

Performance Enhancement in Sport: Mixed Methodology Research and the Development of the Performance Enhancement Attitudes Questionnaire (PEAQ).

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Abstract: Performance enhancement in sport, which falls outside the legal parameters of the World Anti Doping Agencies' framework, is reported to undermine the spirit of sport, the principles of fair play and pose health risks to athletes. Anti-doping violations receive substantial media coverage and highlight the technological advances in performance enhancement which are placing athletes ahead in the race against the major anti-doping agencies worldwide. Simple tools derived from methodology familiar to the social sciences may provide a cost effective and sensitive route to assess the attitudes, beliefs and decision making processes of athletes and sports personnel in the war against performance enhancement in sport. The same tools can also be employed to determine the patterns of attitudes and beliefs in the broader populations of interest, such as the media, sports fans and the general public to provide a more informed picture of the impact of performance enhancement in sport. The Performance Enhancement Attitudes Questionnaire (PEAQ) will be developed using mixed methodology and an innovative application use of social science and behavioral medicine approaches.

Introduction

The use of performance enhancing drugs (PED's) or performance enhancing methods (PEM's) in sport undermines the spirit of sport and fair play and consequently, doping practices are prohibited in sport because they can artificially enhance sports performance, can harm the health of athletes and are contrary to the spirit of sport (web resource #1).

Substances are placed on the prohibited list if they meet two of these three criteria:

enhance performance, pose health risks or violate the 'spirit of sport'.

The World Anti-Doping Agency (WADA) coordinates the international anti-doping framework which incorporates these criteria with an aim to harmonise anti-doping rules across sport to help create a level international playing field. Within Australia this message is further supported and conveyed by the Australian Sport and Anti-doping agency (ASADA) and the Australian Sports Commission. The Australian Sports Commission (ASC) has recently developed a document titled 'The Essence of Australian Sport' which includes a set of principles that underpin sport at all levels in Australia (web resource #2). This document has been drafted by the ASC, in consultation with the sport industry to provide a statement on what sport in Australia 'stands for' – its core principles and values.

These principles are identified as; *Fairness* (operating within the spirit of the rules, never taking an unfair advantage and making informed and honourable decisions at all times), *Respect* (recognising the contribution which people make to sport, treating them with dignity and consideration, as well as caring for the property and equipment they use), *Responsibility* (taking responsibility for one's actions and being a positive role model at all times) and *Safety* (encouraging healthy and safe procedures, preventing and reporting dangerous behaviour, while demonstrating concern for others).

The Australian Sports Anti-Doping Authority (ASADA) has declared a similar stance to WADA and aims to develop a sporting culture in which performance is purely dependent on an athlete's talent, determination, courage and honesty, attributes that are linked to the WADA campaign and which are inconsistent with 'cheating' through performance enhancing drug use or performance enhancing method. ASADA aims to promote a

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sporting culture motivated by a commitment to the 'true spirit of sport' and what it represents for Australia. Emphasis is placed on 'pure performance' and the most important sporting record being one that is evidenced as achieved within the current regulations. Australians are renowned for their pride in their sporting ability and reputation as a nation of good sports and there is an expectation of high standards of behaviour from all those involved in sport. With the production of the document 'The Essence of Sport' the ASC seeks to remind and focus people on the positive aspects, value and benefits of sport; and to reinforce that everyone has a role to play in promoting and displaying good sportsmanship and fair-play values. Presumably the rationale is that the emphasis on sportsmanship and fair play will influence the development of a culture, at the sporting and societal level, of 'pure performance' and the associated principles and values that go along with it.

These principles are consistent with the principles that underpin WADA's anti-doping policies.

Both WADA and ASADA have identified research priorities which link the promotion of these principles and values to commitment to compliance with anti-doping policy and WADA has indicated its support for social science research methods that may lead to practical deterrence strategies or that increase understanding of the attitudes and motivations for PED use in sport. Specifically, WADA has identified social science research as contributing to an understanding of the motivations, attitudes, values and beliefs of athletes and their decision making around the use of performance enhancing

drug's (PED's) and performance enhancing methods (PEM's). This approach has been highlighted in the research priorities of both WADA and the ASADA.

