

2019

Anabolic-Androgenic Steroids (AAS) Users on AAS Use:

Negative Effects, 'Code of Silence', and Implications for Forensic and Medical Professionals

RESEARCH PAPER SUBMISSION

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Anabolic-Androgenic Steroids (AAS) Users on AAS Use: Negative Effects, 'Code of Silence', and Implications for Forensic and Medical Professionals

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We thank the reviewers for their evaluations, which assisted us in significantly improving the paper. Please find below a detailed response to each reviewer’s comments. Additions in the revised article appear in red for the editor’s convenience.

Comments by Reviewer 1	Responses by authors
<p><i>The authors report information from real cases of AAS use, specifically addressing how the "code of silence" remains of hard detection. It provides an interesting piece of information functional to the design of effective policies, tush this work is relevant and should be accepted after minor revisions.</i></p> <p><i>Specifically, we suggest to make more clear in the abstract what type of negative effects are addressed in this work; the conclusions should also point in a clearer manner to the main results derived from the collected data.</i></p>	<p>We thank Reviewer 1 evaluation. We are glad that s/he finds our work functional to the design of effective policies.</p> <p>The negative effects of steroids addressed in the work are now included in the abstract. The revised conclusion also points to the main findings from the study.</p>
Comments by Reviewer 2	Responses by authors
<p><i>The study contributes to the effort to elucidate the harmful effects of anabolic steroid use. Although the study is good, the manuscript is poorly written. The authors are encouraged to adhere to the IMRaD structure in a major revision of the manuscript</i></p>	<p>We thank the reviewer for seeing the contribution of our article. Importantly, as suggested by Reviewer 2, we have now included a much more orthodox approach to the article. In the process of improving the article, we also added a number of relevant sources. Finally, we have changed the order of the sections ‘Negative Effects’, and ‘Code of Silence’ to reflect better the account we provided. (we have also changed the order of these words in the title of the article)</p>

Thank you

Manuscript

Abstract

Anabolic-androgenic steroids (AAS) are image and performance enhancing drugs (IPEDs) that can improve endurance and athletic performance, reduce body fat and stimulate muscle growth. The use of steroids has been studied in the medical and psychological literature, in the sociology of sport, health and masculinity, and relatively recently in criminology. Whilst there is significant medical and psychological evidence on the short term and longer side effects of AAS, there is surprisingly very little evidence based on the users' perception of the negative aspects of AAS use. Drawing on ethnographic research conducted in a locale in the Northeast of England and additional interviews with 24 AAS users, the article offers an account of the negatives aspects of AAS as put forwards by users (acne, abscess, and mood alterations), and highlights the 'code of silence' that exists around AAS use. This 'code' makes AAS users a 'hard-to-reach' group for medical professionals. By listening to the participants' perspectives, forensic and medical professionals can be better informed towards monitoring and reducing harms from AAS.

Keywords: Anabolic-androgenic steroids (AAS); Image and performance enhancing drugs (IPEDs); doping

1. Introduction

Anabolic-androgenic steroids (AAS) are essentially synthetic derivatives mimicking natural hormones that regulate and control how the body develops and maintains itself. Functioning in a similar way to the male hormone testosterone, they can improve endurance and athletic performance, reduce body fat and stimulate muscle growth. Arguably steroids are primarily (mis)used by men (cf. Bunsell, 2013) as a way of improving sports performance and speeding up the process of healing after an injury, or to build muscle mass and 'bulk up' (see Turvey and Crowder, 2015). The use of steroids has been studied extensively in the medical and psychological/psychiatric literature (see, for example, Kanayama *et al.*, 2008; McVeigh *et al.*, 2015), in the sociology of sport, health and masculinity (see, for example, Monaghan and Atkinson, 2014), and relatively recently in criminology (e.g. Antonopoulos and Hall, 2016; Kraska *et al.*, 2010; Paoli and Donati, 2014). Whilst there is significant medical and psychological evidence on the short and longer side effects of AAS, there is surprisingly very little evidence based on the users' perception of the negative aspects of AAS use. The aims of the article are:

- (1) To offer an account of the negatives effects of AAS use. Here we do not offer an extensive and complete account of the negatives effects of steroid use but only those put forwards by the users interviewed in the course of our study.
- (2) To highlight the 'code of silence' that exist around AAS use; a code that makes AAS users a 'hard-to-reach' group for medical professionals.

