

**Precipitating or prohibiting factor? Examining coaches' perspectives of their role
in doping and anti-doping.**

Report compiled for the World Anti-Doping Agency

Social Science Research Scheme

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Executive Summary

Purpose: The purpose of this research was to examine coaches' attitudes, awareness, and perceptions of their role and actions in athletes' doping and anti-doping behaviour.

Rationale: Research examining athletes' attitudes and behaviours in relation to doping has identified coaches as a potential precipitating factor (e.g., Backhouse, Atkin, McKenna, Robinson, 2007; Dimeo, Allen, Taylor, Robinson, 2012; Kirby, Moran, Guerin, 2011; Lazuras, Barkoukis, Rodafinos, 2010) and a protective or prohibiting factor in athlete doping (e.g., Backhouse et al, 2007; Cléret, 2011; Dimeo et al, 2012; Dubin, 1990; Kirby et al., 2011). However, little is known about coaches' perceptions and awareness of their role in doping and anti-doping.

Theoretical Approach: Research demonstrates that coaches' perceptions of their coaching role guides their behaviours, the issues identified, and acted on (Bennie & O'Connor, 2010; Gilbert & Trudel, 2001; 2004; Nash, Sproule, & Horton, 2008). Furthermore, experts regularly reflect upon their beliefs about their role to monitor their professional practices (Schempp, McCullick, Busch, Webster, & Mason, 2006). Schön's (1983) theory of reflection has been used to examine coaches' perceptions of their role and its relation to their actions (e.g., Gilbert & Trudel, 2001; 2004). According to Schön, the way practitioners frame their role determines the issues that are identified as 'problematic' and the strategies developed to address them. Therefore, coaches who do not view anti-doping as part of their role would be less likely to identify potential issues surrounding athlete doping. Consequently, they may unknowingly reinforce doping behaviour through their 'inaction'. In contrast, coaches who see anti-doping as important to their role may recognise issues/situations that may predispose or tempt athletes to engage in doping behaviour. As a result, and consistent with Schön's notion of reflective practice, these coaches may act to intervene and reduce the likelihood of athlete doping behaviour.

Method: Twenty-three coaches working with performance athletes in Scotland participated in the study (Men = 17, Women = 6; average age = 42.6 years; average coaching experience = 19.0 years). Coaches participated in semi-structured interviews where they discussed general coaching roles, awareness of and attitudes towards doping and anti-doping, perceptions of their role and actions in doping and anti-doping and their experiences with anti-doping education and support. Through analysis of the transcribed interviews the data were organised into three areas: Role frame; Reflective conversation; Education. Within each area lower and higher order themes were developed.

Results: Role frame. The 12 higher order themes relating to the coaches' role frame were organised into internal components (personal beliefs and values) and boundary components (influential situational factors) (see Figure 1).

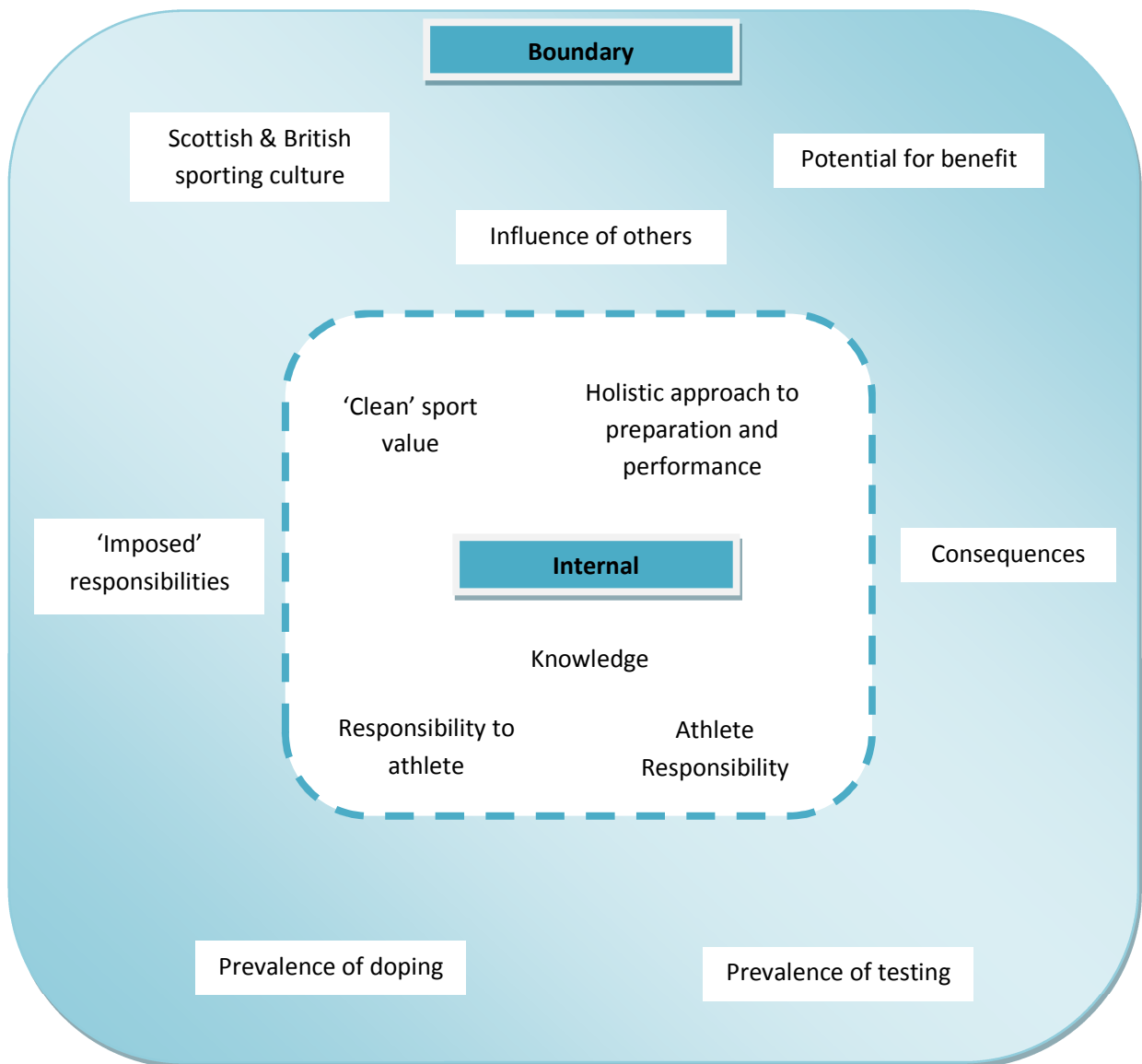


Figure 1. Role frame components in relation to doping and anti-doping

The coaches' held a clear anti-doping stance and there were strong anti-doping foundations evident in their role frame such as:

- a personal belief in 'clean' sport

I think the coach should always be seen as a role model for your athletes... I think there's many things that you should portray as a coach and a stance against doping should be one of them. (Coach 6)

- holistic approach to preparation and performance

I think one of the most significant things that the coach is doing is...creating the performance environment. I think the establishment of the environment, for junior athletes in my case, to make progress, is key...I think an anti-doping stance ... is a critical part of that environment. (Coach 16)

- Scottish and British sport culture

What Britain does is quite strong on this. The rest of the world is not quite at the same level...it's regular checks...I think Britain is much stricter... So I think it's more of a cultural thing more than anything else. (Coach 15)

- responsibility to athletes

Well, especially in the situation where we've got a lot of responsibility for the kids because they are young and they are susceptible and it...we've got a big responsibility there. Absolutely... to make sure that they'd understand the...the dangers. (Coach 23)

- prevalence of doping

it's not so much an issue..., it doesn't appear to be an issue for us. Then it wouldn't be my priority. (Coach 19)

Despite a role frame largely conducive to doping prevention coaches recognised the limitations of their 'reach' and the potential influence of the wider sport environment.

...we are actually very, very dependent on the athletes making the right choices because we don't have that much direct control over...over what they're doing. (Coach 11)

in the past, you know, you'd live in [different country] for 12 months because they seem to be producing lots of good players and you might come back chewing on cocoa leaves or something and not realise - just because that's what they do there. (Coach 10)

However, a strong anti-doping foundation and role frame components such as clarity of responsibility, potential for benefit to performance, and prevalence of testing also contributed to anti-doping having a low priority for many coaches. In contrast, in sports where there is clear evidence of performance benefits and a history of systematic doping globally, anti-doping held a higher priority.

Results: Reflective conversation. The 22 lower order themes relating to the reflective conversation around doping and anti-doping were organised into Schön's four concepts: issue appreciation, strategy, action, and evaluation (see Figure 2). The priority assigned to anti-doping was reflective of the extent to which doping was deemed problematic in their sport. The more doping was identified as an issue, the greater the engagement in structured and planned anti-doping activities.

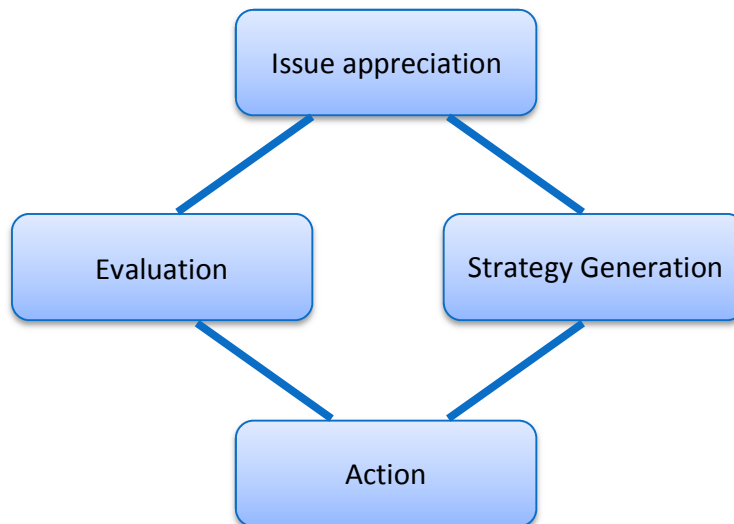


Figure 2. Coaches' reflective conversation components.

The role frame of coaches shaped the problems identified and their reflective conversations:

- Issue appreciation. Coaches' identified doping as a generic issue in international sport, however, for most of the coaches doping was not an identifiable problem in their sport, particularly in Scotland. Anti-doping was assigned a low priority for many coaches. In contrast, inadvertent doping was a concern for most coaches.

...one of the things, that I definitely didn't have down on that list was anything to do with anti-doping... that would be part of my job but I didn't actually put that down because I just forgot about it [laughs] because it's not at the forefront of my mind. There are so many other things that probably the doping side is just a miniscule percentage. (Coach 9)

So it's not always within my control obviously if... an [athlete] is away from the [sporting venue], and especially if they just go to the doctor for some other medical reason and the doctor says, "Take this," and they forget to look at it. Then it's quite... easy really to take the wrong thing. (Coach 21)

- Strategy generation. A somewhat limited range of sources contributed to anti-doping strategy generation. This may be, in part, due to a relatively low level engagement with anti-doping strategy generation. The main sources were experience as an athlete, enlisting experts and anti-doping materials.

Erm, I supposed the basis of my education around anti-doping would have come as a by-product of being an athlete. (Coach 3)

We as a governing body, I mean every year in warm weather training we put on an anti-doping presentation so one of the guys... he goes to all the training and stuff and he delivers a really good presentation about raising awareness and all that kind of stuff. (Coach 1)

- Action. Only a small number of coaches had well-developed integrated anti-doping strategies. For all coaches anti-doping actions focused on doping control and minimising inadvertent use through medications. Many coaches preferred to keep things informal and react to situations as they arose.

I don't do the rigid classroom stuff; I never really do it with my guys. It's a much more casual talk where I try and feed something into the conversation and reinforce the point maybe. I think just dropping hints and comments with doping that's probably more powerful. (Coach 6)

- Evaluation. Practical engagement was viewed as more effective.

we've had an audience of athletes and coaches and they've had official UK dope tester going through the process, the mock process with the athletes and asked them the questions and getting them to fill the paperwork out and getting them to split the samples and all that kind of stuff and that's really effective. (Coach 7)

Results: Education. The 7 lower order themes relating to coaches' experience with education related to anti-doping were organised into two higher order themes: education is primarily for athletes and education for coaches. The coaches recognised that education opportunities were directed towards athletes. Their own education came from personal interest, experiences as an athlete. Due to the low priority many coaches assigned to anti-doping their own education was also a low priority.

I think it's always best to know as much as you can do....Is there a centralised document that we can refer to, so I think there are a few things like that, that need to be clarified but yeah, it would be good to know, but I don't think it's an urgent thing. (Coach 6)

Conclusion: The coaches in this study are a prohibiting factor in doping, however, their potential in this role is not being maximised.

