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Can we better integrate the role of anti-doping in sports and society? A psychological approach to contemporary values-based prevention

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Running head: Psychological approach to anti-doping

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Abstract

In sport, a wide array of substances with established or putative performance enhancing properties is used. Most medicines are fully acceptable, whilst a defined set, revised annually, is prohibited and thus using any of these prohibited substances is condemned as cheating. In the increasingly tolerant culture of pharmacological and technical human enhancements, the traditional normative approach to anti-doping, which involves telling athletes what they cannot do to improve their athletic ability and performance, diverges from the otherwise positive values attached to human improvement and enhancement in society. Today, doping is the epitome of conflicting normative expectations about the goal (performance enhancement) and the means by which the goal is achieved (use of drugs). Owing to this moral-functional duality, addressing motivations for doping avoidance at the community level is necessary, but not sufficient, for effective doping prevention. Relevant and meaningful anti-doping must also recognise and respect the values of those affected, and consolidate them with the values underpinning structural community-level anti-doping preventive interventions. Effective anti-doping efforts are pragmatic, positive, preventive and proactive. They acknowledge the progressive nature of how a 'performance mindset' forms in parallel with the career transition to elite level, encompass all levels and abilities, and directly address the reasons behind doping use with tangible solutions. For genuine integration into sport and society, anti-doping should consistently engage athletes and other stakeholders in developing positive preventive strategies to ensure that anti-doping education not only focuses on the intrinsic values associated with the spirit of sport but also recognises the values attached to performance enhancement, addresses the pressures athletes are under and meets their needs for practical solutions to avoid doping. Organisations involved in anti-doping should avoid the image of 'controlling' but, instead, work in partnerships with all

stakeholders to involve and ensure integration of the targeted individuals in global community-based preventive interventions.

Introduction

Athletes entering high level sport competition are required to abide by the rules as set by the relevant governing bodies, which include a precise list of prohibited performance enhancing practices and methods, commonly referred to as ‘doping’. From a regulatory point of view, efforts for keeping doping out of sport are harmonised at the global level by the periodically revised World Anti-Doping Code (the Code) [1]. Activities related to the implementation of the Code (i.e., code compliance monitoring and testing as well as anti-doping outreach activities, research and education) are overseen by the World Anti-Doping Agency (WADA). Athletes identified by their national sport organisation comprise the National or International Registered Testing Pool (N/IRTP) and are subject to the Code. Whilst anti-doping intervention via education primarily aims at athletes in the N/IRTP, preventive anti-doping efforts should also target young athletes well before they may enter the N/IRTP. Building a persuasive anti-doping culture must embrace all levels and abilities. To aid the development of effective anti-doping strategies that are ecologically valid and endorsed by the athletic community, it is paramount to have a better understanding of the factors that influence athletes’ decisions about doping.

Doping is a complex phenomenon [2], which is partly reflected in the simultaneous need for performance enhancement and - justified on the values of the amateur sport - the desire to control the methods by which enhancement can be achieved [3]. In today’s professionalized and commoditized sport, rules of the amateur sport such as fair play and level playing field are readily replaced by rational investments into gaining a competitive edge [3,4]. Such investment routinely includes developing and using state-of-the-art equipment, specialised apparel, training methods, nutrition, physiotherapy, medical and psychological support and pharmacological boosts – with only some being prohibited [5].

Thus, there exists a precisely defined set of substances and methods that are deemed to be unacceptable by the anti-doping authorities and therefore prohibited. Consequently, the behaviour (i.e., performance enhancement) *per se* is not condemned, only if it involves prohibited substances or methods. Assisted performance enhancement with permissible means (e.g., nutritional or herbal supplements, superfoods, training methods, technological advancements, etc.) is not only tolerated but actively supported and often encouraged throughout the athletic career development [6]. This paradoxical situation creates an inherent ambiguity between the expectation for high performing athletes and the anti-doping rules, which prohibit the use of a defined set of drugs and methods.

Doping is also a social and institutional construct [7-9] that generates tensions between values underpinning competitive sport and doping-control, rendering the bioethical arguments - based on naturalness or negative health effects - unconvincing [10]. At the level where sport becomes a commodity - which is produced, sold or used for political agendas by governments and organisations with vested interest in sport - the idealistic values of amateur sport are no longer core governing principles of the activity but an appealing attribute of the product. One key function of anti-doping is to ensure that 'drug-free and clean' status remains a credible attribute of high-performing elite sport. Critical observers argue that doping control, which originally was born out of concerns for athletes' health, has incrementally turned into a moral crusade for preserving the noble values of 'gentleman sport' for the high-performing and competitive world, which not only creates a dissoluble tension but has a detrimental effect on the meaning of modern sport [11,12]. After almost half a century since the first attempt for formalised doping control, doping today is more commonly seen as unethical conduct - cheating and shortcuts - than health-compromising behaviour, despite the fact that doping cannot guarantee winning or replace training and hard work.

From a strictly functional point of view, doping - through pharmacological advancements - can expand the somewhat fixed capacities of human performance [13], and thus contribute to 'going *faster, higher and stronger*'. The history of doping clearly indicates that doping does not contravene universal moral codes but, rather, violates the agreed rules of today's sport competition which are in place to protect the intrinsic values of sport. Doping is cheating; but cheating is the function of the rules. It is the set of anti-doping rules, not universal morality, that classifies some methods of assisted performance enhancement as cheating; and the clandestine nature of this specific rule-breaking makes doping deceitful and dishonest. Doping is also a contextualised behaviour which only lasts as long as the need or perceived need is present during the active athletic career [14], and is often triggered by athletic-related life events such as injury or other threats to an elite athlete status [15-18]. Today's high performing athletes are no longer amateur sports(wo)men but professionals, who continuously make investments into increasing their sport performance via hard work, training and lifestyle that can last for decades [19]. It is not only the athletes' livelihoods, but also those of their entourage, that depend on good performance; thus, economic pressures of elite sport are also potential pressure points where doping use is more enticing than it would be otherwise [18,19].

