

**Team dynamics and doping in sport: A risk or a protective factor?**

**Report compiled for the World Anti-Doping Agency**

**Target Research Scheme**

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## ACKNOWLEDGEMENTS

Conducting a data collection project with high level performance athletes is challenging, especially when the subject matter might be considered to be controversial. The support of various organisations was vital to the success of this project. We would like to thank the following for their support in assisting with contacting and recruiting respondents:

- Dr Brian Walker, Head of Sports Medicine, **sportscotland** Institute of Sport
- Amber Thomson, Senior Administrator, **sportscotland** Institute of Sport
- Raleigh Gowrie and Jason Ward Atkins, Sports Development Service, University of Stirling
- Iain Monaghan, Elite Development Coach, Glasgow Warriors Rugby Club
- Tess Hill, GB Orienteer
- Paul Wilson and Ian Wright, Scottish Swimming

We are grateful to all the athletes who took the time to complete the survey and/or participated in the qualitative phase. Their honest responses and discussion underpin the strength of the findings.

Finally, we thank the Education Committee members at WADA and in particular the Education Manager Léa Cléret who responded quickly and helpfully to all our questions and offered committed support to the project from its inception to completion.

## EXECUTIVE SUMMARY

This project was developed to respond to WADA's Target Research scheme (2011) (details of the expertise of the research team are in Appendix 1). The aim was to understand if being in a team environment provided protection from the risk of doping compared with athletes who pursued individual sports. The findings would serve to underpin anti-doping education, understand the causes and risk patterns of doping attitudes and behaviours, and would be relevant for specific policy formulation as Article 11 of the WADA Code provides for sanctioning teams where three or more players have been found guilty of a doping violation.

The project examined individual and contextual factors within team and individual sports that may serve as protective or risk factors in doping. It focused on the dynamics within and among: the immediate social context such as pressures and attitudes of coaches and fellow athletes and accountability associated with Article 11 (see Appendix 2); the individual factors such as personal pressure to perform, motivation, and position within the team; and the wider social context of elite sport. It drew from previous models used to understand doping attitudes, behaviours and risks; and utilised an appropriate qualitative methodology. Elite level athletes in Scotland were the subject of the study and the research questions were examined firstly through a on-line survey (177 respondents) and secondly through qualitative methods (semi-structured interviews and focus groups) with 64 athletes from across team and individual sports.

Scotland has few historical cases of doping. We found that levels of risk were low compared to findings derived from studies in other countries. As set out below, we found that athletes who are members of teams are at significantly less risk than athletes who are either competing entirely in individual events or are mainly in individual sports with occasional team events. However, this latter category is at higher risk than the other categories.

A series of research questions provided the framework for our study (see Appendix 3). The key findings in relation to these questions are as follows:

Are the dynamics within the athletes' immediate social context (e.g., team or significant others) a risk or a protective factor for doping in sport?

The dynamics within an athletes' immediate social context provide a protective factor from doping in sport. The pressure derived from a results-oriented environment does not appear to increase risk for this sample of Scottish athletes. The attitudes of significant others, and the doping behaviours of team-mates are protective factors. While intrinsic or extrinsic motivation to succeed was identified by some athletes as important, the range of protective factors were of more influence. The doping behaviours of team-mates are identified as protective factors however all athletes reported that other members of their team did not use banned substances. The potential negative reaction of team-mates to a doping violation was a protective factor. The perception of other athletes' doping did not appear to increase levels of risk.

Are there pressures associated with accountability to team-mates, especially in respect of Article 11 of the Code?

Athletes do feel pressure with accountability to team-mates. The prospect of them being sanctioned provided a protective factor. Very few athletes had heard of, much less understood Article 11, and thus that part of the WADA Code does not serve the direct function of deterring doping behavior.

Rejection by team-mates is a powerful deterrent to doping. However, many athletes who participate in individual sports reported that they train with others with whom they have developed a close relationship. Being in a 'squad' seems to be as important as in a 'team'. Similarly, many athletes belong to wider organizational network such as the **sportscotland** Institute of Sport or the Winning Students sports scholarship programme. Their sense of responsibility therefore went beyond the immediate environment of team or squad, to include a wider set of stakeholders.

Are there similarities/differences in psychosocial factors associated with doping attitudes and behaviours between individual and team sports?

Athletes in individual and team sports reported contrasting psychosocial factors associated with doping attitudes and behaviours. Team athletes were significantly lower in attitude towards doping and ego orientation scores than individual athletes. They were also significantly higher in perceptions of a mastery motivational climate than individual athletes. The data gave an indication that being in a team may provide some protective factors to the athletes. When we had defined a third category ('individual+') which includes athletes who identified themselves as team and individual, for example, mostly individual but occasionally participating in a team competition (e.g. Ryder Cup in golf, swimming relay teams). This group had higher risk attitudes to doping and ego scores and lower in perceptions of mastery motivational climate, suggesting that this group may be at higher risk of doping compared with individual only and team only athletes. If we take the two individual groups together, the results show that team sport athletes have much lower risk and therefore being in a team as a regular part of lifestyle and career provides some protection against doping, which could be explained by the wider ranges of variables that are deemed influential in achieving success (tactics, team spirit and cohesion, skill/mastery, influence of supporters, home advantage, nature of the competition, etc).

How do the individual factors, immediate contextual factors and culture within a sport interact to influence doping attitudes and behaviour?

The wider culture of Scottish sport appears to be a protective factor. Even taking into account social desirability and self-selection of respondents, athletes appear firmly anti-doping. National identity was important as many reported that doping was not a Scottish trait and identified other countries where they had heard such cheating was more common. Their immediate context is perceived as anti-doping, with no respondent reporting that team-mates might dope, and almost all were convinced that a doping sanction would lead to social and sporting stigma. At an individual level, athletes did not report that the rewards of success would outweigh the risk of being caught, sanctioned and isolated from their sporting community.

What are the implications for the provision of anti-doping training and education through governing bodies?

The implication for anti-doping training is that athletes need more information about Article 11 and its consequences. However, it is also clear that the development of anti-doping environments through significant others (institutional support, family, coaches, peers) provides a powerful deterrent to doping behavior.

What theoretical framework can be used to further understand these issues and lay the ground for future research?

We would propose that a social ecology model would help understand these issues and lay the ground for future research. Individual attitudes and behaviour appear to be related to immediate social context and wider cultural milieu. Examining national culture and identity would be useful to further understand if and how individual psychosocial characteristics become more or less important in relation to the values and social dynamics of a regional or national culture. As concerns methodology, the mixed method approach provided us with valuable quantitative and qualitative evidence. However, we did not manage to explore the attitudes of high-risk athletes. Future projects might focus on places and sports where doping appears to be more prevalent.

## **1 INTRODUCTION**

Article 11 of the WADA Code provides regulation for the sanctioning of athletes within teams under the heading 'Consequences for Teams'. The details are:

“If more than two members of a team in a Team Sport are found to have committed an anti-doping rule violation during an Event Period, the ruling body of the Event shall impose an appropriate sanction on the team (e.g., loss of points, Disqualification from a Competition or Event, or other sanction) in addition to any Consequences imposed upon the individual athletes committing the anti-doping rule violation.”

A Team Sport is defined in the Code as one in which “the substitution of players is permitted during a Competition.”

The aim of this project was to understand if the environment within which an athlete competes can provide a risk or protective factor. There are two themes to this investigation. The first theme focuses on understanding of doping risk in different contexts, which can lead to improved anti-doping education and awareness. The second theme is policy-oriented, specifically whether Article 11 should be adapted in the Code Revision process.

The research methodology was developed from an understanding of the existing literature, an identification of potential gaps in current knowledge, and through advice from individuals involved with the WADA Social Science Grant Program.

## **2 BACKGROUND**

The development and implementation of an international, harmonised anti-doping system has progressed significantly through WADA's activities. Alongside these changes, there has been increased research investigating the relationship among athletes' personal factors, social context and their attitudes towards doping and anti-doping (Lazuras et al, 2010; Lentillon-Kaestner & Carstairs, 2010; Smith et al, 2010). These have found a range of explanatory factors that contribute towards understanding doping behaviours, but none of these studies have directly focused on the difference between team and individual sports. Indeed, this difference is rarely mentioned as high on the list of potential explanations for either risky doping behaviour or as protection from what Lazuras et al (2010) call 'situational temptation'.

While the recent evidence does not point to an observable difference between team and individual sports (Lazuras, et al, 2010), Article 11 of the WADA Code does create a specifically constructed outcome for doping violations within team sports. It is important that policy is based on evidence-based knowledge, and in this case on an understanding of team and individual athletes' attitudes, behaviours and potential responses to policy.

Backhouse and colleagues (2007) identified the need for theoretically-based research that could further our understanding of the variety and interactive effects of factors associated with doping. Therefore, it was proposed that a Social Ecological Model, such as has been used by Smith et al (2010) may be useful in bringing together the myriad precipitating and attitudinal factors that influence doping, and allow a fruitful exploration of the difference between team and individual sports using an appropriate

qualitative methodological approach. Rather than a specific theory, the Social Ecological Model presents a way to bring together and frame a range of theories and related research on a topic. The present study began with a quantitative approach drawing on Achievement Goal Theory (AGT) (Nicholls, 1989) to develop a 'risk profile' of participating athletes. From this 'risk profile' athletes were then selected to participate in the qualitative phase of the study where more in-depth understanding of the individual and social contextual factors explaining intentions and attitudes to doping were examined. The Social Ecological Model was used to examine the data at different levels as it related to doping in sport.

## **Developing a risk profile**

A theoretical approach that may prove useful for understanding precipitating factors and attitudes to doping is Achievement Goal Theory (AGT) (Nicholls, 1989). AGT proposes that how individuals define competence and success (goal orientation) and how their social context is shaped (motivational climate) influence motivated behaviours. Specifically, with a task goal orientation and in mastery motivational climate, competence and success are defined in self-referenced terms such as personal improvement and development, whereas an ego orientation and performance motivational climate define competence and success in reference to others (normative) such as outperforming others and winning. Holding an ego goal orientation has been associated with overall lower levels of moral functioning. This includes expressing unsportspersonlike attitudes and orientations, engaging in unsportspersonlike behaviours, viewing intentionally injurious act as justified, and employing less mature moral reasoning (Kavussanu, 2007). In contrast, a task orientation has consistently been associated with sportpersonship (Kavussanu, 2007). Recent research provides preliminary support for the importance of achievement goal orientations for understanding doping in sport. Sas-Nowosielski and Swiatkowska (2008) found that athletes who were relatively higher in ego goal orientation compared with task orientation were more likely to endorse doping. In contrast, a relatively higher task orientation was associated with more favourable attitudes towards anti-doping. The study included athletes with a wide range of ages and sport experiences limiting its applicability to elite athletes. However, given the promising initial finding using AGT, future research is warranted to examine this relationship in different and more homogeneous samples.

Although using AGT, Sas-Nowosielski and Swiatkowska (2008) only examined athletes' goal orientations (i.e., an individual factor), however, the theory also identifies the importance of the social psychological context, the motivational climate, in determining motivated behaviour. The motivational climate pertains to the goals that are emphasised and the values that are salient in the achievement context (Ames, 1992) and it is created by the actions of significant others such as the coach, teammates, and parents (Jowett & Lavallee, 2007). The mastery climate has been positively associated with prosocial behaviour, sportpersonship, including respect for the game, rules, officials, opponents, and teammates, and negatively related to antisocial behaviour, whereas a performance climate has been positively linked to antisocial behaviour and low levels of sportpersonship and moral functioning (e.g. Boardley & Kavussanu, 2009; Gano-Overway, Guivernau, Magyar, Waldron, & Ewing, 2005; Kavussanu, 2006; Kavussanu & Spray, 2006; Miller, Roberts, & Ommundsen, 2004). Coaches, parents and teammates have all been identified as important social influences in athletes' doping attitudes, intentions, and behaviour (Lentillon-Kaestner & Carstairs, 2010; Smith et al, 2010; Strelan & Boeckmann, 2003; 2006). However, researchers have not examined the relationship between the motivational climate and attitudes towards doping. Based on theory and research in relation to morality in sport it can be hypothesised that a mastery climate will be associated with less positive attitudes towards drug use, whereas a performance climate will be associated with more positive attitudes towards drug use. Therefore, it is



reasonable to suggest that a task orientation and mastery climate may provide a protective factor in relation to doping while an ego orientation and performance climate may place athletes at risk.

