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Anti-Doping Knowledge of Students Undertaking Bachelor's Degrees in Sports Sciences in Spain

Mlán Aguilar-Navarro

Introduction: In Spain, students pursuing a career in athletic training, physical education, or scientific evaluation of sports enroll in a bachelor's degree in sports sciences. This degree provides knowledge and skills in a broad array of sports settings and promotes research-based interdisciplinary knowledge. However, the student's syllabus rarely includes specific academic training on anti-doping regulations or doping prevention.

Purpose: The purpose of this study was to assess the anti-doping knowledge of the students undertaking a bachelor's degree in sports sciences in Spanish universities.

Method: One thousand two hundred and thirty-three bachelor students in sport science (907 males, 322 females, and 4 participants with non-binary sex) from 26 Spanish universities completed a validated questionnaire about general anti-doping knowledge. The questionnaire is an adapted version of the Play True Quiz of the World Anti-Doping Agency and contains 37 multiple-choice questions. The score obtained in the questionnaire was transformed into a 0–100-point scale. The questionnaire was distributed among students within each university by a faculty member and it was filled out online.

Results: Students obtained a score of 65.8 ± 10.10 points (range = 32–92 points). There was an effect of the course in the score obtained ($p < 0.001$). Students of the first course (63.6 ± 9.5 points) had lower scores than the remaining courses ($p < 0.037$) while the students of the fourth course obtained the highest scores (68.7 ± 9.5 points; $p < 0.019$). The students with an itinerary on sports performance were the respondents with the highest anti-doping knowledge (67.2 ± 10.2) points, followed by the students with an itinerary on health (66.7 ± 9.5 points).

Conclusion: The knowledge of basic anti-doping rules and doping prevention strategies of the bachelor students in sports sciences in Spain was suboptimal. Increasing doping prevention information in the syllabus of the bachelor's degree in sports sciences is essential as these future professionals will directly work with populations at risk of doping.

A test of the effectiveness of the SafeYou program in four countries.

Vassilis Barkoukis

Introduction: The extant literature suggests that attitudes, social norms, and self-efficacy and self-regulatory processes, like moral disengagement, consistently predict doping intentions and actual use, across age groups and sporting levels (Ntoumanis et al., 2014). Existing evidence highlights that previous interventions only moderately changed doping behavior and cognition (Ntoumanis et al., 2014) as empirical evidence has not been adequately incorporated in these anti-doping interventions. It is imperative that effective doping prevention follows current trends in prevention research and policy-making, and is updated with and based on empirical evidence. Recently, several new interventions have been developed, e.g., CoachMADE, VIRTUE, ADVICE, and IPlayClean, and are promising novel interventions that may change psychosocial factors of doping and behavior. Still, a thorough investigation of the effectiveness of anti-doping interventions is required in order to inform and improve (where needed) existing anti-doping programs and educational interventions, provide a model for the implementation of anti-doping interventions, identify which variables are more relevant in empowering young athletes against doping, and provide NADOs ready-to-use and empirically tested material for anti-doping education.

Purpose: Existing evidence suggest that the time is ripe for the integration of updated empirical evidence and modern trends in intervention design and delivery into the fight against doping among young athletes. Building on the success and premises of previous interventions, we aim to further improve the anti-doping intervention paradigm. This will be achieved by testing the effectiveness of an evidence-based, innovative and co-created preventive intervention, the SafeYou program, that addresses explicit and implicit psychosocial processes, and utilizes evidence-based approaches for the delivery of intervention messages.

Method: A total of 285 athletes from Cyprus, Greece, Romania and UK took part in the study. Athletes were randomly assigned to intervention and control groups. Intervention group athletes attended the SafeYou program whereas those in the control groups viewed videos related to doping. Athletes completed measures of knowledge about doping and inadvertent doping, doping attitudes, willingness and moral disengagement, self-efficacy to resist temptations, intentions to support clean sport, doping related benefits and actual doping use in three time points, before and after the intervention and two months follow-up. The SafeYou program was shortened to six sessions (four sessions were delivered in Cyprus) and delivered online due to COVID-19 restrictions during the implementation period.

Results: The results of the analyses indicated no significant effects of the Page 1/3 intervention on athletes' beliefs about doping in all countries. In Romania only, significant effects were found for health benefits, self-efficacy in resisting temptation, and intentions to support clean sport.

Conclusion: Shortening and delivering the intervention online for pragmatic reasons (COVID-19 constraints) may have reduced its depth and effectiveness. Additionally, floor and ceiling effects in certain psychosocial variables may have affected the ability to detect substantial changes. The impact of preceding anti-doping education emphasizes the necessity for customized intervention designs. To maximize doping prevention awareness, attitudes, and behaviors, participants' pre-existing knowledge must be acknowledged. Recognizing and addressing these challenges is essential for improving intervention designs and choosing the right information to target athlete psychological characteristics for doping prevention.

Evaluating the Impact of the WADA International Standard for Education (ISE) at the Global and Anti-Doping Organisation (ADO) Levels

Ian Boardley

Introduction: The International Standard for Education (ISE) sets out the requirements for code signatories regarding education and has been in force since January 1st, 2021. The overarching objective of the ISE is to support the preservation of the spirit of sport and help foster a clean sport environment. To achieve this, the ISE requires Anti-Doping Organisations (ADOs) to plan, implement, monitor, and evaluate education programmes that incorporate four primary components (i.e., values-based education, awareness raising, information provision, and anti-doping education) and are designed to instil values and develop actions that nurture and protect the spirit of sport, and prevent deliberate and inadvertent doping. Now that the ISE has been in operation for more than two years, it is important to evaluate the impact of the ISE's implementation. This will aid our understanding of how the ISE has influenced the planning, implementation, monitoring, and evaluation of education programmes, and whether there are possible updates to the ISE that could improve these programme elements further.

Purpose: At the global level, our impact evaluation is aiming to: a) identify the key components of global education delivery in 2021, and whether these had changed compared to before the ISE was implemented; b) determine whether ADOs of different size and funding level differ in how they met the requirements of the ISE. At the ADO level, our process and outcomes evaluations are aiming to understand: (a) ADO's initial reactions to the ISE; (b) The processes ADOs followed to implement the ISE; (c) Whether these differed across ADOs of different size and level of funding.

The learning objectives relate to several of the conference themes and objectives. More specifically, having attended this presentation, conference participants should have: • Enhanced understanding of how ADOs plan, implement, monitor, and evaluate their education programs. • Broader understanding of some the latest findings in social science research. • Greater knowledge of stakeholder feedback about the ISE. • Increased understanding of how anti-doping and clean sport education delivery has changed since the ISE was implemented.

Method: The impact, process, and outcome evaluations are being conducted across a two-year period from January 2023 to December 2024, and this presentation includes the results from data collections in 2023. Further, the impact evaluation will utilise data from Tier 1, 2, 3, and 5 organisations. However, to date data analysis has only been conducted on Tier 1 and Tier 2 data. As such, the methods and results that follow focus specifically on the impact evaluation for Tier 1 and Tier 2 organisations, and the process evaluations based on 2023 data only.

Global Level Evaluation. Anonymised Code Compliance Questionnaire (CCQ) data for Tier 1 and Tier 2 ADOs were provided by WADA. These data included data on mandated (i.e., situation assessment, identification of education pool, objectives, education activities) and non-mandated (i.e., cooperation with external organisations; values-based education with wider populations) aspects of program implementation. To provide a baseline pre-ISE comparison, anonymised 2017 CCQ data have been provided by WADA. Although not structured around the ISE, these data include relevant indicators for comparison (e.g., preparation of education plan, delivery of values-based education, awareness raising

activities, monitoring, and evaluation). As such, the 2017 data provided relevant baseline indicators to evaluate changes in education pre-to-post-ISE implementation. The 2022 CCQ also includes questions (e.g., target groups educated prior to ISE) that will also be used as baseline indicators.

ADO Level Evaluation. Semi-structured interviews were conducted with 25 ADO staff, including members of education teams and other key staff (e.g., CEOs). These staff were recruited from six ADOs, with two situated in Europe, one in Africa, one in Asia, and two in the Americas. The interview schedule was designed to generate understanding on initial reactions to the ISE, how educational practices changed as a result of it, and how application of the ISE is evolving.

