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Are doping substances imported into Switzerland mainly to increase athletic performance?

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ABSTRACT

Background: Doping substances are those thought to increase athletic performance, enhance image, or overcome the effects of ageing. This study aims to evaluate the profiles of people and the reasons for importing substances appearing on the World Anti-Doping Agency Prohibited List into Switzerland, which is illegal under Swiss law.
Methods: A survey was conducted among people intending to illegally import doping substances in 2013 and 2014. A questionnaire with 29 items was developed, aiming to collect importers' socio-demographic information, data on their sports practices, import characteristics, import motivations, product quality awareness and knowledge of the Swiss Sports Law. In total, 491 questionnaires were sent to doping product importers, with 147 (30%) responding.
Results: Gender analysis showed a higher percentage of importation of doping products resulted by men (81%) than by women (18%). Swiss doping product importers were physically active people, but not competing athletes. Men preferentially imported anabolic androgenic steroids and supplements. They admitted that the motivation to import the products was to increase muscle size and improve athletic performance. Women mainly imported products with the intention of losing weight. Apart from supplements, which were imported for performance enhancing reasons, doping products were imported into Switzerland principally for image enhancing reasons.
Conclusion: In Switzerland, doping substance misuse is not limited to regulated sport, it is present in the general population and therefore may become a public health issue.

1. Introduction

1.1. Misuse of doping substances

The use of substances to enhance athletic performance, commonly known as "doping", has been regulated to protect both athlete health and the perceived integrity of competition. The World Anti-Doping Agency (WADA) publishes and annually updates a list of substances and methods which athletes are prohibited from using (World Anti-Doping Agency, 2016). Evidence of the presence of a prohibited substance in an athletes' body, its use or attempted use, its possession or trafficking is classified as an anti-doping rule violation and the athlete at risk of being sanctioned under to the World Anti-Doping Code (World Anti-Doping Agency, 2015). However, the use of doping substances is not limited to licensed athletes and they may be misused by recreational athletes or people without any active link to organised sport, particularly for image enhancing or anti-ageing reasons (e.g. Bojsen-Moller & Christiansen, 2010; Calfee & Fadale, 2006; de Havenon & Ansari, 2014; Kanayama & Pope, 2012; Petróczi, Dodge, Backhouse, & Adesanwo, 2014). Doping substances used for this purpose are mostly prescription drugs. Their inappropriate use or misuse has therefore the potential to become a public health issue that demands attention from policymakers and health care professionals. In addition to WADA, a private law foundation responsible for monitoring regulated sport, national- and intergovernmental organizations have also recognized the problem of doping substance misuse outside of regulated sport and are trying to control the general availability of such drugs through national laws or conventions (Schweizerische Eidgenossenschaft, 2012; UNESCO, 2005).

The prevalence of doping detected in regulated sport by different studies varies enormously, ranging from 0% up to 47%

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depending on the sample, study design and substances involved (Blouin & Goldfield, 1995; Brennan, Kanayama, Hudson, & Pope, 2011; de Hon, Kuipers, & van Bottenburg, 2015; Harmer, 2010; Kanayama, Hudson, & Pope, 2010; Lentillon-Kaestner & Ohl, 2011; Sjoqvist, Garle, & Rane, 2008; Stubbe, Chorus, Frank, de Hon, & van der Heijden, 2014). Outside of regulated sport, different studies exist investigating prevalence or motivation in specific settings e.g. fitness centres (e.g. Stubbe et al., 2014), among adolescents (e.g. Bélanger, Ohl, Berchtold, Lentillon-Kaestner, & Suris, 2010) or in prisons (e.g. Klotz, Petersson, Hoffman, & Thiblin, 2010). Data on doping misuse in the general population also exists, but are mostly focused only on AAS misuse (e.g. Sagoe, Molde, Andreassen, Torsheim, & Pallesen, 2014; Sjoqvist et al., 2008). For example, Sagoe et al. (2014) estimated the global lifetime prevalence for anabolic androgenic steroid use at 3%. In Switzerland, unlike other drug-related public health issues, such as heroin (1%), cocaine (4%) or cannabis (32%) (Gmel, Kuendig, Notari, & Gmel, 2015), no prevalence data on doping misuse for the general population is available. Assuming the prevalence of AAS in Switzerland is similar to Sagoe's global estimation, then it implies that this is a comparable level to cocaine misuse and therefore warrants public health attention. Besides the data with AAS, no study was found investigating the general populations' prevalence or motivation to use different prohibited doping substances.

