

## **Preventing, producing, or reducing harm?**

### **Fitness doping risk and enabling environments**

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### **Abstract**

Policies and approaches addressing image and performance enhancing drug (IPED) use in the gym and fitness context, also known as fitness doping, vary widely by country. Fitness doping, and those who participate in it, may be met with individual-level strategies ranging from criminal penalties to harm reduction efforts. This research compares two distinct approaches to fitness doping: Sweden's prevention-based approach and Scotland's harm reduction approach. Drawing on the risk environment framework (Rhodes, 2002, 2009), we show how national-level policies around possession, sale, and use that represent differing approaches to IPEDs structure how use is understood and experienced using two case studies: Sweden's national PRODIS program and a steroid clinic in Glasgow, Scotland. The results highlight how individuals and communities respond to environmental constraints around IPEDs. Restrictive anti-doping environments produce a range of risks for people who use these substances and may prevent harm reduction. Less restrictive environments may allow for more harm reducing work, but the remaining prohibitions may still produce social, economic, and policy risks. We argue that formal harm reduction focused on the health and needs of those who use IPEDs offers an environment in which safer use is supported and promoted.

*Keywords: Fitness doping, IPEDs, policy, harm reduction, risk environment*

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### **Fitness doping risk and enabling environments**

Whereas anti-doping in the sports context, with some exceptions, is governed by the World Anti-Doping Agency (WADA, 2019), there is no existing global organizing body or consistent strategy across countries to carry out corresponding measures for doping outside the sphere of organized sports, such as in the context of gyms and fitness centers. As many who engage in image and performance enhancing drug (IPED) use have no membership with a governing body comparable to a sports governing body, countries are left to determine their own policies. Indeed, national laws and approaches to doping outside of sport can vary widely by country (Andreasson & Henning, 2019). Some countries have made doping substances – especially steroids – illegal to buy or sell, while others have criminalized possession and/or use in ways similar to illicit recreational drugs (European Commission, 2014; FAIR, 2019). There are also countries where it is possible to buy and use IPEDs without risk of police interference. In general though, and regardless if we center on the sports or the fitness context, anti-doping responses have largely come to focus on individuals, whether through testing and sanctioning or education and prevention. This focus at the individual and psychological levels has tended to background or even ignore some of the broader environmental factors that work to shape doping behaviors. In this article we use the term “fitness doping” as well as IPED use or steroid use. Though doping is more closely associated with the competitive sport context, we use it here as a way to specify the context of use and to reflect the policy responses to IPED use that are often referred to broadly as anti-doping.

The risk and reward of doping in both sports and fitness contexts is to some extent structured by one’s environment, which is underpinned by policies related to substance use. As above, these policies may come from WADA or National Anti-Doping Organizations (NADOs), and sports federations that are tasked with cooperating to implement WADA policies for educating, testing, and sanctioning sports athletes. While most testing and sanctioning occurs within the sport context, anti-doping efforts are expanding into recreational and gym/fitness settings and some countries have begun testing among these groups (see Christiansen, 2011; FAIR, 2019). Most anti-doping approaches are prohibitive and punitive – they seek to stop the trade or use of IPEDs and punish

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the individuals involved. We argue that these individually focused systems may structure the environment so that those who use IPEDs are at risk of harm beyond the physical risks related to use itself. Gym and fitness culture, then, can be understood as a risk environment similar to that found in sport (Henning et al., 2020).

This article explores two different strategies for addressing fitness doping – prevention and harm reduction – and the tension between the two. We first analyze a national prevention-based anti-doping approach found in Sweden, and how this strategy can contribute to a fitness doping risk environment. We then contrast that with a minimally criminalized policy approach around IPEDs in the UK, where there are no criminal laws against personal possession or use, that allows for the open implementation of harm reduction strategies and programs without legal barriers to either service engagement or delivery. This is exemplified by a clinic in Glasgow, Scotland. The intention is to understand how these two strategies can work to respectively produce risk and enable safer use. We argue risk producing environments and approaches can be mutually limited by harm reduction responses within the fitness doping community, while further blurring the lines between promoting health and producing harm. We aim to address the following research questions:

RQ1: How do national-level policies and approaches to IPEDs structure the way use is understood/experienced in Sweden and the UK from the perspective of their IPED communities?

RQ2: How do various IPED-related harm reduction strategies enable fitness doping?