Results: Global Level Evaluation. Initial data analysis showed that in 2021/22, >90% Tier 1 and 2 ADOs included an assessment of the current situation, an education pool, clear objectives and related activity, and a description of education activities for the education pool within their education plans, and 89.7% included monitoring processes. Further, registered testing pool and returning sanctioned athletes were included in education pools most frequently (i.e., 92.3%), whereas gym and fitness athletes were included least frequently (i.e., 12.0%). For athlete support personnel, coaches were included most frequently (i.e., 82.9%) and agents were included least frequently (i.e., 19.7%). Data from Tier 3 ADOs should be available and analysed in time for the conference, and at that point more comprehensive data analyses will be conducted, including comparisons with 2017 data.

ADO Level Evaluation. Inductive content analysis identified six overarching themes. Benefits of the ISE reflected feelings the ISE had brought common structure and consistent language to education delivery, that education was taken more seriously as a result of it, and funding for education had increased because of it. Implementation Approaches referred to the varying ways in which ADOs approached ISE implementation, with some organisations redesigning education programmes from the ground up and others fitted their existing programmes to the ISE structure and then looked to address gaps. This latter approach may have led some ADOs overlook the establishment of comprehensive monitoring and evaluation mechanisms though. Translation and Cultural Considerations was concerned with difficulties experienced when staff did not speak one of the core WADA languages, and cultural expression within the confines of the ISE. Compliance Mindset reflected how several organisations appeared to focus more on ISE compliance and less on education effectiveness. Organisational Resources and Capabilities represented a need to account for differing resource, legislative, and political environments that ADOs work within. Finally, Knowledge Exchange and Development identified how ADOs engaged in various knowledge sharing strategies to facilitate ISE implementation.

Conclusion: The initial results from the global level evaluation already show promising impact stemming from the implementation of the ISE. Similarly, the findings from the ADO level evaluation show some positive reactions to ISE implementation. Importantly though, they also highlight some areas in which great support may be helpful in the ISE update, especially around monitoring and evaluation.

More Than Just a Positive Test: Educating Athletes on the Intricacies of the Anti-Doping System; Athlete Representative and Policy Maker Perspectives.

Julia Cook

Introduction: Despite the fact that there are 11 Anti-Doping Rule Violations (ADRVs), a positive result from a doping test e.g. Article 2 of the WADA Code: “Presence of a Prohibited Substance or its Metabolites or Markers in an Athlete’s Sample” remains the most widely understood instance of doping. The other 10 ADRVs can often be overlooked, despite them playing a vital part in the anti-doping system. Proving these other ADRVs often involves investigations, which can require a range of methods. Some investigative rules and regulations, such as those that allow some anti-doping organisations and integrity units to demand objects and information from athletes if they are subject to an investigation, are widely unknown to athletes and raise a number of ethical questions. Educating athletes on the ways that ADRVs other than Presence can be determined, as well as the intricacies of anti-doping investigations, is vital to ensure their informed consent and to assure that their responsibilities and rights are understood and respected.

Purpose: This research aimed to assess key ethical issues within anti-doping and investigations. Objectives of a broad remit were developed, and these objectives evolved both during and following data collection and analysis. For this sub-project, the objectives are to explore how stakeholders should best be educated on ADRVs and investigations in order to facilitate doping-free sport and to ensure athlete rights are protected.

Method: 20 semi-structured interviews were undertaken on a wide range of subjects within anti-doping and integrity. 15 interviews were with integrity officers who administer integrity policy, with each individual representing a different Anti-Doping Organisation or sport integrity unit. The sample had broad global representation, with an extensive range of sports included. 5 interviews were undertaken with Athlete Representatives with experience in global and national representation of athletes across a range of sports and geographical locations. Engaging athletes and incorporating their voice into the research ensured the key stakeholder in sport is represented. The interviews were transcribed, anonymised and analysed.

Results: This research found the majority of athletes were largely unaware of specific ways of investigating ADRVs. This lack of awareness includes limited or no knowledge of the rules that allow integrity organisations to issue demands for information and objects, such as personal phones. If athletes are not aware of these rules, they are unlikely to be informed on their rights. Furthermore, lack of awareness of these rules could mean that athletes are unlikely to voice their opinions about them. If athletes do not know that they may be subject to these rules, they cannot argue whether they are fair or proportionate, nor can they speak up on the issues or make representation in WADA consultation processes. Athlete representatives stated in interviews the need for more tailored education and awareness on the topic. Integrity officers also highlighted the need to educate athletes on these rules. In addition, they also stated the desire for more flexibility in their education programs overall.

Integrity officers cited that issues they faced were often from poorly informed or uneducated individuals. Appropriate education, for everyone in the anti-doping community, will enhance the current system. Throughout the research, it appeared that some investigators were unaware of ethical dimensions and

were unwilling to engage in ethical debate about rules and regulations. Ethical education for investigators could improve the anti-doping system as a whole, as well as athletes' rights. They also reported difficulties such as (i) infrastructure and resources; (ii) differing mindsets between stakeholders. Enhancing education and networks can attempt to assuage these difficulties.

A key finding from this research is that anti-doping needs to work to ensure athlete voice is being heard, and would benefit from athletes and integrity officers working together to achieve the mutually desired aim of doping-free sport.

Conclusion: The focus of this research on understanding the current landscape facing policymakers and athletes ensures that evidence-based ethical reflection informs actual policy decisions and will enable educators to better plan and implement their education. Furthermore, interviewing athlete representatives ensures that athlete voice is at the forefront of this research. This research has three key recommendations: (i) athletes should be educated on their rights and responsibilities within investigations; (ii) investigators should be educated on ethical dimensions, which would enhance athlete rights; (iii) education for sports and athletes should be bespoke, realistically acknowledging their current position.

An Explanatory Model of Doping Susceptibility Examining Morality in Elite Track and Field Athletes: A Logistic Regression Analysis

Elena García

Introduction: Anti-doping rule violations (ADRV) not only address the use of prohibited performance-enhancing substances or methods (PESM) in sport, but also other types of doping behavior (i.e., whereabouts failures, trafficking, complicity, etc.), reflecting the dual dimension of the fight against doping in sport: protecting athletes' health and the integrity of sport. In competitive sport, understanding the psychology of doping remains a challenge due to the complex nature of the different internal and external factors influencing athletes' decision to dope. Scientific quantitative research has evidenced many constructs that have been strongly linked to doping: morality-related variables, social norms, personality traits, legitimacy perceptions, the use of legal means to improve performance, broader social and cultural context, etc.; leading to a wide range of variables that may hinder the study of the psychology of doping while increasing its complexity. Moreover, a great proportion of quantitative studies have focused on the analysis of a few factors.

Purpose: The main objective of this study was to develop for the first time an explanatory model of doping susceptibility among competitive track and field athletes using a logistic regression analysis accounting for a wide range of variables, to elucidate which are the most relevant doping risk factors and to simplify the process for further doping-related quantitative research.

Method: The sample of participants consisted of 281 Spanish competitive track and field athletes, of whom 49.5% were women, 80.1% were aged between 18 and 28 years, and 48.4% competed in international competitions with the national team. A cross-sectional online survey was conducted using as an instrument a validated questionnaire from WADA's Social Science Research Package (SSRP) for Anti-Doping

Organizations. In the first part of this study, a descriptive analysis of morality related variables was conducted. In the second part, a logistic regression was carried out and a model of doping susceptibility among elite track and field athletes was developed. The following variables were included: doping susceptibility, moral stance, moral affect, moral decision-making, moral disengagement, legitimacy perceptions, benefit appraisal, threats appraisal, self-efficacy to refrain from doping, goal orientations, subjective norms, descriptive norms, societal influences on doping: pressure to win, use of nutritional supplements, sport and sociodemographic variables. Backward conditional regression was used to evaluate the direct relation of each independent variables with doping susceptibility and to develop the explanatory model of susceptible and non-susceptible to doping.

Results: Descriptive statistics for the different moral variables analyzed indicate that athletes reported on average low levels of susceptibility to doping, moral disengagement, and moral stance (92.5% of participants reported that doping is immoral), and on average they would feel ashamed (96.1%), embarrassed (58.7%), and guilty (90.7%) to a great extent if they were caught using PESM. Significant Pearson's correlations were observed between moral disengagement ($r = 0.32$, $p < 0.001$) and moral decision-making ($r = 0.28$, $p < 0.001$) with respect to doping susceptibility. Moral stance ($r = 0.05$, $p > 0.05$) and moral affect ($r = 0.05$, $p > 0.05$) did not significantly correlate with doping susceptibility. Moreover, 18.9% of participants considered the threat from deterrence as high, 33.3% were unaware of the ill-health effect of PESM, and 19.4% perceived a little harm or no harm of health risk. Most athletes reported having felt social pressure to win and a low frequency of supplement use and they perceived an average doping prevalence of 22.2%. Results from the logistic regression analysis reveal that predictors of doping susceptibility are age, moral disengagement (OR: 2.17; CI: 1.48–3.19; $p < 0.001$), moral decision-making 'acceptance of gamesmanship' subscale (OR: 1.29; CI: 1.12–1.49; $p < 0.001$), descriptive norms (OR: 1.21; CI: 1.04–1.41; $p < 0.05$), and a high frequency of supplement use (OR: 2.39; CI: 1.16–4.90; $p < 0.05$). Risk factors of being susceptible to doping were being young under 20, morally disconnected from doping, with acceptance with gamesmanship, a high frequency use of supplements, and the belief that doping is present in sport.

