions are met, then the rationale for anti-doping diminishes. Alternatively, in 2006, WADA investigated the use of hypoxic chambers that have the capacity to enhance an athlete's performance in a similar manner to altitude training, by simulating different levels of altitude. The inquiry provoked a vast amount of criticism from within the science community, which disputed the inclusion of the technology within the World Anti-Doping Code. Arguably, as technology improves and as body and cognitive enhancements play an increasing role within society, the pursuit of anti-doping raises more ethical issues than it resolves. Consider, for instance, the testing of high-school students in the United States for doping substances. One might legitimately ask where such testing should

be limited, at what age, and to what level of intrusion into people's lives?

In this context, it is necessary to reconsider the *role* of ethics in debates about technological enhancement in sport. This chapter discusses this role and the capacity of ethics to inform policy debates on doping specifically and sport technology issues generally. I will suggest how ethics is beginning to play an increasing role in the doping debate and in the study of science, medicine and technology, more broadly, which reveals how more effective ethical inquiry will be in discussions about emerging technologies, such as gene doping. I begin by considering the political history of the doping debate, which has given rise to a number of limitations and restrictions on the advancement of the ethical contribution to the issue. I then consider the development of the doping debate in the context of philosophy of sport and medical ethics and argue how their lack of connectedness has limited the advance of the doping issue. Third, I discuss a number of the substantive ethical issues that concern sport technologies. Finally, I argue how the relationship between sport and technoethics is changing via a number of new technologies that, now, consume the anti-doping movement.

## **MORAL RHETORIC & ETHICAL CODES**

While anti-doping began many decades earlier, the major collaborative efforts in anti-doping occurred in the 1960s from within the International Olympic Committee (IOC). In the 1960s, the IOC created a Medical Commission whose role was to address emerging concerns about the use of chemical substances in sport and began testing in the Olympics during the 1964 Tokyo Olympic Games. The IOC's pursuit of anti-doping at this time can be understood as a reaction to specific cases, where it was believed that athletes were being harmed by substance misuse. Of particu-

lar importance was the death of cyclist Tommie Simpson, who died during the Tour de France in 1967. Arguably, the televised broadcast of Simpson's death played a critical role in the political pressure to do something about doping and in raising the public profile of the concern, for better or worse.

At this time, the influence of the IOC, as the guardians of elite sport, was considerable and the post-war climate along with the emerging reactions to drug abuse within society overshadowed the ethical debate about performance enhancement in sport. Indeed, this connection between drug use in sport and its use in society remains apparent. For instance, the United States government has recently re-asserted its commitment to fighting the drug war and there is considerable alarm about the use of doping substances in high-school sport within the United States of America. It has even been suggested that the doping debate should be approached and dealt with as a public health issue, rather than just a problem of elite sport (Murray, cited in Dreifus, 2004). The use of such substances as anabolic steroids for general for image enhancement and not performance enhancement in sports arises as one such substance that transcends the ethics of sport. This proposed model for approaching doping would signal a radical change to how it is dealt with on a global scale.

Amidst this concern, the presumed harmfulness of various forms of doping remains contested and such disputes even extend to notorious doping substances such as anabolic steroids. While there are many strong convictions on this subject, there is considerable disagreement about whether many banned substances are inherently detrimental to an athlete's health, or whether their particular application is what leads to the greatest risks. This is necessary to bear in mind, not because I wish to take any particular stance on the merits of these convictions, but because this contested status reinforces the claim that the ethics of anti-doping has relied on political justifications,

rather than moral ones. One might legitimately ask whose interests are served by the ongoing absence of evidence surrounding this subject and whether these interests are also what prevents understanding more. The concern about the risks that doping poses to an athlete's health explains the development of anti-doping much less than the pressure for an aspiring organization like the IOC to demonstrate a concern for the members of its organization. To date, there is considerable uncertainty about the effects of many methods of doping and this uncertainty is exacerbated by the fact that many doping technologies are experimental innovations for which there is only a limited amount of science about.

As further support for the importance of politics in the 1960s doping debate, one might also consider the developing ethical conscientiousness during this period. After World War II, the moral concerns about eugenics and the abuse of humans in the pursuit of science were paramount. These conversations led to a series of ethical and legal instruments considered fundamental to any research or practice that involved human subjects. The United Nations Declaration on Human Rights (1948), the Helsinki Agreement (1964), the Nuremberg Code of Ethics (1949), were a significant part of this emerging moral consciousness (see World Medical Association, 2000). Moreover, given the interrelatedness of the medical professions to anti-doping, one might expect that the influence of these developments on how anti-doping evolved is of critical importance. However, there is no evidence that the world of sport was guided by these broader changes or that there was any crossover of discourses.

