

The Development and Validation of a Doping Attitudes and Behaviour Scale

Report to
World Anti-Doping Agency &
The Irish Sports Council



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Executive Summary

Athletes' use of prohibited ergogenic substances for performance enhancement is a form of cheating behaviour which can jeopardise both their health and their careers. Given such importance, it is not surprising that the problem of drug-use in competitive sport has been widely studied. Unfortunately, research in this field has at least three obvious limitations. First, few studies have attempted to explain why athletes are willing to use these substances, given the risks involved (Anshel, 2005). Second, little effort has been made to understand the theoretical mechanisms underlying cheating/doping behaviour in athletes. Finally, there is a paucity of research on elite athletes' attitudes to, and beliefs about, doping in sport. These oversights are unfortunate because anti-doping measures cannot be fully effective unless they are based on solid evidence about why athletes (especially elite performers) engage in drug-taking in the first place. To address these gaps in the literature, the first phase of the present study examines the psychological variables underlying attitudes to drug use in sport.

To date, 375 high performance (HP) athletes have been surveyed on their attitudes to doping, and a number of relevant psychological variables have also been measured. Interesting findings have emerged on the perceived and reported incidence of doping in sport, athletes' knowledge of doping substances and differences in attitudes between various demographic groups. Statistical results also show some significant relationships emerging between doping attitudes and psychological characteristics, including perfectionist tendencies and motivational variables. This is the first time an empirical investigation has examined such a multitude of relationships, and the results have guided the next stage of the research; a qualitative focus on the views of athletes who have direct experience of doping.

Phase 2 of the study involved exhaustive searches of media reports, seeking athletes who publicly admitted to engaging in doping practices. Over a 30-month period, this list extended to almost 80 elite athletes who were identified as potential interview candidates for this qualitative phase of the research. Following the compilation of the list, efforts were made to contact these athletes through their national governing bodies, national anti-doping agencies, and journalists with whom they had spoken in the past. However, this proved much more difficult than originally anticipated for two reasons: (a) because it was not possible to obtain contact details for high profile athletes and (b) because those who were contacted were not willing to partake in the research, despite assurances of anonymity and confidentiality. The sample size totals 4 athletes who have admitted doping offences, but in light of the very limited number of potential participants and the sensitive nature of the research topic, this was a reasonable number from which to extract a thematic analysis. Interesting explorations of both the internal and external sources of influence on athletes' doping practices emerged, along with more in-depth analysis of the psychological variables which may guide doping decisions.

The final stage of the research, the development and validation of a doping attitudes and behaviour scale (DABS) will be informed by findings from both the aforementioned quantitative and qualitative research studies.

Literature search results

Initial searches for 'doping and sport psychology' in psychology and sports literature databases (Google Scholar, International Bibliography of the Social Sciences, MEDLINE, Philosopher's Index, Physical Education Index, PsycInfo, Science Direct, Sport Discus, SwetsWise) yielded few suitable studies. Typically, these studies fell into two main categories. In the first category, a number of papers discussed the role of the sport psychologist in influencing and educating athletes about the dangers of drug consumption (Cruz, 1999; Sheedy, 1990). They also proposed (rather naively) that sport sciences in general need to communicate their aims, worth and availability more clearly to the sporting community in order to make them a viable alternative to drugs for enhancing performance.

In the second, much larger category, articles detailed attitudes to doping and the incidence of projected or reported drug-use among various different populations; Finnish elite athletes (Alaranta, Alaranta, Homila, Palmu, Pietilä & Helenius, 2006), English professional footballers (Waddington, Malcolm, Roderick & Naik, 2005), Turkish athletes and non-athletes (Özdemir, Nur, Bagciva, Bulut, Sümer & Tezeren, 2005), Swedish high-school students (Kindlundh, Isacson, Berglund & Nyberg, 1998), Italian high-school students (Lucidi, Grano, Leone, Lombardo & Pesce, 2004; Lucidi, Zelli, Mallia, Grano, Russo & Violani, 2008), French elite student-athletes (Peretti-Watel, Guagliardo, Verger, Mignon, Pruvost & Obadia, 2004), US

population 12 years and older (Yesalis, Kennedy, Kopstein & Bahrke, 1993) and US college athletes (Tricker & Connolly, 1997). The only study to report results across various nationalities was an epidemiologic review of 44 doping-related studies by Laure (1997).

The reported prevalence of doping varied widely across these studies, from a high of 14.5% among Turkish athletes (Özdemir et al., 2005) to a low of 0% among Finnish government-funded athletes (Alaranta et al., 2006). Laure (1997) estimated this figure at 3-5% for children and adolescents and 5-15% for adults based on self-report studies. Similarly, a large variation existed in the number of athletes who reported personally knowing athletes who doped; 6% of English footballers (Waddington et al., 2005) compared to 30% of Finnish elite athletes (Alaranta et al., 2006). Laure (1997) reported this figure to be between 15-25% from his analysis of projected-use studies. In all studies, males displayed more positive attitudes to doping, and higher rates of usage than females. Very little information was available on the various sports that tend to produce drug-users, but Laure (1997) did report that prevalence seemed to be highest among weightlifters and bodybuilders.

Clearly, it is difficult to accurately assess the prevalence of doping in sport, not only because of the sensitive nature of the subject, but also because of methodological issues in previous research. Most studies of banned substance use in athletes have dealt

only with anabolic steroids, while those studies among the general population have not made distinctions between performance enhancing and recreational drugs. Consequently, the effects of continuing advances in doping products and techniques have not been captured by such studies. Additionally, while these studies go some way to revealing the extent of the problem of drugs in sport, they have a major weakness. Namely, they lack adequate theoretical basis or rationale and provide little information regarding the motivating factors that influence an athlete's decision to engage in doping behaviour. The aim of this study was to overcome some of the aforementioned methodological problems, to gain a better insight into self-reported and projected doping prevalence, and to an understanding of doping attitudes among high performance athletes in the current climate.

Psychological and behavioural frameworks for understanding doping in sport.

Unfortunately, much of the sport psychology research on the problem of drug use in sport has been confined to descriptive reports without adequate theoretical basis. As a result, few studies have examined the specific psychological determinants that might either encourage or deter athletes with regard to performance enhancing drugs. Three specific papers have attempted to address this problem by creating a model/framework for understanding drug use and achieving drug compliance in sport (Donovan, Egger, Kapernick & Mendoza, 2002; Shermer,

2008; Strelan & Boeckman, 2003). Donovan et al. (2002) used various behavioural science frameworks to identify six major inputs to an athlete's attitudes and intentions with respect to performance enhancing drug-usage. These are personality factors, threat appraisal, benefit appraisal, reference group influences, personal morality and legitimacy. Of specific interest to the present study were the personality components, which, based on a review of literature, were proposed to be optimism/pessimism, inner/outer directedness, risk-taking propensity and self-esteem. Additionally, based on a single article by Elliot & Goldberg (1996, as cited in Donovan et al.), potential links between steroid use and body image, hostility, impulsivity, and a 'win-at-all-costs attitude' were also implicated. However, these components were all thought to have an influence on doping based on *supposed* theoretical, as opposed to empirical links, as no data was collected to explicitly test such relationships.

A similar approach was utilised by Strelan and Boeckman (2003), who applied a theory of criminal decision making, *deterrence theory*, as the framework to guide them in identifying effective deterrents to the use of performance-enhancing drugs. Their framework consisted of costs, benefits and situational factors that might influence an athlete's decision to use drugs. While a number of personality factors such as self-esteem, moral beliefs and perception of competitiveness were embedded in their "Drugs in Sport Deterrence Model", they were not listed as a separate component, nor were they theoretically or empirically linked to performance

enhancing drug-use.

In a less academic publication, Shermer (2008) uses "Game Theory" to explain that high performance sports, and cycling in particular, need to re-establish "Nash equilibrium" in order to put an end to the existing doping culture. For this to happen, the doping game must be re-structured so that competing clean, rather than doping, is in a Nash equilibrium. That is, the governing bodies of each sport must change the payoff values of the expected outcomes of doping versus choosing to compete clean. For example, when other 'players' are playing by the rules, the payoff for doing likewise must be greater than the payoff for cheating. More importantly, even when other 'players' are cheating, the payoff for playing fair must be greater than the payoff for cheating, which Shermer claims is not currently the case. "Players must not feel like suckers for following the rules" (p. 5). While this theory has definite intuitive value, there is no research apart from anecdotal evidence and direct quotes from athletes to back up the claims made.

A critical problem with such models is that they make assumptions about the nature of athletes' decisions to engage in illegal

performance enhancement (Mazanov, O'Donnell & Batley, 2006). Donovan et al. (2002) presume that anti-doping prevention methods run in tandem with the same principles as other health-related behaviours, and fail to take into account the unique motivations and pressures faced by professional athletes. Strelan and Boeckmann (2003) attempt to understand the doping issue by assuming that athletes weigh up the risk/reward for engaging in doping in same manner as criminals who choose to break the law, while Shermer (2008) examines doping from the perspective of athletes viewed as players in a strategic game. Although all these assumptions are valid and add new perspectives from which to approach the investigation of doping in sport, what they clearly lack is empirical research to back up their claims.

Specific psychological correlates of doping in sport.

One of the researchers most frequently cited in literature searches containing the terms "doping/drug-use in sport" is Professor Mark Anshel (Middle Tennessee State University), who has been publishing in this area for over 15 years. One of his early studies



investigated the perceived causes of banned drug-use in sport among elite athletes (Anshel, 1991). A total of 126 US athletes were interviewed about physical, psychological/emotional and social causes of both recreational and performance enhancing drug use. Of particular interest were participants' perceptions concerning the likely causes of drug ingestion in sport, based on their own experience and first hand knowledge about incidences of drug-taking in their sport. An extraordinarily high number (64%) of athletes felt certain that at least one team-mate was using a drug for the purposes of performance enhancement. Most likely causes of this behaviour were surmised to be improving physical performance (74%), alleviating psychological demands (21%) and meeting social needs (7%).

As the current research project is particularly interested in identifying psychological variables that might have a link to performance enhancing drug use, the psychological/emotional causes reported in Anshel's study are of most relevance. Three such variables were described. The first of these was labelled *fear of failure*, described as a fear of not meeting the expectations of others, such as coach, parents and friends. Anshel (1991) speculated that such a pervasive form of stress in sport may lead athletes to engage in drug use to combat it. Other athletes indicated drug use was related to the need to build *self-confidence* when doubts about their skills exist. Additionally, steroids in particular may be used to foster aggressive behaviour and increase body size and strength to overcome low self-confidence. Finally, the

'*superman*' complex was put forward by a very small number of athletes as an explanation for drug ingestion. This complex reflects the idea that drug use may be due to a sense of adventure or thrill, while feeling impervious to any potential negative side effects. Athletes who exhibit such a complex do not feel constrained by the deleterious effects of drugs, even after obtaining valid information about their possible detrimental health consequences. However, such feelings of detachment are more likely to be felt for mind-altering recreational substances, rather than performance enhancing drugs (Collins, Pippenger & Janesz, 1984, cited by Anshel, 1991).

A later publication by Anshel (1993) also lists *low self-confidence* and *the 'superman' complex* as common rationale for drug taking. However, fear of failure had been divided into two different psychological causes for drug use, namely *stress and anxiety* and *perfectionism*. He proposes that stress, tension and anxiety may be antecedent causes of using drugs such as hallucinogens and beta-blockers, as they can help attenuate the pressure felt to succeed over a prolonged time period. Additionally, a perfectionist is someone who has trouble discriminating between realistic and idealised standards of performance (Flett & Hewitt, 1990). In the process of bypassing attainable excellence in pursuit of unattainable perfection, such athletes appear 'ripe' candidates for drug abuse, according to Anshel.

Most recently, Anshel (2005) published a chapter on substance use in sport, in which he again delineates various motives for taking

performance-enhancing drugs in sport. Unfortunately, no data are presented. Instead, the suggestions are based purely on the author's speculations about possible reasons for drug use in sport. As in previous publications, *pressure for success* and *meeting the expectations of others* are cited as reasons for athletes to engage in doping. The decision of athletes to use illegal substances "depends on the extent to which they can control the temptation to cheat and instead, respond to the pressures of success with hard training, confidence, high-quality coaching, proper nutrition and social support from friend and family" (p. 257). The concept of *low self-esteem* as an influential factor in drug abuse is again mentioned. Anshel's final explanation for drug-use in sport comes from the realm of sport sociology, and is termed *sport deviance*. Sport deviance can take a positive or negative form, and it is usually proposed as an explanation for why, within a certain subculture, most members of a group actually see a negative behaviour, such as doping, as a positive. Anshel suggests that the highly competitive environment that surrounds high level sport creates a perceived need for performance enhancing drugs, which in turn justifies their use.