A major challenge facing anti-doping is that doping is defined in an ideological and institutional context [7], whereas traditional anti-doping education targets athletes and members of their entourage on individual terms. Restriction on how performance can be enhanced inherently limits individual fulfilment of universal values such as self-enhancement and self-direction [20], but the institutional, top-down, law-and-order approach to doping control through prohibition, detection and punishment leaves very little room for a more rational and nuanced approach to be negotiated [9].

The cumulative evidence from decades of health-protection and harm-reduction initiatives in the public health domain suggests that effective preventive interventions should

identify the key contextual or environmental factors that influence, in some cases indirectly, the undesirable behavioural choices. Interventions that target the underlying causes (collectively referred to as *structural interventions*) are more likely to be successful and more cost effective than stand-alone individual-focused programmes; and by capturing the broad target population, structural interventions remove the need to identify and target only those who are considered at risk for the unwanted behaviour. However, the success of structural interventions depends on how closely the well-intended initiatives fit with the opportunities and constraints of the micro-social environment of the target population, and what kind of support is available to facilitate their integration. Community-based interventions¹ seek consensus and conciliation between structural and individual values. Their attractiveness is underpinned by (1) the recognition of the needs of those affected, (2) the commitment to identify mutually acceptable solutions between the regulators and those subjected to the respective regulations, seeking balance between the individual and collective needs, and (3) the focus on both proximal and distal factors that exert influence on empowering individuals to make the right decisions.

In this chapter, we advocate a forward-looking anti-doping approach that provides a more pragmatic and functional view of doping, accepting that performance enhancement is at the core of competitive sport. This approach assumes that (1) the goal behind doping behaviour is performance enhancement - as opposed to cheating and/or gaining unfair advantage; (2) the behaviour of utilising pharmacological and technological advances to enhance athletic ability and performance *per se* is not condemned or prohibited; only certain means are; (3) motives and reasons for doping and anti-doping can be conflicting; (4) the

¹ Note that community-based interventions are also referred to as "*values-based interventions*" although being 'values-based' is interpreted differently in public health than in anti-doping. We hope that with this chapter we are able to reconcile the different terminologies and provide a more encompassing definition for values-based anti-doping, which is congruent with the broader scope of structural interventions addressing critical health- and social issues.

influential driving forces behind doping are the beliefs about the reasons for doping use; (5) indirect influences via changing social cognitive factors (e.g., attitudes, norm perceptions) are necessary for building sustainable anti-doping culture, but not sufficient to induce behavioural change at the individual level without offering direct, practically relevant means for building or maintaining resilience to doping; and (6) processes such as moral disengagement, normalisation and rationalisation are not driving forces for doping but coping strategies for reducing cognitive dissonance caused by having inconsistent values, thoughts, beliefs, or attitudes. We propose that effective anti-doping should recognise these contextual contingencies, be preventive, target knowledge gaps (to prevent inadvertent doping) and social cognitive factors (to promote motivations for clean sport and competition), and adopt a positive approach that directly addresses athletes' beliefs about reasons for doping and offers practical and acceptable solutions. In doing so, we focus on how the performance-enhancement mindset forms [6] and raise awareness about the potential psychological risks associated with promoting and using permitted means (supplements) for performance-enhancing reasons. This is particularly important in situations where young athletes are involved because - along the transition in their sport to elite status - their 'performance-enhancement mindset' is still forming.

Definitions of doping

The various definitions of doping demonstrate the conflict between moral and competitive values, which has affected the way society sees doping, as well as how anti-doping has been organized. From the societal point of view, sport is generally seen as a healthy, uplifting and character building activity, in which using performance-enhancing substances defeats the purpose of sport and thus is morally wrong [10]. In competitive sport, these noble but archaic values of gentleman sport are in conflict with the driving forces behind high performance sport [13,20] as well as with the universal values of self-enhancement and self-direction [21]. From a behavioural point of view, doping can equally

be seen as a motivated, effortful and goal-oriented behaviour [6,22] that is justified on the grounds of functionality and triggered by athletic-related life events; or as a deviant behaviour in terms of substance use [23], or rule breaking and moral disengagement [24]. In contrast to all, the official definition of doping [1] does not (i) distinguish between the desired goals, (ii) require intention, or (iii) limit doping offences to a substance or method being artificial.

The precise definition of doping is important. Firstly, it gravely affects social science research. Surveys without a precise definition rely on personal definitions of doping and thus may not only vary widely but also differ from the official definition that is likely to be explicitly or implicitly adopted by the researchers [25]. Secondly, the definition matters for designing anti-doping interventions as definitions are inherently centred on key factor(s) which are assumed to underlie doping behaviour (e.g., gaining unfair advantage, moral disengagement, using artificial means or increasing performance). Thus, precise definitions determine the behavioural components to be targeted in anti-doping efforts.

