

Manuscript Number: SSM-D-19-01659R1

Title: Is another relationship possible? Connoisseurship and the doctor-patient relationship for men who consume performance and image-enhancing drugs

Article Type: Research paper

Keywords: Qualitative research  
Science and technology studies  
Isabelle Stengers  
Performance and image-enhancing drugs  
Harm reduction

Corresponding Author: Professor Suzanne Fraser, PhD

Corresponding Author's Institution: La Trobe University

First Author: Suzanne Fraser, PhD

Order of Authors: Suzanne Fraser, PhD; Renae Fomiatti; David Moore; Kate Seear; Campbell Aitken

Manuscript Region of Origin: AUSTRALIA

Abstract: Consumption of steroids and other performance and image-enhancing drugs (PIEDs) is thought to be on the rise in Australia. Along with the benefits experienced by consumers come a range of health risks. This article draws on interviews conducted for an Australian research project on men who inject PIEDs to consider the ways in which information about managing these risks can be provided, the sources of information men use and value, and the professional relationships most effective for securing the best outcomes for them. As we will show, the men in our project expressed a very strong desire for reliable, credible information about risks and how to manage them, but also described often having to rely on information gleaned from sources of questionable reliability such as online forums and friends and acquaintances. Among the sources of information, advice and monitoring they expressed a desire to access were general medical practitioners (GPs), but such interactions were, they argued, rarely possible. Using the recent work of Isabelle Stengers, particularly the notions of connoisseurship and symbiosis, we argue that new modes of engagement need to be developed that might allow men who consume PIEDs to access the information and support they need, including through their GPs. Following Stengers, we characterise the men in our project as 'connoisseurs' of PIEDs, and we consider what might be at stake and made possible were GPs and PIED connoisseurs to enter into more collaborative relationships to manage PIED-related health issues. In conducting our analysis, we argue for greater recognition of the complexities GPs face when encountering people engaged in illegal forms of consumption, and call for new symbiotic models of engagement beyond both zero tolerance-style refusals to help, and narrowly focused harm reduction approaches.





**Is another relationship possible? Connoisseurship and the doctor–patient relationship for men who consume performance and image-enhancing drugs**

Prof Suzanne Fraser, La Trobe University\*

Dr Renae Fomiatti, La Trobe University

Prof David Moore, La Trobe University

A/Prof Kate Seear, Monash University

Dr Campbell Aitken, Burnet Institute

\*Corresponding author: [Suzanne.fraser@curtin.edu.au](mailto:Suzanne.fraser@curtin.edu.au)

Keywords: Qualitative research; Science and technology studies; Isabelle Stengers; Performance and image-enhancing drugs; Doctor-patient relationships

## **Is another relationship possible? Connoisseurship and the doctor–patient relationship for men who consume performance and image-enhancing drugs**

Keywords: steroids, Isabelle Stengers, connoisseurs, injecting drug use, harm reduction

### **Abstract**

Consumption of steroids and other performance and image-enhancing drugs (PIEDs) is thought to be on the rise in Australia. Along with the benefits experienced by consumers come a range of health risks. This article draws on interviews conducted for an Australian research project on men who inject PIEDs to consider the ways in which information about managing these risks can be provided, the sources of information men use and value, and the professional relationships most effective for securing the best outcomes for them. As we will show, the men in our project expressed a very strong desire for reliable, credible information about risks and how to manage them, but also described often having to rely on information gleaned from sources of questionable reliability such as online forums and friends and acquaintances. Among the sources of information, advice and monitoring they expressed a desire to access were general medical practitioners (GPs), but such interactions were, they argued, rarely possible. Using the recent work of Isabelle Stengers, particularly the notions of connoisseurship and symbiosis, we argue that new modes of engagement need to be developed that might allow men who consume PIEDs to access the information and support they need, including through their GPs. Following Stengers, we characterise the men in our project as ‘connoisseurs’ of PIEDs, and we consider what might be at stake and made possible were GPs and PIED connoisseurs to enter into more collaborative relationships to manage PIED-related health issues. In conducting our analysis, we argue for greater recognition of the complexities GPs face when encountering people engaged in illegal forms of consumption, and call for new symbiotic models of engagement beyond both zero tolerance-style refusals to help, and narrowly focused harm reduction approaches.