A recent conference addressing ethics and social science research in Anti-Doping (Anti-Doping Convention (T-DO, Larnaca, 2006) identified the following as highly relevant to the advancement of anti-doping policies; 'continue to improve the methodological tools used for applied research' by diversifying methodological approaches, reviewing and improving existing approaches, adapting existing models and promoting social science to further enhance the quality of education programmes in anti-doping. This initiative is both in response to the increasing pressure to deter non-compliance with anti-doping policy but also to promote the values and culture of sport that WADA associates itself with. WADA has launched a poster series to promote the values of sport — respect, dedication, character, excellence, solidarity, and courage. The series is titled "Spirit of Sport" and features six athletes in the fight against doping: Canadian basketball player Tracey Ferguson; Brazilian swimmer Gustavo Borges; Japanese judo player Yoko Tanabe; German rower Roland Baar; English runner Paula Radcliffe; and Kenyan runner Kip Keino. These images convey the message that successful performance can be achieved through commitment, determination and playing 'by the rules'.

History of Performance Enhancement in Sport

Methods to enhance performance in sport have a long history, almost as long as sporting history itself. The first record of a performance enhancing attempt was in the 776 BC Ancient Greek Olympics achieved by eating sheep's testicles, a source of testosterone. As early as the late 19th century professional cyclists were using substances like caffeine,

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cocaine and ether-coated sugar cubes to improve performance, reduce pain and delay fatigue. In the 1904 Olympics, Thomas Hicks (USA) won the marathon at St. Louis and collapsed. It took hours to revive him as he had taken brandy mixed with strychnine to help him win his gold medal.

An infamous case of illicit drug use in a competition was Canadian Ben Johnson's victory in the 100 m at the 1988 Seoul Summer Olympics. He subsequently failed the drug test when stanozolol was found in his urine. He later admitted to using the steroid as well as other drugs and hormones to enhance his performance.

To bring us up to date, at the 2006 Winter Olympics, Walter Mayer fled from the police when the Italian authorities conducted a surprise raid to search for evidence of doping. The 2006 book 'Game of Shadows' alleges extensive use of several types of steroids and growth hormone by baseball superstar Barry Bonds, and also names several other athletes as drug cheats. Floyd Landers, the winner of the 2006 Tour de France, failed a drug test and was stripped of the title. Such highly publicized occurrences of 'cheating' raise the profile of doping in sport and become fuel for the media in vilifying the individual's concerned.

The response by sports administration and governments at both national and international levels to this longstanding history of performance enhancement in sport has been reactive from the outset and with advances in technology racing ahead of scientists ability to develop tests that are sufficiently sensitive and reliable to establish convictions it would seem that the athletes and sports personnel who 'cheat' may well be on the winning side.

The International Amateur Athletic Federation, now the International Association of Athletics Federations (IAAF), was the first international governing body of sport to take the situation seriously. In 1928 they banned participants from doping, but with little in the way of testing available they had to rely on the word of the athlete that they were complying with the rules.

It was another 40 years before the International Olympic Committee (IOC) followed suit, implementing their first drug tests at both the Summer and Winter Olympics in 1968, and another 30 years before the establishment of the World Anti Doping Agency (WADA) in 1999. Whilst progression in pharmacology and medical technology has always outstripped the ability of sports federations to implement rigorous testing procedures, the reality is that, since the creation of the World Anti-Doping Agency in 1999, more and more athletes and sports personnel are being caught. However, the probability of being caught is still low given the number of tests conducted and the general perception from studies like Vicky Rabinowicz' in 1992, who interviewed small groups of Olympic athletes, is that athletes themselves believe that most successes are fueled by banned substances (cited in Savulescu et al, 2004).