Despite the disagreement over the harms of doping, the argument from harm remains central to the rationale underpinning anti-doping measures. Houlihan (1999) describes the way in which the athlete has been characterized as a subject of medical concern:

*Once it is accepted that extreme physical fitness makes an athlete by definition a patient then there is already in existence a culture, professionally supported and promoted, that encourages the treatment of healthy athletes with drugs. (p.88)*

To this extent, the concern from the IOC was politically aligned with other social concerns about the use and abuse of science. In short, the need for an anti-doping movement seems much less to have been about the ethics of sport and much more about the potential abuse of athletes who might be subjected to state-funded programmes that were designed to produce 'perfect athletes'. The case of the German Democratic Republic is a particularly good example of why there was a need for such concerns. Furthermore, it reinforced the inter-relatedness of state and sport, where the national interest to secure sporting victories was a considerable motivation to ensure athletes were likely to have a competitive edge over their opponents.

Two insights into the role of technoethics in sport are possible to achieve from this set of circumstances. First, the incentive to develop an anti-doping policy arose from a concern about how the public profile of the IOC might be prejudiced as a result of failing to act. The IOC found itself subject to an institutional obligation to address the possible risks faced by its core community, the athletes.<sup>2</sup> In particular, its concern was the possible corruption of the Olympic values that doping would entail. This pressure must also be seen in the broader context of governmental concerns about drug abuse more and the political interest of sports organizations to work in partnership with governmental priorities on sport. Second, one can argue that the ethics underpinning anti-doping were *not* directly related to the emerging post-war ethical concerns about the medical and scientific professions. This latter conclusion is of particular relevance to our present discussion, since it assists in explaining the peculiar inconsistencies of how different technologies

have been rationalised in the context of sport. In short, the medical community underpinning the development of anti-doping has been governed largely by a very strict notion of what is medically acceptable, but to the exclusion of conceptual developments and policy debates within medical ethics. This has limited the capacity to develop an adequate approach to the doping debate. Yet, more importantly, this is something that can be changed. Indeed, I will provide examples of how this is changing, with particular attention to 'gene doping,' which has become a critical part of this shifting dialogue.

## **THE CHANGING FACE OF SPORT ETHICS**

Despite the growth of sport philosophy, much of its work has been conspicuous by its absence in shaping the policy debate over doping. This is not to say that the publications of sport philosophers are not credible or that their arguments have been irrelevant. Rather, more modestly, the problem has been that the development of ethical debates on doping within the philosophy of sport have been institutionally divorced from critical ethical and policy decisions in the world of anti-doping.<sup>3</sup> In defence of sport philosophers, applied debates in anti-doping have not really demonstrated an interest in problematising ethics. Moreover, there is a void between theoretical ethics and applied policy making, the former of which seems, more often than not, to have been the interests of sport philosophers as the discipline evolved to establish itself, first, as a credible subject of philosophical concern. However, some capacity to inform policy through ethical reasoning is provided in other sorts of ethical literature.

As some indication of this, it is useful to contrast the sport ethics literature with work in bioethics, which is even more appealing for our present purposes, since the doping debate is closely connected to medical ethics. Medical

ethics and bioethics have a similar historical timeframe to the philosophy of sport. If one takes the long perspective, then it is possible to identify as much philosophy of sport within the works of Aristotle, as one might the philosophy of health. More recently, both sub-disciplines matured in the late 1960s and, again, each was closely allied with the post-war concerns about potential abuses to human subjects in clinical research. Yet, given their apparent interrelatedness, one might wonder how it is that the sport technology debates in the philosophy of sport have been largely unconnected to the ethical discussions in medicine. Rather than focus on explaining this, I will focus, instead, on how these circumstances can and should change. I will also provide evidence of such change, which should indicate how the role of ethics in anti-doping discussions could become more substantive.

In 1983, Thomas H. Murray wrote an article about drug taking in sport for the *Hastings Center Report*, one of the leading medical ethics journals in the world. This was followed by Fost (1986), whose controversial pro-doping stance made its way into the philosophy of sport literature. Aside from these articles, nearly no conversations have taken place within the medical ethical literature about doping, despite concurrent debates taking place within the philosophy of sport literature. In contrast, if one examines debates in medicine, there is a clear connection between the ethical community and the applied policy and legal discussions.<sup>4</sup> For example, if one examines human fertilization and embryology, both policy and law in the UK rely on the ethical debates utilized within the 1980s concerning the moral status of the embryo. Moreover, if one examines medical journals such as the *Lancet*, *Nature*, or *Science*, one frequently reads commentaries from academic ethicists about policy, law, or scientific issues (see, for example, Juengst, 2003).<sup>5</sup> In contrast, the doping debate has not benefited from such a relationship with philosophers of sport, which is

why there is an opportunity for sport philosophers to make more of a contribution.