## **Is another relationship possible? Connoisseurship and the doctor–patient relationship for men who consume performance and image-enhancing drugs**

Keywords: steroids, Isabelle Stengers, connoisseurs, injecting drug use, harm reduction

### **Abstract**

Consumption of steroids and other performance and image-enhancing drugs (PIEDs) is thought to be on the rise in Australia. Along with the benefits experienced by consumers come a range of health risks. This article draws on interviews conducted for an Australian research project on men who inject PIEDs to consider the ways in which information about managing these risks can be provided, the sources of information men use and value, and the professional relationships most effective for securing the best outcomes for them. As we will show, the men in our project expressed a very strong desire for reliable, credible information about risks and how to manage them, but also described often having to rely on information gleaned from sources of questionable reliability such as online forums and friends and acquaintances. Among the sources of information, advice and monitoring they expressed a desire to access were general medical practitioners (GPs), but high-quality interactions with GPs were, they argued, rarely possible. Using the recent work of Isabelle Stengers, particularly the notions of connoisseurship and symbiosis, we argue that new modes of engagement need to be developed that might allow men who consume PIEDs to access the information and support they need, including through their GPs. Following Stengers, we characterise the men in our project as ‘connoisseurs’ of PIEDs, and we consider what might be at stake and made possible were GPs and PIED connoisseurs to enter into more collaborative relationships to manage PIED-related health issues. In conducting our analysis, we argue for greater recognition of the complexities GPs face when encountering people engaged in illegal forms of consumption and call for new symbiotic models of engagement beyond both zero tolerance-style refusals to help and narrowly focused harm reduction approaches.

## **Is another relationship possible? Connoisseurship and the doctor–patient relationship for men who consume performance and image-enhancing drugs**

### **Introduction**

Consumption of steroids and other performance and image-enhancing drugs (PIEDs) is thought to be on the rise in Australia. Along with the benefits experienced by consumers come a range of risks, including hypertension, permanent hormonal changes and, when substances are injected, injection site infections and blood-borne virus transmission. This article draws on interviews conducted for an Australian research project on men who inject PIEDs to consider the ways in which information about managing these risks can be provided, the kinds of sources of information men seek and value, and the professional relationships most effective for securing the best outcomes for them. As we will show, the men in our project expressed a very strong desire for reliable, credible information about risks and how to manage them. Many articulated highly discerning approaches to information, but also described often having to rely on information gleaned from sources of questionable reliability such as online forums and friends and acquaintances. Among the sources of information, advice and monitoring they expressed a desire to access were general medical practitioners (GPs), but high-quality interactions with GPs were, they argued, rarely possible. Many described GPs as poorly informed about PIEDs and unwilling to provide relevant advice when approached. Using the recent work of Isabelle Stengers, particularly the notions of connoisseurship and symbiosis she outlines in her book, *Is Another Science Possible?* (2018), we argue that new modes of engagement need to be developed that might allow men who consume PIEDs to access the information and support they need, including through their GPs. Following Stengers, whose argument focuses on scientific knowledge-making and implementation, we characterise the men in our project as ‘connoisseurs’ of PIEDs, and consider what might be at stake and made possible were GPs and PIED connoisseurs to enter into more collaborative relationships to manage PIED-related health issues.



The first section of our analysis focuses on participants' accounts of their interactions with doctors, exploring their expectations as well as the encounters themselves. The second section looks at the knowledge and practices our participants described, arguing for a change in approach that sees them as potential connoisseurs, rather than simply consumers. In the third section, we ask what desirable doctor–connoisseur relationships might look like, and consider the advantages and challenges of building what Stengers calls more 'symbiotic' relationships (also see [removed to preserve anonymity] for a related use of Stengers' notion of symbiosis). In conducting our analysis, we argue for greater recognition of the complexities GPs face when encountering people engaged in illegal forms of consumption, and call for new symbiotic models of engagement beyond both zero tolerance-style refusals to help and narrowly focused harm reduction approaches that provide safe injecting equipment and injecting advice, but little else.

## **Background**

Performance and image-enhancing drugs commonly include anabolic-androgenic steroids, anti-oestrogenic agents, beta agonists (e.g. clenbuterol), stimulants, human chorionic gonadotrophin, human growth hormone and other prohormones (Australian Bureau of Statistics, 2011; Larance et al., 2008). Anabolic-androgenic steroids are reportedly the most widely consumed PIEDs (Larance et al., 2008). Research suggests PIEDs are most commonly consumed by amateur athletes, older men and men with specific occupational requirements (e.g. fitness trainers, security guards). Reasons for consumption are diverse, but typically relate to strength, athletic performance and image-related concerns (Kimergård, 2015; Van de ven et al., 2018; Zahnow et al., 2018). National data sources and other research findings are scarce, so prevalence of use is poorly understood, but research indicates that Australian PIED consumers are increasingly accessing needle and syringe exchange programs (Iversen et al., 2013; Memedovic et al., 2017).