- The coaches' role frame provides a strong foundation for anti-doping.
- For many coaches anti-doping was an implicit rather than explicit part of a coaching and programme philosophy.
- Coaches recognised limits to their own influence and the potential for influence from outside the 'coach-controlled environment'.
- Anti-doping was a relatively low priority for many coaches.
- Some coaches felt they did not have sufficient knowledgeable to engage in anti-doping actions.
- Those for whom anti-doping was a higher priority engaged in structured, planned, practical anti-doping activities.
- Anti-doping activities focused on control procedures and inadvertent use through medications.
- Coach education was a relatively low priority, however, more information is desired in relation to supplements.

Recommendations:

- Continue to explore ways to raise the priority of anti-doping education for athletes and coaches.
- Encourage sport governing bodies to embedded anti-doping ideals and education as an expected part of a high quality performance programme so that anti-doping awareness becomes an intrinsic part of a high performance system.
- Encourage sport governing bodies and coaches to clarify the responsibility for, and to allocate roles for, the education and monitoring of doping prevention.
- Encourage coaches to become knowledgeable about doping issues so they are confident to engage in informal discussions with athletes on issues related to doping and anti-doping.
- Develop coach education that goes beyond the understanding of doping control procedures to include case studies, examples, and practical experiences relating to how and when to engage athletes in anti-doping conversations and experiences.
- Link anti-doping education to topics that coaches' desire information about such as supplements.
- Highlight the sports and nations that foster a strong anti-doping culture in order to provide a reference point for those wishing to strengthen their anti-doping culture.
- Explore through in-depth case studies how an anti-doping culture and philosophy is developed and maintained so that best practice can be disseminated globally.

1. Introduction

Coaches are frequently identified as a potential precipitating factor in athlete doping (Backhouse, Atkin, McKenna, Robinson, 2007; Dimeo, Allen, Taylor, Robinson, 2012; Kirby, Moran, Guerin, 2011; Lazuras, Barkoukis, Rodafinos, 2010; Smith, et al., 2010). In their study of the experiences of five elite athletes who had admitted to doping, Kirby and colleagues found a lack of engagement around doping issues by coaches, pressure from management through a win at all costs emphasis, and perceived reluctance from organising bodies to face up to a doping problem were identified as factors in that contributed to athletes' decision to dope. Smith and colleagues (2010) found that contextual factors, such as coaches, influenced athletes' attitudes to doping and anti-doping. Lazuras and colleagues (2010) included 'the coach's suggestion' as one of four circumstances in their measure of situational temptation to dope. In their study of Greek elite-level athletes they found that when situational temptation was included in the analysis it was the strongest predictor of intention for doping.

In addition to being viewed as a precipitating factor, coaches also continue to be identified as important agents in doping prevention (Backhouse et al, 2007; Cléret, 2011; Dubin, 1990; Kirby et al., 2011). Kirby and colleagues (2011) found that, for one of the athletes in their study who had admitted to doping, a coach had been a positive role model and acted as a deterrent for many years. However, when the athlete changed training groups and the positive influence of the coach was no longer present the athlete succumbed to the pressures to dope. Furthermore, preliminary findings from research conducted with Scottish elite athletes identified coaches as influential individuals with regard to athletes' knowledge and attitudes to doping (Dimeo et al., 2012). In their 2007 review, Backhouse and colleagues identified only three studies that had examined coaches' attitudes to doping. Since 2007, little has changed with regard to our understanding of coaches' perspectives on their role in doping and anti-doping.

Purpose of the research

Despite continued interest in athletes' attitudes and behaviours in relation to doping and the recognition of the important role of coaches, little is known about coaches' attitudes towards and awareness of doping and anti-doping or their perceptions of their role in athletes' doping and anti-doping. Therefore, the purpose of this study is to explore coaches' perspectives on their role in athlete doping and anti-doping in their sport. Specifically to examine coaches':

- attitudes towards and perceptions of doping in their sport
- perceptions/awareness of doping risk factors for athletes in their sport
- perceptions of their role and actions with regard to anti-doping
- experiences with anti-doping education and support.

2. Background

In their review of doping precipitating factors research until 2006, Backhouse and colleagues (2007) found that much of the research examined the athletes' perspective. In addition the research has been largely atheoretical, quantitative studies that utilised a self-report survey methodology. The research varied in place, sample size, and level of athletic achievement, however, most focused on males and on users of anabolic steroids. A range of precipitating factors were identified which included both individual agency level variables and social contextual variables. The lack of theoretically-based examinations of precipitating factors limits our understanding of how the wide range of factors identified interact to influence the adoption, maintenance and/or cessation of doping behaviour in sport.

Since 2006, there has been further research examining athletes' attitudes to doping with several researchers adopting psychological theories such as the theory of planned behaviour (TPB) (Ajzen, 1991) and achievement goal theory (AGT) (Nicholls, 1989) to examine the attitude-doping behaviour relationship. Research has generally supported the theoretically-based relationships in relation to doping in sport (Lucidi, Zelli, Mallia, Grano, Russo, & Violani, 2008; Wiefferink, Detmar, Coumans, Vogels, & Paulussen, 2008; Zelli, Mallia, & Lucidi, 2010). Recent research has extended the work with TPB by including contextual forms of behavioural control mechanisms, specifically a measure of situational temptation (Lazuras et al, 2010). Situational temptation was conceptualised as a person's "eagerness to endorse behaviours under specific circumstances" (p.697). The measure asked the athlete to rate how tempted they would be to use prohibited substances to enhance their performance in four situations. The situations involved the coach's suggestion, belief that colleagues were using, told to improve performance, in preparation for an important competition. Despite initial findings indicating that when situational temptation was included in the analysis it was the strongest predictor of intention for doping the conceptualisation and consideration, to date, of contextual factors within this framework has been limited.

With regard to AGT (Nicholls, 1989), to date, only the personal level variables (i.e., task and ego goal orientations) have been the subject of empirical examination. The theory also conceptualises that the motivational climate created by significant others such as coaches, parents and peers is an important predictor of motivated behaviour (Ames, 1992). Preliminary findings from a study with Scottish elite athletes suggest a relationship between coach-created climate and attitudes towards performance enhancing drug use. Allen, Taylor, Dimeo, Robinson (2013) found that athletes' perception of a coach-created mastery motivational climate (i.e., emphasis on effort, learning and personal development) was associated with attitudes more conducive to anti-doping. However, more remains to be examined with regard to the extent to which the

climate shaped by the coach (and others) is associated with the doping attitude and behaviour of athletes.

Despite the lack of attention from the theoretically-framed studies, research continues identify the importance of contextual factors in athlete doping. A recent study by Smith and colleagues (2010) examined the contextual factors influencing the formation of athletes' attitudes relating to doping and anti-doping in a range of sports. They found both individual and contextual factors were associated with attitudes to doping. At the contextual level there were influences from their more immediate social environment such as parents and coaches as well as influences from the wider social environment such as culture of the sport. Lentillon-Kaestner and Carstairs's (2010) analysis of the team and sport culture experienced by young elite cyclists also found that significant others such as coaches, more experienced cyclists, family and friends and the wider world of professional cycling contributed to either a protective or risky social context with regard to doping. Preliminary findings from research conducted with Scottish elite athletes also identified coaches as influential individuals with regard to athletes' knowledge and attitudes to doping (Dimeo et al., 2012). However, despite the continued interest in athletes' attitudes and behaviours in relation to doping and the recognition of the important role of coaches, since the Backhouse review relatively little has changed with regard to our understanding of coaches' perspectives on doping and anti-doping.

Coaches are frequently identified as a potential precipitating factor in athlete doping (Backhouse, et al, 2007; Kirby, et al, 2011; Lazuras, et al, 2010; Lentillon-Kaestner & Carstairs; 2010; Smith, et al, 2010). In their study of the experiences of five elite athletes who had admitted to doping, Kirby and colleagues found that the immediate and wider social context shaped by their teammates, coaches, and governing bodies was an important precipitating factor in their doping. Pressure to conform with teammates, attitudes and behaviours of teammates, ease of access to doping products and expertise, a lack of engagement around doping issues by coaches, pressure from management through a win at all costs emphasis, and perceived reluctance from organising bodies to face up to a doping problem were identified as factors in that contributed to athletes decision to dope (Kirby et al, 2011). The attitudes, knowledge, and engagement with doping issues by coaches, managers, and governing bodies play a critical role in defining acceptable behaviour within a sport. However, coaches as a group are underrepresented in empirical research (Backhouse et al, 2007) and coaches' attitudes, awareness and role in athletes' doping and anti-doping is not well understood.

In addition to being viewed as a precipitating factor, or perhaps because of this, coaches also continue to be identified as important potential agents in doping prevention (Backhouse et al, 2007; Cléret, 2011; Dubin, 1990; Kirby et al., 2011). For example, Kirby and colleagues (2011)

found that, for one of the athletes in their study who had admitted to doping, a coach had been a positive role model and acted as a deterrent for many years. However, when the athlete changed training groups and the positive influence of the coach was no longer present the athlete succumbed to the pressures to dope. In a postal survey of professional coaches in France, found that coaches indicated that they had a role to play in preventing doping. However, only 10% had organised a doping prevention action during the last 12 months (Laure, Thouvenin, & Lecerf, 2001). Despite the recognition that coaches have the potential to act as a strong deterrent against doping, little is known about coaches' perceptions of their roles, responsibilities, and actions with regard to anti-doping.

In their review Backhouse et al (2007) identified only three studies that examined coaches' attitudes. It revealed that participants were faced with doping related issues in their work, believed doping could lead to improved performance but was likely to have negative health consequences, and agreed that they had a role to play in doping prevention but that more preventive actions were needed. Further research is needed to better understand coaches' perspectives on their role as both a precipitating factor and deterrent to doping. Only one study (Fung & Yuan, 2006) has employed a sound theoretical basis when investigating coaches' perspectives on athlete doping. However, Backhouse and colleagues have questioned the methods employed in the study, therefore limiting the potential impact of this research.

Given the lack of research in the area involving coaches, it is useful to turn to general coaching research to further our understanding of what coaches' do, why they do what they do and the influence their actions have on athletes. Of particular interest for understanding coaches' attitudes, awareness, and actions in relation to doping and anti-doping is research that has examined coaches' roles and philosophies and the connection with their coaching behaviours when working with athletes. This research demonstrates that coaches' (particularly experienced coaches) perception of their coaching role guides their coaching behaviours and the issues they identify and act on (Bennie & O'Connor, 2010; Gilbert & Trudel, 2001; 2004; Nash, et al, 2008). Furthermore, experts in coaching, teaching, and instructing regularly reflect upon their beliefs and coaching philosophy as a means of monitoring their professional practices (Schempp, et al, 2006). Therefore, examining coaches' attitudes, awareness, and perceptions of their role will provide valuable insight into why coaches do (do not) act in the ways they do in relation to doping and anti-doping.

An approach that has been used successfully to examine coaches' perceptions of their role and how this relates to their actions is Schön's (1983) theory of reflection. Central to this theory is the concept of role frames. According to Schön a role frame acts as a perceptual filter that influences how practitioners define their professional responsibilities. The way practitioners

frame their role determines what information is most salient to them, which issues are identified as 'problematic', and what strategies are developed to address them. Role frames are considered to be relatively stable over time and influence practitioners' reflection and ultimately actions (Schön, 1983). The influence of role frames is thought to be because only those issues that are consistent with role frame components are addressed. Relating this notion to the present study if a coach does not have beliefs around drug free sport then the risk of athlete doping may not be identified or acted upon. In their work examining the role frames of youth sport coaches, Gilbert and Trudel (2004) described boundary and internal role frame components. Boundary components were "situational factors that influence an individual's approach to coaching" (p. 29). In contrast, internal role frame components were the personal beliefs and attitudes towards coaching which were influenced by the boundary components. Examining both components in the role frame was useful because it recognises and allows examination of the contextual and complex nature of coaching in relation to issues such as doping and anti-doping.

Schön's research with model practitioners in a range of professions has demonstrated that in response to dilemmas they faced in their practice (i.e., doping or tempting situations) practitioners engaged in what he termed a 'reflective conversation' and that this process was shaped by their role frame. Consistent with Schön's theory, Gilbert & Trudel's (2001; 2004) research with coaches demonstrated that coaches 'reflective conversation' involved a repeating spiral of appreciation (issue setting), strategy generation (sources to develop strategy), experimentation (implementation of strategy), and evaluation (review of effectiveness). Furthermore, the issues that were identified were dependent on the coaches' role frame.

Drawing from Schön's (1983) theory and Gilbert and Trudel's (2001; 2004) application with coaches, it is through defining one's role in relation to doping and anti-doping and engaging in reflective conversations about doping and anti-doping that coaching strategies to address the issue may be developed and refined. Role frame and problem setting are the central variables of interest as they form the basis for coaches' engagement with anti-doping. However, problem/issue setting, strategy generation, experimentation and evaluation are components of the reflective conversation and are therefore important for exploring coaches' engagement with anti-doping. However, the extent to which coaches' view doping and anti-doping as part of their role and engage in reflective processes in relation to doping and anti-doping remains unexplored.

