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Challenges to promoting health for amateur athletes through anti-doping policy

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Abstract

Anti-doping regulations are intended, at least in part, to promote the health of athletes. While most anti-doping efforts target elite and professional competitors, there have been recent moves by sport governing bodies to expand anti-doping testing to include amateur athletes. Drawing on previous critiques of anti-doping policies and illustrating cases, this article outlines five of the challenges to health promotion of applying the current detect and ban model to the amateur level of sport. I argue that the current approach is not effective and, in some ways, may undermine the goal of health promotion at the amateur level. In order to address these challenges, I propose alternative, health-centred strategies that focus on athlete empowerment and choice through critical awareness of a variety of substances, associated risks and rewards, and the role of expertise in decision-making.

Keywords

Anti-doping; health; sport; amateur

Introduction

Anti-doping efforts cite promotion of athlete health as one of the central reasons for regulating substance use among athletes. In the current system, a positive test may be met with a four-year competition ban for a first offence and the potential for disqualification of past results. Anti-doping policies have primarily targeted elite athletes, who are thought to use performance-enhancing substances (PES) to better their chances of winning sporting competitions and prizes. While elite athletes are engaged with the anti-doping system (i.e. routine anti-doping testing, educational training), amateur athletes have been generally left out of anti-doping efforts. However, anti-doping rules apply to athletes of all competitive levels in sports governed by signatories to the World Anti-Doping Agency's (WADA) Code. This includes the large number of adult amateur athletes who compete in mass participation sporting events, such as triathlon, running, and cycling races. Some governing bodies have begun to expand their anti-doping efforts to include more amateur athletes. USA Cycling – the governing body for the sport in the U.S. – announced in the November 2015 that it

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would triple its anti-doping efforts at the amateur level of competition (Fretz, 2015b). This decision, according to USA Cycling CEO Derek Bouchard-Hall, was in response to feedback from members who insisted on addressing doping within the amateur ranks (Fretz, 2015a).

While the extent of doping among any athlete group is uncertain (Dimeo & Taylor, 2013; Lentillon-Kaestner & Ohl, 2011; Pitsch, Emrich, & Klein, 2007), recent research has demonstrated that PES use among amateur athletes does occur (CIRC Report, 2015; Henning & Dimeo, 2015b). As some banned substances may carry health risks, it is reasonable that sports governing bodies would seek strategies to reduce those risks. This is especially true as more amateur athletes are drawn to sports like running and cycling, which have had their own well-publicised cases of elite doping. However, policies and regulations intended for elite athletes may not be appropriate for amateurs. Reasoning and strategies that may be effective at deterring some elites from using banned substances – such as surveillance, testing, and the threat of competition bans – will not necessarily be effective for amateurs. Even the role of expertise or expert advice is different in the amateur context, where institutional expertise (i.e. sports medical professionals, anti-doping organisations) may be less accessible than it is for professional athletes. Amateur athletes may instead rely on lay or community sources of expertise (i.e. fellow runners, online athlete forums, niche sports media) for guidance on what substances or products may improve health or performance (Henning, 2013). The reliability of advice from lay experts can vary considerably, especially with regard to anti-doping policies, banned substances, and implications for health.

As such, anti-doping organisations face a series of challenges when applying policies to amateur athletes. These challenges are similar to, but not the same as, those presented by elites. In this article, I describe five of the challenges of simply expanding current anti-doping enforcement to include amateur athletes, drawing on real world examples to highlight the gaps in such an approach. I argue that the test and ban approach is not useful as a tool for health promotion and propose alternative health-centred strategies that focus on athlete empowerment through critical understanding of the role of various substances and expertise.

Background and literature

Anti-doping principles were articulated before the Second World War (Gleaves, 2011; Gleaves & Llewellyn, 2014) and were followed by the emergence of enforced anti-doping policies by the International Olympic Committee (IOC) and the Council of Europe during the 1960s (Houlihan, 1999). These policies were intended to protect athletes from the risks of “dope” and to preserve the values of amateurism, to which doping was considered anathema (Beamish & Ritchie, 2004; Gleaves & Llewellyn, 2014). The close relationship between anti-doping and amateurism is highlighted by the IOC's prohibition on doping as part of the rule regarding athlete eligibility from 1962 until 1975 (Beamish & Ritchie, 2004; Christiansen, 2010; Gleaves & Llewellyn, 2014). The professional ranks of sports – which were not governed by the IOC – such as cycling had acknowledged, if not welcomed, doping as a norm (Christiansen, 2010; Hoberman, 2005). Over the period when professional athletes

were being allowed into the Olympic Games, the IOC was simultaneously working to prevent doping by athletes (Gleaves & Llewellyn, 2014). The complex history of how and why sport has sought to regulate doping has been well covered in previous research (e.g. Dimeo, 2007; Hunt, 2011). However, the major development that would globalise anti-doping efforts was the creation of WADA in 1999, which was quickly followed by the embrace of its Code by sports governing bodies and governments (Houlihan, 2014). As a result, WADA has standardised which substances are banned, how testing and results are administered, and a uniform set of sanctions (Houlihan, 2004).