Doping control and deterrence

The nature of doping makes policing difficult and leads to an imperfect but costly monitoring system that has been challenged on many accounts, including the fairness principle [26], medical ethics [27,28] and ethical, employment and privacy law issues arising from the need for constant surveillance [29-31]. Ongoing debates around doping in sport focus on the fit for purpose [32-36], justification [37,38], effectiveness and associated cost as deterrents [11,39,40]. Paradoxically, the ever-increasing severity and intensity of externally imposed sanctions intended to serve as an effective deterrent could inadvertently trigger doping use through signalling that doping is spreading in sport, hence the harsh sanctions are merited [41]. Evidence indicates that human decisions involve a combination of self-interest and internalized social norms [42]. Socio-economic models [43] suggest that the decision whether doping should be used not only depends on the outcome of the cost-benefit analysis

but also on the micro-culture of the given sport. Athletes are more likely to refrain from doping if fellow athletes condemn such behaviour and doping substances are absent from their repertoire. The main problem with the norm-based approach to doping is the presence of contradicting norms. Whilst aspiring athletes adopt professional norms in order to progress in the sporting career, professional athletes must subscribe to the universally accepted norms of the amateur sport, such as fair play or equal chances, with the emphasis on participation, not winning [19].

Values-based education represents a positive approach to prevention as it engages all stakeholders (athletes, coaches and other key members of the athlete entourage) in developing and promoting the intrinsic values of the spirit of sport. A plethora of education resources and education campaigns - provided by the World Anti-Doping Agency - aims to promote a global clean-sport culture. However, whilst promoting the intrinsic values of clean sport to foster positive attitudes toward clean sport, it is necessary to encourage athletes to be responsible agents for their own actions. In order to be effective, values-based education must incorporate intrinsic values associated with athletic achievement, striving to go higher, stronger and faster. In addition to the values of the spirit of sport, values-based education targeting the broad spectrum of the sporting community must acknowledge that the universal values - which are simple, broad and readily agreed by most at the abstract level [21] - become fragmented in everyday applications and actual situations at the individual level, and address the individual athletes' needs in a constructive, permissible and positive way.

Motivations for doping and anti-doping at the individual level

Doping control and anti-doping intervention to date have been characterised by targeting athletes as individual agents. Anti-doping education must encapsulate all kinds of doping offenses, regardless of the reasons and intention. However, from a psychological perspective, a differentiation must be made between accidental and deliberate doping. Accidental doping assumes no intention to use doping substances and that doping occurs

because of lack of knowledge, blissful ignorance or carelessness. The limited research available on avoiding inadvertent doping builds on theories of self-determination, planned behaviour and self-regulation [44-46]. In contrast, deliberate doping is controlled and goal oriented. The search for the key determinants of such behaviour has predominantly drawn on social cognitive models. Although statistically significant relationships between psychosocial variables (e.g., attitudes, beliefs, norms) and self-reported doping behaviour/intentions have been documented in the literature, causal relationships cannot be established from the cross-sectional study designs. Furthermore, Ntoumanis et al.'s meta-analysis [47] demonstrated that the relationships between doping intention and attitudes, subjective norms and perceived behavioural control are weak. In practical terms, these findings suggest that intervention-induced changes to social cognitive factors such as subjective norms or attitudes, even if successfully made, would not necessarily translate into desirable behavioural outcomes. In contrast, the importance of the social environment has been highlighted through evidence of a strong link between doping behaviour and knowing a friend who has used doping or using permissible supplements (doping involvement is incremental [6]). These findings support the need for developing a community-wide pervasive anti-doping culture.

Perceived norms represent people's beliefs about what behaviour is common, generally accepted and/or expected. Research has highlighted the importance of athletes' beliefs about how widespread doping is. Self-confessed doping users have been consistently found to report a higher estimation of doping prevalence, although it remains unclear whether the perceived high doping prevalence precedes doping behaviour or is a post hoc justification for doping [48-50].

The pragmatic view of doping

Competitive sport does not exist in a vacuum but is inevitably affected by economic, sociological and cultural changes in society. Pharmacologically assisted human enhancement is an emerging phenomenon that characterises the later part of the 20th century. It is not

limited to doping in sport, but manifests in functional drug use to enhance human experience in the general population including non-medical use of cognitive enhancers, fat-burners and diet pills, cosmetic surgery and the use of doping substances (growth hormone, steroids) for cosmetic reasons. Using aids to improve the human body is no longer seen as deviant but as a normal part of human development to enhance function (e.g., healthy aging) and enrich experiences [51-53]. Fundamental questions for anti-doping to address are (1) what sets doping apart from the rest in the vast array of available chemical and technological assistance to human performance, body appearance and experiences, and (2) it is better to focus on the 'means' (doping substance and methods) or on the driving forces behind the doping behaviour? It is far too simplistic, and not supported by the available literature, to argue that those who engage in doping practices consider 'winning is everything'. Instead, the literature suggests that motivations tied to initiating or maintaining doping use are extremely diverse [47,54] and often tied to performance and not competition.

There are two advantages in considering doping as a normalised functional (as opposed to a deviant) behaviour: (1) it is in line with the contemporary approach to drug use and (2) it can offer a practically relevant theoretical framework to anti-doping. The concept of 'normalisation' in social drug research refers to an emerging consumption style that is characterised by patterns of sensible or controlled drug consumption which is rationalised and sometimes even be framed as a safe option [55,56]. For example, bodybuilders may rationalise illicit anabolic steroid use as a goal-oriented activity that is perceived to be 'under control' [57,58]. Emerging evidence for normalisation of doping by elite athletes is characterised by reference to elite sport as a profession and rationalised as a 'job demand' [19,59,60]. Furthermore, athletes report perceived expectations from team-mates or coaches to 'do whatever it takes' to increase performance and see doping as a potent method to do so [61].