## **Literature**

### ***Fitness doping***

IPED use has become a global phenomenon with use increasing over the past several decades (Antonopoulos & Hall, 2016; Bates & McVeigh, 2016). Though often associated with sports, IPED use is also part of bodybuilding among men (Christiansen, 2018; Liokaftos, 2019) and women (McGrath & Chananie-Hill, 2009), amateur and recreational athletes (FAIR, 2020; Frenger et al., 2016; Henning & Dimeo, 2015), and more recently among a diverse demography of gym goers (Andreasson & Johansson, 2020) including women (Havnes et al., 2020). IPEDs are part of a larger group of human enhancement drugs that encompass a broad range of legal and illegal enhancing

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substances for a variety of enhancements across six categories: muscle building (e.g. anabolic androgenic steroids or AAS), weight loss (e.g. 2,4-Dinitrophenol or DNP), image or cosmetic enhancement (e.g. Melanotan), sexual enhancement (e.g. Viagra), mood enhancement (e.g. antidepressants), and cognitive enhancement (e.g. nootropics) (McVeigh et al, 2012). The prevalence of fitness doping is unclear, though studies seem to indicate use varies widely between countries. Relatively low rates of fitness doping (4-6% of the gym population) have been reported in countries such as the US and Sweden (Johnston et al., 2018; Pope et al., 2014; Swedish National Institute of Public Health, 2011), while rates of up to 11.6% of young, mostly male, gym goers in Cyprus have been reported (Kartakoullis et al. 2008). A meta-analysis of steroid use estimated lifetime global prevalence rates at 6.4% for men and 1.6% for women (Sagoe et al., 2014). As such, fitness doping has been recognized as a public health issue (McVeigh & Begley, 2017).

Beyond prevalence work, much of the academic research on fitness doping has aimed to understand individual motivations for use, mostly among young men. Use has been often linked to the goal of achieving a masculine body and constructing a matching identity (Christiansen, 2020; Klein, 1993; Zahnow et al., 2018). However, as newer groups of people using IPEDs emerge the range of motivations and practices grows. Models and typologies of people who use IPEDs and motivations for use have tried to capture some of this diversity. Christiansen, Vinther, and Liokaftos (2017) developed an ideal type framework that outlines four distinct types of men who use AAS: the Expert type, the Well-Being type, the Athlete type, and the YOLO (you only live once) type. Each of these types has a specific orientation to IPEDs, reason for use, and use behaviors. A cluster analysis of men who use AAS in England and Wales found motivations largely aligned with these four types and suggested this information could be disseminated and used for harm reduction purposes (Zahnow et al., 2018). Though typologies offer insights that can be used for such practical purposes, they cannot fully account for the environmental conditions that inform and structure use behaviors.

### ***Fitness doping risk and enabling environments***

Work on recreational substance use has considered the ways that many harms of drug use are actually shaped by environmental factors (Rhodes, 2002, 2009). By understanding risk environments – the physical or social spaces where a range of factors converge to increase the

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chances of drug harms (Rhodes, 2002, p.91) – we can analyze how use behaviors are structured by the anti-doping environment. This brings social, cultural, economic, and policy factors into consideration when looking at doping use patterns and behaviors. Laws prohibiting fitness doping, for example, produce physical risks (i.e. safe supply of substances; dosing knowledge), social risks (i.e. stigmatization as a ‘doper’ or criminal; gendered risks), economic risks (i.e. fines; criminal records visible to potential employers), and policy risks (i.e. criminalization of doping; access to testing services or use equipment). As anti-doping policies in the fitness context can vary widely by country, the specific risks of use change depending on the national/local environment. Previous research on people using steroids in the UK found that a set of perspectives and practices among this group contributed to the production of risk environments (Kimergård & McVeigh, 2014).

Hegemonic notions of anti-doping derived from sports, however, still permeate these local environments. In some cases, sports anti-doping functioned as the basis for national policies and approaches to IPEDs (Andreasson & Henning, 2019; Henning & Dimeo, 2018; Møller, 2009). The overlaps and tensions between sports anti-doping and national laws can, at times, impact the risks local people who use IPEDs face (Henning & Dimeo, 2018). Some national anti-doping policies criminalizing use – mostly rooted in the sports context – are in direct conflict with more liberal laws for recreational or addictive substances. Spain, for example, has criminalized doping while liberalizing its broader approach to drugs for personal use. Other countries have given authority to NADOs for enforcing both sports and fitness doping policies, meaning gym goers are subject to anti-doping rules in ways similar to elite athletes (Andreasson & Henning, 2019; Andreasson & Johansson, 2020; Christiansen, 2011). These linked policies are further intertwined at the level of enforcement, leading to overlaps in response from athletes and gym goers.

Harm reduction is a human rights-based approach to reducing the harms caused by drug use, laws, and policies (HRI, 2020). Organized programs may include needle and syringe exchange programs, substance testing, or supervised use. Some of these programs may now be institutionalized, but harm reduction has its origins at the grassroots level, often operating illegally and without central organization (McLean, 2011). Due to the politicization of drug use, prohibitive laws, and high levels of stigma surrounding use, people who use themselves intervened to help ameliorate some of the risks of use. While these interventions are mostly associated with

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recreational drugs, organized harm reduction strategies have also been introduced for IPEDs (Iverson et al., 2016; McVeigh et al., 2016).

