



# The relationship between moral code, participation in sport, and attitudes towards performance enhancing drugs in young people

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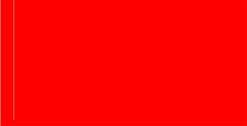
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# Abbreviations

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ADRP	Anti-Doping Research Program Panel (Australia)
AFL	Australian Football League
ANOVA	Analysis of variance
ANACOV	Analysis of covariance
ASADA	Australian Sports Anti-doping Authority
PEAS	Performance Enhancement Attitudes Scale
PED	Performance enhancing drugs
PMCSQ	Perceived Motivational Climate Sport Questionnaire
RD	Recreational drugs
WADA	World Anti-Doping Agency



# Executive Summary

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## *Context*

The mission of WADA is to “promote, co-ordinate and monitor, on an international basis, the fight against doping in sport in all its forms” (WADA, 2009; p. 2). To further WADA’s anti-doping initiatives, a Social Sciences Research Grant Program was created to “encourage research in the social sciences and to obtain information, which will enable more efficient doping-prevention strategies” (p.2).

The present study was funded by the WADA Social Sciences Research Grant Program. The general aims of this project were to:

1. Identify factors that motivate young athletes to use performance enhancing drugs (PEDs)
2. Identify factors that deter young athletes from using PEDs.

## *Background*

One of the factors that is emerging as central to understanding why some athletes use PEDs, whilst other do not, is that of moral development (sometimes referred to as moral code). Morality can be conceptualised in a number of different ways, largely reflecting differing theoretical orientations and/or contexts, namely, the type of moral behaviours being investigated. One of the most promising conceptualizations of morality for an understanding of PED use is that proposed by Rest (1984). Rest’s theory of morality depicts a stage-like model of morality, where high and low levels of moral functioning can be identified. Moral functioning has been found to be related to real and hypothetical sporting behaviours, including aggression, sportspersonship and fair play, but little is known about how moral functioning relates to attitudes towards PEDs. Another conceptualisation of morality that is equally promising for understanding PED use is that of moral disengagement (Bandura, 1991). Bandura’s approach is very different from that of Rest and other stage-like theories. Bandura proposes that those engaging in immoral action create ‘excuses’ for their behaviours. There is evidence that moral disengagement processes are used by athletes to justify their decision to use PEDs.

### *The current project*

The specific aims of the project were thus to:

- a. To examine the relationship between level of moral development and attitudes towards PED use
- b. To examine the relationship between participation in sport at an elite level and attitudes towards PED use.
- c. To assess attitudes towards PED use in young people
- d. To assess the incidence of PED use in young people

The project consisted of two related studies: a survey study of 312 school-aged (12-17 years) athletes and non-athletes, and a second survey study of 876 school-aged athletes and non-athletes. In both studies, athletes comprised approximately one half of the sample. Data for both studies were collected face to face through printed surveys. Data collection sites included sports clubs, associations and schools in the state of Queensland (Australia). The athlete participants were, at the time of each study, competing at a regional level or above (including state representative level and international level). Main findings include:

#### *Moral functioning*

In two related studies, we examined the relationship between components of moral functioning and young athletes' attitudes towards PEDs. Young athletes and non-athletes read a hypothetical PED use scenario and then stated their judgment, reasoning and intention to act as described in the scenario. Participants also completed the Performance Enhancement Attitude Scale (PEAS). There were clear links between moral functioning and attitudes. Participants with higher levels of moral functioning had more negative attitudes towards PEDs.

#### *Moral disengagement*

In our second study we examined the relationship between moral disengagement mechanisms and attitudes to PEDs. There were clear links between moral disengagement and attitudes to PEDs (as measured by a revised version of the PEAS), with athletes who displayed the strongest levels of moral disengagement expressing the strongest pro-PED use attitudes (although still below the mid-point on the scale). Overall, the respondents (athletes and non-athletes) showed high levels of moral disengagement, with PED use being justified most strongly because they 'don't hurt anyone' and they help 'to overcome one's limits'.

#### *Perceived incidence of PED use*

In the current studies the mean estimated incidence of PED use in sport was high, estimated at 28.8% of elite athletes in Study 1 and 33.9% in Study 2. There was a clear association between gender and

estimates of PED use (in both studies); females consistently offered mean estimates higher than those of males.

There was an interesting discrepancy between the sports identified as being most associated with PED use in Study 1 and Study 2. In Study 1 the top three sports identified as those in which PED use was most common, were athletics, weightlifting and cycling. In Study 2, the top three sports were bodybuilding, weightlifting and baseball. This discrepancy may in part be explained by differences in the question format: Open in study 1, prompted in Study 2.

#### *Perceived positive and negative effects of PEDs*

In the second study respondents were asked to state (two open questions) the perceived positive and negative effects that PEDs might have for an athlete. The open responses were coded for main themes. The respondents clearly identified the performance enhancing value of PEDs, and when asked to identify the 'top of mind' disadvantages of PED use, the overwhelming majority (67%) cited health reasons. About a fifth (19%) cited fear of detection and only 11% cited cheating.

#### *Perceived Motivational Climate (athletes only)*

The second study incorporated both a measure of perceived motivational climate (the PMCSQ) and socio-moral atmosphere (the views of coaches and teammates). There was a link between perceived motivational climate (performance climate), and attitudes to PEDs. The athletes in Study 2 saw their teammates as more likely to encourage the use of PEDs than their coaches.

#### *Incidence of PED use in young athletes.*

One of the most problematic aspects of studying the use of PEDs in sport is attempting to measure incidence. PED users are generally aware of the harsh penalties for such use and while this does not deter them from using PEDs, it does deter them from admitting such usage. In the present study respondents were asked if they would consider using PEDs in the next 12 months. A total of 34 respondents (7.7% of the athlete sample) stated that they would take PEDs. The answers these athletes gave to many of the other survey questions demonstrate a strong clustering of relatively pro-PED use attitudes and opinions. For example, the mean estimated incidence of PED use in their own sport was 35%, compared to an overall mean perceived incidence level in own sport of 18%. Similarly, their mean PEAS score was 45.6, compared to an overall mean PEAS score of 38.2. In sum, the stated intention to use PEDs in the next 12 months was consistently associated with a range of other relatively pro-doping perceptions and opinions. Clearly, this does not equate to PED usage, but the cluster of data suggests that approximately eight per cent of young athletes are at risk of using PEDs.

### *Conclusions*

The findings of the present research show that there is a clear link between moral functioning, as originally conceptualized by Rest (1984) and attitudes towards PEDs. There is also a clear link between moral disengagement, as originally conceptualised by Bandura (1991) and attitudes towards PEDs. In short, morality, however it is theoretically conceptualised and operationalised, predicts attitudes to doping.

It is necessary to develop training programs that aim to educate young athletes and thus deter future drug use. However, there are some conceptual issues that should be addressed before embarking on any such efforts. While the current study shows a strong link between morality and attitudes to PEDs, when asked to identify the 'top of mind' disadvantages of PED use, the respondents overwhelmingly identified health related problems.

Future research employing measures of morality based on both Rest's and Bandura's may be warranted, particularly if placed in a broader framework aiming to develop a reliable and valid measure of morality in sporting contexts. This should clearly include contexts such as PED use.

## 1.1 Purpose of the project

The mission of WADA is to “promote, co-ordinate and monitor, on an international basis, the fight against doping in sport in all its forms” (WADA, 2009; p. 2). To further WADA’s anti-doping initiatives, a Social Sciences Research Grant Program was created to “encourage research in the social sciences and to obtain information, which will enable more efficient doping-prevention strategies” (p.2).

The present study was funded by the WADA Social Sciences Research Grant Program. The general aims of this project were to:

1. Identify factors that motivate young athletes to use PEDs
2. Identify factors that deter young athletes from using PEDs.

The specific aims of the project were to:

- e. To examine the relationship between level of moral development, the usage of and attitudes towards PED use
- f. To examine the relationship between participation in sport at an elite level, the usage of and attitudes towards PED use.
- g. To assess attitudes towards PED use in young people
- h. To assess the incidence of PED use in young people

The participants in this project were a cohort of 12-17 year olds Australian athletes and non-athletes.

## 1.2 Background

Until very recently, research on doping in sport was confined to biological studies aimed at detecting drug use. The potential role of research into the attitudes of potential users was largely ignored (WADA, 2003) and has only recently begun to be explored. In studying the attitudes of athletes, one crucial factor that has often been overlooked concerns how attitudes towards banned substances are acquired during the course of an athlete’s career. Anti-doping interventions typically only target elite adult athletes, despite widespread recognition that prevention, rather than detection, remains the best strategy for eliminating drug use in sport (Lippi, Franchini & Guidi, 2007). The importance of

such an approach is highlighted by the frequency with which drug use in young athletes has been observed. There is a considerable body of evidence that suggests that athletes as young as 11 or 12 years of age use PEDs, and that such use has increased in the past decade.

For example, Johnston, O'Malley, Bachman & Schulenberg (2005) conducted annual surveys (using a cross-sectional methodology) of drug use in school children between 1975 and 2004 on behalf of the United States Department of Health and Human Services. In 2004 just over 1% of third graders reported having used substances such as androstenedione (a precursor to the anabolic steroid testosterone), to develop their physique and physical strength. This figure increased with age of respondent through to a prevalence rate of 5% in 12th grade boys. A comparable study in France (Laure & Binsinger, 2007), using a longitudinal methodology, found that between 2001 and 2004 the use of doping agents increased from 1% in sixth grade to 3% four years later. A US study funded by WADA (Rees, Zarco & Lewis, 2007) found that 7.7% of participants (male and female school aged children) said that future steroid use was "somewhat likely", "likely" or "very likely" and 3.2% of respondents believed that steroids were used by more than half of all the children they "hang out with".

While the link between drug use and participation in sport is relatively strong, one crucial weakness in the literature concerns the lack of any clear explanation as to why athletes do not use drugs. In an innovative approach to this issue, Strelan and Boeckmann (2006) have proposed that drug use in sport could be examined in a similar way to other criminal behaviours. These authors suggest that, to date, the underlying rationale for prevention has been a variation of deterrence theory, whereby behaviour is modified through a combination of increasingly severe punishments (including fines and bans), or stated consequences of drug use (including risk to health), and increased chances of detection. Such an approach rarely works in deterring (non-sporting) drug use (Pratt, Cullen, Blevins, Daigle, & Madensen, 2006). Further, research on recreational drug use by adolescents (in non-sporting contexts) has shown that when negative physiological consequences of drug use are not observed, the resulting expectancy violation increases the likelihood of subsequent drug use (e.g., Skenderian, Siegel, Crano, Alvaro, & Lac, 2008).

Strelan and Boeckmann (2006) suggest, in line with consistent patterns of findings in criminology, that a far more accurate predictor of criminal behaviour is a person's moral code and in a study of 116 elite Australian Rules players, these authors go on to show how personal moral code correlates with anti-doping attitudes. Other research has shown how level of moral reasoning relates to a range of sporting behaviours, including aggression, sportspersonship and beliefs about fair play (Bredemeier & Shields, 2006). For example, level of moral functioning, a concept based on Rest's (1984) four-component model of moral action, relates to a range of real and hypothetical sporting behaviours, including aggression, sportspersonship and beliefs about fair play (e.g., Bredemeier & Shields, 1986;

Gibbons, Ebbeck, & Weiss, 1995; Kavussanu & Roberts, 2001; Kavussanu, Roberts & Ntoumanis, 2002; Ommundsen, Roberts, Lemyre & Treasure, 2003).

In a review of the literature, Bredemeier and Shields suggest that the moral reasoning of athletes (particularly in team sports) is lower than that observed in non-sporting samples. However, the same authors noted that coaching styles could have a significant impact on social and moral growth, an idea that echoes that of Aldhous (2008), and thus has implications for how athletes are managed in order to reduce the likelihood of using banned drugs. Efforts to understand why some people use PEDs have similarly begun to centre on how a person's moral beliefs (such as feeling guilty about drug use) predict attitudes towards the use of PEDs and how such beliefs may act as deterrents to the intention to use drugs (Strelan & Boeckmann, 2006).

### **1.2.1 Morality, moral development and moral functioning in sport**

A model of morality that has generated considerable interest in sport research (particularly with young athletes) comes from Rest (e.g., 1984). Rest (1984) identifies four interacting processes as necessary for producing behaviour: 1) interpreting the situation by recognising possible courses of action and how their consequences would influence the welfare of all parties (identification); 2) determining what ought to be done in the specific situation (judgment); 3) deciding what one intends to do (intention); and 4) implementing a plan of action (behaviour). According to Rest (1984), these four processes are components of morality. Moral development is viewed as gaining competence in all four, whereas a deficiency in any one will result in a failure to behave morally. Moral functioning (e.g., Kavussanu & Roberts, 2001) is a term also used to collectively describe the three components of judgment, intention and behaviour.