Another peer-reviewed paper (Waldron & Krane, 2005) that specifically examines health compromising behaviours in females proposes a link between and athlete's *achievement goal orientation* (how they define success) and their likelihood of using banned supplements or steroids. In particular, the authors claim that an ego oriented female athlete (who defines success only

in terms of winning) may be more tempted to use illegal substances than her task oriented counterpart (who defines success in terms of self-referenced improvement). In addition, the authors infer that because the organisation of the coaching environment (or *motivational climate*) has been shown to carry consequences for athletes' goal orientations (Gano-Overway, Guivernau, Magyar, Waldron & Ewing, 2005; Pensgaard & Roberts, 2002), coaches who want to win at all costs and create an ego-involved climate may influence their athletes by encouraging shortcuts to success through illegal substance use. The aim of the present study was to empirically test these theoretical motivational propositions, along with a number of other psychological determinants proposed by Anshel (1991; 1993; 2005).

Encouragingly, at the end of 2006 a paper emerged from Donahue, Miquelon, Valois, Goulet, Buist and Vallerand testing a motivational model of performance-enhancing substance use in elite athletes. Their results reveal that intrinsically motivated athletes are more likely to have internalised sportspersonship orientations, and in turn are less likely to use performance enhancing drugs than their extrinsically motivated counterparts. Such results have relevance for the

present study as they establish links between psychological variables (particularly motivational characteristics) and the propensity to engage in doping behaviour. However, there is an obvious methodological weakness in Donahue et al's study. Specifically, the low average age of their sample (mean = 16.3 years; $SD = 2.43$; range = 10-20 years) raises doubts about the generalisability of the findings to adult athlete populations, where doping problems are most evident.

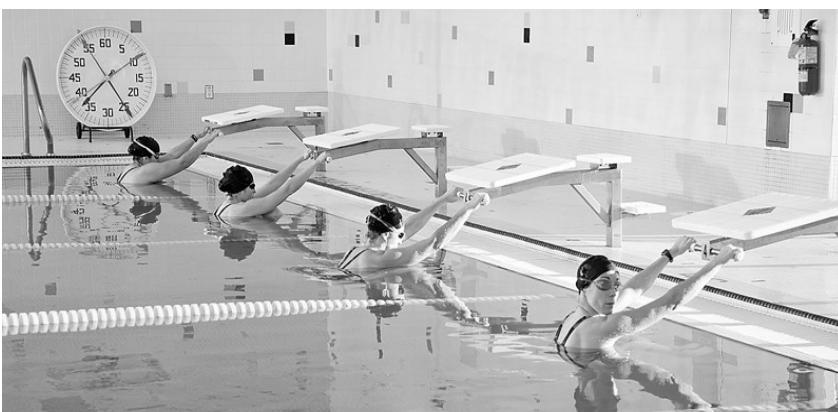
Most recently, a WADA-commissioned study investigating the relationship between goal orientations and attitudes toward doping was accepted for publication in the International Journal of Sports Medicine (Sas-Nowosielski & Swiatkowska, *in press*). They assessed how Polish athletes' achievement goal orientation may influence their attitudes to doping controls, doping sanctions, ethical rationale of anti-doping policy and declared readiness to dope. Findings were in line with expectations, in that goal orientation profiles differentially affected attitudes toward doping. Specifically, athletes who were high in ego orientation and low in task orientation displayed significantly more positive (permissive) attitudes to doping than those who displayed a low ego, high task orientation. This study also determined that males tended to have

significantly more favourable attitudes toward doping than females, a finding that has been replicated by Alaranta et al. (2006), Lucidi et al. (2008) and Peretti-Watel et al. (2004).

However, the lack of independent psychometric evidence of the reliability and validity of the questionnaire used to measure doping is a cause for concern. Additionally, although the study surveyed an impressive number of participants ($N = 830$), the age and level of athletic competitiveness of athletes was not strictly controlled for. Since WADA's interest is primarily in high performance adult athletes, the results of this study may not generalise to this population of concern. The present study attempted to overcome these issues by using an independently validated measure of doping attitudes and specifically targeted athletes over 18 years of age and above a particular competitive level. Despite these shortcomings, Sas-Nowosielski and Swiatkowska's (*in press*) findings are promising in showing how personal and motivational characteristics have a role to play in determining attitudes to performance enhancement in sport.

“Doping” as a form of cheating behaviour

Given the speculative theoretical relationships that we have identified, and noting the dearth of relevant empirical data supporting links between psychological variables and motives for drug use in sport, we decided that a wider literature search would be necessary. To pursue this objective, we proposed to include the keyword “cheating” in our search strategy. This approach to doping arose



from a study entitled "Irish Athletes' Understanding of, and Attitudes to, Cheating Behaviour (including Doping) in Sport" (Moran, Guerin, MacIntyre & McCaffrey, 2004). These authors reported that athletes tend to view questionable sporting actions as falling on a continuum ranging from minor to major cheating behaviours. The use of performance enhancing drugs was seen as the most serious form of cheating across sports. The idea of conceptualising doping as a serious form of cheating was further expanded and well received in a presentation at the Conference on Ethics and Social Science Research in Anti-Doping (Kirby, Moran, Guerin & MacIntyre, 2006). By framing doping behaviour in this way, it was decided that research investigating cheating/sportspersonship/moral behaviour in sport and their psychological correlates would also be relevant to present doping study.

Key psychological variables selected

In attempting to link psychological variables to doping propensity, it was decided to examine those variables that (a) had been linked to doping using a sound theoretical basis and had a pre-existing, rigorously tested measurement scale, or (b) had an established link to cheating/sportspersonship. Re-examination of the research literature revealed four variables that fitted these criteria: perfectionism, self-confidence, achievement goal orientation and motivational climate.

In general, "perfectionism" refers to the setting of extremely high standards for one's performance. "Self-confidence"

denotes the belief that one can achieve a certain standards of performance regardless of prevailing circumstances. "Achievement goal orientation" refers to whether an athlete is motivated by mastering skills (task oriented) or by winning (ego oriented). Previous research has generally found that athletes who are high in ego orientation endorse a low level of sportspersonship. Additionally, athletes with higher levels of task orientation were often found to display higher levels of sportspersonship (Dunn & Dunn, 1999; Gano-Overway et al., 2005; Lemyre, Roberts & Ommundsen, 2002). "Motivational climate" is the perceived structure of the achievement environment as mediated by coaches' behaviour. The form it takes may shape the athletes' moral functioning by influencing how they perceive competition and the opposition (Ommundsen, Roberts, Lemyre & Treasure, 2003). In a performance climate the sole emphasis is on winning, which is likely to induce psychological stress in players, who may resort to cheating, rule violation and aggressive behaviour as a coping mechanism. By contrast, when a mastery climate prevails, the preoccupation with progress and improvement makes players more likely to perceive 'unsportspersonlike' acts as illegitimate (Bredemeier, 1999).

Overview of the research

The present study uses a mixed method approach to explore the issue of doping in sport and inform the design of a scale to measure doping attitudes and behaviour. Mixed methods are an effective methodological approach as they combine the strengths of qualitative and quantitative

research approaches. The overarching design of the proposed study is a sequential explanatory design (Creswell, 2003), whereby an initial phase of quantitative methods and analysis is followed by a second phase of qualitative methods and analysis. Typically, the aim of the first phase is to widely assess an issue (in this case, doping in sport), while the aim of the second phase is to explore the issue in more depth. In the present study, the two-phase structure is altered, with the inclusion of a final phase whereby the information collected in the first two phases are used to inform the design of a quantitative questionnaire, which can function as a effective measure of doping attitudes and behaviours.

Phase 1: Quantitative exploration of possible predictive factors in doping

Having reviewed the literature and identified possible psychological variables that may be associated with doping attitudes, standardised measures of these variables, along with a measure of doping attitudes are used as part of a complex multiple regression, which aims to identify possible predictors of doping attitudes and behaviour. Based on a review of the literature, and guided by theoretical arguments around the factors that guide human behaviour, the following concepts have been identified for inclusion in this analysis:

- Perfectionism
- Self-confidence
- Achievement goal orientation
- Motivational climate

This phase aims to identify those variables that may predict doping behaviour and positive attitudes towards

doping, which may themselves predict doping behaviour. This phase explores the full range of experiences by looking across sports, including contact and non-contact, team and individual events. A large sample will allow the team to also assess the relationships between demographic variables, use and knowledge, and attitudes towards doping.

Phase 2: Qualitative examination of perspectives on doping in sport

Qualitative approaches to research support the need to explore the issue at hand from the perspective of groups and individuals who have direct experience of the issue, or who are otherwise involved. As such, this phase will focus on the views and experience of athletes. The sampling procedure used in this type of research is “theoretical sampling” where participants are selected purposefully rather than randomly. In order to explore the issue of doping in sport it is argued that the study needs to focus on sports which are considered to be especially vulnerable to doping offences (e.g., athletics, cycling). Also, in focusing on athletes it is important to speak to athletes who have been involved in investigations of alleged doping violations.

In choosing the particular method for the present study, a key factor is the sensitive nature of issue at hand. Given the sensitivity surrounding the issue of doping, we propose to use in-depth semi-structured interviews with the participants to explore their views on, and experiences of, doping in sport. Semi-structured interviews are particularly useful as they allow for the examination of key issues previously identified in the literature, but also allow the participants to add to this information, and introduce issues, which may not have been identified by the research team (see Biddle et al., 2001).

Phase 3: Developing the Doping Attitudes and Behaviours Scale

As was mentioned above, aside from allowing for a deeper exploration of the issues identified in the literature, the qualitative component in the present study will inform the design of a questionnaire examining doping attitudes and behaviour. It is becoming increasingly common for qualitative methods to be used to inform scale and questionnaire development (Lee, Choe, Kim & Ngo, 2000). Interestingly, Willgerodt (2003) highlights the benefits of this

approach when the scale calls for a certain level of cultural sensitivity. It is argued that elite sport represents a unique subculture, and the sensitivity of doping calls for further awareness of the uniqueness of the topic being explored. As such it would be inappropriate to develop a scale purporting to assess doping attitudes and behaviour without the insights gain from qualitative methods. The procedures for this phase include item generation (based on phase 1), item validation (based on review of the items by the research team), and testing the psychometric properties of the new scale.

Specific aims of the research

- To evaluate the degree to which athletes’ propensity to engage in doping behaviour may be predicted by psychological factors identified in the research literature,
- To analyse Irish athletes’ perceptions of, and attitudes towards, doping in sport,
- To design a theoretically-based self-report scale to measure athletes’ attitudes to doping as well as their propensity to engage in doping behaviour in sport.



Phase 1: Pilot Study

Rationale for pilot study

Prior to conducting the main Phase 1 survey, a pilot study was deemed necessary for a number of reasons:

- *Instruments used:* Based on the literature review a number of possible measures were identified. The suitability of the instruments for use with both individual and team athletes needed to be assessed. Additionally, it was deemed important to examine the relevance of the language for a primarily Irish athlete population.
- *Time required:* In order to recruit participants, it was necessary to discover what level of time commitment would be required to fill in the battery of tests.
- *Demographic information:* The relevance and suitability of the demographic questionnaire also needed to be determined.
- *Unforeseen problems:* The final purpose of the pilot study was to uncover those difficulties that were not predicted by the research team.

Methodology

Participants

The criteria for inclusion in Phase 1 of the study were involvement in elite or sub-elite sport (team or individual), and being aged over 18 years. Although a number of sports with a history of drug-use were targeted (cycling, athletics, weightlifting), sports not traditionally associated with doping were also used for comparison purposes (golf, field hockey, rugby). Thus, the pilot study recruited one female and three male

athletes, aged between 25 and 36 years, from a variety of team and individual sports. The sports represented were cycling, tennis, hockey and canoeing.

Measures

The test battery consisted of the following questionnaires/ documents:

(i) Consent form

This form provides information regarding the purposes and proposed outcomes of the study, and allows the participant to state their agreement to participate in the study anonymously.

(ii) Demographic questionnaire

Information sought on this questionnaire includes personal details, questions relating to sporting experience and doping-specific questions regarding knowledge and use.

(iii) Performance

Enhancement Attitude Scale (PEA; Petroczi, 2006) Following the aforementioned search of the literature, a suitable measure for attitudes to doping was required. Extensive literature searches relating to doping in sport revealed no published scale that specifically measured doping attitudes or behaviour. However, three unpublished doping knowledge/attitude/behaviour scales were located (King, 1991; Petroczi, 2006; Serpa et al., 2001). The considerable number of items in the "King Drug Doping in Sport Questionnaire" (1991) precluded its use in a battery of tests. As Serpa et al.'s "Doping in Sport Questionnaire" (2001) was designed for use with a Portuguese-speaking

population, it was felt that simply translating the items without testing the cultural validity of the scale could lead to biased results. Thus, it was decided that the Petroczi "Performance Enhancement Attitude Scale" (2006) would be most suitable for phase 1 of this study.