## **Purpose of the Research**

Therefore, the purpose of this research was to examine individual and contextual factors within team and individual sports that may serve as protective or risk factors in doping. The research focused on the dynamics within and among: the immediate social context such as pressures and attitudes of coaches and fellow athletes and accountability associated with Article 11; the individual factors such as personal pressure to perform, achievement motivation, and position within the team; and the wider social context of elite sport.

## **Research questions**

Several questions guided the research. These were:

- What dynamics within the athletes' immediate social context may operate as risk or protective factors for doping in sport?
- What role does Article 11 of the WADA Code play in athletes' perceptions and decisions about doping?
- Are there similarities/differences between team and individual athletes with regard to psychosocial factors associated with doping attitudes and behaviours?

## **3 METHODOLOGY OVERVIEW**

The research, which was focused on Scottish athletes who had reached higher levels of competitive performance in their sport, was undertaken in two stages using both quantitative and qualitative research methods. Stage 1 used an on-line survey of elite athletes in Scotland to determine attitudes towards doping in sport and to identify athletes for the second stage of the study. In Stage 2, interviews and group discussions were used to explore in-depth, athletes' attitudes and experiences of doping within their sports.

Each of the two stages are presented in separate chapters detailing the methodological approach, findings, discussions and conclusions.

## **Ethical Approval and Athlete Confidentiality**

The research received approval from the School of Sport Ethics Committee at the University of Stirling. Potential respondents were informed that their anonymity would be guaranteed and that the data would be managed in accordance with the Data Protection Act.

## 4 STAGE 1: SURVEY OF ATHLETES

### Introduction

This section presents the findings from a survey of elite athletes in Scotland. The survey was undertaken to obtain athletes' perspectives on their attitudes of doping in sport and to provide an assessment of the possible protective factors of team and individual sports against doping. The survey data were also used to identify athletes with differing levels of risk towards doping in sport to assist with the selection of athletes for interviews in Stage 2 of the research.

### Survey Methodology

An on-line survey was considered to be the most appropriate way of obtaining data from a geographically dispersed population of elite athletes and was administered using the Bristol Online Survey resource. The questionnaire included a range of psychological measures considered appropriate for the study. However, these measures had to be modified because a pilot of the initial draft questionnaire was considered to be too long (it took 15 minutes to complete). The measures adapted and used in the study included:

- The Performance Enhancement Attitude Scale (PEAS)
- The Perceived Motivational Climate in Sport Questionnaire (PMCSQ-2)
- The Task and Ego Goal Orientation in Sport Questionnaire (TEOSQ)

### Questionnaire Design

#### *Measures*

The questionnaire was divided into six main sections: sport information; attitudes to doping; coach-created motivational climate; achievement goal orientations; doping scenarios; and personal profile.

#### *1) Sport information - Your sport.*

This section of the questionnaire assessed athletes' level of involvement in Great Britain or Scottish age group or senior national squads; athletes' involvement in team and/or individual sport; and whether, and how often, they train with other athletes.

#### *2) Attitudes to sport and drugs.*

Participants' attitudes towards drug use in sport were assessed using a modified version of the Performance Enhancement Attitude Scale (PEAS) (Petroczi & Aidman, 2009). Six of the original 17 items were not included in the current study. Items were removed if they did not directly assess attitudes to drug use in sport, there was ambiguity in the wording or were repetitive.

In addition, the wording of three items was changed. The item 'there is no difference between drugs, fiberglass poles, and speedy swimsuits that are all used to enhance performance' was changed to the wording employed by Moran and colleagues (2008) 'there is no difference between drugs and the technical equipment that can be used to enhance performance (e.g., hypoxic altitude simulating environments)'. The item 'recreational drugs help to overcome boredom during training' was modified to capture all the time when athletes are away from competition when they are subject to the WADA code not just during training. The item wording was therefore changed 'recreational drugs help to overcome boredom outside of competition'. The item 'athletes are pressured to take performance-

enhancing drugs' was modified to be more specific to the individual athlete by changing the wording to 'athletes in my sport are pressured to take performance-enhancing drugs'.

The final 11-item was preceded by an explanation of doping in accordance of the WADA code and examples of recreational drugs. Participants then responded to the each item on a 6-point Likert-type scale from strongly disagree (1) to strongly agree (6). Consequently, no neutral middle point is offered. This provided a PEAS score for each athlete that could range from 11 up to 66 with a theoretical midpoint of 38.5. Higher scores indicate a more relaxed attitude to doping practices, while lower scores indicate a negative or intolerant attitude toward doping. Evidence of reliability has been demonstrated in previous research with college and elite athletes (Petroczi & Aidman, 2009; Moran et al., 2008).

### *3) Motivational Climate.*

Participants' perceptions of the coach-created motivational climate was assessed using an adapted version of the Perceived Motivational Climate in Sport Questionnaire (PMCSQ-2) (Newton, Duda, & Yin, 2000). For the purpose of this study we were interested in the high-order factors of coach-created mastery and performance motivational climates. A similar approach has been adopted by Smith and colleagues in youth sport (Smith, Cumming, & Smoll, 2008). In addition, the original scale was developed for use with teams, whereas the participants in the current study competed in team or individual sports a problem noted in previous research with elite athletes (Moran, Guerin, Kirby, MacIntyre, 2008). Furthermore, as the scale was only one of a number of scales included in the questionnaire we felt it was important to use a relatively brief measure. Therefore, in response to the stem 'In my team/training group the coach...' participants indicated the extent to which their coach emphasised a mastery or performance climate by responding to 12 items on a 5-point Likert-type scale ranging from 1 (never) to 5 (most of the time). The mastery climate subscale contained 6 items that reflected the coach's emphasis on improvement, co-operative learning, and effort. A sample item was 'focuses on athletes improving in each competition and training session'. The performance climate subscale contained 6 items that reflected the coach's emphasis on winning and outperforming others through punishment for mistakes, unequal recognition, and fostering inter-individual rivalry. A sample item was 'gets mad when an athlete makes a mistake'.

### *4) Achievement goal orientations.*

The participants' achievement (task and ego) goal orientations in sport were assessed through the Task and Ego Goal Orientation in Sport Questionnaire (TEOSQ; Duda & Nicholls, 1992). In response to the stem 'I feel successful in sport when...' participants indicated the extent to which they agreed or disagreed with each of the 13 items on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The task subscale consisted of seven items which focus on success defined through task mastery, learning, and effort. A sample item was 'I learn a new skill and it makes me want to practice more'. The ego orientation subscale contained six items which reflect success defined through outperforming others and the demonstration of superior ability. A sample item was 'I'm the only one who can do the play or skill'. This scale has been used extensively in sport research and evidence of validity and reliability has been provided through numerous empirical investigations (see Duda & Whitehead, 1998 for a review).

### *5) Doping Scenarios*

This section asked for athletes' reaction to being offered a banned performance substance that was currently not detectable. They were offered a range of options as to whether they would reject the offer outright or seek further advice. Following Donovan (2009), those athletes who would at least consider the offer were categorized as being of higher risk of doping.

## *6) Personal Profile*

This section requested information in the sex, age, working status, level of education, ethnic group and home postcode, from which socio-economic status could be established.

### *Invitation to take part in Further Research*

In addition, survey participants were asked if they would be willing to take part in group discussions or interviews at a later stage to discuss issues arising from the survey. If they were willing to participate in the second part of the study they were asked to provide their contact details. To encourage athletes to respond, a prize draw was included where one athlete chosen randomly from respondents would win £100 of vouchers from Greaves Sports Shop.

## **Survey Administration and Survey Respondents**

The survey was administered using the Bristol Online Surveys service, an online tool for creating web-based surveys. The questionnaire was made available on-line to approximately 500 Scottish athletes across a range of sports. A URL link to the survey was sent to all athletes supported through the **sportscotland** Institute of Sport and to approximately 100 elite student-athlete scholars on the Winning Students Programme (Scotland's national sport scholarship programme). **sportscotland** emailed the URL link to its athletes on behalf of the research team inviting the athletes to fill out the questionnaire which would take approximately 6-8 minutes to complete. A copy of the questionnaire is included in Appendix 4.

The initial email was sent by **sportscotland** on Monday 5th December 2011 and by Monday 19th December, 129 athletes had completed the questionnaire. A reminder email was sent to athletes on Tuesday 20th December encouraging the non-respondents to contribute to the research. By the closing date of Thursday 5th January 2012, a total of 177 athletes from 31 sport had completed the survey.

There was an almost even response from males (46%) and females (54%). The mean age of athletes was 23.3 years, with ages ranging from 13 up to 61.

In total, 95 athletes (54% of respondents) indicated that they would be willing to contribute to further research, though in practice not all of these responded to the requests for an interview, either ignoring the communications or citing a range of possible reasons for not participating.

## **Data analysis**

The data obtained through the Bristol Online Surveys website were exported into an SPSS (Statistical Package for the Social Sciences) data file and analysed using SPSS version 19.

### *1) Descriptive analyses.*

Demographic information on the participants was analysed and summarised. Descriptive statistics (i.e., mean, standard deviation, and Pearson's product-moment correlations) were calculated for all psychological variables. Reliability estimates were calculated for all psychological variables using alpha coefficients. Acceptable internal reliability for each of the measures employed was set a priori at .70 (Nunnally, 1978). All but one of the variables demonstrated acceptable reliability: task ( $\alpha = .84$ ) and ego ( $\alpha = .81$ ) orientation, attitudes to drug use in sport ( $\alpha = .71$ ), performance motivational climate ( $\alpha = .70$ ),

mastery motivational climate ( $\alpha = .68$ ). This variable was retained, but related results should be interpreted with a degree of caution.

## *2) Difference analyses.*

Data were examined for gender, experience, age, and team/individual sport differences on athletes' attitudes towards drug use in sport, perceptions of the motivational climate, and achievement goal orientations using one-way multivariate analysis of variance tests (MANOVA). This analysis provided initial insight into the risk or protective nature of team compared with individual participation.

With regard to assessing the protective factors afforded athletes taking part in team or individual sport, athletes were allocated into one of three groups:

- (i) Team only – this included athletes who only took part in sport in a team environment;
- (ii) Individual plus (individual+) – this included athletes whose involvement was primarily as an individual athlete, but who would on occasion compete as a member of a team (e.g. relay events; pairs/doubles; Ryder Cup style events in golf); and
- (iii) Individual only – this included athletes who only took part as an individual, or where involvement in a team context was very rare.

## **Results**

### **Descriptive analyses**

To provide an overview of the athletes participating in the study information on education, work status, socio-economic status, sporting background, and team and individual sport participation was summarised. In general, the sample consisted of mostly young, well educated athletes, who were from predominantly more affluent backgrounds.

#### *Education.*

Overall, the athletes were well educated. One third (33%) of athletes had a degree or higher degree, with 63% of those aged 25 or over having completed a degree or higher degree. Of those under 25 years of age, 72% had Higher/A-level or degree or higher degree qualifications.