In early studies (e.g., Gibbons et al., 1995; Stuart & Ebbeck, 1995) behaviour was assessed with teachers' or coaches' ratings of players' behaviour in physical education classes and in recreational game play. More recent research (e.g., Kavussanu & Roberts, 2001; Kavussanu et al., 2002; Kavussanu & Spray, 2006; Ommundsen et al., 2003) employs fictitious scenarios which describe situations or dilemmas that may be relevant to particular sports (e.g., deciding whether to risk injuring an opponent in order to prevent a basket in basketball) or applicable to sports in general (breaking a rule, or hurting an opponent). Common to these studies is the assessment of judgment and intention. Study participants are asked to indicate how appropriate the behaviour in question is (judgment) and then asked whether they would engage in the behaviour (intention). Additionally, some studies also assess moral reasoning as part of judgment by asking participants to choose the most important reason in deciding whether the hypothetical action is appropriate. These reasons ('Whether or not I'll get punished'; 'Whether or not I want to get even with an opponent'; 'Whether or not it is proper'; 'Whether or not it is against the rules'; and 'Whether or not it is fair or right')

correspond to Kohlberg's (1984) developmental stages of moral development and progressively reflect more mature stages.

Despite its applicability in sports and physical activity research, Rest's (1984) model has not been utilized to assess the relationship between moral functioning (and components thereof) and attitudes towards performance-enhancement drug use among young athletes. Such an approach may provide important insights into the decision-making process that underlies doping behaviour and therefore guide the anti-doping effort.

### **1.2.2 Attitudes towards PEDs**

One of the first steps in engaging athletes in the decision making process on drug policy is to understand their attitudes towards the use and control of drugs in sport. The attitudes that athletes have towards the use of performance enhancing and recreational drugs may be shaped by the attitudes of those who are key in their lives, in particular coaches. For example, research by Aldhous (2008) suggests that athletes who said their coaches frequently criticised them, punished them for mistakes, encouraged rivalries and gave unequal recognition to team-mates had the most favourable attitudes towards doping. It is clear then that investigating the attitudes of athletes towards doping in sport can provide valuable information that may help shape future anti-doping policy and play a pivotal role in deterring such behaviours.

Assessing the incidence of PEDs is the cornerstone of much research in this area as well as the key aim of governing sporting bodies (at national and international level) alike (Petróczi & Aidman, 2009). However, obtaining reliable self-report information about PED use presents several practical and ethical challenges, including the not inconsiderable problem that an admission of use might result in the end of an athlete's career. Consequently, researchers (e.g., Petroczi & Aidman, 2009) have proposed that measuring attitudes as a proxy to behaviour may yield important information about the likelihood of drug use.

The study of attitudes to sport doping has a long tradition (as attested recently by a review of the social science literature on sports doping by Backhouse, McKenna, Robinson & Atkin (2007). Unfortunately, however, this large volume of research is weakened due to the various definitions of the construct of 'attitude' (see Brand, Melzer, & Hagemann, 2011) and the various measurement scales used which means that there is no conclusive evidence that attitudes lead to actual drug use in sport (Backhouse et al., 2007). Despite these problems, attitudes remain at the core of behavioural models for understanding doping behaviour (e.g., Donovan, Egger, Kapernick & Mendoza, 2002; Lucidi, Zelli, Mallia, Grano, Russo, & Violani, 2008; Strelan & Boeckmann, 2003). This suggests that there is a need for attitudinal research on doping to employ reliable and generalizable attitude measures.

For the purposes of the present research the Performance Enhancement Attitude Scale (PEAS) will be used (Petróczy & Aidman, 2009). Despite some shortcomings (for example, some of the items assess attitudes towards recreational drug use and there are some inconsistencies with the terminology used across items), the scale has acceptable psychometric properties (ranging from alphas of 0.71 to 0.91) across several studies including a variety of samples of sportspeople and sports personnel (Petróczy & Aidman, 2009).

The current project will also assess perceived incidence of PED use in sport. Research has shown that (on average) the Australian public perceives that 26% of athletes are using PEDs; Australian athletes offer a slightly lower estimate of 19% (Engelberg, Moston & Skinner, 2010). Both Petróczy, Mazanov, Nepusz, Backhouse and Naughton (2008) and Skinner, Moston and Engelberg (2011) found that athletes who used PEDs offered much higher incidence estimates than non-users (e.g., 35.11% vs. 15.34% in the Petróczy et al., 2008 research). Petróczy et al. (2008) interpret this finding as evidence of a 'false consensus effect', whereby cheating athletes over-estimate the prevalence of such behaviour. To date, the possible relationship between moral functioning and estimates of perceived incidence has not been examined. It is hypothesized that lower levels of moral functioning will be linked to higher estimates of PED use.

### **1.2.3 Aims of the current project**

The current project examines the relationship between two models of morality and attitudes towards PEDs, as measured with the PEAS. Specifically, this study examines whether functioning and moral disengagement are related to attitudes towards PEDs, and also whether each of these constructs is related to perceived incidence of PED use.

## **1.3 Structure of the report**

The present report features two studies, both examining the links between morality and attitudes to performance enhancing drugs (PEDs). In the first study (Chapter 2 of this report) a sample of 312 young people (approximately half were athletes and half non-athletes) completed a questionnaire assessing morality and attitudes towards PEDs. While this study found some strong links between morality and attitudes, several methodological limitations were observed. Consequently, a second study (Chapter 3 of this report) was conducted. In the second study a sample of 876 young people (again, approximately half were athletes, half were non-athletes) completed a revised and expanded questionnaire assessing morality and attitudes to PEDs. In the second study a similar pattern of results to the first study was found, where morality was strongly linked to attitudes. As there were some methodological differences between the studies, we then provide an integrated overview and discussion of the findings (Chapter 4 of this report). Despite the differences in methodology, the findings are strikingly consistent: Morality strongly predicts attitudes towards PEDs. Somewhat surprisingly, there were few links between demographic characteristics (such as age group and

gender) and attitudes. Nor were there any clear links between involvement in sport and attitudes (there were few differences between the athletes and non-athletes in either study). As will be discussed, it appears that morality (a concept that is open to multiple definitions and methods of measurement), is a key determinant of attitudes towards PEDs. It also appears that attitudes towards PEDs are already well established by 12 years of age, suggesting that efforts to educate and deter PED use should target even younger athletes and non-athletes.

## 2.1 Design overview

One of the most complex aspects of studying morality is that there is no single standardised method of assessment. Definitions of morality differ significantly and this in turn impacts on how it is assessed.

As discussed in Chapter 1, our chosen approach was to base our approach to morality on the work of Rest and his colleagues. There were several strong precedents for this decision, not least of which was that the most common methodology involves a short vignette featuring a moral dilemma, followed by some (relatively) easy to understand questions, making it ideal for a young sample. However, transferring the procedures from earlier studies proved to be considerably more complex than we had first anticipated. Two key problems shaped our eventual design.

First, a common practice is to present participants with several vignettes and accompanying questions. The scores for each vignette are aggregated and a single overall 'morality' score computed. Each of the vignettes differs in some key way such that the set of vignettes covers the core constructs (or dimensions) of the problem being investigated. For example, following from the earlier work of Stuart and Ebbeck (1995), and Kavussanu and Roberts (2001), Ommundsen et al. (2003) asked elite athletes (male soccer players aged 12-14) to read four vignettes depicting dilemmas concerning situations such as cheating, rule bending and aggressive behaviours towards players of the opposite team. For each dilemma, respondents were asked to complete four subs-scales each indicating judgement, reason, intention and behaviour. However, in the case of PED use for young athletes, only one clear dilemma has similar meaning across sports emerges: the use of PEDs to gain a competitive advantage. Consequently we employed only one vignette.

Second, the scoring of responses to each vignette has been inconsistent, with researchers adopting *post hoc* rationales for coding and data analysis procedures. For example, there are five different forms of reasoning, each corresponding to different levels of reasoning (from low to high). Participants typically indicate their degree of agreement with each level and the researcher identifies which form of reasoning has received the strongest endorsement, and allocates the participant to a category corresponding to that form of reasoning (e.g., Gibbons et al., 1995). For example, if the participant 'agrees' most strongly with the construct 'Whether it is fair or right' then they are deemed

to favour this form of reasoning. The problems with categorising participants in this way include: data from several questions are largely irrelevant (responses to the four other reasoning constructs are discarded), and also that participants are shoe-horned into a single response category, when they may have displayed multi-dimensional reasoning.

With such problems in mind, the first study featured samples of both athletes and non-athletes (each recruited through separate strategies). As will be shown in this chapter, the study was largely successful in recruiting appropriate samples and the findings were strongly supportive of our initial hypotheses. However, as data were analysed we became aware that the morality data were highly skewed and this presented a threat to the overall integrity of the study. Consequently, we ended this first study and refined our approach (see Chapter 3) in a second, larger study.

## 2.2 Research questionnaire

The research questionnaire was partially based on work previously conducted by the authors (Skinner et al., 2009; 2010). In the questionnaire the term 'PEDs' was clearly defined and examples of such drugs given. This ensured that participants did not confuse attitudes towards the use of PEDs with attitudes towards the use of illicit 'recreational' drugs (such as cocaine, marijuana), and other substances (such as alcohol, tobacco, and supplements).

The questions were organised into the following main sections:

- i. Moral functioning
- ii. Perceptions of PED use
- iii. Attitudes to PEDs in sport
- iv. Demographic information
- v. Sporting background information (only for athletes)

### ***i. Moral functioning***

The items measuring moral functioning were adapted from Gibbons et al.'s (1995) questionnaire, which used moral indexes of judgment, reason, intention and pro-social behaviour. Adaptations of the Gibbons et al. scales have also been used by Ommundsen et al. (2003) in the assessment of sport-specific moral dilemmas. For the purpose of the present study, and as argued earlier, we modified the scale to include a PED use in sport context. Participants were asked to read the following brief scenario:

*Imagine that you are an athlete competing at an elite level. While you have been performing well, it is unlikely that your level of performance will be enough to get you to*

*the finals. One option is to start a course of performance enhancing drugs that could radically improve your sporting performance.*

The questionnaire assessed three components of Rest's (1984) four-component model: judgment, reasoning and intention (behaviour was not assessed). Judgment, consistent with component 2 of Rest's (1984) model, was measured by asking respondents:

*Is it appropriate to do this?*

Respondents were asked to judge whether it was 'Never', 'Sometimes', or 'Always' appropriate to take PEDs following from the above scenario.

To assess reasoning, respondents were asked to indicate the most important reason to consider when making the judgement:

*Which is the most important thing to consider when you decide whether it is appropriate?*

Consistent with Gibbons et al., respondents were given the following options and asked to choose one reason only.

- a. Whether or not I'll get punished*
- b. Whether or not I want to get even with my opponents*
- c. Whether or not it's proper*
- d. Whether or not it's against the rules*
- e. Whether or not it's fair or right*

To assess intention, component 3 in Rest's (1984) model, participants were asked to indicate whether they would 'Never', 'Sometimes', or 'Always' engage in PED use.

*Would you engage in the behaviour described in the above story?*

**ii. Perceptions of PED use**

Respondents were asked to estimate the percentage (from 0%-100%) of elite athletes (in all sports) who use PEDs.