The Incremental Model of Doping Behaviour (IMDB) asserts that doping is a learned behaviour, which stems from prolonged involvement in assisted performance enhancement [6]. Throughout their athletic career development, athletes are accustomed to using ergogenic aids to enhance their athletic performance, either directly or indirectly by aiding the recovery process between training sessions. During this time, it is reasonable to assume that athletes also form their beliefs about reasons for using some sort of assistance for performance enhancement, which then contributes to their general attitudes toward assisted performance enhancement that may influence future behavioural choices about performance enhancing practices. Whether or not these practices involve prohibited means primarily depends on the athletes' beliefs about the reasons for, and expectations of, doping, and is influenced by individual values about sport and performance-enhancement. Behavioural reasoning theory (BRT) [62] distinguishes between *anticipated reasons* (justify planned behaviour in the future), *concurrent reasons* (explain current behaviour) and *post hoc reasons* (explain past behaviour). These reasons are also an integral part of the athlete's performance-enhancement mindset. Owing to the legal and personal ramifications of doping, reliable evidence for reasons reported in the literature is limited to first person post hoc justifications [59-60], hypothetical scenarios [17] and third person projected reasons (i.e., why athletes in general may use doping) [63]. Ongoing investigations suggest that the demarcation between different types of supplement users is primarily based on whether supplements are used for health maintenance or for performance-enhancing reasons [64].

The importance of the 'performance enhancement mindset' for doping prevention

'Performance enhancement mindset' refers to an established 'way of thinking'; that is, a mental disposition or a set of thoughts and beliefs that shape one's attitudes, beliefs and assumptions held about the need for pharmacological assistance for performance excellence. This 'performance-enhancement mindset' is a powerful concept in anti-doping because it is thought to exert influence on how athletes and members of the athlete entourage interpret and

respond to events, circumstances and situations when it comes to performance excellence and enhancement.

Approaching the 'athlete mindset' from a mental representation angle, a study contrasting doping simultaneously to nutritional supplements and illegal drugs revealed a telling picture about how athletes might think about doping [65]. Specifically, the study showed that doping, despite being prohibited in competition and often referred to as 'illegal', was more closely aligned with supplements (representing performance enhancement and functionality) than it was with illegal drugs (representing regulated status). Such a 'mental representation of doping' suggests that the key characteristic of performance-enhancing substances is more aligned with functionality than legality [6]. A review of reaction-time based attitude measures (1) showed that the mental representation of doping is a function of the behavioural path that the athlete follows, and (2) provided evidence that the functional aspect of doping influences both explicit and implicit retrieval of representations of doping [66]. Notably and most importantly for anti-doping, the functional aspect is not limited to prohibited substances but rather, it starts with the use of dietary supplements for performance enhancing reasons. This characteristic of assisted performance-enhancement practices that develops over time is the key tenet of the IMDB [6].

Past research on mindsets in relation to sport performance has been dominated by investigations into how different mindsets contribute to elite sport performance and achieving excellence in athletes and coaches [67-70]. Dweck's model of fixed vs. growth mindsets highlights not only societal but specifically the influence that young athletes' parents and coaches exert on an individual's belief system [71]. The means by which athletes approach their goals – categorized as a fixed or growth mindset – are characterized not only by individual talent or abilities but also by their self-regulation skills [72]. Ryan and Deci's self-determination theory [73] - which has been extensively applied to doping behaviour [74-79] - serves as a broader framework providing theoretical underpinnings for Dweck's and Kuhl's

work on performance mindsets [71,72]. The juxtaposition of the performance-enhancement mindset to Dweck's fixed and growth mindset categorisation [71] advances anti-doping by highlighting the importance of taking a holistic view of the athlete's performance-enhancement mindset throughout the athlete career transition stages. The cognitive connection between permitted supplementation and prohibited doping draws attention to the potential danger of inadvertently promoting doping for advanced career stages by promoting permissible means early on or as a substitute to doping. In an era where nutritional supplements are aggressively marketed and often endorsed by elite athletes, attention must be given to the influence of habitual use of these supplements for performance enhancement on doping behaviour. Because the decision about doping or avoiding doping is made in a social and environmental context, the roles that society, the media and the athlete entourage play in this process warrant further attention for devising holistic approaches to anti-doping.

Preventing doping use

Athletes may refrain from using doping for normative reasons (i.e., they feel that they are under obligation to comply with the anti-doping rules and stay clean) or because they have a compelling rational reason (e.g., concern for health, personal moral beliefs, lack of need or access) to do so. The problem with the normative anti-doping approach is that the expectation about the behaviour (what the athlete *ought* to do - or not do - about doping) inherently introduces a conflict between the promoted value system for clean sport, where performance enhancement via artificial means is to be avoided, and the intrinsic motivation and normative expectation for maximising one's athletic ability and performance. In anti-doping, it is usually taken for granted that the clear values of the normative approach (i.e., use of doping is bad and refraining from doping is good) are automatically considered in doping decisional situations. This approach has characterised the anti-doping movement for decades and has negated the fact that the individual decision making situation about doping is

constantly influenced by both internal and external factors, including beliefs about the reasons for doping.

Backhouse, Patterson and McKenna [80] noted that the necessary ingredients of an effective preventive anti-doping education are yet to be “(i) discovered, (ii) applied and (iii) evaluated” (p85). Historically, anti-doping education has been characterised by didactic information transfer linked to the Anti-Doping Code compliance and health consequences. Undoubtedly, knowledge is necessary for making informed choices and anti-doping organisations are under obligation to provide information necessary for avoiding both inadvertent doping and deliberate action. However, a sufficient level of anti-doping knowledge only prevents accidental doping (which itself is important) but does not serve to deter motivated and rationalized doping use.