#### *Work Status.*

Thirty-two per cent of respondents indicated that they were full-time athletes, with a further 22% indicating that they were part-time athletes. This means that a just under one-half of respondents did not indicate, in work status terms, that they were an athlete. Two respondents indicated that they were both full-time athletes and working full-time (see Table 1).

One-half (51%) of athletes were in education at the time of the study (school 21%; university/college 30%), with approximately one-third working full-time (21%) or part-time (11%). Of those under 25 years of age, 71% were in some form of education (school 42%; university/college 30%)

**Table 1: Working status of athletes**

	Percentage of Respondents
Full-time athlete	32
Part-time athlete	22
At university/college	30
Working full-time	21
Working part-time	11
Volunteering	2
Bringing up children	1
Full-time in the home	1
Unemployed	5
At school	21
<i>N</i>	177

Note: Multiple response – figures do not sum to 100 per cent

#### *Socio-Economic Status.*

The athletes were predominantly from more affluent areas of Scotland. Thirty-eight per cent of athletes were from 20% of the most affluent areas in Scotland, with only 4% from the 20% of most deprived areas of Scotland (see Table 2).

**Table 2: Socio-economic status based on residence**

	Percentage of Respondents
Quartile 5 – 20% of the least deprived areas	38
Quartile 4 -	24
Quartile 3 -	20
Quartile 2 -	14
Quartile 1 – 20% of the most deprived areas	4
<i>N</i>	157

#### *Sporting Background.*

The 177 athletes represented 31 different team and individual sports. Ten or more responses were obtained from the sports of curling (n=17), golf (n=16), hockey (n=16), football (n=15), swimming (n=13) and orienteering (n=10). In a small number of sports only one respondent replied, including winter sports (excluding skiing), mountain biking, handball, rowing and weightlifting.

Over nine out of ten (93%) of the athletes had/or were representing Great Britain or Scotland at international level, with 80 per cent having done so at age group level and 60 per cent having done so at senior level. On average athletes had represented their country at age group levels for 4.1 years and at senior level for on average 4.7 years.

#### *Team and Individual Sport Participation.*

Athletes were asked to identify whether they were involved in team or individual sports, with individual sports performers asked to indicate whether they ever took part in their sport on a team basis. Just over one-third (37%) indicated that they took part in sport on a team basis only. Less than a fifth (16%) of the athletes indicated that they took part in sport only on an individual basis, while the remainder, round one-half (47%) of the sample were individual sport participants that had experience of competing in a team context on occasions (individual+) (see Table 3).

**Table 3: Team / individual status of athletes**

	Percentage of Respondents
Team only	37
Individual+	47
Individual only	16

Note: Individual+ covers athletes who take part in individual sports and also take part in their sport in a team context (e.g. relay team, pairs/doubles).

#### *Psychological Variables.*

The mean, standard deviation and correlations were calculated for all psychological variables for all athletes (see Table 4). The athletes' attitudes towards drug use in sport scores ranged from 11 (lowest possible score) to 34 and all scores were below the theoretical mean (38.5). Therefore, the athletes' attitudes towards drug use in sport scores were low indicating a negative or intolerant attitude toward doping. In relation to the motivational variables the athletes perceived the coach-created motivational climate to be more mastery than performance focused. In addition, both task and ego goal orientation scores were high. These findings indicated that athletes perceived they participated in a coach-created climate that focused on mastery (i.e., individually-referenced effort, learning and progress) and athletes tended to define success in relation to effort, learning, improvement and comparative performances. In combination, the psychological variables indicated that these athletes were at a relatively low risk of doping.

**Table 4. Descriptive statistics for psychological variables**

	Attitude	MC	PC	Task	Ego
Attitudes to drug use	-				
Mastery climate (MC)	-.31*	-			
Performance climate (PC)	.14	-.18*	-		
Task	-.32*	.27*	-.05	-	
Ego	.32*	-.18*	.12	.07	-
Mean	19.87	4.08	2.25	4.24	3.54
SD	5.55	0.54	0.59	0.54	0.77

\*  $p < 0.05$

#### **Difference analyses**

##### *Difference between Male and Female Athletes.*

A one-way MANOVA was used to test for differences in the psychological variables between male and female athletes. The overall test was significant (Wilks Lambda = .91,  $F = 2.98 (5, 145)$ ,  $p = .01$ ) indicating that there were statistically significant differences in the psychological measures obtained from male and female athletes (see Table 5). Female athletes had significantly lower Attitude scores than male athletes and significantly higher Task scores than males. If these measures are an appropriate indicator of levels of risk of doping, then Scottish female athletes appear to be at lower risk than Scottish male athletes, although again it should be noted that overall the psychological variables indicate relatively low risk.

**Table 5: Attitudes to drug use, Perceived motivational climate, and Goal orientation scores by gender**

	<b>Males</b>	<b>Females</b>	<b>F</b>	<b>p</b>
Attitudes to drug use	21.01	19.19	4.11*	.04
Mastery climate	4.15	4.05	1.39	.24
Performance climate	2.31	2.27	.25	.62
Task	4.12	4.32	5.42*	.02
Ego	3.64	3.50	1.30	.26
<i>N</i>	70	81		

\*  $p < 0.05$

*Difference between Senior Scot/GB Athletes and non-Senior Scot/GB Athletes.*

The data were examined for differences in the psychological variables between athletes grouped by whether or not they had competed at senior international level (i.e., represented Scotland or Great Britain). The one-way MANOVA was not significant (Wilks Lambda = .94,  $F = 1.74$  (5, 139),  $p = .13$ ) indicating no statistically significant differences in the psychological variables between athletes competing at higher compared with lower levels.

*Difference between young and older athletes.*

The data were examined for differences in the psychological variables between athletes grouped into younger and older athletes based on the mean age of the sample (23.3 years). Athletes 23 years of age and younger were the young group. Athletes 24 years of age and older were the older group. The one-way MANOVA was not significant (Wilks Lambda = .99,  $F = .42$  (5, 144),  $p = .84$ ) indicating that there were no significant differences in the psychological measures as a function of age.

*Team vs. Individual difference analyses – psychological measures.*

The data were analysed to assess whether being a member of a team or individual athlete provides any protective factors against doping in sport. Athletes were split into two groups (team or individual) and scores compared on the five psychological variables: attitudes to drug use, mastery/performance motivational climate, task/ego goal orientation. The one-way MANOVA was significant (Wilks Lambda = .73,  $F = 10.71$  (5, 145),  $p = .00$ ) indicating that there were statistically significant differences between team and individual sport athletes on at least one of the psychological variables (see Table 6). There were statistically significant differences between team athletes and individual athletes on three variables. Team athletes were significantly lower in attitude and ego scores than individual athletes. They were also significantly higher in perceptions of a mastery motivational climate than individual athletes. The data gave an indication that the nature of participation (team / individual) may provide some protective factors to the athletes.

**Table 6: Attitudes toward drug use, Perceived motivational climate, and Goal orientation scores by team and individual competitor**

	<b>Team</b>	<b>Individual</b>	<b>F</b>	<b>p</b>
Attitudes to drug use	18.02	20.93	12.72*	.00
Mastery climate	4.24	3.99	9.91*	.00
Performance climate	2.31	2.22	.67	.41
Task	4.27	4.22	1.98	.16
Ego	3.11	3.79	38.90*	.00
<i>N</i>	56	95		

\*  $p < 0.01$



The WADA Code applies to any athlete who competes as part of a team, including team events within individual sports such as relays, pairs/doubles. Therefore, it was useful to examine if there were differences on the psychological variables between Team only athletes, Individual only athletes, and Individual+ athletes (i.e., individual sports competitors who have occasional team experience). A one-way MANOVA with Scheffe post-hoc tests was significant (Wilks Lambda = .71,  $F = 5.3$  (10, 288),  $p = .00$ ) indicating statistically significant differences in the psychological variables among the groups. There were significant differences between at least two groups for attitude toward drug use ( $F = 7.78$ ,  $p = .00$ ), mastery climate ( $F = 5.72$ ,  $p = .00$ ), and ego orientation ( $F = 19.80$ ,  $p = .00$ ). The follow-up tests for these variables indicated that there were differences between team only athletes and the two categories of individual athletes, with more differences between team and individual+ athletes than with individual only athletes (see Table 7). Team only athletes had significantly lower ego and attitude scores than individual+ athletes. Team only athletes' ego score was also significantly lower than individual only athletes. Team only athletes also rated motivational climate as being higher in mastery compared with individual+ athletes.

**Table 7: Attitudes toward drug use, Perceived motivational climate, Goal orientation scores by team only, individual+ and individual only competitors**

	Team only	Ind. +	Ind. only	Team vs Ind+	Team vs Ind. only	Ind+ vs Ind. only
Attitude to drug use	18.02	21.39	19.59	$p=.00$	NS	NS
Mastery climate	4.24	3.95	4.10	$p=.00$	NS	NS
Performance climate	2.31	2.24	2.15	NS	NS	NS
Task	4.27	4.17	4.37	NS	NS	NS
Ego	3.11	3.85	3.62	$p=.00$	$p=.00$	NS
Base number	56	73	22			

Notes: NS=not significant

It should be noted that there is a statistically significant difference between the mean age of team athletes (25.6 years) and individual+ athletes (21.6 years). However, a factorial MANOVA with sport status (team/individual+/individual only) and age (younger/older than mean age) as the between subjects factors did not reveal a significant interaction effect of these two variables on the psychological variables. The lack of a significant interaction effect combined with the non-significant finding with regard to age differences indicates that age is not a factor in explaining the differences between team/individual sport athletes' scores on the psychological variables.

*Team vs. Individual difference analyses – doping scenario question.*

Athletes were asked to indicate what their immediate response would be to the following scenario and what level of consideration they would give to such an offer. For this, we referred to a previous study by Donovan, R, Jalleh, G., and Gucciardi, D. (2009):

“If you were offered a banned performance enhancing substance under medical supervision at low or no financial cost and the banned performance enhancing substance could make significant difference to your performance and was currently not detectable...”

Table 8 and Table 9 show that overall, most Scottish athletes would be inclined to reject the offer outright. Team only athletes were more inclined to dismiss the offer than individual athletes although it

was individual+ athletes that had the highest proportion of respondents that would want to ask for more information or get an opinion from someone else (18%).

**Table 8: Scenario – What would be your most immediate reaction?**

	Team only	Ind.+	Ind. only	All
	Percentage of Respondents			
Ask for more information	2	1	7	2
Check the offer with a trusted friend	0	0	0	0
Check the offer with coach/trainer	0	4	3	2
Check the offer with sports doctor/pharmacist	6	13	0	9
Reject the offer	92	82	90	87
<i>Base Number</i>	65	83	29	177

Note: Differences between groups are not statistically significant

Also, individual+ athletes would give the offer greater consideration than team only or individual only athletes.