There are similarities to the grassroots harm reduction approach in the fitness doping context. Determining which substances to use, sourcing a safe supply of drugs, ensuring proper dosing and cycling, learning hygienic use practices, and managing side effects are needs that people new to use have to address. Some may rely on lay expertise from peers, trainers, or managers at local gyms (Harvey et al., 2020; Kimergård & McVeigh, 2014; Rowe, et al., 2017) – which also may become the site for substance supply – though the level of effective harm reduction in these settings is unclear and may vary (Salinas et al., 2019). These issues can be made even more complex in environments where doping is prohibited and individuals cannot use openly or seek advice from other people who use in gym or fitness settings (Andreasson & Johansson, 2016). Engaging in some form of DIY harm-reduction is often necessary for people who use IPEDs and online forums offer platforms for anonymously sharing information about substances, especially steroids (Harvey et al., 2019; Andreasson & Johansson, 2016).

The goal of understanding risk environments is the production of enabling environments. Enabling environments are those that enable (safer) use, often through the introduction and uptake of harm reduction strategies (Rhodes, 2002, 2009). Harm reduction works to reduce the risks across the same physical, social, economic, and policy factors. However, it is not sufficient to create an enabling environment by simply introducing harm reducing measures, nor should these two types of environments be considered separately. There is a dynamic tension between risk and enabling environments, where changes in one are often met with changes in the other. An enabling environment relies on the using population to buy into the strategies and for other stakeholders to support the risk reduction strategies. For example, services teaching safer injection practices must also be willing to ensure clients' confidentiality and not report them to enforcement agencies if such services are to effectively reduce harm. Rather than understanding risk and enabling environments separately, then, researchers should consider them as simultaneously co-existing and co-producing one another (Duff, 2010). What they produce, in turn, shapes behaviors and practices of people who engage in doping (Henning et al., 2020). This becomes clearer when we consider two competing strategies for addressing doping: prevention and harm reduction.

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## **Research Design**

This article is part of a larger ‘umbrella’ project in which different aspects of fitness doping, health, and doping response have been analyzed. In this larger project data has mainly been gathered using qualitative measures, such as interviews, observations, and informal talks with, for example, people who use IPEDs, gym-owners, and professionals operating in the context of prevention and/or harm reduction, to mention a few (see Andreasson & Johansson, 2020; Henning & Andreasson, 2019). For this particular article, however, we have focused on narratives gathered from individuals with in-depth knowledge and experience of prevention and harm reduction work as either individuals who use IPEDs who have encountered or engaged such services or as a service practitioner. We are thus primarily interested in what those who can be said to represent the perspectives of those who experience (as user or service worker) the effects of these strategies, or what receivers of different anti-doping strategies have to say about selected strategies and what they may bring in terms of risk and enabling environments. We have chosen to compare two cases that illustrate differing responses to fitness doping: the prevention work being conducted in Sweden and the harm reduction efforts in Glasgow, Scotland. Fully aware of the occurrences of additional services – and critiques of these – in Sweden and the UK (see for example Arver et al., 2013; Harvey et al., 2019), we argue that the two selected cases/examples of fitness doping responses in different national settings can, firstly, allow rich and nuanced portraits of rare/illustrative cases on a largely under researched subject (Yin, 2014). Secondly, it also makes it possible to contrast different responses and strategies. In doing so we can gain new insights concerning how they produce enabling and risk environments.

### ***Case 1: Prevention in Sweden***

Our *first case* concerns an anti-doping prevention strategy found in Sweden, which includes police work as well as Sweden’s national doping prevention program, PRODIS (Prevention of Doping in Sweden). As part of this case study we draw on narratives of individuals who use IPEDs regarding how they have experienced and understood the Swedish approach to fitness doping and its consequences in relation to environmental risk factors. The interview material gathered here is quite extensive, emanating from interviews with 31 people who use IPEDs (24 men, seven women) conducted by one of the authors. Participants were recruited through a mixture of advertisements

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on organization websites, community engagement, and, most importantly, respondent-driven sampling deriving from initial participants (see Salganik & Heckathorn, 2004). We have not, however, analyzed all this data in detail here. Rather, following our case study approach, we have focused on a few voices and experiences specific to the Swedish anti-doping environment (methods and data emanating from this broader project have been thoroughly described in Andreasson & Johansson 2020). Specifically, the current article includes the voices and experiences of three men who use steroids. These were selected based on their insights and experiences with use as related the research aims and questions presented above.