Since its creation, the current anti-doping system has primarily targeted elite athletes. It centres on the regular testing of athlete's biological samples – usually urine or blood – for substances prohibited by WADA's annually updated Prohibited List (WADA, 2016). Testing may be done in or out of competition and athletes are responsible for complying with testing requests. National Anti-Doping Organisations (NADOs) collaborate with event organisers and sports governing bodies to determine where and when testing will take place. To test positive or to refuse a test are two of ten types of anti-doping rule violations (WADA, 2015). Beginning in 2015, some rule violations (i.e. use of banned substance, refusal to test) may be met with up to a four-year ban from competition in the case of a first offence (WADA, 2015). In the case an athlete tests positive, she may request to have her “B” sample tested to verify the results of the simultaneously collected “A” sample that initially produced the result. The athlete may also appeal a decision to the Court of Arbitration for Sport (CAS) or one of its regional bodies. Taking a case to the CAS can be a time consuming and expensive endeavour, made more difficult by having the burden of demonstrating innocence left to the athlete and her legal counsel (McNamee & Tarasti, 2010).

A substance or method (referred to here as “substances”) may be banned if it meets two of three criteria: (1) it potentially enhances performance; (2) it potentially harms athlete's health; (3) it violates the “spirit of sport” (WADA, 2015). The inclusion of these criteria have each been critiqued and defended by scholars, with special attention being given to the vague “spirit of sport” (e.g. Ritchie, 2014; McNamee, 2013; Waddington, Christiansen, Gleaves, Hoberman, & Møller, 2013). Critics have noted that as the “spirit of sport” is defined in part by “health” (one of the 11 descriptors), any substance that is deemed unhealthy is already disqualified (Waddington et al., 2013). Substances also only need to *potentially* harm health. This becomes problematic when there is conflicting or a lack of research on a substance, and is compounded by the opaque decision-making processes in which determinations are made (McNamee, 2012). Defenders of current anti-doping efforts posit that the ban on PES is reflective of society's views that it is both potentially harmful and wrong (Strelan & Boeckmann, 2006: p. 2925). However, society's views of PES are not necessarily accurate, and any potential or real risks may have been exaggerated by anti-doping agencies and the media (López, 2013, 2014).

Researchers have also considered the argument that anti-doping promotes health – one of the early and enduring rationales for taking up anti-doping (Dimeo, 2007). Most research to date has considered the challenges and inconsistencies of seeking to promote health through anti-doping. For example, due to the focus on substances, anti-doping policies do nothing to protect athletes from the risks of participating in their sport (König, 1995), including at the

elite level where the sport itself poses a risk (Kayser, Mauron & Miah, 2007; Møller, 2004, 2010). Further, some elite athletes may view doping as a way to remain healthy through the rigours of training and competing (Kayser & Smith, 2008; König, 1995; Lentillon-Kaestner, Hagger, & Hardcastle, 2012). Researchers have also contended that athletes may view PES as a logical extension of engaging in other non-banned forms of enhancement within one's sport culture (Petróczi & Aidman, 2008). Anti-doping policies are also unable to protect against the risks of many common substances, as they allow the use of potentially harmful non-performance enhancing substances (Waddington et al., 2013). There is an additional failure to address other areas of risk, such as needle sharing (Melia, Pipe, & Greenberg, 1996) that may be the result of PES or of injected vitamins.

Anti-doping policies may exacerbate the risks of some PES by driving use underground or leading athletes to use newer, undetectable substances rather than those that are better-understood but more easily detectable (Kayser, Mauron, & Miah, 2007). Waddington (2001, in: Stewart and Smith, 2008) noted that prohibitions also prevent athletes from accessing medical supervision or advice, putting them at higher risk for using higher doses than necessary to achieve a performance effect. Athlete surveillance and testing may also require some loss of privacy, including regarding one's medical or health records (Teetzel & Weaving, 2013; Waddington, 2001).