Conclusion: An explanatory model of doping susceptibility was developed for the first time among elite track and field athletes. In the context of our study population, the model displays that the profile of the athlete at risk of being more susceptible to doping is represented by someone who is aged under 20 years, believes that doping is present in his/her sport, has positive attitudes of acceptance of gamesmanship, is morally disconnected from doping, and frequently consumes nutritional supplements. It is recommended to assist anti-doping education targeting the development of decision-making processes and personal values from preadolescent ages.

Anti-Doping Stakeholders' Perceptions on the Accessibility, Usability, and Effectiveness of Anti-Doping Education.

Scott McLean

Introduction: Doping in sport is defined as the use of banned performance enhancing substances and methods. Despite decades of preventative efforts, doping remains an intractable issue throughout global sport. Education on the health and professional implications of doping represents a key preventative strategy employed by anti-doping authorities. However, previous literature exploring the effectiveness of anti-doping education is limited in scope. For example, the majority of studies have focused on athletes and athlete support personnel, without consideration of broader system stakeholders. Further, key components of anti-doping education materials, such as accessibility and usability, have not been adequately explored.

Purpose: By adapting a contemporary systems thinking-based framework (Rasmussen's Risk management Framework [RMF]) to an anti-doping context, the aim of this study was to explore the perceptions of stakeholders within the 'sports system' regarding the accessibility, usability, and effectiveness of anti-doping education. A further aim was to explore how stakeholders accessed anti-doping education, as well as their perceptions regarding which stakeholders are responsible for providing anti-doping education and which stakeholders require such education.

Method: This study employed an exploratory, mixed-methods design. The quantitative component was designed to assess and compare stakeholders' perceptions of anti-doping education, specifically regarding the accessibility, usability, and effectiveness of these education materials. The independent variable was the system level to which the stakeholders belonged. For example, the anti-doping stakeholders were categorised into; International bodies and organisations, Governments, Regulators and associations, Teams and organisations, Direct supervisors, management and athlete support personnel, Athletes, teammates and opponents, Equipment, substances, methods and environment, as per Rasmussen's RMF. The dependent variable was stakeholders' perceptions of anti-doping education.

The qualitative component was designed to obtain participant's perceptions of potential avenues for improving the accessibility and usability of anti-doping education, as well as participant's subjective definitions of what constitutes effective education. An online survey was developed using Qualtrics. The questionnaire extended upon previous surveys investigating the effectiveness of anti-doping education (Garcia-Marti et al., 2022; Gatterer et al., 2021), to include questions regarding accessibility and usability of anti-doping education, in line with Jordan's (1993) framework for usability.

Results: The presented results are taken from the first 22 participants to complete the questionnaire, as it is still open for data collection. The six levels of the RMF were collapsed into two groups. Group One, the 'high-level systems actors' (n = 8) included the top four levels of the RMF (i.e., 'International influences', 'Governments and government bodies', 'Regulatory bodies and associations', and 'Teams and organisations'). Group Two, the 'low-level system actors' (n = 14) included the 'Direct supervisors, management, medical and performance personnel', and 'Athlete, teammates, and opponents' levels. The stakeholders' perceptions of anti-doping education were compared between the two research groups to address the primary research aim. Participants accessed their anti-doping education from nine different sources (Table 1). Participants predominantly interacted with anti-doping education material developed or disseminated by WADA, NSOs, and NADOs (Table 2). The majority of participants perceived that International bodies and organisations, regulators and associations, and teams and organisations should be responsible for providing anti-doping education (Table 3). The majority of participants perceived teams and organisations, coaches and support staff, and athletes to be the stakeholders that require anti-doping education (Table 4). There was no significant differences between the high-level and low-level groups for accessibility, usability, and effectiveness of anti-doping education materials. The means for stakeholders' perceptions of anti-doping education regarding the accessibility, usability, and effectiveness are presented

in Figure 1. Overall, it was apparent that all stakeholders perceive each component of anti-doping education relatively favourably, as evidenced by the means ranging from 3.52 to 3.83. Key themes from the open ended questions are presented in Tables 5 and 6.

Conclusion: Overall, stakeholders in the current study perceived the accessibility, usability, and effectiveness of anti-doping education favourably. No significant differences were found between the perceptions of the two groups, potentially providing evidence of adequate vertical integration. It is suggested that anti-doping education is targeted beyond low-level system stakeholders to include high-level system stakeholders. Thematic analysis regarding the accessibility and usability of anti-doping education revealed that greater clarity of education is necessary. Furthermore, key themes regarding perceptions of what constitutes 'effective education' may be utilised in the development of an agreed upon definition for the concept.

Doping knowledge, attitude and ethical belief among Rwandan athlete support personnel

Charles Nkurunziza

Introduction: Athlete support personnel (ASP) play a vital role in the promotion of clean sport as their influence in an athlete's decision to use or not an illegal substance or method is significant. To function as role models, ASP must have adequate knowledge and ethically correct attitudes towards doping. Furthermore, the cases of ASP being sanctioned up to life bans for their role in athlete doping demonstrates that the obligations of ASP are taken seriously by anti-doping organizations. Therefore, gauging the extent by which ASP are knowledgeable with regards to doping is an important step to set up educational programmes aiming to promote doping-free sport by complying with the World Anti-Doping Code (WADC).

Purpose: Every athlete needs a healthy life and a conducive environment to successfully perform his activity. The principle is to have a doping free life and a clean sport activity. There is an invaluable role of the ASP in primary prevention of doping among athletes. The prevention goes with having excellent knowledge, attitude and positive beliefs on doping. There is limited knowledge related to the situation of doping in Rwanda as well as deficiency in setting up strategies for efficient anti-doping education programs. To our knowledge this was the first study of its kind. Gathering this information would guide the design of more efficient and sustainable doping education programs and the promotion of clean sports in Rwanda. Purpose of the study: This study serves to identify the baseline knowledge, attitudes, and beliefs of ASP in Rwanda towards doping.

Method: This quantitative, cross-sectional, descriptive study was conducted among 415 ASP from 6 sport disciplines including 3 teams (Football, Basketball, Volleyball) and 3 individual sports (Athletics, Cycling, Swimming). Three Paralympic sports disciplines (Para-athletics, Goalball, sitting Volleyball) were also included. Quantitative data were collected among ASP namely coaches, trainers, team managers, medical and paramedical personnel as well as team officials using a questionnaire from previous similar studies. There was a section on demographic characteristics, on the knowledge about doping, the performance enhancement attitude scale (PEAS), doping behavior as well as doping use belief statements. A pilot study

was conducted to study the feasibility of the study. Descriptive analysis for categorical variables was done using frequencies and percentages. median, modes, means and standard deviation were conducted. Chi-square test or Fisher's exact test were conducted to assess the relationship between the doping knowledge and beliefs against the demographic characteristics. Continuous variables were analyzed using mean and standard deviation after assessing for normality of the data. We compared total PEAS scores across the gender and doping experience using an independent sample t-test, and the type of sport using one-way ANOVA and a P-value<0.05 was considered significant.

Results: Team sports were represented highly in the study with the majority (n=346, 83.4%) of the participants being male. Head coaches (n=114, 27.5%) represented the highest proportion of ASP followed by assistant coaches (n=72, 17.3%) and medical personnel (n=68, 16.4%). Out of the 415 ASP, 403 (97.1%) received some form of information about doping. However, 339 (84.1%) reported lack of confidence in their knowledge about banned substances in your sport. Media was the most important source of knowledge about doping (n=281, 67.7%) followed by internet (n=164, 39.5%). Participants were in agreement with the definitions of doping, as defined by the WADC, at 80% and more for inadvertent use of prohibited drugs by athletes and possession of prohibited substances while less scores were observed for the rest of the definitions ranging from 51.3 to 78.8%. Therapeutic use exemptions, procedures for anti-doping testing and prohibited list stood out as the subjects that were the least known by the participants. More than half had completely no knowledge on those aspects with 53.5% and 60.7% respectively. Majority of the participants had a negative attitude towards doping (n=297, 71.6%) with PEAS score less than 45.5. However, coaching staff constituted the highest proportion of ASP with an attitude favorable to doping. One-way ANOVA test did not reveal any statistically significant differences among the PEAS scores between groups. ASP almost universally qualified unacceptable many unethical behaviors such as allowing doping to either all (95.4%) or top-level athlete (94.7%), advising athlete to dope to retain sponsorship (89.2%), working with athletes knowing that they use doping (85.3%) and encouraging the use of drugs/procedure to facilitate recovery from injury (89.6%).