There are reasons to be optimistic about this relationship. For example, the inclusion of 'philosophy of sport' within philosophical and ethical encyclopaedia is some indication of the degree to which the contributions of sport philosophers are now being taken more seriously by a range of audiences (notably, by more established philosophical disciplines and medical institutions). The presence of sport philosophers in the World Congress of Philosophy, the IOC World Congress on Sport Science, and the European College of Sport Science, among others, all suggest that philosophers have an increasing role to play in the analysis of sport. Indeed, in the last two years, the philosophy of sport community has grown considerably in Europe, through the development of the British Philosophy of Sport Association.

With respect to the relationship between sport ethics and bioethics, there are also further indications of growth. In 1998, The Hastings Center published a book resulting from a project about enhancement technologies, in which sport had a presence (Parens, 1998). Additionally, since 2002, the Hastings Center has been funded by the United States Anti-Doping Agency and the World Anti-Doping Agency on two research projects to investigate the ethics of performance enhancement in sport, during which time associations have been made between philosophers of sport and bioethicists. Moreover, in 2004, Thomas H. Murray was appointed Chair of the Ethical Issues Review Panel within WADA, which has included a number of contributors to the philosophy of sport literature, such as Angela Schneider, Gunnar Breivik and Sigmund Loland. Today, it is more common to find sport philosophers working in association with sports organizations and medical (ethical) associations. While there is some uncertainty about the effectiveness of these committees and their specific terms of reference, their existence at all is an advance on previous anti-doping organizations. Nevertheless, it remains to be seen

whether ethics will have a central role in many national anti-doping organizations, where what is ethical remains a straightforward implementation of international policies.<sup>6</sup>

Even within this context, it is important to clarify the nature of ethical concern from academics, since there appear to be at least two kinds of ethical criticisms *of* anti-doping. First, some ethicists are critical of the way that anti-doping has been handled, but, nevertheless, agree that it is a fundamentally desirable project to support. Such is the perspective of Fraleigh (1985), Murray (1983, 1984, 1986, 1987), Loland (2002), Schneider and Butcher, 1994), Simon (1985) among others, who argue that there are good reasons to prohibit the use of doping methods. Other authors have been critical of the ethical foundation of anti-doping and have advocated its re-appraisal, including arguing on behalf of a more permissive environment of performance enhancements (Burke, 1997; Eassom, 1995, Kayser et al. 2005, 2006; Miah, 2004, Tamburrini, 2000).

These two different critical voices often overlap and allegiances shift depending on the specific technology under discussion, though they are not two parts of the same opinion. The former considers that there is value in established ethical protocols on the acceptable uses of medicine and seeks to ensure that good practice is maintained in sport. For example, such authors might argue that sports authorities compromise the position of sports physician, to such an extent that their actions within sport are dubiously described as medicine (McNamee & Edwards 2005). Alternatively, this perspective might argue that the amount of funding dedicated to tackling the problem of doping in sport has not been sufficient, or that its policies have been skewed too far towards detection and not far enough towards, say, education (Houlihan 1999). In contrast, the latter view argues that conventional medical ethical principles and protocols are not appropriate to map directly onto the world of sport and that athletes should be permitted to use whatever they please to alter

their performances. This latter perspective would dispute the premise that sports medicine should operate under established medical norms.

While the former of these views seeks a credible implementation of medical ethical protocols, the latter would argue that such standards are inadequate for the governance of medical interventions in sport. It is important to bear this in mind when trying to find some way of engaging with the medical professions on doping, since arguments on behalf of doping are often not dismissed as a matter of course by those within the world of sport. Indeed, one might again return to the literature in the philosophy of sport and wonder whether the overt philosophical liberalism expressed in many papers on doping has, in some way, alienated sport philosophers from the applied medical conversations. This does not mean that sport philosophers should limit their ethical inquiries, but simply suggests that radical views on doping must be accompanied by pragmatic debates in relevant journals, where questions about the legitimate ends of medicine can be discussed in critical and engaging ways. For example, discussions about creating superhumans must be accompanied by problematising the legitimate use of such substances as human growth hormone.