**Table 9: Scenario – How much consideration would you give to the offer?**

	Team only	Ind.+	Ind. only	All
	Percentage of Respondents			
1 = A lot of consideration	3	2	0	2
2	0	1	0	1
3	0	1	3	1
4	5	5	3	5
5	3	8	7	6
6	11	21	17	16
7 = None at all	78	61	69	69
<i>Base Number</i>	65	83	29	177

Note: Differences between groups are not statistically significant

## Discussion of Key Findings

### Attitudes towards drugs in sport

The athletes' attitudes towards drug use in sport were low indicating intolerance toward drug use. These findings are consistent with previous research using the Performance Enhancement Attitude Scale (Petroczi and Aidman, 2009). In research using the 17-item version of the PEAS with student and elite athlete populations the reported mean attitude scores range from 35.35 to 44.68. Direct comparison with the scores from our study is not possible because we revised the scale, including only 11-items. However, by dividing the PEAS mean scores from the Petroczi and Aidman studies and those from our study by the number of items in the PEAS scales, the scores can be converted to a score out 6 (i.e., the 6-point scale used in the measurement). For examples a mean score of 35.35 from Petroczi and Aidman divided by the number of items on the PEAS scale, 17, equals a score of 2.08 on the 6-point measurement scale. By converting the means to this common scale comparison is possible. From Petroczi and Aidman the mean attitude scores would correspond to scores of 2.08 and 2.63 on the 6 point-scale. In comparison the mean attitude of athletes in the current study was 1.81. Therefore,

although athletes' attitudes towards drug use in sport tends to be relatively low, the attitudes of the athletes in the present study appear to be even lower. When comparing team and individual athletes' attitudes towards drug use in sport, it was found that team athletes had significantly lower scores on the attitude scale indicating greater intolerance toward drug use. It is important to note that this finding may be in part related to the revisions made to the scale and future research should seek to corroborate this finding.

### **Goal orientations and perceptions of the motivational climate**

The athletes reported strong task and ego goal orientations indicating that they use both individually-referenced and other-referenced information in judging their success. A task orientation suggests a focus on individually-referenced effort, learning and progress to define success while an ego orientation suggests a focus on comparisons with others performance as the means for determining success. Research with younger or recreational participants has shown that individuals tend to have a stronger task orientation (Norm =  $4.08 \pm .57$ ) compared with ego orientation (Norm =  $2.87 \pm .81$ ) (Duda & Whitehead, 1998). However, research with elite athletes has demonstrated high task and ego orientations (e.g., Pensgaard & Roberts, 2003). Several recent studies have argued for and demonstrated a relationship between achievement goals and propensity for prohibited substance use (Barkoukis et al, 2011; Sas-Nowosielski & Swiatkowska, 2008). Ego orientation has been associated with greater endorsement of doping whereas a task orientation has been associated with more favourable attitudes towards anti-doping (Sas-Nowosielski & Swiatkowska, 2007). The strong ego orientation of these athletes suggests they may be at greater doping risk than sport participants in general.

The importance of the coach-created motivational climate in doping and anti-doping behaviour has not been examined before. However, in line with achievement goal theory and research on moral behaviour it was proposed that a performance climate would be associated with more positive attitudes towards drug use in sport and therefore place athletes at greater 'risk' of doping. In contrast, a mastery motivational climate would be associated with greater intolerance to drug use therefore providing a 'protective' factor with regard to doping. In general the athletes in the study reported experiencing a mastery rather than performance climate suggesting their immediate social context may provide some protection from doping.

When comparing team and individual athletes' goal orientations and perceptions of the coach-created motivational climate significant differences were found for ego orientation and mastery climate. Team athletes reported a lower ego orientation and higher mastery motivational climate compared with individual athletes. Combining this finding with the finding that team athletes reported a less positive attitude towards drug use in sport compared with individual athletes provide some evidence to suggest that team athletes may be provided with some protection from the risk of doping in comparison to individual athletes.

### **Summary/Conclusion**

The demographic profile of the athletes may be relevant for explaining the low propensity towards doping risk. Broadly characterized as educated, financially supported, and middle class, perhaps they are not in the category of those athletes who need to take risks in order to be successful. The desire to succeed at all costs can lead to doping and that does not appear to fit with this sample. In addition to the demographic profile, the psychological variables included in the study provide further insight into

the individual and social contextual factors that may be relevant in explaining doping risk and whether being part of a team is a risk or protective factor.

If these psychological measures are related to athletes' predisposition to doping, as research is beginning to demonstrate, then being a team sport competitor may provide some protection. Team sport athletes were less focused on an ego oriented conception of success than/ individual sport athletes. The team sport athletes also reported operating in a coach-created motivational climate that focused on mastery through individually-referenced effort, learning and progress. Both factors have been theoretically and empirically linked to more sportsperson-like attitudes and behaviours. In addition, the team sport athletes' attitudes towards drug use in sport were significantly lower than individual sport athletes indicating that team athletes were less tolerant of drug use. Combining these findings suggests that how achievement is defined by both the individual and the immediate social context may be important protective factors in relation to doping behaviour in sport.

## 5 STAGE 2: QUALITATIVE RESEARCH

### Introduction

This section presents the findings from twenty five interviews and six focus groups with Scottish performance athletes across a range of sports. A total of 64 athletes participated in this stage of the research. These came from 17 sports, 42% were female and 58% male, the mean age was 26, and ages ranged from 17 to 57.

### Methodology

#### Procedure

This phase focused on the thoughts, feelings and experiences of the athletes and so a qualitative approach to data collection was used. A combination of different sampling styles, including stratified and snowballing, were employed to ensure that the sample size was sufficient and appropriate.

All athletes [over the age of 16] who had completed the survey as part of phase 1 and had indicated a willingness to participate in an interview or focus group were categorised into low, medium and high doping risk profile groups according to their scores on the psychological variables using cluster analysis technique. Cluster analysis has been used in previous research to examine differences between groups who vary on a combination of variables rather than a single variable (e.g., Harwood, Cumming, & Fletcher, 2004; Hodge, Allen, Smellie, 2008; Hodge & Petlichkoff, 2000). Specifically, a non-hierarchical K-means clustering procedure (Quick Cluster; SPSS) was used to classify participants based on their attitudes to drug use, mastery climate, performance climate, task goal orientation, and ego goal orientation scores. These 'doping risk profiles' were used to guide selection of participants for interview in the second phase of the study to ensure interview participants reflected the range of doping risk profiles. Details of the cluster analysis is available in Appendix 5.

Athletes were initially contacted by email. However, it was anticipated that there would be difficulty sourcing a statistically-significant number of participants as a typical cross-section sample, hence sports directors and coaches were contacted as it was considered that they would be able to direct us to suitable participants. This method, previously used by Bloodworth and McNamee (2010) to increase their response rate in their study of young British athletes, proved successful and increased the number of participants by 50%.

Focus groups enabled in-depth discussion of issues highlighted as being significant from phase 1, and allowed for interaction between participants, as they compared and contrasted their knowledge, attitudes and experiences. Further, it was considered that focus groups are more effective in attracting participants who may be reluctant to take part in a formal one-to-one interview situation. Also, they facilitated interaction between members of the group (Bloodworth and McNamee 2010). It was envisaged that six focus groups consisting of 6-8 athletes would sufficiently represent our population.

As a number of athletes were willing to take part in the study but were unable to attend a focus group either due to sporting commitments or were out of Scotland at the time of data collection, a number of interviews (15) took place via Skype or by telephone. Further, 10 additional interviews took place face-to-face. These 25 interviews were in addition to the 6 focus groups.

To ensure that the interviews and focus groups ran as smoothly as possible, a pilot focus group was conducted. This included 6 athletes from a variety of team and individual sports. Based on the feedback from this discussion, an interview template was constructed.

### **Interview Procedure**

Several researchers have made reference to the impact of the team environment on the athlete's motivation to use performance enhancing drugs, specifically: Moran *et al* (2008), Mroczkowska (2011) and Smith *et al* (2010). The findings from phase 1 research, combined with WADA's brief, informed the questions for phase 2 (see Appendix 6). The interview was divided into the following sections:

1) *Pressures and support* – this included finding out about athletes' pressures, the support they receive, and the influence of team mates and fellow athletes on performance in training and competition.

2) *Knowledge* – this section assessed athlete's knowledge and experience of anti-doping education, testing, discussions about doping and incidents of doping in their sport. Additionally, athletes are asked to comment on why some athletes may take performance-enhancing drugs and conversely, what prevents others from taking them.

3) *Article 11* – this section assessed athlete's prior knowledge of Article 11, their immediate thoughts about it, and their opinions about three scenario-based questions.

The interviews and focus groups lasted between 30 to 90 minutes and were recorded using a standard Dictaphone, and later transcribed verbatim.

On completion of the schedule of interviews and focus groups, the data were collated and analysed using NVivo 10 software, a tool for organising and managing data. This would enable us to contrast and compare the responses received from athletes in team, individual+ and individual only sports to detect any trends in each. Further, the software would allow us to see if there was any inconsistency in the athletes' answers. To this end, the questions were phrased so that it was possible to detect any contradiction in their approach to the subject.

#### *Social desirability*

Some athletes may be reluctant to report incidents of doping in their sport, specifically any first-hand experience of team mates or competitors doping as it may portray their sport in a negative light. Furthermore, it is reasonable to assume that athletes may provide answers that are socially desirable rather than reflect their actual behaviour or their intentions to engage in doping. However, we attempted to address this risk by ensuring anonymity of responses; arguably those who participated individually would have felt more comfortable than those in focus groups where their anonymity is not guaranteed (though it was requested).

#### *The Respondents*

Sixty-four Scottish performance athletes participated in phase 2. The athletes represented a range of sports (17), including Golf, Badminton, Squash, Rugby, Football, Tennis, Cycling, Swimming, Hockey, Shooting, Curling, Wrestling, Volleyball, Canoeing, Skiing, Orienteering and Bobsledding. In terms of gender, 27 (42%) were female and 37 (58%) were male. The mean age of the participants was 26 years, with ages ranging from 17 - 57. Of these participants, 32 (50%) completed the survey beforehand.

The demographic profile of the sample is consistent with other profiles such as the sample used by Mroczkowska (2011) in her study of doping use among individual and group sport disciplines. Further, the sample size is considered sufficient and to provide enough evidence to meet the study's aims.

## Results

In reporting the findings, the key themes evident in each section of the interview are presented. Additional themes that were not the part of the original brief but are of interest will also be incorporated. These include "happy families" and the Olympic ban. Example quotes are used where appropriate; however, to maintain anonymity of the contributors, their names are omitted.

### Theme 1 - Athlete's Social Context

Participants were asked to describe what influence team mates and competitors had on their performance - at training and in competition. A number of athletes reported that they were confident and even 'comfortable' in their position:

"I don't feel pressure because I know that I'm an established player and I'm quite comfortable that there's nobody better than me." (Team athlete).

This view was echoed by other athletes:

"In the Scotland setup there's nobody that's even close." (Individual athlete)

Donovan *et al* (2002) and Moran *et al* (2008), among others, remind us that doping in sport is more likely to occur if athletes feel unable to achieve the desired level without performance-enhancing drugs. Therefore, feeling confident or 'comfortable' in one's ability to perform well [in Scotland] may well be a protective factor and act as a constraint on any intent or temptation to dope.

However, it should be noted that the category of participants who are willing to volunteer for a study may not be representative of the target population for various reasons. They are typically more confident individuals, who are more motivated to contribute to such studies, are more likely to hold anti-doping opinions and this may consequently affect the findings.

There is a connection here to the supposed Scottish 'losing mentality' which lavishes more praise on athletes for a putting up a gallant fight, to mask the disappointment at the lack of success (the London 2012 Olympics and Andy Murray's recent success excepted). Debates concerning Scottish culture are often characterised by Scots' lack of confidence, self-defeatist attitudes and under-achievement (Craig, 2003), although the relationship between perceived negative Scottish traits and sporting performance lacks evidence (Coalter, Taylor and Jarvie, 2006). This is in contrast to the emphasis placed on winning at all costs prevalent in other countries such as the USA, and may be attributed to the shortage of competition for places in Scottish teams or squads.

One athlete described the contrast between training in Scotland and the leading nation in their sport:

"It's funny, you think you're amazing at a sport until you go to another country and it's like I'm so bad". (Individual athlete).

Indeed, not all athletes were entirely comfortable with maintaining their place in the squad and stressed the importance of training hard to uphold their inclusion in the team.