### ***Case 2: Steroid clinic in Glasgow, Scotland***

As an anti-doping strategy, prevention seems like a valid and worthwhile approach. If use is prevented, so are the risks and harms that may accompany it. However, prevention strategies have been shown to have mixed effectiveness among groups likely to use IPEDs (see Bates et al., 2019), including youth (Goldberg et al., 2003). Prevention policies and strategies can, for example, get in the way of support provision for these individuals, as the focus is always on the ‘clean’ or ‘natural’ athlete or gym goer. This then precludes other seemingly incompatible strategies, such as harm reduction, that may do more to address the realities of the fitness doping landscape. Therefore, our *second case* focuses on harm reduction using the case of a drop-in IPED clinic in Glasgow, Scotland. This clinic is part of a larger network of harm reduction programs and outreach for injection drug use across the UK, including syringe and needle exchange programs (NSP), aimed at reducing risks associated with injected substances. However, it is important to note that the Glasgow clinic is atypical in its level and range of service provision compared with other NSP services across the UK. The director for this clinic for the last ten years is John Campbell. The clinic serves a diverse population with a range of ages and backgrounds. They have both male and female clients, though Campbell estimates they see approximately ten men per one woman. One of the core services this clinic provide is support for injecting IPEDs, especially steroids. Campbell’s harm reduction work, knowledge, and background are well-known in Scotland and the UK more generally. He agreed to participate in this broader research fully identified and ethical approval for this was granted (see note on institutional approval). Campbell’s interview was recorded and transcribed verbatim. The selected quotes were sent to him for his review and approval, which he gave.

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### ***Case selection***

The narratives within each case studies are not totally comparable. Whereas the first case focuses on the experiences of individuals who use IPEDs, the second centers the perspective of a harm reduction professional. We argue however that both cases represent the perspectives of the IPED communities and the diverse ways in which different responses are understood and experienced within each national framework and response strategy. Furthermore, the cases were selected first and foremost for their theoretical and analytical relevance in relation to the research questions laid out above. They were selected to reflect the diversity and features of each policy approach and the community response. The contribution thus lies not so much in the individual narratives, as in how the narratives illustrate divergent approaches, and an analysis of how (national-level) policies and approaches to IPEDs structure use and how this enable fitness doping environments. The quotations we present have thus been selected for their ability to capture both subjective experiences from the perspectives of the IPED communities and policy regimes in which doping practices are constituted through prevention and harm-reduction incentives in Sweden and Scotland, respectively (see Bourdieu and Wacquant, 1992; Sparkes & Smith, 2007).

In analysis and discussion of our cases we have chosen an empirically driven approach. This was done with the intent to create a sense of depth in our understanding of how diverse anti-doping approaches impact those who it is intended to reach, thus from the perspectives of the IPED community. We have however considered the cases as already *theoretically impregnated* (Gomm, Hammersley & Foster, 2000; Tavory & Timmermans, 2009) from the start, and have consequently had no desire to separate our cases from the theoretical ideas and analytical focus on risk and enabling environments.<sup>1</sup>

## **Analysis and Discussion**

### ***Zero-tolerance: The Swedish case and harm production***

Sweden's gym and fitness industry is large, with 44% of the population holding a gym membership, the highest proportion of any country in Europe (Westin, 2018). Estimates put the

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<sup>1</sup> Formal ethical approval for this research was secured from the Regional Ethical Review Board of Linköping University (Ref. No. 46-09) and the General University Ethics Panel at the University of Stirling (No. 1006).

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rate of doping among gym goers at about 4% (Westin, 2018). Fitness doping in Sweden was initially recognized as a social problem in the late 1980s by the Public Health Agency (Statens Folkhälsoinstitut, 2011). Following a 1989 investigation into steroids, hGH, testosterone, and other muscle building substances that found widespread use, the Swedish Doping Act was passed in 1991 and took effect in 1992 to address doping as a public health issue. This framing enabled the public health authority to take a holistic approach to anti-doping. One effort has brought anti-doping education and prevention efforts into the school curriculum, as high school students receive mandatory education on making healthy choices, including avoiding the use of drugs and IPEDs (Skolverket, 2011).

In Sweden, the Swedish Sports Confederation is the NADO responsible for leading on delivering information and organizing educational events around anti-doping. It also collaborates with other organizations specializing in various strategies. The prevention specialists Prevention of Doping in Sweden (PRODIS) is a cooperative group of fitness centers, municipalities, and other stakeholders seeking a doping-free gym environment. PRODIS aims to create a set of shared values around doping among all individuals in the gym and fitness context in a way similar as the welfare state (Andreasson & Henning, 2019).

PRODIS uses a community-based approach adapted from a model developed for alcohol use. They work with the Swedish Sports Confederation, advocates, and local police to establish local anti-doping policies for gyms. They employ various educational components aimed at gym managers and fitness trainers, which can ultimately lead to a diploma for promoting doping-free environments and link graduate gyms with one another across municipalities. PRODIS also works with specialist organizations to develop interventions for gym goers and fitness centers themselves. One of these is a program called 100% Pure Hard Training (100PHT), which aims to prevent doping by highlighting the physical achievements possible to reach strictly through clean training. The anti-doping message is simple: just train. From the program's website:

*100% Pure Hard training* aims to reduce the use and availability of anabolic androgenic steroids and other doping preparations among exercising at training facilities. This is done by training facilities developing long-term preventive work against doping in collaboration with

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relevant players in the area, especially between the training industry, the police, the National Sports Federation District Sports Association (DF), the County Administrative Board, the municipality and the county council (PRODIS, n.d.).