Conclusion: Majority of ASP received doping-related knowledge from media and internet of which the authenticity is not known. It was observed that there is a gap in the knowledge of anti-doping key components, especially the existence of prohibited list and testing procedures. Majority of ASP had a negative attitude towards doping though coaches displayed a more lenient attitude towards doping. It is therefore important to design anti-doping training programmes to raise awareness and create an environment where ASP understand the ethical implications of doping and actively work to prevent its occurrence to maintain the integrity of sports.

Health status of South African masters swimmers, their medication use and attitudes towards doping

Kim Nolte

Introduction: As age increases, adults experience a higher prevalence of chronic diseases. Masters athletes with diagnosed chronic disease and injuries train for and take part in swimming events. They use prescribed or over the counter (OTC) medication to treat their disease and/or injuries and to alleviate pain. Some of the medication used by masters swimmers may carry health risks in training and competition and may also be prohibited before and during competitions.

Purpose: The main aim of this study was to investigate the health status and associated medication use of South African masters swimmers. Quantifying possible unintentional doping infringements through the use of medication and intentional doping with the sole purpose to enhance performance will provide insight into doping complexities faced by masters swimmers. This study also analysed the doping attitudes and knowledge of South African masters swimmers.

Method: The study used a cross-sectional design. A web-based, online survey was used to collect quantitative data based on the aims and objectives of the study. Initial purposive sampling of the swimmers in the South African Masters Swimming (SAMS) database was broadened to snowball sampling to target a representative sample of competitive and recreational masters swimmers. Participation in the survey was anonymous and voluntary. To test the self constructed questionnaires' validity and consistency and to limit survey bias, a pilot study was conducted on 10 randomly selected masters swimmers representative of the population. Their feedback on the survey process, length and question structure was used to improve the online survey structure and questions. Data curing and analysis of the data was done independently by a statistician using Microsoft Excel and SPSS data analysis software version 28.1. Grouping of medications was done by a registered pharmacist using the EMGuidance application.

Results: The survey resulted in 359 responses (mean age = 51.3 ± 1.5 years) with a good balance between male (48.7%) and female (50.7%) swimmers and with swimmers taking part in a variety of events namely triathlon and ironman, pool and open water events. The dominant motivation of the swimmers to train and compete was to improve health and fitness (85%), followed by the motivations to relieve stress (47.4%) and for fun and enjoyment (45.5%). The prevalence of chronic disease in the masters swimmers was 39.1%. There was a significant ($p < 0.001$) weak positive relationship ($r = 0.24$) between chronic disease and age. The most prescribed chronic medications were hypertension and hypolipidemic medications. The population prevalence for chronic medication use was 33.7% and 11.4% of the participants used medication that is on the World Anti-doping Agency (WADA) prohibited list. An injury prevalence of 26.1% in the five years preceding the survey was reported with injuries in the shoulder region most frequently reported (18.1%) and tendinitis (9.7%) being the most prevalent reported shoulder injury. Analysis of the prescribed and OTC medication showed that 16.4% of the study participants took medication to treat injury or illness shortly before or during competitions. The most used medication was Nonsteroidal Anti-inflammatory Drugs (NSAIDs) (15%), analgesics (4.5%) and cortisone (2.5%). The expressed attitude of the participants on the Performance Enhancement Attitude Scale (PEAS) 8-item instrument showed that masters swimmers do not have a positive or lenient attitude towards doping. Male swimmers showed a slightly more but non-significant ($p = 0.64$) lenient doping attitude when compared to female swimmers. Only 37.9% of the masters swimmers said they were familiar with the WADA website and anti-doping policies.

Conclusion: To make training and competitions safer for masters swimmers, future research could focus on pre-screening to determine the risk factors that may contribute to cardiovascular events and injury. Educational interventions for masters swimmers are necessary considering their medication usage and potential doping infringements as well as their limited knowledge regarding doping and TUEs.

Elite Barbadian Adolescent Athletes Conversations on Performance-Enhancing Drugs and the Implications for Anti-Doping Interventions.

Julian Woolf

Introduction: The use of performance-enhancing drugs (PEDs) by athletes can harm them physically and psychologically, especially when they are young. Instilling the values of fair play during youth is important as it can foster a lasting commitment to a clean sport ethos. Athletes may learn and form attitudes toward PEDs through their interaction with close others. Primary socialization theory states that adolescents learn cultural and social norms, which shape their attitudes, beliefs, and behavior, through their interactions with various socialization agents. One way to explore these interactions is to examine the conversations that young athletes have with these agents, which include their peers, parents, and coaches. Young athletes tend to be more influenced by peers with whom they are socially closer. Teammates and training partners may be particularly influential because of the time spent together. Parents have also been considered influential in young people's athletic lives, though parents are often poorly informed about PEDs. Similarly, coaches are recognized as influential figures, and supportive of anti-doping but seldom engage with their athletes on this topic. Understanding adolescent athletes' socialization experience can provide insights into how beliefs and attitudes are formed, which can be used to inform anti-doping interventions.

Purpose: Previous research about adolescent athletes and their interactions with others has reported that athletes rarely discuss PEDs, and even when they do, these conversations are brief and simplistic. However, it has not explicitly focused on the content of these conversations. Furthermore, research tends to have a Western bias with existing studies on adolescent athletes and PEDs having been predominantly conducted with European and American youth. The Caribbean has a rich sporting history and culture but has received little empirical attention. This study, therefore, explored elite Barbadian adolescent athletes' socialization experience by examining the conversations they have about PEDs with their peers, parents, and coaches.

The objectives of this presentation are to show the nuanced communication patterns and content that elite Barbadian adolescent athletes have with their peers, parents, and coaches. Audience members will learn how these communication patterns and content serve to create an environment where sport supplement use can proliferate with little regard to the dangers of contamination, and the risks of PED use may increase. Specific recommendations are provided on how these communication patterns and means of communication can be leveraged to promote a clean sport ethos in young athletes.

Method: With the assistance of the Caribbean Regional Anti-Doping Organization athletes were recruited by distributing promotional material via social media and via sport administrators. Prospects were selected based on their answers to a pre-screening questionnaire on the frequency of conversations with socialization agents and their competitive experience. Seven female and thirteen male athletes between ages 14 – 19 (Mean = 17.5) were invited to participate in the study. Twelve athletes were classified as Junior Elite (i.e., international level athletes), seven were Junior Competitors (i.e., national level athletes), and one was classified as Other based on their sport circumstances.

Using a qualitative narrative inquiry approach, athletes participated in semi-structured interviews. Athletes were systematically asked to recall conversations with peers, parents, and coaches on the topic of sport

training, sport nutrition and supplements, and PEDs. For each story, prompts were used to encourage elaboration. A conversational style was adopted, and efforts were made to make athletes comfortable sharing their stories. To conclude the interview, athletes were asked if they had questions for the interviewer. Interviews lasted 50.6 mins on average, and data was subject to thematic analysis following Braun and Clarke's six-step approach.

Results: Distinct communication patterns among the socialization agents were revealed (Figure 1). Four themes were developed from the analysis. The Performance Ethos highlights how conversations on training, nutrition, and supplementation with their peers, parents, and coaches reinforce the importance placed on performance. Supplements were frequently discussed among their peers and were part of some family rituals. Coaches rarely discussed supplements, and when they did, they provided recommendations to parents. The second theme, the Present Absence of Coaches, explained that while coaches play a prominent role in athlete instruction, they seldom discuss nutrition, sport supplements, or PEDs. Yet athletes wished that their coaches would provide more advice. The third theme, We Don't Talk About It, Except When We Do, captures the contradiction that despite initial claims, PEDs are frequently discussed. Athletes have been taught to avoid PED talks and there is perceived guilt-by-association, wherein talking equates to using. Athletes often joke about PEDs, and the punchline of these jokes is linked to performance. However, a fine line exists between jokes and accusations of use. Hence, sometimes conversations turn to speculation, which is often a contentious topic. Conversations on PEDs also have a serious side as athletes discuss with their peers and their parents the reasons why others use PEDs. Athletes are curious about PEDs, and this is fueled by the Performance Ethos. The lack of engagement of coaches, and the taboo nature of PED talks, leads to an information vacuum. The fourth theme, Educator-Advocate demonstrates how athletes attempt to fill this vacuum. Internet sources and social media influencers were frequently consulted and information was shared among WhatsApp groups.