The original PEA scale is a 17-item, six-point Likert-type attitude scale. The response range is strongly disagree (1) to strongly agree (6). All six points are anchored through disagree (2), slightly disagree (3), slightly agree (4), and agree (5). No neutral middle point is offered and all 17 items are scored in the same direction. A high score on this scale denotes positive or permissive attitudes to doping, while a low score displays a negative or intolerant attitude toward doping. There was evidence suggesting that the scale is unidimensional. The scale shows good reliability with the developmental sample of US college athletes (N=177, Cronbach alpha = 0.8536), and the re-validation sample of 73 US College Division I football players (Cronbach alpha = 0.8249) but was weak when it was used with a general population sample, which provides some evidence for validity.

(iv) Perfectionism in Sport Scale (PSS; Anshel & Eom, 2003)

The PSS is a 32-item scale with a 5-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The four subscales of this multi-dimensional construct are: Parental Criticism (PC), Coach's Criticism (CC), Concern over Mistakes (CM), and Personal Standards (PS).

Cronbach's alpha coefficient for the parental criticism scale is the highest (.89), and the remaining three factors are approximately .80, which indicate reasonably good internal consistency.

(v) Perceived Motivational Climate in Sport Questionnaire – 2 (PMCSQ-2: Newton, Duda & Yin, 2000)

The PMCSQ-2 is a 33 item scale with a 5 point Likert scale (1 = strongly disagree, 5 = strongly agree). It contains two higher-order scales (Task and Ego Involving climates), each with three subscales (Task: cooperative learning, effort/ improvement, important role; Ego: intra-team rivalry, unequal recognition, punishment for mistakes). Cronbach's alphas for the task and ego involving climate are .88 and .87 respectively. All three task involving subscales were found to be internally consistent. However, the Intra-team rivalry subscale has consistently exhibited low internal consistency, which suggests that further analysis of its psychometric attributes be conducted. There is evidence to support concurrent validity of the questionnaire (Newton et al., 2000).

(vi) Trait Sport Confidence Inventory (TSCI; Vealey, 1986) The TSCI consists of 13 items in which the participants rate their confidence on a 9-point Likert scale (1 = low, 9 = high), for how they 'generally feel' in reference to 'the most confident athlete you know'. This is a unidimensional measure with Cronbach's alpha of .93.

(vii) Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda & Nicholls, 1992)

The TEOSQ comprises

13 items representing two independent subscales that measure individual differences in the inclination to be task or ego involved in sport. Participants are asked to indicate on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) the extent to which they agreed with each item. Numerous studies have provided evidence for the internal consistency of the task and ego subscales ($r = .82$ and $.89$) (Duda, Chi, Newton, Walling & Catley, 1995; White & Duda, 1994). The test-retest reliability and content validity have also been established (Duda, 1992).

Procedure

The test battery was administered to all participants individually and in the company of the researcher. They were asked to complete all questions as quickly and honestly as possible. The

investigator timed how long this took. The participants were then asked look at the tests again, and to comment on the suitability, wording and relevance of individual items. All comments were recorded by the researcher, and for those items deemed unclear or irrelevant, a suitable re-wording of the item was discussed.

Results and decisions based on pilot study

The time taken to complete the questionnaire ranged between 18 and 25 minutes. Only one change was suggested for the demographic questionnaire. This was to distinguish between recreational and performance-enhancing drugs when asking about 'prohibited substances'.

For the PEA scale, a stem statement "my opinion regarding sport in general is that..." was suggested, to



distinguish whether questions related to personal sporting experience or opinions about sport in general. A number of items which were grammatically unclear or inappropriate for an Irish population were changed. For example “there is no difference between drugs, fibreglass poles and speedy swimsuits that are all used to enhance performance” was changed to “there is no difference between drugs and the technical equipment that can be used to enhance performance (e.g. hypoxic altitude simulating environments)”.

Feedback on the Perfectionism in Sport Scale regarded the relevance of questions relating to the parental criticism subscale. All participants felt that because they were aged 25 and upwards, the extent of parental influence on their sporting activities was minimal. Since all participants for Phase 1 of the study were required to be over 18, it was decided to remove all 8 items of this subscale from the measure. As a result, this was reduced to a 24-item scale.

The PMCSQ-2 proved to be the most problematic of all the questionnaires, as at least a quarter of the items were reported to be totally irrelevant for individual-sport athletes. This is because the scale has been developed for athletes participating in a coach-created team environment. As no viable alternative scale was found, it was decided that the best way to overcome this problem would be to insert an additional “not applicable” column next to the Likert scale, which participants can mark for items that are not reflective of their sporting experience. This way, participants are not forced into answering meaningless

questions, giving rise to spurious results.

The Trait Sport Confidence Inventory was reported to be too wordy and ‘boring’ to complete. Participants found it difficult to make a comparison with “the most confident athlete you know”. Because of this, a new stem statement “how confident are you in your ability to...” was added, thereby removing the need for comparison with others.

No suggestions for changes were made for the Task and Ego Orientation in Sport Scale. Finally, one participant suggested that it was not necessary to repeat the instructions to “complete the questionnaire as honestly as possible”, and “responses will be kept fully confidential” for each scale. As a result, it was decided that outlining this information in the informed consent document would suffice.

On the basis of the feedback received from the individual athletes in the pilot study, it was decided to make some necessary changes to the method of data collection for Phase 1. Most significantly, it transpired that it was going to prove very difficult to manually collect data from individual sport participants as they rarely meet in a group setting. To overcome this problem, we decided to put the test battery online. This took a number of weeks and slowed the data collection process considerably. However, it was anticipated that the number of participants accessed over a much broader geographical scale and across a wider spectrum of sports would significantly increase as a result of making the survey available electronically. This method of data collection has been advocated by recent

publications (Hewson, 2003; Szabo & Szabó, 2007).

All pilot study comments and suggestions were discussed among the research group as a whole. Once a consensus on appropriate changes was reached, a final draft of the battery was compiled, proofed, printed (see Appendix 1) and posted online (www.ucd.ie/usensor/survey.htm), ready for Phase 1 of the project.

Phase 1: Quantitative measurement of doping attitudes, knowledge behaviour and related psychological variables

Method

Participants

Specific sports were targeted for phase 1 of the study, based on the findings reported in WADA's laboratory statistics report for 2005. The research aim was to test traditional 'at risk' sports and also those with the highest incidence of adverse findings, and compare them to sports which had a lower percentage of positive doping tests. However, given that a number of the sports at the top end of the adverse analytical findings list are not played to a high performance level in Ireland (baseball/ softball, ice hockey, skating, curling, handball), some adjustments were necessary. Therefore, at the higher end of the WADA list, the sports targeted were boxing, cycling, athletics, tennis, triathlon and weightlifting. Additionally, sports less associated with performance enhancing drug use such as golf, rowing, soccer, rugby union, field hockey and Gaelic football (the most widely played sport in Ireland) were also tested.

All participants were required to be over 18 years of age, and the lowest level acceptable for inclusion in the study were athletes performing in the top division of the national league in their respective sport.

Data Collection

In line with the recommendations from the pilot study, two methods of data collection were employed for Phase 1 of the project; manually in hardcopy, and electronically via the internet.

The first point of contact was made by emailing high performance directors for each of these sports. The purpose of the study was outlined (see Appendix 2) and the alternative methods of data collection were described. On receipt of a positive response, one of three courses of action was taken:

- A meeting time and place for manual data collection was arranged.
- E-mail addresses of athletes were provided and they were contacted by the researchers with a brief outline of the study, assurances of anonymity and confidentiality, and the link to the web survey.
- The high performance (HP) directors posted the link to the web survey on an intranet site, discussion forum or website resource regularly used by the athletes. The survey was posted on a number of websites (see inset below).

Details of the study were also included in the Irish Sports Council's quarterly newsletter which is distributed to people involved in high performance sport in Ireland, including athletes, coaches, managers, performance directors and sports scientists.

Results

Demographic breakdown of

Websites

www.irishsports council.ie
 www.coachingireland.com
 www.drugsinsport.net
 www.cyclinglucan.com
 www.canoe.ie
 www.weightliftingexchange.com
 www.weightlifting.informe.com

participants

The total number of participants was 375, with 240 (64%) males and 135 (36%) females. The average age of these athletes was 23.8 years (*sd* = 6.9), with an average of 11.1 (*sd* = 6.5) years playing their chosen sport. Of these participants, 49.3% completed the hardcopy survey, while 50.7% chose the electronic online format. Athletes from 16 different countries completed the survey, with the majority of these being Irish. The breakdown of participants' nationalities is shown below.

Athletes from a total of 27 sports completed the

Table 1: Summary of participants' nationalities.

Nationality	Frequency	Percent
1 Irish	254	68.8%
2 American	50	13.6%
3 British	35	9.5%
4 Canadian	9	2.4%
5 Singaporean	5	1.4%
6 Other (12 countries)	22	4.3%
Total	375	100%

survey. The distribution of participants within these sports varied widely, with some sports only containing one representative athlete. In order to make meaningful comparisons between the groups, it was decided to further classify sporting activities according to the physical demands they place on the performer. This had previously been done in a study by Alaranta et al. (2006) and thus rendered the results of this study comparable with their findings. The four chosen categories were; speed and power, endurance, motor skills, and team. While most sports fitted clearly into one subdivision, there were some sports whose categorisation was ambiguous (e.g.

sailing, kayaking, swimming). For those sports, a high performance coach in each of the disciplines was consulted and asked to name the category into which the sport should be placed. The final categorisations can be seen in Table 2 below.

As previously outlined, the minimum standard accepted for the study were club level, national division 1

Table 2: Categorisation of participants' sport type.

Speed & Power (N = 58)	Endurance (N = 51)	Motor Skills (N = 56)	Team (N = 208)
Athletics	Rowing	Golf	Rugby
Weightlifting	Cycling	Tennis	Field hockey
Speed skating	Triathlon	Fencing	Soccer
Martial arts	Swimming	Shooting	Gaelic football
Boxing		Gymnastics	Ice hockey
Baseball/softball		Sailing	American football
Kayaking			Volleyball
			Basketball
			Netball
			Lacrosse

athletes, of which there were 54 (14.5%). Those competing for their county amounted to 34 participants (9.1%), similar to interprovincial athletes who totalled 35 (9.4%). Because these groups were significantly smaller than the other subdivisions, it was decided to collapse these two groups into a single category called county/interprovincial (18.5%). Seventy seven national-level athletes participated (20.7%). The largest group represented were international athletes, who amounted to 172, just under half the total sample (46.2%).

Participants' knowledge of doping

Almost two thirds of the participants said that they had received information on banned substances in their sport (N = 234; 62.6%), with 140 (37.4%) having received no anti-doping material. The information on prohibited substances came from a wide variety of sources. The breakdown of the sources of this information is displayed in Figure 1 below. Of those who had received information, 48.8% felt confident in their knowledge of banned substances, but 51.2% did not. Clearly, there is a need for more widespread and in-depth anti-doping education, the source of which needs to be organised into a more coherent structure.

Self-reported and projected prevalence of doping

When asked whether they had ever *inadvertently* used prohibited substances, 35 athletes (9.4%) admitted that they had. Over half of these athletes had used recreational drugs (60.6%) and 12 (36.4%) had ingested performance enhancers. One athlete had inadvertently taken both.

Forty one athletes (11%) admitted that they had *knowingly* used prohibited substances. This seems to be in line with Laure's (1997) reported prevalence rates for adults of 5-15%. However, this comparison must be interpreted with caution since Laure's review was performed on published research between 1980 and 1996. Since that time, the advent of new doping

technologies and the creation of anti-doping organisational bodies such as WADA have changed the landscape considerably. Of the admitted dopers in this study, thirty three had used recreational substances (80.5%), 4 had taken performance enhancing substances (36.4%), and 4 athletes admitted to using both (36.4%). However, when recreational drugs are removed from the equation, this means that in total 8 out of 375 athletes (2.2%) had used doping products specifically with performance enhancement in mind. It is difficult to compare this statistic with previous studies, since most of these did not make such a distinction, but simply referred either to "banned substances" or focused solely on "anabolic steroids". However, this reported prevalence is comparable to 1-3% adverse analytical findings reported by accredited laboratories (WADA Annual Report, 2006; WADA Laboratory Statistics, 2005).

A much larger number of athletes, (N=158, 42.2%), claimed to personally know fellow athletes who had used, or were currently using prohibited substances. Of these sportspeople, 65 (41.1%) were thought to be taking recreational drugs, 58 (36.7%) were said to be using performance enhancing substances or methods, while 35 (22.2%) were reported to be using both. It is obvious that there is a large discrepancy here between the numbers

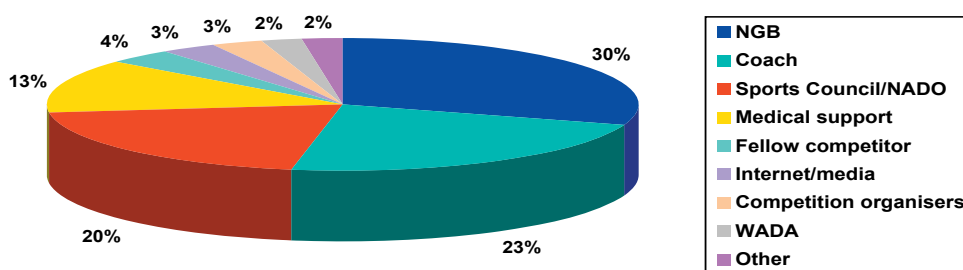


Figure 1: Analysis of sources of anti-doping information.