PRODIS notes that in a follow-up survey of users of gyms that worked with the 100PHT method between 2010 and 2014, the proportion of men reporting using steroids at any time (lifetime) dropped by more than half, from 4% to 1.7% (Rehman Wigstad, 2015). However, it is difficult to determine whether it is PRODIS's work that has contributed to these changes or whether they could be attributed to other reasons (see also Bates et al. 2017). Further, this survey only included members of gyms that have adopted 100PHT, so neither members of gyms that have not joined nor individuals who train in private or home facilities were included. An evaluation of 100PHT comparing members at both gyms that employ the program and those that do not found no significant difference in steroid use between groups over the previous 12 months (Westin, 2018).

While the Swedish Doping Act allowed for a national package of anti-doping and prevention work, it deviated from public health approaches to substance use in a significant way. This law not only criminalized possession and trade of muscle-building drugs, but went a step further to criminalize use – the presence of a substance in the body (Christiansen, 2009; Pederson, 2010). This approach aimed at preventing and stopping the use of IPEDs through combined education (school curriculum and PRODIS) and deterrence (criminal penalties) strategies. Though as the 4% rate of doping among gym members indicates, fitness doping clearly has not stopped in Sweden despite the nation-wide and multi-level approach. Policing fitness centers and strict measures to prevent the use of steroids and other IPEDs can, however, reinforce social stigma for those that choose to engage in the practice (Thualagant & Pfister, 2012). One internationally competitive Swedish bodybuilder, Ian, was detained by police officers at his gym. While civil officers guarded him, his bags were searched. Though he only had legal supplements – amino acids and pre-workout energy products – these were confiscated. Further, as the supplements were found in an opened container, the police said that this constituted probable cause, and while he was held another unit searched his home. Ian felt targeted as this was done in view of members of his gym. He reflected on how the perceptions of steroid use are linked with criminality and also violence:

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I only had a small maintenance-dose at home at the moment. I was not doing a heavy course at the time. No, but it's illegal but they probably expected to find an AK47 and hand grenades and some really heavy stuff. That would be their hope. (Ian)

Public perceptions or assumptions about steroid use do not necessarily match the experiences of people who use IPEDs themselves (Andrews et al., 2005; Christiansen, 2020; Dunn et al., 2014). Some even try to challenge the narratives of people who engage in fitness doping as risky drug abusers. Fully aware that IPED use is criminalized, Ian tried to make a clear distinction between what he thinks the police expect and what his actual involvement in IPED use and other criminal activities actually looks like. Another person who uses IPEDs, Matt, who is a bodybuilding coach and also sells steroids to athletes, was arrested and held by police for steroid violations in a similar way to Ian. After he was released, however, a police officer asked him to come back into their station to talk with him about the logbooks documenting his steroid use they had found. Though suspicious, he agreed to speak with them:

So, I went and she met me in reception, the officer. Welcome, she said, with coffee and everything. Then there were three other people there. One from the anti-doping hotline was there and she had all these copies from my journals or logbooks. She asked, 'where did you get this knowledge from? We want to know who you are and why you know all this.' I told them I've been reading and using for some 20 years, that's how. How it really works. Then there was this little man sitting there, also from the doping hotline, and he was pissed off. How could I think this and that. 'You show a distorted picture of how it works,' I said. And he replied, 'yes, but this is a driveway to heavy narcotics.' 'No, it's not,' I said. In what country? Where? I told him that there are some 40 countries in the world where you can buy them at the pharmacy. They don't have problems with steroids concerning this, but in Sweden we do? (Matt)

Although the initial reason, as understood by Matt, was to meet and have an open discussion about perspectives and practices of use, the discussion only enabled mutual understanding to a limited extent. The idea that steroid use will lead to other forms of illicit and recreational drug use echoes gateway hypotheses of substance use. This posits that low levels of even legal substance use (i.e.