Participants were asked to describe some of the pressures that they have experienced, which generated a range of responses, including: pressure to repeat a previous success, where teammates and other competitors are performing particularly well, the emergence of young talent, selection issues, and funding and internal pressures.

Athletes were asked if they had conversations with team mates or coaches about the prevalence and use of performance-enhancing drugs. This was intended to provide some indication of the views of relevant reference groups or significant others, which may subsequently influence the athlete, either positively or negatively. Donovan *et al* (2002) identified that primary contact groups, amongst them other athletes, coaches, and family members, can both provide a risk factor in the temptation to use performance-enhancing drugs, and on the other hand offer a protective deterrent against their use.

A number of athletes in this study, typically younger athletes (under the age of 20), had not previously engaged in discussions about performance-enhancing drugs, and generally had a limited understanding of doping issues. Several athletes commented that the interview represented the longest that they had ever discussed the topic. The majority of the remainder of participants provided examples of discussions and anecdotal evidence concerning other athletes who had taken performance-enhancing drugs, within and outside their sport, for example:

“The boys are always talking about say the Welshies taking steroids and a big thing in South Africa – that’s what we talk about – some of them go out of rugby for a year and then come back with a bit of steroids in them.” (Team athlete).

Only one athlete had ever been in a situation where they had been offered performance-enhancing drugs:

“They mentioned it to me and I said no, and it was never asked again” (Individual athlete).

Further, some athletes discussed the potential influence of team mates and coaches on athletes’ decisions to dope. Examples of such quotes are as follows:

“Especially in a team environment, you’re always going to get a more kind of leader so, you know, maybe if that person’s taking it who’s looked up to by the rest of the team then there’s going to be more chance.” (Individual athlete)

“I can see the team pressures; the peer pressure. The way the dynamics work- if you’re in a group and the group ethos is to do it- if you cannot join them you have to leave them.” (Individual athlete)

“I think the coach-athlete relationship when you’re a team’s completely different as well. Say you’re a sprinter or something; you’re with your coach all the time, whereas I’d maybe not speak to my coach for a day just because of the nature of the sport.” (Team athlete).



“In an individual sport it’s just coach and athlete and that’s the only person you depend on, whereas in a team you’ve got other people you can speak to and stuff.” (Team athlete).

These quotes illustrate a perceived distinction between individual and team sports with regard to the pressures influencing athletes to dope. Some team sport athletes were of the opinion that the coach-athlete relationship may have a slightly different emphasis in individual sports; as a result of greater one-to-one contact time, the coach may exercise more influence over the athlete. For example, one individual sport athlete said:

“Coaches have an awful lot of influence on their athletes...to influence one way or another” (Individual athlete).

Another shooter stated:

“I’ve certainly seen some countries or teams that are very influenced by the coach who tells the athlete what to do, when to get up, when to move, you know, the whole works. So if they say ‘here’s this glass of juice’ or ‘here’s these tablets- take them’ - they do as they’re told. End of story.” (Individual athlete).

However, it is worth noting that this view may not be based on first-hand practical experience of individual sports culture, and rather represent a hypothesis founded on a series of assumptions.

*Motivations and deterrents for drug use*

Participants commented on why they considered some athletes might take performance-enhancing drugs and conversely, what prevents others from using them (see Table below). Consistent across all sports, the greatest deterrent to any of the athletes in this study would be a ban from participating in their sport, and the majority proffered this as their main reason to steer clear of doping. This is illustrated by a hockey player:

“I want to play; I don’t want to be watching my team play instead of playing” (Team athlete).

**Table 10: Motivations and deterrents identified by interviewees**

<b>Motivations</b>	<b>Deterrents</b>
Sport-specific demands	The ban
Desire to win	Loss of funding
Accelerated performance gains	Moral integrity
Peer-pressure	Fear of rejection
Lack of confidence	Health risks
Country-specific demands	
Extrinsic rewards	

The most commonly stated motivation to take performance-enhancing drugs related to the sport and in particular its specific physical demands. Typical examples of this could be to make you faster on the track or stronger in the rugby pack.

#### *Limited knowledge*

A number of younger athletes felt that performance-enhancing drugs and steroids were synonymous and therefore only of benefit to power sports, and used the two words interchangeably during the interviews. For example:

“Things to give you big muscles don’t really help in [my sport] at all.” (Individual athlete)

“It’s not really having big muscles to be able to hit it far.” (Individual athlete)

“I don’t think it’s a terribly big issue in kayaking because you don’t want to be too big.”  
(Individual athlete)

This lack of knowledge of the range, scope and possible effects of the available performance-enhancing drugs may act as a protective factor against their use. If the athlete considers performance-enhancing drugs to have a detrimental effect or simply no impact on performance, then they may be less likely to be tempted by them.

However, athletes are also at a greater risk of inadvertent doping. For example, one athlete stated:

“I wouldn’t need to bother [checking the banned list] because I...wouldn’t take any of that stuff.” (Individual athlete)

Here the athlete is referring specifically to performance enhancing drugs, but was unaware that some regular medicines may in fact contain banned substances. This view was shared by other athletes:

“I would never even consider looking at what was in a medicine.” (Team athlete)

#### **Theme 2 - Article 11**

The majority of athletes in this study had not heard of Article 11. Only one athlete showed any recognition and responded:

“It rings a bell.” (Individual athlete).

Another athlete commented:

“...that sounds like reading to me. I don’t do that!” (Individual athlete).

The findings suggest that Article 11 does not appear to be acting as a deterrent for the athletes. This may be partially due to a lack of awareness but also due to confusion as to the import of the article for specific sports. However, as not all of the sample were team sport athletes and therefore affected by Article 11, it was unlikely that individual only athletes would have prior awareness of the sanction.

After a brief explanation of Article 11, the athletes were asked to provide comment, which generated a range of answers:

“The team shouldn’t be credited with the win...but why should that person be affected who’s done absolutely nothing wrong - played well - but then because some idiot’s not watched what they’re taking, or have taken something on purpose it’s ruined it for everybody.” (Individual athlete)

“If in your head if you’re not going to get that medal if you don’t dope, then how much of a deterrent is somebody else’s medal?” (Team athlete)

“You have to assume there’s some degree of communication between the two or three people that are cheating, but irrespective of that if a team has two or three people cheating on it none of the team should get a medal.” (Individual athlete)

“You can’t punish people just by association, but obviously that’s kind of what they are doing.” (Individual athlete)

“It’s quite airy fairy isn’t it?” (Team athlete)

“It should be done more of a percentage for sure. I play in the British volleyball team and there are six, seven players on the court and I would say if two players were taking drugs then they should be taken off.” (Team athlete)

“I think they should make that [Article 11] more well-known.” (Team athlete)

“I think that’s a real loop hole. I think you’d be very lucky to get three or more people in a team doing it.” (Team athlete)

### **Theme 3 – Peer pressure**

#### *Fear of rejection*

The majority of participants referred to the reaction of team mates, family members and competitors, among others as a deterrent:

“Although they’re my competitors, they’re my friends as well and they’re people that you speak to, your friends on Facebook or whatever, and you’ve just cheated them all by doping.” (Individual athlete)

This suggests that the athlete feels a collective responsibility to the total good, and does not want to experience the disappointment and displeasure they would engender if found colluding in drug-taking. Examples of such quotes are as follows:

“You’d lose a lot of friends if you got caught for doping.” (Individual athlete)

“The people round about you- the people who’ve supported you – your coaches, your family, what it would do to them to find out that you were cheating...I just couldn’t live with myself.” (Team athlete)

“You’ll not have any respect from any of your former team mates or your coach...if I did anything my parents, my sister and my friends would lose all the respect for me.” (Individual athlete)

“I couldn’t come back; it would be a complete dishonour, especially when...we talk about you’re wearing your country’s shirt, however many people want to wear that shirt!” (Team athlete)

“Because we’re academy and we’re trying to get in - if you got done for drugs now that’s you gone. No-one’s going to give a monkey who you are! Fair enough if you’ve got x number of England caps, but if you’re one of us then they’ll just go with someone else.” (team athlete)

“If you’d been caught taking drugs how would you ever be able to show your face in your club?” (Individual athlete)

“I mean the press are usually non-athletes so they don’t know what it feels like. They see it like he’s done his time whereas the athletes can actually see that he cheated.” (Individual athlete)

#### *Perceived doping habits of others/Scottish culture*

A number of participants commented on incidents of doping within their sports, but these referred to events in other countries. Few athletes felt it was a ‘British issue’. For example:

“It’s a continental thing I reckon...It’s not just about doping; it’s about how a country thinks and how people think.” (Individual athlete)

“The only Scottish drug cheats that I know of actually did it unintentionally; they had no intentions of actually cheating.” (Individual athlete)

“Other countries are more advanced and obviously know tricks.” (Individual athlete)

“There is that general feeling that the Chinese are all doping.” (Individual athlete)

“The British are kind of at the forefront of people who say that’s just cheating and shouldn’t be allowed, but there’s definitely societies around the world and I’ll name a few here – I’ve got no problems with naming them – Poland, Germany, Russia, China, to a certain extent some of the South American countries who just turn a blind eye to drug cheating.” (Individual athlete)

However, one athlete disagreed:

“A lot of people in this country have got this kind of naïve attitude to drugs and sport...the vast majority of people in today’s sport are taking something” (Team athlete).

During a training camp in Ukraine, one participant noted:

“There was a concoction of tablets laid out on each dinner setting...They’re getting handed out like ‘Smarties’. The doctor would stand there watching, making sure they took whatever it was. They said vitamin pills but we were thinking ‘nah, it’s not just vitamin pills’ because surely they should be optional?” (Individual athlete).

During a period of training in Belgium, another participant recalled:

“The one thing that really sticks in my mind is a drug-buying run to Roubaix one day. The guys sort of knew me by this point; I think they sort of trusted me... we went round all the various chemists and they stuffed their pockets full of stuff and then cycled back up the road” (Individual athlete).

Carstairs (2003) found that an athlete’s country of origin has an impact on the way they are portrayed and judged. This could include the representation of doping issues, specifically athletes who have been caught doping, both in the media and by general consensus within the population. Similarly, this may be extended to the country in which the athlete trains or lives for a short period, as they may adopt the culture whether anti-doping or pro-doping. One athlete, who was training in Norway stated:

“Norway is extremely, extremely anti-doping...If you got caught for drugs in Norway you would probably have to leave the country because of the hate mail and everybody would just hate you.” (Individual athlete)

Thus, the prominence of anti-doping culture may influence athletes’ attitudes towards performance-enhancing drugs. Scotland appears to pride itself in its anti-doping ethos which is corroborated by the seeming lack of cases of athletes who have tested positive. This in turns results in doping issues being out of the media limelight. In fact, when referring to doping incidents outside Britain, a number of athletes commented on how the situation would have been managed more severely in Britain, for example:

“If that was anyone from the Scotland squad...his feet wouldn’t have touched the ground!”