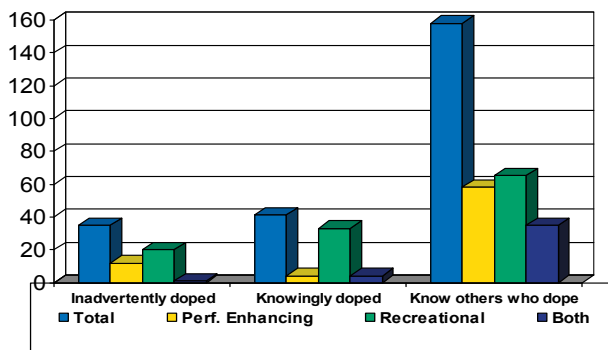


Figure 2: Number of athletes who have inadvertently doped, knowingly doped and know others who dope.

of athletes reporting personal drug use compared to the frequency of projected doping by others (see Figure 2 above). This further highlights the fact that assessing the actual prevalence of doping in sport is almost an impossible task.

Assessing reliability of scales.

A reliability analysis was performed to determine the suitability of the scales for use with a predominantly Irish athlete population. All but one subscale was found to have acceptable levels of reliability (Cronbach alpha > 0.7). This was the “intra-team rivalry” subscale from the PMCSQ-2, which has shown questionable levels of reliability in previous studies (Newton, Duda & Yin, 2000). Results from this factor have to be interpreted with caution, but generally the scales utilised for this study were suitable for use with the population of interest.

Differences in doping attitudes between demographic groups

In order to assess differences in performance enhancement attitudes between participants assigned to various demographic groups, a series of t-tests were performed (see Table 3 below). Due to widely differing cell sizes in this analysis, homogeneity of variance was not observed and results were interpreted using the values for equal variance not assumed. The degrees of freedom were also adjusted

to take account of the failure to meet this assumption. From this analysis, we can see that male athletes have significantly more positive attitudes toward doping than their female counterparts. This finding is in line with previous studies which have assessed doping attitudes (Alaranta et al., 2006; Lucidi et al., 2008; Peretti-Watel et al., 2004). Similarly, studies adopting self-report measures of doping prevalence have consistently reported greater frequency of drug use among males than females (Kindlundh et al., 1999; Laure, 1997; Özdemir et al., 2005).

A significant difference was found between athletes who completed the survey online compared to those who completed it in hardcopy. The internet survey revealed significantly more positive attitudes to doping. This finding may be related to the athletes’ fear of revealing their true feelings about doping in the presence of the researcher and other athletes, despite the fact that all surveys were completed anonymously.

Those completing the survey online were more assured of anonymity and thus, may have been more forthcoming in their responses. Such a discrepancy indicates that evaluating the reliability of self-report data can be a difficult task.

Because of the very large differences in participant numbers from various countries, it was decided that the most meaningful way of analysing for nationality differences in doping attitudes was to analyse Irish participants’ responses compared to athletes from all other countries. This analysis indicated that Irish athletes held significantly less positive attitudes to doping than their international counterparts. This is good news for the Irish Sports Council. However, the finding may have been biased by the aforementioned differences in data collection methods. Most Irish athletes completed the questionnaire in hardcopy, whereas the majority of international athletes completed the online survey, where the assurances of anonymity were greater.

To test for differences in demographic variables with more than two categories, a series of ANOVAs were performed. The first of these looked for differences in doping attitudes between athletes from various sports (see Table 4 above). Using the classification system outlined earlier, the results showed that athletes from speed and power sports

Table 3: Differences in doping attitudes between demographic groups

Variable	Mean PEA Score	t	df	p
Male (N = 239)	35.39	5.94	347.25	.000**
Female (N = 135)	28.91			
Online (N = 190)	35.97	5.19	362.8	.000 **
Hardcopy (N = 184)	28.96			
Ireland (N = 253)	31.15	-4.21	179.76	.000**
Other countries (N = 115)	36.83			

* p < .05; ** p < .001

Table 4: Differences in doping attitudes between sport types

Variable	M	SD	F	Source of diff.
1. Speed/power sports	37.26	13.22	4.03*	1 > 4
2. Endurance sports	33.22	9.45		
3. Motor skill sports	34.18	10.33		
4. Team sports	31.58	11.45		

* p < .05

displayed significantly more positive doping attitudes than team-sport performers. This result compares favourably with the findings of Alaranta et al. (2006). Given that sports requiring strength and power historically have the highest incidence of doping, this finding is not surprising. No significant differences were found between the other sport groups. An ANOVA was also performed to assess differences in doping attitudes between athletes of differing competitive levels. No significant differences were found (F = 2.17; df = 3, 367; p > .05).

Differences in doping attitudes between groups based on doping experiences

A number of t-tests were run to determine whether athletes who had doping experience or previous exposure to doping, would differ attitudinally to athletes who had not doped or who did not know anybody who had. The results are displayed in Table 5 below. Due to widely differing cell sizes in this analysis, homogeneity of variance was not observed and results were interpreted using the values for equal variance not assumed. As one would expect, athletes who had knowingly taken prohibited substances displayed significantly more positive attitudes to doping than those who had not. Similarly, those who had inadvertently taken doping products had more positive attitudes to doping than those who had not. This

is slightly worrying, as these athletes, having accidentally been exposed to doping, developed more leniency towards illegal performance enhancement afterwards. Additionally, athletes who had been exposed to doping through personal contacts who had used prohibited substances displayed less negative attitudes. According to the Theory of Planned Behaviour (Ajzen, 1991), behaviour depends on people's intentions, which in turn are regulated by attitudes about that behaviour. If familiarity with prohibited substances plays a part in shaping attitudes, then it is safe to say that exposure to, or observation of, others' doping practices may be influential in an athlete ultimately deciding to dope themselves.

Correlations between doping attitudes and psychological variables

A correlation analysis was run to test the relationship between scores on the performance enhancement attitude (PEA) scale and on the other psychological variables included in the study. Of the 12 subscales tested, 9

showed a small but significant relationship to doping attitudes. All relationships were in the expected direction and are summarised in Table 6 over.

Two perfectionism subscales (PSS) "high personal standards" and "coach criticism" showed positive correlations with PEA scores (where a high score indicates a positive attitude to doping), while "concern over mistakes" did not.

Five of the six perceived motivational climate in sport questionnaire (PMCSQ-2) subscales were significantly correlated to PEA scores. Three of these showed positive correlations, "punishment for mistakes", "unequal recognition" and "intra-team rivalry", and the two negative correlations were "important role" and "effort/improvement rewarded". However, concern exists over the suitability of this scale for use with individual athletes, and further research into such environments is required before any firm conclusions can be drawn. Additionally, intra-team rivalry reliability was below the required .7 level, so this finding must be interpreted with caution. "Co-operative learning" was not correlated with the PEA scale.

Both of the task and ego orientation in sport questionnaire (TEOSQ) subscales were correlated with PEA scores, with "ego orientation" displaying a negative correlation and

Table 5: Differences in doping attitudes between athletes with and without doping experience

Variable	Mean PEA Score	t	df	p
Inadvertently doped (N = 35)	38.16	2.19	37.95	.035*
Had not inadvertently doped (N = 338)	32.53			
Knowingly doped (N = 41)	38.18	2.36	45.20	.023*
Had not knowingly doped (N = 332)	32.47			
Knows others who dope (N = 157)	36.15	4.36	290.90	.000**
Does not know others who dope (N = 216)	30.87			

* p < .05; ** p < .001

“talk orientation” showing a positive relationship. The level of significance of this finding is in line with previous studies investigating personal motivational variables and their relationship to doping (Donahue et al., 2006; Sas-Nowosielski & Swiatkowska, in press).

The trait sport confidence inventory showed no correlation with doping attitudes.

Implications of findings

The findings outlined above have both theoretical and practical implications for anti-doping bodies and doping researchers alike. Specifically, the differences evident in doping attitudes between various demographic groups give an indication to anti-doping agencies of who should be targeted for both testing and education. Clearly, males are more prone to doping than females. It also seems that doping attitudes vary across different countries, given that Irish participants in this study scored significantly lower on the PEA scale than athletes from other countries. The differences observed in participants from the various sporting classifications also indicate that strength and power athletes are most at risk for doping. The disappointingly low number of athletes who expressed confidence in their knowledge of banned substances, coupled with the multitude of sources of anti-doping information show that education interventions need to be more efficiently organised and coherently administered.

The difficulty of determining the actual prevalence of doping in sport has been widely reported in published research. Again, this problem was observed in the present study and was

evident in the very disparate numbers of people who admitted to taking banned substances, compared to those who claimed to personally know athletes who doped. Of course, it is possible that different respondents could have been referring to the same athlete, particularly team-sport athletes who completed the questionnaire in hardcopy as part of group data collection. However, the degree to which it happened overall was probably quite limited, given the geographical spread of participants, and the variety of sports from which they came. So it remains to be seen whether the true extent of doping in sport can be assessed through self-report measures, projected use measures or the rate of adverse analytical findings.

For researchers, the significant correlations found between doping attitudes and psychological variables previously linked to cheating, such as achievement goal orientation and motivational climate, is a positive development. Framing doping as an extreme form of cheating seems to be a valid assumption and considerably broadens the range of relevant psychological literature.

In our analysis of the psychological variables that correlate with performance enhancement attitudes, it seems that both personal and situational factors play a part in shaping beliefs about doping. Individually, the standards or goals an athlete sets for themselves, and how they define achievement in competitive situations seem to relate to their doping attitudes. The findings suggest that an athlete who sets excessively high, unrealistic goals may be more at risk for doping. Also, athletes who view success

Table 6: Significant correlations between PEA scores & other psychological variables

Subscale	Scale	PEA correlation	r ²
Personal standards	PSS	.113 [†]	1.28%
Coach criticism	PSS	.235 ^{**}	5.52%
Important role	PMCSQ-2	-.116 [†]	1.35%
Effort/improvement rewarded	PMCSQ-2	-.124 [†]	1.54%
Punishment for mistakes	PMCSQ-2	.198 ^{**}	3.92%
Unequal recognition	PMCSQ-2	.223 ^{**}	4.97%
Intra-team rivalry	PMCSQ-2	.195 ^{**}	3.80%
Ego orientation	TEOSQ	.236 ^{**}	5.57%
Talk orientation	TEOSQ	-.111 [†]	1.23%

[†] p < .05; ^{**} p < .001

solely in terms of winning, as opposed to mastering skills or making personal best performances are likely to be at more risk for doping. Situationally, it seems that the actions of the coach may influence the doping attitudes of the athletes s/ he works with. In particular, behaviours like being overly critical of mistakes, giving unequal recognition to team members and creating intra-team rivalry enhance positive attitudes to doping. In contrast, communicating the importance of each group member’s role and rewarding effort and improvement may contribute to more negative doping attitudes. So, the implication here is that doping is not solely an individual decision. The environment in which an athlete trains and competes may shape decisions regarding doping practices. If this is the case, then anti-doping interventions and sanctions cannot be confined to athletes alone. Coaches, managers, sports scientists, medics and other support staff need to be educated on the importance of creating an appropriate motivational climate if their athletes are to remain drug free.

Phase 2: Implications from Phase 1 and pilot study

Developing the interview

The primary research question of this phase of data collection was to identify factors that had influenced athletes in their decision to dope. As previously mentioned, the findings from phase 1 of our research informed the questions for phase 2. In addition to the five questionnaires included in the test batteries, participants were also provided with space to allow them to make any additional comments they felt were relevant to doping in sport, or to the design and content of the research. It was hoped that this would provide the researchers with additional influential factors that had not been previously considered. A total of 48 participants added comments, and 17 of these were extracted for their relevance to designing question items for phase 2. Examples of such quotes are as follows:

- *"Doping in sport is the ultimate sign of weakness; it is admitting that you're not good enough!"*
- *"I feel the questionnaire does not address such issues as drug availability and the environment the athlete trains in. For example, if the athlete has people around him taking substances, s/he may be more inclined to do so themselves."*
- *"The questionnaire includes many questions concerning skill and sports requiring a high degree of skill tend not to benefit as much from drugs as those that are less skill based – maybe the questionnaire needs to refocus toward these types of sports."*
- *"Too much emphasis on role of coach. You are bound to come to the conclusion that coach pressure causes drug use. Better to get real and find out why the athlete may think that drugs are necessary, rather than all due to peer pressure."*

- *"I think that you do not necessarily understand how strong the incentive is in other countries to cheat. Not to say that you don't realise it, but if you understood that sometimes the difference between cheating in sport and not in certain countries actually is the difference between having a western middle class lifestyle and being a hero or being a poor nobody with nothing. If that is the situation, can you blame them for cheating?"*
- *"I went on a training camp last spring to do some really long hard cycling in mountainous terrain - terrain that was new to me. After a week of this training, I was exhausted. And I remember clearly thinking that if someone offered me something that would help me get through the next week and go faster, I would take it, no problem, no questions asked. This was a frightening realization to me how easy this thought came to my head because I had always considered myself anti-performance enhancement previous to that week."*

From these quotes and from the research team's own analysis, potentially influential factors in deciding to dope were identified, e.g. mental toughness, access to doping products, training environment, team-mates' or competitors' usage, demands of the sport, alleviating pain, role of coach, economic and monetary considerations.