Problem/issue setting refers to which issues are identified and how they are identified and framed. In the context of the current study this could include to what extent is doping an issue in Scotland, in their sport, with their athletes, in specific 'tempting' situations. Strategy generation and experimentation refers to the strategies developed to address the issues, which

strategies, why, what sources are consulted and what was implemented. In the context of the current study this would include the activities coaches engage in relation to anti-doping. Evaluation refers to the review of the effectiveness of the strategies. In the context of the current study this is the coaches' perceptions of how effective their activities in relation to anti-doping have been.

In summary, applying Schön's (1983) approach to the examination of coaches' role in doping and anti-doping it is possible to propose that only those issues that are consistent with a coach's role frame are likely to be addressed. That is, coaches who do not view anti-doping as part of their role frame would be less likely to identify potential issues surrounding athlete doping. Consequently, they may unknowingly reinforce doping behaviour by their 'in-action'. In contrast, coaches who see anti-doping as an important role may recognise issues or situations that may predispose or tempt athletes to engage in doping behaviour. As a result, and consistent with Schön's notion of reflective practice, these coaches may act to intervene and reduce the likelihood of athlete doping behaviour.

The research is primarily exploratory in nature and therefore proposing testable hypotheses is inappropriate. However, based on role frame research it would be expected that coaches who consider anti-doping as an important part of their coaching role are more likely to identify situations that may tempt athletes to engage in or place them at risk of doping behaviour and to be proactive in fostering an anti-doping environment in their sport.

3. Method

Research Design

Most of the studies examining precipitating factors and attitudes towards doping have taken a quantitative approach. However, Backhouse et al (2007) noted that researchers rarely provided the psychometric properties of the questionnaires they used and therefore the reliability and validity of the measures could not be ascertained. They also noted the diversity of measures all assessing similar concepts but operationalised in different ways. Such inconsistency in the measurement of key variables limits comparisons across studies and as a result limits the development of a coherent understanding of the topic as a whole. In addition, little research has attempted to examine coaches' perspectives on doping and anti-doping and no validated measures exist for this population.

Therefore, when it comes to examining the nature of attitudes, awareness, and actions that might address the complex role coaches' play in doping and anti-doping, a qualitative approach might improve the quality of the research data. Interviews with cyclists allowed Lentillon-

Kaestner and Carstairs (2010) to develop insight into the structure of the sport of cycling and the ways in which “the more experienced cyclists transmitted the culture of doping to the young cyclists, teaching them doping methods and which substances to use” (p.1). Smith et al (2010) used narrative based case histories and in-depth interviewing to explore contextual factors influencing the formation of attitudes relating to doping and anti-doping in a range of sports. Therefore the proposed research will adopt a qualitative research methodology employing semi-structured interviews to overcome issues encountered in previous quantitative studies. Recent semi-structured interviews with Scottish elite athletes has proven useful in beginning to ‘unravel’ the complexities of doping attitudes, risks, and deterrents (Dimeo, et al, 2012).

Ethical Approval and Coach 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.

Participants

Twenty-three performance coaches in Scotland participated in the study. Nineteen coached individual sports and four coached team sports. They ranged in age from 30 to 59 years (M = 42.6 years). Seventeen of the coaches were male and six were female. The coaches averaged 19.0 years of coaching experience.

Procedure

Coaches from a range of sports who were currently or had recently coached at the national or international level in Scotland and who had a minimum of three years coaching performance athletes were invited to participate in this study. They were selected by the research team to achieve a representation of male and female coaches and team and individual sports. Access to coaches was gained through the investigators established coaching networks, coach education workshops, and national governing bodies in Scotland. Following approval from the institution’s research ethics committee to conduct the study, initial contact was made via email with potential coaches. The email explained the objectives of the research, that responses would remain confidential and anonymous, and invited coaches to participate in the study. Forty-five coaches were contacted, of which, twenty-three agreed to participate in the study. Interviews were conducted at a time and place convenient for the coach. Interviews lasted between 25 and 90 minutes and were recorded. Interviews were transcribed verbatim and coaches had the opportunity to review the transcriptions.

Data Collection

Semi-structured interviews were employed to gain an in-depth understanding of the coaches' perspectives on doping and anti-doping attitudes and behaviours in their sport. The interviews were semi-structured to provide rich, thick description of the athletes' experiences (Burgess, 1982; Fontana & Frey, 2000). In keeping with semi-structured interview and qualitative research protocol, the interviews were conversational in nature. This process allows rapport to be developed between the interviewer and athlete and supports the expression of the coach's point of view (Burgess, 1982).

Interview Guide

The interview guide was developed through a review of the doping and anti-doping literature relating to attitudes and actions. In addition, Schön's (1983) concepts of role frame, issue setting, strategy generation, experimentation, and evaluation were used to develop questions to examine the processes through which coaches develop and refine their actions in relation to athlete doping and anti-doping. The interview was divided into four sections: introduction, general doping and anti-doping awareness, coaches' experiences with anti-doping activities, demographic information (See Appendix A for the Interview schedule). The introduction included two questions about general coaching roles and responsibilities and challenges of high performance coaching. Sections two and three focused discussion on topics such as awareness of doping prevalence and risk factors for athletes, attitudes towards and perceptions of doping in their sport, perceptions of their role and actions with regard to anti-doping and awareness of and experiences with anti-doping education and support. The final section collected demographic information such as age, coaching experience, and current coaching involvement.

Data Analysis

The 280 pages of single-spaced transcribed interviews were coded and thematically organised using the qualitative research software system NVivo 10. The data analysis involved both deductive and inductive processes. Schön's (1983) theory of reflection and the concepts of role frame and reflective conversation were used to frame a deductive analysis of the data with data being organised under the existing concepts. In addition, researchers adopted an inductive process to remain open to new themes that may emerge from the data and to develop subthemes within the existing themes thus providing the opportunity to examine the detail of the data. Through the initial data coding process 1714 meaningful units were identified. To aid analysis the units were organised into three broad areas: Role frame; Reflective conversation; and Education. Within each area lower and higher order themes were developed to capture the coaches' perspectives. These themes are described and illustrative quotations from the coaches provided.

4. Results

4.1 Role frame

There were 47 lower order themes relating to the coaches' role frame. These were organised into 12 higher order themes and then into either boundary or internal components.

The coaches' role frame with regard to doping and anti-doping was organised into boundary and internal components (see Figure 3). The internal components are the coaches' beliefs and values that influence their coaching practice. The boundary components are situational factors that influence an individual's approach to coaching.

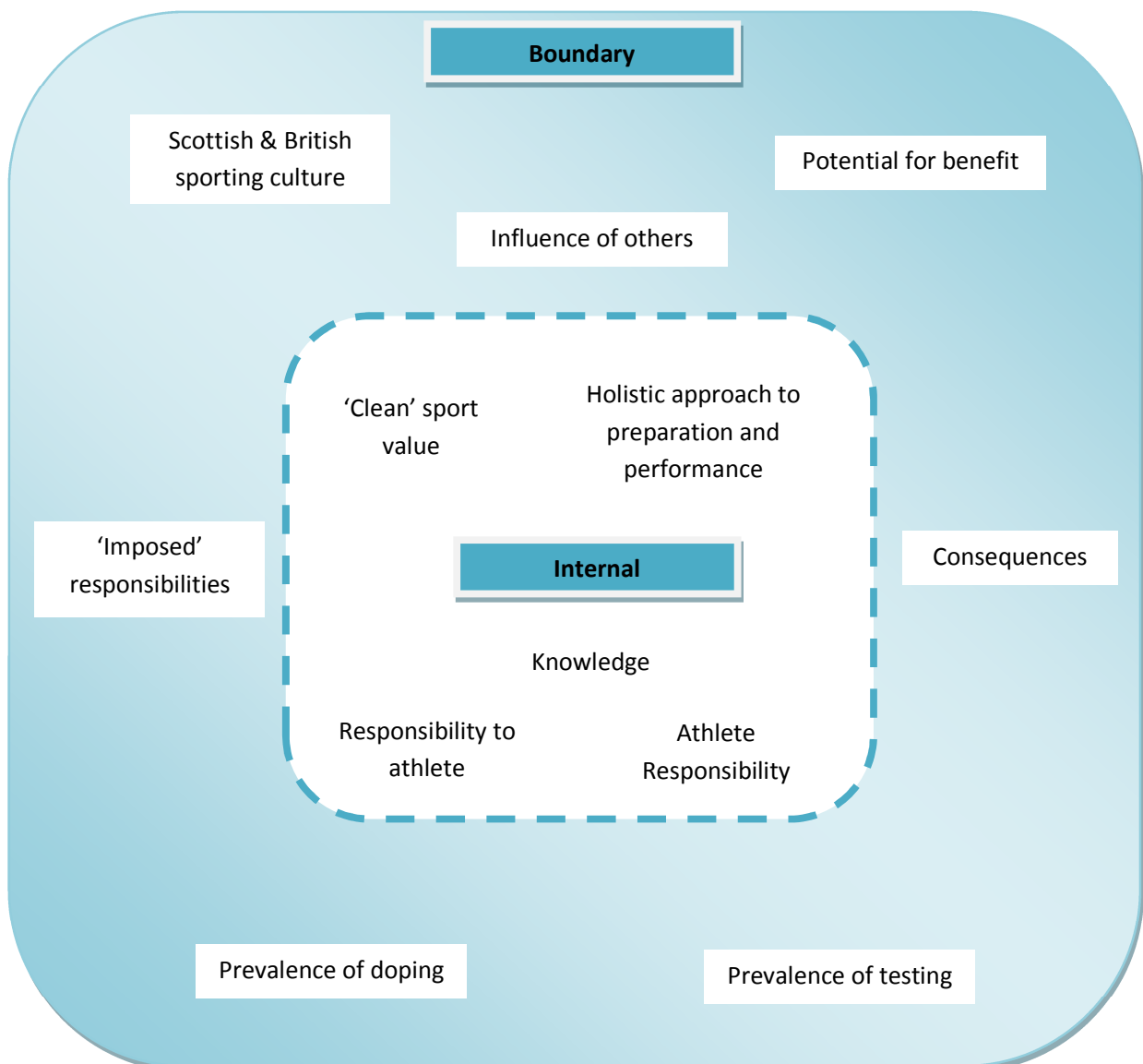


Figure 3. Role frame components in relation to doping and anti-doping

Internal components

There were five internal components that influenced coaches' engagement with doping and anti-doping issues. These were: 'clean' sport value; holistic approach to preparation and performance; knowledge; responsibility to athlete; and athlete responsibility. Most coaches recognised that the coach could facilitate performance enhancing drug (PED) use or facilitate anti-doping. This would depend on the values and beliefs of the coach:

...the coach probably has a huge amount of influence potentially both ways. They could you know either be a very good and positive for good and you know in encouraging the athletes to be clean or quite the opposite. (Coach 13)

...it's the coach's point of view – if they're that way orientated to try and get success through their athletes and if they're willing to do it at any cost then they're in that position where they can either exploit them or influence them because they're seen as an important person within their life or an influential person within their life. (Coach 1)

I think there's a lot depends on the personal ambition of the coach as well. You know, if the personal ambition of the coach is to coach an Olympic champion, then the temptation is there to do that. If the personal ambition of the coach revolves around making that athlete as good as they can be, then it's a different ethos, isn't it? (Coach 11)

'Clean' Sport Value. All the coaches believed they should be part of anti-doping efforts and for many this came from their own belief in clean sport. A number of coaches recognised that they, and senior athletes, were role models and moral educators and they tried to instil moral integrity in their athletes:

I would argue specifically [my sport] is about the holistic development of a person so I think, you know, clean sport goes hand in hand with that. And athletes that, you know, developing for their full life I think a drug-free environment goes hand in hand with that (Coach 3)

I think the coach should always be seen as a role model for your athletes. ...I think there's many things that you should portray as a coach and a stance against doping should be one of them. (Coach 6)

...at the end of the day the coach has like I say the moral responsibility to educate the athlete, not just about skills but the life skills as well and so there's a whole ethical thing behind it. (Coach 7)

Holistic Approach to Preparation and Performance. The coaches in the study viewed anti-doping as integral to their group culture and programme philosophy. It was just part of the bigger picture of their holistic approach to athletes' preparation and performance and was reflected in the values they conveyed and the 'culture' they worked to create.