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alcohol; sports supplements) leads to use of heavier and more dangerous drugs (i.e. cocaine; steroids). While there is evidence that steroid use is associated with other forms of substance use, no clear causal relationship in either direction has been established (c.f. Dodge & Hoagland, 2011; Gårevik & Rane, 2010; Kanayama et al., 2018; Sagoe et al, 2015). However, the doping hotline worker's insistence that Matt and his clients are likely to become illicit drug users seems to reflect the view that all forms of drug use are necessarily unsafe, will lead to further substance use, and that stopping and preventing steroid use is the way to prevent further social harms. As a result, such views may act as a barrier to seeking professional support for people using steroids. This is consistent with previous research findings that the lack of knowledge and/or views of steroids among service professionals, including medical service providers, may be a barrier to people who use steroids seeking support (Chandler & McVeigh, 2014; Dunn et al., 2016; Pope et al., 2004). Another person who uses steroids and has been a dedicated gym goer for 15 years, Olof, observed that steroids continue to be heavily criminalized relative to other drugs that seem to carry greater risks of mortality:

I read this state public inquiry, State public report, yes, from 2008, I think. I read it and I don't like it. There is so much missing. It's not correct, it's very pro increased penalties and it's not reasonable in relation to other forms of drug use. Narcotics are really producing much more strain on society and the body. Narcotics make people lose their jobs and everything. You can OD [overdose]. To my knowledge, people rarely OD on steroids and die in that sense. (Olof)

Unsurprisingly, one result of heavy criminalization and enforcement in combination with social stigmatization is that use is pushed further underground and people who use IPEDs have to use riskier avenues to obtain their drugs. About the preventative and zero-tolerance approach, Ian observed:

I think it is really stupid, the way they work on it today. It's like lifting up the rug and sweeping it further in. It's not going to disappear. People will use it [steroids]. But what has happened is that it gets more organized and now you have to go to HA [Hells Angels] to get it. It becomes heavier, and heavier [more criminalized] people or networks dealing with it. (Ian)

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Rather than being supplied by other like-minded fitness enthusiasts, those who use IPEDs are effectively cut off from local suppliers. Olof noted this disconnect:

The more they increase the punishment, the more it gets connected with heavy criminality. It's the same if you want to buy steroids and the dealer asks if you want to have some coke (cocaine) too, if you are up to both things. I mean wouldn't it be better to go to a guy that is into diet supplements, for example? What has happened is that it gets disconnected from training and health. It increases the risks. (Olof)

The links between IPED supply and criminal networks may be the result of use needing to be done in secret due to the risks of discovery (Fincoeur et al., 2014). This works to reduce supply from local sources, who may have also acted as a source of harm reduction, wishing to avoid legal trouble. As Ian and Olof described, this creates a new set of risks from interacting with already criminalized suppliers and networks. It also removes a possible source of expertise for reducing negative physical effects. This then loops back to reinforce the perceived need for criminal penalties, as people who use IPEDs are then understood to engage with criminals (Fincoeur et al., 2014).

Sweden's approach is meant to protect public health by preventing, punishing, and treating IPED use. However, a comprehensive zero tolerance approach leaves little space for harm reduction, and the gap between zero tolerance and use in spite of it works to produce new risks to people who use IPEDs. In response, many turn to online communities for support and advice on safer use – environments that enable fitness doping (see Andreasson & Johansson, 2016; Dunn et al., 2017; Henning & Andreasson, 2019; Smith & Stewart, 2012; Sverkersson et al., 2020). Strict and widescale anti-doping messaging contributes to people who use IPEDs becoming marginalized and connected to recreational drugs and addiction (c.f. Monaghan, 2001). People who use IPEDs may face social stigma and economic penalties if their use is discovered or suspected (Andreasson & Henning, 2019). As people who currently or who would potentially use IPEDs are met with intolerance, many are left to begin and continue use alone and without support for reducing risks

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and minimizing harms from IPED use. Here, the line between health (public) and harm (individual) blurs.

***Tolerance: risk and harm in the UK***

Contrary to Sweden, only the supply and sale of steroids is illegal in the UK. Steroids are illegal to sell outside of medical prescription, but purchase and possession for personal use is legal, as is importing or exporting if done in person (i.e. not by post) (UK Government, n.d.). There is no similar comprehensive anti-doping approach in the UK comparable to Sweden's, as anti-doping work is targeted at organized (elite) sports athletes through UK Anti-Doping. The Crime Survey for England and Wales suggested a steroid prevalence rate of .9%, though this is thought to be a low estimate based on the limits of what it captures (ONS, 2015). Studies of UK NSP clients showed a dramatic growth in service uptake by those using steroids between 1995 and 2015, accounting for more than 54% of clients in some regions by 2015 (McVeigh & Begley, 2017).

One IPED clinic in Glasgow, Scotland, is run by John Campbell. The policy context allows John's clinic to offer a range of harm reduction services and perform outreach to people who use IPEDs. Because possession and use of steroids are legal in the UK, John is able to work directly with sellers to direct clients into his clinic. He explained:

It's an anonymous, confidential clinic so we don't work with people's names. You can just pop down and see us. We have a very good relationship with most of the steroid dealers in Glasgow. We give them our business cards, so when they have someone new that buys an IPED off them, they'll give him a card and say "if you get down to clinic, John'll give you needles and he'll show you how to inject." So for them that's actually good cause they don't have to stand in the gym or supplement shop and show people how to inject. And they don't have to order injecting equipment either...The benefit for us is we can then engage with people at a very, very early stage.