Additionally, based on the conflicting estimates of the prevalence of doping in this, and previous studies, phase 2 was seen as an opportunity to ask athletes, who were willing to speak openly and honestly, about the observed rate of doping in their sport, and the presumed incidence of doping in other sports. The interviews were also viewed as a good opportunity to ask

about strategies to reduce or eliminate doping in sport, since the participants were likely to have used various techniques themselves to avoid detection.

Most importantly, the findings from the significantly correlated variables in phase 1 guided questions relating to the psychology behind the decision to use banned substances for the purposes of performance enhancement. In particular, athletes were questioned about their goal setting practices and personal ambitions in their particular sport, in consideration of the perfectionistic tendencies that emerged as significant in phase 1. Also, athletes were questioned on how they felt about their sport, what they liked about it, whether doping changed those feelings, and if they felt a 'win at all costs' attitude was pervasive in sport. These questions were designed to tap into the features of achievement goal theory. Finally, morality was identified as a possibly influential psychological factor based on published literature on cheating in sport (Kavussanu, 2007; Long, Pantel on, Bruant & d'Arripe-Longueville, 2006; Tod & Hodge, 2001).

Rationale for pilot study

In order to ensure that the interview would run as smoothly as possible, a pilot study was conducted prior to the first 'real' interview.

- *Instruments used:* The suitability of the interview schedule for use with the target population of athletes who had admitted to doping needed to be assessed. Additionally, it was deemed important to examine the relevance of the language for high performance athletes.
- *Time required:* In order

to recruit participants and design a letter of introduction, it was necessary to discover what level of time commitment would be required to complete the interview.

- *Interviewer technique:* The interviewer felt that it would be important to receive feedback on her demeanour and reactions during the interview, particularly since the topic under scrutiny was such a sensitive one and the participants were likely to be revealing information of a very personal nature.
- *Unforeseen problems:* The final purpose of the pilot study was to uncover those difficulties that were not predicted by the research team.

Methodology

Participant

In light of the anticipated difficulty in recruiting participants, it was decided not to use an admitted doper for this phase of the study, but to save all suitable participants for phase 2 proper. Instead, an international track and field athlete, who did not have personal experience with doping but was very knowledgeable on the subject, was recruited for a 'mock' interview.

Interview Schedule

A draft of the proposed interview schedule was used for this phase of the research, with a view to adding or removing questions based on feedback.

Procedure

The athlete agreed to perform a 'role play' interview, and was briefed by a member of the research team who had considerable experience with interviewing as a research

method. The interviewee was instructed to be relatively uncooperative and unhelpful in his responses, to give the interviewer practice at handling difficult interviews. He was also instructed to take note of any questions he felt were inappropriate or irrelevant, and to think about omissions from the interview schedule. The interview was timed by the researcher.

Decisions based on pilot study

Based on the experience of conducting the pilot study, a number of decisions about the main study were made. Firstly, the mock interview took 40 minutes in total. It was anticipated that real interviews would take somewhat longer, so a time commitment of 45 minutes to 1 hour was estimated and included for the letter of introduction.

In considering the interview schedule used, the participant felt that in general, the questions were relevant and suitable for the population in question. He did suggest the inclusion of more detailed questions regarding 'mental toughness.' Specifically, he felt that an item that asked participants about their definition of mental toughness would be required, since it is such an ambiguous and misunderstood psychological construct. He also suggested that the morality section should be expanded to give athletes a chance to discuss what morality meant to them and how it might influence doping decisions. Finally the athlete thought that it would be interesting to pose a question to the admitted dopers asking them what they felt differentiated them from their opponents who had chosen to compete clean. No questions were discarded from the draft

interview schedule. Based on this feedback, a finalised version of the interview schedule was drawn up (Appendix 3).

In general the feedback was positive for the demeanour and reaction of the interviewer to difficult interviewee responses. In order to maximise the value of the interview, the interviewer was advised to tease out responses when they were unforthcoming initially. The participant felt that the interviewer seemed appropriately non-judgemental, but that the phrasing of some of the questions was confusing as they contained double negatives. This tendency was monitored closely in the actual data collection phase.

Phase 2: Qualitative examination of perspectives on doping

Methodology

Identification and recruitment of participants

This phase focused on the views and experiences of current or retired athletes. The sampling procedure used was “theoretical sampling” where participants were selected purposefully rather than randomly. Of particular interest were athletes who have been involved in investigations of alleged doping violations and/or had publicly admitted to using performance enhancing substances of methods during their athletic career. Over a 30 month period, an in-depth analysis of newspaper archives, websites, sporting autobiographies and doping reports was performed to identify suitable candidates for this phase of the research. Additionally, daily email alerts were set up using the search terms “doping in sport” and “drugs in sport”, and a subscription to the (now expired) “Drugs in Sport Newsletter” was utilised to keep abreast of new developments in the area.

From these various sources of information, lists of potential interviewees, authors of books on the subject of doping, and sports journalists with experience in reporting drug-related stories were compiled. This list of potential interviewees totalled 77. A list of potentially knowledgeable staff members in the various national anti-doping agencies of English-speaking countries was also drawn up. Initially Irish participants were targeted, primarily because of the relative ease of finding their contact details through personal acquaintances. Later, with the realisation that suitable candidates would be relatively difficult to recruit, inquiries were made through international anti-doping agencies and journalists about the possibility of them putting us in contact with people on our list. A participant count of approximately 8 was the goal of the research team. A letter of introduction was drawn up, outlining the research aims and explaining the interview procedure, with a particular

emphasis on confidentiality (Appendix 4). Over 100 of these letters were emailed and approximately 20 were posted or faxed. The result of these, and numerous phone calls, was the recruitment and subsequent interviewing of 4 athletes who had admitted to doping.

Participants

Of the 4 participants interviewed, 3 came from the sport of cycling and 1 from weightlifting. All of the athletes had been professional or Olympic-level athletes, with the time spent competing at this competitive level ranging from 3-12 years. Participants hailed from Ireland and the US. None of the athletes were currently competing in their chosen sport; 2 had retired, 1 had received a lifetime ban and the other was serving a 2-year ban. They ranged in age from 32-46 years. Their doping practices varied widely; one athlete used stimulants on 3 separate occasions directly before competing, another adopted a doping regime over a number of weeks specifically in preparation for a particular event, another engaged



in a rigorous off-season programme over a period of 2 years but stayed clean in the competitive season, and the final athlete had adopted a comprehensive doping regime over a period of 5 years, primarily during the competitive season.

Interview procedure

Once the athletes had given written or verbal consent to be interviewed, they were sent a copy of a legally binding non-disclosure agreement (Appendix 5), which was signed by the participant and the researcher. Once this was completed and it was established that both parties were happy to proceed, the interview was scheduled. Two of the interviews took place face-to-face, and two were conducted over the phone. The shortest interview lasted for 48 minutes and the longest took 1 hour and 7 minutes. All interviews were recorded using an Olympus DSS player version 7 digital voice recorder. Following this taped interview, the conversation was transcribed and all identifying details were removed. The athlete was then sent this typed transcript for approval, with assurances that the data would not be used if the athlete communicated their wish to withdraw from the study after the interview. All of the participants acknowledged that they were happy with the details of their interview transcripts and gave their consent to proceed with the subsequent analysis and write-up.

Data analysis methodology

Thematic analysis based on Braun and Clarke (2006) was used to extract meaning from the data. Firstly, the interviews were broken into sections, reflecting the broad issues

examined in the interview schedule. These sections were then reviewed separately by members of the research team. The team met and the full range of responses in each section was noted. These responses were then grouped into mutually exclusive themes. Finally these themes were used to develop a coding frame, which was used to code all the interviews.

Results

In reporting the findings of the interview analysis, the key themes evident in each of the main sections of the interview are presented. Sample quotes are used where appropriate. However in some cases the information contained in a quote would make the participant identifiable and therefore some findings samples are not included, or the identifiable information has been replaced with an "X".

Theme 1 - Pre-doping

Participants were asked to discuss their physical and mental state in the lead up to their decision to engage in illegal performance enhancement. Physically, the athletes reported that they were no longer able to compete with competitors who were doping. They had started to struggle with tiredness, or an inability to keep up with competitors who had previously been at their level:

"I had taken a break from X and when I came back, the eh, there was a definite kind of broad change in the capacity of a lot of the riders. Meaning that people who I would have performed better against previously, they were outperforming me dramatically."

A number of critical incidents of changes in the career of the rider also seemed to have precipitated their doping decisions, namely: coming

back from injury or time off from the sport, entering a new training environment or having just failed in a competitive endeavour.

Athletes described in more detail the mental challenges they experienced prior to deciding to dope. A common theme among the participants was a struggle with the realisation that doping was completely pervasive in their sport (*"drug use as a whole was kind of accepted and tolerated and practiced and nobody really did anything about it"*) and that they could not compete at the top level without it (*"the syringes came out and I just felt at that stage very vulnerable and eh, I didn't feel that I could really mentally...that if I hadn't succumbed to it then, I didn't feel I'd actually be able to race that day"*). This frustration with being unable to compete (*"I got tired of being left behind and not riding at the ability that I know I am capable of on a level playing field"*) seemed to give rise to a very tough decision to dope, a decision none of the athletes took lightly:

"There were times before that for a while, for sure, where I wanted to but I didn't and then I wanted to and I didn't, you know, kinda back and forth, back and forth, back and forth, and then finally, I got, you know, I just cracked, so I took it."

"The whole idea of, like, taking an injection was like a nightmare to me, you know. It wasn't something that I envisaged, or it wasn't something that I would like to do."

Again, the majority of the athletes reported that doping was not initiated to win or to become a champion, it was simply a decision that had to be made in order to stay in the sport (*"if I want to continue to have these great experiences and continue to do what I love doing...I'm going to have to*

against all the ethical beliefs that I have"). An interesting term used in this context to describe the process of convincing oneself to dope was "self-delusion and very warped rationalisation."

Theme 2 - Choice of doping product or regime

The reasons cited for choosing particular doping substances varied according to the sport and its physical demands, but a number of common themes across participants were evident. Firstly, the lack of testing for particular substances seemed to be a very influential factor ("that's where the pressure came from; knowing you could do it without getting caught, knowing you could do it with impunity"

"...they didn't really have a test for EPO and I think in a way it gave a message to a lot of people that they had the green light to be able to use EPO as long as they stayed under 50% (haematocrit level)"). All of the athletes were very critical of their respective governing bodies for turning a blind eye to doping for so long, for failing to adopt stricter disciplinary procedures and at times, even encouraging the practice:

"The X federation paid \$3 million for the top X coach to go over and coach there for a period of time. And like, we were all well aware that the money was really being paid for doping knowledge rather than just technical knowledge." "...ineptitude of these guys for not controlling the situation. It just got out of control and everything, you know, broke loose to a full doping culture."

Athletes seemed to rely heavily on information from other team-mates or competitors in their choice of doping product. If they knew it was working for others and had minimal side-effects, they were satisfied that it was the right choice for them also ("they were all

open about it, taking stuff and what they'd intended to do and what was recommended and what I should do, you know." "...that's what everybody was taking and pretty much, you know, everybody just said that I mean, stupid as it sounds, you knew it was safe and there's no problems with it").

They relied on other sources also, such as team doctors or personal physicians, to share their knowledge of doping and to help them gain access to doping products ("a lot then is your connections in the sport and how good they are and as to what you're taking and the knowledge and so on...").

Theme 3 - Deciding to dope: Internal motivating factors

The athletes listed numerous factors that they had considered in weighing up their decision to dope. Internally, some of the factors identified in phase 1 of the research such as perfectionism and ego orientation certainly seemed to play a part. It was generally believed that the higher the goal an athlete sets for themselves, the harder it is for them to resist the temptation to dope ("the ones who set very high targets would be more subject to actually taking something." "I was doing reasonably well at it and going to international competitions, but I didn't want to just go to international competitions, I wanted to be successful at them"). In a related point, it seemed that there was a general perception that athletes who focus only on winning at the expense of gradual improvement would also be more likely to seek recourse to drugs. Such athletes reveal characteristics of ego orientation ("...if you come in thinking you are deserving of being a champion and wanting to win everything

then you'll have to resort right away to a (doping) program."). In phase 1 task orientation was negatively correlated with permissive doping attitudes. However, the interviewees here displayed considerable levels of task orientation in their declared love of sport ("they (training group) didn't have to be the best in the world, like I wasn't the best in the world, but what mattered was that you loved your sport") and their desire to stay involved, yet they still resorted to doping. This finding requires further analysis as it seems that contrary to popular opinion, an intrinsic love of the sport, may in fact, be a motivating factor in deciding to dope. In addition, some of the athletes felt that once they engaged in doping, their feelings about their sport changed dramatically ("the premise or the basis for that love was kinda pure and unadulterated. But, it's pretty quickly corrupted by engaging in a pretty horrific practice" "...when I saw it for what it really was at that level (professional), I didn't love it anymore, absolutely not".)