*In your opinion, what percentage of elite (e.g., professional; state or national level representation) athletes in ALL sports use PERFORMANCE ENHANCING drugs (e.g., steroids)?*

They were also asked to identify one sport (open question) in which the use of PEDs was perceived as most common:

*In which sport (name one only), do you think that PERFORMANCE ENHANCING drugs are most often used?*

### **iii. Attitudes to PEDs in sport**

Respondents' attitudes were assessed with the Performance Enhancement Attitude Scale (PEAS; Petróczi & Aidman, 2009). The PEAS is a measure of attitudes towards PED use in sport. It is a self-report measure of general doping attitudes which consists of 17 attitude statements (see below). Items are scored in the same direction, using a six-point Likert-type scale ranging from (1) 'Strongly Disagree' to (6) 'Strongly Agree' with no neutral response option offered. All items are phrased positively so that a lower total score denotes a less favourable attitude towards drugs. The scale total score ranges from 17 to 102 with a theoretical midpoint of 59.5 (Petróczi & Aidman, 2009). Previously, we have used this scale in a study of elite athletes aged over 18 (see Skinner et al., 2011). Each item consists of an attitude statement as follows:

- a. *Legalizing performance enhancements would be beneficial for sports.*
- b. *Doping is necessary to be competitive.*
- c. *The risks related to doping are exaggerated.*
- d. *Recreational drugs give the motivation to train and compete at the highest level.*
- e. *Athletes should not feel guilty about breaking the rules and taking performance-enhancing drugs.*
- f. *Athletes are pressured to take performance-enhancing drugs.*
- g. *Health problems related to rigorous training and injuries are just as bad as from doping.*
- h. *The media blows the doping issue out of proportion.*
- i. *The media should talk less about doping.*
- j. *Athletes have no alternative career choices but sport.*
- k. *Athletes who take recreational drugs, use them because they help them in sport situations.*
- l. *Recreational drugs help to overcome boredom during training.*
- m. *Doping is an unavoidable part of the competitive sport.*
- n. *Athletes often lose time due to injuries and drugs can help to make up the lost time.*
- o. *Doping is not cheating since everyone does it.*
- p. *Only the quality of performance should matter, not the way athletes achieve it.*
- q. *Using performance enhancing drugs is no different to using a fibreglass pole, the latest cycling technology or technologically designed swimsuits.*

**iv. Demographic information**

Respondents were asked to indicate their gender, their age, whether they currently played in competitive sport, and to state their highest level of competition for their current main sport:

*What is the highest level of competition at which you have played your current main sport?*

The following response options were given for the above question: played in a school team (e.g., *Townsville High School*), played in a local team (e.g., *Mundingburra*), played in a regional team (e.g., *Townsville*), played in a state team (e.g., *Queensland*), and played in a national team (e.g., *Australia*). For the purposes of the present study, only athletes who identified as playing in a regional team (or higher) were classified as 'elite athletes'. Non-athletes, school team and local club athletes are collectively referred to as non-athletes.

Respondents who indicated that they did not play competitive sport or that they played at school team or local team level were instructed not to continue with the survey questions and were thanked for their participation.

**v. Sporting background information (athletes only)**

In this section, respondents were asked to state in which sport (main sport only) they currently competed, they were also asked to estimate the percentage of elite and professional athletes using PEDs in their own sport:

*In your opinion, what percentage of elite (e.g., professional; state or national level representation) athletes in YOUR sport use PERFORMANCE ENHANCING drugs (e.g., steroids)?*

Finally, respondents were asked to state ('Yes' or 'No' response) whether they had ever been tested for doping:

*As an athlete, have you ever been tested for doping?*

## **2.3 Procedure**

The survey was produced in paper and pencil (printed) format. Participants were recruited from two high (secondary) schools in the state of Queensland (Australia) and from sporting organisations in the same state (The main regional areas where recruitment took place were Brisbane and the Gold Coast in Southern Queensland, and Townsville and surrounding region, in Northern Queensland. These two regions represent the major urban areas in the state of Queensland, with the advantage that

Townsville and surrounding areas are also considered to be 'remote' areas - in other words, participants were recruited from metropolitan, regional and remote areas).

Approval to administer the study was sought from a senior officer in each school, and from a senior representative at each of the sport clubs. Data collection was conducted face-to-face. As the prospective participants were minors (under the age of 18), written permission was sought from parents or guardians first.

After those who were not given parental permission to participate were excluded, a class teacher directed participants to complete the survey (where participants were recruited from schools). Where participants were recruited from clubs, the procedure was similar; however, in this case, the researchers visited the clubs and distributed the surveys. All participants were informed that the purpose of the study was to assess attitudes amongst athletes and non-athletes towards drugs in sport and that participation in the study was voluntary and anonymous. Participants were instructed to complete the survey individually. Completed questionnaires were returned to a box provided by either the teacher or the researchers. Once all the questionnaires were collected, participants were debriefed as a group by either the teacher or the researchers, and they were thanked for their participation.

While the study was run in two separate parts (at schools and at clubs), there were a number of elite athletes at the high schools. As such, there was some incidental recruitment of elite athletes through high schools.

Data collection took place between June and August 2010.

## 2.4 Sample characteristics

Three hundred and twelve school-aged (12-17 years) young people participated.

The participant characteristics (gender, age group and involvement in sport are shown in Table 1 below. As stated earlier, 'elite' athletes were defined as those participating at a regional level of competition or higher. This included representation at regional levels (e.g., inter-city competition, n=94), state level (e.g., inter-state competition, n=38), and national levels (e.g., international competition, n=19). All other participants were designated as non-athletes for the purposes of this study.

**Table 1: Study 1 sample characteristics**

	<i>Number of respondents</i>	<i>Percentage</i>
<b>Involvement in Sport</b>		
Athlete	151	48.4
Non-athlete	161	51.6
<b>Gender</b>		
Male	134	42.9
Female	178	57.1
<b>Age group</b>		
12-13 years	100	32.0
14-15 years	97	31.1
16-17 years	115	36.9

The main sports represented included rowing (16.0%), netball (14.7%), rugby union (12.0%), football (soccer) (11.3%), rugby league (5.3%) and Australian Rules Football (AFL) (5.3%). Other sports played by less than 5% of the participants included athletics, basketball, cricket, cycling, gymnastics, hockey, judo, swimming, taekwondo, tennis, volleyball, waterpolo, triathlon, table tennis, horse riding and fencing.

Twenty one of the athletes (13.9%) had completed an anti-doping test.

## 2.5 Results

Surveys from all recruitment sites were collated and numbered prior to data entry. Surveys were then coded and entered in an SPSS file for Windows (version 19) and checked for errors and omissions. Incomplete surveys (defined as those with 25% or more data missing) were identified and discarded. While the final sample size for the survey was 312, not all participants answered every question. There are therefore missing data for some of the questions. This is an inevitable limitation of survey research and was minimized with clearly worded instructions and brief succinct questions.

Data were analysed with a variety of parametric tests. For each key dependent variable (e.g., attitudes towards PEDs) this included analysis by the main independent variables of age group (12-13 years, 14-15 years and 16-17 years), gender (male and female), and involvement in sport (athlete and non-athlete). Analyses also included the covariate of moral functioning.

### 2.5.1 Moral functioning

Participants were asked to read a hypothetical scenario in which drug use had to be considered and then asked three moral functioning questions.

A pre-analysis of the two morality questions (‘judgement’ and ‘intention’) showed that the responses for each question were skewed, with only three participants reporting ‘Always’ for moral judgment, and six reporting ‘Always’ for moral intention. Therefore the response options ‘Sometimes’ and ‘Always’ of the moral judgment and moral intention questions were collapsed into one item denoting ‘Sometimes or always’.

Responses to the three morality questions, broken down by the demographics of involvement in sport, gender, and age group are shown below in Table 2.

With regard to moral judgement, a clear majority of respondents stated that it is ‘Never’ appropriate to do this (87.5%), while the remaining respondents (12.5%) indicated that it is ‘Sometimes or always’ appropriate to do this.

Participants were asked to indicate the most important reason to consider when making the judgement. The majority (62.2%) indicated that the most important reason was whether or not it was ‘fair or right’, the highest possible form of moral reasoning in the Rest model. The second most commonly endorsed reason was ‘whether it was against the rules’ (selected by 17.6% of respondents, which is the second highest form of moral reasoning.

To assess moral 'intention', respondents were asked to indicate whether they would engage in the behaviour described in the scenario. The majority of respondents indicated that they would 'Never' engage in the behaviour described in the story (89.4%), the remaining respondents stated that they would 'Sometimes or always' engage in the behaviour (10.6%).

While there appear to be no major differences by involvement in sport, gender or age group for the questions on moral judgement and moral intention, there were some marked differences amongst the groups with respect to moral reasoning. For example, 66.5% of non-athletes chose 'Whether or not it is fair or right' as the main reason but only 57.6% of athletes selected this reason. 'Whether or not it is against the rules' was selected by 22.5% of athletes but only by 13% of non-athletes, an indication perhaps of the key awareness of the importance of rule adherence by athletes.

A series of three 2 x 3 x 2 analysis of variances (ANOVA) were conducted using the independent variables of involvement in sport (2), age group (3) and gender (2) and the dependent variables of moral intention, moral reasoning and moral intention. There was only one significant finding. The independent variable of gender showed an association with moral intention (females were more likely to say 'Never')  $F(1,300) 5.07 p < .05$ .

**Table 2: Moral functioning**

<b>DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)</b>								
	<b>Involvement in Sport</b>		<b>Gender</b>		<b>Age group</b>			<b>Totals</b>
	Athlete (151)	Non-athlete (161)	Male (134)	Female (178)	12-13 (100)	14-15 (97)	16-17 (115)	
<b>Percentage of respondents</b>								
<b>Moral judgement</b>								
Never	86.8	88.2	85.1	89.3	87.0	85.6	89.6	<b>87.5</b>
Sometimes or always	13.2	11.8	14.9	10.7	13.0	14.4	10.4	<b>12.5</b>
<b>Moral reasoning</b>								
Punishment	9.9	10.6	11.9	9.0	11.0	9.3	10.4	<b>10.3</b>
Get even	1.3	1.9	3.0	0.6	1.0	3.1	0.9	<b>1.6</b>
Proper	8.6	8.1	8.2	8.4	11.0	5.2	8.7	<b>8.3</b>
Against the rules	22.5	13.0	14.9	19.7	19.0	13.4	20.0	<b>17.6</b>
Fair or right	57.6	66.5	61.9	62.4	58.0	69.1	60.0	<b>62.2</b>
<b>Moral intention</b>								
Never	90.1	88.8	85.8	92.1	88.0	91.8	88.7	<b>89.4</b>
Sometimes or always	9.9	11.2	14.2	7.9*	12.0	8.2	11.3	<b>10.6</b>

### **2.5.2 Perceptions of PED use in sport**

All participants were asked to estimate the incidence of PED use by elite athletes across all sports. Athletes were also asked to estimate the incidence of PED use by elite athletes in their own sport. Findings to these two questions, broken down by the demographics of involvement in sport, gender and age group, are shown below in Table 3.

The mean estimated incidence for PED use in all sports was 28.8% (on average, respondents believe that 28.8% of all athletes use PEDs). For athletes only, the figure was somewhat lower, 26.9% of all athletes are believed to use PEDs. Non-athletes' estimates were higher (30.7%). The estimates for usage within the athletes' own sports were considerably lower (14.4%).

A 2 x 3 x 2 analysis of covariance (ANACOV) was conducted using the independent variables of involvement in sport (2), age group (3) and gender (2), the covariates of moral intention, moral reasoning and moral intention, and the dependent variable of estimated PED use.

There were two significant findings. These included the independent variables of age group  $F(1,297) 7.53 p < .001$  and gender  $F(1,297) 5.89 p < .05$ . All other comparisons were non-significant  $p > .05$ .

**Table 3: Perceived incidence of PEDs (in all sports and in own sport)**

PERCEIVED INCIDENCE	DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)							Totals
	Involvement in Sport		Gender		Age Group			
	Athlete (151)	Non-athlete (161)	Male (134)	Female (178)	12-13 (100)	14-15 (97)	16-17 (115)	(312)
	<b>Percentage of athletes perceived as using drugs (mean percentages)</b>							
What percentage of elite and professional athletes in all sports use PEDs?	26.9	30.7	25.4	31.4	33.5	31.1	22.9	<b>28.8</b>
What percentage of elite and professional athletes in your sport use PEDs?*	14.4 (n=151)	-	14.0 (n=82)	14.8 (n=69)	16.4 (n=36)	12.2 (n=50)	14.9 (n=75)	<b>14.4 (n=151)</b>

\*Athletes only

Participants were also asked to identify one sport (open question) in which PEDs were perceived as most commonly used. For all respondents combined, the top sports in which PEDs were perceived as most commonly used were athletics (33.7%), weightlifting (21.2%), cycling (9.3%), swimming (7.1%) and rugby league (6.4%). Other sports (each named by less than 5% of participants) included Australian football league (AFL), baseball, basketball, boxing, football (soccer), gymnastics, netball, rowing, and rugby union.

The most marked difference between athletes and non-athletes concerned the choice of sport in which PED use was perceived to be the highest. For example, athletics was selected by 37.1% of athletes and by 30.4% of non-athletes respectively, and by 30.6% of males and 36% of females respectively as the sport in which PEDs were most commonly used. Nearly forty per cent (39.1%) of older athletes (aged 16-17) also selected athletics, although only a quarter (25%) of 12-13 year-olds selected this sport. Swimming was more often chosen by non-athletes than by athletes (8.7% of non-athletes and 5.3% of athletes) and by 10.3% of those in the 14-15 year old group.