The role of the Social Sciences in understanding Performance Enhancement in Sport

To date, the issue of performance enhancement in sport has been largely addressed by medical and biomedical disciplines with a focus on detection and the development of increasingly sensitive tests for the performance enhancing drugs and hormones that are most prevalent. However, as accurate detection becomes more and more difficult a shift has occurred from detection to deterrence at both national and international anti doping

agencies. With this shift has come a willingness to include other disciplines in the war against performance enhancement in sport and to look to alternative routes to deter doping and violation of anti-doping rules.

These alternative routes focus on the attitudes, beliefs and motivations of athletes and sports personnel to comply with anti-doping regulations and the broad rubric of the Social Sciences are best placed to address these intrinsic and extrinsic factors.

As an example of this shift, WADA has expressed an aim to support social science contributions to the war against drugs in sport to facilitate the novel application and development of social science research methods in exploring the attitudes, beliefs and motivations of athletes who remain compliant with anti-doping policy and athletes who are non-compliant. Ultimately, it is anticipated that these approaches will prevent or deter athletes from using drugs to enhance performance and may also contribute to improved detection of non-compliance. A practical implementation of this shift was exemplified by the Australian Sports Drug Agency (ASDA), now the Australian Anti-Doping Agency (ASADA), in preparing an anti-doping strategy for the 2000 Olympic Games. ASDA commissioned a study to assess the utility of models of attitude and behaviour change from the public health and injury prevention literature in developing compliance with anti-doping campaigns. This study identified six major inputs to an athlete's attitudes and intention with respect to compliance with doping rules, these were; personality factors, threat appraisal, benefit appraisal, reference group influences, personal morality and legitimacy. This study made good use of behavioural science frameworks in the derivation of an initial compliance model and the authors proposed a comprehensive,

integrated programme for maximal effect, however, to date this has not been implemented as an intervention (Donovan et al, 2002).

The Social Sciences include the disciplines, amongst others, of Sociology, Anthropology, Psychology, Economics and Philosophy and each of these disciplines may offer a framework of understanding for the issue of performance enhancement in sport. It should be noted that a discipline driven framework might include a theoretical perspective as well as an applied one, in essence, this means that each discipline may offer, from a distinct perspective, a means of contributing to our understanding of why and how performance enhancement occurs and potentially, tools and techniques to detect actual non-compliance or the likelihood of non-compliance with anti-doping rules.

Before looking at these issues more closely and considering which applied models and frameworks would add to our understanding of performance enhancement in sport, we first should address two central questions; “is performance enhancement in sport really a problem?” and “who is performance enhancement in sport a problem for?”

Is performance enhancement really a problem?

Doping and performance enhancement in sport receives considerable media attention but how prevalent is it?

A survey of drug doping frequency in Australian Rules football over the period 1990-95 and of 900 random urine tests there were no positive results for anabolic steroids (AAS), diuretics, caffeine or peptide hormones. Five positive results were recorded for inadvertent medical doping and these were declared before testing (Hardy et al, 1997).

Alternatively, a survey of creatine use (a nutritional supplement purported to be a safe ergogenic aid in adults) in young athletes suggests that as many as 28% of collegiate athletes admit taking it. Creatine use was significantly more common amongst boys than girls and whilst taken across every sport was significantly more common amongst football players, wrestlers, hockey players, gymnasts and lacrosse players. Reasons given for taking creatine were; enhanced performance (74%) and improved appearance (61%) and the most common reason for not taking creatine was safety (45% of non-users) (Metzl et al 2001). A survey in collegiate freshman football players also indicated that nutritional supplements were popular, with 36% using creatine, although athletes knowledge level about healthy dietary practices and appropriate use of dietary supplements was low (Jonnalagadda et al, 2001). Calfee and Fadale (2006) and Congeni and Miller (2002) also suggest that younger athletes are increasingly experimenting with both illicit substances and nutritional supplements to improve appearance and performance.

