system, he acknowledges that there were violations and failures. He says these should be admitted and corrected in coordination with WADA guidelines.

The goal of the Olympic movement is to promote international friendship and peace. The politicization of doping in sports runs counter to this goal.

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Drug Testing High School Athletes and Fitness Trainers Katinka van de Ven and Kyle Mulrooney

The recreational use of steroids and other image enhancing drugs (SIEDs) to enhance image and/or performance has been firmly recognized as a public health concern (McVeigh, et al. 2016). In a meta-analysis of 187 studies exploring the recreational use of SIEDs, an overall global lifetime prevalence of 3.3 percent, and a lifetime prevalence of 2.3 percent for high school students who use SIEDs, was found (Sagoe, et al. 2014). In addition, looking at fitness training—related groups, such as bodybuilders, we see much higher numbers, with prevalence rates in gyms as high as almost half of all members. While most countries focus on prevention and education to deal with this growing issue, a handful have taken the drastic step of introducing dope-testing programs in gyms (only EU countries) and high schools (mainly the United States).

In 2003, Belgium (in particular in Flanders) became the first country to introduce doping controls in gyms. In Belgium, recreational trainers, like elite athletes, are not allowed to use substances banned by the World Anti-Doping Agency's code and are also subject to the same sanctions. If a person tests positive and if it is a first offence, the national anti-doping agency may ban that person for two years from every gym and any form of organized sport. The person may also receive a fine of, on average, 1,000–2,000 euros (\$1,060–2,120), although fines can be as high as 25,000 euros (\$26,600). In addition, the police are able to conduct a home search based on a positive test, and a trainer may therefore face both a doping and a drug investigation for the same offence. Other EU countries that have adopted dope-testing programs in gyms include Denmark, Norway, and Sweden.

With regard to testing in high schools, in 2006, New Jersey became the first state in the United States to require steroid testing for high school athletes. While three states (Florida, Illinois, and Texas) have followed suit, the only other state that currently also has a statewide steroid-testing program is Illinois. As a result of the program, any person who tests positive or who refuses to provide a testing sample in these two states will be banned from participating in competitions for a oneyear period and any individual honor earned while in violation will be forfeited. In addition, the student must undergo counseling, or successfully complete an educational program, and must produce a negative test result before being allowed to compete again. However, this is not just a U.S. phenomenon; since 2014, high school students in South Africa are likewise tested for performance-enhancing drugs and face similar sanctions for positive tests.

There are several reasons why these steroid-testing schemes have been implemented in gyms and high schools: firstly, because the use of SIEDs can potentially lead to adverse health effects, in particular in young people; secondly, in the case of high school athletes, SIED use can give users an unfair

advantage over their competition and is therefore considered "cheating." This argument in principle does not apply for fitness trainers as most train for recreational and not competitive purposes. Therefore, to mitigate health risks and clamp down on "cheating," it is argued that testing for steroids helps deter use among high school students and fitness trainers. Other scholars have critically discussed anti-doping in the name of health and a "level playing field" (e.g., Mauron, et al. 2007). Here, we briefly consider how effective these controls are in deterring SIED use.

Aside from privacy and human rights issues, such as undressing in front of a doping officer and the disproportionate targeting of certain groups (so-called muscle profiling), research shows that doping tests in gyms may be ineffective at preventing or reducing doping substance use (Van de Ven 2016). Rather, there are possible unintended outcomes that may increase health risks. For instance, users may opt to train in basements, stop training altogether, displace to other countries with no controls, or undertake more dangerous doping practices to avoid a positive test. Indeed, drug testing in high schools appears to have a limited effect in preventing students from trying doping substances (Bahrke 2015). For example, one study found that a high school drug-testing program known as SATURN not only had a limited effect on prevention and reduction but also increased risk factors for future substance abuse (Backhouse, et al. 2014).

While doping tests appear to have little deterrent effect, they are also very expensive. For these reasons—both the ineffectiveness and the costs—Texas and Florida dropped their steroid-testing programs. For example, without even accounting for procedural costs such as transportation and labor, it is estimated that one test in the United States costs at least \$100. Furthermore, the per-positive-result cost of the testing program is estimated to be \$250,000. In the case of Texas, during the eight years the program was implemented, the state's initial six-million-dollar investment paid for 19,000 tests, which resulted

in only nine positive results (less than 0.05 percent). The legitimacy of drug-testing programs in high schools and gyms and its supposed deterrent effects are therefore highly questionable.

Nevertheless, it has become clear that (young) people are increasingly using SIEDs outside of elite sports—an issue that needs to be addressed. As such, attention should be paid to methods that have proved to be successful in addressing the use of SIEDs within the general population, such as education and harm reduction. In relation to high school athletes, research has shown that anti-doping education programs, such as the Athletes Training and Learning to Avoid Steroids program, are effective in preventing doping substance use, particularly when combined with practical strength training (Backhouse, et al. 2014). However, additional measures need to be put in place for recreational users who currently are unwilling or unable to halt their SIED consumption in an effort to minimize harms. For example, in several countries, individuals who inject steroids are a growing population in needle and syringe programs and in some clinics even represent the biggest client group.

Dope-testing of high school athletes and fitness trainers is invasive and expensive and has limited effects and therefore seems to be a fruitless investment. Efforts to curb SIED use need to be led by the evidence surrounding "what works," which currently suggests promising outcomes for prevention programs combined with practical strength training and initiatives that seek to reduce harms associated with SIED use, including empowering users to make informed decisions through education.

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