Motivation for using doping, like many other behavioural choices, stems from weighing negative and positive outcomes, including the chance of being detected and the consequences, and such motivation leads to behavioural intention and, in favourable situational contexts, to execution. Thus, motivation is a psychological state that moves a person towards an action. Doping can be viewed as a goal-oriented, rational choice [6] that is underpinned by justifiable reasons [62]. Reasons for doping that are in line with athletes’ motivation will have greater cognitive consistency and stability. In order to be effective, anti-doping interventions and preventive efforts must address doping and anti-doping from the athlete’s perspective. Targeting ethical and moral aspects of doping is unlikely to serve as a strong enough deterrent because moral disengagement [24], along with normalisation and rationalisation [55,56], are not causes of doping but coping strategies for partially resolving the conflict between attitudes towards performance enhancement as the goal and behaviour. For devising anti-doping interventions, it is important to note that cognitions related to ‘not doing something’ are not the opposites of cognitions about ‘doing something’ [81]. Work on reasons for doping and doping avoidance has clearly shown that the predictors of anti-doping

motivation are not the simple opposites of predictors of doping motivation, and vice versa [17,82]. Furthermore, active involvement in anti-doping through building clean sport culture relies on a complimentary - but different - set of values than doping avoidance; and doping avoidance cannot be underpinned by negating the motives for doping. Thus, anti-doping strategies must be clear about the specific end-goal to which measures of effectiveness should be carefully aligned.

Integration of reason-based behavioural change into values-based anti-doping intervention

An anti-doping intervention with high degree of legitimacy must aim for structural change by simultaneously incorporating the stakeholders' needs and considering how alternatives for meeting these needs fits with the opportunities and constraints, as well as values held by the stakeholders. The structural change concept represents a holistic approach which recognises the shortcomings in solely targeting behaviour at the individual level and addresses this by incorporating factors both within and outside the individual's control, offering choices for achieving the desired behaviour and actively creating opportunities for positive decision making. However, structural interventions that are embodied in top-down policies without considering the needs of those affected, limit individual choice and undermine responsibility. Sweat and O'Reilly argue that the best outcomes from structural interventions occur when the voices of those most affected are incorporated into the design, appropriate attention is given to structural change and core values underpinning the interventions are clearly defined and codified [83]. A seamless integration of anti-doping prevention and intervention in today's society and modern sport era calls for a broader interpretation of values-based education. In line with the way in which values-based interventions are defined in public health (also called community-based interventions) [83], values-based anti-doping should comprise of strategies and interventions that promote and strengthen a clean sport culture via embedding core values of sport and human integrity.

However, the performance-related values of athletes must also be considered and their specific needs addressed with tangible solutions and feasible behavioural choices to avoid doping. An anti-doping intervention is likely to yield the best outcomes when targeting structural change at the global level and empowering athletes, though increased self-efficacy, to make the right choice and avoid doping. As self-enhancement, self-direction and achievement are universally valued qualities, emphasising respect for oneself as well as respect for one's own health and body along with values of sport, fair play and the Olympic Motto² and Olympic Creed³, is likely to offer a good avenue for effective anti-doping intervention.

A values-based intervention will seek consensus and conciliation between structural and individual values. For example, there is a need to create an anti-doping culture with strong shared values and to empower athletes with knowledge, skills and alternatives to deal with pressure and vulnerable situations in order to make the right behavioural choices and avoid doping. A values-based intervention based on these core principles is expected to lead to improved legitimacy of anti-doping policies and practices, and result in better voluntary compliance and support. On a practical level, values-based anti-doping considers those affected and targeted for behavioural change (i.e., athletes) as partners in the process. This approach breaks away from finding character flaws in those who dope and, rather, seeks understanding of the proximal and distal factors that could, alone or in synergy, lead to vulnerability to doping. In values-based anti-doping education, athletes are actively involved in finding solutions and are empowered to resist doping. Such an approach can be further enhanced by evident respect for athletes as responsible agents for their own actions and active reinforcement of the positive values each individual holds about him/herself. Evidence suggests that including a self-affirmation exercise to reinforce general values associated with

² *Citius, Altius, Fortius* (Faster, Higher, Stronger)

³ "The most important thing in the Olympic Games is not to win but to take part, just as the most important thing in life is not the triumph but the struggle. The essential thing is not to have conquered but to have fought well."

human kindness before anti-doping messages results in weaker intentions and temptations to dope [84].

Athlete education to prevent doping is enhanced if it is (1) *pragmatic*, (2) *positive*, (3) *preventive*, (4) *proactive*; and (5) developed and delivered in *partnerships* with athletes. Figure 1 captures both the structural and the individual levels of the values-based anti-doping. While promoting the positive values of sport, effective values-based anti-doping simultaneously:

- *Works on establishing and maintaining legitimacy by being relevant, pragmatic and athlete centred.* Positive and collaborative outreach initiatives and educational strategies offer an excellent opportunity for changing the perception of anti-doping in the athletic community and build legitimacy for the anti-doping rules, regulations and enforcement. Instead of portraying anti-doping authorities in policing roles, they can be seen as entities working in partnership with all stakeholders and, more importantly, with athletes for doping free sport.
- *Increases anti-doping literacy for code compliance and for building resilience.* Increased anti-doping literacy not only prevents inadvertent doping but also equips athletes and their entourage with accurate and up-to-date scientific knowledge. This, in turn, enables athletes to make informed decisions about doping and helps them to take responsibility and be in charge of their performance enhancement and sport career progression.
- *Works in partnership with athletes and their entourage to build anti-doping culture.* Following the principles of shared decision making that is central to health care [85], anti-doping interventions should also be developed involving all stakeholders - but most importantly athletes - from intervention mapping and process evaluation, to refinement and implementation. This community-based, co-participatory framework [83,85] would support the generation of context-sensitive behavioural strategies that are practically meaningful and acceptable to athletes as well as being feasible, sustainable and effective.