Recent work on PES use at lower competitive levels of sport has begun to highlight some of the challenges of applying anti-doping to amateur sports. Studies on American cycling have found that there is a wide range of use behaviours that varies by competitive level (Henning & Dimeo, 2015a), including some sanctioned for unintentional ingestion (Cox, 2014). A study of elite amateur cyclists, those nearest to elite status, found that riders saw a parallel between supplement use and non-harmful PES, indicating that the lines between them are not totally obvious (Outram & Stewart, 2015). Similarly, a study of amateur runners demonstrated that athletes are fully engaged in the broader health culture that encourages the use of potentially harmful supplements and legal drugs (Henning, 2013). Together, these studies are beginning to shed some light on the problems with employing the “detect and punish” approach to anti-doping as a way to promote or protect amateur health. In the next section, I identify and discuss five potential challenges to such an approach and offer examples of how policies written with an eye towards elite sport – including professionals – may fail or lead to increased health risks.

Challenges

Strict liability versus intent

The first challenge to using anti-doping policy as a health-promotion tool is the principle of strict liability. Under the WADA Code, athletes are fully responsible for any substance found in their systems regardless of intent or fault (WADA, 2015). At the elite level, strict liability has resulted in athletes receiving bans after accidentally ingesting a banned substance or using a substance (i.e. prescription medication) without intending it to boost performance (Cox, 2014; Henning & Dimeo, 2015b; Pluim, 2008). The strict liability principle prevents WADA from having to demonstrate intent to cheat by the athlete (Koh, Edwards, Freeman, & Zaslowski, 2012). This is especially useful for cases of non-performance enhancing

substance use, including recreational drugs (Henne, Koh, & McDermott, 2013). For elite athletes who may be provided anti-doping education and have access to professional advice on substances, strict liability may make sense as a deterrent or way to increase vigilance. For amateur athletes who do not receive anti-doping education or understand they are obliged to follow anti-doping regulations, it is unlikely that such benefits exist. Indeed, some amateurs will use well-known doping substances for performance enhancement – often related to their competitive standing relative to others of their level or age group (Kisaalita & Robinson, 2014). However, this is unlikely to be the case for many athletes (Henning & Dimeo, 2015b), and applying this standard to amateurs reflects an approach to anti-doping that lacks a clear understanding of the substances amateurs are likely to use or their reasons for doing so.

Athletes of various competitive levels have been shown to regard health as a priority concern when considering banned substances (Kisaalita & Robinson, 2014; Lentillon-Kaestner, Hagger, & Hardcastle, 2012). However, prioritising health and seeking an improved performance are not mutually exclusive. While health concerns may prevent them seeking out well-known PES, it may not prevent them from using legal and available products, such as over-the-counter medications (OTCs) and supplements, for such a boost, believing they are allowable or safer than their illicit counterparts. One such athlete is Jareem Gunter, a former college baseball player who suffered liver failure in 2005 as a result of the bodybuilding supplement Superdrol. Gunter's case draws attention to one of the problems athletes face when seeking to aid their performance and recovery while trying to remain within the rules: tainted or mislabelled supplements. Superdrol contained an unlabelled anabolic steroid he reacted to, causing his liver to shut down functioning. Gunter did recover, although he lost his college scholarship for using a banned substance (Young, 2013).

In Congressional testimony regarding the risks of supplements, Gunter expressed his desire to not violate anti-doping rules, but improve his performance by gaining muscle with a legal supplement he could buy online (Frommer, 2009). Outside of having the resources to have each product tested for purity and to detect any ingredients not listed on the label, athletes have no way of knowing if their supplements are free from banned or potentially harmful products. Anti-doping agencies offer some guidance on which products to avoid with databases and smart phone apps, such as USADA's supplement411.org website. Other groups such as the NSF International offer certifications of supplements that meet manufacturing and supply chain standards that decrease the likelihood of unlabelled substances making their way into a product (NSF, 2016). None of these can fully ensure purity or safety, leaving athletes – especially amateurs – vulnerable to tainted supplements.