I think one of the most significant things that the coach is doing is...creating the performance environment. I think the establishment of the environment, for junior athletes in my case, to make progress, is key...I think an anti-doping stance ... is a critical part of that environment. (Coach 16)

It's an integral part of things as oppose to being something that's just serviced. I think that's probably the key to drugs in sport – that it's seen not as something you go off and do a course in and come back, it's something that's integral to your whole programme and there's understanding, whether it's in your recovery processes or in anything else you might do that there is certain things that you should do. (Coach 10)

Many of the coaches described personal beliefs and coaching philosophies that provide a strong foundation for anti-doping. These included the importance of:

- hard work
- process not outcome driven
- holistic development
- no short cuts to success

...what I say with my guys will be stay within the rules ...it's about the quality of the work they put in at training for me ... if you work hard and you put the quality in and you look after yourself, sleep well, hydrate well and you take your recovery stuff... then...you get what you get. (Coach 7)

...what you're trying to do is encourage a situation where the players believe in themselves by association with the fact that they've done it hard... I don't mean ... that you're abusing them but I think the fact that they know they've worked hard and they've done it – they've not done anything easy – it comes back and supports them when it gets tough. (Coach 10)

Their drive and motivation for succeeding should be a passion for the sport and a desire to be the best, not what are we going to get out of it kind of thing in terms of trinkets and things. (Coach 5)

I think part of our kind of philosophy around this is to not try to pull the wool over their eyes and say it doesn't happen, this is a route that you could go but it's very

much if you're wanting to win the game by a physical prowess that isn't really our programme philosophy, it's a development of both halves of the equations... kind of as a by-product of that it's not got a place within our belief system. (Coach 3)

...you got a medal if you cheated, really. You cheated yourself. So you either do it with what you can, you God's given talent and your hard work and skills, or you don't do it at all. And that's how I was really educated. (Coach 15)

- supporting athletes rather than feeling pressure from the coach
- healthy athletes
- trust between coach and athlete.

What you actually need is a little bit of a relaxed atmosphere, one where you feel you can grow and develop. I think if more coaches did that, then...then maybe...maybe we wouldn't have more situations where people were wanting to take performance-enhancing drugs. (Coach 18)

...the coaches have the well-being of the kids as the main thing, rather than, you know, any short cuts to success. (Coach 23)

You've got to be able to look in their eye; they've got to be able to look in your eye and trust what you say to help them to get over that line... The coach-athlete relationship is something that I'm not sure a lot of people understand. (Coach 10)

Knowledge. All the coaches believed they should have at least a basic knowledge of doping and anti-doping. However, their knowledge and understanding of doping and anti-doping related issues varied widely. All had a strong understanding of the drug testing and control procedures, and the risks of inadvertent doping associated with medications:

I think for coaches, if... you have an awareness and a knowledge of basic principles and what, you know, your athletes can and can't do. But it's just having that... Now whether I'm the expert that they come to for advice on what to take or not, it...it probably should be someone else at their level, there should be, sort of, someone in the Institute or wherever, and that's who'll advise them on what to take. But I need to know what they are taking. (Coach 17)

The coaches were aware of the risk of inadvertent doping associated with the use of supplements but many did not feel confident in their knowledge in this area:

I don't have the knowledge, background to understand half the things they're talking about anyway. It's not my area of expertise by any manner of means. That's not to say I couldn't go and learn about it. But time is short. (Coach 19)

I don't feel I've got the knowledge to...to be able to do that, to give recommendation and the, you know, the sort of recommendation we put out - sheets about diet ... and the snacks and things... So, you know, I wouldn't wanna put myself in a situation where I'm giving information that I haven't got the back-up or the...the knowledge about. (Coach 23)

Most coaches felt that staying up to date with doping and anti-doping regulations and procedures was challenging and time consuming which frequently led to it becoming someone else's role:

you know yourself, sometimes the coach, well I don't know if I actually know that answer or I need to refresh my memory I would just kind of pass them on to [Governing Body] because she's just always constantly updating like she'd the one that knows so you just pass that on and they do ask. (Coach 8)

The coaches were not sure how they would identify PED use in their athletes other than fairly stereotypical ideas such as dramatic changes in performance level, physical appearance, and behaviours. They did, however, think that they would recognise changes in their athletes and suspect something. This would not necessarily be immediately connected to doping.

...to be fair I wouldn't know how to recognise it... I would think it would be a change in their behaviour, or their actions or the way they [perform] or something. A...a big change, but apart from that, I wouldn't know how to recognise it. (Coach 22)

I can observe their demeanour. I can observe what they're up to, what they're saying, watch their skin. You know, all of these kinds of things... Why is she growing a beard? Somewhat peculiar. (Coach 20)

if one of my athletes was doing something I think I would probably... be right to be criticised for not knowing, even if I had no involvement...because I have that much contact with them...not having been in that situation I don't know. But,... because of how close a relationship I have with my [athletes]... I think we'd certainly think, "Well, something's up." We might not suspect that they were doping, but we might suspect something else. (Coach 17)

Responsibility to athlete. In some cases, the coaches recognised that they would be the first person to whom the athlete would look for advice where doping and anti-doping related issues

occurred. The reliance and expectations placed on coaches by the athletes led coaches to believe that it was a prerequisite of their role at this level to be able to deliver the correct information, particularly for younger athletes.

You don't have to know every single drug that's out there but you need to know what the rules for your sport are and what your athlete should do in those cases. (Coach 2)

you're at an event where you're managing and responsible for that athlete or that group of athletes, then it would be expected that you would go with the athlete, go through that test process and, you know, I think there's an expectation that you're clued-up enough to be able to ensure the...its due diligent process and, you know, and question it if it's not quite right. (Coach 12)

Well, especially in the situation where we've got a lot of responsibility for the kids because they are young and they are susceptible and it...you know we...we've got a big responsibility there. Absolutely. And we've got to....to make sure that they'd understand the...the dangers. (Coach 23)

...how will an athlete know if we do not give this information, if coaches are not educated... How will a young athlete, an established athlete find this information. I think we are the first people because we are close to the athlete. (Coach 4)

However, one coach identified with a potential challenge to the coach-athlete relationship:

I think if I was in a sport where there was a danger of or a culture of usage I think it would be a huge responsibility to be a coach. I think it would be very hard on the coaches to almost have to be 100% on the side of your athletes but then not trust them... that would be extraordinarily difficult to manage...just the fact that you suspect...if I was training you and I raised the issue with you it already starts to qualify the trust relationship between the athletes and the coach and I'd find that very, very difficult to deal with. (Coach 10)

Athlete responsibility. A number of coaches indicated that although they had an important role to play in anti-doping, ultimately it was the athlete's responsibility:

We're not a molly coddling sport which is a big thing as well because we're about individuals playing within a team so we want them to think for themselves and make decisions for themselves and live by those decisions. (Coach 1)

we are actually very, very dependent on the athletes making the right choices because we don't have that much direct control over...over what they're doing (Coach 11)

we have an educational programme within athletics but it's ultimately up to the athletes and the coaches, well, ultimately up to the athletes responsibility to know what they put in the system (Coach 7)

You can't blame, you know, you're the athlete, an adult athlete... you're not a child and if somebody's offering you and you're actually giving your yes and you're taking drugs it's your fault... It's your fault because you can say no; I'm not playing this game. (Coach 4)

Boundary components

There were seven situational factors relating to the wider sporting context that influenced the coaches' approach and actions in doping prevention. These were: the Scottish & British sporting culture; potential for benefit from doping; influence of others; prevalence of doping and testing; 'imposed' responsibilities; and consequences.

Scottish & British Sporting Culture. The strong anti-doping culture within Scottish national programmes and British sport supports coaches to foster an anti-doping environment.

What Britain does is quite strong on this. The rest of the world is not quite at the same level...it's regular checks...I think Britain is much stricter... So I think it's more of a cultural thing more than anything else. (Coach 15)

Within Britain I'm nearly 100% positive that there really isn't any doping within [my sport]...it's kind of difficult to know what goes on the rest of the world 'cause there's obviously some countries that have a bit of a history of doping in [my sport]...there were people that were making comments at the Olympics about particular [competitors], particular countries and their performances. (Coach 21)

I've done quite a bit of work in the States and I've got good friends over there. So... I have recognised the differences in that kind of culture...but I think in sport there is still a strong overriding sense of fair play in... Britain. (Coach 16)

Three of the coaches expanded upon the above to offer an explanation about the cultural environment of their sport that served as a doping deterrent, including funding structures, social stigma, costs outweighing benefits:

...the fact that money doesn't drive the sport is probably the biggest reason why drugs are not a problem... it's quite a youthful sport so in the UK the majority of competitors will still be under the direct control of their parents... [my sport] world is small enough that if an athlete was known to be doping they would be hounded out by their peers... if you're gonna get caught you're gonna be ostracised from the sport

then that's maybe too high a price for people to pay... the culture that surrounds the sport is very much a community... the strength of that community would be a powerful disincentive. (Coach 16)

[my sport] likes to think of itself, certainly in Britain, as squeaky clean ...I think the funding has created a culture in Britain that has maybe set it apart from some of the other less well funded countries...Yes it's results-driven; they are looking for Olympic gold medals but it's never, to my knowledge, been to the cost of if you don't succeed at this you're fired and you're out and you're away to work in a factory in Siberia. People generally have got careers and things to go back to. (Coach 5)

the risk of it outweighs the reward for them because there's maybe social embarrassment or status or they've got too much to lose because of it. Or the reality is it's just not worth it for the level of competition. At the end of the day it's just [sport]. (Coach 1)

One coach discussed the strong stance taken by his Sport Governing Body:

...they've said there's a zero tolerance policy against doping for staff and [athletes]. Anybody who's been involved in any doping at all in any point in their career, they asked them the question outright. "Have you been involved in doping at any point, either as a staff member or as a [athlete]?" and they got rid of three of their Sports Directors because they said they had. And two of the [athletes]. (Coach 11)

Potential for Benefit. Only a few coaches demonstrated a clear understanding of the potential benefits of doping to performance:

it's hugely beneficial – in the endurance with EPO and blood spinning and putting oxygen in the system and aiding the recovery to HGH the human growth hormones so increases the cross sectional area of the muscles and lengthening the bones and tendons and all that kind of stuff and just increasing the power output. (Coach 7)

one of the scientists from British Cycling ...says, "You know, I can measure the diameter of one of my athletes' thighs ...if we increase that diameter by so many millimetres, I will get this much more power out of the pedals, therefore I'll get this much speed over the ground...you can see how in a machine sport ...hitting very particular targets...let's make those thighs bigger...that's then how you end up with...with drugs in sport. (Coach 16)

Most coaches felt that in their sport the potential performance gains from doping were limited. Whether this is in fact true or merely the coaches' beliefs was not clear. Several coaches explained that the nature and demands of their sport explained why doping was not an issue:

I've known coaches that worked in East Germany ... years ago ... they've openly said that people experimented with it, but it wasn't really beneficial to [my sport] because there's so many different aspects to it. (Coach 23)

I wouldn't say it's an issue ... our sport is not heavily endurance [sic] ... taking something to get a high out of it for a quick fix is not really going to help. (Coach 8)

...our sport is notoriously clean ... it never took hold because there's obviously also the tactical decision-making and mental skill demands of the more complex sports that separate us from the simple sports. (Coach 10)

...there's little value in the [our athletes] taking steroids. You don't really need to be big bulky muscle-bound. (Coach 5)

EPO and blood transfusions - they have such a small impact on what would be an action sport, an extreme sport that I think the risks involved in taking them and what could potentially go wrong seems unnecessary to do it when the potential gains in that sport would be so minor. (Coach 6)

The potential for a psychological benefit of PED use, in the form of a placebo effect, was noted by several coaches.

...it's all a psychological thing...if it worked for them once, they think, "Well that worked for me. I felt stronger. I need to take it again." (Coach 15)

We've discussed creatine and things like that ... and looking at the results of it, some of it could be placebo, some of it actually looks [like] it's not worth it because there's too much water. (Coach 7)

Some of the coaches could see how the potential for rewards, job and financial security could tempt athletes to dope:

I think all sports have a problem and I think anywhere where there's money and prestige and power on offer, somebody's going to bend the rules. (Coach 12)

[my sport] is a victim of it's own popularity... a culture where you don't have to do it, but the rewards for doing it are big and the consequences of getting caught up until this point were not that great. So, you know, it is a... cost benefits analysis...within [my sport] there's a lot of the guys who do it just to keep their jobs... I'm not going to condone it, but it's a lot more understandable... you're looking at somebody who could go from making 50 grand a year to making 500. If you can do that for four years

and you've got no other qualifications and two kids and a wife, then who's to say you wouldn't do the same thing in the same situation. (Coach11)

Influence of Others. The coaches recognised that they are able to 'set'/create the culture 'locally' but not globally. Most sports do not have a centralised training programme and therefore athletes spend significant amount of time outside the national programme environment. Coaches have much less influence ('control') over this wider sporting environment. Therefore, there is the potential that others may have an influence on athletes:

in the past, you know, you'd live in Columbia for 12 months because they seem to be producing lots of good players and you might come back chewing on cocoa leaves or something and not realise - just because that's what they do there – that it's not acceptable. (Coach 10)

...some of them 17, 18 and... they were influenced from any other corner... They go train somewhere else, different camps, and if they go to a training camp they get friends with someone... (Coach 15)

If you've got a strong team that's very anti-doping, then it's going to be a good environment to be in and they're going to, you know, use peer pressure to make sure everyone's following their lead. But then like some of the cycling teams, you know, I know Lance Armstrong's team, you know, they made it very difficult for someone to cycle on their team who didn't want to take drugs. So I guess it can work both ways. Depending on the team ethos. (Coach 21)