- *Builds a prevailing anti-doping culture.* Anti-doping is justified on protecting athletes' health, rights to compete in a doping-free sport and the positive values of sport. In search for an alternative monitoring system, researchers have turned to self-regulation and/or peer-monitoring systems. Socio-economic models suggest that the decision whether doping should be used not only depends on the outcome of the cost-benefit analysis but also depends on the micro-culture of the given sport [43]. Athletes are more likely to refrain from doping if fellow athletes condemn such behaviour and doping substances are absent from their repertoire. However, anti-doping should also make effort to minimise the contradiction present in social norms surrounding performance enhancement versus the promoted notions of fair play.
- *Prevents doping from the onset by managing outcome expectations and mould behavioural strategies for performance goal pursuit.* Considering doping primarily as a performance-goal-driven and learned behaviour that develops over time [22], anti-doping intervention must start well before athletes reach the level of performance and competition to qualify for being included in the N/IRTP. One way to achieve that is by managing outcome expectations from doping [22] and offering help with acceptable alternatives for performance goal pursuits [6,86].
- *Is positive, direct and targeted by addressing causes, not symptoms, and be practical and specific to sport/athlete group.* Addressing inadvertent and purposive doping requires different anti-doping strategies. Inadvertent doping can be addressed by increasing anti-doping literacy for Code compliance. Interventions for deliberate doping should be based on a goal-oriented behavioural model and address the transition phases throughout the athletic career, particularly the transition from mastery to performance goals [6]. Acknowledging valid pressure points for doping and offering practical help may also increase the perceived legitimacy of the anti-doping efforts.

- *Considers the national/ethnic cultural context.* Anti-doping is the only drug-prevention effort that is harmonised at the global level. The importance of matching cultural frames to messages targeting human behaviour has been long recognised in international trade and advertisements, but largely absent from anti-doping research. The established relationship between individuals and cultures and culturally relevant mindsets [87] should be taken into account in communicating anti-doping messages.
- *Selects the appropriate mode of delivery.* In addition to the content, the framing of anti-doping messages should also receive attention. The efficacy of persuasive messages is influenced by congruency between message-framing and the individual's motivations and motivational tendencies [88]. Furthermore, self-affirmation has been shown to reduce defensive information processing in an anti-doping context [84], although attention must be given to the interaction between self-affirmation and message framing [89].

The start of a new era: values-based anti-doping education

In response to the changing environment and demand characteristics for current and effective anti-doping, WADA has recently adopted a pragmatic, positive approach to anti-doping with the view to foster anti-doping behaviours and create a strong anti-doping culture. In the fight against doping, values-based anti-doping education represents a new development which focuses on prevention and complements the conventional drug testing and sanctioning model. The core concept of this values-based anti-doping education lies in creating a strong anti-doping culture at the community level as the foundation for a sustainable clean sport culture through promoting the *Spirit of Sport*. Referencing these universal positive values, this comprehensive community-based approach - which encourages athletes to be responsible decision makers and to improve performance in a clean way - offers a multitude of education resources including an (i) interactive eLearning tool for athletes called the Athlete Learning Program about Health and Anti-Doping (ALPHA) which promotes moral reasoning and changes attitudes by providing positive solutions to stay clean; (ii) CoachTrue and the

Coach's Tool Kit to assist coaches - an e-Textbook for universities aiming to raise social awareness about doping in sport; and (iii) a research package for anti-doping organisations (ADOs) to help them evaluate the effectiveness of their education programs as well as measure a host of environmental and individual factors that may influence doping behaviours.

The inherent challenge in preventing doping through fostering a global clean-sport culture across all stakeholders, levels and age groups is how to translate global community-level values-based prevention into specific strategies and activities implemented at the individual level. In addition, addressing motivations for doping avoidance at the community level is necessary, but not sufficient, for effective doping prevention. Cultivating the intrinsic values of sport (Spirit of Sport) leads to positive attitudes toward clean sport and ultimately athletes and stakeholders become more engaged in their own roles and responsibilities, and thus motivated to keep sport drug-free. However, evidence from the relevant doping literature indicates that universally accepted positive values attached to the Spirit of Sport become fragmented when applied in actual decisional situations [61,90]. Therefore, in addition to engendering positive intentions to avoid doping, it is also necessary to equip athletes with simple and pragmatic solutions to help them make desirable decisions in situations where the intrinsic sport values are in conflict with values attached to enhancement, improvement and self-fulfilment.

ALPHA: A preventive intervention that works on multiple levels

Building on the cumulated knowledge through social science research, WADA launched a new interactive educational tool named "The Athlete Learning Program about Health and Anti-Doping (ALPHA)" (see Figure 2). The program consists of eight sessions and features several novel elements, including video testimonials from elite athletes, extensive resources and points of references for many aspects of athletes' lives. The unique aspects of the program are that, for the first time, athletes' needs for performance