Banned non-enhancing and recreational substances

Due to the two out of three criteria for determining which substances are banned, not all substances on the Prohibited List are thought to enhance performance, nor do they all pose clear health risks. Many recreational drugs that are unlikely to aid sports performance are banned, as are some substances that are used medicinally. One particularly complex situation is the recent shift on marijuana consumption – banned by WADA – especially in countries

where recreational or therapeutic use is becoming legalised. For example, Jeff Sperber is an amateur ultra-marathoner over 40 who regularly uses marijuana for its anti-inflammatory and pain reducing benefits, as well as a sleeping aid. A growing number of amateur groups are advocating for marijuana's use, especially in the form of edibles and vaping to offset smoking risks as a "less harmful" medication, recovery, and health tool. Since use of OTC medications such as ibuprofen have been linked to renal damage with repeated or continuous exercise of the kind an endurance athlete may engage in (Küster, Renner, Oppel, Niederweis, & Brune, 2013), marijuana seems to offer a natural alternative without those potential adverse effects.

Marijuana advocates, including running groups, such as Run on Grass, underscore the benefits of using marijuana regularly as a training aid. One common symptom ultra-endurance athletes face is nausea and loss of appetite after hours of running, which marijuana can effectively help athletes overcome (Drier, 2015). Despite its changing status and mounting evidence that marijuana can have numerous positive health benefits (see Hill, 2015), marijuana is still banned by WADA. In localities where marijuana is now legal to use recreationally, athletes are stuck in the position of being within the law yet outside the bounds of anti-doping regulations. For marijuana using athletes, the desire to use a natural training alternative could lead to a positive test. Runners like Sperber would face a ban if they tested positive, despite using a legal substance with medicinal properties that has been shown to have no performance enhancing effects (Waddington et al., 2013).

Inconsistencies of the prohibited list

In its effort to keep doping out of sport, WADA bans a wide range of drugs and substances. Some of these substances do have legitimate use as medications for treating any number of health disorders, including the well-known PES testosterone and EPO (Ramachandra et al., 2012). The therapeutic use exemption (TUE) system is intended to allow athletes to use a banned substance therapeutically if they can demonstrate medical need (WADA, 2015), as a doctor's prescription is not sufficient if an athlete tests positive for a banned substance. However, while it is a reasonable expectation that athletes would follow the recommendations of medical professionals – especially for medication and treatment issues – there is no guarantee a prescribed medication in violation of anti-doping rules will be exempted by anti-doping agencies.

Such was the case for Jeff Hammond, an amateur masters cyclist who uses exogenous testosterone under medical supervision to treat hypogonadism (Beaudin, 2013). Hammond was denied when he sought a TUE for the drug, effectively being given a choice between taking the medication or risk a positive doping test (Beaudin, 2013). Despite the facts that he was not seeking performance enhancement and was following his doctor's recommendations, Hammond would have been considered a doper. Sport and health become mutually exclusive when athletes are asked to ignore medical advice in deference to anti-doping. In this way, anti-doping actually works against the best interests of athletes' health.

In 2015, the United States Anti-Doping Agency (USADA) announced a new category of TUE specifically for recreational athletes. This new category is a start to preventing situations like Hammond's, but it also has drawbacks. First, successful amateurs – anyone

who has ever placed in their age group or won even a small prize – are not covered under the eligibility criteria (USADA, 2015). Second, it requires amateurs to make private medical data available for scrutiny by a panel unfamiliar with each individual's full health history. In cases where information such as a positive HIV status requires the use of banned substances (Burke & Symons, 2015), athletes may opt out of the sport altogether rather than risk their confidential records becoming public in any way. Third, the new category of TUE still puts the burden of disclosure on the athlete and requires them to trust the system – a problem even for elites (Overbye & Wagner, 2013). Amateurs who do not receive anti-doping education may be ignorant to the breadth of banned substances, and ignorant of the prescribed medications or legal supplements in which they may be found. Given the inconsistencies in substances included on the Prohibited List (Henne, Koh, & McDermott, 2013), athletes may not intuit the need to seek an exemption for a common product. Finally, there is no guarantee that the new recreational TUE system will allow those using banned substances therapeutically will actually receive exemptions. While the category itself suggests a greater willingness to allow a necessary medication to be used or new standards on which to make the decision, it is unclear that these will actually result in more exemptions for amateur athletes.

In contrast to the problem of what is banned, the Prohibited List does allow for some common and legal substances that pose a genuine risk to athlete health through adverse effects or a high potential for abuse. WADA does permit the use of medications to treat hypothyroidism, which has been anecdotally linked to abuse by athletes for enhancement purposes (Tandon, Bowers, & Fedoruk, 2015). Also allowed are sleeping pills, used by athletes to aid rest and recovery and to ensure sleep before competitions. Sleeping pills are easy to acquire and misuse, have many potential negative health effects, and can cause dependence (Kripke, 2006). These risks were great enough that the Australian Olympic Committee banned its Olympic team athletes from using sleeping pills (AAP, 2015). The Committee deemed the potential negative effects too high, despite their being allowed under WADA regulations and the possibility that they would improve the performance of athletes using them.