Interestingly, the role of natural talent was discussed by some participants as having a role to play in the doping decision, but two of the athletes thought having innate talent would act as a deterrent, whereas another thought that it would encourage an athlete to dope earlier in their career:

"...it's different for someone who is incredibly talented naturally to say 'I'm not gonna dope' than it is for someone who is, you know, moderately talented at the professional level. If you've got that 10% advantage that you can kind of bargain away before you're at the point of feeling the need, I guess, to dope."

In reference to athletes who had made it to the very top of their sport, one cyclist felt "...I

mean if you're elite or being paid a lot of money, there's a lot of pressure there... The ones that are really trying to win, they go beyond maybe just taking one product but doing a full-on doping regime."

Other psychological characteristics that were examined were mental toughness and moral reasoning. All the athletes agreed that conscience or morality would be an important factor in an athlete's decision to engage in doping (*"I had a conscience. As a kid, you know, if I did something wrong I felt shit about it"*). Interestingly, this athlete was the one who doped only on 3 separate occasions and soon after left the sport because of his disgust at the widespread doping. Another athlete felt it was the most significant personal factor in making the decision:

"Depending on their upbringing and their moral character and you know, what their value system is, that can be the crux of whether or not they decide to dope. People would never consider doping because it's so contrary to what their belief system is. Other people are more willing to make the ethical compromise 'cause they have a more performance-minded outlook."

This is certainly an area that calls for further investigation in psychological research.

The issue of mental toughness shows up interesting results. Half of the athletes felt that a mentally tough athlete would be more likely to resort to doping because they would be so goal-focused (*"...if you look at doping as just another step necessary to achieving your goals, then you know, by being mentally tough and goals-focused, then maybe the next rational decision for you is to dope."*). The other athletes thought that mental toughness would play a part in helping an athlete resist doping (*"the mental toughness in a doping dilemma I think would be living with the fact that you know you're on the start line, with no chance of winning"* *"you've got to be incredibly mentally strong to resist it... to believe that it's enough for you, knowing that you've done it on your own steam"*). The crucial issue here seems to be the athletes' widely varying definition of mental toughness, a problem that has previously been identified in the psychological literature (Jones et al., 2002) and clearly needs further scrutiny.

The perceptions of athletes also varied widely on their opinion of the severity of doping as a form of cheating. While some athletes were vehemently against doping,

a number of the athletes said that because it was so pervasive amongst the athletes they competed with and against, it wasn't viewed particularly negatively.

"The whole idea of taking drugs and cheating and getting an advantage is kind of out the window because the way it was in sports and the way because it's so prevalent in so many different countries worldwide was that you were being cheated upon if you didn't take anything."

"And one thing also that's important to understand is that at the elite level, doping, drugs, are oftentimes, they come to be viewed as just tools in your toolbox. Like, just another natural progression, or another, yeah, another asset to be deployed in pursuit of fitness."

"...they (other competitors) just treated it like they were taking candy, it was just part of cycling and that's just the way it was, and you know, they didn't care."

Shermer (2008) also makes a similar point in his article about resolving the doping dilemma. In order to eliminate doping from sport, a shift needs to happen so that doping comes to be regarded as unacceptable and the payoff for playing by the rules must exceed the payoff for cheating. Clearly, during the careers of these athletes this was not the case, and should be a concern of anti-doping policy makers going forward.



Theme 4 - Deciding to dope:

External motivating factors

The list of influential external factors in the doping decision was manifold. Systematic doping was clearly something that the athletes had no control over, but which played a significant part in the pressure they felt to conform (*"that puts pressure on, not only the individuals, but on a team and if a team is involved in really wanting to be competitive, then that could be where a*

systematic doping programme would come into effect”.)

Team-mates or training partners seemed to have a big influence on the athletes' motivation to dope. In fact, three of the four athletes claimed that this was the greatest source of external influence on their initial decision to dope. As indicated in phase 1, and again at this interview stage, it seems that personally knowing people who dope reduces intolerance of it (*“it's a lot easier to start doping when you know people who are doing it”*). However, it's important to note that this influence was not in the form of direct pressure. Ordinarily, it was implied and stemmed from a desire to fit in and remain an integral part of the group set-up.

“It's not peer pressure to actually dope. You know this, this is a very important distinction that I don't think a lot of people outside the sport realise. It's not someone, your team-mates saying “you need to take this.” It's this almost implied pressure to participate in the same kind of illegal and unethical activities as everyone else because if you don't, it calls into question your eh, your ability to be trusted, I guess, by your team-mates.”

However, one athlete said that he had never spoken to team-mates about his doping. That the “Mafia style” silence surrounding the topic did not just extend to other teams, but was a feature within his team also (*“everybody is very secretive, nobody would let anybody know, or try to let anybody else know, if they were taking anything at all”*). However, this claim is questionable given his earlier claims that everyone in his sport had been engaged in doping during his era as a professional (*“I mean not only domestiques but just everybody”*).

Although coaches were shown in phase 1 to have a potential impact on athletes' doping attitudes, coaches and managers were shown to have mixed levels of influence among this population. Some said that their managers knew about doping, but chose not to get directly involved, while others said their coach was the instigator of their doping regime. However, what did become clear was that management teams with a financially-driven ethos and who put a strong emphasis on “winning at all costs” were likely to pressurise their athletes into doping (*“it was when money became involved in any substantial quantity that the pressure to perform and to win at all costs came to bear.”* *“...win at all costs, I mean you're probably less likely to look after your own health and you are more likely to abuse, you know, the steroids and abuse the drugs than if say, when you're doing it because you love it, you know”*). Again, this emphasises the importance of developing a mastery motivational climate to aid in the fight against doping in sport.

Naturally, the financial implications of the doping decision were also a factor to be considered. For some of the athletes, the incentive for doping was an ability to compete on the world stage, which would result in them maintaining their professional contracts. For others, it was just a matter of paying bills and surviving day to day (*that was a huge part of it, the financial, 'cause it is a profession... because you results were directly related to your wages, you know. The more results you had the better you got paid. So again, that does place huge pressure on you to eh, you know, to do it”*).

Finally, the long history of doping in sport seemed to act as a motivating factor. These athletes made the point that interested parties want to see records broken all the time, but if these records have been set dope-assisted, then it's very hard for modern athletes to compete with those by staying clean.

“So if your entire tradition is based on a practice that's...almost humanly impossible and requires medical assistance, then should the tradition still be considered valid, or you know, attainable I guess, in a non-dopist's world?”
“... you're compared against the world record straight away you know, as to whether you're going to be successful or how you're doing. And as I say, if those records are based on performance enhancing drugs, then the whole idea of fairness comes into question.”

Theme 5: Personal and official factors that dissuade athletes from doping

In order to provide information to guide future anti-doping education programs, athletes were asked about the significant factors that acted as deterrents against doping in sport. Again, morals, ethics and conscience seemed to be dominant (*“the morality, you know, not wanting to be a cheater”* *“feeling unbelievably f**king guilty about it, like f**king really, really like I'd let myself down.”*) Going against the rules of sport and against personal beliefs were also mentioned.

One athlete expressed concern about his family and the shame they would feel if he got caught (*“it's always tough for your parents. They want to think of you as, eh, you know, doing it right, and eh, so that is always in the back of your mind”*). However, none of the other athletes signalled that this was a major issue for them, as they kept their doping

hidden from everyone outside their inner athletic circle.

Recent efforts to criminalise doping certainly seem to have acted as a deterrent (*"it's totally about not wanting to go to jail"*.) Also, fear of being caught and being fired from a team (which, according to the interviewees has only become a threat in the last 18 months) was also a dissuasive factor. However, the current sanction of a 2-year ban for a first doping offence was not thought by any athlete to be a significant enough punishment to prevent people from doping (*well, what sort of f**king prohibitant is that for anybody who's thinking they shouldn't do it, knowing that in 2 years time they're going come back...*).

Again, health concerns did not seem to be a major factor in these athletes' doping decisions. They did start to play a part over the course of an extended doping regime (*"I started to worry more and more about my health"*), but during the initial decision-making phase they were not taken into serious consideration (*"I absolutely don't think it has anything to do with athletes being concerned about their health"*).

The influence of a positive role model or mentor in acting as a deterrent for young athletes was mentioned by one of the athletes as something that had guided him for many years (*"he was anti-drugs completely you know. He thought that there was no need for them whatsoever and I was firmly on, I was very much with him on that side"*). However, as soon as he moved away from home to a new training group, this positive example was removed, and he struggled with the decision to dope:

"...when I saw what was happening in other countries, I



probably put up a barrier myself as they sort of say, and probably gave into it and sort of said 'well no, you probably can't achieve such weights without taking, you know, performance enhancing drugs'."

An interesting point made by one athlete was that athletes who maintained interests outside of their sporting career may be less likely to seek recourse to doping (*"if you have a strong life outside of cycling, a plan for your life that's beyond athletics, then it's probably easier to decide not to go ahead with it."*) Possibly, this is something that should be considered by future anti-doping interventions and kept in mind by coaches, managers, directors and sport psychologists who look after the lifestyle needs of athletes.

Theme 6: Outlook for the future of sport

All of the athletes said they struggled greatly after they publicly revealed that they had doped. They lost friendships with fellow competitors, were publicly ridiculed and scorned by the media. However, the one over-riding positive result of this has been a gradual shift in attitude away from an unquestioning acceptance of doping, the result of which will be more choice and less

pressure to engage in doping for young athletes coming through to the elite ranks:

"...everybody who was caught up in that era did not want to go through what they went through. And so, they (ex-athletes/current managers) want to change it. They don't want to bring it on their riders and make them go through the shit they had to go through."

In general, the athletes felt positive about the changing landscape of doping in sport. They unanimously felt that there had been a shift in attitude towards intolerance of doping in the last couple of years. This shift was thought to have been precipitated by a number of factors. Specifically, fans, the media, event organisers, sponsors, and particularly governments, anti-doping bodies and governing bodies were all thought to have contributed to this change:

"The fact that doping is being criminalised, the fact that governments are prosecuting performance enhancing drug traffickers, doctors who assist in doping are losing their licences.

That's the kind of stuff that unfortunately has to happen to, to really, really change the mentality across the entire spectrum."

Other effective deterrents mentioned were increasing the testing pool and the frequency of tests, increasing the ban for first offences from 2 to 4 years or even adopting a zero

tolerance approach (*“one strike and you’re out”*), and greater leniency for accidental ingestion of contaminated supplements (as the harshness of this strict punishment was thought to reduce the credibility of anti-doping bodies). In addition, actions such as not re-hiring athletes when they return after a doping ban, and not extending invitations to competitive events for teams or athletes with a history of doping were cited as effective anti-doping measures, but ultimately, it was felt the criminalisation of doping would be most effective (*“if you have criminal sanctions involved with that, I mean, that would be a huge deterrent”*). However, it was generally agreed that in order for this shift in favour of anti-doping to achieve permanence, team managers and athletes themselves would have to be the primary proponents of drug-free sport (*“to really make an impact, it has to come from the team, the managers and the riders”*).

Final conclusions and recommendations

The interview stage of the research was very effective in exploring further the findings from phase 1 of the research, and in exploring new critical factors in athletes’ decisions to engage in doping behaviour. Certainly, psychological factors play a part in determining this decision, and it appears to be a ripe area for further research. However, it is worth pointing out two important caveats in our analysis of doping in sport. First, the number of sports represented was very low, so caution is advised in over-generalising to other sports. In particular, individual sports were under-represented, where the importance of the coach/manager in shaping attitudes to doping may be

more of an influential factor. Second, because none of the participants were competing as high performance athletes at this time, their assumptions about the climate of doping that currently exists in their sport and in sport in general, must not be accepted literally or uncritically. However, given the fact that three of the four athletes are still involved in sport as part of their profession, the value of their knowledge and attitudes must not be underestimated.