enhancement are recognised and the program requires athletes to be actively involved in the education process. The first six sessions of ALPHA follow the traditional approach to anti-doping and address the World Anti-Doping Code requirement for athletes to be educated on the following: Doping Control, Whereabouts, Therapeutic Use Exemptions and Results Management processes, and medical and ethical reasons not to dope. Information provided in sessions 1 to 4 is vital to avoid inadvertent doping via establishing accurate knowledge and raising awareness of the risks associated with negligence. Medical and ethical reasons for avoiding doping justify doping control measures and anti-doping interventions are covered in sessions 5 and 6. Building on the medical and moral foundation, athletes are encouraged to contribute to a clean sport culture that is not conducive to doping. Being equipped with values and knowledge, athletes are expected to act as responsible agents to refrain from doping as well as to avoid inadvertent doping. However, whilst it is desirable that athletes should refrain from doping, the reasons and motivation for doping are still present and thus should be addressed if the doping-free status is to be achieved or maintained. To achieve self-motivated and sustained behavioural change via educational intervention, it is important to address athletes' reasons for doping. The reasons why athletes dope must be identified and then discounted or counteracted. Telling athletes what not to do (i.e., to avoid doping) creates a vacuum which has to be filled with advocating positive and desirable behaviour choices. The general fact is that 'doping increases performance' and can only be counteracted by offering other - acceptable - alternatives [86] for increasing performance. Athletes' reasons for doping are therefore addressed in session 7. Having engendered positive intentions to avoid doping, it is also necessary for athletes to have clear plans for how to deal with specific pressure points for doping, such as injury, threats to an elite athlete status and economic pressures [15,16,18,90]. In session 8, athletes are encouraged to make specific 'if-then' plans (i.e., implementation intentions) [91] for these high-risk situations. For example: "*If* I feel fatigued, *then* I will make sure I get enough rest to let my body to recover (instead of using

doping to keep me going)". Such planning exercises equip athletes with skills to resist pressure points to use doping and promote active involvement in avoiding doping.

With the two new sessions of ALPHA - seven and eight are rooted in a functional view of doping [6] and offer practical help on how to stay clean and how to resist the pressure to dope - ALPHA represents a holistic values-based approach and offers pragmatic and positive alternative to the traditional normative approach to the prevention of doping. Instead of only telling athletes what they cannot do (which can come across as negative and daunting), ALPHA also takes athletes' needs to perform and succeed into consideration, acknowledges the pressure points that may serve as reasons for doping in decisional situations and helps them to understand that a number of options and actions are available to them without doping. In summary, ALPHA addresses the three fundamental aspects of anti-doping depicted in Figure 1: (1) knowledge facilitates Code-compliance and prevents inadvertent doping; (2) ethical and health reasons are intended to form negative attitudes towards doping (and thus affects general motives) which - through impacting on a large number of individuals - help to build a sustainable anti-doping culture within sport; and (3) the recognition of reasons for doping allows anti-doping to counteract these beliefs, offer practical help and encourage athletes to develop plans to avoid doping in a positive and proactive way that is practically meaningful for the athletes. The inclusion of a self-affirmation exercise, which reinforces positive individual characteristics through reflecting on past acts of kindness toward others [92], aims to create openness to anti-doping information and evoke motivation for active involvement in making positive behavioural choices about doping. ALPHA's new approach - which is in line with the guiding principles of the values-based intervention in public health settings - also contributes to legitimacy and helps create acceptance among athletes and their entourage by "making the athletes partners rather than objects in the process" [93].

Evaluation

Assessing the effectiveness of community-wide values-based anti-doping is challenging. The effectiveness of initiatives that directly target individuals, where the main outcome of interest is behaviour change, is typically measured directly by the achieved change in the target behaviour. Although behaviour change is also the ultimate aim behind values-based anti-doping education, the behaviour of interest (doping avoidance) is several layers removed from the intervention target (intrinsic values of sport). Even if reliable data can be gathered on behaviour - a significant challenge itself - it may not be possible to directly link changes to a specific intervention. Community-based anti-doping interventions should ideally incorporate measures beyond doping behaviour and attitudes. Having a close match between the targeted and assessed factors is critically important for demonstrating effectiveness of any specific intervention activity. For example, the effectiveness of modules 1 - 4 in ALPHA could be assessed with changes in knowledge (at individual level) and reduction in inadvertent doping rates (at community level); modules 5 and 6 could be assessed through change in attitudes and increased positive perception of legitimacy whereas modules 7 and 8 seek to strengthen individuals' self-efficacy to avoid doping. Making inferences from observed changes in factors not directly targeted for the effectiveness of specific anti-doping interventions is conceptually questionable because a cause and effect relationship in field settings cannot be demonstrated. Community-based structural interventions are best evaluated via changes in structures and context, possibly through changes in perceived legitimacy of anti-doping among stakeholders and the general public.

Conclusion and perspectives

In order to fully engage athletes and key stakeholders in the process, values-based education must be interpreted in a broad sense. In addition to promoting the intrinsic values of the spirit of sport, individual athletes' performance-related values and needs must be acknowledged and addressed in a constructive, permissible and positive way. These interventions must be theory-based, underpinned by empirical evidence, targeted, relevant

and acceptable to athletes. Anti-doping organisations should avoid the image of 'policing' and reinforce the legitimacy of their actions via building partnerships with all stakeholders and consistently engaging athletes in the process in order to stay tuned into the pressures athletes are under and their needs for practical solutions for avoiding doping. Finally, the key attributes of effective anti-doping (i.e., being pragmatic, positive, preventive, proactive; and developed and delivered in partnerships with athletes) should manifest in all ages, athletic levels and abilities.