Conclusion: Despite claims to the contrary, athletes talk about PEDs, and in an information vacuum, they seek out and share dubious sources. Instead of topic avoidance, anti-doping organizations should encourage PED talks and should do so by leveraging the relationships that athletes have with socialization agents. This will involve a reimagining of how education is provided, and how athlete support personnel are engaged. This includes developing peer educators, encouraging parents to initiate positively framed conversations with their child, and having the coach's role shift from being an educator to an advocate. Specific recommendations will be provided during the presentation.

Athlete-centred values-based education – A pilot study

Cornelia Blank

Introduction: The introduction of the World Anti-Doping Agency (WADA) International Standard for Education (ISE) in 2021 made values-based education (VbE) mandatory. To design and evaluate VbE, educators should be clear about the goals of VbE. Different 'values-linked' education approaches serve distinctively different goals. Activities aiming to promote the spirit of sport values comprise values education and involve teaching and learning about the ideals that a society deems important for sport. Values-based education is a distinct educational approach that embeds a selected set of values in all education activities to enable individuals to lead fulfilling lives and contribute positively to society via developing broader decision-making capabilities, attitudes, empathy, and skills that matter not just in sport, but also in life. Athletes' personal value sets comprise values beyond the 'spirit of sport' and play a

role in decisions about performance-enhancement. Athletes (and people in general) constantly negotiate their value priorities to fit their values to situational demands through sensemaking. We argue that values-based education must be interpreted in a broad sense. In addition to promoting the intrinsic values of sport (that is 'values-education'), athletes' performance-related values and needs must be acknowledged and addressed.

Purpose: The challenge for providing VbE for athletes lies in the mode of delivery (i.e., how), the content (i.e., what), and human resources (i.e., who). Organisations with responsibility for anti-doping typically deliver anti-doping education online or in short sessions face-to-face. Therefore, this pilot study aimed to test a new approach. Based on empirical evidence and a differentiated understanding of VbE, distinguishing different values-linked education approaches, we developed an Athlete-Centred Values-based Education (AcVbE) workshop, which works with athletes' existing values and resonates with community-based interventions in public health. A further objective was an outcome-based evaluation related to doping-awareness literacy, and values. Because only AcVbE and no information-based education was implemented, we hypothesized that only items related to values would significantly change between the pre (before the workshop) and post (six days after the workshop) measures.

Method: The intervention study with a pre-post design, included biathletes between 16 and 22 from different countries who participated in a development camp of the International Biathlon Union (IBU). Athletes participated at least in national competitions and are ranked at the top of their countries. The 90-minute AcVbE workshop, that was pre-tested with university students (n=6), included three sections. Participants were taken through a process of sensemaking to understand what values are, and how their value priorities change across different situations. A series of real-world case studies were examined to understand how 'crisis moments' increase athlete vulnerability and can lead to 'grey zone' practices, and/or prohibited substance use, and painful value transgressions. To evaluate effectiveness, GRADE IT 2.0 was developed from the initial version by taking inspiration from health literacy questionnaires. From this perspective, anti-doping literacy should be defined broadly to incorporate higher levels of 'learning' that take anti-doping and sporting environment into account as both constrain individuals and opportunities for change. The online survey was in English and informed consent was provided. Participants were also asked to provide feedback in terms of their initial reactions, enjoyment, instructor evaluation, and transfer intention.

Results: Seventy-nine athletes participated in the workshop, 58 completed pre- and 31 post-intervention survey. Full data sets (pre and post) were available from 19 athletes (aged 17.3±1.4 years). Overall, 38.9% compete at national, 50.0% at international and 11.1% at Olympic level. Results indicated a higher confidence to process and manage personal and societal values (d=0.39, p=0.104), to manage potential value conflicts (d=0.47, p=0.055), to analyse options regarding performance enhancement using their value priorities (d=0.32, p=0.178), and to use their values to guide decisions about sport and performance enhancement (d=0.66, p=0.010). As expected, functional literacy did not change. Qualitative feedback indicated that it was well received (pre-test and camp participants): "Brilliant workshop overall. Some key take homes and engaging activities", by the IBU: "[...], it was the first time that we've had a workshop like this. I was really surprised how well the workshop worked. Athletes were fully engaged in discussing their values and how they might be affected in different situations. [...] I am convinced that athletes and especially young athletes – gain more in a values-based workshop compared to a more standard knowledge-based lecture. This is the way forward to support our athletes stay clean!", and by an observer of the Slovenian National Anti-Doping Agency: "This program is an excellent example of how it can be done. [...] I was not only impressed with the content of the session but especially with the active participation from the athletes. The content encouraged interesting discussions among athletes, they were

honest and showed high levels of critical thinking. This program is a great example of best practice from which ADO from around the globe could (and will) benefit."

Conclusion: We demonstrated a new approach to values-based education which was short, interactive, effective and well-received by all stakeholders. . The expected outcomes, to be more aware of values and to improve confidence to use one's own set of values in decision-making was demonstrated. Lacking statistical significance due to a very small sample, the directional changes and effect sizes are promising and the evaluation tool is sensitive enough to show the expected differences. The overall results support GRADE IT 2.0 to be a good 'universal' tool to evaluate the effectiveness of anti-doping education initiatives.

Pratiques dopantes et pratiques antidopage à l'épreuve de la critique

Julie Demeslay

Introduction: Cette proposition s'inscrit dans les activités de recherche en sciences sociales de la Chaire UNESCO « Études et analyses de la lutte anti-dopage – pour une protection de la santé de tous les sportifs », dirigée par Patrick Trabal et Julie Demeslay (Université Paris Nanterre – France). Plus précisément, elle s'appuie sur un projet récemment réalisé en France (2019-2022), financé par l'Agence Française de Lutte contre le Dopage (AFLD), intitulé « Pratiques dopantes et pratiques antidopage à l'épreuve de la critique ».

Purpose: Cette recherche avait trois objectifs. Il s'agissait de renseigner : 1) les facteurs de vulnérabilité de sportif.ve.s face au dopage pouvant les conduire à consommer des produits dopants ; 2) le rôle du personnel d'encadrement des sportif.ve.s dans la promotion d'un sport propre et la prévention du dopage ; 3) le point de vue des sportif.ve.s et des partenaires sur la légitimité des règles antidopage.

Method: Cette enquête d'envergure a permis, tout d'abord, de recueillir des données qualitatives. Ainsi, 120 entretiens semi-directifs ont été réalisés. Une première série a été menée auprès de sportif.ve.s de haut niveau, d'entraîneur.e.s nationaux.les, de médecins, de kinésithérapeutes, de conseillers techniques, de directeurs techniques nationaux, de préparateurs physiques, de 9 fédérations sportives françaises. Une seconde série d'entretiens a été menée auprès de responsables de clubs d'Île-de-France et de sportif.ve.s qui n'appartiennent pas au haut niveau français et de responsables de salles de fitness. Une troisième série d'entretiens a été conduite auprès de représentant.e.s d'institutions de lutte contre le dopage. Ce projet reposait également sur le recueil de données plus quantitatives par deux questionnaires construits sur la plateforme LimeSurvey : le premier, court, a été transmis aux sportif.ve.s du groupe cible français, le second était destiné aux étudiant.e.s en Sciences et Techniques des Activités Physiques et Sportives (STAPS) de France (n=1233).

Results: Cette recherche apporte de nombreux résultats articulés à douze propositions formulées à l'AFLD. Une partie porte sur la prévention elle-même. Plus que d'insister sur la nécessité d'avoir des valeurs (les acteurs enquêtés n'en sont pas dépourvus), il semble important de diffuser les règles antidopage, largement ignorées par les personnes interrogées, de s'appuyer sur les solutions des sportif.ve.s, de travailler le rapport à l'automédication et à l'auto-diagnostic, et d'articuler l'éducation par

les valeurs à une éducation à la santé. Un second ensemble concerne les fédérations et leurs structures. Les actions menées sont conduites avec une volonté de lutter contre le dopage mais restent inégales et dispersées. Ainsi, des faiblesses dans le suivi médical du sportif, une répartition variable et incomplète des missions à assurer en matière de prévention et un défaut de « concernement » (plutôt que des résistances à la mise en œuvre de dispositifs antidopage) suggèrent un travail à renforcer quant à la coordination des acteurs et la nécessité d'accentuer l'attention et les recherches sur les réalités territoriales de la lutte antidopage. Un dernier groupe de résultats et de propositions concerne la légitimité des règles antidopage. Parmi eux, il apparaît que l'acceptabilité des contraintes fonctionne sur la promesse d'attraper les tricheurs alors que les acteurs interrogés expriment des doutes, voire des désillusions par rapport aux résultats obtenus par les institutions antidopage. Nous suggérons une politique antidopage visant à célébrer les victoires et de maintenir l'acceptabilité des contraintes par des échanges sur les règles dans leur signification concrète.