2. Methodology

The articles draw on original empirical research including ethnographic research conducted for 14 months (January 2014-February 2015) in a locale in the Northeast of England with one of the highest rates of steroid use in the UK. During this period, research-related activities such as observations took place at least three times per week (with the exception of August

2014). The primary research site was a gym in which the use and trade of steroids is widespread. Data were also collected at fighting events, bodybuilding competitions and product promotion events in the area. An additional 24 interviews with AAS users were conducted in 2017. Participants direct words are used in this article and pseudonyms are used to protect their identity. All participants were informed about the purpose and nature of our research as well as their rights (as participants) as put forward by the 'Code of Ethics' of the British Society of Criminology.

3. Findings

a. Negative effects of using AAS

It is well documented that one of the side effects individuals may suffer when using AAS is abscess (see also Rich, et al., 1999) and acne (Melnik, Jansen and Grabbe, 2007). Shaun talks about his friend getting an infection from using a needle: *"He said he injected his mate with the gear and he got a massive abscess on his leg and he had to go to hospital and then basically, two weeks out of training"*. Mitchell explains his acne experience: *"When I'd come to the end of my course, I had really bad breakout in acne, really bad, on my shoulders and my back and my chest. All my hard work but I didn't dare take my top off because I was embarrassed. I wanted everyone to tell me I looked good"*. Other participants were not as lucky as Mitchell in terms of 'mild' side effects. IPEDs and AAS have been known to cause alterations in one's mood (Pope and Katz, 1994; Christiansen and Bojsen-Møller, 2012; Sher and Landers, 2014). The following comments from participants are all related to their mental and mood state from using these substances. Andrew, for example, noted: *"the fucking horrible thing about steroids is you push that plunger down and this is what I felt like, I wanted to claw it out of me after realising what happened. I wanted to claw all those chemicals out of me. I'll tell you exactly how it feels like, it's like a door I've opened, and I can't ever shut again. I can keep it pulled tight, but I've got to keep it pulled tight"*. Bobby adds a similar comment regarding his mental state. *"I was in a dark place mentally at the time and so didn't feel the positive mental effects test can give. Taking them also made me very nervous"*. To end this section, Stephen concludes with his in-depth perspective on his own usage and others he knew: *"If I was speaking to someone and they came out and said they were going to use AAS and they had never used them before, I would have to breakdown in tears in front of him to just put it into words. If I were to use again, it would be like putting a loaded gun to my head to put it mildly. I think we are put together really good by God or whatever or whomever, I can't answer for God, but I may qualify for me. This is in reference to people (some I have known) whom have lost their life due to the use of performance enhancing drugs"*. From reading the above comments, and although our sample of AAS users is relatively small, it is obvious that the range of negative experiences differs from participant to participant, and -as with any other substance- its reaction to the individual has varying levels

b. Code of Silence

Patterns of use (and supply) of AAS are patently conditioned by its embeddedness in the gym/bodybuilding scene and this greatly affects not only relations between actors in this subculture and their willingness to openly discuss AAS and their use, but also how users are viewed by 'outsiders'. Andrew explains how he felt regarding using AAS (and other IPEDs): *"Yes, we like to keep it hidden. That you can't talk, or you can't tell anyone about, so you don't know what you're doing... if I go anywhere and say I've taken them. It's like you've fuckin' cheated"*. Andrew then goes deeper into his analogy by providing an example of this silence in practice. He talks about his training partner and one incident that happened in the gym with him: *"We'll talk off the record. This guy trained at the same gym as me. He came*