Australian studies suggest that men who inject PIEDs, like other people who inject drugs, are at higher risk of blood-borne virus acquisition than the general population (Hope et al., 2016; Rowe et al., 2017), especially hepatitis C virus (Crofts, Aitken & Kaldor, 1999). Men who consume PIEDs may also experience unwanted physical and mental health effects such as damage to the liver, reproductive organs and heart (Dodge & Hoagland, 2011; Kutscher, Lund & Perry, 2002), and aggression, depression, anxiety and reduced libido (Dodge & Hoagland, 2011; Nøkleby & Skårderud, 2013; Onakomaiya & Henderson, 2016). In the interviews on which this article is based, we explored men's knowledge of PIED consumption and effects, as well as their knowledge of blood-borne virus prevention and safe injecting. We also explored their access to – and preferred methods of accessing – health education, including information about safe injecting. This article takes up a key issue raised in our research: the extent to which men feel able to approach health professionals for advice and support relating to their PIED consumption, and the degree to which they rely upon and trust the advice and knowledge provided by health professionals, particularly GPs.

### ***The sociology of PIED consumption***

While researchers have noted that injecting practices place men who inject PIEDs at higher risk of blood-borne virus infection than other members of the community, the specificities of accessing information about safer PIED injecting have received little attention (Seear et al., 2015). The small body of sociological research on PIEDs tends to focus on the motivations, meanings and practices of consumption. As Underwood (2017) argues, following Keane (2005), two main approaches to understanding PIED use are used in the literature: 'the illicit drug framework, and the body image disorder framework'. As she points out, the suggestion in the latter approach is that PIED consumption is a pathology inaugurated by a crisis in masculinity or a cultural obsession with muscularity (Basaria, 2018; Griffiths et al., 2018). Such an approach overlooks how PIED use and different forms of body modification co-produce gendered and social meanings, rather than simply respond to them (Hart, 2018; Keane, 2005; Moore, Hart, Fraser & Seear, 2019; Underwood, 2018).

Other sociological work on PIED use focuses on the ethnopharmacology – or ‘bro science’ – of men using PIEDs, including the addition of ‘cruising’ (long periods of low-dose steroid use) and ‘blasting’ (higher doses during specific periods) (Underwood, 2017), and well-established practices such as ‘cycling’ (alternating periods of steroid use and non-use) and ‘stacking’ (use of multiple steroids) (Monaghan, 2001a, b; Petrocelli et al., 2008), even if some authors treat this embodied knowledge as a barrier to reducing harm rather than as a potential resource to be harnessed (Grogan et al. 2006). Attention has also been paid to subcultural values and beliefs, masculine norms, the benefits of PIED use (e.g., a sense of personal well-being and power), and the wide variety of motivations, meanings and practices encompassed by the term ‘PIED use’ (Andreasson, 2015; Andreasson & Johansson, 2016; Christiansen, Vinther & Liokaftos, 2017; Kimergård, 2015; Kimergård & McVeigh, 2014; Petrocelli et al., 2008; Van Hout & Kean, 2015).

According to Monaghan (2001, 2002) sociological research on bodybuilding and steroids over-emphasises risk practices and ‘diseased’ bodies. Monaghan argues instead that insofar as bodybuilding is aligned with fitness and health, bodybuilders typically assume themselves to be healthy and their bodies disease-free. He adds that, contrary to the sociological inclination to leave the healthy body unexamined, we must account for ‘healthy’ bodies as well as unhealthy ones. Similarly, Keane (2005) argues that the ‘highly disciplined body management regimes and intense embodied experiences of steroid users’ require a more nuanced and contextualised analysis than previously attempted (p. 192). In this article, we aim to do this, exploring the ways men who inject PIEDs articulate their relationship to health advice and practices, and the kinds of relationships they desire in maintaining health and well-being in and through PIED consumption.

While sociological research on PIED injecting is limited, a body of critical research exists on other forms of injecting drug use and related health issues (see Davis & Rhodes, 2004;

Davis, Rhodes & Martin, 2004; Fraser, 2013; Fraser et al. 2014; Fraser & Seear, 2011; Rhodes & Treloar, 2008; Treloar et al. 2008). Within this literature, the social and cultural meanings attributed to injecting and the body have been more fully explored (Fraser & Seear, 2011). This research highlights the stigma associated with injecting as well as blood-borne virus transmission. As such, it raises important questions for PIED consumption, for example, about men's ability to disclose their use to healthcare professionals and in turn to access quality advice and healthcare. In what follows, we build on this research to explore how the men in our study describe accessing advice about PIED consumption, the priorities they articulate in relation to health, and the people and sources they value when informing themselves about PIEDs. In doing so, we identify new questions about how consumer-professional relationships could be construed such that reliable, credible and relevant knowledge becomes available to consumers and their health may be better supported.

### **The sociology of doctor-patient relationships**

Within the broader field of the sociology of medicine, the study of doctor-patient relationships has inspired a large sub-field of scholarship (May, 2007). Here, Talcott Parsons' (1951) classic functionalist theoretical analysis of the doctor-patient relationship is of enduring importance (Nettleton, 2013). In Parsons' account, medicine and medical care fulfil a socially normative role by assisting ill people to return to their regular work and citizenship-related capacities and obligations (Heritage & Maynard, 2006; Nettleton, 2013). According to this theory, patients adopt a 'sick role' through this interaction, one in which they are obliged to work towards getting well. As Timmermans and Tietbohl's (2018) recent review illustrates, a significant body of scholarship on doctor-patient interactions builds on and critiques Parsons' concept of the socially deviant sick role. This research critiques the normative and universalising conceptualisation of the doctor-patient relationship and explores the nuanced and contextual relations that reinforce the power dynamics that buttress medical authority (Heritage & Maynard, 2006; McIntosh, 1974).