**Table 4: Sports in which PEDs are perceived to be most commonly used**

<b>SPORTS IDENTIFIED</b>	<b>DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)</b>							<b>Totals</b>
	<b>Involvement in Sport</b>		<b>Gender</b>		<b>Age Group</b>			
	<b>Athlete</b>	<b>Non-athlete</b>	<b>Male</b>	<b>Female</b>	<b>12-13</b>	<b>14-15</b>	<b>16-17</b>	
	(151)	(161)	(134)	(178)	(100)	(97)	(115)	<b>(312)</b>
	<b>Percentage of Respondents Identifying each Sport</b>							
Athletics	37.1	30.4	30.6	36.0	25.0	36.1	39.1	<b>33.7</b>
Weightlifting	21.2	21.1	24.6	18.5	26.0	16.5	20.9	<b>21.2</b>
Cycling	10.6	8.1	12.7	6.7	11.0	10.3	7.0	<b>9.3</b>
Swimming	5.3	8.7	6.0	7.9	4.0	10.3	7.0	<b>7.1</b>
Rugby league	6.0	6.8	7.5	5.6	5.0	8.2	6.1	<b>6.4</b>
Other sports (combined)	19.8	24.9	18.6	25.3	29	18.6	19.9	<b>22.3</b>

### **2.5.3 Attitudes towards drug use in sport**

Attitudes to drug use in sport were assessed with the Performance Enhancement Attitude Scale (Petroczi & Aidman, 2009). The possible range of scores is from 17 (strongest anti-doping attitudes) to 102 (strongest pro-doping attitudes). The scale's mid-point score is 59.5.

The reliability of the scale was 0.87 (Cronbach alpha). The mean PEAS score was 40.1 and the range for the entire sample was 17-73. The mean PEAS value here is higher than those reported by Petroczi and Aidman (2009) except for Division I football players and college athletes, which indicates more favourable attitudes towards PEDs for this sample (although still well below the theoretical mid-point of 59.5).

The responses to the PEAS are shown in Table 5. There do not appear to be major differences in attitudes by each of the key demographics, although 12-13 year olds had a slightly higher PEAS score.

For the 21 athletes who had completed an anti-doping test, the mean PEAS score was 42.3.

A 2 x 3 x 2 analysis of covariance (ANACOV) was conducted using the independent variables of involvement in sport (2), age group (3) and gender (2), the covariates of moral intention, moral reasoning and moral intention, and the dependent variable of PEAS score.

The independent variable of age group was associated with the PEAS score  $F(2,297) 3.59 p < .05$ . The covariates of moral reasoning  $F(1,297) 6.51 p < .05$  and moral intention  $F(1,297) 23.81 p < .001$  were also associated with PEAS score.

**Table 5: Attitudes towards drugs in sport (PEAS)**

<i>ATTITUDE SCORE</i>	<i>DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)</i>							
	Involvement in Sport		Gender		Age Group			
	Athlete (151)	Non-athlete (161)	Male (134)	Female (178)	12-13 (100)	14-15 (97)	16-17 (115)	<b>Totals (312)</b>
	<b>Mean (and SD)</b>							
Mean PEAS score	39.9 (11.83)	41.8 (12.11)	42.1 (13.20)	39.9 (11.00)	42.5 (10.93)	40.1 (12.93)	40.1 (12.03)	<b>40.1 (12.01)</b>

## 2.6 Summary and implications for study 2

### 2.6.1 Morality and attitudes to PED use

This study found associations between the moral functioning components of reasoning and intention and attitudes to PEDs. The associations were in the predicted direction; lower levels of moral functioning were associated with higher pro-doping attitudes. Somewhat surprisingly, there was no link between involvement in sport and gender and attitudes. There was a slight, but significant effect of age group (higher pro-doping attitudes).

### 2.6.3 Methodological limitations

There are some limitations of the current study that should be acknowledged. First the method for assessing morality was based on the work of Rest (e.g., Rest, 1984). There are alternative theoretical frameworks for understanding the relationship between morality and PEDs. For example, an alternative avenue for the study of morality in sport contexts is through Bandura's (1991) social cognitive theory of moral thought and action. Its application in sport contexts is quite extensive in particular for the understanding of prosocial and antisocial behaviours (see, for example, Boardley, Kavussanu, & Ring, 2008; Kavussanu, 2006). Specific mechanisms deriving from Bandura's framework, such as moral disengagement mechanisms, have also been examined in the context of prosocial and antisocial behaviours in sport (Boardley & Kavussanu, 2007) and specifically to understand illicit substance use (Lucidi et al., 2008). In the latter study, a longitudinal study of doping intentions and behaviours, moral disengagement was found to be related to subsequent doping substances use.

Another limitation was that the response patterns to the morality questions were highly skewed. This meant that participants who stated they would 'Sometimes' consider the behaviour appropriate and those that would 'Always' consider the behaviour appropriate were collapsed into one group for the purposes of the subsequent analyses. Similarly, participants who stated that they would 'Sometimes' engage in the behaviour described in the scenario and those who stated that they would 'Always' engage in the behaviour described in the scenario were also collapsed into one group. This response pattern to the judgment and the intention questions may have been a methodological limitation (a 3-point scale was used to assess each component). A more sensitive scale for each morality component, perhaps a 5 point scale, such as that used by Ommundsen et al. (2003) might be more appropriate.

Future research should also incorporate additional variables designed to help in explaining the antecedents of morality. Motivational factors and coaching environment are some of the possible antecedents previously identified, albeit in other contexts (e.g., Barkoukis et al, 2010; Ommundsen et al., 2003).

One final limitation relates to the items of the PEAS. The PEAS is ostensibly a measure of attitudes to PEDs, and yet it also includes items on non-PEDs (sometimes referred to as illicit or recreational drugs). The terminology in the items is thus somewhat inconsistent, with some items explicitly assessing attitudes to 'PEDs' or 'recreational drugs', whilst others assess attitudes to 'doping' (presumably this term is intended to include both PEDs and RDs).

Consequently, a second study was conducted. This second study incorporated additional items, omitted some items, and revised some response options.

## 3.1 Design overview

This study, like Study 1, consisted of a survey questionnaire (paper and pencil only) completed by athletes and non-athletes aged 12-17 years. The research methodology is described in this section.

The survey questionnaire was modified and extended following from Study 1. For example, the response format for the moral functioning questions was modified, as was the response format for the items which required the identifications of sports in which PEDs were perceived to be common. New sections were also added. Additions included a measure of moral disengagement (Lucidi et al., 2008); and a section examining the respondents' opinions (open ended) on the advantages and disadvantages of PED use. Respondents were also asked about their ethnicity.

For the respondents who were elite athletes, additional measures included the Perceived Motivational Climate in Sport Questionnaire (PMCSQ, Seifriz, Duda & Chi, 1992); two items assessing socio-moral team norms (Miller, Roberts & Ommundsen, 2005); a question on athletes' age when participation in current main sport started; and a question regarding intention to use PEDs to improve sporting performance.

## 3.2 Research questionnaire

The main sections of the research questionnaire in Study 2 were:

- i. Moral functioning and moral disengagement
- ii. Perceptions of PED use
- iii. Attitudes to PEDs in sport
- iv. Demographic information
- v. Perceptions of PED use in own sport (athletes only)
- vi. Socio-moral atmosphere and PMCSQ (athletes only)

### i. Moral functioning and moral disengagement

There were no modifications to the scenario itself; however, the response format for two of the questions was changed. Respondents were asked to read the following scenario:

*Imagine that you are an athlete competing at an elite level. While you have been performing well, it is unlikely that your level of performance will be enough to get you to the finals. One option is to start a course of performance enhancing drugs that could radically improve your sporting performance.*

They were then given the following statement (assessing moral judgement):

*Please indicate your level of agreement with the following statement: It is appropriate to do this.*

Respondents were asked to indicate on a 5-point Likert-type scale ranging from (1) 'Strongly Disagree' to (5) 'Strongly Agree' their level of agreement with the statement.

To assess reasoning, respondents were asked to indicate the most important reason (five reasons given) to consider when making the judgement. There were no changes to this question or to the response format.

To assess intention, component three in Rest's (1984) model, respondents were presented with the following statement:

*If I was the athlete in that story, I would start a course of performance enhancing drugs.*

Respondents were asked to indicate on a 5-point Likert-type scale ranging from (1) 'Strongly Disagree' to (5) 'Strongly Agree', their level of agreement with the above statement.

In addition to measuring morality based on the research by Rest, we also included a series of questions assessing moral disengagement, based on the work of Bandura, Caprara, Barbaranelli, Pastorelli and Regalia (2001), and also on the work of the work of Lucidi et al. (2008) which was in the context of doping.

The items in this scale were (see Lucidi et al.):

- a) *In comparison to the damaging effects of alcohol and tobacco, the use of performance enhancing drugs is not so bad.*
- b) *It is not right to condemn athletes who use performance enhancing drugs to improve their bodies, since many athletes do the same.*
- c) *The use of performance enhancing drugs is a way to "maximize one's potential".*

- d) *There is no reason to punish athletes who use performance enhancing drugs to improve their sporting performance; after all, these athletes do no hurt anyone.*
- e) *Athletes who use performance enhancing drugs in sport are not to be blamed, but those people who expect too much from users should be blamed instead.*
- f) *It is OK to use performance enhancing drugs if this can help one to overcome one's limits.*

Participants were asked to indicate on a 5-point Likert-type scale ranging from (1) 'Strongly Disagree' to (5) 'Strongly Agree', their level of agreement with each the above statements. The Cronbach alpha for the modified moral disengagement measure was 0.77.

#### **ii. Perceptions of PED use**

This section included a question on levels of perceived drug use amongst elite athletes in all sports (as in Study 1). This section also included a question in which respondents were asked to identify the sport in which PEDs were, in the respondents' opinion, most commonly used. Although this question was identical to that in Study 1, the response format was changed and a list of sports was provided instead of the earlier 'open' response format.

Participants were also asked (two new questions) to list the perceived positive (one question) and negative (one question) effects of PEDs. Both of these questions were in an 'open' format, with respondents required to answer each question in their own words.

#### **iii. Attitudes to PEDs in sport**

As with Study 1, respondents' attitudes to PEDs were assessed with the PEAS. However, in Study 2 respondents were given a modified version in which the statements relating to *recreational* drug use were omitted. In addition, individual statements were modified so that the term 'PEDs' replaced the term 'doping' and other minor changes were also made. The three statements that were omitted for the purposes of this study were:

*Recreational drugs give the motivation to train and compete at the highest level.*

*Recreational drugs help to overcome boredom during training.*

*Athletes who take recreational drugs use them because they help them in sport situations.*

The response format was unchanged and respondents were asked to indicate the extent of their agreements with each statement on a 6-point Likert-type scale ranging from (1) 'Strongly Disagree' to (6) 'Strongly Agree' with no neutral response option offered. As with the original scale, a lower score denoted less favourable attitudes towards PEDs. However, because of the omission of three statements, the total score of the modified scale ranged from 14 to 84, with a theoretical mid-point of 49. The reliability (Cronbach alpha) of the modified scale was 0.85.

#### **iv. Demographic information**

All participants were asked to indicate their gender, their age, and their ethnicity. The latter was assessed via the following question:

*Do you identify as an Aboriginal and/or Torres Strait islander?*

Their response was recorded as a 'Yes' or a 'No'.

AS in Study 1, participants were asked whether they currently played a competitive sport at an elite level (defined as regional level or above). Non-elite athletes were thanked for their participation and the survey ended at this point. For the elite athletes, some additional demographic questions, as well as two additional sections were included.

Athletes were asked to state in which sport (main sport only) they currently competed (in this study, the response format was changed and a list of sports was provided); and the age at which they started competing in their main sport ('open').

*What is the highest level of competition at which you have played your current main sport?*

The response options included: Regional level, state level, and national level.

A 'Yes'/'No' question about personal experience of anti-doping testing was also asked. This was similar to that in Study 1 but with some modifications so as to include a reference to the possible testing authority:

*As an athlete, have you ever taken an anti-doping test? This may have been administered by your school, club or an anti-doping authority (e.g., ASADA).*

#### **v. Perceptions of PED use in own sport (athletes only)**

As in Study 1, athletes were asked:

*In your opinion, what percentage of elite (e.g., professional; state or national level representation) athletes in YOUR sport use PERFORMANCE ENHANCING drugs (e.g., steroids)?*

To answer the above question participants were asked to estimate the percentage from 0-100.