Who is performance enhancement a problem for?

The national and international agencies, who have as their remit a clear manifesto against performance enhancement in sport, communicate very clear messages about the compromising effects of performance enhancement in sport on fair play, the spirit of sport and athletes' health. However, do the general public, sports fans, media, medical profession, athletes and sports personnel adhere to the same viewpoint that performance enhancement is compromising? Which of the agents in the wider sports context consider that performance enhancement is a problem that needs to be fixed?

This is a largely unexplored area although studies in Europe suggest that athletes themselves would be more inclined to introduce harsher penalties for illegal performance enhancement (Streigel et al, 2002). Researchers such Strelan and Boeckmann ((2003) propose a frame for understanding performance enhancement which is more closely aligned to criminal behaviour and that athletes (and sports personnel) make conscious decisions, having weighed up the costs and benefits, to maximise their best interests. This ‘criminalising’ of performance enhancement may lead to changes in perceptions amongst the general public and sports fans.

Hughes and Coakley (2001) suggested that this was positive deviance and a result of overconformity to the norms and values embodied in sport. These authors argued that the espoused ‘sport ethic’ of commitment, sacrifice for the ‘game’, seeking distinction, taking risks and challenging limits all led athletes to be vulnerable to the facilitative ability of performance enhancement to meet this ‘ethic’. This suggestion was endorsed in a series of interviews with 50 steroid users, aged between 15yrs to 40yrs, in which one of the rationalisations for abusing steroids was given as “ a code of commitment to sport” (Fuller and LaFountain, 1987). Black (1996) adds to this stance with his comments on the rationale put forward for the ban on performance enhancement in sport, namely to create fair competition and to protect athletes’ health. Black argues that the ban on performance enhancement achieves the opposite of its intended outcome and that most deaths and injuries occurring during the ban would not have occurred in the absence of it.

So, it is not so much that performance enhancement is the problem but that sports participation and enthusiastic adherence to the ‘sport ethic’ are the problem!

Dingelstad et al (1996) in their discussion paper of the social construction of drug debates suggest that the current stance in sport reflects the dominance of sports administrators as the major interest group in the performance enhancement in sport debate. It is in the interest of the International Olympic Committee and national sports administrative agencies to promote sport as an 'arena of fair competition' and to be seen to be actively pursuing the image of sport as fair and drug testing is a way to protect this image. The reality of professional sport in contemporary society is that it is big business and is driven by the mass media and corporations-the espousing of 'fair play' is an image left over from the days of amateur competition which has less and less to do with the reality of professional sport. As Dingelstad et al state, "drug use has increased as sport has become dominated by business interests and (in the Olympics) a matter of government prestige". Carstairs (2003) examined the media and public response to doping scandals and noted that it is more difficult to access the responses of sports fans and the general public than those more immediately involved, such as, sports journalists, administrators and athletes themselves. This is an area that is particularly ripe for exploration utilising social science research methodology such as surveys, qualitative interviews and focus groups.

The application of specific methodological techniques presupposes a theoretical framework from which to view the performance enhancement in sport issue. Whilst there are a number of possibilities, none of which are exclusive, the current 'best fit', in my opinion, would seem to be a health behaviour/behaviour change model which allows for the describing of factors (both extrinsic and intrinsic) that predict performance enhancement as well as factors that promote or maintain performance enhancement. The

elaboration of such a framework incorporates the potential for both detection and deterrence.