in one day, doing overhead press and he collapsed on the floor... no heartbeat. CPR [Cardiopulmonary resuscitation], got him to the hospital. I took him to the hospital and they [doctors] were like "Right, it's heart, liver and kidney failure with a stomach ulcer. Do you take steroids?" His response, "No". This was because his girlfriend was in the room, so she left and he was like "Yes, I do, yes". That is the problem... Such a mental problem with it...". This behaviour of being silent around 'outsiders' or significant others such as family members and partners, is very common among participants. Richard, for example, mentioned an event in which the information provided when the cameras were on and off was different: "... I was at a seminar about a year and a half ago, it was being videoed for YouTube. The video cameras were on, he was talking about training, training programmes, training cycles and then, the cameras went off. He says, "Now let's talk anabolics. Now any questions about anabolics?"; which was interesting to me". It was crazy then with the stuff he came out with about anabolics whenever the cameras were off. Actually somebody asked about it when the cameras were on and he said "I'm not here to talk about that". This 'code of silence' around AAS changes depending on the audience or the medium of communication. AAS users are known to communicate more and freely on fora (which are the platform of communication for like-minded individuals and may guarantee privacy of participants) (Public Health Institute, Liverpool John Moores University, 2016) and share advice.

This code of silence is not, however, only due to AAS users being viewed in a negative light by outsiders and the mainstream media spinning stories targeting the particular subculture (Denham, 1999) as well as the fear of substances in the non-sporting world creating a framework of understanding of (and policy against) substances in sports (Coomber, 2014). It is also due to the dynamics within the bodybuilding and AAS use subculture itself. Specifically, there is a process of trust-building, which allows AAS users (and traders) to manage many of the risks involved *and* is often based on a genuine interest in others and their progress in bodybuilding. During the ethnographic research one of the researchers witnessed a gym attendee *actively* looking for steroids, who had been training for a year and was not satisfied with his progress. In an open conversation about the issue with the gym owner, who was a known steroid trader, a mentor-mentee relationship was forged. Instead of immediately agreeing to provide steroids, a lengthy discussion about exercise patterns, diet and the necessary steps he should take before resorting to steroids took place. The mentality and approach of this particular trader is, according to many of the participants we interviewed from the gym/bodybuilding scene, very common and highlights not only that not all steroid traders fit the stereotype of a drug entrepreneur, who is motivated by profit alone (Antonopoulos and Hall, 2016) but also that- within this subculture - AAS users are close to people with technical knowledge about AAS, their administration, and ways of mitigating possible dangers from use. The side effect of this positive aspect, however, is that when use becomes in any way problematic, advice is very rarely – if at all- sought from medical professionals such as a GP (Pope, Kanayama, Ionescu- Pioggia, and Hudson, 2004). As such, it is difficult for these professionals to truly understand the culture, thus preventing good education and/or the flow of relevant and useful information.

4. Conclusion and implications

Some main findings emerge from the collected data. Specifically, there is a range of negative experiences, which differ from participant to participant. Moreover, the negative perceptions of AAS (and IPEDs in general) usage combined with sensational media headlines around doping has reinforced the particular subculture's inward-looking attitude. Users are not willing to talk about use and their negatives effects to 'outsiders', unlike what the case is in

relation to other drugs, and this makes AAS users a 'hard-to-reach' group for medical/health professionals. As anti-doping policy has shifted and become more punitive, the distribution of AAS (and other IPEDs) has moved away from dealers embedded in a sporting sub-culture to a range of 'non-experts', which leaves users at greater risk (see Fincoeur *et al.*, 2014). The Internet provides abundant opportunities for such non-expert suppliers active in the AAS market, offering mechanisms used to target those users, who lack contacts in a local gym culture (Antonopoulos and Hall, 2016). In these instances there are a number of risks for (online) consumers to weigh up including the presence of illegally produced, counterfeit and/or substandard substances (Hall and Antonopoulos, 2016), a phenomenon which has been highlighted by forensic scientists internationally and not only in relation to AAS (da Justa Neves *et al.*, 2013; Lee *et al.*, 2019; Arslan *et al.*, 2015). Obtaining and understanding the users' perception of AAS and negative experiences of the substances as well as understanding the dynamics of cultures and instances in which the presence of similar-thinking individuals has a formative effect on their involvement in AAS use, is essential in preventing harm and mitigating the range of negative experiences of using AAS. Future research at local, national and international levels offering further empirical breadth and analytical depth to advance our understanding of the complex motivations and harms associated with the steroid use is needed in order for levels of prevention and harm reduction to be informed.

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