## **SUBSTANTIVE ETHICAL ISSUES ON SPORT TECHNOLOGY**

While, individual sports federations have their own anti-doping guidelines, the vast majority of them are now governed by the World Anti-Doping Code. This code is instrumental in deciding whether or not any given technology—product or process—is to be considered a doping technology. The basis of this decision involves testing the proposed technology against three conditions, two of which must be engaged in order for WADA to *consider* a prohibition. These consist of the following:<sup>7</sup>

*Does the technology have the ‘potential to enhance’ or does it enhance sport performance’?*

*Does the technology present an ‘actual or potential health risk’?*

*Does the technology ‘violate the spirit of sport’ as described by the Code?<sup>8</sup>*

These three conditions are a useful place to begin unravelling the substantive ethical issues arising from the use of technology in sport. While their application can be criticised for being limited to exclusively doping technologies, they offer some explanation for why other technologies do not provoke the concern of the anti-doping community. Yet, it is important to bear in mind that these criteria do not constitute the breadth of the ethical foundation of sports, which are more carefully elaborated upon by broader constitutional documentation, such as the Olympic Charter. If one considers how a technological artefact that is not something that would fall under the Code is dealt with, it becomes clear why, nevertheless, the three criteria are a useful articulation of sport’s technoethical framework. For instance, what sector within the world of sport should respond to a new, lighter tennis racquet? Would one expect this to be described as a doping technology or, should the ethical issues it provokes be discussed elsewhere? How does it engage the three conditions of the World Anti-Doping Code? Such an innovation might allow for a different kind of swing which, subsequently, could present a different portfolio of likely injuries, many of which might be seen as more severe than those that were likely to arise with the previous type of tennis racquet. There are many similar examples in sport. For instance, a faster motorcycle could lead to greater risks being taken, or a greater likelihood of serious or, even, life-threatening injury. In short, the innovation can change the range of harms to health that an athlete experiences during training and competition.

A new tennis racquet might also be performance enhancing; it could allow an athlete to achieve a faster speed of serve, or to impart greater spin on a ball. This latter example was engaged in the late 1970s when a ‘spaghetti strung’ (double-strung) tennis racquet was introduced. Due to its performance enhancing capabilities, it was deemed illegal because it threatened the characteristics of tennis that are tested via its rules. In this case, too much spin, it would seem, diminishes the ability to test the kinds of tennis-related skills that are of interest. Perhaps a useful analogy is to a tennis shot that clips the net on its way over. While one might identify such a winning stroke as skill-based, it is generally recognised that athletes cannot be this precise with their strokes and that an element of ‘luck’ has led to the advantage. At least where serving is concerned, this is partly why tennis offers a ‘let’ (re-serve) when such clipping takes place.

Finally, a new tennis racquet could engage the concern that the technology is against the spirit of sport, though to understand this further, it is necessary to inquire more into this concept, which is, arguably, one of the most contested ethical terms within sport. In our case of the lighter tennis racquet, its use might violate the spirit of sport if it is available to all competitors. In itself, this might be considered an unfair advantage, though if one conceives of technological innovation as an integral part of the athlete’s skill and knowledge base, this is a dubious position to take. In any case, it is useful to probe more extensively the concept of a ‘spirit of sport’.

### **The Spirit of Sport (Technology)**

The World Anti-Doping Code does not provide a precise definition of the spirit of sport, though it does articulate a number of values that describe various sports values, such as ‘fair play’, ‘health’, ‘excellence in performance’, ‘character and education’, ‘fun and joy’, ‘teamwork’, ‘respect for rules and laws’, ‘courage’ and ‘community and

solidarity’. It would be fatuous to point out that the gruelling, commercial world of elite sports rarely demonstrates the experiencing of these characteristics and that, on this basis, the values proposed in the code have no resonance. The Code is not a well-worked through ethical paper designed to withstand the scrutiny of theoretical ethics. Rather, it must function across a range of legal, social, and policy contexts. Nevertheless, it is important to ask further how the spirit of sport is applied via the Code, since one might have concerns about consistency of practice.<sup>9</sup>

One of the most visible recent tests of the ‘spirit’ is the 2006 debate about hypoxic training technology, which involves the creation of an environment—usually the size of a room—that simulates varying levels of altitude in order to confer a performance advantage.<sup>10</sup> In this case, WADA considered the technology’s legitimacy on each of the three criteria and its various sub-committees reported mixed findings. It was not possible to conclude that hypoxic training presented any potential or actual health risk or, indeed, that it was performance enhancing, though each concluded that these were not definitive findings.<sup>11</sup> This, alone, would be enough to rule out prohibition, though of particular interest is the approach taken by the Ethical Issues Review Panel on whether the ‘spirit of sport’ was challenged by hypoxia. Specifically, the Panel attempted to grapple with the ‘spirit of sport’ in quite specific terms, arguing that the advantage gained via hypoxic training did not require the ‘virtuous perfection of natural talents’, a moral standard it used to establish whether or not the technology contravened the spirit of sport. Importantly, the argument could not, in itself, allow the Panel to conclude that hypoxic training should be banned, but it did imply an element of moral condemnation that is useful to dwell on when thinking about the contribution of technoethics to such debates. Moreover, this case is one of the most visceral attempts to articulate, in more precise terms, the spirit of sport and so it serves as a