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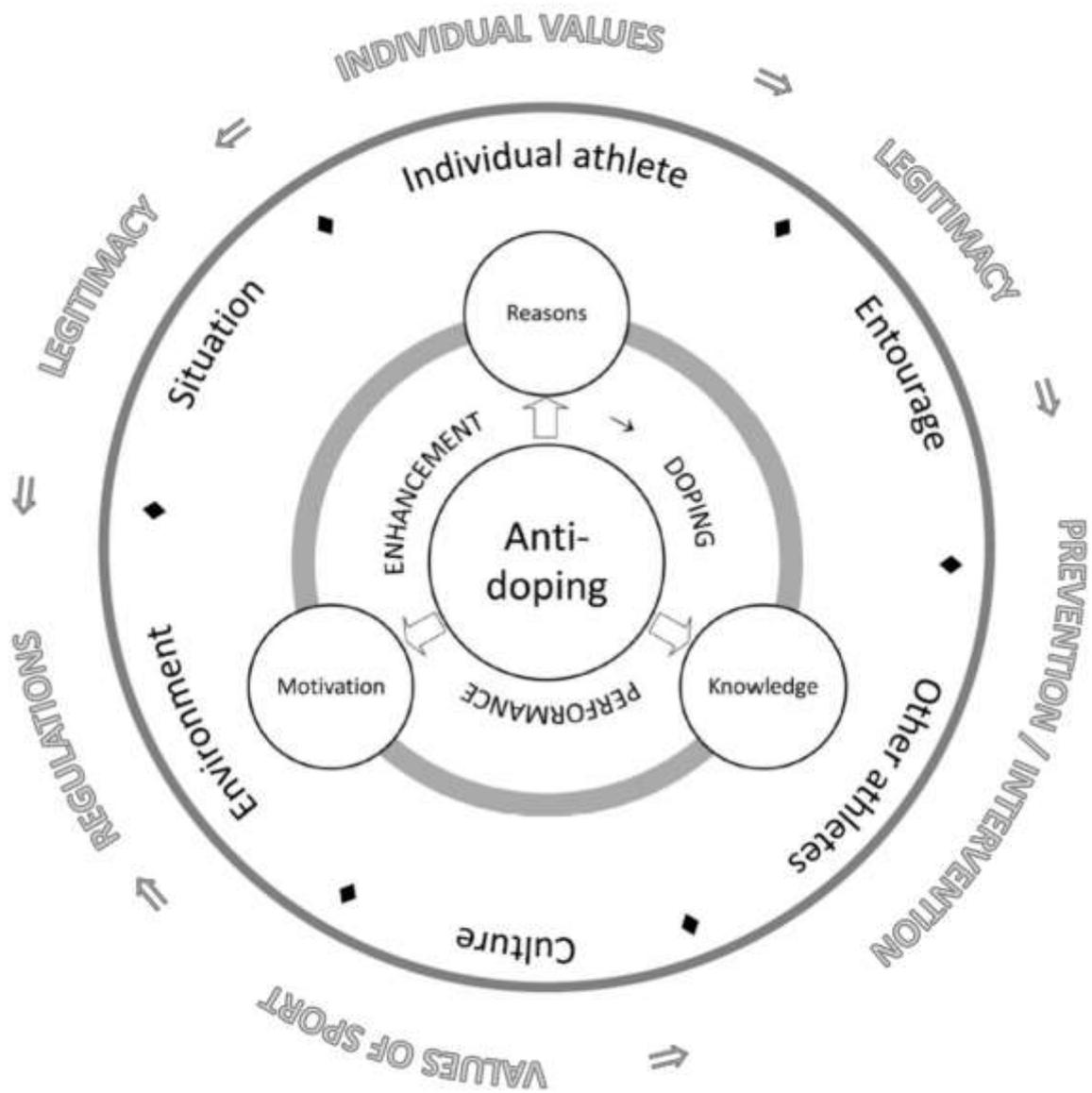


Figure.1. The key components of anti-doping in environmental/situational context and their implications for anti-doping prevention and intervention

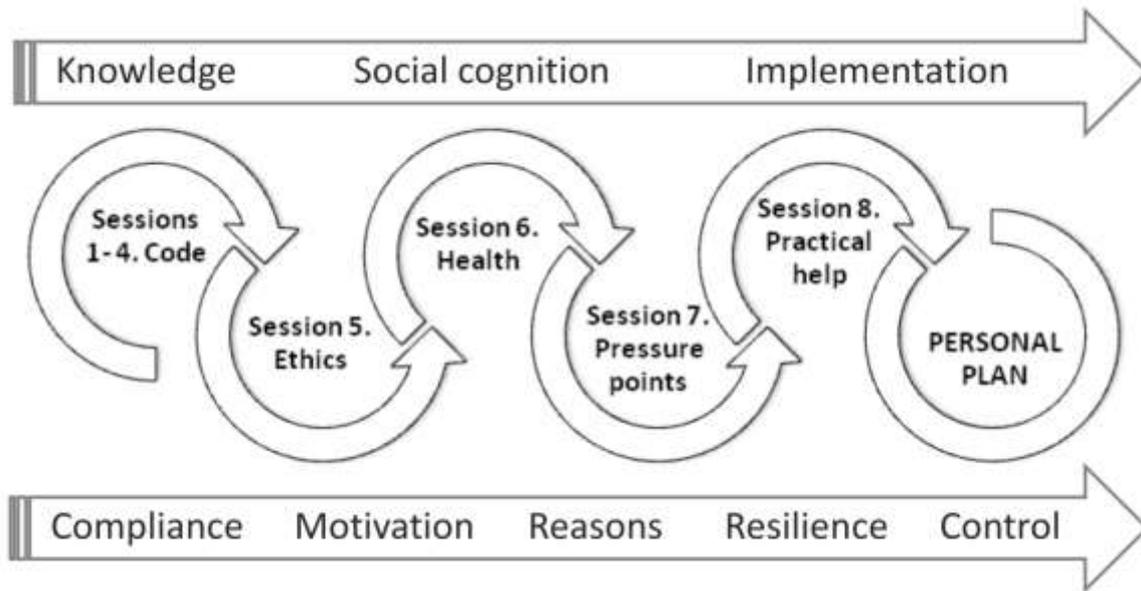


Figure 2. Elements of the Athlete Learning Program about Health and Anti-Doping (ALPHA), mapped onto cognitive factors and practical outcomes.