With a growing body of scholarship describing the content and personal experience of medical encounters (Hall & Dornan, 1988; Oakley, 1984; Ong, Hael, Hoos & Lammes, 1995; Pilnick & Dingwall, 2011; Stewart, 1984), how to improve doctor–patient interactions has become a focus. The development of the concept of patient-centredness to govern high-quality care is of particular importance (Charles & DeMaio, 1993; Mead & Bower, 2000; Dunlop, 2008). As Mead and Bower (2000) argue, ‘patient-centred medicine promotes the ideal of an egalitarian doctor–patient relationship, differing fundamentally from the conventional “paternalistic” relationship envisaged by Parsons’ (p. 1089). Researchers have also sought to improve frameworks for participation in decision-making in healthcare environments (Charles, Gafni & Whelan, 1999; Gattellari, Butow & Tattersall, 2001; Guadagnoli & Ward, 1998). These changes in how the doctor–patient relationship is conceived are increasingly thought to be related to a shift towards consumerism in healthcare, in which lay people are enjoined to become active in health management and self-improvement (Fox & Ward, 2006; Lupton, 1997; Mead & Bower, 2000; Nettleton, 2013), a development linked to increasing scepticism towards expert knowledges (Lupton, 1997). This research points to a long-running interest in developing more participatory and collaborative relationships between GPs and patients. These changes in thinking are sometimes reflected in the adoption of different nomenclature, including a tendency to refer to people seeking medical advice and care as healthcare ‘consumers’, rather than patients. In this article, we make a case for a conceptual shift – requiring a further change in nomenclature – in which we consider the scope for identifying people who use PIEDs as ‘connoisseurs’. In what follows, we take up questions about collaboration in healthcare in exploring the management of PIED-related health issues, drawing on insights from contemporary social and feminist theory.

## **Approach**

In analysing men’s engagements with information about PIEDs, we draw on what Irwin and Michael (2003) call the ‘multidiscipline of public understanding of science’. In their 2003

book, *Science, Social Theory and Public Knowledge*, Irwin and Michael identify a shift in the field of public understanding of science away from traditional approaches that see publics as lacking scientific knowledge and in need of educating. Along with other scientific controversies, they discuss the debate in Europe over genetically modified foods to illustrate the poor fit the traditional model offers for the relationship between science and society. In doing so they ask many questions, some of which can also be asked of the process by which public knowledge, including health information, about drugs and drug use develops and circulates. How, for example, 'is the scientific citizen being constructed in this area?' (2003, p. 10). Perhaps most challengingly for science, what should be the place of 'lay' knowledge in these deliberations? Is public scepticism or dissent merely an effect of insufficient access to reliable (scientific) knowledge, to be overcome by more education, or is taking this view just a form of scientific hubris? Do we need to recognise that publics seek to occupy positions of expertise in relation to drugs, and find ways to include them and respect their perspectives? In previous work we drew on these questions and themes to explore young men's response to drug education and issues of improvement in treatment engagement (*references removed to preserve anonymity*). Here, our focus is consumer approaches to accessing and using scientific information about PIEDs. As we will see, our analysis of our interviews with men who inject PIEDs suggests the answer to the third question above is yes, with consumers developing considerable knowledge about PIEDs, making sustained efforts to access credible knowledge, and seeking to form transparent, collaborative relationships with medical and other experts to manage their consumption safely and minimise risks.

In the context of such claims and aspirations, new approaches to public or lay knowledge, and to relationships between scientific experts such as medical professionals and consumers, appear necessary. As the analysis below suggests, it is possible to understand men who inject PIEDs not as victims of harmful practices or courters of irresponsible risks, but as intelligent 'connoisseurs' of complex, highly refined, social bodily practices and the

scientific knowledges associated with them. In orienting ourselves towards this notion of connoisseurship, we draw on the work of Isabelle Stengers (2018), who asks not for ‘public understanding of science’ but a ‘public intelligence of the sciences, involving the creation of intelligent relationships not just with scientific outcomes but with scientists themselves’ (p. 4).