useful route towards greater elaboration. I will not detail the specifics of the Panel's argument any further, though it is useful to note that the scientific community challenged the argument on scientific rather than ethical grounds and that the final recommendation was to maintain hypoxic training as a legal performance technology.<sup>12</sup> Of course, this status could change, as it will remain subject to ongoing, scientific analysis. Despite the outcome of this case, the 'virtuous perfection of natural talents' alludes to what the spirit of sport might be, as if it is important to ensure that athletes gain their advantages by having to work, rather than simply applying a technology. This is what some authors intend when they argue that the 'means matter' (Cole-Turner 1998).

A less contentious articulation of the spirit of sport concerns the concept of cheating. While there are different kinds of rules in sport, different ways in which they can be broken, and different levels of moral condemnation that will arise from such violations, it is generally regarded that cheating is contrary to the spirit of sport, particularly as it relates to performance enhancement.<sup>13</sup> Indeed, doping, by definition, is a form of cheating, since it is the utilization of means that the rules prohibit. However, the analysis of cheating can be approached on a number of other levels. For instance, in response to the argument that *laissez faire* approach to doping would eliminate the moral condemnation of doping as cheating—since everyone will be permitted to do whatever they want—it is sometimes argued that cheating will *still* have occurred, since the conditions of the competition will have been undermined. In this sense, the doped competitor achieves an unfair advantage over the sport, rather than the competitors.<sup>14</sup> To the extent that sports are practices that are shaped and defined by its community's members, one can envisage how such concerns develop moral significance—which again reminds us of the resistance to an 'anything goes' perspective on the ethics of doping. It also reminds us of the limits of ethics when they are

divorced from the practice community that is affected by the rules.

Perhaps a final characterisation of the spirit of sport is its aspiration to ensure that sports competitions are tests of athletes rather than technologies. While I would argue that sports are constitutively technological, others would argue that there are types of technological integration that should be resisted—such as biological modification via pharmaceuticals. On this basis, one can observe varying degrees of moral concern that arise from different types of technological apparatus. The subject of concern here is articulated in various forms. Some authors have described it as the 'dehumanizing' thesis, while others write about the 'deskilling' of performance that it implies. In each case, the arguments resist such technological development, seeing it as antithetical to what sports competitions are supposed to be about—a test of human capacities. It is imagined that such technology would reduce the athlete's role in performance and, in so doing, diminish the value of competition. This view of dehumanisation also emerges from a 'mechanisation' thesis that describes the scientification of sport as bringing about feelings of alienation—that is the manufacturing of athletes, for instance. Such an evaluation of contemporary elite sports describes the athlete as a product of a scientific or technological process, somehow automated in performance.

## **Human Enhancement Outside of Sport**

Accompanying these challenges to the spirit of sport is the additional context offered via broader perspectives on bioethics and the culture of body modification. As I have indicated earlier, perhaps one of the more significant challenges to the current model of anti-doping comes from the general rise in body modification/enhancement practices. Very little is known about whether athletes would utilise elective reconstructive surgery to enable more effective sports performance, though there

seem obvious reasons for why an athlete might benefit from such modifications. Various anecdotal stories suggest body modifiers that could enhance performance, such as LASIK eye surgery to improve vision in sport. Various discussions about this technology took place when golfer Tiger Woods underwent this treatment. It is not difficult to imagine other such enhancements that could influence an athlete's capability to perform and, yet, such modifiers are rarely forbidden via the World Anti-Doping Code. Moreover, if one talks further of image enhancement, the incentive for athletes to be attractive to sponsors and the entertainment industry generally is considerable.

### **Practical Technoethics**

Transformations to technology in sport are also sometimes needed to accommodate other kinds of changes within any given sport. For instance, in the 1980s, transformations to the javelin were necessary since throwers were beginning to throw dangerously close to spectators. As such, the javelin's transformation was a relatively pragmatic choice—it was considered more practical to change the technical requirements of javelin throwing than it was to change the length of all athletic arenas around the world. Technological changes are also able to elicit new kinds of 'excellence', which are often considered to be a valuable development on previous performances. For instance, also in the 1980s, the introduction of carbon-fibre pole for pole vaulting enhanced the activity by allowing a more skilled performance and eliminating the debilitating influence of too-much rigidity in poles.<sup>15</sup> Alternatively, one might think of the fosbury flop in high jump as a technical innovation that enriched the pursuit of identifying the highest jumper in the world. For each of these cases, it is not obvious that the decision to proceed with or retreat from a particular innovation is arbitrary. Indeed, an alternative example demonstrates how decisions about technological change in sport are also engage political economy of sports.