Prevalence of Doping. All coaches demonstrated an awareness of doping as a generic issue in sport. Also the culture, history, and prevalence within their sport influenced the awareness coaches had about doping and anti-doping issues. A number of coaches referred to examples of doping in their sport by athletes from other countries. This demonstrated their knowledge but also served to enhance the contrast with the relatively few cases in the UK:

I don't think it is a problem. There have been a couple of well publicised high level scandals in the last couple of years, nearly always involving former Eastern Bloc countries. (Coach 5)

I think Britain is much stricter ... there is definitely a culture in certain countries there they actually ... the full medical team support it... [my sport] was known for it, the Russians have been at it for many years, and the East Europeans (Coach 15)

...you've got China, I'm pretty sure some of those are abusing [drugs]. (Coach 3)

Other coaches identified sports (not their own) where doping is more widely recognised:

...obviously an issue in road [cycling] and has been for a long, long time. (Coach 6)

...there's the peer pressure thing which is one of the things that seems to have come out of the cycling thing. (Coach 13)

Only a few coaches identified doping as a clear issue in their own sport. However, there was a broad acceptance that doping is not currently a problem in the coaches' specific sport, and in Scottish sport more generally:

...we reckon it must go on, but not in Scotland 'I've been involved with [my sport] for twenty years and I've not seen it. (Coach 19)

In [my sport] there's nothing really we would need [in terms of] performance enhancing drugs. (Coach 9)

...we've not heard much about doping within [my sport] so hopefully it's not in there. (Coach 14)

I think in [my sport] there's very, very little of it. (Coach 23)

Prevalence of Testing. Many of the coaches noted a lack of testing and doping control measures in their sport except at major events:

very, very rarely. They never out of competition test... I've heard quite a few athletes, I've been speaking to quite a few of them in the build-up to London and they were amazed at how few out of competition test there are. (Coach 6)

it's a long time since I've seen anybody turn up at a domestic [event] in Britain. More at international events... We do get tested regularly, probably not as regularly as some sports but you see the...the testers at international events (Coach 13)

I was just asking of couple of the guys the other day when was the last time you were drugs tested and one lad who is an international [competitor] was like well it was the Commonwealth Games two years ago so... you only get tested out of competition if you're in the top 50 in the world or you're in the GB National team... you can get tested at any national competition, any Scottish National Competition or British National competition. (Coach 2)

'Imposed' Responsibilities. For a number of coaches, the role for overseeing doping and anti-doping was assigned to medical staff or managers. In some cases it was unclear whether this arrangement was formalised or occurred more by default. Consequently, responsibility for doping and anti-doping issues was not always viewed as part of the coaches' remit:

I would say it's really important to me – that's why ...I've made sure that... the right person's kind of dealing with it. I mean the thing is that I think you can stretch yourself too thin really and if I take on the anti-doping as well as the other stuff then I think I wouldn't be doing my players a justice really. (Coach 14)

when we're away the physio has... takes over all control. She's made sure if anybody's on any medication before we go to tour she has a note about what they're taking, etcetera, so she can check that out... I probably don't even read the WADA notices that come out and updates. I tend to leave that...because that's her job when she comes with us. (Coach 19)

...we had two managers working with the two teams so one of the managers just took all that on board so it kind of took that away from just allowing the coach to do their job. (Coach 8)

we tried to recruit a voluntary anti-doping officer for the sport but we never got anybody coming forward, in fact, what we did was just rolled that responsibility in with our lead doctor... It's fine, but he's a busy man. He's got a lot of different things on his plate but we found it difficult to identify a suitable individual to take on that responsibility within the sport. (Coach 3)

Most coaches, however, share the role with others having self-imposed the role as part of a general framework of responsibilities. For many this was due to having identified themselves as the main source of knowledge for their athlete/s. This reliance and expectation placed on coaches by the athlete led coaches to believe that it was a prerequisite of their role at this level to be able to deliver the correct information about doping and anti-doping issues:

I absolutely see it as part of my role because some of them are young, you know. They're students, or they've just left school, or they're...you know that kind of thing... it's certainly not my role to absolve myself of responsibility and say the physios will keep people right,... that's a coach's role to my mind. (Coach 20)

the athlete definitely looks more directly to the coach for input and reassurance or some form of education or opinion.... (Coach 6)

For most, there is lack of clarity about where responsibility for the role lies.

I think there's a lot of grey areas still – who was responsible for what and who was responsible as the officer for who we sent the information to ... and who filled the forms in and all that kind of stuff so there's a lot learned the last cycle... (Coach 8)

...the performance manager. It would be in his...under his remit. But it's not, because it's not as an issue, it's not something...I'm just assuming that he would, it would be under his remit. But I mean there is nobody specifically allocated.... When we're away the physio has... takes over all control. She's made sure if anybody's on any medication before we go to tour she has a note about what they're taking, etcetera, so she can check that out. But outside that tournament environment, they're left to their own devices. (Coach 19)

I have tended to leave it to our head physio...I tended to let Joan deal with it all as the expert, the in-house expert...the Commonwealth Games she would always be there and she would look after that and I would just deal with the technical side of the coaching. (Coach 13)

Consequences. Only two coaches were clear that there were consequences for coaches if athletes were caught doping. A small number of coaches felt that they would be implicated and possibly lose their job if an athlete was caught doping:

when I moved into coaching and went to programme management I was kind of aware that the buck stops here. If someone fails their test it's going to be my neck on the line. (Coach 3)

I mean, all the coaches in the U.K. in [my sport] are currently employed by G.B. which is the high performance part of the sport. So all of us would be out...out on our ear, faster than a fast thing...erm...no doubt about it. (Coach 16)

Many of the coaches were unsure of the consequences:

What would happen? Would I die? Get shot at dawn. Erm...no. I don't know any of that. (Coach 22)

I don't know what would happen to me. I mean, somebody would say, "Why did you not tell them?" It's like, "well, I did tell them." What do I do? Do I hold their hand 24 hours a day? (Coach 20)

However, they did believe that there would be consequences if they were implicated in precipitating drug use:

I don't know the exact specifics, but I do know that the coach can get banned...I don't know if it's, like, a straight ban or if it's..., but I do know it can implicate the coach...I mean, tell me if I'm wrong, but of course if they proved you administered or you advised them to take a certain thing then you'd get into trouble and you could be banned. (Coach 21)

I don't remember reading anything like that in my contract actually, so I'm... no, I wouldn't have thought so... I think the only repercussion would be if I was encouraging them...Obviously there would be repercussions. (Coach 19)

4. 2 Reflective conversation

There were 22 lower order themes relating to the coaches' engagement in a 'reflective conversation' in relation to doping and anti-doping. These were organised inline with Schön's (1983) reflective conversation concepts. The four themes were: issue appreciation; strategy generation; action; and evaluation (Figure 4).

According to Schön's (1983) work, the reflective conversation is triggered by identification of an issue, dilemma, or problem. Issue appreciation then leads to a repeating spiral of strategy generation (sources used to develop a plan of action), experimentation (action), and evaluation of effectiveness. Analysis of our findings revealed clear evidence of reflective conversations in relation to doping and anti-doping. However, the extent and detail in this process varied dramatically amongst coaches and sports.

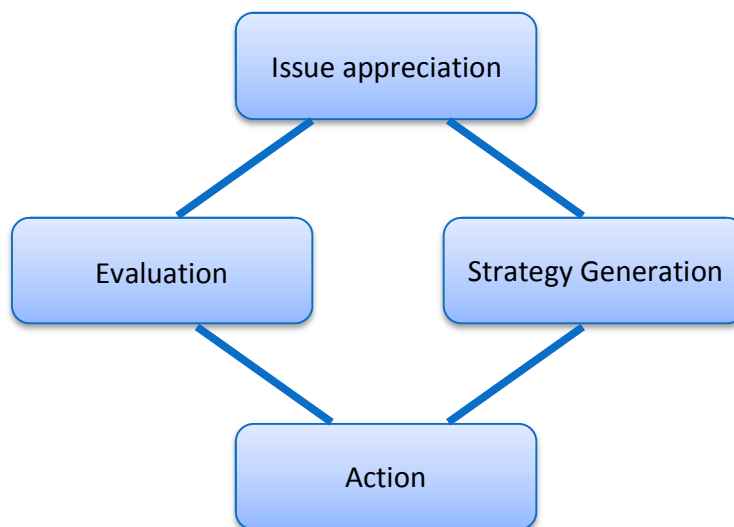


Figure 4. Coaches' reflective conversation components.

Issue Appreciation

There appeared to be a clear distinction between systematic drug use with the intention to enhance performance and inadvertent use. There were three themes that reflected coaches' doping issue appreciation. These were: doping is not a problem; anti-doping is a low priority;

and inadvertent use is a concern. Coaches' appreciation of the doping/anti-doping issue is critical if they are to be actively involved in anti-doping. It was clear that coaches' identified doping as a generic issue in international sport, however, for most of the coaches in this study it was not an identifiable problem in their sport, particularly in Scotland. This resulted in anti-doping having a low priority for the coaches. However, inadvertent use was identified as a potential issue.

Doping is not a problem. All coaches believed it is important to have 'clean sport'. However, for most coaches, doping was not considered a problem in their sport:

...my perception is that we don't really have an issue as a sport. (Coach 13)

In [my sport] I don't think it is ... I've never seen anything. (Coach 18)

There were a number of reasons for this belief, most of which related to the influence of the boundary role frame components. For example:

- Low prevalence of doping in their sport, particularly in Scotland and Britain.
- Low prevalence of testing, particularly out of competition.
- Perceived limited benefits to performance.
- Low potential for financial gain from doping enhanced performance.

I think the culture in Scotland is one where it is not an issue based on potentially the only doping or drug issues we've found are more of a recreational drug incidents rather than doping for performance. (Coach 1)

...if you're not ranked in the top 50, and that's in any event so it does cover quite a lot of people globally, you don't get put on the ADAMS form or the Whereabouts thing so there's quite a high chance that you go quite a long time without being tested. (Coach 2)

I don't think I can't see anything in our sport that would be performance enhancing. (Coach 13)

I come back to what would be the point? Because it would costing a fortune to do drugs and actually you are not getting that money back in any way, shape or form, other than potentially the prestige of winning. (Coach 16)

Anti-doping is a low priority. Connected to the coaches' belief that doping is not an issue in their sport and particularly not in Scotland or Britain, was that anti-doping remained a low priority for the majority of coaches:

It's [anti-doping] on the back-burner. It is because we have this perception that it's [doping] not an issue for us. (Coach 13)

Very low... because it's not an issue... you could say it's ...well down the list. You know, but obviously if it [doping] became an issue then it [anti-doping] becomes a priority you have to deal with. (Coach 19)

one of the things, I suppose, that I definitely didn't have down on that list was anything to do with anti-doping... if you had of said what about anti-doping I would have said yeah, yeah I would have to be aware of...that would be part of my job but I didn't actually put that down because I just forgot about it [laughs] because it's not at the forefront of my mind. There are so many other things that probably the doping side is just a miniscule percentage. (Coach 9)

Some coaches also assigned anti-doping a low priority because:

- Other coaching activities more important for the time they have with their athletes.
- Fear of encouraging use by discussing it.

if again, if it's based on, "Well, this is going to come out of your allocation of time, funding, whatever." Then I would be looking at how, if there was other ways I'd get more benefit using our funding in other areas. (Coach 19)

...the priority is making people technically better and that's the... that is the priority over psychology support, it's priority over anti-doping education. (Coach 13)

I don't think we have a problem. And I don't know, if you make people aware, then maybe they're gonna be...you know, you're going to be aware of it so then do you access [it]? (Coach 22)

The low priority level does change during specific times in the season such as proximity of major competitions where testing is likely:

...there used to be an odd competition throughout...throughout the year where they would appear at and do stuff, but at the minute, it's only the British [Championships] that...that tests them. (Coach 22)

I would say that Europeans there's a chance of being tested; at the world championships. There's not really any other time that there would be testing. (Coach 9)

...certain times in the cycle, yeah, maybe not even on an annual basis... (Coach 13)

Only a few coaches placed a high priority on anti-doping in their work with athletes. This level of priority is largely due to the prevalence and history of doping in their sport such as athletics, cycling, and swimming. However, in most cases they expressed a belief that doping was more of a problem in the past than in the present:

there has been a history of doping in swimming...There was a lot of Chinese people got done in the 90s...I think China's opened up a lot since then...so I don't really think that's going on now...the programmes that I've been involved with over the past 10 years have included anti-doping as quite a big element of that (Coach 2)

I was criticised quite a lot in the Olympics about how poor the performance was. In a review they were saying that the coaching need to really review that event and say that the coaches aren't doing a very good job but for me I think that the event is a lot cleaner now. (Coach 7)

Perhaps the exception to this was a cycling coach who said:

...cycling and doping go together hand in hand, we've got a pretty bad reputation...I think largely the outrage about doping in cycling ... it's very much an English speaking culture. All the Europeans don't care. They just accept it as part of the sport and that's it. (Coach 11)