The ideas we rely upon here are taken from Stengers’ recent book, *Is Another Science Possible?* (2018). While primarily concerned with the global crisis of climate change, the book nonetheless offers resources for all researchers working in areas relating to the dynamics between scientific expertise and public knowledge and awareness. One notable side effect of the discourse on climate change and ways to contain its harms has been new thinking around public perceptions of science, scientific scepticism and, more broadly, how publics and experts can forge more productive and mutually respectful relationships. In this context, Stengers proposes in place of traditional one-way models of the ‘public understanding of science’ a more mutually formulated ‘public intelligence of science’ that would not only transform the relationship between publics and sciences, but perforce alter science’s relationship to itself. Entailed in this public intelligence of science would be the recognition and fostering of what she calls ‘connoisseurs’ of science. As she puts it, ‘A cultivated science should produce not only specialists but also connoisseurs, as in sport, music, or software production’ (2018, pp. 7-8). These connoisseurs are able to engage science using their own knowledge, and relate to it in an informed way. In this respect, she elaborates:

Connoisseurs are not advocates of ‘alternative’ knowledge, looking for professional recognition. But their interest in the knowledges produced by scientists is different from the interest of the producers of these knowledges. (2018, p. 9)

As we will see below, men who consume PIEDs articulate a very strong interest in scientific knowledges about PIEDs, and wish to form therapeutic alliances with the medical professionals who are the public representatives of those knowledges in order to address their own unique interests. The role such connoisseurs may perform is, according to

Stengers, a very useful one in that, in addressing their own interests in relation to specific knowledge, they can also 'pay attention to the questions or possibilities that were not taken into account in its production, but that might become important in other circumstances' (2018, p. 9). In this respect, they offer a valuable corrective to the presentation of scientific knowledge as possessing a 'general authority'.

In making this argument, Stengers is careful to distinguish the various kinds of autonomy and influence that apply to scientific practices, clarifying issues connected to the influence of industry over science, for example. In this way, she clarifies that the solution is neither to surrender all of science to the status of serving specific interests such as industry, nor is it to call for allowing science to return to its (mythic) state of splendid isolation. In treading this careful line, she also highlights the need to find ways of distinguishing appropriate criticism of science from the politically freighted actions of the 'merchants of doubt' [such as climate change deniers], disqualifying them in a public and merciless manner, as we have learned to do with historical negationists, promoters of racism and certain war-mongers' (2018, p. 21).

This concern about merchants of doubt has led, Stengers notes, to an increasing and fundamentally unhelpful tendency within the sciences to double down on the very claims to objectivity and authority science has failed to live up to, and indeed, we would argue, has opened the door to widespread scepticism. As she asks, 'How can one stop scientists under attack from making the opposition between science and opinion even more rigid than it already is?' (2018, p. 22).

Later in her book, Stengers offers some insights into ways forward, foregrounding the role of non-science interlocutors in demanding new relations and new claims about knowledge. Echoing some of the implications of Irwin and Michael's (2003) observations about interaction between scientists and farmers in the case of foot and mouth disease, she argues that:



Only with 'recalcitrant' protagonists – those who demand that what matters for them be recognised and taken into account in how they are addressed – can a relation be created that has a claim to scientific value. (Stengers, 2018, p. 66)

Here, we would add that only under these conditions can the relation also have a claim to social value.

Stengers goes on to outline a social science that would allow the production of better knowledge of greater credibility and relevance, and importantly, she highlights the need for the relationships involved to maintain a degree of flexibility such that the:

addressee (from whom the investigator is supposed to be learning) be empowered to evaluate the way they are being addressed and to do so without trying to 'capture' the investigator in the process, making her into their spokesperson. (2018, p. 75)

In this process of 'symbiotic interlinking', both investigator and addressee should operate on the basis that their aim is not to 'capture each other' (Stengers, 2018, p. 75). While the investigator–addressee relationship Stengers exemplifies using scientific research differs in some ways from the relationship between doctors and patients, we argue that symbiotic relations constituted in this way could nevertheless transform the GP–patient interactions our research participants describe. This is particularly the case given that the object or state of affairs at issue (PIED consumption and effects) is complicated by interlocking legal, health and social concerns. Here, GPs may be understood as public representatives of scientific knowledge and practice, with symbiosis being the kind of relation between GPs and PIED consumers that might better allow the sharing and mobilisation of credible knowledge through the pursuit of specific matters of concern unique to each party, but that may overlap and become useful to each other. Importantly, Stengers (2018) warns, in this process, 'no-one should be authorised to define generally "what really matters"'. This is not a moral prohibition but a condition of symbiotic culture' (p. 79). Here, questions have value insofar as they are our questions and have relevance to specific parties, rather than being universal questions of general importance.

Such work is possibly slower than the usual mode of knowledge-making in science, hence the title of Stengers' book, but she sees it as essential to the creation of new and more productive scientific practices. For her, slowing down and doing better science means creating a relation 'that works for [...] people who need each other to learn – with others, from others, thanks to others – what a life worth living demands, and the knowledges that are worth being cultivated' (2018, p. 82). For the purposes of this article, the last point is especially important because it relates to the need to build symbiotic relationships around PIED use to produce and mobilise better knowledges about benefits and risks, in a context that takes seriously what the men involved consider a life worth living.