#### **Theme 4 - Contextual/cultural factors**

Some sports - such as racket sports - are typically not associated with doping. The requirement of different physiological demands might be reflected in the prevalence of doping. It is generally accepted that the use of performance-enhancing drugs is more common in physically demanding sports (e.g. weightlifting, athletics or cycling) than sports that require advanced specific motor skills (e.g. diving, curling etc.) (Kondric, et al 2011; Lentillon-Kaestner and Carstairs 2010). For example:

“Drugs can assist sports where just pure power, strength and endurance are a factor. Sports that are more skill based or tactic based...drugs aren’t doing you a whole lot of good.” (Individual athlete)

“In athletics a split second can make a big difference and I suppose that little bit of a banned substance could take you that little bit further.” (Individual athlete)

“If you’re in a team and if you’re not in peak physical condition it’s not as noticeable because you’ve got other team mates around you.” (Individual athlete)

Donovan (2002) found that knowledge or belief that a competitor is using performance enhancing drugs influences athletes’ use. Participants were asked if performance enhancing drugs were an issue in their sport and if there had been any high profile incidents in the past. This produced a variety of responses - on the one hand there were athletes who believed that their sport had a close relationship with performance-enhancing drugs, and on the other there were athletes who considered there would be no benefit in taking PEDs as their sports had different physical requirements. Examples of such quotes are as follows:

“I don’t think it’s a terribly big issue in canoeing...people won’t take steroids and that to get big and muscular because you need to pull that weight through the water technically.” (Individual athlete)

“I think for squash there’s not much you can actually take to help.” (Individual athlete)

“Even if you are immensely strong you’re not going to be that good at curling. It’s all about touch and feel and stuff like that. I don’t think there’s any drug that would help.” (Team athlete)

“I think it’s probably more of an issue in more physical sports.” (Individual athlete)

“I’m training to be a golfer; I’m not training to be a weightlifter.” (Individual athlete)

The athletes provided a variety of different reasons why they thought their sport did or did not have a relationship with performance enhancing drugs, which included the following:

- Physical requirements of the sport, for example, it was felt that use of performance-enhancing drugs is more common in physically demanding sports (power sports)
- Popularity of the sport/money linked to the sport. This relates to the extrinsic rewards and sponsorship that may result from winning. For example:

“I think people would definitely start [doping] if squash was as high profile and there was as much at stake as say cycling.” (Individual athlete)

- History and culture of the sport, which includes knowledge of previous offences (doping and otherwise) in the sport, and a belief that it is or is not tolerated within that particular sport. For example:

“When you’re playing golf it would be so easy to cheat and stuff, like easier than you could ever believe but basically the integrity of the sport – nobody does it.” (Individual athlete)

## **Theme 5 - Anti-doping education**

There was a mixed response to the quality of anti-doping education received, which largely depended

on the type of sport. Some athletes felt that they received sufficient education, describing their experiences as positive and informative. However, the vast majority appear to have limited knowledge of anti-doping issues. The levels of exposure through anti-doping educational activities varied with some athletes, especially younger ones who often had only received very basic information or training. Many did not consider doping as an issue in their sport so did not value the importance of anti-doping education. Examples of such quotes are as follows:

“I had lots and lots and lots...it comes down to the culture or system that you’re embedded in... there’s absolutely no excuse for them to test positive because of the level of education they get.” (Individual athlete)

“It seemed as though the coaches thought it was a waste of time...they weren’t really bothered if it went in or not, you know, they just wanted it ticked off that you’d done it.” (Team athlete)

“All I can remember is getting a free water bottle at the end.” (Team athlete)

“We were just handed wee cards and things, which were ultimately binned immediately.” (Team athlete)

Several athletes noted that they ‘err on the side of caution’ and avoid taking any medicines when ill. For example:

“It’s just not worth it either way. You’re going to get over an illness aren’t you?” (Team athlete).

Although this could be a matter of personal preference, if athletes choose to avoid medicines for fear of accidentally testing positive, there may be an impact on training and competitions as their recovery period may be somewhat longer without medicine. This highlights the importance of regular, effective anti-doping education.

A number of athletes discussed Alain Baxter’s case without being prompted. This suggests that this particular “Scottish” incident serves as a reminder to athletes to constantly check the content of medicines, for example:

“It’s pretty scary as an athlete to actually know that these instances exist and that can happen so easily especially when you’re travelling and in foreign countries when you get sick.” (Individual athlete)

“He said that they’re the same as we would get here...I wouldn’t take nothing...especially after the guy...the skier lad- won the bronze medal in the Olympics [Alain Baxter]...I think that was over a Vicks nasal spray and that always sticks in my mind.” (Team athlete)

Furthermore, it suggests that anecdotal evidence of doping may be a significant educational tool as it provides a more pertinent, real-life, and memorable impact which could not be accomplished as efficiently through any physical presentation. Athletes may more easily identify with an actual situation that occurred, than just being presented with a mundane and complicated list of banned substances.

The majority of athletes were unsure of the exact length of ban for a doping offence in their sport, but estimated two years. There were mixed opinions on the appropriate punishment for a doping offence ranging from two year to lifetime bans. One might have expected some sports to be more tolerant than others, but there was no obvious pattern of response. It was mostly attributable to the individual's personal views independent of their sport.

### **Comparisons between team and individual athletes**

There did not appear to be any clear distinctions between the responses of athletes from *team*, *individual* and *individual+* sports. An explanation for this may be that many individual and hybrid sport athletes displayed a sense of belonging to a team. For example, an athlete from an individual sport expressed:

"I'm part of a sport team as well. If I was going to cheat, the first three people I would think of would be the other three people with me in my medley relay and if me cheating would preclude them from getting a medal, then my fear would be for them as well" (Individual athlete).

Although many athletes may compete individually, for the majority of their training and during competitions such as the Commonwealth and Olympic Games, they have a sense of belonging to a team. There is therefore an ambiguous element when comparing individual versus team influences as there are often periods when the individual athlete competes within a team ethic. In this case, they often referred to their 'team' and talked about their 'teammates'. For example:

"It's an individual sport, but I would definitely say – especially in our team – we're quite a tight knit bunch and we're all there for each other." (Individual athlete)

"It's very much a team. Very, very much a team." (Individual athlete)

"I think even though it's an individual sport in a way you are like part of a team, especially day-to-day as part of your training." (Individual athlete)

### **Other themes that emerged from the interviews**

#### *Happy Families*

A number of athletes expressed that they felt 'comfortable' within their national set-up. This was partly due to confidence in their own ability, and partly due to the relationships that they had developed with teammates and management alike. Further, some athletes in the study had a family member as their coach, manager or teammate. Examples of such quotes are as follows:

"If you do well everybody congratulates you...It's very team-based outside the pool." (Individual athlete)

"We all get on great [I play with] my big cousin." (Team athlete)

"The national team head coach is actually my dad" (Individual athlete)



“The people that are running the Scotland setup are my dad and my coach.” (Team athlete)

#### *The Olympic Ban.*

During the time the interviews, the Olympic ban was still enforced. Athletes were asked if they felt it was a useful deterrent. The majority of athletes who competed in an Olympic sport felt that the ban posed as an additional deterrent whilst capturing the essence, history and patriotism of British sport. For example:

“I’ve got no idea why a British athlete would ever dope...you’ve got so many anti-incentives like the BOA rule being banned from the Olympics...It’s like shooting yourself in the foot.” (Individual athlete)

“The Olympics is the pinnacle of any sport that’s included within it, so to have that taken away from you permanently then I think that’s a much more effective deterrent than a two year ban.” (Team athlete)

“The Olympic moral and the integrity of everyone that goes to the Olympics – certainly from a British perspective – is that a cheat is always a cheat and they shouldn’t be allowed to compete.” (Individual athlete)

## **6 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

The purpose of this study was to determine whether the team environment influences athletes either as a risk or a protective factor with regard to doping by comparing the responses of team, individual and hybrid sport athletes respectively. Although our findings showed no clear distinctions between the responses of the three groups, it emerged that the Scottish team environment i.e. having a sense of belonging to a “team” of some description is protecting the athletes as they fear both the shame of being caught, and the likely social marginalisation that would follow. The most significant deterrents were the ban from the sport and the risk of social isolation that may result from taking performance-enhancing drugs, which is consistent with Kirby et al’s (2011) findings. Therefore, one of the key outcomes is the need to promote cultures of anti-doping within team sports based on ethics, mutual support and education.

Additionally, some athletes discussed the potential influence of coaches on athletes’ decisions to dope and highlighted a perceived distinction between individual and team sports with regard to the pressures influencing athletes to dope. Some team sport athletes were of the opinion that the coach-athlete relationship may have a slightly different emphasis in individual sports; as a result of greater one-to-one contact time, the coach may exercise more influence over the athlete. We suggest that this is an area in need of greater exploration, specifically the impact of the coach on athletes’ attitudes towards performance-enhancing drugs.

The athletes in this study regarded performance enhancing drugs as having greater performance benefits for athletes from more physically demanding sports such as cycling and athletics than sports that were more skill-based. However, for some athletes this resulted from a lack of understanding of the various types and functions of drugs.

Moran *et al* (2008) found that athletes from speed and power sports displayed considerably more positive doping attitudes than team sport athletes. Similarly, Lotz and Hagemann (2007) found that athletes from more doping-prone sports (e.g. track and field athletes) exhibited more positive associations with doping than athletes from sports in which doping appears less common (e.g. table tennis). However, no similar or distinctive pattern was apparent in this study. The majority of athletes were reverently anti-doping. Only one athlete differed from this pattern. Although they did not admit doping, they did express some regret in not having taken performance-enhancing drugs when they were offered:

“Can I be honest with you? I kind of look back at my life and I say to myself maybe I was a bit young and stupid and naïve and I should have dabbled a bit and see what happened.”

“I was a bit young and naïve and an idiot and I should have woke up to it. I should have just said actually do you know what; I should have gave it a shot maybe. I probably would have just been some low level [athlete] on crap money, getting treated like shit, but hey to everybody else I would have been a professional. I would have been the nuts.”

“They [athletes] were getting treated like dogs...if you see what they have to do for £10,000 a year you’d be putting something in your body as well!” (Individual athlete)

The respondents highlighted a lack of awareness, consensus and indeed understanding of what Article 11 implies for team sports participants. This suggests that Article 11 does not appear to be acting as a deterrent for the athletes in this study. We, however, suggest three options: to retain Article 11 in its current form, to withdraw it, or to revise it. Details of the recommendations are presented in Appendix 7.

The interviews and focus groups provided a rare occasion for the athletes to discuss doping matters. For many athletes, this was their first opportunity to consider and address a number of issues, and was a particularly useful method of listening to their views, revealing other issues, and discovering their current knowledge and experience of doping in sport and anti-doping policy in particular. This suggests an approach that takes into account the background and culture of the learner or in this case athlete. This includes previous anti-doping education, period of time playing the sport, and the sporting context as together these determine the learner’s knowledge and understanding.

It would be impractical to operate a large-scale anti-doping education programme in this way. However, a more tailored form of education may be useful, particularly for athletes who have already received several presentations and have a long history in performance sport.

The project revealed a complex set of psycho-social variables and qualitative comments. The picture of Scottish sport as a whole suggests the national-level culture is anti-doping, and the profile of the athletes in the study might help explain the anti-doping culture. However, we should qualify that assertion by re-asserting the limitations of social desirability and the self-selecting nature of respondents.

The policy consequences are clear: athletes need more information about Article 11, they need more education about the Code and the range of violations, and yet they feel supported by localised and national anti-doping values.

The behavioural social science outcomes are complex. There is no obvious explanation why athletes in the individual+ category should be at higher risk. However, it does seem to be the case that athletes in team sports are at less risk than the other two categories. Without knowledge of Article 11, this suggests that a team environment provides a set of circumstances to reduce the risk of doping.

We found few other direct correlations, except that women are at less risk than men.

Finally, athletes' overall understanding of doping is simplistic. Many had not received detailed anti-doping education, and found the opportunity to discuss the issue stimulating and revealing.

## **Limitations**

Firstly, only half of the sample completed the questionnaire (stage 1) prior to participating in stage 2. This meant that there were limitations in using this information for comparison purposes in Stage 2. However, as some of the focus groups were arranged with the help of a coach or team leader, it was not possible to know exactly who was participating in the focus groups in advance and therefore issue a questionnaire.