This early intervention is important for ensuring people who use steroids have support to minimize the risks of injecting as well as those from the drugs themselves, especially as individuals who use steroids have been found to be reluctant to reveal use to or seek support from medical doctors

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(Pope et al., 2004). Research has found a range of risk behaviors among people using AAS and highlighted the need for service providers to have syringe exchange and safer injecting information available (Zahnow et al., 2018). However, research, including from elsewhere in the UK, has also found that harm reduction services may not address the full range of substance use among users of steroids (Salinas et al., 2019) and that they need to be better tailored to the experiences and lifestyles of those who use steroids (Harvey et al., 2019). John's observation that, in Glasgow, they are able to get clients in at an early stage has been found elsewhere in the UK. A survey of people who use IPEDs found that the age of initiation to injected steroids was the same as first accessing NSPs, meaning safer injection practices and clean equipment are probably used from the start, though while suggested this has not been proven (Begley et al., 2017).

In 2012, about two years after the Glasgow clinic opened, the UK changed the law that had allowed steroids to be imported through the postal service. What resulted was a mix of both risk production and opportunities for harm reduction. John described one almost immediate risk producing effect of this change for his clients:

So at the start of the clinic, a lot of clients we worked with would import pharmaceutical products, pharmaceutical steroids mainly. So there was consistency in product and there was obviously good quality control within that. But there were other benefits as well, mainly that they were dosed at a much lower level...You didn't see the more obscure veterinarian type substances because pharmacies weren't producing Trenbolone or anything...So it tended to be testosterone type products at a sensible dose. When they started to tighten up the regulations and made it illegal to import steroids through the mail system even for personal use, then I think it was a bit of a golden handshake to the underground labs as they started producing more underground products and they started competing with each other. So we started seeing higher concentrations...So I don't think it was the smartest move, to be honest.

The new criminal policy unintentionally worked to shut off the supply of safer, lower dose drugs and created a new market for unlicensed labs to fill. Often playing on the notion of more being better, these labs began producing very high dose steroids that then altered the expectations of buyers, even those inexperienced at use. However, these higher doses also present more risk of

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unwanted and harmful side effects. Harm reduction services responded to these and other risks of steroid use with new services:

A lot of stuff we do is safer injecting, you know kind of real time demonstrations, if you like. But what is central to running the clinic are blood tests. So we run a very comprehensive set of bloods post-cycle...the blood tests are so powerful, so powerful. You know for encouraging people to stop using altogether, or to encourage them to take a longer period of time off, or to change the drugs they're gonna use on the next cycle.

John found that the introduction of blood tests provided a tool that allowed them to influence clients' behaviors. These enabled him to have discussions around 'less is more' approaches, encouraging lower doses that would lead to similar muscular development as higher doses but with fewer negative effects and risks. By clearly indicating the physiological effects the drugs are having, John is able to counsel clients away from riskier patterns of use and, at times, to stop completely. Though they do no overt prevention work, some preventative measures are part of the overall harm reduction approach of the clinic. It is important to note here that services such as blood testing and monitoring are rather atypical – as is John's knowledge and advice – as many services accessed by those using IPEDs across the UK offer a much narrower range of services and advice (i.e. NSPs that offer only sterile injection equipment). Further, while John's anecdotal evidence posits this type of service is beneficial, there are no independent evaluations of such services' ability to reduce risk or alter client behavior. Steroid use behavior is complex and interventions must take multiple factors into account to be effective. This was highlighted by a socioecological framework by Bates et al. (2019) that took external factors and men's steroid use motivations into account, in effort to inform interventions among this group.

Though many in the IPED community detach their use from that of recreational drug users – an understanding shared by Swedish people who use IPEDs though not within Swedish public discourse on IPEDs (Andreasson & Johansson, 2020; Mullen et al., 2020) – research has found that those who use IPEDs may still stigmatized as drug users (see Harvey et al, 2020; Zahnnow et al., 2017), including in other parts of the UK (Hanley Santos & Coomber, 2017). However, John

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has observed how people who use IPEDs may still be stigmatized for the method of use, even leading some to avoid injecting:

There's a real stigma surrounding using steroids, particularly if it's injected. But we know that people will have to pluck up the courage to go into a pharmacy to ask for needles. That's the benefit of the clinic, to know that judgement isn't really there. Stigma can come from different sources. So if I was a semi-professional rugby player using steroids, I'd be viewed as a cheat. But you wouldn't be viewed as a cheat if you were a bodybuilder...Injecting carries the biggest stigma so that's maybe why we see more young people using oral steroids.