In the late 1990s the International Tennis Federation endeavoured to address the dominance of the serve in the male pro-game. One of its concerns was that the inability of players to return powerful serves could make the sport less interesting to watch. In turn, this could translate into fewer spectators, less revenue, but perhaps more seriously, less of a grass-roots base of participants that would enable the sport to flourish. Each of these concerns is relevant when thinking about the use of enhancing technologies in sport, though they also raise potential conflicts of interest. For example, consider the influence of television scheduling on sports like marathon running. While marathon runners might prefer to run in the morning or at a time of day where the temperature is moderate, often television companies will expect scheduling to be guided by expected viewing patterns. This raises additional questions about the professional and corporate ethics of the sponsoring organisations of sport.

These various aspects to the technoethics of sport reveal the layers of ethical engagement and analysis that operate across the sporting landscape. Resolution over such ethical problems confounds the sports communities, but there have been important developments in how the ethics of performance technology in sports have been addressed. For instance, one can identify the wider range of participants in the conversations as some indication of progress. Further evidence of progress is the World Anti-Doping Agency itself, which has achieved unprecedented participation in working towards the legal harmonization of anti-doping policy in the vast world of elite sports. Nevertheless, one might still raise questions about this process. For instance, it is unclear whether such power should be invested into such a singular and narrowly defined institution, given that it does not function at any inter-governmental level. However, its burgeoning agreements with UNESCO and other relevant authorities, strengthens its claim to occupying the shared ground of ethical concern. Yet, WADA relies on effective testing

methods through which it can claim to ensure a level playing field in sport. For some performance enhancing technologies, it is unclear whether the achievement of such tests is at all realistic given budgetary limitations, the fast-paced developments within science and the growing consumption of enhancement technologies.

## **FUTURE TRENDS**

Given what has been said about the relationship between bioethics and sport, future trends within the area of sport technology relate to the broader context of performance technologies within society. A number of emerging examples raise new questions about what sports or societies can do to curb the growth of human enhancements. For instance, the earlier LASIK example offering enhancements to vision can be accompanied by other body and mind modifications. Anecdotal stories surround the use of Tommy John surgery, which is practiced on the elbows of elite baseball pitches when injured. It is said that the reparative surgery has led to athletes returning to the field throwing harder and faster than before they were injured. In this sense, one can envisage a number of surgical procedures that contort the body into enabling an enhanced performance. In addition, a number of cognitive enhancements are becoming visible within competition. For instance, the drug 'modafinil' (Kaufman and Gerner 2005) is a cognitive enhancer used to treat patients with narcolepsy, yet its prevalence within elite sports far exceeds the proportion of the population that would require such a drug. It is likely that a range of cognitive enhancements become used increasingly within elite sports to assist with the psychological parameters of competition.

The debates about gene doping are now flourishing and it is likely that genetic doping technologies consume the next twenty years of anti-doping interests (Miah 2004). Currently, tests are underway to detect gene doping, though

some scientists believe that it will never be possible to directly detect for all forms of gene doping. This problem is not dissimilar from the challenge of 'designer steroids', such as the 2003 discovery of tetrahydrogestrinone (THG). When a vial of this substance was left at Don Catlin's United States anti-doping lab, it was unknown to anyone. It is likely that an increasing number of designer steroids emerges within competition, reinforcing the problem that, inevitably, testing methods will always be behind what the athletes are able to utilise. A further genetic innovation that is already beginning to influence sport is the development of genetic tests for performance (Miah & Rich 2006). In 2004, the first commercial test appeared on the market and it is likely that more will arise. Already, a range of institutions has reacted to this use of genetic information, questioning the scientific credibility of the tests and the legitimacy of using the information that they provide (Australian Law Reform Commission 2003). Finally, the emergence of 'functional foods' or 'nutrigenomics' (Chadwick 2005) that are optimised for performance will have a significant role in negotiating the distinction between legitimate and illegitimate methods of performance enhancement. By optimising the nutritional capacities of food, athletes will be enabled to perform at maximal output, without needing to resort to pharmacological substances.