As previously stated, the search for self-acknowledged “dopers” for phase 2 of the study was exhaustive, and taught the research team a lot about the difficulties of investigating such a sensitive topic. On the basis of our experience in conducting the present study, we believe that anti-doping agencies, which have much greater access to such athletes, need to be encouraged as far as possible to assist research efforts in this area. Financial help is not enough to counteract cheating/doping in sport. Instead, we recommend that a formal network of co-operation should be established between anti-doping organisations so that researchers in the field can spend more time doing what they are *trained* to do (namely, collecting and analysing data and developing and testing theoretical models to explain empirical findings), rather than acting as investigative reporters in attempting to obtain “dopers” email addresses and phone numbers. In addition, and we recognise that this suggestion has already been proposed by WADA, we believe that there should certainly be incentives for athletes who have admitted to doping to pass on information, not only

for the purposes of identifying and prosecuting distribution networks, but also for assisting research efforts such as that reported in the present study. Such incentives are also potentially valuable because they would help athletes to overcome their concerns about the perceived conflict of interest in passing confidential information about doping behaviour to a research team funded by anti-doping bodies. An international database of such co-operative athletes would speed up research efforts considerably, and would provide a more comprehensive analysis of doping issues across many different sports and countries. Given our experience in compiling such a list over the past two and a half years, we would be happy to assist in any such endeavour.

It is clear from these findings that the outcomes outlined here have implications for anti-doping policy, administration and education. Additionally, the research has provided useful information for the design of the Doping Attitudes and Behaviour Scale, which we hope will serve both a practical and an academic application in the fight against doping in sport.

Presentations, publications and international dissemination

Over the two years the study has been funded to date a number of opportunities for dissemination have been taken. Each of these has offered opportunities for feedback and have assisted the successful completion of the work to date.

Scientific papers:

Publication in *The Irish Psychologist*

- Kirby, Guerin, Moran and MacIntyre (2006) published a paper entitled "Breaking the rules: Sporting misbehaviour in an Irish context" in *The Irish Psychologist*, 32, 298-301. This paper made specific reference to the current WADA/Irish Sports Council anti-doping study.

International research contacts

Since 2006, we have established collaborative links and shared research information with psychologists from the following international universities:

Australia: Curtin University, Perth; University of New South Wales.

Canada: University of Quebec at Montreal; University of Ottawa.

France: Université Paris X Nanterre

Holland: RSM Erasmus University, Rotterdam.

Germany: Technische Universität München

Poland: Academy of Physical Education, Katowice

Portugal: Technical University of Lisbon.

UK: University of Bath; Leeds Metropolitan University; Loughborough University.

US: Middle Tennessee State University; University of Florida.

Conference presentations

- A member of the research team, Kate Kirby completed an oral and poster presentation entitled "Cheating and doping in sport: An analysis of relevant psychological variables" at the *International Conference on Ethics and Social Science Research in Anti-Doping*, in Larnaca, Cyprus on 13th and 14th of April 2006. This conference was jointly organised by the Cyprus National Anti-Doping Agency, the Council of Europe, and the World Anti-Doping Agency.
- Kate Kirby presented "The relationship between high-performance athletes' psychological characteristics and their attitudes to doping" at the College of Human Sciences Graduate Student Symposium in University College Dublin, Ireland on May 9th 2007.
- Kate Kirby made an oral presentation entitled "Examination of psychological variables underlying attitudes to doping in sport" at the American Psychological Association (APA) annual conference in San Francisco on 19th August 2007, disseminating the preliminary results of phase 1 of the research.
- Kate Kirby also attended the American Association of Applied Sport Psychologist's (AASP) Anti-Doping Congress 2007: *Drug Abuse in Sport and Exercise Communities: Coming Clean*, in Louisville, KY on October 23rd and 24th 2007.

Her poster presentation "An examination of the psychological correlates of athletes' doping attitudes" disseminated the final results of phase 1 of the research.

- Kate Kirby presented a poster "Doping in sport: knowledge, attitudes and psychological correlates" at the British Psychological Society's Annual Conference on April 3rd 2008. This poster presentation summarised the final results of phase 1 and outlined preliminary findings from phase 2 of the project.

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Appendix 1



Research Project: “The Development and Validation of the Doping Attitudes and Behaviour Scale” (DABS)

Informed Consent to Participation in Phase 1 Survey

Research Team

Prof. Aidan Moran¹, Dr. Suzanne Guerin¹, Tadhg MacIntyre² & Kate Kirby¹
 1: School of Psychology, UCD; 2: Faculty of Life and Health Sciences, UUI.

Contact details: kate.kirby@ucd.ie or 01-7168490

This study is a World Anti Doping Agency and Irish Sports Council co-funded project, which aims to explore attitudes and behaviours relating to doping in sport, and to understand the individual and social factors involved in doping. A large number of athletes have been selected and invited to take part in this phase of the study, which involves the completion of a number of questionnaires. No individual has been specifically targeted for this phase of the study.

If you agree to take part in this phase of the study, we ask that you indicate your agreement by ticking the box at the end of this form. This is to allow you to give your consent but protect your anonymity. We also ask that you complete the anonymous self-report surveys included with this letter. These surveys consist of a number of standardised scales of sports participation and motivation. Please return **both the completed consent form and the completed surveys** to the investigator. For your convenience we have included two copies of this form so you can retain one for your records.

The findings from the study will be reported to the funding bodies, as well as part of conference presentations and in scientific journals. In reporting these findings, data from the survey will be used. However the findings will be in the form of aggregate data and statistical analyses, and no individual data will be utilised. Please answer each question as honestly as possible. There are no right or wrong answers.

All participation is voluntary and if you are willing to be involved please complete the informed consent section below. If you do take part in this study you should retain a copy of this letter. If you have any queries about this research please speak with a member of the team, who will be happy to answer any questions you may have.

Statement of Informed Consent

I agree to participate in the study outlined above. I understand the nature of the study and I have had the opportunity to raise any queries. I understand that consent is voluntary and that by returning the survey I am agreeing to its content being included in the study. I also understand that any information collected during the course of this study may be published in reports and scientific journals, and may be presented at relevant conferences.

I CONSENT TO TAKE PART IN THIS STUDY (please mark your agreement)

Date: _____

Demographic Information

Age: _____

Gender: _____

Nationality: _____

Sport: _____

No. of years playing chosen sport: _____

Highest level of competitive involvement:

Club County Interprovincial National International

Have you ever *inadvertently* taken any substances whose use is prohibited in your sport?

Yes No

If yes, which type of substance? Recreational Performance enhancing

Have you ever *knowingly* taken any substances whose use is prohibited in your sport?

Yes No

If yes, which type of substance? Recreational Performance enhancing

Have you received information about banned substances in you sport?

Yes No

If yes, from whom? _____

Are you confident in your knowledge about banned substances in your sport?

Yes No

Do you personally know any athletes who are taking, or have previously taken, prohibited substances?

Yes No

If yes, which type of substance? Recreational Performance enhancing

Performance Enhancement Attitude Scale (PEA-SCALE)

For the purpose of this study, the following are categorized as:

- 1. Performance- enhancing drugs/methods:** *stimulants* (i.e., amphetamine, ephedrine, etc.) - overcoming tiredness; *beta-blockers* - calm nerves and steady hands; *diuretics* - reduce weight and mask presence of drug in urine; *steroids* (i.e., testosterone) - accelerate muscle growth and allow longer, more intense training; *human growth hormone* - builds muscle size and strength; *erythropoitein* (EPO) - increases production of red blood cells, which improves endurance; and *blood doping* - reinjected blood increases oxygen supply to muscles, which improves endurance.
- 2. Recreational drugs:** *tranquilizers, barbiturates (sedatives), tobacco and alcohol, cannabis, heroin, cocaine/crack, speed, hallucinogens* (LSD, PCP), and *inhalants* (glue, etc.).

Below are statements showing what many people think and feel about sport and performance enhancing drugs. How strongly do you agree or disagree with the following statements?

Please read each item below carefully and circle the appropriate number after each statement, which shows the level of your agreement using the scale below:

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6

My opinion regarding sport in general is that...

1	Doping is necessary to be competitive.	1	2	3	4	5	6
2	Doping is not cheating since everyone does it.	1	2	3	4	5	6
3	Athletes often lose time due to injuries and drugs can be used to help to make up the lost time.	1	2	3	4	5	6
4	Only the quality of performance should matter, not the way athletes achieve it.	1	2	3	4	5	6
5	Athletes in my sport are pressured to take performance-enhancing drugs.	1	2	3	4	5	6
6	Athletes who take recreational drugs use them because they help them in sport situations.	1	2	3	4	5	6
7	Athletes should not feel guilty about breaking the rules and taking performance-enhancing drugs.	1	2	3	4	5	6
8	The risks related to doping are exaggerated.	1	2	3	4	5	6
9	Athletes have no alternative career choices, but sport.	1	2	3	4	5	6
10	Recreational drugs assist in motivating athletes to train and compete at the highest level.	1	2	3	4	5	6
11	Doping is an unavoidable part of competitive sport.	1	2	3	4	5	6
12	Recreational drugs help to overcome boredom outside of competition	1	2	3	4	5	6
13	There is no difference between drugs and the technical equipment that can be used to enhance performance (e.g. hypoxic altitude simulating environments)	1	2	3	4	5	6
14	The media should talk less about doping.	1	2	3	4	5	6
15	The media blows the doping issue out of proportion.	1	2	3	4	5	6
16	Health problems related to rigorous training and injuries are just as bad doping side effects.	1	2	3	4	5	6
17	Legalizing performance enhancements would be beneficial for sports.	1	2	3	4	5	6

Perfectionism in Sport Scale

The following questionnaire is designed to measure your attitudes to, and expectations of, competitive sport participation. Circle the number, ranging from 1 to 5, that indicates your response to each question below.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

		Strongly disagree		Neutral		Strongly agree
1	If I perform poorly in a competitive event I feel I have failed as an athlete.	1	2	3	4	5
2	I set higher goals for myself than most people.	1	2	3	4	5
3	My coach becomes angry with me or punishes me for performing less than perfectly.	1	2	3	4	5
4	When I am working on something, I cannot relax until it is perfect.	1	2	3	4	5
5	I feel very upset/angry if I make a physical or mental error during a contest/game.	1	2	3	4	5
6	I never feel that I can meet my coach's standards.	1	2	3	4	5
7	I strive for perfection in my performance.	1	2	3	4	5
8	Even while performing successfully, my coach tends to point out my mistakes during competition.	1	2	3	4	5
9	My teammates/coach/fellow competitors will think less of me if I make a mistake.	1	2	3	4	5
10	I expect higher performance in my daily tasks than most people.	1	2	3	4	5
11	My coach rarely compliments me on my performance.	1	2	3	4	5
12	If I ask someone to do something, I expect it to be done perfectly.	1	2	3	4	5
13	My coach's standards tend to be too high for me.	1	2	3	4	5
14	Before and during competition I hope I do not make any mistakes.	1	2	3	4	5
15	One of my goals is to be perfect at everything I do.	1	2	3	4	5
16	If I win a competition or generally perform well, I tend to criticize myself if I have made an error.	1	2	3	4	5
17	I can rarely meet my coach's expectations of me.	1	2	3	4	5
18	I become frustrated/angry if I make a small mistake during competition.	1	2	3	4	5
19	I have extremely high goals.	1	2	3	4	5
20	My coach usually expects me to perform perfectly.	1	2	3	4	5
21	Even the smallest mistake bothers me when I am competing.	1	2	3	4	5
22	I must always be successful at everything that I do.	1	2	3	4	5
23	I analyze my mistakes over and over so that I can improve on them in the future.	1	2	3	4	5
24	No matter how well I perform, my coach asks me to perform better.	1	2	3	4	5

Perceived Motivational Climate in Sport Questionnaire - 2

Directions: Please think about how it has felt to play in your sport. What is the environment usually like? Read the following statements carefully and respond to each in terms of how you view the **typical atmosphere in sport**. Circle the number that best represents how you feel. The term athlete has been used to apply to all sport participants, whether team or individual.

Individual-sport athletes please note: Because this questionnaire was originally devised for team-sport athletes, we recognise that some items may not be relevant to the sporting experience of individual athletes. Please circle **N/A** for any item you feel is not applicable to the environment in which you train/compete.