Performance enhancement viewed from a Health Behaviour perspective

Some of the elements that are considered important in individual decision making in relation to health related behaviours and their consequences include, perceived vulnerability, perceived severity of the consequences, subjective norms relating to concern expressed by peers, friends and family, perceived control and confidence in effecting the behaviour. In addition individuals are considered to 'weigh up' the costs and benefits of any particular decision pertaining to behaviour change. These attitudes, beliefs, values and motives are reflected in the social cognition models of behaviour change and behavioural intention such as the Health Belief Model (HBM), the Theory of Planned Behaviour (TPB) and the Health Action Process Approach (HAPA) (Becker, 1987; Ajzen, 1986 and Schwarzer, 2005). Such social cognition models of behaviour and the factors that contribute to the probability of changing behaviour or behavioural intentions have been moderately successful in predicting the choices of individuals in terms of health behaviours (Albarracin et al, 2001; Armitage & Conner, 2001; Hagger et al, 2002; Hausenblas et al, 1997). Such models of health behaviour and behavioural intention may have the most applied utility in contributing to an understanding of choices and contextual factors around compliance and non-compliance with doping policy.

Donovan et al (2002) incorporated behavioural science frameworks in their sports drug compliance model and identified six major inputs to an athlete's intentions surrounding performance enhancement. Of the six, five all represented elements of various attitude

and behaviour change models, these were; threat appraisal, benefit appraisal, reference group influences, personal morality and legitimacy. The final element was related to personality factors.

One of the issues with framing performance enhancement in sport within a social cognition typology or more specifically, as a health behaviour amenable to intervention, is that the underlying assumption is that drug use or a performance enhancing method is perceived as a negative action with consequent health risks. This is conceptualised as a threat appraisal. These health risks are assumed to be potentially motivating to abstain from the behaviour. But, do athletes who engage in performance enhancement view this behaviour as negative and are the potential health consequences fully understood or even considered?

A more fundamental question is whether or not athletes even consider performance enhancement as a health behaviour?

There is some evidence that a 'win at all costs' mentality overrides the basic tenets of a health behaviour model. In 1995 a Chicago doctor asked 198 Olympic level athletes whether they would take a drug that was undetectable if the drug meant a certain win. Of the 198 asked, only two responded negatively. In response to an additional question asking the same athletes if they would consider taking the same drug for 5 years if it meant certain wins for 5 years but then certain death caused by the side effects, more than half of the sample indicated that they would (cited in Andrews, 1998). This apparent acceptance of health risk and mortality is not explained well by traditional health belief and health behaviour models unless we view them from a different perspective. If the outcome is viewed, from the athletes' perspective, not as engagement in a positive or

compromising health behaviour but as success in competition then performance enhancement becomes a natural feature of the model and the decision sequence, to engage in performance enhancement, is driven by necessity to meet the goal of success in competition.

The Health Action Process Approach (HAPA) is a recent modification of previously prominent approaches, such as, the Health Belief Model and the Theory of Planned Behaviour (Schwarzer, 2005). The HAPA identifies an initial motivation phase, where the person develops an intention to act based on the relative influence of three predictors of change (perceived self efficacy, outcome expectancies and risk perception) the next phase involves formulating plans to act, trying to act and investing effort and persistence in maintaining a behaviour or disengaging from it. Perceived self-efficacy is a predictor of success for each stage of the model and efficacy beliefs determine appraisal of personal resources in stressful encounters and contribute to the forming of behavioural intentions.

If we consider an athlete's successive progress through this model where initially an outcome expectancy is related to an understanding of training, nutrition and supplementation within legal parameters leading to success, risk perception may relate to the probability of injury or being in competition against another athlete with a better personal best and perceived self-efficacy is related to prior performance, confidence in the coach and training programme. The intention and planning stages would focus on training, rehabilitation, nutrition support, engaging a good coach/trainer, time management, stress management with a goal of successful competition and a win.

However, if with all of these in place and commitment and engagement being evident the

outcome is not a win then the 'model' needs to be reviewed. Perhaps perceived self-efficacy is supplemented by enhanced self-efficacy through some form of performance enhancement method. Outcome expectancies are increased in relation to use of a 'guaranteed' method, risk perception (threat appraisal) includes the risk of being caught and exposed as a 'cheat' and intention and planning relate to accessing the performance enhancer and maintaining secrecy. The athlete (or associated sports personnel) becomes a learning organism and makes good use of readily available resources to ensure the desired outcome. When viewed in this way performance enhancement whether by drugs, supplementation or other methods is a natural consequence of either experience or knowledge of contextual factors (i.e. other athletes are presumed to be enhancing their performance) and is perceived as an adaptive response not a maladaptive one in meeting the goal of winning. Donovan et al refer to this 'reversal' of Health Belief Model concepts in their review article of 2002.