Conclusion: En conclusion, les résultats et les recommandations établis à l'issue de cette enquête réalisée en France présentent, par bien des aspects, des problématiques et des pistes partageables avec des acteurs pluriels et transférables à d'autres territoires.

No 2 Doping – A values based doping prevention program

Anne-Marie Elbe

Introduction: As doping has tremendous negative consequences for athletes and the integrity of sports, the need for effective prevention programs is obvious. Primary prevention through education at an early age is key; however, educating young athletes about doping-related knowledge is deemed to be not sufficiently effective to minimize doping (Backhouse, 2015). Therefore, a focus on a values-based educational approach is emphasized by WADA (2021) and has become increasingly present in anti-doping efforts. Values-based education means “delivering activities that emphasize the development of an individual’s personal values and principles. It builds the learner’s capacity to make decisions to behave ethically.” (WADA, 2021, p.10). As such, values-based anti-doping education can address emotions, motives, attitudes and values and often incorporates the fostering of moral competencies. This seems plausible since a person’s morality, defined as his or her beliefs and practices about what is right or wrong, is presumed to be shapeable/trainable (e.g., Blatt and Kohlberg, 1975; Lind, 2009). Moreover, research indicates that especially moral variables, both personal and environmental, play an essential role in predicting doping proxies (i.e., likelihood, intention, attitudes). For example, variables like anticipated guilt, empathy, moral disengagement, moral identity, self-regulatory efficacy, and collective moral norms/moral atmosphere have been strongly and consistently linked to doping proxies in numerous studies (e.g., Boardley et al., 2018; Kavussanu et al., 2020; Ntoumanis et al., 2014) and, recently, also have been addressed in anti-doping efforts. Bandura’s (1991) social cognitive theory of moral thought and action has served as foundation for most of this research. For instance, the research of Kavussanu et al.’s and colleagues (Kavussanu et al., 2021, 2022) study showed that intervening on athletes’ moral identity and disengagement, their anticipated guilt and self-regulatory efficacy as well as on the team’s moral atmosphere can reduce doping likelihood in athletes.

Purpose: Based on this evidence and on the method of ethical decision making training (Elbe & Brand, 2016) we present the evaluation of a recent values-based doping intervention for young athletes in the German-speaking countries that aimed at affecting their anticipated guilt, empathy, moral disengagement and collective moral norms through six 45-min sessions.

Method: Within a cluster randomized controlled trial 30 teams (321 athletes) were assigned to one of the three conditions: values-based (VB), information-based, and no-intervention control and data were collected at pre, post, and follow up.

Results: Results showed that, for the VB condition moral disengagement sustainably (i.e., at follow up) decreased, whereas anticipated guilt.

Conclusion: As a conclusion, specific elements from this intervention could potentially be a useful addition to traditional anti-doping education (i.e., information provision).

A Systematic Scoping Review of the Anticipated Impacts of Further Criminalising Anti-doping Rule Violations: A Time-bound Study of the Literature.

Isaac Lockett

Introduction: Criminalisation is a multilayered process involving "institutionalising societal norms that, if violated, might attract penal sanctions" (McGorrrery, 2018, p.187). Within the area of sports-related doping and Anti-doping Rule Violations (ADVRs), there have been numerous contemporary insights presented by the popular media, academia and government institutions debating whether the extension of the existing criminal legislation will benefit the sports industry (Department for Digital, Culture, Media and Sport of the United Kingdom, 2017; Katami & Stevens, 2022; Cordero,2023).

At the time of writing, academic insights that have aimed to provide understanding into this global debate have yet to be reviewed as a single body. This lack of holistic review has prevented the creation of academic discussion and a resource for practitioners to use to enable the introduction of evidence-based decision-making into policy direction. The inability to introduce this policy development method opposes the developments seen in other industries (Vitolo et al., 2019; Westbrook & Baysari, 2019; Thomas-Walters et al., 2021) and has been identified as a factor increasing the distance between academia and practice (Bartunek & Rynes, 2014; Zaharia & Kaburakis, 2016).

Purpose: The primary purpose of the study was to conduct a preliminary scoping review investigating the anticipated impacts of the further criminalisation of ADVRs. A scoping review was chosen to do this since it allows the synthesis of existing evidence and provides insights into the trends, data generation methods and gaps within the existing knowledge base (Thomas et al., 2017). This research will support the introduction of evidence-based decision-making during future policymaking discourse, identify any gaps preventing the introduction of evidence-driven discourse and help shape policy and research direction.

The scoping review was driven by the primary research question of 'What are the anticipated impacts of the criminalisation of sports-related doping within literature published post the publication of the 2021 World Anti-Doping Code (WADC)?'. The decision was made to focus on literature published after the publication of the latest WADC to present the most contemporary insights, with the intention of expanding this review to encompass all academic outputs on this issue in the future.

Method: The scoping review methodology presented by Mak and Thomas (2022) was used to complete the study with some justified adaptations due to the requirements of the study (Hopia et al., 2016). The inclusion criteria enabled any peer-reviewed journal article published in English after the 1st of January 2021 to be included in the study. The first process completed was the development of a search string through the completion of a PICo framework, as Considine et al. (2017) supported. The search string was used to search seven databases on the 10th of November 2023 with the filters relevant to the inclusion criteria applied.

461 records were identified during the initial search process. A corpus of 23 articles was created after removing duplicates and ineligible records. The metrics of each article were then reviewed to enable the capturing of any missed relevant papers; this process led to a further 6 relevant results being identified. Therefore, the final study consisted of 29 papers, representing the work of 63 authors published across 25 journals. The analysis consisted of collating the descriptive variables of the papers and a qualitative process involving open coding, "cutting and sticking" and abstraction.

Results: Only 9 out of the 29 articles (31.03%) that provided insight into the anticipated impacts of the further criminalisation of ADVRs gathered results from participants. This result highlights one of the main barriers preventing the introduction of evidence-based discourse into discussions regarding the further criminalisation of ADVRs. The lack of participant data also led to the current study creating predominantly theoretical results.

After completing the qualitative analysis, thirteen themes were developed during the open coding process. These themes were then divided into three categories: positive anticipated impacts, negative anticipated impacts and Mechanisms needed for successful implementation:

Positive Anticipated Impacts: The criminalisation of sports-related doping will have a positive impact or is necessary; Enabling more thorough doping investigations; Increasing the athlete protection provisions.

Negative Anticipated Impacts: A negatable or negative impact based on existing cases; The development of inequality across the 'global athlete body'; The weakening of the global anti-doping movement; The weakening of athlete's and sport's positions; Criminalisation will not tackle the issue of doping in sport
Criminalisation increasing the risk profile of doping.

Mechanisms needed for successful implementation: The need for judicial evolution; The need for the development of related anti-doping mechanisms; The potential of a supranational judiciary body; The need to further develop Protected People legislation.

The results of the current study present a lack of consensus within academia regarding the potential impacts of the further criminalisation of ADVRs. This lack of consensus existed in isolation prior to the current study. However, the current study has created an environment where the identified themes can be supplemented with literature from related areas, including the criminalisation of other drug-taking actions, examining how legislation in these areas has been justified and the success of the legislation.

Conclusion: The current study developed thirteen themes connected to the anticipated impacts of further criminalising ADVRs beyond the existing landscape. These themes require further development and interpretation to develop hypotheses that can be tested or discussed further with relevant stakeholders.

Future research should aim to conduct a more exhaustive scoping review examining the data related to the anticipated impacts of the criminalisation of ADVRs since the introduction of the World Anti-Doping Code in 2003. Researchers should also conduct empirical research examining existing legislation within different geographic territories and conduct more direct impact-related observations to enable evidence-based discourse.