This highlights the power of anti-doping narratives in shaping how IPEDs and people who use IPEDs are viewed across contexts and countries. Though normalized in some fitness sub-cultures and even allowed under UK law, people who use IPEDs still understand their use is not broadly socially accepted and can change across contexts. Fear of judgement may work in ways similar to fear of criminal penalties to prevent individuals from accessing resources that can reduce harm. Clinics and clinicians like John operating with a non-judgmental approach to use are able to counteract some of the environmental risks of use. They are able to intervene because the focus of that clinic is on accepting use and enabling safer practices. One drawback to this approach may be the lack of clear opportunities for prevention work ahead of initiation, though as above, there are elements of prevention within the service.

## **Conclusion**

Considering two different use environments – zero-tolerance prevention in Sweden and harm reduction in the UK – there are clear ways that each approach structures use behaviors and impacts the experiences of those using IPEDs. Sweden's fully criminalized approach includes multiple levels of engagement and enforcement, including schools, sports organizations, fitness center managers, and police. This approach has driven much use underground in order for people using IPEDs to avoid detection. This has led to linking fitness doping with criminality and violence, as well as stigmatization of muscular bodies and bodybuilding sub-culture. Though there is strong prevention work, use still occurs and there are few local resources available for individuals to access in order to reduce potential harms from use. Although it is possible to get information from

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the anti-doping hotline, for example, there are few, if any, formal ways to find practical support in the process of, for example, injecting steroids. In these ways, prohibition has actually contributed to producing risks for people who use IPEDs. As described above, they may be arrested or forced to engage with criminal networks in order to secure a supply that may or may not be safe. Additionally, these individuals and their needs are at risk of being ignored, potentially leading to further harms stemming from unsafe use.

Conversely, the UK's harm reduction approach has led to a different environment that has allowed the Glasgow clinic to operate as described. Because use is legal, harm reduction services are available for people who use IPEDs to access. Here their use is accepted and enabled, albeit with better information about substances and doses, bloodwork to indicate negative health effects, and access to clean injecting equipment. There is no interaction with police in these clinics or by many who simply possess or use IPEDs, reducing the risk of becoming involved in the criminal justice system or suffering economic or social penalties. As noted previously, the Glasgow clinic offers a broader range of services and support than other services for IPED use in the UK, but this case does demonstrate what is possible within a policy context that allows – and supports – services to be oriented around harm reduction. The aspects of fitness doping that are criminalized, however, produce similar risks to those in Sweden. Sale and purchase of IPEDs is illegal, which produces social, economic, and policy risks for both sellers and buyers. Importing through the postal service was criminalized, which cut off the supply of high-quality substances from European producers. As noted above, this had the effect of local, unregulated labs producing increasingly powerful products that are more likely to lead to negative physical effects.

The outcomes within and between these differing contexts and approaches highlights how individuals and communities respond to environmental constraints around IPEDs. Restrictive anti-doping environments produce a range of risks for people who use these substances and may prevent harm reduction, which people who use IPEDs may then respond to by engaging in DIY harm reduction via for example online spaces. Less restrictive environments may allow for more harm reducing work, but the remaining prohibitions may still produce social, economic, and policy risks. People who use IPEDs in both cases may respond by going to a third environment – the online world – where discussions can be almost completely oriented around reducing harm and

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enabling use. These sites can also be used for the sale and purchase of both legal and illegal substance (Antonopoulos & Hall, 2016). In some ways, these online communities have developed in response to strict laws, prohibitions, and stigma around IPEDs. Here, members can learn about, discuss, and share their own experience with IPEDs in a low risk (of detection) way due to the anonymous nature of many online forums. However, the offline use of these substances is no less risky than use in any other local context and these online forums may contribute to normalizing risky use practices (see Andreasson & Johansson, 2016). The substances and their use still carry physical risks and the social, economic, and policy risks of the local environment still apply.

The tensions between risk and enabling factors work in a kind of push-pull manner, a change in one often prompting a response in the other. They mutually limit and progress one another. Policies targeted at individuals, such as criminalizing sale, purchase, possession, and/or use, have had clear unintended effects at the environmental level and resulted in risks for people who use IPEDs beyond those stemming from use itself. This anti-doping risk environment has become formative for IPED practices in ways that are likely in direct opposition to what was intended. However, we can see how the introduction of harm reduction strategies can take various forms depending on what is allowed in the local setting. Without access to formal harm reduction services, people who use IPEDs themselves may find ways to push back against restrictions to enable their own use, such as seeking online support or guidance. Formal harm reduction focused on the health and needs of those who use IPEDs can offer a safer environment in which safer use is supported and promoted. Moving away from macro-level approaches focused on policing and punishment and towards acceptance and support offers benefits not only for individuals, but it can also have enduring benefits for public health. Future research on IPEDs, especially steroid use, is needed to fully understand the benefits of various approaches, including evaluation of the effectiveness of harm reduction strategies as well as the impact of the online context in producing or reducing harm.

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