In using Stengers' work to reframe the relationship between GPs and PIEDs consumers, it is also worth acknowledging that such relationships – those between different kinds of publics, consumers, patients and other lay groupings, and the experts, scientists and other knowledge authorities to which they are subject – differ in various ways. Here we do not argue that GPs occupy the same role as, for example, laboratory scientists in creating and standing for certain forms of expertise and authority. These roles are clearly different. At the same time, in Australia as in many other countries, GPs are positioned as the first and, for those needing no further medical attention, only source of authoritative knowledge about health matters, and given more standing than other patients, families and friends, complementary therapists and other non-medical stakeholders. They are not specialists, but have status as rigorously trained interpreters and conduits for medically accurate information and advice (Gidman, Ward and McGregor, 2012). It is in this sense – that of occupying a scientifically validated position that differs fundamentally from the other sources of advice and information available to the participants in our project – that the scientist/layperson relation is analytically useful, and may point to possibilities for advancing men's engagement with health information.

In sum, the approach outlined here invites an analysis of our interview data that identifies and articulates:

1. a widespread critical engagement with scientific knowledge (of a kind that can be scrutinised from the perspective of public understandings of science),
2. a new way of understanding the issues of PIED consumption beyond the commonplace tendency to condemn and pathologise, one that takes seriously men's desire to be knowledgeable collaborators in the production of information about PIED consumption, risk and well-being, and
3. the kind of symbiotic relationship between scientific expert and consumer that allows the recognition of connoisseurs who are more than passive consumers of traditionally colonising scientific expertise, and whose concerns and preoccupations are recognised as legitimate and worthy of cultivation.

## **Method**

Our analysis draws on 60 in-depth, semi-structured interviews conducted for an Australian Research Council-funded project entitled 'Understanding performance and image-enhancing drug injecting to improve health and minimise hepatitis C transmission' (DP170100302). In 2017 and 2018, in-depth qualitative interviews lasting 45–90 minutes were conducted with men who reported injecting a PIED in the last 12 months<sup>1</sup>. Participants were located in urban and regional areas of the Australian states of Victoria (Vic, n = 20), Queensland (Qld, n = 15), Western Australia (n = 13) and New South Wales (NSW, n = 12). Recruitment was conducted through needle and syringe programs, harm reduction services, primary health services, sexual health services, bars and clubs, supplement stores and sex-on-premises venues. The study was also advertised on social media platforms, including Facebook, Twitter, Gumtree, Craig's List and Scruff, as well as on online steroid and bodybuilding

---

<sup>1</sup> For the purposes of this research project, we adopted the Alcohol and Drug Foundation's (2017) definition of PIEDs as 'substances taken by people with the intention of improving their physical appearance [and/or] to enhance their sporting performance'. We adopted the list of PIEDs from Category 4 under The Australian Standard Classification of Drugs of Concern (Australia Bureau of Statistics, 2011).

forums and in *Men's Health* magazine. In Victoria, participants were also recruited with the assistance of Australia's only peer-run outreach service for steroid users (Aitken et al., 2002). Aside from one participant who used only peptides, all other participants used a range of PIEDs, and almost all used anabolic-androgenic steroids (most frequently forms of testosterone). The interviewees were aged 19–72 years, with 18 participants aged under 25 years and 42 aged over 25 years. Forty-seven men identified as heterosexual, eight as gay and one as bisexual. Thirty-three participants reported that both they and their parents were born in Australia, 13 participants that they were born in Australia and one or both of their parents were born overseas, and 14 participants reported being born overseas. All were given an information sheet describing the aims of the project, were asked to sign a consent form, and were reimbursed AUD\$50 for their time and contribution to the research.

The interviews were digitally recorded, transcribed and imported into NVivo 11 for data management and coding. A coding framework was generated using a combination of methods: codes were identified in response to previous research on PIED consumption, on the basis of emerging themes in the interview data, and in consultation with the project's advisory board, which comprised peer advocates, health and policy professionals and fitness industry representation. To protect participants' identities, each was given a pseudonym and all identifying details were removed from the transcripts. Curtin University's Human Research Ethics Committee approved the study (HRE2017-0372). More detail on this research project, and the background research that informs it, has been published elsewhere (*references removed to preserve anonymity*).

## **Analysis**

In our analysis we begin by exploring material in the interviews on the participants' desire for better, more open relationships with medical practitioners, and for reliable, scientifically credible information about PIEDs. Following this, we examine the kinds of doctor–patient relationships men suggest would work for them, looking in particular at their own

engagements with expertise, and thinking through the uses of seeing them as connoisseurs of PIEDs. Overall, we argue that our interviews indicate a common desire on the part of participants for more 'symbiotic' relationships between medical experts and consumers, relationships in which consumers can be recognised as connoisseurs of PIEDs with their own legitimate interests and concerns.