They were then asked to indicate, on a 5-point Likert-type scale ranging from (1) 'Strongly Disagree' to (5) 'Strongly Agree', their level of agreement with the socio-moral team norms statements:

*My teammates would encourage the use of performance enhancing drugs if it was necessary to win*

*My coach would encourage the use of performance enhancing drugs if it was necessary to win*

Participants were also asked about their intention to use PEDs and to indicate their response on a 5-point Likert-type scale ranging from 'Strongly Disagree' to 'Strongly Agree:

*I intend to use performance enhancing drugs to improve my sporting performance in the next 12 months*

#### **iv. Socio-moral atmosphere and PMCSQ (athletes only)**

Participants were asked to complete the Perceived Motivational Climate in Sport Questionnaire (PMCSQ; Seifriz, Duda, & Chi, 1992). This is a 21-item inventory originally developed within the sport of basketball. It consists of two subscales one of which (12 items) assesses a performance motivational climate, and the other (9 items) assesses a mastery motivational climate. The tool has been found to have adequate psychometric properties (construct validity and internal consistency; see Kavussanu & Roberts, 1996; Miller et al., 2005; Ommundsen et al., 1993; Seifriz et al., 1992). A more recently updated version, the PMCSQ-2 (Newton, Duda, & Yin, 2000) further conceptualises climate as a hierarchy in which performance and mastery climate scales are higher order scales each with respective subdimensions. For the purpose of this study, however, we used a modified version of the original Seifriz et al scale.

As the PMCSQ had been developed for team sports (specifically basketball), it is worded to reflect situations and actors that pertain to team sports. Previous research with athletes in individual sports (e.g., Moran, Guerin, Kirby, & McIntyre, 2008) modified the response options on the PMCSQ-2 as some items were deemed not applicable or not meaningful to the individual athlete. However, we took a different approach. In order to make the scale applicable to athletes in both individual and team sports, we adapted or modified some of the wording. For example, the stem for each question was modified from "On this basketball team..." to "On my team/training squad/ training group..." Individual items were also adapted. For example, the term 'player' was replaced by 'athlete' and 'games' was replaced by 'competition'. Items were scored in the same direction, using a five-point Likert-type scale ranging from (1) 'Strongly Disagree' to (5) 'Strongly Agree' so that a higher score represented a stronger performance or mastery climate respectively.

- a) *Trying hard is rewarded*
- b) *Athletes feel good when they do better than team-mates*
- c) *Out-performing team-mates is important*
- d) *The coach focuses on skill improvement*
- e) *Athletes are encouraged to work on weaknesses*
- f) *The coach wants us to try new skills*
- g) *Athletes are punished for their mistakes*
- h) *Only a few athletes can be the "stars"*
- i) *Athletes are taken out of competitions for mistakes*
- j) *Most athletes get to participate in competitions*
- k) *Athletes are afraid to make mistakes*
- l) *The coach favours some athletes*
- m) *All athletes have an important role*
- n) *The coach pays most attention to the "stars"*
- o) *Only the top athletes "get noticed"*
- p) *Each athlete's improvement is important*
- q) *Everyone wants to be the best performer*
- r) *Athletes like being part of good teams*
- s) *Athletes try to learn new skills*
- t) *Athletes are encouraged to outperform team-mates*
- u) *Doing better than others is important*

We conducted a principal components analysis with varimax rotation on this version. Consistent with previous studies (Miller et al., 2005; Ommundsen et al., 2003) we found two factors each representing a mastery climate and a performance climate respectively. Each factor had eigenvalues greater than 1 and accounted for 48% of the variance. Two items (one for 'performance' and one for 'mastery') did not load on either factor and were removed from subsequent analyses. Alphas for each of the sub-scales were 0.88 ('mastery' sub-scale, 8 items) and 0.83 ('performance' subscale, 11 items).

### **3.3 Procedure**

The recruitment strategy in Study 2 was similar to that in Study 1; athletes were recruited from elite sporting teams, and non-athletes were recruited from schools (same regions as with Study 1). With the school sample, a number of elite athletes might reasonably be coincidentally recruited, as young athletes also attend school! The research questionnaire was thus explicitly designed to allow for completion by both athletes and non-athletes. The core questions, comprising the first parts of the survey, could be completed by any respondent. A 'filter' question was then used to distinguish

between the athletes, who should continue with the questionnaire, and non-athletes, who should not go any further.

Approval to administer the study was sought from a senior officer in each school, and from a senior representative at each of the sport clubs. Data collection was conducted face-to-face. As the prospective participants were minors (under the age of 18), written permission was sought from parents or guardians.

Data collection took place between March and June 2011.

### 3.4 Sample characteristics

The final sample in study comprised 876 young people aged 12-17 years. Approximately half of the respondents were elite athletes, half were classified as non-athletes (as with Study 1). The sample characteristics are shown in Table 6 below.

**Table 6: Study 2 sample characteristics**

<i>DEMOGRAPHIC</i>	<i>NUMBER OF RESPONDENTS</i>	<i>PERCENTAGE OF RESPONDENTS</i>
<b>Involvement in Sport</b>		
Athlete	440	50.2
Non-athlete	436	49.8
<b>Gender</b>		
Male	535	61.1
Female	341	38.9
<b>Age group</b>		
12-13 years	192	21.9
14-15 years	492	56.2
16-17 years	192	21.9
<b>Ethnicity</b>		
Aboriginal and/or Torres Strait Islander	66	7.5
Non-Aboriginal	810	92.5

The mean age at which athletes started competing in their main sport was 7.98 years (SD = 3.04). Only 37 (8.4%) of the 440 athletes had previously completed an antidoping test.

## 3.5 Results

Surveys from all recruitment sites were collated and numbered prior to data entry. Surveys were then coded and entered in an SPSS file for Windows (version 19) and checked for errors and omissions. Incomplete surveys (defined as those with 25% or more data missing) were identified and discarded. While the final sample size for the survey was 876, not all participants answered every question. Therefore there are missing data for some of the questions.

Data were analysed with a variety of parametric tests. For each key dependent variable (e.g., attitudes towards PEDs) this included analysis by the main independent variables of age group (3:12-13, 14-15, 16-17 years), gender (2: male, female), and involvement in sport (2: athlete, non-athlete). Some analyses also included covariates, such as moral functioning, moral disengagement, and perceived motivational climate.

### 3.5.1 Moral functioning

Table 7 below, summarises the mean scores for each of the three moral functioning questions. It can be seen that the mean response for moral judgement was low ( $M = 1.95$ ,  $SD = 1.08$ ), indicating that the participants did not consider the behaviour appropriate. With respect to moral reasoning, the mean score was 3.79 ( $SD = 1.44$ ) which indicates that the predominant form of reasoning in deciding whether the behaviour in the scenario was appropriate centered on whether the behaviour was seen as appropriate or whether the behaviour was seen to be against the rules. Females appear to be more likely to indicate the latter assessment ('whether or not is against the rules) as their main reasoning. The mean score for moral intention was 1.80 ( $SD = 1.05$ ), this suggests that participants had a low degree of intention to engage in such behaviour.

Separate analyses of variance (involvement in sport x gender x age group) were conducted for each of the three types of moral functioning. For judgement, there were no main effects (all comparisons  $p > .05$ ) and one interaction effect (gender x involvement in sport)  $F(1,864) 5.46 p < .05$ , whereby male non-athlete scored higher than male athletes, but the pattern was reversed for female non-athletes and athletes. For reasoning, there was a significant main effect of gender  $F(1,864) 6.42 p < .05$  and involvement in sport  $F(1,864) 3.89 p < .05$ . There was no effect for age group. For intention, there were no main effects or interactions (all comparisons  $p > .05$ ).

**Table 7: Moral functioning**

	<b>DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)</b>							
	<b>Involvement in Sport</b>		<b>Gender</b>		<b>Age group</b>			
	Athlete (440)	Non-athlete (436)	Male (535)	Female (341)	12-13 (192)	14-15 (492)	16-17 (192)	<b>Totals (876)</b>
	<b>Means and (SD)</b>							
Moral judgement	1.94 (1.12)	1.96 (1.03)	1.98 (1.11)	1.91 (1.02)	1.98 (1.07)	1.98 (1.08)	1.84 (1.06)	<b>1.95 (1.08)</b>
Moral reasoning	3.73 (1.54)	3.86 (1.34)	3.65 (1.45)	4.02 (1.41)	3.63 (1.53)	3.48 (1.44)	3.94 (1.36)	<b>3.79 (1.44)</b>
Moral intention	1.77 (1.04)	1.83 (1.06)	1.83 (1.07)	1.74 (1.01)	1.76 (1.01)	1.83 (1.05)	1.75 (1.07)	<b>1.80 (1.05)</b>

### 3.5.2 Moral disengagement

Table 8 below, summarises the mean scores for each of the six moral disengagement questions, and also a combined overall mean score (across the six forms of disengagement).

It can be seen that for each of the six items the mean response was above the mid-point (all were above 3) which suggests that responses lean towards agreement with each moral disengagement mechanism. This finding should be interpreted with caution as mean responses above the neutral mid-point do not, per se, indicate agreement. Of all the disengagement items, there were two that had a mean response closer to agreement. These were item 4 'There is no reason to punish athletes who use PEDs to improve their sporting performance; after all, these athletes do not hurt anyone' ( $M = 3.79$ ,  $SD = 1.12$ ), and item 6 'It is OK to use PEDs if this can help one to overcome one's limits' ( $M = 3.79$ ,  $SD = 1.09$ ).

An analysis of variance (involvement in sport x gender x age group) was conducted for overall moral disengagement level. There were no main effects (all comparisons  $p > .05$ ) and one interaction effect for gender x involvement in sport  $F(1,864) 8.92 p < .005$ , where male athletes scored higher than male non-athletes, but the pattern was reversed for females.

**Table 8: Moral disengagement**

	DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)							Totals (876)
	Involvement in Sport		Gender		Age Group			
	Athlete (440)	Non-athlete (436)	Male (535)	Female (341)	12-13 (192)	14-15 (492)	16-17 (192)	
	Means and (SD)							
Q1. In comparison	3.55 (1.12)	3.35 (1.05)	3.42 (1.11)	3.51 (1.08)	3.74 (1.11)	3.38 (1.06)	3.35 (1.12)	<b>3.45 (1.09)</b>
Q2. It is not right	3.30 (1.22)	3.31 (1.12)	3.29 (1.16)	3.32 (1.18)	3.17 (1.21)	3.24 (1.16)	3.58 (1.12)	<b>3.30 (1.17)</b>
Q3. Maximize potential	3.07 (1.20)	3.07 (1.17)	2.95 (1.18)	3.27 (1.17)	3.21 (1.14)	3.02 (1.17)	3.08 (1.26)	<b>3.07 (1.19)</b>
Q4. Don't hurt anyone.	3.85 (1.14)	3.74 (1.11)	3.82 (1.13)	3.75 (1.11)	3.83 (1.12)	3.79 (1.10)	3.78 (1.18)	<b>3.79 (1.12)</b>
Q5. Blamed instead.	3.58 (1.08)	3.47 (1.05)	3.48 (1.07)	3.60 (1.05)	3.50 (1.07)	3.54 (1.05)	3.54 (1.11)	<b>3.53 (1.07)</b>
Q6. Overcome one's limits	3.85 (1.11)	3.72 (1.06)	3.76 (1.11)	3.82 (1.05)	3.95 (1.04)	3.74 (1.07)	3.74 (1.16)	<b>3.79 (1.09)</b>
<b>Totals</b>	<b>3.53 (0.78)</b>	<b>3.44 (0.74)</b>	<b>3.46 (0.76)</b>	<b>3.55 (0.77)</b>	<b>3.57 (0.70)</b>	<b>3.45 (0.75)</b>	<b>3.51 (0.85)</b>	<b>3.49 (0.76)</b>

Q1. **In comparison** to the damaging effects of alcohol and tobacco, the use of performance enhancing drugs is not so bad

Q2. **It is not right** to condemn athletes who use performance enhancing drugs to improve their bodies since, since many athletes do the same

Q3. The use of performance enhancing drugs is a way to "**maximize one's potential**"

Q4. There is no reason to punish athletes who use performance enhancing drugs to improve their sporting performance; after all, these athletes **don't hurt anyone**.

Q5. Athletes who use performance enhancing drugs are not to be blamed, but those people who expect too much from athletes should be **blamed instead**.

Q6. It is OK to use performance enhancing drugs if this can help one to **overcome one's limits**.