Athletes who have no formal education around banned substances (or the risks of supplements and OTCs) could be easily confused by anti-doping policies. Even if other NADOs follow USADA's lead and similarly institute recreational TUES, athletes may not know when it is necessary to apply for one. The logic of the Prohibited List may be difficult to decipher when prescription and medically necessary drugs can be banned while widely available substances that are likely to be dangerous or misused are allowed. In either case, it is possible that athlete health may actually be harmed under the current approach.

“Expert” knowledge—As noted above, amateur athletes are generally not provided anti-doping education or information on common risky supplements and OTCs that are legal, available, and often marketed to athletes. Athletes of various levels rely on information from those they deem experts – peers at their local training facilities, coaches, trainers, sales persons at supplement stores, or information gleaned from websites and other Internet-based sources (Erickson, McKenna, & Backhouse, 2015; Johnson, Butryn, & Masucci, 2013). While some of these individuals may be qualified or knowledgeable, much advice is not

based on any real understanding of the risks of certain substances or products. Media and marketing targeted to athletes commonly engage in “claimsmaking” for the supplement industry (Bailey, 2013). Supplements are especially of interest, as athletes use these products for enhancement purposes (Baume, Hellemans, & Saugy, 2007) while independent lab analyses of supplements regularly demonstrate a huge proportion to be contaminated with banned – and potentially risky – substances (Abbate et al., 2015; Cohen, Travis, & Venhuis, 2013; Venhuis, Keizers, Riel, & Kaste, 2014).

While not involving an athlete, the recent case of an Australian man seeking to lose weight with a popular diet supplement illustrates this problem. Matthew Whitby reportedly suffered acute liver failure after taking two diet supplements he ordered online (Scott, Branley, & Bembridge, 2016). The package carried no warning that liver failure was a potential side effect, although the substance medical experts think may have been at fault – green tea extract – is a popular product and routinely touted on “health” television shows (Scott, Branley, & Bembridge, 2016). As adult amateur athletes often refer to losing weight or getting fit as reasons for participating (Running USA, 2013), this case is cause for concern when athletes rely on “experts” with varying knowledge of health and risks.

In the extreme case, misinformation can result in the death of an athlete. Claire Squires was 28 years old and running the London Marathon to raise money for a charity when she collapsed and died after taking the energy (or pre-workout) supplement Jack3D, which contained the banned stimulant DMAA (Hamilton, 2013). The medical examiner in the case linked her death directly to DMAA. Squires used Jack3D during the race on recommendation of members of the gym where she worked out (Hamilton, 2013). Jack3D has also been linked to the deaths of at least two American military personnel (Kime, 2015). Although DMAA is banned by WADA, there was little indication that the product was unsafe because no warning appeared on the label and the product was widely available in stores and on the Internet. It is unlikely that as an age group runner Squires would have been subject to any anti-doping education informing her of the risks of available products or banned substances. She would have had little reason to check for anti-doping alerts on the product, as it is also unlikely she would have ever been subject to an anti-doping test. Further, it remains unclear if the threat of a competition ban would impact decision-making of an amateur taking part in sport for reasons other than winning or as part of an exercise regimen.

Unintended promotion—Warnings or reports about a product's risks or attributing performance to a substance may actually make products containing those substances more attractive to enhancement-seeking amateurs. Products deemed “potent” or “powerful” due to the presence of banned substances can become more popular, despite any health warnings. For example, supplement sales for products containing androstenedione or “Andro” reportedly increased 1000% following reports that MLB player Mark McGwire used it during his home run race with Sammy Sosa in 1998 (Assael & Keating, 2005). This was despite a ban on steroids and the accompanying warnings of side effects from using androgenic substances (Tokish, Kocher, & Hawkins, 2004).

Recently, a similar effect occurred as a result of tennis star Maria Sharapova's admission of using the banned substance Meldonium (Birnbaum, 2013). Meldonium is not approved in countries such as the U.S. or the United Kingdom, but widely available as an OTC medication in Russia and other Eastern European countries. In the month following Sharapova's admission, sales of the drug were reported to be on track to double in Russia (Birnbaum, 2013). As with Andro, Meldonium appears to have become a highly sought-after enhancement following its association with a high-profile athlete in spite of its banned status in sport. That this jump in sales occurred in a different cultural context from the Andro effect in the U.S. demonstrates that this phenomenon is not limited to one region, country, or sport.