### ***GP/consumer interactions***

In this section we explore our interviewees' frequent references to their desire for positive, workable relationships with GPs. As we noted earlier, many participants identify GPs as their preferred source of information and support about PIEDs, but simultaneously explain that such relationships were almost impossible to create. Participants articulate their preferences in different ways, and in some cases do not specify the exact nature of the advice, information or support they wished to access. That said, common areas they described are advice on ways of refining dosage and combinations of drugs, ways of avoiding side effects, and access to prescribed drugs to avoid the use of unverified 'mail order' and other illicitly accessed drugs. The following exchange with Jasar (NSW, 44, small business owner) is a good example of participants' remarks about accessing information and professional support:

**I: What's your sense of the best places to target men who use steroids to give them information? [...]**

Jasar: Doctors. The doctors have got to be more open to it. They have to. If they see a person on steroids. You can tell when men are on steroids. You can tell. It's not hard to pick, yeah. Especially if it's your local GP. He's your local GP. He sees you all the time. He sees the change in you. He can tell. They're not ... it's not very hard not to pick a person [whose] body has changed and it's got to be ... I don't know, I've gone to the doctor several times and asked for help, and the door gets shut in my face.

Likewise, another participant, Nathan (Qld, 26, retail assistant), explains that trying to approach GPs for information is not useful (Gattellari, Butow & Tattersall, 2001). On the

occasions he has tried, he explains, he has received only 'lectures' about the dangers of PIED use:

...every time I go to the doctor, I'm very upfront, I'm very honest and I feel like you got to be, you got to be if you want them to help you. But the judgement you get from the doctors – and I feel like as soon as you tell them what you're doing, they don't...I don't know what you can say...they don't care as much or they sort of judge you straight away.

In Nathan's view, these lectures are not accurate or informative because they tend to exaggerate the dangers, and therefore lack credibility.

Even when GPs are open to discussing PIED consumption, participants say they may not be equipped to provide useful information or support, as Grant (NSW, 25, labourer) explains when asked about talking to his GP.

Grant: So talking to general practitioners about this stuff is stupid. Very, very ... to be honest with you, they don't know shit about it.

**I: They don't know anything, did you say? They don't know shit?**

Grant: They basically don't know anything about it. Which is sad. So I actually was talking to my doctor about it. He's very open with this stuff. He said, 'We spend probably about half an hour on the whole endocrine system over the whole twelve years of medicine'. So what do you say about that? And he said even endocrinologists don't really understand how the endocrine system works as most endocrinologists deal with people with like PCOS, polycystic ovary syndrome, early diabetes and a few other issues like [the] thyroid, etc., etc.

**I: So that GP ... you felt comfortable enough to talk to that person, but you're saying that he or she wasn't able to actually give you any sort of expert advice or guidance?**

Grant: Yeah, there was no expert advice available.

Locating online resources, even scientifically credible ones, is not the whole answer either for Grant, because, he explains, there are limits to his capacity to interpret technical information.

Like Grant, Sean (Qld, 30, share market trader) seeks reliable, credible information and is generally unsatisfied with having to rely on consumer forums and other non-expert sources. As the extract below shows, he articulates a highly sceptical view of the knowledge of other consumers (as others such as Joel [Qld, 26, student] put it, 'bro science'), and, in explaining his preference for the 'real science', emphasises the technical specificity of the knowledge he is usually seeking:

**I: Is there one person in particular that you go to for advice?**

Sean: I'd say that'd be me, like if I have a problem, I'll just search the internet to find an answer.

**I: Yeah. So where do you go? Steroid forums or...?**

Sean: Normally I'd try something a touch more scientific, like the actual steroid.com has a lot more information than like a [consumer] forum with some dumb-arse gym junkie slamming what works for him. Like, you know, you actually want [to know] your compounds and what works with what, and then also your relevant side effects, you know, like if you're doing over forty milligrams of D-Bol [Dianabol, anabolic-androgenic steroid] a day, you're going to need some Arimidex or letrozole [hormone therapy drugs] to counteract that DHT [dihydrotestosterone] conversion, you know. Like there's a lot of information there to be had, you just have to look for it rather than reading some guy saying, 'Oh, I slammed a heap of D-Bol and I look sick', you know. It's not really the real science there, you know.

As another participant, Arnold (Qld, 24, student), explains, most information circulates via informal networks, but relationships with medical professionals would be preferable.

Explaining how learning about safe injecting practices happens among men who inject PIEDs, he says:

So ideally I would like all performance drug users to be in an open dialogue with a doctor, GP or a specialist, preferably a specialist if they could get referred that far. And if [safe injecting technique] wasn't already understood by an individual user, then ideally those specialists would teach them or at least inform them of the requirements. But also, I mean, typically my experience has been that it's been community driven, in that everyone just sort of says, 'hey make sure ...' not even specifically with respect to blood-borne viruses or hepatitis, but just in general people will say, 'make sure you have safe sterile injection practice' [...] So currently, I would say it's more community driven, and ideally there would be medical support behind it as well.