### 3.5.3 Perceptions of PED use in sport

As with Study 1, all participants were asked to estimate the incidence of PED use by elite athletes across all sports. Athletes were also asked to estimate the incidence of PED use by elite athletes in their own sport. Findings to these two questions, broken down by the demographics of involvement in sport, gender and age group, are shown below in Table 9.

The mean estimated incidence for PED use in all sports was 33.9% (this means that on average, respondents believe that 33.9% of all athletes use PEDs). For athletes only, the figure was somewhat lower, 33.4% of all athletes are believed to use PEDs. Non-athletes' estimates were higher (34.5%). The estimates for usage within the athletes' own sports were considerably lower (18.4%). Interestingly, for the 37 athletes who had completed an anti-doping test, the estimated incidence of PED use in all sports was higher at 44.4 % (32.3 % for the athletes who had not been tested). For the 66 Aboriginal and/or Torres Strait Islanders, the estimated incidence of PED use in all sports was higher at 42.9 % (33.2% for non-Aboriginals or Torres Strait Islanders).

Statistical analyses of the perceived incidence data are included in section 3.5.6 of this report.

Participants were also asked to identify one sport (a range of sports were given) in which PEDs were perceived as most commonly used. For all respondents combined, the top sports in which PEDs were perceived as most commonly used were bodybuilding (49.0%), weightlifting (11.9%), baseball (10.5%), AFL (8.0%), and athletics (5.6%). Other sports (each named by less than 5% of participants) included basketball, cricket, cycling, football (soccer), hockey, rowing, rugby league, rugby union, surf-lifesaving, swimming and tennis .

The most marked difference between athletes and non-athletes concerned the choice of sport in which PED use was perceived to be the highest. Bodybuilding provided an interesting example of demographic differences in perceptions. For example, bodybuilding was selected by 53.3% of athletes and by 44.7% of non-athletes respectively, and by 46.7% of males and 52.5% of females respectively as the sport in which PEDs were most commonly used. Over fifty per cent (50.5%) of older athletes (aged 16-17) also selected bodybuilding, although the figure was lower for the younger groups (46.5% and 49.4% respectively). AFL was more often chosen by non-athletes than by athletes (chosen by 5.9% of athletes and by 10.1% of non-athletes).

**Table 9: Perceived incidence of PEDs (all sports and own sport )**

<b>PERCEIVED INCIDENCE OF:</b>	<b>DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)</b>							<b>Totals</b>
	<b>Involvement in Sport</b>		<b>Gender</b>		<b>Age Group</b>			
	<b>Athlete</b>	<b>Non-athlete</b>	<b>Male</b>	<b>Female</b>	<b>12-13</b>	<b>14-15</b>	<b>16-17</b>	
	<b>(440)</b>	<b>(436)</b>	<b>(535)</b>	<b>(341)</b>	<b>(192)</b>	<b>(492)</b>	<b>(192)</b>	<b>(876)</b>
	<b>Percentage of athletes perceived as using drugs (mean percentages)</b>							
What percentage of elite and professional athletes in all sports use PEDs?	33.4	34.5	31.8	37.4	38.9	33.4	30.3	<b>33.9</b>
What percentage of elite and professional athletes in your sport use PEDs?	18.4	-	17.1 (n=299)	21.3 (136)	19.1 (n=112)	16.6 (n=244)	22.5 (n=84)	<b>18.4</b>

**Table 10: Sports in which PEDs are perceived to be commonly used**

<b>SPORTS IDENTIFIED</b>	<b>DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)</b>							<b>Totals</b>
	<b>Involvement in Sport</b>		<b>Gender</b>		<b>Age Group</b>			
	Athlete (440)	Non-athlete (436)	Male (535)	Female (341)	12-13 (192)	14-15 (492)	16-17 (192)	<b>(876)</b>
	<b>Percentage of respondents identifying each sport</b>							
Bodybuilding	53.3	44.7	46.7	52.5	46.5	49.4	50.5	<b>49.0</b>
Weightlifting	8.1	12.8	10.9	9.9	16.2	11.1	3.3	<b>11.9</b>
Baseball	11.6	12.1	10.7	13.6	5.9	15.1	9.9	<b>10.5</b>
Australian Football League	5.9	10.1	7.0	9.6	5.9	8.4	9.3	<b>8.0</b>
Athletics	7.2	4.0	7.8	2.2	6.5	4.5	7.1	<b>5.6</b>
Other sports (combined)	13.9	16.3	16.9	12.2	19.0	11.5	19.9	<b>15.0</b>

#### 3.5.4 Attitudes towards PED use in Sport

Attitudes to drug use in sport were assessed with the Performance Enhancing Attitude Scale (Petroczi & Aidman, 2009). However, for the purposes of this study we deleted three items that assessed attitudes towards illicit *recreational* drugs. Therefore, the possible range of scores for this shortened scale ranged from 14 (strongest anti-doping attitudes) to 84 (strongest pro-doping attitudes). The scale's mid-point score is 49.

The data for the 14 PEAS items were submitted to a principal components analysis. Results indicated a one-factor solution with loadings over .5 for all items. The unique factor accounted for 37 % of the variance. The reliability of the 14-item scale was 0.85 (Cronbach alpha). The mean PEAS score was 38.2 and the range for the entire sample was 18-76.

The responses to the PEAS are shown in Table 11. There do not appear to be major differences in attitudes by each of the key demographics. However, for the 37 athletes who had completed an anti-doping test, the mean 14 item PEAS score was 42.9. The mean score for athletes who had not been tested was 37.2. There were also some differences by ethnicity: The mean score for the 66 Aboriginal and/or Torres Strait Islanders was 44.7 (37.7 for non-Aboriginals or Torres Strait Islanders). In sum, the attitudes of this sample (both the athletes and the non-athletes) were below the mid-point of the scale and therefore leaning towards a more anti-doping attitude.

Statistical analyses of the PEAS data are included in sections 3.5.6 and 3.5.7 of this report.

Participants were asked to state (two open questions) the perceived positive and negative effects that PEDs might have for an athlete. The open responses were coded for main themes and the three most prevalent reasons for each the positive and the negative effects were recoded and entered. Tables 12 and 13 present a summary of responses. It can be seen that 'performance enhancement' was the most commonly perceived positive effect of PEDs (52.1% of participants cited this as a positive effect). Interestingly, with increasing age, the advantage of 'winning' became more pronounced.

'Health problems' was the most commonly perceived negative effect of PEDs (67.0% of participants cited this as a negative effect). The younger cohort (12-13), were more likely to cite health reasons (74%) than any other group.

**Table 11: Attitudes towards drugs in sport (modified, 14 item PEAS)**

<i>PEAS SCORE</i>	<i>DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)</i>							
	<i>Involvement in Sport</i>		<i>Gender</i>		<i>Age Group</i>			
	<i>Athlete</i>	<i>Non-athlete</i>	<i>Male</i>	<i>Female</i>	<i>12-13</i>	<i>14-15</i>	<i>16-17</i>	<i>Totals</i>
	(440)	(436)	(535)	(341)	(192)	(492)	(192)	<b>(876)</b>
	<b>Mean and (SD)</b>							
PEAS score	37.8 (11.7)	38.7 (10.2)	38.5 (11.2)	37.8 (10.7)	37.4 (10.6)	38.3 (10.7)	38.8 (12.1)	<b>38.2 (11.0)</b>

**Table 12: Perceived advantages of PED use for athletes**

<b>ADVANTAGES OF PED USE</b>	<b>DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)</b>							<b>Totals</b>
	<b>Involvement in Sport</b>		<b>Gender</b>		<b>Age Group</b>			
	Athlete (440)	Non-athlete (436)	Male (535)	Female (341)	12-13 (192)	14-15 (492)	16-17 (192)	<b>(876)</b>
	<b>Percentage of respondents identifying each advantage</b>							
Performance enhancement	52.2	52.1	54.4	48.5	53.4	54.5	44.8	<b>52.1</b>
Physical improvement	29.6	25.9	27.8	27.7	32.0	26.6	26.4	<b>27.8</b>
Winning	14.2	16.7	13.2	18.9	9.0	15.9	20.7	<b>15.4</b>
Other	4.0	5.4	4.5	4.9	5.6	3.0	8.0	<b>4.7</b>

**Table 13: Perceived disadvantages of PED use for athletes**

<b>DISADVANTAGES OF PED USE</b>	<b>DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)</b>							<b>Totals</b>
	<b>Involvement in Sport</b>		<b>Gender</b>		<b>Age Group</b>			
	Athlete (440)	Non-athlete (436)	Male (535)	Female (341)	12-13 (192)	14-15 (492)	16-17 (192)	<b>(876)</b>
	<b>Percentage of respondents identifying each disadvantage</b>							
Health problems	65.8	68.2	65.5	69.3	74.4	64.3	66.1	<b>67.0</b>
Detection	20.9	17.2	21.3	15.7	18.3	21.1	14.6	<b>19.0</b>
Cheating	11.3	11.5	10.9	12.1	6.1	13.3	12.3	<b>11.4</b>
Other	2.0	3.1	2.3	2.9	1.1	1.4	7.0	<b>2.5</b>

### **3.5.5 Socio-moral norms and motivational climate**

Two questions assessing socio-moral team norms were asked. The first one concerned norms established by teammates ('My teammates would encourage the use of PEDs if it was necessary to win'), and the second concerned norms established by the coach ('My coach would encourage the use of PEDs if it was necessary to win'). Means are shown in Table 14. It can be seen that overall participants did not perceive those norms as being endorsed by either team members or by coaches ( $M = 1.81$ ,  $SD = 1.22$ , and  $M = 1.63$ ,  $SD = 1.12$  respectively).

Athletes also completed the PMCSQ. Means and standard deviations were computed for each of the mastery and performance sub-scales are shown in Table 15. These results indicate that the respondents perceived their climate as mastery oriented ( $M = 4.04$ ,  $SD = 0.71$ ), however, unlike previous studies (Miller et al., 2005; Ommundsen et al., 2003), the performance climate was above, not below, the neutral mid-point ( $M = 3.13$ ,  $SD = 0.68$ ). The only exception to this was the performance score for the females ( $M = 2.93$   $SD = 0.76$ ).

Statistical analyses of the PMCSQ data are included in section 3.5.7 of this report.

**Table 14: Perceptions of teammates' and coaches' socio-moral norms**

<i>SOCIO-MORAL NORMS</i>	<i>DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)</i>							
	Involvement in Sport		Gender		Age Group			
	Athlete	Non-athlete	Male	Female	12-13	14-15	16-17	Totals
	(440)	(436)	(535)	(341)	(192)	(492)	(192)	(876)
	<b>Mean and (SD)</b>							
My <b>teammates</b> would encourage me to use PEDs	1.81 (1.22)	-	1.89 (1.25)	1.64 (1.13)	1.71 (1.11)	1.82 (1.25)	1.95 (1.26)	<b>1.81 (1.22)</b>
My <b>coach</b> would encourage me to use PEDs	1.63 (1.12)	-	1.64 (1.13)	1.56 (1.10)	1.54 (1.06)	1.64 (1.11)	1.73 (1.21)	<b>1.63 (1.12)</b>

**Table 15: Perceived Motivational Climate (Mastery and Performance)**

<i>PMC DIMENSION</i>	<i>DEMOGRAPHIC (AND NUMBER OF RESPONDENTS)</i>							<i>Totals</i>
	<i>Involvement in Sport</i>		<i>Gender</i>		<i>Age Group</i>			
	<i>Athlete</i>	<i>Non-athlete</i>	<i>Male</i>	<i>Female</i>	<i>12-13</i>	<i>14-15</i>	<i>16-17</i>	
	(440)	(436)	(535)	(341)	(192)	(492)	(192)	<b>(876)</b>
	<b>Mean score for each PMC dimension</b>							
Mastery	4.04 (0.71)	-	4.02 (0.70)	4.08 (0.73)	3.95 (0.78)	4.05 (0.70)	4.13 (0.62)	<b>4.04 (0.71)</b>
Performance	3.13 (0.68)	-	3.19 (0.62)	2.93 (0.76)	3.15 (0.69)	3.08 (0.70)	3.27 (0.57)	<b>3.13 (0.68)</b>

### **3.5.6 Statistical analyses (all respondents)**

The primary aim of the current study was to examine the effects of involvement in sport, gender and age group on attitudes to PEDs. The current study utilized the PEAS to assess attitudes, as well as other questions to assess opinions, including the perceived incidence of PED use in sport.

An analysis of covariance (involvement in sport x gender x age group), with the covariates of moral functioning (judgement, reasoning and intention), and moral disengagement was conducted for PEAS (the dependent variable).