It is necessary to recognise that the results are only indicative of a smaller percentage, and cannot be made to represent all Scottish athletes as a whole by extrapolating to structure a general consensus. Further, it is reasonable to assume that those athletes taking part in Phase 2 represent generally those who are 'lower risk'. Thus, to some extent, this study can only analyse the response of athletes who have not tested positive, and their apparent deterrents to dope. The negative consequences of being associated with doping are likely to dissuade athletes who have, or intend to engage in doping, from taking part in this study. However, it is useful to explore and understand athletes' attitudes towards doping and the kinds of pressures and temptations they may perceive at the elite levels of Scottish sport. In this case, it emerged that they may be at greater risk of inadvertent doping.

## **Future Research and Theories**

### **Social Ecology model**

Recent research has found a range of explanatory factors that contribute towards understanding doping behaviours, and suggests that Social Ecological models would help unravel the complexities of the relationships among individual and contextual variables. The relevance of Social Ecological models (e.g., Breslow, 1996; McLeroy et al, 1988) to health behaviour research and interventions is widely recognised (Sallis et al, 1998). A recent study by Smith et al (2010) adopted a Social Ecological approach to assess contextual factors influencing the formation of attitudes relating to doping and anti-doping. They found both individual and contextual factors were relevant. At the personal level important characteristics were those related to participation in elite sport such as self-drive, goal setting, and a sense that superior performance was part of their identity. At the contextual level there were influences from their more immediate social environment: parents and coaches, the wider sport culture (i.e., masculinity, risk taking, aggressiveness) and commercialisation (i.e., drive to secure a competitive edge, financial incentives, opportunities for fame, relentless competition and continually rising expectations). This study has provided an in-depth analysis of individual and contextual influences on attitudes to doping. However, further research might involve spending more time with athletes to develop greater

awareness of the range of factors that might influence their doping attitudes, some of which would not be articulated in a one-off interview situation.

### **Empirical Issues**

It would be useful to identify and research contrasting cultures of high and low risk because the results of this study might be explained by the 'low risk' environment of Scottish sport. For example, in the USA performance enhancing supplements are more widely available in sport and non-sports contexts (Hoberman 2005) while professional sports have a reputation for doping prevalence. A less conservative sporting environment than Scotland might yield a diverse range of different results to those found in this study. However, the challenge remains how to access athletes at higher risk of doping and how to manage social desirability of responses. The recent investigations into cultures of doping in professional cycling show how real that challenge is, even for those with Government or NADO resources.

Lastly, there is a need for pedagogical research into best practice for anti-doping education. Athletes seem to lack engagement with the current practices in this field. A superficial approach of information provision seems inadequate, a focus on PEDs is simplistic and a scare-mongering approach focusing on health risks is unlikely to dissuade a determined doper. Moreover, the use of medicines and other ways to inadvertently dope require more coverage. The use of social media might be the focus of an exploratory intervention study to assess the effectiveness of innovative communication and teaching methods.

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## **Appendix 1: Details of the Research Team**

**Dr Paul Dimeo** is a Senior Lecturer in the School of Sport, University of Stirling. His research interests and expertise are in the area of doping and anti-doping, and he has published widely on historical and policy aspects.

**Dr Justine Allen** is a Lecturer in School of Sport, University of Stirling. Her research interests and expertise include coach development and support, coaches' influence on sportspersons' experiences in sport, and participants' motivation and psychosocial development.

**John Taylor** is a Research Fellow in the School of Sport, University of Stirling. John has 18 years experience as a researcher and research manager utilising both quantitative and qualitative research methods to explore a broad range of policy and management issues in sport.

**Professor Leigh Robinson** is Professor of Sports Management in the School of Sport, University of Stirling. She is an expert in the governance and management of change in sport governing bodies and is the Director of Governance and Compliance for Commonwealth Games Scotland.

**Sarah Dixon** is a Research Assistant in the School of Sport, University of Stirling. Her research interests include anti-doping and coaching.

## **Appendix 2: Article 11 WADA Code 2009**

### **ARTICLE 11: CONSEQUENCES TO TEAMS**

#### **11.1 Testing of Team Sports**

Where more than one member of a team in a Team Sport has been notified of an anti-doping rule violation under Article 7 in connection with an Event, the ruling body for the Event shall conduct appropriate Target Testing of the team during the Event Period.

#### **11.2 Consequences for Team Sports**

If more than two members of a team in a Team Sport are found to have committed an anti-doping rule violation during an Event Period, the ruling body of the Event shall impose an appropriate sanction on the team (e.g., loss of points, Disqualification from a Competition or Event, or other sanction) in addition to any Consequences imposed upon the individual Athletes committing the anti-doping rule violation.

#### **11.3 Event Ruling Body May Establish**

##### **Stricter Consequences for Team Sports**

The ruling body for an Event may elect to establish rules for the Event which impose Consequences for Team Sports stricter than those in Article 11.2 for purposes of the Event.

[Comment to Article 11.3: For example, the International Olympic Committee could establish rules which would require Disqualification of a team from the Games of the Olympiad based on a lesser number of anti-doping rule violations during the period of the Games of the Olympiad.]

### **Appendix 3: Schedule of Research Questions Provided by WADA**

Are the dynamics within the athletes' immediate social context (e.g., team or significant others) a risk or a protective factor for doping in sport?

Are the pressures derived from a results-oriented environment and from competition with a team a risk factor for doping in sport?

Does the value of individual contribution affect the pressure to perform?

Are the attitudes of significant others in the immediate social context a risk or protective factor for doping in sport?

Is intrinsic or extrinsic motivation to succeed a risk factor?

Are the doping behaviours (real or perceived) of teammates/other athletes a risk or protective factor?

Are there pressures associated with accountability to team-mates, especially in respect of Article 11 of the Code?

Is the fear of having team-mates sanctioned because of one's own behaviour a protective factor?

To what extent do athletes understand Article 11, the range of potential violations and the outcomes of these?

Peer Pressure

Is rejection (or fear of) by teammates in the case of a rule violation a protective factor?

Are doping behaviours and acceptance of doping by teammates a risk factor?

Are there similarities/differences in psychosocial factors associated doping attitudes and behaviours between individual and team sports?

Does an individual sport athlete training in a group environment afford greater risk or protection for doping?

How do the individual factors, immediate contextual factors and culture within a sport interact to influence doping attitudes and behaviour?

What are the implications for the provision of anti-doping training and education through governing bodies?

What theoretical framework can be used to further understand these issues and lay the ground for future research?

## Appendix 4 – Survey Questionnaire

Note: The questionnaire presented is the paper version. There were some different formatting aspects on the on-line version, although the content was the same.

### Performance Sport Survey - Scotland

The School of Sport at the University of Stirling, in association with **sportscotland**, is undertaking a study to investigate a range of issues in high performance sport.

As a Scottish athlete competing at the highest levels, we would welcome your contribution to this study. The questionnaire will take about 6-8 minutes to complete.

Please be assured that your responses will remain confidential and that nothing that appears in the final report will be attributable to any individual athlete. Staff from **sportscotland** will not see responses from individual athletes. The survey answers will be managed in accordance with the Data Protection Act.

This research has received approval from the School of Sport Ethics Committee at the University of Stirling.

If you complete the questionnaire, you will be entered into a prize draw to win vouchers worth £100 from Greaves Sports Shop. If you wish to be considered you need to provide your contact details at the end of the questionnaire.

Thank you.

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University of Stirling

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# Your Sport

**1 In what sport do you compete (please indicate your MAIN sport if you do more than one)? (Please write in your sport)**

.....

**2a Have you ever represented Scotland or Great Britain in your sport at AGE GROUP level (e.g. U16, U18, U23)?**

Yes

No

**2b If yes, how many years did you/have you competed for Scotland or Great Britain at age group level?**

.....Years

**3a Have you ever represented Scotland or Great Britain in your sport at SENIOR level?**

Yes

No

**3b If yes, how many years did you/have you competed for Scotland or Great Britain at senior level?**

.....Years

**4a Do you compete in your sport as a member of a TEAM?**

Yes

No  Go to Q5a

**4b If you compete as a member of a TEAM, does your sport allow for substitutions during competition?**

Yes

No

**5a Do you compete in your sport as an INDIVIDUAL?**

Yes

No  Go to Q6

**5b If you compete as an INDIVIDUAL, do you ever play alongside other people in team competition (e.g. relay events, pairs or doubles competition)?**

- Yes
- No

**6 How often do you compete in your sport as a member of a team?  
Note: not including being a member of a multi-sport event squad  
(e.g. Team GB at the Olympics)**

- All of the time
- Most of the time
- Some of the time
- Rarely
- Never

**7 How often do you train with other athletes?**

- All of the time
- Most of the time
- Some of the time
- Rarely
- Never

This question asks for your opinion of the coaching climate for your team/ training group.

**9 In my team/training group the coach...**

	<b>Never</b>	<b>Rarely</b>	<b>Sometimes</b>	<b>Most of the time</b>	<b>All of the time</b>
<b>a.</b> ...encourages athletes to help each other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>b.</b> ...punishes athletes for errors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>c.</b> ...encourages athletes to work on their weaknesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>d.</b> ...favours the best athletes more than others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>e.</b> ...emphasises that athletes 'work together' to develop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>f.</b> ...only focuses on the top athletes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>g.</b> ...rewards trying hard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>h.</b> ...encourages athletes to help each get better and excel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>i.</b> ...encourages athletes to perform better than each other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>j.</b> ...gets mad when an athlete makes a mistake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>k.</b> ...focuses on athletes improving in each competition and training session	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>l.</b> ...only praises athletes when they outperform others in the team/group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# Attitudes to Sport and Drugs

For the purpose of this study...

**The term doping refers to the use of substances and techniques listed in the prohibited lists as part of the WADA Code, including:**

*S0 Non-Approved Substance*

*S1 Anabolic Agents*

*S2 Peptide hormones, growth factors and related substances*

*S3 Beta-2 Agonists*

*S4 Hormone antagonists and modulators*

*S5 Diuretics and other masking agents*

*S6 Stimulants*

*S7 Narcotics*

*S8 Cannabinoids*

*S9 Glucocorticosteroids*

*M1 Enhancement of oxygen transfer*

*M2 Chemical and physical manipulation*

*M3 Gene doping*

**Recreational drugs include:**

*tranquilizers, barbiturates (sedatives), tobacco and alcohol, cannabis, heroin, cocaine/crack, speed, hallucinogens (LSD, PCP), and inhalants (glue, etc.).*

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

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

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
<b>a.</b> Athletes often lose time due to injuries and banned drugs can help to make up lost time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>b.</b> Only the quality of performance should matter, not the way athletes achieve it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>c.</b> Athletes in my sport are pressured to take performance-enhancing drugs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>d.</b> Athletes who take recreational drugs use them because they help them in sport situations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>e.</b> The risks related to doping are exaggerated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>f.</b> Doping is an unavoidable part of competitive sport.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>g.</b> Recreational drugs help to overcome boredom outside of competition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>h.</b> There is no difference between drugs and the technical equipment that can be used to enhance performance (e.g. hypoxic altitude simulating environments).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>i.</b> The media should talk less about doping.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>j.</b> The media blows the doping issue out of proportion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>k.</b> Health problems related to rigorous training and injuries are just as bad as doping side effects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please read each statement below carefully and tick the box after each statement that shows your level of agreement.

**11 I feel successful in sport when...**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
<b>a.</b> I'm the only one who can do the play or skill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>b.</b> I learn a new skill and it makes me want to practice more	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>c.</b> I can do better than other athletes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>d.</b> The others can't do as well as me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>e.</b> I learn something that is fun to do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>f.</b> Others mess up and I don't	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>g.</b> I learn a new skill by trying hard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>h.</b> I work really hard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>i.</b> I score the most points or goals/earn fastest time/gain highest finishing position etc..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>j.</b> Something I learn makes me want to go practice more	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>k.</b> I'm the best	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>l.</b> A skill I learn really feels right	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>m.</b> I do my very best	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you were offered a banned performance enhancing substance under medical supervision at low or no financial cost and the banned performance enhancing substance could make significant difference to your performance and was currently not detectable...