“The education that the intellectually impaired get is not what they need”: Athletes with intellectual impairments and their support personnels’ experience of anti-doping

Philip Hurst

Introduction: We know little about the anti-doping experiences of athletes with intellectual impairments (II). This is important given that over 700 II athletes aiming to participate in the Paris 2024 Paralympics will receive anti-doping education and be subject to doping control. While the World Anti-Doping Code aims to ensure education programs raise awareness and develop decision-making capability, II athletes have cognitive deficits that impact their ability to understand and respond appropriately to complex processes. Despite the publication of the International Standards for Education (ISE) in which to help organisations plan, implement and evaluate their education programs, there is no guidance on how best to educate and support II athletes. In short, it is unknown if the education they receive protects and prevents them from failing an anti-doping rule violation. To help organisations plan, implement and evaluate their education programmes, a need exists in examining II athletes understanding about anti-doping and how this demographic can be best supported.

Purpose: The purpose of our study was to interview II athletes and athlete support personnel (ASP) about their experiences of anti-doping. Our aims were to: 1) examine knowledge and understanding of II athletes and ASP of anti-doping practice, 2) understand the challenges for ensuring II athletes are appropriately educated in line with the ISE and 3) identify best practices to ensure II athletes are best supported.

Method: Ten athletes with intellectual impairments and sixteen ASP volunteered to participate in the study. Athletes (20% female) were actively competing in track and field, swimming, or cycling. All competed at an international level from China, Denmark, Great Britain, India, and New Zealand. ASP (56% female) were parents, guardians, or coaches to II athletes from Denmark, France, Great Britain, Japan, India, the Netherlands, New Zealand, and the United States of America.

Participants were invited to a semi-structured interview that were used to examine experiences with anti-doping practice. The interview centred on participant understanding of anti-doping, its importance, the education they received, and experiences of doping control. The researcher ensured that for participants with II, extra time was given to respond to questioning and the questions were asked using simple language. Pilot testing with II athletes and feedback from experts in conducting research on intellectual

impairments was sought prior to data collection. During the interviews, athletes were accompanied by their ASP, and all were conducted online via Teams and recorded verbatim. A reflexive thematic analysis using Braun & Clarkes (2020) six-phase process is to be adopted, of which the first four phases have been completed.

Results: Preliminary analysis resulted in four higher-level themes. The first theme related to perceptions of anti-doping. All participants perceived anti-doping to be an important part of sport and understood the value of drug testing. However, the education programs received was a process that became burdensome, boring, and challenging, and athletes did not recognise anti-doping behaviours as part of their need to be compliant with the WADC. The second theme related to well-being of athletes during anti-doping practice. Athletes reported being “stressed”, “nervous” and “scared” when asked to report to doping control. Athletes and ASP recognised that while it was required of them, they were anxious of “doing something wrong” and found the drug testing process “embarrassing”. However, the doping control process was eased with supportive anti-doping staff who “knew their job” and were “trusted”. Athlete anxieties eased when parents and coaches attended the doping control process and talked through the process with their athletes to explain its importance and normalisation (e.g., “this is part of being an athlete”).

The third theme related to II athletes anti-doping considerations. ASP described variations in attention, independence, reading, communication, and emotional stability, making it challenging to implement education consistently and ensuring compliance with doping control. Responsibility between each athlete and their parent/guardian became salient as to who is responsible for athlete decisions, when some athletes were unaware of their anti-doping responsibility.

The final theme related to improvements of anti-doping practice. All athletes lacked understanding of the anti-doping rules and ASP recognised that the information received is “complicated” and “needs to be simplified”. Athletes and ASP requested information to be delivered in-person, with only II athletes, at a slower pace that included visuals, role-playing and para-athlete examples.

Conclusion: Our results highlight that II athletes struggle to understand anti-doping policy and receive the education needed to ensure appropriate decision-making to avoid failing an anti-doping rule violation. The doping control process can elicit negative emotions, emphasising the requirement of trained doping control staff in helping athletes navigate the procedure. There is a need for education programs to be simplified and tailored to II athletes so that this information can be processed accordingly, and that anti-doping behaviours can be adopted and that their well-being during doping control is protected.

“What about us?” A qualitative exploration of athletes’ lives, experiences and support needs after an Adverse Analytical Finding

Daniela Lux

Introduction: Over the past years, anti-doping efforts have evolved beyond mere detection and punitive measures, embracing education as a critical tool for prevention and protection. The International Standard for Education (ISE, 2021) highlights the importance of educating all athletes including those

who encountered an Adverse Analytical Finding (AAF), Anti-Doping Rule Violation (ADRV) and are returning from sanctions. The development of educational content shall, based on the ISE, be evidence-based and targeted, which requires having a solid knowledge base on athletes' needs. To inform education, some research with respect to sanctioned athletes (i.e., who have committed an ADRV) exists and has already noted the extensive consequences on athletes' lives. What has not yet been looked at is the potential impact that the mere occurrence of an AAF may have on an athlete's sporting career and wider aspects of their life, despite eventual exoneration.

Purpose: In line with the recent emphasis on athlete perspectives in clean sport research, our aim is to explore how athletes feel about and manage the 'crisis moment' of encountering an AAF. The World Anti-Doping Agency's Standard for Results Management defines an AAF as a laboratory's report about "the presence of a Prohibited Substance or its Metabolites or Markers or evidence of the Use of a Prohibited Method". If no ingestion of a prohibited substance through a permitted route or valid Therapeutic Use Exemption exists and no issue with international testing standards occurred, the athlete needs to be notified of the analysis' result.

The first phase of our project, funded by WADA's Social Science Research Grant in 2023, seeks to gain a thorough impression of how athletes experience the AAF process and cope with associated consequences. The insights obtained, combined with the results of ADRVs (in regard to the overall project), will serve as the foundation for the development of evidence-based education measures. In addition, input from affected athletes will aid in assessing and, if necessary, potentially advancing anti-doping organizations' handling of AAF cases, ultimately protecting possibly blameless athletes from undue psychological and procedural stress.

Method: Given its exploratory nature, our study adopts a qualitative research approach. To attain a comprehensive understanding of the experiences of athletes who have encountered an AAF, life-story interviews were conducted using a pre-established guide. By covering the entire life-story, we can better understand contexts and interconnectedness between various experiences as well as developmental processes. Interviews covered athletes' early childhood, development of the sporting career, the AAF incident and how it influenced their sporting career and life as a whole. The interviews were done either in English or German and only such cases were included in which the athletes were actually informed about the AAF. The audio recording was transcribed verbatim and analyzed following reflexive thematic analysis according to Braun & Clarke (2013). This approach was chosen to do justice to the richness and complexity of the interview data, as it allows in-depth exploration of the narratives.

Results: At the time of abstract submission, two online interviews with Austrian and German athletes were already completed, with an additional eight interviews being conducted and analyzed by February. The interviews lasted approximately 60 – 90 minutes. The interviewed athletes were not part of a Registered Testing Pool and had AAFs due to the use of prohibited medication for prolonged, chronic illness. For these athletes, mental stress was one of the primary concerns caused by various factors leading to a sense of uncertainty. Starting with the submission of the doping sample, athletes felt uncertain regarding the outcome and what official procedures to await, even though they had informed themselves well in advance and were able to present a certificate for their illness. Following notification of the positive test, uncertainty regarding the requirements for additional certifications and exemptions, coupled with prolonged waiting periods and lack of guidelines, increased perceived stress. Another contributing factor to psychological stress was the fear of the AAF being disclosed and any associated stigmatization, as well as potential (legal) consequences in case of any mishaps with exemption permits or bureaucratic procedures. Participants reported difficulties in finding up-to-date information and

requirements regarding their condition partially due to the lack of organized anti-doping education prior to their test.

Additional interviews will be completed by February which promises a more comprehensive perspective to be presented at the Global Education Conference.

Conclusion: The interviews illustrate the complexities contributing to AAFs, i.e. strict liability, intricacies of Prohibited List, and anti-doping literacy. Findings indicate an interplay of factors leading to AAFs, highlighting the multifaceted nature of anti-doping challenges. Athletes' experiences emphasize the need for tailored education and support, beyond deterrence and punishment. By understanding the context in which AAFs occur, we want to enhance organizations' ability to design targeted education to prevent doping and to discuss possible support measures for affected athletes. Our project contributes to the overarching goal of fostering clean sport by advocating for athlete-centered education and support.

Current Physicians Knowledge of the Prohibited Lists

Mark Troxler

Introduction: Only physicians are allowed to sign the Therapeutic Use Exemption (TUE) of the prohibited lists (PL) in national sports organizations. Review of studies have reported the current knowledge of the PL of practicing physicians. These studies have involved different physicians with different degrees of knowledge throughout the world. Physicians have different degrees of attitudes about doping and beliefs about prevention.

Purpose: We determined the current knowledge of practicing physicians of the PL.