## **CONCLUSION**

I began this chapter by suggesting that the circumstances of Tommie Simpson's death in the 1967 Tour de France, particularly its television, were of considerable influence in creating a momentum for the anti-doping movement. Nearly 31 years later, a similar occurrence arose, once again, at the Tour de France. The scandals of 1998 were instrumental in the establishment of the World Anti-Doping Agency, which was also a consequence of the Lausanne Conference on

Doping and Sport (1999). Yet, despite the changes within the world of anti-doping, it has always been the responsibility of medical professionals to decide how best to protect against the non-therapeutic application of medical technology to sports performances. The principles underlying modifications to the anti-doping code rely on what is considered to be medically acceptable. However, this should be only a partial consideration, since what is medically acceptable varies and the basis on which we decide the legitimate ends of medicine are somewhat cultural.

These explanations form the basis of the present analysis and questions arise about the legitimacy or relevance of the current technoethics within sport. Given the ways in which medicine is now 'purchased' for lifestyle choices, is it still reasonable to prohibit access to enhancing technologies for sport? Is the medical model applied to sport still relevant? What other alternatives exist?

For many years, the scientific and medical profession have been discussing these questions like these. Today, it is necessary for philosophers of sport to acknowledge the applied nature of their work on doping and engage with the literature on the ethics of science and medicine. Indeed, there are some useful parallels within sport and bioethics. For example, discussions about personhood, dignity, excellence, autonomy, and respect have been central to medical discussions and have also surfaced as reactions to doping (see Miah (2004) for numerous examples). The political explanation of doping and ethics also demands that sport ethicists reach across to medical ethics and philosophy of medicine journals, to ensure that their work is influential in the capacity that would permit the advancement of ethical debate on this issue.

However, further conceptual work is necessary when considering performance enhancement. A further criticism of the doping debate—both academically and professionally—is that it has

also misrepresented this matter and, understandably, but unfortunately, led to a skewed notion of performance enhancement. If the debate about ethics and doping has anything to do with the distinction between legitimate and illegitimate methods of performance enhancement, then there must be a discussion about other forms of performance enhancement. How, for example, does a running shoe or training technique challenge the technoethics of sports? Alternatively, how do examples, such as the fast skin swimming suit or altitude chambers alter how we make sense of sport? Also, it is necessary to situate such discussions in specific sporting contexts, rather than speak about a general technoethics for all sports. There are clear differences between the technoethics of different sports. For instance, the use of third eye technology to assist decision-making for umpires and referees takes a variety of forms across different sports. Discussions about doping must also broaden their focus to take into account ethical decisions made in relation to other forms of technology.

Institutionally, discussions about these technologies have been separate from doping debates. Again, there is an explanation for this situation based partly on the health argument that gave rise to anti-doping—many technological innovations do not have a direct bearing on the health of an athlete, nor do they require the intervention of a medical professional. Yet, many technologies do have an indirect health impact, as our earlier tennis racquet example indicates. Nevertheless, doping and the issues arising from it are separate from the policy considerations about other technical modifications or enhancements. While there have been some indications of the prospect for change, greater closeness is necessary between sports ethicists, technoethicists and bioethicists to enable a more satisfactory contribution to this complex case.

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## KEY TERMS

**Doping:** Doping is defined by the World Anti-Doping Code, as the occurrence of a 'rule violation'. Often, the doping concerns of institutions relates specifically to the abuse of regulated substances, such as anabolic steroids. Notably, doping offences also includes the presence of substances that would mask the effects of other enhancing substances. Within the world of sport, a policy of 'strict liability' is employed to remove positive test cases from competitions. Recently, this policy has been expanded to include more circumstantial evidence, such that a non-analytical positive is now a possible route towards disqualification.

**Gene Doping:** Gene doping has a precise definition with the World Anti-Doping Code as ‘the non-therapeutic use of cells, genes, genetic elements, or of the modulation of gene expression, having the capacity to improve athletic performance’. However, the Code does not take into account the possibility of germ-line genetic engineering and how, subsequently, sports would deal with the possibility that people might be born with already genetically enhanced predispositions. Over the years, some athletes have been born with abnormal genetic conditions that have benefited them in competition. There is currently no way of dealing with such cases, unless it is concluded that the abnormality makes an athlete unfit for competition.

**Hypoxic Training:** The utilization of indoor environments that simulate varying levels of altitude by altering the density of oxygen within the area, as would occur by travelling to locations of varying altitudes. By increasing the endogenous production of erythropoietin, hypoxic training can increase the endurance capacities of athletes or, more properly, the capacity to carry oxygenated red blood cells to muscles. In 2006, the world of sport considered whether such environments should be considered as a form of doping and decided that they could not. The formula of ‘living high and training low’ is regarded to be the optimal condition for performance and hypoxic training allows athletes to capitalize more fully on this possibility.