Constructs such as decisional balance, ambivalence, self-efficacy, situational temptations and perceived reward for effort are all factors that might affect transitions between contemplation, intention and action phases of behaviour change and these may also be factors worth exploring in the context of determining athletes behaviour or developing interventions.

Development of the Performance Enhancement Attitudes Questionnaire (PEAQ)

This research project aims to increase understanding of the factors and issues that feature in decision making both in the use of PED's and the decision not to use PED's through

the innovative application of social science and behavioural medicine approaches to predicting behavioural intentions and actions around complying or not-complying with current Anti-Doping policies. Specifically, this project will incorporate theoretical models of health behaviour, health intentions, techniques used in clinical practice and occupational models of job stress to identify factors and issues that contribute to decision making in compliance and non-compliance with Anti-doping regulations. This project will also incorporate a mixed methods design as qualitative research is particularly useful when there is a lack of knowledge or little knowledge available about a particular phenomenon or problem. This is currently the case with the performance enhancement in sport issue.

Qualitative research methods allow for an in-depth exploration, usually via face to face interview or in a small group (focus group), of selected individuals' subjective understanding or perspective around a specific issue, whether the issue is one that has personal relevance for them (e.g. their own experience of performance enhancement), one in which they have a vested interest (e.g. a team mates, peers or fellow competitors use of performance enhancement) or one in which they have an opinion (e.g. performance enhancement in sport debate).

Considering, more specifically, the utility of qualitative research methods as a methodological approach of relevance to the performance enhancement in sport debate, the technique of conducting personal, in-depth interviews or focus groups with representatives from the major agencies of interest allows for the development of a detailed and rich understanding of the contributing factors and issues from a variety of different perspectives. Such detailed analysis from multiple perspectives throws light on

the complexity of the issue and identifies common threads or themes that can be further explored employing quantitative research methods, such as self-report questionnaires.

Whilst a form of questionnaire is often the basis of a population survey to generate inferences or estimates that relate to that population, questionnaires also have other applications. A well designed and appropriately validated questionnaire can also be employed to generate hypotheses, to get a feel for how people respond to certain issues (e.g. 'should performance enhancement in sport be banned?') or to see if there are any underlying factors that appear to be influencing how people respond to a set of questions (e.g. the level of affiliation to professional sport determines the strength of opinion about banning performance enhancement). Questionnaires can also be employed to test causal models (eg. specific personality factors are related to non-compliance with anti-doping regulations), confirm ideas about differences between specific groups (e.g. weightlifters are more frequent users of anabolic steroids than ballet dancers) or to evaluate an intervention (e.g. education programme about the health risks of performance enhancement).

A number of different types of information are able to be generated from questionnaires and these include; background or demographic information (e.g. age, male or female, type of sports participation, level of competition), behavioural information (e.g. number of training sessions per week, drug use, substance use, diet, risk behaviours), attitudes and opinions or beliefs (e.g. 'drugs in sport are dangerous'-agree/disagree) and knowledge (eg. the health risks associated with creatine use).

Clearly these methods have utility in researching the question of motivations, attitudes, beliefs and behaviour in relation to performance enhancement in sport and some of these

methods have already been employed by other authors. Quantitative data has been the most commonly presented and there is an opportunity to broaden the methodological approach, by increasing the use of qualitative methods, in addressing our understanding of the factors contributing to attitudes, beliefs, motivations and knowledge of performance enhancement in sport.