Method: Several online medical databases were accessed by computer literature search for studies from 1996 to 2022 in order to identify available publications for all studies of measurements of practicing physician knowledge of the PL. The publications were included in the analysis if data or discussion was included concerning physician knowledge of the PL during the time of the published studies. Publications that were in English or translatable to English were included in the evaluation of physician knowledge of the PL.

Results: One thousand seventy-four practicing physicians in four studies were identified. Five hundred ninety-three physicians participated in the studies. Two studies used telephone interviews and two used a mailed questionnaire. Three studies used randomly selected physicians and one study evaluated all the physicians in the study population. There was a 52.4% response rate to the study with 27.9% admitting to have knowledge about doping. However, 72.8% could list at least one substance on the PL. Only 20.1% were asked by an athlete for a prohibited substance and 27.2% of the physicians thought prevention was effective.

Conclusion: Physician knowledge of prohibited lists (PL) is limited and doping issues are encountered daily by practicing physicians. The low physician response rate for each study indicates a possible lack of interest, poor understanding, or little contact with athletes requesting substances on the PL. Few

physicians thought prevention was effective in the use of substances on the PL. Further research and education is recommended since only physicians are allowed to sign the Therapeutic Use Exemption (TUE) of substances on the PL. Current physician knowledge of PL is limited and doping issues are encountered daily by practicing physicians.

Resilient coping alleviates risk associated with sport fantasy and deflated reality in doping

Shuge Zhang

Introduction: Sport offers fascinating opportunities for glory and lionisation. Commonly, athletes may develop sport-specific fantasy-prone characteristics such as fantasising about beating their competitors and being an exceptional performer. Such sport fantasy could lead to positive (e.g., striving under pressure) and negative outcomes (e.g., immoral conduct to gain advantages). Meanwhile, the road to success in sport is not always promising. Prolonged deliberate practice does not guarantee a successful sport career. Athletes must face the crucial reality that their training may falter and performance does not develop as expected, leading to a sense of deflated reality. Such a pessimistic perception of one's training and performance is likely to amplify the dark sides of sport fantasy, such as increasing risks for intentional doping (e.g., doping moral disengagement, doping willingness). As such, we hypothesised that sport fantasy would contribute to greater risks for doping as one's sense of deflated reality in sport increases. Further, we proposed that the ability to cope with adversity would mitigate such risks associated with the fantasy-reality discrepancy. To this end, we conducted a multi-country project to test our hypotheses and to provide implications for designing and delivering future anti-doping programmes.

Purpose: Project aims: 1. To assess the main and interactive effects of sport fantasy proneness and deflated reality on doping moral disengagement and doping willingness in high-performing athletes; 2. To examine the extent to which athletes' resilient coping capacity alleviates the risk of doping related to sport fantasy and deflated reality; 3. To evaluate consistency and variation in doping risks associated with sport fantasy and deflated reality and protection related to resilient coping in the UK, China, and the US.

Presenter objectives: 1. To disseminate the latest research findings on risk (e.g., sport fantasy, deflated reality) and protective (e.g., resilient coping) factors for doping amongst the antidoping community (i.e., agencies, athletes, practitioners, and researchers); 2. To inform and inspire the design of future education and intervention programmes for antidoping.

Learner outcomes: 1. To understand the relative risk of athletes' sport fantasy proneness and sense of deflated reality in the context of intentional doping; 2. To understand the protective effect of resilient coping on risk for doping associated with fantasy and deflated reality; 3. To consider embedding resilient coping elements to future antidoping education and interventions.

Method: Four-hundred and ninety-nine high-performing athletes ($M_{age} = 21.89$; 54.5% male; 58.4% team sports; 80% competing at national level or above) from the UK, China, and the US completed psychometric measures assessing sport fantasy proneness, deflated reality in sport, resilient coping, doping moral disengagement, and doping willingness. We performed a series of multi-group (i.e., UK, China, US), multi-variant (i.e., two doping risk factors), cluster-controlled (i.e., adjusting for athletes' coach/team membership) conditional models to test the sport fantasy proneness \times deflated reality in sport \times resilient coping interaction. The tested statistical models applied different combinations of fixed

vs random coefficients to each regressive path (e.g., sport fantasy's influence on doping willingness), with a fixed vs a random coefficient indicating invariance vs difference in a certain effect across study countries. We conducted Chi-square difference tests, used model fit indices for comparison, and only interpreted the best-fitting model.

Results: Multi-group testing and comparison of nested models revealed a random effect of sport fantasy and deflated reality on doping moral disengagement and doping willingness across the study countries. Further, the mitigating effect of resilient coping and the way it protected against the sport fantasy × deflated reality interaction on doping risks were invariant across the UK, China, and US. More specifically, high resilient coping consistently contributed to reduced doping moral disengagement regardless of the level of deflated reality (see Figure 1). Resilient coping protected against sport fantasy related doping willingness, especially when an athlete suffered deflated reality (see Figure 2). A combination of low sport fantasy proneness, low sense of deflated reality, and high resilient coping predicted the lowest doping willingness among athletes from all study countries.

Conclusion: The current project generated novel knowledge on doping risks associated with athletes' sport fantasy proneness and sense of deflated reality and the efficacy of resilient coping as a convincing, influential psycho-behavioural factor that promotes resistance to doping. Future anti-doping interventions and education programmes should address sport fantasy and deflated reality in athletes and consider incorporating resilient coping practices to enhance athletes' resistance to intentional doping.

Anti-doping Education: Kazakhstani way to clean sport

Galiya Zhumabayeva

Introduction: The anti-doping education program in Kazakhstan has never been described, nor has the effect of this program on athletes. Educational activities include working with athletes, coaches, doctors and other athletes' support personnel from Olympic and non-Olympic national teams on an ongoing basis. As an additional tool of educational activities, an anti-doping online course has been launched in Kazakh and Russian languages. Moreover, KazNADO has implemented anti-doping courses to specialized sports schools, Kazakh Academy of Sport and Tourism and other educational sports organizations.

Purpose: We designed this study with the aim to assess the anti-doping education knowledge level among Kazakhstan athletes, and determine if the anti-doping education is associated with athletes' education level with regard to anti-doping rules and regulations.

Method: Altogether, 590 athletes (the median was age 17 years (interquartile range 8)), representing various sports, participated in the web-based study and completed the questionnaire, which consisted of socio-demographic part and ALPHA test. We assessed the association of any past AD education and experience with anti-doping knowledge using adjusted regression models.

Results: A total of 54.6% participants underwent doping control and 82,7% of athletes received AD education at least once. More than 300 participants (50.8%) provided correct answers for 10 questions. Age and years in sports (competition duration) were significantly associated with the ALPHA scores of athletes. Athletes who received AD education more than once in the past had significantly higher ALPHA scores than non-AD educated athletes in most questions.

Conclusion: Our findings exhibit some effect of the existing Kazakstan anti-doping program, in which athletes, who have undergone anti-doping education courses and doping-control, showed higher level of AD knowledge. Therefore, the present study has preliminary implications to introduce anti-doping programs not only to sports environment, but also to the educational system of the universities, colleges and sports schools to prevent the use of prohibited and dangerous substances by Kazakhstan athletes in future. We suggest the following model of continuous anti-doping education from level to level: school, college, university.

Development of brief assessment packages of psychosocial constructs related to doping

Ian Boardley / Vassilis Barkoukis

Purpose: Overall project aim was to develop assessment tools that can be used by Anti-Doping Organizations (ADOs) to monitor and evaluate the effectiveness of their education programs. We did not include constructs that measured clean sport behaviors, objective knowledge, or inadvertent doping, as research work on those constructs had been commissioned by WADA to other research groups. Three work packages (WP) aimed to: WP1: Identify key psycho-social constructs that can potentially be influenced by ADO's education programs. Input given by the research team, anti-doping experts, and various ADO's (via an abbreviated Delphi poll) to select relevant constructs for athletes (adults and adolescents) and athlete support personnel (ASP); WP2: Collect data from Danish, Swedish, and Norwegian athletes and ASPs to identify the best-performing items for each construct; WP3: Use psychometric tools in the OASIS package in R to develop brief assessment tools for each target group.

Conclusions: The developed questionnaires are suitable for evaluation of anti-doping education worldwide, when the interest is on the effects of such education on malleable psychosocial constructs. The questionnaires have 24 (adult athletes) and 28 (ASP) items capturing 11 and 13 constructs, respectively. The cross-cultural validity of the questionnaires should be assessed with populations who are native English speakers as well as in other widely spoken languages around the world. Future research should also investigate the psychometric measures of the preliminary questionnaire we created for adolescent athletes with the purpose of creating a similar validated brief tool for this population group. We did not have sufficient data from this age group to develop such a tool.