There were no significant effects for any of the main independent factors (all comparisons  $p > .05$ ), but there were significant effects for the following covariates: intention  $F(1,864) 15.77 p < .001$ ; and moral disengagement  $F(1,864) 197.14 p < .001$ .

A second analysis of covariance (involvement in sport x gender x age group), with the covariates of moral functioning (judgement, reasoning and intention), and moral disengagement was conducted for perceived incidence of PED use in all sports (the dependent variable).

There was a significant main effect of gender  $F(1,864) 7.93 p < .005$ , and the covariates of moral reasoning  $F(1,864) 5.05 p < .05$ , and moral disengagement  $F(1,864) 7.32 p < .01$ . No other main effects were significant and there were no interaction effects (all  $p > .05$ ).

### **3.5.7 Statistical analyses (athletes only)**

The athletes were asked a set of additional questions, including the PMCSQ and two questions assessing socio-moral norms. An analysis of covariance (gender x age group), with the covariates of moral functioning (judgement, reasoning and intention), socio-moral norms (teammates and coach) and moral disengagement was conducted for PEAS (the dependent variable).

There were no significant effects for either of the main independent factors (all comparisons  $p > .05$ ), but there were significant effects for the following covariates: moral reasoning  $F(1,424) 4.25 p < .05$ ; moral intention  $F(1,424) 12.35 p < .001$ ; moral disengagement  $F(1,424) 208.34 p < .001$ ; PMC performance  $F(1,424) 17.96 p < .001$ .

An analysis of covariance (gender x age group), with the covariates of moral functioning (judgement, reasoning and intention), socio-moral norms (teammates and coach) and moral disengagement was conducted for perceived incidence of PED use in all sports (the dependent variable).

There were significant main effects for gender  $F(1,393) 8.49 p < .005$  and age group  $F(2,393) 6.03 p < .005$ . There were also significant effects for the following covariates: moral judgement  $F(1,393) 4.60 p < .05$ ; and moral disengagement  $F(1,393) 6.50 p < .05$ .

### 3.5.8 Other findings

One of the most problematic aspects of studying the use of PEDs in sport is attempting to measure incidence. PED users are generally aware of the harsh penalties for such use and while this does not deter them from using PEDs, it does deter them from admitting such usage. In the present study respondents were asked if they would consider using PEDs 'in the next 12 months'. A total of 34 respondents (7.7% of the athlete sample) stated that they would take PEDs (8 'Agreed', and 26 'Strongly agreed'). All 34 respondents were athletes (the question was not put to non-athletes). Most (24) were male; 5 were aged 12-13; 21 were aged 14-15, and 8 were aged 16-17.

For the 34 respondents stating an intention to use PEDs in the future, the mean *intention* score in response to the moral dilemma was 2.38 (SD = 1.58), compared to an overall mean intention score (see Table 7) of 1.80. Their mean estimated incidence of PED use in all sports was 40.06% (SD = 35.23), compared to an overall mean perceived incidence level (see Table 9) of 33.9%. Their mean estimated incidence of PED use in their own sport was 35.27% (SD = 39.78), compared to an overall mean perceived incidence level in own sport (see Table 9) of 18.4%. Finally, their mean PEAS score was 45.66 (SD = 16.78), compared to an overall mean PEAS score (see Table 11) of 38.2. In sum, the stated intention to use PEDs in the next 12 months was consistently associated with a range of other relatively pro-doping perceptions and opinions. Clearly, this does not equate to PED usage (particularly as the PEAS score is still below the mean), but the cluster of data suggests that approximately eight per cent of young athletes are at risk of using PEDs.

## 4.1 Attitudes to PEDS

The mean PEAS score in Study 1 (17 items) was 40.1. An earlier Australian study (Skinner et al., 2011) featuring elite Australian adult athletes reported a mean PEAS (17 items) score of 38.3. This consistent pattern of results is intriguing. Whilst it may point to limitations in the construction of the PEAS, this seems unlikely given the variability in findings reported in other studies (see Petroczi and Aidman, 2009). Instead, it suggests that attitudes to PEDs in Australian samples are remarkably consistent, both amongst young people and adults, as well as athletes and non-athletes. Further, the two studies reported here show that there were few clear links between any demographics (involvement in sport, gender and age group) and attitudes to PEDs.

However, in both of the current studies, there were clear links between morality and attitudes to PEDs. In both studies, aspects of Rest's components of moral functioning were associated with PEAS scores. In study 2, Bandura's concept of moral disengagement was also associated with attitudes to PEDs. In both cases, the relationship was in the expected direction; lower levels of morality associated with more pro-doping attitudes.

Given the differences in response categories for the moral functioning items (Study 1 compared to Study 2), and the differing theoretical orientations of each conception of morality (Rest's compared to Bandura's), the findings are remarkably consistent. This suggests that morality, however it is conceptualised and measured, is a strong and robust predictor of attitudes to PEDs. Further, it is a far more important predictor than demographics. These results extend the research literature on moral reasoning and anti-social behaviours in sport (e.g., Bredemeier & Shields, 1986; Gibbons et al., 1995) into a new domain: performance enhancing drug use, and raise a similar set of possible applications of the findings.

Whilst the screening out of athletes deemed low in levels of moral functioning is an unlikely scenario, there is some scope for the development of educational programs to instil higher levels of moral functioning, which may in turn impact on the usage of PEDs. For example, Gibbons et al. (1995) showed that moral training (through the 'Fair Play for Kids' curriculum) improved the moral development of elementary school children. Although this is somewhat tenuous evidence for the utility of such an approach with elite adult athletes, a training curriculum that incorporates aspects of moral training might be feasible with younger development athletes.

## 4.2 Perceptions of PEDS

In the current studies the mean estimated incidence of PED use in sport was high, estimated at 28.8% of elite athletes in Study 1 and 33.9% in Study 2. There was a clear association between gender and estimates of PED use (in both studies); females consistently offered mean estimates higher than those of males. A survey of the Australian adult population (Skinner et al., 2009) found an estimated incidence level of 26%, whilst a survey of elite adult Australian athletes (Skinner et al., 2011) put the figure at 19%. Both these earlier studies found gender differences; females in both cases gave estimates that were higher than those of males.

The estimates of PED use in both the current studies, featuring young people aged 12-17, exceed the estimates from the adult based surveys (Skinner et al., 2009; 2011). The most obvious difference is between the young athletes in the current studies and the adult athletes in Skinner et al. (2011). This suggests that adult athletes lower their estimates of PED usage. In other words, experience in an elite sporting environment serves to alter perceptions of the incidence of PED. There are many possible explanations for such a finding; the most likely is that elite adult athletes, having had considerable experience in their chosen sport, have not observed levels of doping in line with the public perception of such practices. However, the merits of this particular observation are somewhat dubious, as the elite adult athletes still estimate incidence at almost one in five.

There was an interesting discrepancy between the sports identified as being most associated with PED use in Study 1 and Study 2.

In Study 1 the top three sports identified as those in which PED use was most common, were athletics, weightlifting and cycling. This was exactly the same sequence of sports as identified (open question) by the adult non-athlete sample in Skinner et al. (2009). In Skinner et al. (2011) adult elite athletes gave a sequence of weightlifting, cycling and athletics (prompted question).

In Study 2, the top three sports were bodybuilding, weightlifting and baseball. This discrepancy may in part be explained by differences in the question format: Open in Study 1, prompted in Study 2. Here then, when asked to name a sport in which PED is prevalent, young adults think most often of athletics (as do adults). However, when prompted, they identify a sport which tends to get a considerable amount of (bad) publicity in the media: bodybuilding. This is a curious finding and suggests that attempts to assess perceptions of PEDs are susceptible to distortion, depending on the research methodology employed.

### **4.3 Perceived motivational climate and socio-moral atmosphere**

The second study incorporated both a measure of perceived motivational climate (the PMCSQ) and socio-moral atmosphere (the views of coaches and teammates). There was a link between perceived motivational climate (performance), and attitudes to PEDs. Further, the athletes in Study 2 saw their teammates as more likely to encourage the use of PEDs than their coaches.

These findings offer some possible directions for future investigations of attitudes to PED use, and highlight the important role that an emphasis on winning, and, to a lesser extent social influences, can have on doping attitudes in young athletes.

It may be that anti-doping initiatives should target both the coaching environment through the creation of junior competitions that put a greater degree of emphasis on the mastery of skills, rather than the objective results of competition (i.e., winning).

With regard to the social environment within teams, an obvious danger here is that if an athlete perceives that their teammates are in favour of PEDs, then they are more likely to use PEDS themselves. Given that the perceived incidence of PED use in some sports, notably bodybuilding and cycling (Skinner et al., 2011) is already high, even amongst athletes within those sports, a pro-PED atmosphere is almost certainly already in place. Changing an already established set of opinions will require a considerable educational (public relations) campaign amongst existing and prospective athletes.

### **4.4 Conclusions**

The findings of the present research show that there is a clear link between moral functioning, as originally conceptualized by Rest (1984) and operationalized by Gibbons et al. (1995), and attitudes towards PEDs. There is also a clear link between moral disengagement, as originally conceptualised by Bandura (1991) and operationalized by Boardley and Kavussanu (e.g., Boardley et al., 2008; Kavussanu, 2006). In short, morality, however it is theoretically conceptualised and operationalized, predicts attitudes to doping.

It is necessary to develop training programs that aim to educate young athletes and thus deter future drug use. However, there are some conceptual issues that should be addressed before embarking on any such efforts. While the current study shows a strong link between morality and attitudes to PEDs, when asked to identify the 'top of mind' disadvantages of PED use, the overwhelming majority (67%) cited health reasons. About a fifth (19%) cited fear of detection and only 11% cited cheating. Educational programs that combine all three components may thus be most effective. Research in

this field is still in its early stages, and the possible role of other factors (such as coaching environment) will need to be examined further, before any effective interventions can be developed.

Future research employing measures of morality based on both Rest's and Bandura's may be warranted, particularly if placed in a broader framework (see Bredemeier & Shields, 1986) aiming to develop a reliable and valid measure of morality in sporting contexts. This should clearly include contexts such as PED use.

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## Appendix A: Letter to parents of children in sporting clubs<sup>1</sup>



Dear Parent or Guardian,

We are writing to inform you about a research study we are conducting on behalf the World Anti-Doping Agency (WADA) titled **The Relationship between Moral Code, Participation in Sport, and Attitudes Towards Performance Enhancing Drugs in Young People**. We write to seek your permission for your child to participate. The study has the support of the CEO of [name of club] and the club Committee members.

### **What is the aim of this study?**

This project addresses WADA's current objective of improving social science research on doping prevention by focusing on the development of attitudes of young elite athletes. The project aims to enhance our current knowledge about the origins of doping attitudes and behaviours whilst exploring two potentially critical determinants of those behaviours and attitudes: moral development and participation in elite sport.

### **What will your child be asked to do?**

Participating in this study involves completing a research questionnaire. It will contain questions on the following themes.

- Part 1: Awareness of and attitudes to performance enhancing drugs
- Part 2: Personal Moral Code
- Part 3: Sporting Background
- Part 4: Respondent demographics

Results will be used to inform theoretical models of why athletes cheat and also in the development of policy concerning the prevention of drug use in sport.

### **Are there any risks to my child if they participate?**

There are no risks in a study of this kind. The questions we will ask do not require young people to reveal personal information that is likely to cause them embarrassment or distress.

### **Are there any benefits to my child if they participate?**

There are no direct benefits to students personally from participating in this study. However, the information gathered in this study will assist the researchers in identifying factors that may motivate young athletes to use performance enhancing drugs and subsequently allow the researchers to identify factors that could deter young athletes from using performance enhancing drugs.

### **Confidentiality**

All data gathering will be confidential and anonymity for all who participate will be assured in any reporting processes. In addition, although the sporting club/organisation is providing access to athletes to be involved in the research the club/organisation will not be informed of who specifically participated. No persons other than the researchers involved will have access to the data. An added

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<sup>1</sup> Note: A separate version was also created for schools. In this other version the wording changes slightly, substituting 'school' for club, 'teacher' for team manager/coach, etc.

assurance is apparent in the fact that Griffith University conducts research in accordance with the *National Statement on Ethical Conduct in Human Research (2007)*

#### **Voluntary Participation**

Players/athletes will be invited to participate in this project on a voluntary basis and they can withdraw at any time without providing an explanation. If you do give permission for your son/daughter to participate we will also be giving him the opportunity to decide whether or not he wishes to be involved.