The outcomes of this research, incorporating both quantitative and qualitative methods, will contribute to the identification of specific issues and factors that increase the probability of compliance or non-compliance with anti doping regulations and employ these as item content in the development of a questionnaire, the Performance Enhancement Attitudes Questionnaire (PEAQ). The PEAQ will be a brief, reliable and sensitive tool which can be applied in broad populations, from athletes to the general public, to assess attitudes and beliefs relating to performance enhancement and to indicate the risk of non-compliance or likelihood of compliance with anti-doping regulations.

Motivational Interviewing and Decisional Balance

Much research has been conducted in the area of health behaviour and behaviour change from approaches to improving attendance at screening programs for breast cancer to condom use and increasing levels of physical activity. The elements that are considered important in individual decision making in relation to health related behaviours and their consequences include; perceived vulnerability, perceived severity of the consequences, subjective norms relating to concern expressed by peers, friends and family, perceived control and confidence in effecting the behaviour. In addition individuals are considered

to 'weigh up' the costs and benefits of any particular decision pertaining to behaviour change. These attitudes, beliefs, values and motives are reflected in the social cognition models of behaviour change and behavioural intention such as the Health Belief Model (HBM), the Theory of Planned Behaviour (TPB) and the Health Action Process Approach (HAPA) (Becker, 1987; Ajzen, 1986 and Schwarzer, 2005). Such social cognition models of behaviour and the factors that contribute to the probability of changing behaviour or behavioural intentions have been moderately successful in predicting the choices of individuals in terms of health behaviours (Albarracin et al, 2001; Armitage & Conner, 2001; Hagger et al, 2002; Hausenblas et al, 1997). However, interventions addressing motivation can enhance the likelihood of behavioural change and the translation of intention into action (Jackson et al, 2005, Rothman & Salovey, 1997). Before behaviours change individuals need to be motivated to do so and Motivational Interviewing (MI) is a therapeutic technique employed in settings where behaviour change is desired (Miller and Rollnick, 2002). MI has been employed in clinical populations to effect change in substance use, compliance with medication regimes and eating behaviour. The main aim of MI is to facilitate behaviour change by enhancing intrinsic motivation and bringing an individual to awareness of ambivalence around behaviour change. The identification of ambivalence allows individuals to examine their motivations and needs for engaging in behaviours that they or others would like them to change. One method for explicitly identifying ambivalence is a Decisional Balance Sheet (DBS), individuals are asked to consider the costs and benefits of maintaining the behaviour and the costs and benefits of ceasing the behaviour. The benefits of maintaining the behaviour and the costs of ceasing it contribute the most to

ambivalence about change. MI identifies three factors that are contingent to behaviour change, the willingness to change, the ability to change and the readiness to change. The DBS process can contribute to determining, for an individual, whether they are willing, able and ready (WAR) to change their behaviour. These three factors are consistent with components of health-related behaviour models such as the Health Action Process Approach (Schwarzer, 2005), where willingness and ability are akin to elements of the predictive phase of behavioural change (e.g. outcome expectancies, perceived self-efficacy, risk perception) and readiness to change is equated with intention and planning (e.g. Transtheoretical Model of Change (Prochaska and DiClemente (1982))). The action phase of behavioural change in the HAPA model is strongly associated with perceived self efficacy (ability) and this element is a focus of the MI therapeutic process. MI aims to increase, self worth, self-esteem and confidence through expressing empathy, giving praise and clarifying ambivalence. This process supports making changes in behaviour.

MI clearly links theoretically to social cognition models of health behaviour change, such as the HAPA. The HAPA identifies factors that contribute to behavioural intentions and the implementation of intentions in action and strongly supports the notion of self efficacy as predictive of behavioural intention and subsequent action. The HAPA and MI can also be linked at the applied level in terms of experimental methodology and design, where a focus on understanding and enhancing the factors that contribute to self-efficacy (and identifying factors that undermine self-efficacy) would be translated into positive outcomes (i.e. compliance with anti-doping policy).