The reasons for misuse of doping substances outside of sport vary across demographic categories, such as gender (Matich, 2007; Sagoe et al., 2014), age (Anti Doping Denmark, Dopingautoriteit, STAD, Instytut Sportu, & CyADA, 2012; Pope, Kanayama et al., 2014), profession (Donati, 2007; Pope, Kanayama et al., 2014) or participation in leisure activity (Striegel et al., 2006). The trend of misusing doping substances for image enhancement originated over 30 years ago (Kanayama et al., 2010) following an increasing interest in male muscularity, with androgen anabolic steroids (AAS) becoming a popular way to attain the socially evolving conception of "perfect" male body composition. This trend has expanded well beyond AAS, to include an increasingly diverse range of doping substances used in pursuit of evolving norms around both male and female physical aesthetics. This can be summarized as a muscular body for men, a slim silhouette for women and the appearance of a young looking body for both. For example, dehydroepiandrosterone (DHEA), a steroid prohormone, is widely used for anti-ageing purposes and is considered as a "fountain of youth" hormone by some (Rutkowski, Sowa, Rutkowska-Talipska, Kuryliszyn-Moskal, & Rutkowski, 2014; Samaras, Papadopoulou, Samaras, & Ongaro, 2014). Since the 1990s, human Growth Hormones (hGH) has been rumoured to have anti-ageing properties and is now widely used to reverse the decrease of hGH levels with age (Liu et al., 2007; Samaras et al., 2014). Another prohibited peptide hormone in sport is human chorionic gonadotropin (hCG). Outside of sport, hCG is used as a diet complement to lose body weight. It is advertised to mobilize and redistribute stored fat and suppress appetite (Cunningham, 2010; Yen & Ewald, 2012). The beta-2 adrenergic agonist clenbuterol, is another example of a doping substance used to reduce body weight. In addition to its anabolic activities, it increases lipolysis and can therefore be abused to increase lean muscle mass and reduce body fat (Yen & Ewald, 2012).

1.2. Swiss law on encouraging sports and physical activity

In October 2012, Switzerland adapted legislation to fulfil obligations under the UNESCO Convention against Doping in Sports (UNESCO, 2005) to limit the general availability of doping substances in Switzerland. By restricting these substances, it aims to protect both athletes and the general population from the consequences of doping misuse. Since October 2012, the revised Swiss Law on Encouraging Sports and Physical Activity (Sports Law) specifies that importation of doping substances is classified as a criminal act irrespective of whether the person importing the substances is a licensed athlete (Schweizerische Eidgenossenschaft, 2012).

As in other countries, for example Scandinavian countries, Australia or Germany, the Swiss Sports Law calls for a close cooperation between public authorities and the national anti-doping agency (Antidoping Switzerland Foundation, ADCH). This legislation has driven formal co-operation between Swiss customs authorities and the ADCH, including mutual information exchange, the seizure of post suspected of containing doping-related substances, and the forwarding of such post to the ADCH for further investigation, analysis and, if warranted, destruction (Weber, Kamber, Lentillon-Kaestner, Krug, & Thevis, 2015).

1.3. Aim of the study

Cooperation between customs authorities and the ADCH may offer new avenues to explore both the prevalence and motivation of doping. In a previous study, the authors analysed the extent of doping seizures at the Swiss border (Weber et al., 2015). They presented data describing the most frequently imported doping substances entering Switzerland, where the seized products came from and the intended destinations. However, no focus was put on the importers profiles or their motivations to import doping substances. Therefore, the authors would like to build on that work and extend the study by evaluating, by means of a questionnaire, selected doping importers sporting and social characteristics, importers' motivation to order these substances and their contact and handling with the product suppliers. Even if the self-reported questionnaire is a research tool with some limitations in anti-doping studies (see limitation section), the authors estimated that it was the best way to reach the aim of this study, because of its easy application, low cost and anonymity.

2. Methods

2.1. Procedure

This quantitative study is part of a PhD project. Permission to conduct this study was obtained from an ethics committee of the German Sport University Cologne.

Doping products seized by the Swiss customs authorities were forwarded to the ADCH according to protocols described elsewhere (Weber et al., 2015). A questionnaire was sent to the doping product importers by mail. They were informed that the responses would be treated anonymously and confidentially and would not have legal consequences. The reply-paid postal questionnaire was sent to the importers in February 2015 by a survey researcher. A reminder system was used to improve the response rate, with a reminder sent to non-respondents eight weeks after the initial approach. To protect anonymity, envelopes were numbered and matched against addresses rather than return responses.

2.2. Sample

During 2013 and 2014, 610 individuals located in Switzerland illegally imported doping products (Weber et al., 2015). Importers whose parcel was released due to medical reasons (n = 38) and importers from the Italian region of Switzerland (n = 21), due to language reasons, were excluded from the study sample. The questionnaire was therefore sent to 551 different doping product importers (446 males, 100 females and 5 of unknown gender, 372 questionnaires in German and 179 in French). Out of the 551 sent questionnaires, 47 were returned because of an invalid address. Of the remaining 504 questionnaires, 84 were completed and returned properly and 15 questionnaires were not correctly filled out. After