This unintended promotional effect has been observed with non-doping substances. Research with illicit drug users in British Columbia, Canada, found that language in overdose warnings describing adulterated substances could actually draw users to the dealer or batch in question, as they conflate the risk with a better quality drug (Soukup-Baljak et al., 2015). Similarly, athletes who want to remain within sport rule limits but still get a boost will seek out products they believe produce the best performance results, including those that may present more risk.

This may also be the case for substances that have had their effects exaggerated or overblown. Grave effects of PES, such as erythropoietin (EPO), have likely been exaggerated by anti-doping organisations in the media (López, 2011, 2014). Some banned substances are even heralded as lifestyle therapies (Hoberman, 2005), including such “dangerous” substances as human growth hormone, without evidence of serious health risks (López, 2013). The conflicting information about these substances may work to undermine anti-doping organisations’ own intentions. As more individuals, athletes and non-athletes, use these banned substances without negative health repercussions, athletes may begin to question the reliability of anti-doping warnings. This could be particularly dangerous if athletes, having used some prohibited substances for anti-ageing or medical purposes, begin to ignore warnings where the preponderance of evidence supports the point. By relying on a punitive approach and fear-based messaging, anti-doping organisations run the risk of undermining their own credibility and goals of promoting health.

Conclusion

Under the current approach, it is difficult to see how anti-doping is an effective way to promote amateur health. In expanding anti-doping policies to amateur athletes, anti-doping organisations and sport governing bodies face a set of challenges stemming from a one-size-fits-all punitive approach. Amateur athletes may use banned substances for a wide variety of reasons, including as prescribed by a doctor, for recreational purposes, unknowingly in another food or product, or as part of a wellness regimen. Some amateurs may also seek to knowingly use a prohibited substance for performance enhancement. That the first set of reasons for using a banned substance is qualitatively different from the latter one is clear. However, under current rules, all amateurs would be considered dopers and subject to competition bans. Expanding testing to amateurs may catch few who are intentionally doping for performance or are unknowingly imperilling health, but will likely catch more who test positive for reasons not related to enhancement. Worryingly, anti-doping risks

turning amateur sport into a credibility competition, wherein athletes must distinguish credible sources of information regarding their health, even pitting anti-doping organisations against athletes' physicians.

Given the evidence that amateur athletes are indeed using banned substances, ignoring the issue will not suffice if the goal is truly health promotion. However, there are some steps NADOs and governing bodies could take to better address it in the amateur context. First, leave determinations of therapeutic use to athletes' doctors. Rather than requiring amateur athletes to obtain TUEs, NADOs could accept a valid prescription from a licenced doctor as a proof of therapeutic use. This would prevent athletes from having to turn over private medical records to governing bodies, and prevent situations where athletes must choose between medical necessity and sport participation. Second, NADOs should lift the ban on non-enhancing recreational drugs for amateurs. As the legal and medical landscapes of drugs such as marijuana change, there is no sport-related reason for maintaining these rules and they are coming into more frequent conflict with local laws and medical knowledge. The use of other non-enhancing drugs (i.e. heroin) should be regarded as medical issues, not sport issues. Third, NADOs should shift their focus from a broad surveillance-based approach to one that engages athletes on a more local level. Building on relationships with event organisers, teams, and clubs, NADOs should work to instil a critical awareness of what counts as expertise or as expert sources of information when athletes consider medicine or supplement use. Athlete health would be better served by working to empower athletes to ask more questions about products and substances they are or are considering using, and by providing them with direction on where to get trustworthy information to make an informed choice. Finally, if health is truly a value in sport, NADOs and governing bodies could require athletes to present medical approval for their participation in a sporting event. This would encourage athletes to discuss their athletic participation and lifestyles with medical professionals.

While no system or programme will ever function perfectly or ensure health for all participants, the current system is rife with problems. Although this article has outlined some of the challenges that accompany an expansion of anti-doping to include amateur athletes, more are likely to emerge as these policies are enforced. However, this juncture also presents an opportunity for NADOs and sport-governing bodies to address some of these challenges and begin making adjustments to benefit all athletes. Doing so will likely work to strengthen the health promotion claims underpinning anti-doping regulations by making them more relevant to the amateur context. It may also bolster the credibility of NADOs and governing bodies by acknowledging the differing circumstances in which substance use occurs.

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