**Nutrigenomics:** The study of molecular relationships between nutrients and the genome. The contribution of nutrigenomics to elite athletes could be the growth of ‘functional foods’, which allow an athlete to optimize performance enhancements, without needing to resort to synthetic substances.

**The Olympic Charter:** The foundation document to the Olympic Movement, which outlines the philosophy of Olympism. This Charter dis-

tinguishes the Olympic Movement from other sports-related organisations, revealing its character as an organisation that aspires towards the aspiration of non-governmental organisations, but which delivers through a commercial model funded by the selling of intellectual property associations.

**Spirit of Sport:** The third criterion of the World Anti-Doping Code. New technologies are tested against this criterion to determine whether or not they should be permitted within the acceptable means of performance enhancement in elite sport. The spirit of sport is the closest definition of an ethics of human enhancement that is given within international agreements about the ethics of sport technology.

**Tetrahydrogestrinone:** (THG; ‘the clear’). A designer anabolic steroid closely related to the banned steroids trenbolone and gestrinone. In 2003, it was added to the banned substance list after a sample of it was left at the United States Anti-Doping laboratory in California. The United States Anti-Doping Agency linked the substance with the Bay Area Laboratory Co-Operative, which was subsequently linked to the distribution of prohibited substances to numerous leading athletes.

**Tommy John Surgery:** Technically known as ulnar collateral ligament reconstruction (UCL), the procedure is named after the baseball pitcher for the Los Angeles Dodgers who first underwent the surgery. The procedure involves the replacement of a ligament in the medial elbow with a tendon from another part of the body. Today, there are strong chances of recovery, though at the time of John’s procedure, the probability was extremely unlikely—approximately 1%. Anecdotes indicate that athletes throw harder after the surgery, compared with their pre-injury ability, though it is thought that this improvement is more closely linked to the recovery therapy, rather than any transformation of the biological structures.

**World Anti-Doping Agency:** The organization responsible for harmonizing anti-doping policy across all International Sports Federations. WADA began in 1999, taking on the role from the International Olympic Committee, where it was formerly located. The World Anti-Doping Code governs all Olympic events.

## ENDNOTES

- <sup>1</sup> More generally, the European Union funded ENHANCE Project features many of these authors.
- <sup>2</sup> Political economists will point out that the stakeholders of the Olympic Movement are more likely to include sponsors and broadcasters than athletes, though the prominence of athletes is clearly visible in the rhetoric of these other stakeholders.
- <sup>3</sup> It is also likely to be because the interests of sport philosophers extend beyond technoethics or even ethics generally.
- <sup>4</sup> This is not to say that the arguments of medical ethicists are always received warmly or even taken into account by the medical professions, though one cannot dispute the fact that medical professions remain governed in quite precise ways by principles of medical ethics. The same claim cannot easily be made of sport scientists.
- <sup>5</sup> As an aside, I draw attention to Nature's (Editorial, 2007) editorial that inquires into whether it would be sensible to legalize doping in elite sports. The editorial arose in part, as a result of the Tour de France doping scandals of 2007.
- <sup>6</sup> In defence of this influence, WADA's Stockholm Declaration (2005) on the ethics of gene doping was shaped considerably by such ethical work. Also, in 2007, the British Government published a pioneering report on Human Enhancement Technologies and Sport, which was also informed by a number of ethicists, including Nick Bostrom, Andy Miah, Mike McNamee and Julian Savulescu.
- <sup>7</sup> This Code also prohibits substances that 'mask' other prohibited substances and methods.
- <sup>8</sup> Direct quotations taken from the World Anti-Doping Code (2003).
- <sup>9</sup> Perhaps the 'spirit of sport' should be seen to function rather like 'reasonableness' in medical law, the definition of which often relies on the standard defined by a reasonable expert in the field.
- <sup>10</sup> For detailed explanations of the science, see Levine & Stray-Guntherson (1997).
- <sup>11</sup> Actually, whether or not such training confers a performance advantage seems a matter of scientific opinion. One might argue that it is also part of the knowledge that athletes bring to their performance via their entourage, other examples of which might include nutrition advice, specific technique knowledge or mental preparation.
- <sup>12</sup> For other articles that dwelt with this case, see Levine et al. (2006) and (Miah 2006).
- <sup>13</sup> See Feezell (1988), Fraleigh (1982), Leaman (1988) Lehman (1981), Rosenberg (1995), Wertz (1981) for more on cheating.
- <sup>14</sup> For elaborations on this argument, see Schneider & Butcher (2000).
- <sup>15</sup> Such a criterion is discussed by Perry (1988) as a 'performance inhibitor' that is valuable to eliminate. The challenge arises when one begins to discuss natural biological states as ultimately inhibiting of performance.