Inadvertent use is a pressing issue. Inadvertent use through medication, recreational drugs use (lack of awareness that these are also banned), and supplements (containing banned substances by design or contaminated) was a concern for the coaches. All coaches were concerned with accidental doping in general:

I'm on their back. You know what I mean, that if they are taking a pill or anything like that, what the hell is it? What are you taking? Have you checked it? Have you tested it? (Coach 20)

...we try to get everything that they need through their diet 'cause it's kind of, you know, it's quite a dangerous area in terms of when it's a supplement and when it's a kind of banned substance. (Coach 21)

For one coach this concern was exacerbated by the low prevalence of doping and low priority given to anti-doping:

I think we all share that perception that it's not really a thing in our sport and not an issue. I guess the danger is then that you miss something because you don't...you're not looking for it. I guess...there is that risk I guess, just something we don't, we just don't perceive as something that's a challenge for us. (Coach 13)

However, for some coaches a further worry was for athletes who had been prescribed medication. Coaches felt athletes were less likely to check for banned substances if they had been prescribed by a doctor:

...if they say, "I'm going to the doctors," ...you know, for anything... make sure you check that WADA list or that 100%Me list. Do not let that doctor give you anything that, you know... I said, "Have you checked it?" He said, "No." I said, "Well, we must check it", and it was banned. (Coach 20)

So it's not always within my control obviously if...if an [athlete] is away from the [sporting venue], and especially if they just go to the doctor for some other medical reason and the doctor says, "Take this," and they forget to look at it. Then it's quite...quite easy really to take the wrong thing. (Coach 21)

Some coaches felt athletes were more likely to test positive for recreational drug use than for performance enhancing substances:

They get tested and these recreational drugs show up as well...you know you're off the programme...I don't want them ever to say, to me "I didn't know." I can say to them, "Yes, you did know and you made the wrong decision. (Coach 20)

...you get the odd kind of chat about [athletes]...missing tests...or failing tests. But they tend to be from more like, I guess, like, recreational type drugs, rather than...than anything you would necessarily classify as performance enhancing. (Coach 17)

Coaches were apprehensive about supplement use, including knowledge of the content and effectiveness, the reliability of supplement batch testing, and the origin of these products:

the one thing they keep ramming down our throat in [my sport] is this idea that, you know, don't take supplements because you don't know what's in them even if it comes from a reputable source...if you are taking supplements as simple as vitamin C where do they come from? They've done their own testing and discovered the stuff over the counter at Boots chemists and Holland and Barrett [health food store change] still contains trace samples of a steroid...the quality control isn't brilliant. (Coach 5)

I'm assured they can trace everything right back to the batch and things, and we've had these endorsements from some well-known people in various sports and so I'm only as good as what they say...we're a bit green in this. (Coach 19)

There have been [athletes] banned recently who say that the reason they tested positive is because they took a supplement that had a banned product. So any

supplements they do take, they need to make sure that they've been batch tested.
(Coach 21)

Strategy generation

Only a small number of coaches were proactive in their anti-doping activities. This resulted in a lack of clarity concerning how anti-doping actions were developed, with some occurring through chance and circumstance rather than by design. There were five themes that described the sources coaches consulted to develop anti-doping actions. These were: experiences as an athlete; enlisting experts; observation; joint construction; and anti-doping materials.

Experiences as an athlete. A number of the coaches had experience of being an athlete in performance environments where they received anti-doping education and experienced testing:

Erm, I supposed the basis of my education around anti-doping would have come as a by-product of being an athlete. (Coach 3)

... we got educated, I remember a way back, we were educated. You know, we got the wee cards out and the...the doctor spoke to us with the National Team and told us what things were...erm...banned... so we got a little bit of education on it. I wouldn't say a huge amount. (Coach 18)

these days within the job and then previously as being part of those Squads as an athlete, then there's been opportunities and that would be for coach and athlete, from kind of general lectures or whatever... we've done a few quite good ones where it was, you know, actually the anti-doping staff taking us through the procedure. (Coach 2)

Enlisting experts. Most coaches enlisted experts such as medical staff, trained anti-doping tutors, anti-doping officers, and official doping testers to deliver workshops to athletes:

We as a governing body, I mean every year in warm weather training we put on an anti-doping presentation so one of the guys... he goes to all the training and stuff and he delivers a really good presentation about raising awareness and all that kind of stuff. (Coach 1)

...since they brought in Me, was it 100% Me? 100% Me – I think when they brought that in and how they tutor, like how you sort of, obviously we've got an anti-doping officer and then she's tutored everyone up from that sense and then we just delivered that out to our athletes that actually competed competitively, well and the coaches so. (Coach 8)

This also included seeking professional advice:

...we need to be aware of it because supplements now play a massive part too in the nutritional and the physiological development of our players... and they're potentially at risk of doping but maybe not consciously knowing, but that's where we work with our external partners nutritionally to make sure that they eat clean. (Coach 1)

I would say it's really important to me – that's why I've got...I've made sure that...you know, the right person's kind of dealing with it... if I take on the anti-doping as well as the other stuff then I think I wouldn't be doing my players a justice really so I'd rather that they got... information from a professional. (Coach 14)

Observation. A small number of coaches have developed ideas for anti-doping actions through observation of activities of other organisations:

We've had – in the commonwealth games preparation camp – we've had..., a mock testing going on... that's really effective and so we've done something similar. So that was Commonwealth Games Scotland who did that. (Coach 1)

Joint construction. A few coaches described involvement of others in strategy generation. One coach outlined his proactive approach to integrating anti-doping actions into their programme:

If someone fails their test it's going to be my neck on the line so I went to my colleagues who maybe had a greater level of expertise within that area and said okay so what's the reasonable checks and balances that we should be putting in place and we just had a discussion about how we could fit that into the programme. (Coach 3)

Another coach indicated an upcoming meeting across sports:

*I've just had an email from **sportscotland** yesterday... saying... us Performance Managers have all got to have a meeting and then set up an anti-doping education programme for coaches and athletes through to Glasgow. (Coach 13)*

Anti-doping materials. Some coaches actively engaged with anti-doping information that was available through emails, leaflets, and websites:

I'm comfortable but I've always kept sort of up-to-date with what's going, you know, I fill out the questionnaires, I have a look at the changes and thing like that. (Coach 10)

Action

There were three themes that reflected coaches' anti-doping action. These were: integrated approaches; focus on doping control and inadvertent use; and informal actions.

Integrated approaches. Only a small number of coaches were proactive in their anti-doping actions to support athletes. These coaches were often, but not exclusively, in sports with a history of doping. They were aware of doping cases, specific drugs, and anti-doping procedures. They conveyed an integrated approach to anti-doping actions by incorporating them into their everyday activities of facilitating and monitoring athletes' preparation and performance programmes:

They are very aware of the structure of the system, what's banned and what's not, and they've all got lists and they're all quite switched on in terms of, you know, if they go to the doctor they take the list with them, you know, and if they go to the dentist they take the list, you know. They are never really without it and that's 90 per cent of the...90 per cent of the challenge really. (Coach 11)

The coaches' planned activities included:

- Formal workshops and education for athletes (e.g., online tutorial, quizzes, information table at events). These were sometimes integrated with other educational activities.
- Developing educational material for athletes and parents.

At the Scottish finals [she] will actually just sit at a desk with all the gear there – even for parents and just general public to make it more aware of what's out there and they can come and see the testing equipment, ask questions, so we're trying to make it a wee bit more just user friendly. (Coach 8)

- Simulation of testing procedures for athletes.
- Planning for testing during competition and preparing athletes for this potential 'disruption' to their competition plan such as adapting recovery and subsequent pre-performance routines.

...in pre commonwealth games camp we've had case scenarios, a mock testing going on where we've picked athletes up and we've had a here's one we prepared earlier jar or apple juice. They've not actually gone away and produced a sample and come back and basically... they've had official UK dope tester going through the process, the mock process with the athletes and asked them the questions and getting them to fill the paperwork out and getting them to split the samples and all that kind of stuff and that's really effective and so we've done something similar. (Coach 7)

I know that there's a possibility of my [athletes] that are gonna get drug tested, then it's about managing that with them. So managing their expectations that if you get drug tested, here's how we're then gonna [cool] down. So, if they've got another race to do, or so that then doesn't interfere with their preparation or recovery for their next race... if you get tested and have to sit for five hours, how are we gonna manage that. (Coach 17)

One coach outlined the care they went to with regard to supplements used by the athletes:

... at the moment [we're] encouraging all the girls, in particular, to take batch tested vitamin C because they had a lot of problem the last few years with cold... So I'm getting this from [Sport Governing Body], who are getting it from [Company] who are one of our sponsors and they know it's clean, it's good and the tubes are all numbered and we know who it's going to and that's just vitamin C, it's nothing else. (Coach 5)

In contrast, other coaches emphasised hard work and good nutrition over PED and supplement use:

Look, diet's more important – we try and enhance the positives. Let's do your food diary for a week...you could save some money making your own and nutritionally it's a lot better for you. You don't need this, you don't need that and generally trying to push the positives rather than saying that you mustn't take this, you mustn't take that. (Coach 5)

Doping control and inadvertent use focus. For most coaches their anti-doping actions were focused primarily on doping control procedures and inadvertent use through medications. They emphasised:

- Ensuring athletes understood testing and doping control procedures.
- Raising awareness, monitoring and supporting athletes to avoid inadvertent use.

We give them the up-to-date papers and stuff, all the right linkage and we do some stuff, more on the procedures on what would happen, more on just awareness of look, you know, you can't just go and take something without actually checking that it's ok. (Coach 9)

...we certainly have talked, particularly when travelling to North America, and things about you know don't go and buy anything, don't go and buy medications and stuff like that so we, we...it, it's a bit ad hoc. (Coach 13)

...we've just been away with the 16's in Portugal there and our doctor did a little bit on...erm...just, you know, doping control and made it into a wee quiz when we were away, just to give the players a wee bit of understanding of it. (Coach 18)

...if they are taking something or if they have been asked to take something for a genuine reason then they either run it past me or they go and check...at least if they're abroad they do a quick check for the ingredients so that they've got at least an idea of what could be a problem and that's about as far as we're going to get. (Coach 6)

Informal actions. Regardless of whether the coaches had well established plans or not, most coaches also tackled doping and anti-doping issues through informal conversations when a situation arose. This included reacting to situations and circumstances that raised the profile of doping issues such as illness, major competition, visibility of doping cases, athletes' questions, time in athletes' careers when they may first become subject to testing and doping control:

You illuminate the accidental people that do it without thinking and I think you take away a lot of the anxiety away from it... we are actually very, very dependent on the athletes making the right choices...so to that degree it's very, very important that we have open communication and contact with the [athletes] as far as doping issues are concerned. (Coach 11)

It's a much more casual talk where I try and feed something into the conversation and reinforce the point maybe... you know, where does caffeine sit, where do hyperbaric tents sit? Are they doping? Are they not?... Why is Alain Baxter's situation cheating? (Coach 6)

I kind of am a bit more of reacting to [it] a little bit rather than being proactive. (Coach 9)

Several coaches discussed deliberately trying to keep their dealings with athletes in relation to doping and anti-doping 'low key':

I don't do the rigid classroom stuff; I never really do it with my guys. It's a much more casual talk where I try and feed something into the conversation and reinforce the point maybe. I think just dropping hints and comments with doping that's probably more powerful. (Coach 6)

It's an underlying theme. I think at the development level I'm keen to try and balance things. I don't want folk to think that there's an oppressive regime, you know, you mustn't take this, you mustn't take that, but we generally try and hint. (Coach 5)

...shall we say that's part of our kind of philosophy, I think the other part of it is through the informal communication - the subliminal messages that we're sending out. (Coach 3)

Many coaches also felt that athletes learnt from the other athletes in their sport and were happy for this process to occur:

...you know most of the guys who are senior athletes, i.e. kind of twenty and older, have already experienced that already, you know, and they all talk to each other and they understand the system ... (Coach 11)

A lot of the guys...because the culture for doping is so low...everyone kind of jokes and quite a few of the top level members are very vocal about doping in all the [sport] disciplines because they've been dope tested and that's quite refreshing to see. So the whole pissing in a jar, having a few beers to make yourself piss is a bit of a joke so the younger guys tend to almost...they've heard about it and they kind of expect it and they're not feared. (Coach 6)

Perceptions of effectiveness

Overall coaches felt the actions relating to doping and anti-doping were effective. There were six themes that reflected coaches' perceptions of the effectiveness of anti-doping activities. These were: effective education activities; challenges for educational activities; effective processes; anti-doping websites; measuring effectiveness; and progressing an anti-doping stance.

Effective education activities. Most of the coaches believed that the doping and anti-doping education their athletes received was effective. The actions they felt were most effective included:

- Practical, 'hands on', anti-doping education.
- Use of real life stories and examples to help athletes understand the risks.
- Peer discussion about anti-doping procedures.
- 100% me workshops.