		Strongly disagree		Neutral		Strongly agree	Not applicable
1	The coach wants me to try new skills	1	2	3	4	5	N/A
2	The coach gets mad when I make a mistake	1	2	3	4	5	N/A
3	The coach gives most of his or her attention to the stars	1	2	3	4	5	N/A
4	Every athlete contributes in some important way	1	2	3	4	5	N/A
5	The coach believes that all of us are crucial to the success of the team/squad	1	2	3	4	5	N/A
6	The coach praises athletes only when they outplay their team-mates	1	2	3	4	5	N/A
7	The coach thinks only the starters contribute to the success of the team/squad	1	2	3	4	5	N/A
8	Athletes feel good when they try their best	1	2	3	4	5	N/A
9	Athletes are taken out of a game for making mistakes	1	2	3	4	5	N/A
10	Athletes at all skill levels have an important role on the team /squad	1	2	3	4	5	N/A
11	Athletes help each other learn	1	2	3	4	5	N/A
12	Athletes are encouraged to outplay others	1	2	3	4	5	N/A
13	The coach has his or her own favourites	1	2	3	4	5	N/A
14	The coach makes sure athletes improve on skills they're not good at	1	2	3	4	5	N/A
15	The coach yells at athletes for messing up	1	2	3	4	5	N/A
16	Athletes feel successful when they improve	1	2	3	4	5	N/A
17	Only the athletes with the best 'stats' get praise	1	2	3	4	5	N/A
18	Athletes are punished when they make a mistake	1	2	3	4	5	N/A
19	Each athlete has an important role	1	2	3	4	5	N/A
20	Trying hard gets rewarded	1	2	3	4	5	N/A
21	The coach encourages athletes to help each other	1	2	3	4	5	N/A
22	The coach makes it clear who he or she thinks are the best athletes	1	2	3	4	5	N/A
23	Athletes are 'psyched' when they do better than their team-mates/squad members in a competition	1	2	3	4	5	N/A
24	If you want to play in a game you must be one of the best athletes	1	2	3	4	5	N/A
25	The coach emphasises always trying your best	1	2	3	4	5	N/A
26	Only the top athletes 'get noticed' by the coach	1	2	3	4	5	N/A
27	Athletes are afraid to make mistakes	1	2	3	4	5	N/A
28	Athletes are encouraged to work on their weaknesses	1	2	3	4	5	N/A
29	The coach favours some athletes more than others	1	2	3	4	5	N/A
30	The focus is to improve each game/practice	1	2	3	4	5	N/A
31	The squad really 'works together' as a team	1	2	3	4	5	N/A
32	Each athlete feels as if they are an important team/squad member	1	2	3	4	5	N/A
33	The athletes help each other to get better and excel	1	2	3	4	5	N/A

Trait Sport Confidence Inventory

Think about how self-confident you are when you compete in sport. Answer the questions below based on how confident you *generally feel* when you compete in your sport. Please circle the answer that represents how you *really* feel and not how you would like to feel.

1 = Not at all confident 5 = Moderately confident 9 = Highly confident

	<i>How confident are you in your ability to...</i>	Not at all				Moderately				Highly
1	Execute the skills necessary to be successful.	1	2	3	4	5	6	7	8	9
2	Make critical decisions during competition.	1	2	3	4	5	6	7	8	9
3	Perform under pressure.	1	2	3	4	5	6	7	8	9
4	Execute successful strategy.	1	2	3	4	5	6	7	8	9
5	Concentrate well enough to be successful.	1	2	3	4	5	6	7	8	9
6	Adapt to different race/game situations and still be successful.	1	2	3	4	5	6	7	8	9
7	Achieve your competitive goals.	1	2	3	4	5	6	7	8	9
8	Be successful.	1	2	3	4	5	6	7	8	9
9	Consistently be successful.	1	2	3	4	5	6	7	8	9
10	Think and respond successfully during competition.	1	2	3	4	5	6	7	8	9
11	Meet the challenge of competition.	1	2	3	4	5	6	7	8	9
12	Be successful even when the odds are against you.	1	2	3	4	5	6	7	8	9
13	Bounce back from performing poorly and be successful.	1	2	3	4	5	6	7	8	9

Task and Ego Orientation in Sport Questionnaire

Directions: Please read each of the following statements listed below and indicate how much you personally agree with each statement by circling the appropriate response.

1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree.

When do you feel most successful in sport? In other words, when do you feel a sporting activity has gone really well for you?

	<i>I feel most successful in sport when...</i>	Strongly disagree		Neutral		Strongly agree
1	I'm the only one who can do the play or skill	1	2	3	4	5
2	I learn a new skill and it makes me want to practice more	1	2	3	4	5
3	I can do better than my friends	1	2	3	4	5
4	The others can't do as well as me	1	2	3	4	5
5	I learn something that is fun to do	1	2	3	4	5
6	Others mess up and I don't	1	2	3	4	5
7	I learn a new skill by trying hard	1	2	3	4	5
8	I work really hard	1	2	3	4	5
9	I score the most points or goals/earn fastest time/gain highest finishing position etc..	1	2	3	4	5
10	Something I learn makes me want to go practice more	1	2	3	4	5
11	I'm the best	1	2	3	4	5
12	A skill I learn really feels right	1	2	3	4	5
13	I do my very best	1	2	3	4	5

Please feel free to use this space to make any additional comments you feel are relevant

Many thanks for your participation in this study. Please return the completed consent form and questionnaires to the investigator. If none of the research team is present, please post documents to:

Kate Kirby, UCD School of Psychology,
Newman Building, University College Dublin, Belfield, Dublin 4.

Appendix 2



UCD School of Psychology

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www.ucd.ie/psychology

Dear

I am a member of a sport psychology research team operating in the School of Psychology in University College Dublin, headed by Professor Aidan Moran. Over the past 5 years we have conducted research on various aspects of behaviour in sport, including cheating, sportspersonship, and creatine use in elite teams in Ireland. During the course of these studies we have interviewed or surveyed over 500 athletes.

Following on from this work, we have received funding from the World Anti-Doping Agency and the Irish Sports Council to conduct a study investigating prevailing attitudes to performance enhancement and factors that might influence doping in sport.

For the current phase of this study, our aim is to survey approximately 200 elite and sub-elite sportspeople. To reach such a target, we are depending on the co-operation of athletes across a variety of different sports, both team and individual. Participation in the study will constitute a 20 minute questionnaire session, at which at least one of the principal investigators will be present. All surveys will be completed anonymously, and answers will be fully confidential.

We were given your contact details by because of your involvement with We would be very grateful if you would consent to granting us access to your squad of athletes at a time convenient to you. If you are willing to participate, please contact me, Kate Kirby, either by e-mail (kate.kirby@ucd.ie) or telephone (087 2335822). Additionally, if you require any further information about the context of the study, Una May would be happy to answer your questions (umay@irishsportsCouncil.ie).

Thank you for your time.

Appendix 3

Research Project: “The Development and Validation of the Doping Attitudes and Behaviour Scale” (DABS)

Phase 2 Athlete Interview Schedule

- | | |
|--|--|
| Welcome | <ul style="list-style-type: none"> • You are very welcome here today, thank you for taking the time to talk with us. • Do you have any questions before we start, please? • Can I just check that you have signed the consent form, please? (take signed copy and give blank copy for information). |
| Aim | <ul style="list-style-type: none"> • The aim of this interview is to explore athletes views on doping, particularly the views of those who have experience of doping, • We hope that by talking to athletes directly we can get some insight into doping and the factors that influence it • We will be recording the discussion so we don't have to worry about taking notes during the discussion. • It is important that you speak as clearly as possible as it can be very difficult to hear on the tape. • Participation is voluntary, you can respond as and when you wish, you can refuse to answer a question and you can terminate the interview at any point. |
| Anonymity | <ul style="list-style-type: none"> • We plan to use the information gathered to identify common themes and we will be using sample quotes from the interviews to represent the themes identified. • All information gathered will be kept anonymous and quotes used will contain no identifying information (e.g., names, teams, locations, etc). |
| Clarification
Opening
Questions | <ul style="list-style-type: none"> • Are you happy with these conditions? (Continue with assent) • Just to start, can I get some demographic information from you please? • Age • No. of years as professional cyclist • No. of years since retiring • Current involvement in sport |
| Involvement In
Doping | <ul style="list-style-type: none"> • Have you taken illegal or banned substances either during competition or during the off-season? • What substance did you take? • At what stage of your career did you take this substance? • What was your reason for taking this substance? • How did you feel physically at the time of taking the PE drugs? • How did you feel mentally at the time of taking the PE drugs? • What effect did this substance have on you performance-wise? |
| Personal
Factors | <ul style="list-style-type: none"> • What factors affected your decision to take this substance? <ul style="list-style-type: none"> ○ What made you choose that specific substance? ○ What effects were you hoping that the substance would have? ○ What aspects of the sport/competition influenced you? ○ Did anyone else influence your decision? <ul style="list-style-type: none"> - PROMPT: Who influenced you and how? ○ Did any other factor influence your decision? ○ Were there any factors that might have persuaded not to take drugs at that time? ○ Did doping affect the way you viewed your participation in sport? |
| Involvement of | <ul style="list-style-type: none"> • Aside from your own experience, how common do you think doping is in sport? |

Others

- *“Everyone wants to win, but not everyone takes illegal substances. Why do you think this is?”* – CRUX OF RESEARCH QUESTION
- Again, aside from your own experience, what factors do you think typically influence a person at this time (coach, injury, money, psychology)?

PROMPT with factors mentioned above; how they apply to others ...

Psychological Factors

- Are there any situations in which you think doping can be justified?
- To what extent do you think a person’s **morality** would influence their doping decisions?
- What do you understand by **mental toughness**? Do you think this might have an influence on whether athletes might decide to dope?
- Do you think athletes who set themselves excessively high and **unattainable goals**/personal standards might be more at risk for doping?
- Do you think the ‘**win at all costs**’ attitude that pervades sport contributes to the drug problem? How? What can be done about it?

Closing

- What changes, if any, would you make to the dope testing and sanctions process?
- Do you know any athletes who might be willing to be interviewed?
Would it be possible to contact your coach to discuss similar aspects of doping in sport?
- So that’s all the questions we wanted to ask, is there anything you want to add?
- Do you have any questions or comments on the study?
- Thank you for your involvement, it has been interesting to hear your views.
- If you would like to get some information on the study you can contact me at XX

Appendix 4



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Research Project: “The Development and Validation of the Doping Attitudes and Behaviour Scale” (DABS)

Research Team

Ms Kate Kirby, Professor Aidan Moran, Dr Suzanne Guerin, Tadhg McIntyre
Contact details: + 353 87 2335822 or kate.kirby@ucd.ie

To whom it may concern:

I am a member of a sport psychology research team headed by Prof. Aidan Moran in University College Dublin, Ireland. We are currently undertaking a research project which has been jointly funded by the World Anti-Doping Agency and the Irish Sports Council. For the past 2 years we have been researching doping attitudes and behaviours by conducting surveys with high performance athletes (www.ucd.ie/usensor/survey.htm).

We are now moving on to a new part of our study, which will involve interviewing athletes who have been involved in doping. In particular, we are seeking the opportunity to speak to athletes who are willing to talk confidentially about taking performance enhancing drugs during their athletic career. We hope to explore the motivations, pressures and decision-making processes an athlete goes through when they are involved in doping. We think this study is well-timed in light of the number of revelations of drug-use by high-profile sportspeople in recent months.

Participation in this study will entail a 1-hour interview, which would ideally be conducted face-to-face, but which can be conducted over the phone or online if this is logistically easier. Following this taped interview, the athlete will be sent a typed transcript with all identifying details removed. This data will not be used if the athlete communicates their wish to withdraw from the study after the interview. The identity of the participants will be protected by means of a *legally binding non-disclosure agreement*, will only be known to the research team, and will never be revealed in any publications or presentations arising from the study.

If you fit the criteria for participation in this research, we would be very grateful if you would grant us an hour of your time. Alternatively, if you know any athletes (current or retired) who might be suitable candidates for this study, we would appreciate it if you would approach them on our behalf. We understand the sensitive nature of the subject and the difficulty in speaking openly about banned substance use, but we think this research will provide useful information in furthering anti-doping education and prevention measures.

If you require further information or wish to express your interest in the study, please contact me, Kate Kirby, on +353 87 2335822 or at kate.kirby@ucd.ie.

Thank you for your time.

Appendix 5



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Non-disclosure and consent document

Purpose:

This study is being conducted as part of a PhD in Sport Psychology at University College Dublin, and is jointly funded by the World Anti-Doping Agency and the Irish Sports Council. The purpose of the research is to explore the doping attitudes and behaviours of high performance athletes.

Procedure:

Participation in this study will entail a 1-hour interview. Following this taped interview, the athlete will be sent a typed transcript with all identifying details removed. These data will not be used if the athlete communicates their wish to withdraw from the study after the interview.

Benefits:

It is hoped that this study will highlight the factors that increase the likelihood of athletes to engage in doping.

Costs and compensation:

There will be no compensation for participation in this study.

Confidentiality and minimum disclosure required:

The identity of the participants will only be known to the research team (Kate Kirby, Aidan Moran, Suzanne Guerin, Tadhg McIntyre), and will never be revealed to any individuals, agencies, other persons or organizations. Names of participants will not be included in any publications or presentations arising from the study. Demographic information such as gender, age, nationality and sport will be reported, but only as part of group data. Sample quotes will also be used to support themes that emerge from the interviews, but any identifying information will be removed from these quotes. In rare cases, the external examiner of the project may require access to the data. However in this scenario the external examiner comes under the terms of the study, including confidentiality agreements.

Voluntary participation:

All participation is voluntary. There is no penalty to anyone who chooses not to participate, or to anyone who decides to stop participation at any time during the project.

Questions:

Questions are encouraged and should be directed to Kate Kirby on + 353 87 2335822 or kate.kirby@ucd.ie.

 Participant's name (printed)

 Signature of participant

 Date

 Researcher's name (printed)

 Signature of researcher

 Date