It is proposed to employ aspects of MI and specifically the DBS process to highlight issues and factors that reflect attitudes and beliefs about performance enhancement and that contribute to decisions to use performance enhancing drugs (PED's) or methods (PEM's) in sport and also the issues and factors that contribute to decisions not to use PEDs or PEM's. The focus of the DBS process will be on participants' perceptions of issues and factors that contribute to willingness, ability and readiness (WAR) to change PED use behaviour or to maintain compliance with anti doping regulations, as well as general perceptions of performance enhancement as an issue. Decisional balance, self-efficacy and situational temptations are all factors that might affect transitions between contemplation, intention and action phases of behaviour change and these aspects will be incorporated in the study design to determine their relationship to factors contributing to compliance and non-compliance.

This will be achieved through the use of scenarios which describe an athlete in a number of different contexts (e.g. in competition, out of competition, level of competition, a good chance of winning, a medium chance of winning, recent history of injury, knowledge of peers who are using PED's, knowledge of competitors who are using PED's, previous PED use). Participants will read selected scenarios and be asked to complete and discuss a Decisional Balance Sheet, provide a rating of self-efficacy in relation to the character described complying with anti-doping regulations and identify situational temptations for the athlete described in the scenario. Participants will also be asked to rate the willingness, ability and readiness to be compliant or non-compliant with anti doping regulations of the athlete described in the scenario. These ratings will be framed in the context of the construct of effort-reward imbalance, whereby the perceived stress and

likely behaviours associated with the scenario may be interpreted as being influenced by the potential rewards. The notion of effort-reward imbalance is a conceptualisation of work stress (Siegrist, 1996) that may be relevant to athletes who view their role in performance sport as a 'job' or career. To determine the range of factors and issues across the various agencies that are involved in sport and the promotion of physical activity, five participant groups will be incorporated in the design; non-active participants, regular exercisers (at least weekly), amateur sporting club members, professional athletes and trainers or coaches. These participant groups address the range of engagement with physical activity and allow comparisons between different levels of engagement and different influencing factors. To allow for multiple comparisons the sample size for each experimental group is 50, the total sample size is 250 participants. Following the completion of interviews, transcription and coding of the qualitative data a summary of the factors and issues generated by this process will be reviewed by a virtual 'expert panel' for perceived utility. The 'expert panel' will comprise of members of the Social Science and Drugs in Sport research network and individuals from the sporting community who will give their feedback via the Social Science and Drugs in Sport website and e-mail. The social and behavioural science disciplines covered by members of the panel will include; economics, education, health psychology, law, sports administration, sports psychology, sports philosophy, psychiatry and sociology. Panel members will be sent, via e-mail, a summary of the issues and factors identified from the qualitative analysis and asked to comment on the significance and utility of draft items. The feedback from this 'expert panel' will be incorporated in the final version of the questionnaire.

The factors generated in this initial phase will form the basis of the item content for the PEAQ which will then be trialled amongst the same experimental groups to determine content validity, construct validity and reliability.

This project will employ both quantitative (rating scales) and qualitative methodology (as the Decisional Balance Process will be conducted as an interview and recorded) and analysis of the data will reveal issues and factors that relate to attitudes and beliefs about performance enhancement in sport and indicate a high probability of compliance or non-compliance with anti doping regulations. These factors will be incorporated into the item content of the PEAQ such that it that can be employed with utility in respondents at various levels of engagement in sport and physical activity from no activity to International competition level.

Outcomes

The tangible outcomes of this research project will be a participant centered questionnaire, the PEAQ, which identifies attitudes to performance enhancement in sport and categorizes levels of risk (from no risk to high risk) of non-compliance with anti-doping policies. The item content of the PEAQ will reflect the associated contextual factors and personal factors that were generated from the initial qualitative phase of the project.

Web Resources

<http://www.asada.gov.au/rules/index.htm> (#1)

http://www.ausport.gov.au/asc/teoas/docs/The_Essence_of_Australian_Sport.pdf (#2)

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