#### **Research Feedback**

A summary of the research will be made available.

#### **What if I have Questions or Concerns?**

If you have any questions please feel free to contact the research team's contact person, Associate Professor James Skinner (Phone: 07 3735 6606; Email: [j.skinner@griffith.edu.au](mailto:j.skinner@griffith.edu.au)). As previously indicated, Griffith University conducts research in accordance with the *National Statement on Ethical Conduct in Human Research (2007)*. If you have any concerns or complaints about the ethical conduct of this research project, you should contact the Manager, Research ethics on 3735 5585 (or [research-ethics@griffith.edu.au](mailto:research-ethics@griffith.edu.au)).

#### **To give permission**

If you are happy for *your child to make his own decision* about whether he/she wishes to participate in this study then you do not have to do anything else. The research team will brief the participants on the project and give players/athletes the opportunity to decide whether or not they wish to participate.

#### **To refuse permission**

If you wish to *refuse permission for your child to participate* in this study then please let us know so that we are able to respect your wishes. Please complete the attached Refusal Form and return it to your team manager/coach. Please be assured that your refusal will not disadvantage your child in any way.

Thank you for considering our request.

Sincerely

Associate Professor James Skinner (for the Research Team\*)  
Department of Tourism, Hotel, Leisure and Sport Management  
Griffith University



**The Relationship between Moral Code, Participation in Sport, and Attitudes Towards Performance  
Enhancing Drugs in Young People**

**REFUSAL TO PARTICIPATE**

If you wish to *refuse permission for your child to participate* in this research study then please complete this Refusal Form and return it to your team manager/coach.

I refuse permission for my child/guardian.....  
who is a player/athlete at [name of club] to participate in the research study on The Relationship between Moral Code, Participation in Sport, and Attitudes Towards Performance Enhancing Drugs in Young People being conducted by Griffith University.

Parent/Guardian Signature.....

Date.....

## Appendix B: Informed consent form (sporting clubs and schools)



The Relationship between Moral Code, Participation In Sport, and Attitudes Towards Performance Enhancing Drugs in Young People.

### CONSENT FORM

#### Research Team

**Name(s):** Associate Professor James Skinner\*, Dr. Stephen Moston, Dr. Terry Engelberg\*

**Department(s)/School(s):** Department of Tourism, Hotel, Leisure and Sport Management (Griffith University)\*; School of Psychology (James Cook University).

**Contact Phone:** 3735 6606

**Contact Email:** [j.skinner@griffith.edu.au](mailto:j.skinner@griffith.edu.au)

I confirm that I have read and understood the information package and in particular have noted that:

- I understand that my involvement in this research includes completing a print based questionnaire;
- I fully understand the purpose of the research;
- I am aware that my sporting club/organisation/school understands that I have been asked to participate in this research but my club/school will not be informed if I did participate.
- I understand that participation is anonymous and I will not be identifiable by the researchers or in any publication or report arising from this research;
- I understand that there will be no direct benefit to me from my participation in this research;
- I understand that my participation in this research is voluntary;
- I understand that I am free to withdraw at any time, without comment or penalty;
- I understand that this research is conducted in accordance with the National Statement on Ethical Conduct in Human Research (2007);
- I understand that I can contact the Manager, Research Ethics, at Griffith University Human Research Ethics Committee on 3735 5585 (or [research-ethics@griffith.edu.au](mailto:research-ethics@griffith.edu.au)) if I have any concerns about the ethical conduct of the project; and
- I agree to participate in the project by completing the questionnaire.

Information Noted – Yes/No

**\*\*This Statement and a Privacy Statement (to be included at the beginning of the questionnaire)**

## Appendix C: Survey questions in Study 1

Imagine that you are an athlete competing at an elite level. While you have been performing well, it is unlikely that your level of performance will be enough to get you to the finals. One option is to start a course of performance enhancing drugs that could radically improve your sporting performance.

1. Is it appropriate to do this? (tick one only)

- Never
- Sometimes
- Always

2. Which is the most important thing to consider when you decide whether it is appropriate? (tick one only)

- Whether or not I'll get punished
- Whether or not I want to get even with my opponents
- Whether or not it's proper
- Whether or not it's against the rules
- Whether or not it's fair or right

3. Would you engage in the behaviour described in the above story? (tick one only)

- Never
- Sometimes
- Always

4. In your opinion, what percentage of elite (e.g., professional; state or national level representation) athletes in ALL sports use PERFORMANCE ENHANCING drugs (e.g., steroids)?

5. In which sport (name one only), do you think that PERFORMANCE ENHANCING drugs are most often used?

6. Please indicate your level of agreement (from 'Strongly agree' to 'Strongly disagree') with the following statements:

- Legalizing performance enhancements would be beneficial for sports.
- Doping is necessary to be competitive.
- The risks related to doping are exaggerated.
- Recreational drugs give the motivation to train and compete at the highest level.
- Athletes should not feel guilty about breaking the rules and taking performance-enhancing drugs.
- Athletes are pressured to take performance-enhancing drugs.
- Health problems related to rigorous training and injuries are just as bad as from doping.
- The media blows the doping issue out of proportion.
- The media should talk less about doping.
- Athletes have no alternative career choices but sport.
- Athletes who take recreational drugs, use them because they help them in sport situations.
- Recreational drugs help to overcome boredom during training.
- Doping is an unavoidable part of the competitive sport.
- Athletes often lose time due to injuries and drugs can help to make up the lost time.
- Doping is not cheating since everyone does it.
- Only the quality of performance should matter, not the way athletes achieve it.
- Using performance enhancing drugs is no different to using a fibreglass pole, the latest cycling technology or technologically designed swimsuits

**Demographic information**

**7. What is your gender?**

**8. What is your current age (years)?**

**9. What is the highest level of competition at which you have played your current main sport?**

- played in a school team (e.g., Townsville High School)
- played in a local team (e.g., Mundingburra)
- played in a regional team (e.g., Townsville)
- played in a state team (e.g., Queensland)
- played in a national team (e.g., Australia)

**If you have ticked 'school team' or 'local team', this concludes the survey.**

**Thank you for your participation**

**If you have ticked 'regional team', 'state team' or 'national team' then please continue with the survey**

**10. In your opinion, what percentage of elite (e.g., professional; state or national level representation) athletes in YOUR sport use PERFORMANCE ENHANCING drugs (e.g., steroids)? Please insert a number between 0 and 100.**

**11. As an athlete, have you ever been tested for doping? (tick one only)**

**Thank you for your participation**

## Appendix D: Survey questions in Study 2

Imagine that you are an athlete competing at an elite level. While you have been performing well, it is unlikely that your level of performance will be enough to get you to the finals. One option is to start a course of performance enhancing drugs that could radically improve your sporting performance.

1. Please indicate your level of agreement (from 'Strongly disagree' to 'Strongly agree') with the following statement: *It is appropriate to do this.*

2. Which is the most important thing to consider when you decide whether it is appropriate? (tick one only)

- Whether or not I'll get punished
- Whether or not I want to get even with my opponents
- Whether or not it's proper
- Whether or not it's against the rules
- Whether or not it's fair or right

3. Please indicate your level of agreement (from 'Strongly disagree' to 'Strongly agree') with the following statement: *If I was the athlete in the story, I would start a course of performance enhancing drugs*

4. In your opinion, what percentage of elite (e.g., professional; state or national level representation) athletes use performance enhancing drugs (e.g., steroids)? Please insert a number between 0 and 100.

5. In which sport do you think that performance enhancing drugs are most often used (name one only)?

- AFL
- Athletics
- Baseball
- Basketball
- Body building
- Cricket
- Cycling
- Football (soccer)
- Hockey
- Netball
- Rowing
- Rugby league
- Rugby union
- Surf lifesaving
- Swimming
- Tennis
- Touch football
- Weightlifting
- Other (please specify)

6. In your opinion, what are the advantages of using performance enhancing drugs?

7. In your opinion, what are the disadvantages of using performance enhancing drugs?

8. Please indicate how you feel about the following statements (from 'Strongly disagree' to 'Strongly agree').

- In comparison to the damaging effects of alcohol and tobacco, the use of performance enhancing drugs is not so bad.
- It is not right to criticise athletes who use performance enhancing drugs to improve their bodies, since many athletes do the same.
- The use of performance enhancing drugs is a way to "maximize one's potential"
- There is no reason to punish athletes who use performance enhancing drugs to improve their sporting performance; after all, these athletes don't hurt anyone.
- Athletes who use performance enhancing drugs are not to be blamed, but those people who expect too much from athletes should be blamed instead.
- It is OK to use performance enhancing drugs if this can help one to overcome one's limits.

**9. Please indicate your level of agreement (from 'Strongly disagree' to 'Strongly agree') with the following statements.**

- a) Legalizing performance enhancing drugs would be beneficial for sports.
- b) Using performance enhancing drugs is necessary to be competitive.
- c) The risks related to performance enhancing drug use are exaggerated.
- d) Athletes should NOT feel guilty about breaking the rules and taking performance enhancing drugs.
- e) Athletes are pressured to take performance enhancing drugs.
- f) Health problems and injuries related to hard training are just as bad as from performance enhancing drugs.
- g) The media blows the issue of performance enhancing drugs out of proportion.
- h) The media should talk less about performance enhancing drugs.
- i) Athletes have no alternative career choices but sport.
- j) Performance enhancing drug use is an unavoidable part of the competitive sport.
- k) Athletes often lose time due to injuries and performance enhancing drugs can help to make up the lost time.
- l) Using performance enhancing drugs is not cheating since everyone does it.
- m) Only the quality of performance should matter, not the way athletes achieve it.
- n) Using performance enhancing drugs is no different to using a fibreglass pole, the latest cycling technology or technologically designed swimsuits

**10. What is your gender?**

**11. Do you identify as an Aboriginal and/or Torres Strait Islander?**

**12. What is your current age (years)?**

**13. Do you currently play a competitive sport outside of school (e.g., for a club) at an elite level. This could be playing for a regional team (e.g., Townsville, Brisbane), a State team or a national team.**

- No (this concludes the survey THANK YOU FOR YOUR PARTICIPATION)
- Yes (please continue with the survey)

**This section should only be completed if you are currently playing a competitive sport at an elite level**

**14. What is the MAIN sport in which you currently compete? Please give only one answer.**

- AFL
- Athletics
- Baseball
- Basketball
- Body building
- Cricket
- Cycling
- Football (soccer)
- Hockey
- Netball
- Rowing
- Rugby league
- Rugby union
- Surf lifesaving
- Swimming
- Tennis
- Touch football
- Weightlifting
- Other (please specify)

**15. How old were you (in years) when you started participating in your current MAIN sport?**

**16. What is the highest level of competition at which you have played your current main sport? (Tick one only)**

- Played at a regional level (e.g., for a city such as 'Brisbane')
- Played at a state level (e.g., for Queensland)
- Played at an international level (e.g., for Australia)

**17. In your opinion, what percentage of elite (e.g., professional; state or national level representation) athletes in YOUR sport use PERFORMANCE ENHANCING drugs (e.g., steroids)? Please insert a number between 0 and 100.**

**18. As an athlete, have you ever taken an antidoping test? This may have been administered by your sporting club or an antidoping authority (e.g., ASADA).**

**19. Please indicate your level of agreement (from 'Strongly disagree' to 'Strongly agree') with the following statements.**

- a) I would consider using performance enhancing drugs to improve my sporting performance in the next 12 months.
- b) My teammates would encourage the use of performance enhancing drugs if it was necessary to win
- c) My coach would encourage the use of performance enhancing drugs if it was necessary to win

**20. Please indicate your level of agreement (from 'Strongly disagree' to 'Strongly agree') with the following statements.**

**On my sports team/squad/training group ....**

- a) Trying hard is rewarded
- b) Athletes feel good when they do better than team-mates
- c) Out-performing team-mates is important
- d) The coach focuses on skill improvement
- e) Athletes are encouraged to work on weaknesses
- f) The coach wants us to try new skills
- g) Athletes are punished for their mistakes
- h) Only a few athletes can be the "stars"
- i) Athletes are taken out of competitions for mistakes
- j) Most athletes get to participate in competitions
- k) Athletes are afraid to make mistakes
- l) The coach favours some athletes
- m) All athletes have an important role
- n) The coach pays most attention to the "stars"
- o) Only the top athletes "get noticed"
- p) Each athlete's improvement is important
- q) Everyone wants to be the best performer
- r) Athletes like being part of good teams
- s) Athletes try to learn new skills
- t) Athletes are encouraged to outperform team-mates
- u) Doing better than others is important

**Thank you for your participation**