**12 What would be your most likely immediate reaction?**

- Ask for more information
- Check the offer with trusted friend
- Check the offer with coach/trainer
- Check the offer with sports doctor /pharmacist
- Reject the offer

**13 How much consideration would you give to the offer?**

- 1 = A lot of consideration
- 2
- 3
- 4
- 5
- 6
- 7 = None at all

## Personal Profile

14 Are you:

Male

Female

15 How old are you?

.....Years

16 Which of the following describes your working status?

Full-time athlete

Part-time athlete

Studying at university/college

Working full-time

Working part-time

Volunteering (full- or part-time)

Bringing up children

Full-time in the home

Unemployed

Still at school

17 Which of these best describes your highest level of educational qualification?

Higher degree

Degree

HNC/HND

SVQ

Higher / A-Level

Standard grade

No school qualifications

Other (please specify).....

18 What is your ethnic group?

White

Asian

Black

Chinese

Mixed

Other (please specify) .....

19 What is the postcode of your HOME address? (Note: If you are living away from home on a temporary basis (e.g. studying, training), please add your home postcode:)

\_\_\_\_\_

**Invitation to take part in further research**

The research team would like to explore athletes' experiences of the pressures of competing in team and individual sports and we would like to invite you to take part in a group discussion or interview at a place and time that would be convenient to you. The group discussion or interview will not take more than one hour.

20a Would you be willing to take part in further research?

Yes   
No

20b Would you like to be entered into the prize draw?

Yes   
No

20c If yes to either of the questions above, please would you provide your NAME (first name and surname), EMAIL and a TELEPHONE NUMBER at which we would be able to contact you.

Name .....

Email .....

Telephone .....

**Thank you for taking the time to complete this survey - your contribution to the research is much appreciated.**

**We wish you continued success with your sporting career.**

## APPENDIX 5: Doping ‘risk’ profiles – Cluster analysis

Ninety-five athletes who responded to the questionnaire indicated that they would be willing to participate in the second phase of the study – focus group/interview. To guide selection of participants for phase two of the study doping risk profiles were developed using cluster analysis of the psychological variables. This procedure classifies participants into groups based on their scores on a combination of variables. A non-hierarchical K-means clustering procedure was used to classify participants into doping risk profile groups based on their attitudes to drug use in sport, mastery/performance climate, and task/ego goal orientation scores. Of the data for the 95 participants, 14 contained missing data and these participants were excluded from the cluster analysis.

Results from two-, three-, and four-cluster solutions were examined. Based on conceptual issues and empirical findings the three-cluster solution was determined to be the best fit. The three-cluster profile groups provided relevant contrast groups and contained adequate participant number in each cluster for selection in phase two of the study. A z score of  $\pm 0.5$  was used as a criterion to interpret the doping risk profile groups as high, moderate, or low on the five psychological variables. A z score of above +0.5 was classified as high, a z score below +0.5 and above -0.5 was classified as moderate and a z score below -0.5 was classified as low (Harwood et al., 2004; Hodge et al., 2008). The doping risk profiles were higher risk, moderate risk, and lower risk. It is important to note that, although the labels of higher, moderate and lower were assigned to each profile, they reflect scores relative to other participants in this study rather than actual strength of the variable (see Table 11).

The Higher risk profile group comprised athletes who were relatively high in attitudes to drug use in sport, perceptions of a performance climate, relatively low in task orientation and perceptions of a mastery climate, and moderate in ego orientation. The Moderate risk profile group comprised athletes who were relatively high in task and ego orientations and moderate on attitude to drug use, perceptions of mastery and performance climates. The Lower risk profile comprised athletes who were relatively low in attitudes to drug use, ego orientation, and perceptions of performance climate, moderate in task orientation, and high in perceptions of mastery climate.

**Table 11: Descriptive statistics for doping risk profiles**

	Cluster 1 (n = 25) Higher Risk			Cluster 2 (n = 32) Moderate Risk			Cluster 3 (n = 24) Lower Risk		
	z	M	SD	z	M	SD	z	M	SD
Attitudes to Doping	.73	23.04	4.47	.16	20.19	4.02	-.94	14.67	2.71
Mastery Climate	-.66	3.75	.44	.07	4.16	.49	.74	4.52	.39
Performance Climate	.72	2.71	.61	-.06	2.22	.52	-.45	1.97	.50
Task	-1.04	3.81	.40	.59	4.66	.27	.16	4.43	.46
Ego	.05	3.58	.63	.60	4.01	.51	-.85	2.88	.75

A total of 25 athletes participated in the interview phase of the study. Seven athletes were from the ‘Higher risk’ profile group, nine were from the ‘Moderate risk’ profile group, and five were from the ‘Lower risk’ profile group. A further four athletes were included in the interview phase but had not been assigned to a ‘risk’ profile group due to missing questionnaire data.

## APPENDIX 6: Qualitative Research Questions

### Section 1:

1. What are some of the pressures you have experienced?  
What's at risk if you're not selected?  
As a regular starter for a team, is that a different type of pressure?
2. What supports have helped you?
3. To what extent do your team mates / other athletes affect your training and performance?

### Section 2:

4. What have your experiences with drug education and testing been so far in your athletic career?  
Did you read the lists?  
Do you know a lot about what you can/can't take?  
Would you know who to ask if you had any questions?
5. Is doping and performance enhancing drugs a topic that is discussed in your sport?
  - a. By coaches
  - b. Teammates/training partners/groups
  - c. Other competitors
  - d. Support staff
6. Is it an issue in your sport? Has anyone ever been sanctioned for a violation?
7. Why do you think some athletes might use PEDs?
  - a. Do teammates/training partners/groups influence this?
  - b. Do coaches?
  - c. Support staff?
8. What do you think prevents athletes from using PEDs?
  - a. Do teammates/training partners/groups influence this?
  - b. Do coaches?
  - c. Support staff?
9. If someone on the team (in your training group) was using PEDs and got caught what happens to them? Are there consequences for the team?
10. Have you heard of Article 11 of the WADA code?



## **APPENDIX 7: Recommendations submitted to the WADA Code consultation process**

In the process of reviewing the WADA Code, stakeholders were invited to submit comments on specific Articles. Drawing from the research conducted for this project, the following was submitted in September 2012.

### **Overview**

We see a number of valuable reasons to regulate against teams found to have a number of athletes who tested positive. Athletes who are clean do not want to feel cheated if they lose to a team with a number of doped performers. Athletes might promote anti-doping within their own team if they believed the actions of others could negatively impact upon them. However, there were a number of ambiguities and contradictions here, for instance, that the sanctioning of other team members could lead to the 'harbouring' of dopers.

One of the key outcomes, regardless of policy regulations and their enforcement, was the need to promote cultures of anti-doping within team sports based on ethics, mutual support and education.

Article 11 does not appear to be acting as a deterrent, partly due to lack of awareness, and partly due to confusion as to what it entails for specific sports. We found that other deterrents were barriers to athletes' decision to dope, such as their fear of being caught and banned for 2 years, the shame of being caught, and the likely ostracisation that would follow. We also found that the factors that might lead to doping are not likely to be influenced by having Article 11 in place. Team players and individual athletes reported broadly similar views and attitudes to the 'risk' factors associated with doping behaviours.

### **Options**

#### **1. Retain Article 11 in its current form**

It would be a reasonable course of action to retain Article 11, given that few cases have emerged and there have been few controversies. However, our respondents highlighted the lack of awareness, consensus and indeed understanding of what the Article implies for team sports participants.

#### **2. Withdraw Article 11**

A second option would be to withdraw this from the code for the following reasons:

- Athletes in our sample are confused about its existence and value;
- It is not being implemented clearly and consistently;
- Sanctions given to individual players may prove sufficient deterrent and punishment;
- The number of tests required to 'prove' systematic doping within teams would be significantly higher and thus more expensive than the current regulations require, which might outweigh any potential benefits of having additional team-oriented sanctions;
- The 'risk' of doping behaviour is not any greater for either being in a team or by having knowledge of Article 11's sanctions;

- There is little evidence to suggest that systematic doping occurs in team situations: there have been very few cases in the past 20 years (with the exception of recent revelations in professional cycling); the number of positive tests globally is 1-2%; for most team sports, players do not see the utility of doping as skill levels, tactics and other factors are considered more important than physical strength and speed.

The principal implication related to the decision to withdraw Article 11 would be the accusation that losing teams are treated unfairly if they are defeated by a team with a significant number of doping players. Common sense would suggest that the result of the match should be altered to reflect the influence of doping. The solution might be to allow individual event organisers the discretion to punish teams if there was clear evidence of an advantage gained due to high numbers of players being caught doping in the same match.

WADA could offer guidance to ensure consistency in decision making by event organisers. In support of this option, anti-doping education strategies could aim at team/squad environments in order to encourage anti-doping values that are based on proactive ethics rather than sanction and surveillance.

### **3. Improve Article 11**

The third option would be to adapt Article 11 to achieve more consistency and at the same time disseminate knowledge more widely to athletes.

We see the following challenges:

- Defining the number of players who would have to test positive for a full team sanction;
- Deciding upon when the penalty can be applied in relation to the timings of the positive tests;
- How to manage cases that occur in sports with a league structure;
- How to manage cases of recreational drug use or inadvertent use of medical products;
- The inconsistencies that may arise when such decisions are left to event organisers and international governing bodies.

A potential framework for solving these might include:

- Clarification of the definition of 'team' as it currently only includes sports that allow for substitutions. This means Article 11 cannot be applied in pairs events, and fixed team events (i.e. rowing or relays). It also only applies where 3 or more members of a team test positive, whereas for some sports with smaller teams (i.e. volleyball or a 4-member relay race), an advantage can be gained if only 1 or 2 players enhance their performance illegally.
- Variation of the number of positive tests required for a full team sanction, i.e. 2 for volleyball, 3 for football, 4 for rugby. It may be that a percentage delineation is preferable to a defined number.
- Clarification of the rules relating to players who test positive who are in the squad but do not play. If a substitute does not play, their use of doping products would not influence the outcome of a match.
- A quick response during tournaments to positive tests so that teams can be sanctioned before their next competitive match. Testing would have to be conducted on a large sample during the tournament.

- Clear regulations on the timing of test results and sanctions. For example, if in football we need 3 positive tests, do these all have to be players in the same match. Or could a team be disqualified if there are 2 positives in one match and 1 in a subsequent match? If so, would these have to be different players?
- The issue of season-long league and cup tournaments would require consideration. When and with what frequency would positive tests have to occur before a team is disqualified? What would be their sanction – relegation?
- Recreational drug use or inadvertent use of medical products both constitute doping. However, the premise of Article 11 is that the team as a whole has gained an unfair advantage if a number of its players are doping. This assumes that doping leads to a performance enhancement advantage, whereas recreational and medical drug use probably do not. This requires clarification.
- The decision-making would have to be quick and thus event organisers are important. If they are signatories to the WADA Code they should have clear regulations to follow otherwise there are likely to be inconsistencies in their application. Related to which, any appeals process would have to be conducted quickly and to the satisfaction of all parties.
- Anti-doping education would have to be dramatically improved for all team sports to ensure the details and consequences of any regulation are known to participants.

The implications of following this option are that Article 11 would have to be revised considerably, which would require time, human resource and a stakeholders' consultation process. Moreover, if some of the points above are to be followed, all sports in all countries would need to devote more resources to testing and education. Enhanced regulation also increases the risk of appeals and legal processes that would be difficult to manage in team sports' situations.