I think the more practical you can make it, the better. So, kinda the run-throughs with the anti-doping staff were pretty good. They gave the athletes and coaches a real picture of the process. Also the anti-doping were kind of saying, "Make sure it is this procedure. If it's not, then question it," kind of thing. I think they were...they were the best ones. (Coach 12)

everyone kind of jokes and quite a few of the top level members are very vocal about doping... because they've been dope tested and... so the younger guys tend to

almost...they've heard about it and they kind of expect it and they're not feared. (Coach 6)

I think it's really good because it's quite interactive and I think it's really reflective of actually what happens like you actually see the guy whatever peeing. I mean the graphics, the pictures are as good as anything and you get to see (Coach 8)

I really liked the BG campaign. Or I don't know if it was BG, but they were using that, the '100% Me'. I thought that was a really good... like it was a good title for it, and it was a good way of selling it to the kids... I really liked that, thought that it's '100% Me. (Coach 23)

Challenges for educational activities. Several challenges were raised in relation to anti-doping education:

- Keeping the athletes interested and engaged in the topic.
- Limited value of written forms of information.
- Effectiveness of repeating workshops during an athlete's career.

I think there's a general perception that it's a chore and that it's tedious. And of course if they're thinking like that the trouble is that there's a danger they miss something. So there's that challenge of trying to keep their attention. (Coach 13)

...we do the Competition Handbook...one of the doctors that's involved..., they do the section for that. But I bet most people don't actually read it. It's in the handbook but I would think that most people don't actually read it. (Coach 23)

...No. I mean,...we're emailed the...when the WADA updates come out, or the latest listing comes out, we're sent it and it's sent on to the players. Whether we all read it to it's full...I very much doubt it. (Coach 19)

they do keep a register so they ensure that the full time athlete who train at [venue], you know, it's indoctrinated into them... so it's very, very clear to them but they do have to once a year sit down...you can see them, they're bored because they've heard it all before and they're sitting there. (Coach 5)

Effective processes. Some coaches felt that some of the actions of anti-doping organisations were effective in tackling doping issues. These included:

- Out of competition testing
- ADAMs and Whereabouts forms

I think it's out of competition. That's when they catch people... The Whereabouts form is the big...is a big thing. There's been a couple of guys that have failed on that and actually been banned. (Coach 11)

Anti-doping websites. Opinion was divided over the accessibility of information from the anti-doping websites. A number of coaches felt the WADA website provided coaches and athletes with an effective means to access doping and anti-doping information and check for banned substances:

they are publishing everything on the website – WADA official website and if any athletes buying any medication or taking any medication they just enter the name of the medication and the list showing prohibited or not. It was very easy. You just go and enter your age, your sport, male/female, athlete or coach because they can grade you and they just show drug prohibited or border line. (Coach 4)

However, some of the coaches felt the process was too complicated and clearer information could be provided to the coaches:

...there's...confusion about...whether or not all the same drugs are banned in every sport or certain sports, you know, is it banned in this sport but not that sport. Is there a centralised document that we can refer to, so I think there are a few things like that, that need to be clarified. (Coach 6)

it does seem... a little bit more complicated with the whole WADA thing...I'd like to receive... some clear information about the updates every year... I think they should blanket it to every coach who's registered in the country whenever WADA or whoever it is change their regulations. Here's a summary of it; here's the key points; here's where you go to find out more information or you must now know about this, please make your athletes aware of this. (Coach 2)

I wasn't just quite sure so they looked them up and said they're fine, but it's a minefield when you look at that site. You lose the will to live. (Coach 9)

Measuring effectiveness. Despite, generally believing anti-doping activities were being effective a number of coaches indicated that they have no clear-cut way of measuring effectiveness:

I've never specifically asked for feedback on the doping. We don't ask for feedback generally in other specific areas. That's never came back that it's effective, it's ineffective, but I'd be more than happy to have an audit on what we're doing and perhaps reflecting, perhaps that's an additional, external service that could be provided to us. (Coach 3)

The same with most things, I think. It...they're like, "Oh, heard it. Heard it before. Done that." But then, on the other hand, they still attend and they still...they still do take on board. So...but...I might hear, "Oh, it was good," or, "That was a waste of time." But that's probably about it to be honest. (Coach 17)

I'm sure they're all in the lecture theatre. But how much do they take in...? (Coach 20)

Progressing an anti-doping stance. All of the coaches agreed it was important to create an anti-doping environment for athletes. However, a few coaches were unsure of how to progress an anti-doping stance. Some of the coaches felt they were limited in terms of how much knowledge they were able to deliver to their athletes:

I wouldn't say it's a defined role but it's something the guys should know you've got a stance on. How you actually develop that stance I don't know, it's a bit vague, but. (Coach 6)

I think it's effective enough that I can contribute something in a very, very minor way to what the athletes are...what they must do, mustn't do and what they might happen to them in a drug test. But, I mean, it's a minor thing. (Coach 20)

One coach drew on his experiences in another country to suggest a starting point for further development of anti-doping for coaches:

Yeah. Yeah, back at the Institute of Sport though [Australia]. It was internal. The systems over here seem to be a long way behind where they should be and potentially you could influence that. I'd be interested in round tabling with a number of other people in the same sort of roles. To get an idea of who's doing what and where but that sort of interaction could be a productive opportunity and it's not about formal education, it's more about getting a feel for what's there, what's not there and what the likelihoods are and what the experiences are and then you've got a whole new type of learning that goes on. (Coach 10)

4.3 Education

There were 7 lower order themes relating to coaches' experience with education related to anti-doping. These were organised into two higher order themes: education is primarily for athletes; and education for coaches.

Education is primarily for athletes. Where anti-doping education was provided it was mainly directed towards athletes. The opportunity and engagement with anti-doping education varied across the sports, from organised systematic delivery to no education. There was also a perception that anti-doping efforts had declined in recent years. Coaches recognised that being

a Commonwealth Games sport offered athletes more anti-doping education opportunities and thought opportunities were likely to increase in 2014 due to the Games being held in Scotland.

The athletes were main focus of anti-doping education:

So within the [sport] performance programme we have an anti-doping workshop once a year. We have the bumf in and around the training environment. We have some senior athletes who are involved in anti-doping agencies at the elite level so they kind of...between all those avenues.... (Coach 3)

It's more at the start of the season or if there's been a major rule change or if for some reason that we're not meeting the requirements of what [Sport Governing Body] has signed up to then the information then gets passed onto the players but there is then just a big ownership put on the players to know and just manage that themselves. (Coach 1)

Yeah I mean I think since they brought in Me, was it 100% Me? 100% Me – I think when they brought that in... and you have to make sure they've went through it every year. (Coach 8)

During the squad weekends during the training sessions yes we're always mentioning, talking about these things. Maybe not every single squad weekend but at least once in the winter period... we do a session, like an hour and a half, two hours plus discussion when people can ask questions and we can update them with the information and if we are lucky to have doping people come and speak to us. (Coach 4)

A small number of coaches indicated that there was very little anti-doping education for their athletes, perhaps until they represent Great Britain:

Erm...when the athletes get to G.B. standard, and then competing internationally, that will be the first time they come across competition testing Erm...so what the G.B. guys do with them is they put them through an online workshop thing... if one of the athletes gets in to the G.B. Squad they will then have to go through that online thing in order to compete for Great Britain this summer. (Coach 16)

A number of coaches felt that the anti-doping efforts had declined in last few years:

We used to use, when I first started which was 6 years ago with [Scottish Sport Governing Body], it was 100% Me stuff and I would always direct our guys to that, as well as the staff. (Coach 6)

I think, I think we had a generation of athletes who were well trained in it and understood it probably through until the Melbourne games and then I think we probably laxed, have been a bit laxed beyond that so we've actually got some younger and less experienced athletes come in who haven't been through the mill with that yet. Some of them haven't been tested yet. (Coach 13)

I have a slight feeling that it's gone a little bit quiet in the last 2 years but maybe they'd felt that they'd actually done quite a bit of good education prior to that. (Coach 2)

Engagement in anti-doping education for some sports is linked to their involvement with the Commonwealth Games:

We've had – in the commonwealth games preparation camp – we've had in case scenarios, a mock testing going on... all that kind of stuff and that's really effective... So that was Commonwealth Games Scotland who did that. (Coach 1)

With the next Commonwealth Games being held in 2014 in Scotland there has been an increased emphasis on education:

*We've not done much recently, but I've just had an email from **sportsotland** yesterday... saying you know us Performance Managers have all got to have a meeting and then set up an anti-doping education programme for coaches and athletes through to Glasgow. (Coach 13)*

I honestly can't remember. We'll have had... lectures, you know, at each... camp. There'll have been something about...I'm quite sure there was a girl came up from London to the last, you know, Commonwealth Games camp and talked about, you know, drugs, drug testing, their regime, what's likely to happen to them. (Coach 20)

Education for coaches. The coaches were not aware of any systematic education for coaches. The coaches' knowledge and education in relation to anti-doping tended to be:

- a result of personal interest.
- experience as an athlete prior to coaching.
- often haphazard.

Mainly I've learnt through self-learning, through just reading up on it because I felt I should. I was obliged to. Now I have been involved with some anti-doping workshops, maybe I've had one or two which have been coach-specific but for the most part, 9/10 times they will have been athlete and coaches or athlete-based with coaches sitting in. (Coach 2)

Primary as an athlete because I've been tested loads of times so I've had people turning up at my door at 10 o'clock at night; I've been tested abroad and there's been different ways of doing it. I don't think I've...I've not actively gone out to do anything, I mean I'm pretty comfortable with where I think I'm at with that. (Coach 1)

*Well we get emails through from **sportscotland** or the Institute on anti-doping and stuff but I must admit I'm a little bit kind of lapse of kind of looking at stuff. It's not really on my radar that much. (Coach 9)*

Yeah, usually in a...you know, a workshop, classroom. Quite often if you're on a National Team, again usually, like if you're on a National Team, normally you go on a holding camp together beforehand. So you would...on that holding camp, you would get some info, some workshops where someone would come in from...from WADA or somewhere, or the UK Doping Agency, to come in and talk to the [athletes], talk to the coaches about procedures basically. (Coach 21)

A number of coaches indicated that they had not received any education:

I'd say either because we're not on the Institute...but it means that we as a programme don't have the Institute support and me as a coach has never really had any education. (Coach 6)

So I don't know...I don't think the coaches are educated in any sort of stuff like that anyway. (Coach 22)

Me personally, no I haven't; I haven't received anything from that. Whether it's been available I'm not sure and I've maybe not been able to attend it because of time, I can't remember. I can't remember off hand of anything that was offered to me. (Coach 14)

Some of the coaches indicated that anti-doping education was important, however, the low prevalence of doping resulted in education having a low priority:

I think it's always best to know as much as you can do....Is there a centralised document that we can refer to, so I think there are a few things like that, that need to be clarified but yeah, it would be good to know, but I don't think it's an urgent thing. (Coach 6)

I don't really think it's [doping] a big deal. I think in saying that you could always be better educated at everything. It's certainly something that if the Institute said we are going to be running anti-doping seminars and we want to get all the coaches

along then I would certainly feel yeah that's something that I should be at to gain a little bit more information... (Coach 9)

I kind of read my email tentatively because I thought I've got more pressing matters to think about. (Coach 7)

5. Discussion

It is recognised that the coach plays an important role in an athlete's sporting career (Lyle, 2002). In relation to doping and anti-doping in sport, research from the athletes' perspective identifies coaches as a potentially precipitating and prohibiting factor (e.g., Allen, et al, 2013; Backhouse, et al, 2007; Cléret, 2011; Dimeo, et al, 2012; Dubin, 1990; Kirby, et al, 2011; Lazuras, et al, 2010). Furthermore, research demonstrates that coaches' perceptions of their coaching role guides their behaviours, the issues identified and acted on (Bennie & O'Connor, 2010; Gilbert & Trudel, 2001; 2004; Nash, et al, 2008). Experts regularly reflect upon their beliefs about their role to monitor their professional practices (Schempp, et al, 2006). However, little is known about coaches' perceptions and awareness of their role in doping and anti-doping.

The purpose of this study was to examine coaches' attitudes, awareness, and perceptions of their role and actions in athletes' doping and anti-doping. The research provides a number of significant contributions to doping and anti-doping research. These are in-depth examinations of coaches' perceptions of: 1) their role; 2) factors that influence coaches' potential to precipitate or prohibit doping; 3) their actions in relation to anti-doping; and 4) experiences with education and support for anti-doping.

The concept of role frame (Schön, 1983) enabled a systematic examination of coaches' perceptions of their role regarding doping and anti-doping. The coaches' internal role frame components identified in the present study such as a belief in 'clean' sport, approach to preparation and performance, and responsibility to athletes suggests that the coaches held a clear stance against doping. Research examining coaches' perspectives on doping and anti-doping is scarce; however, our findings are consistent with the limited research available (Backhouse & McKenna, 2012). For most of the coaches a belief in 'clean' sport was part of a broader coaching and programme philosophy. It was an implicit part of the 'culture' they worked to create with their athletes. They emphasised that the way for athletes' to achieve success was through hard work and challenging oneself rather than taking shortcuts (i.e., doping). Their beliefs about how sport should be prepared for and 'played' have much in common with the humanistic model of coaching (Lombardo, 1987; 1999). This approach to coaching is athlete-centred. It focuses on fostering athletes' self-awareness, growth and development. The coach is a facilitator who encourages and supports athletes rather than controlling them. The humanistic approach to coaching is also reinforced by the perceptions of

Scottish athletes who reported their coaches' creating a mastery motivational climate and which in turn was associated with athletes' stronger anti-doping attitudes (Allen, et al, 2013). These findings suggest a strong foundation for the coaches' role in anti-doping. This foundation was further supported by the value coaches' placed on being knowledgeable about the drug testing and control procedures and the potential for inadvertent doping associated with medications. However, a number of the coaches also questioned their knowledge, particularly with regards to remaining up to date and risks associated with supplements.

Recognising the complex, dynamic, and contextualised nature of coaching (Jones & Wallace, 2006), it was important consider not only the internal role frame components but also the situational factors that influence coaches (Gilbert & Trudel, 2004). Examination of the coaches' boundary role frame components provides new insight into the situational factors that influenced coaches' approach to coaching and specifically doping control and prevention. Potentially negative consequences for coaches, such as sanctions, as a result of athletes being caught doping were not widely identified nor did they appear to act as a significant deterrent. However, several boundary components were clearly supportive of the coaches' anti-doping approach. For example, consistent with previous research with Scottish athletes (Dimeo, et al, 2012) coaches' reported an anti-doping culture within Scottish and British sport. Dimeo and colleagues noted that "Scotland appears to pride itself in its anti-doping ethos" (p. 23) and "the prominence of anti-doping culture may influence athletes' attitudes towards performance-enhancing drugs" (p. 23). This culture appears to also influence coaches.

In addition, several boundary components combined to contribute to the priority level assigned to anti-doping activities. For most coaches, a perceived lack of benefit of doping for performance, low prevalence of doping in their sport, low prevalence of testing contributed to anti-doping having a low priority. For a smaller group of coaches anti-doping was a higher priority. This was due to clear evidence of benefits for performance, well-known cases of systematic doping in their sport, and more frequent testing. In addition, coaches recognised their influence on athletes is through the local or immediate 'culture' they are able to create. However, the athletes are training and competing within a global sport culture over which they have limited influence. This view is consistent with findings from Kirby and colleagues (2011) in their study of confessed dopers. For one of the athletes in their study, a coach had acted as a deterrent to doping for many years. However, when the athlete changed training groups and the positive influence of the coach was no longer present the athlete succumbed to the pressures to dope. These findings suggest that the coach is just one of the myriad of contextual factors that influence athletes' attitudes and behaviours towards doping and anti-doping and that coaches recognise this limitation. Research examining athletes' perspective has identified the significance of both the immediate and wider social environment in relation to doping attitudes and behaviours (Dimeo et al, 2012; Lentillon-Kaestner and Carstairs, 2010; Smith et al,

2010). Although the coach continues to be an influential figure in the immediate sport environment, the influence of the wider global sport environment should not be ignored. Furthermore, not only does the wider environment influence athletes it also appears to impact the coach.

According to Schön (1983), the way practitioners frame their role determines the issues that are identified as 'problematic'. Furthermore, once a dilemma is identified practitioners engage in a process which Schön referred to as a 'reflective conversation'. This is a repeating spiral of appreciation (issue setting), strategy generation, experimentation (action), and evaluation (Gilbert & Trudel, 2001). The clear stance against doping conveyed by the coaches in the present study might, therefore, suggest that they would identify doping as an issue and engage in strategies to proactively combat doping. All the coaches in this study were aware of a generic doping issue in performance sport. The coaches' recognised that they were part of a global sport context where doping is problematic and doping control measures are in place. This did influence their engagement with doping prevention activities. In general, coaches ensured athletes understood the risks of inadvertent doping through medications, and were familiar and complied with doping control procedures. Coaches also had a sense of what activities were more effective for athletes, many favouring practical experiences and informal teachable moments. These findings provide support for Schön's theory and support findings from research with youth sport coaches (Gilbert & Trudel, 2001) in which identification of an issue as problematic is dependent on the coaches' role frame and once identified triggers a reflective conversation.

In practice, however, the frequency and range of activities and the time assigned to them also varied among the coaches. Ambiguities in coaches' role frame may also account for this lower than expected engagement with anti-doping activities. For example, there was less clarity over where the responsibility for doping control and prevention rested. Consistent with their role frame most coaches felt they held some responsibility, however, responsibility was often shared with or entirely assigned to another member of the support staff. A number of coaches also suggested that ultimately it was the athletes' responsibility. In addition, although coaches valued 'clean' sport, anti-doping activity was not a high priority. The priority level was a reflection of the extent to which doping was perceived to be problematic in their sport. Therefore, appreciation or issue setting, the first step of the reflective conversation, was shaped by the coaches' internal role frame components (e.g., 'clean' sport beliefs) but also their boundary role frame components (e.g., prevalence of doping). Where doping was a clear issue in their sport, coaches' demonstrated greater proactive engagement in strategy generation, action, and evaluation in relation to anti-doping. They also showed greater interest in education for themselves. However, for most coaches doping was not considered 'problematic' and consistent with this view their engagement in anti-doping activities was lower and less well-

structured and planned. This also extended to the lower priority coaches gave to their own education related to doping. Research suggests that coaches' perceptions of their coaching role guides their behaviours, the issues identified and acted on (Bennie & O'Connor, 2010; Gilbert & Trudel, 2001; 2004; Nash, et al, 2008). Our findings suggest that in understanding the issues coaches set and their subsequent behaviours consideration is needed of situational factors that shape coaches' interpretation of their role and subsequent approach to coaching (Potrac, Jones, & Armour, 2002). In the case of anti-doping situational factors played a significant part in shaping the coaches' interpretation of their role and their subsequent actions.

6. Summary

In summary, the coaches' held a clear anti-doping stance and there were strong anti-doping foundations evident in their role frame such as belief in 'clean' sport, approach to preparation and performance, responsibility to athletes, Scottish and British sport culture, and low prevalence of doping. Despite a role frame largely conducive to doping prevention coaches recognised the limitations of their 'reach' and the potential influence of the wider sport environment. However, the strong anti-doping foundation as well as some ambiguity around responsibility, potential for benefit to performance, and prevalence of testing also contributed to anti-doping having a low priority for many coaches. Coaches were aware of little systematic education available for specifically for them, however, the low priority assigned to anti-doping in general ensured coaches' education was not a priority either. In contrast, in sports where there is clear evidence of performance benefits and a history of systematic doping globally, anti-doping held a much higher priority. The priority assigned to anti-doping was reflective of the extent to which doping was deemed problematic in their sport. The more doping was identified as an issue, the greater the engagement in structured and planned anti-doping activities. Still relatively little education was available for coaches. Therefore, the role frame of coaches shaped the identifications of doping as problematic and subsequent actions.

7. Conclusion

Research examining athletes' perspectives in relation to doping and anti-doping identifies coaches as a potentially precipitating and prohibiting factor (e.g., Allen, et al, 2013; Backhouse, et al, 2007; Cléret, 2011; Dimeo, et al, 2012; Dubin, 1990; Kirby, et al, 2011; Lazuras, et al, 2010). However, research examining coaches' perspectives on doping and anti-doping is scarce and next to nothing is known about the nature of coaches' role in doping prevention (Backhouse & McKenna, 2012). By examining coaches' role frame and reflective conversation, our study provides insight into the coaches' role and actions in doping prevention. The coaches in this study had clear personal values and beliefs conducive with an anti-doping stance and acting as a prohibiting factor in athlete doping. The situational factors that shape their role

frame in relation to doping and anti-doping provides a strong foundation for anti-doping, however, for many coaches this foundation also ensures anti-doping has a low priority. As a result anti-doping activities focused on the athletes and were often limited to ensuring athletes' understood doping control procedures and the risks of inadvertent doping associated with medications. In contrast, those coaches who identified doping as an important issue for them, were more engaged in anti-doping activities. It would be inappropriate to conclude from these findings that some coaches are inadvertently precipitating athlete doping through in-action. However, while the risk to Scottish athletes of systematic doping appears low, for at least some athletes, coaches could be more engaged to lower the risk of inadvertent doping.

8. Recommendations

- Continue to explore ways to raise the priority of anti-doping education for athletes and coaches.
- Encourage sport governing bodies to embed anti-doping ideals and education as an expected part of a high quality performance programme so that anti-doping awareness becomes an intrinsic part of a high performance system.
- Encourage sport governing bodies and coaches to clarify the responsibility for, and to allocate roles for, the education and monitoring of doping prevention.
- Encourage coaches to become knowledgeable about doping issues so they are confident to engage in informal discussions with athletes on issues related to doping and anti-doping.
- Develop coach education that goes beyond the understanding of doping control procedures to include case studies, examples, and practical experiences relating to how and when to engage athletes in anti-doping conversations and experiences.
- Link anti-doping education to topics that coaches' desire information about such as supplements.
- Highlight the sports and nations that foster a strong anti-doping culture in order to provide a reference point for those wishing to strengthen their anti-doping culture.
- Explore through in-depth case studies how an anti-doping culture and philosophy is developed and maintained so that best practice can be disseminated globally.

9. Limitations and Future directions

Whilst no research is without limitations, it is important to recognise that the coaches who participated in this study volunteered. When dealing with value-laden topics of a sensitive nature such as doping it is reasonable to consider that those who volunteer either hold or will convey a view that reflects the socially desirable answer. In this case an anti-doping stance. The fact that coaches were willing to discuss the topic and happy to disclose, in some cases, limited

involvement in doping prevention suggest the coaches were providing a 'true' account of their beliefs and actions. However, as none of the coaches had experience with doping, future research examining the 'other side of the story' would provide invaluable insight the beliefs and values and role frame of those who would support athlete doping. Although a relatively large sample for a qualitative study, only 23 coaches were interviewed. Therefore, our findings are representative of this group and it would be inappropriate to extrapolate our findings to all performance coaches. Future research should seek to understand how coaches in other countries construct their role frame and engage in problem setting and actions in relation to doping and anti-doping. In addition, the Scottish and British sporting culture was influential on the coaches' anti-doping role frame, therefore future research with coaches and athletes should also examine the influence of the wider sporting culture. The coaches in this study believed in 'clean' sport and were to a greater and lesser extent actively involved in anti-doping activities with their athletes. However, their interest in anti-doping education specifically for coaches was limited. Recent developments in coach education include WADA's Coaching Toolkit and Coach True online learning tool. None of the coaches in this study had knowledge of these resources. Therefore, future research should seek to understand the most effective means by which to engage coaches in anti-doping education and examine the impact of coach-focused tools such as these to ensure they are a prohibiting factor in athlete doping.

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Appendix A. Research Team

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.

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.

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.

Rhiannon Morris and Sarah Dixon are Research Assistants in the School of Sport, University of Stirling. Their research interests include anti-doping and coaching.

Appendix B. Interview Guide

The focus of the discussion is on your role as a high performance coach in Scotland. There are four sections to the discussion:

1. Understanding your role as a coach and some of the challenges you may face
2. General awareness of doping prevalence and anti-doping strategies
3. Their experiences with anti-doping activities and thoughts on issues related to this
4. Demographic information

-
- As a coach, what are your [main] roles or responsibilities?
 - What are some of the challenges that you face as a high performance coach? What's at risk if your athletes don't perform well?

 - How prevalent is drug use by athletes in your sport? Have there been any high profile incidents? (recently/in this country/in other countries)
 - Are you generally interested in doping matters, for example, issues that you may see in the media?
 - What is being done in your sport to address the issue of doping? Who provides the education? i.e. Institute, UKAD, governing body etc. Have you received any feedback from your athletes as to the effectiveness of these activities?
 - What situations might tempt an athlete in your sport to use performance enhancing substances?
 - If an athlete [in your sport] tested positive for a banned substance what happens to them? Are there consequences for the coach?

 - As a coach, what activities in relation to anti-doping are you/have you been involved in? What prompted these activities? Were they for yourself? Were they for the athletes you work with? How recent were they? How effective have these activities been?
 - In comparison to all your activities as a coach, how important is dealing with issues related to drug use?
 - How important to you is it for your sport/athletes to be drug-free?
 - How important are coaches in establishing an anti-doping environment?
 - What types of issues/challenges do coaches face in relation to athlete drug use?

-
1. Name:
 2. Age:
 3. Gender:
 4. Which sport do you currently coach?
 5. Which types of athletes do you currently coach? (*e.g. Club, Institute, Age Grade, Elite Development, National Team athletes*)

6. How many athletes do you coach directly? (*i.e. the athlete would identify you as their coach*)?
7. How often do you coach them?
8. How many years have you been coaching for?
9. How many years have you been in your current primary coaching position?
10. What is the highest level at which you competed as an athlete?