### ***From consumer to connoisseur***

What kinds of desired doctor–patient relationships are outlined or suggested in the interviews? As Stengers makes clear, it is not enough to create a relationship between science and society; it is the nature of that relationship that matters. In her book (2018) she discusses traditional one-way relationships in which science is framed as ideally informing society, leading its understandings and practices, and assuming that all parties have the same priorities and interests. Her analysis points to the limitations and problems with this approach, arguing that more fruitful, effective and accurate relations between science and society can be articulated by recognising the knowledge of those usually framed as mere subjects and recipients of scientific expertise. By introducing the notion of connoisseurship, Stengers characterises the knowledge possessed by non-scientists as credible without suggesting it emerges from the same motives and priorities that animate scientists.

In our data, we identified among the participants attributes and interests that could be called connoisseurship. No doubt it is a little facetious to draw parallels between Dylan's (NSW, 19,



labourer) description of the ideal body and the language of the wine buff when he says the ideal is to be 'lean but dry and also have enough fullness', but the comparison has some merit. Ryan (NSW, 43, child protection worker), for example, showcases a wide knowledge of PIEDs in his interview, and talks about sharing his knowledge and advising others on drug choices, patterns of use and other issues:

I guess some of the people that I know, like say some ladies and stuff that I know that are really good friends of mine and they'll be older as well, and I will talk to them about something, like, say, if they're trying to, they want to have good endurance, and it's like I will recommend different things to them like creatine or beta-alanine [supplements], which are two different things you add. They block lactic acid which is the thing that stops you in exercise, that makes you go to throw up or whatever. So I guess in some circumstances, it's just me wanting to help the person or, you know, make things a little bit easier or a little bit more achievable for them.

Many of our participants described highly complex regimens of PIED consumption, demonstrating a very high level of commitment to the details of the substances in use, the dosing patterns, the drug combinations and the temporality of cycles (also see Kimergård, 2015; Underwood, 2017). Arnold's (Qld, 24, student) explanation of his use is a good example of the degree of complexity in some men's PIED use, and the interest in the technical aspects of compounds and consumption that characterise many of our interviews and are also part of the connoisseur's approach:

So I'm taking one gram of testosterone enanthate in a week, and I'll take four hundred milligrams of boldenone undecylenate [anabolic-androgenic steroid] a week. I take twenty-five milligrams of Aromasin, which is an exemastane [hormone therapy drug], twice a week. That's because I'm on a high dose of test[osterone] so I'll aromatise more. That's basically it for my current use. Then once this blast... my blast and cruise finishes, then I'll cruise on two hundred and fifty milligrams of testosterone enanthate [for] a week until my bloods are good. So in theory, if my

bloods were all within reference range after four weeks, I'd go back on a blast or maybe I'd make it coincide with returning to university or a specific time point, just to make it a nice even cut-off date. And then drugs that I've used in the past, you'd mostly be looking at other injectables like nandrolone decanoate or trenbolone enanthate [anabolic-androgenic steroids]. I've used tren-ace [trenbolone acetate] as well. I don't think I've used any other injectables. Yeah, it's going to be test, Decadron [corticosteroid], EQ [Equipoise]. Orals-wise, Anadrol, Dianabol, Anavar [anabolic-androgenic steroids], that's going to be it for orals. I haven't used Arimidex [hormone therapy drug], I only use Aromasin for controlling aromatase, because aromasin's a 'suicide inhibitor'. I haven't ever come off, so I haven't had to use any PCTs [post-cycle therapies], so no Nolvadex, no clomiphene [hormone therapy drugs]. I think that's literally everything I've used and doses will vary depending on ... so when I started out, I only ever used five hundred milligrams of test and I did that for fourteen, sixteen weeks, then I cruised. Highest dose I've ever had [of] combined injectables would be almost two grams and [I'm] at one point four grams combined now, but, yeah, depending on different compounds, you can't just use grams as a measure of it. Yeah, I don't think I've ever been on more than two grams of gear at once.

Perhaps unsurprisingly, Arnold explains that he has a background in organic chemistry, and that this is his 'second love' (Arnold's 'first love' is not mentioned in his interview).

James (Vic, 35, training manager), like Arnold, also talks at length about different compounds, their functions and how they affect him in subtly different ways. For example, he talks about the steroid trenbolone acetate in the following way:

James: Certain compounds will make you feel slightly different, like trenbolone acetate [anabolic-androgenic steroid]. It's never ... once or actually I think twice, it's ever been used, like allowed for human use. It's a veterinarian grade compound, which is five times stronger than testosterone in both androgenic and anabolic categories. So

that's the one that people go on, that's the one that's so unbelievably powerful with androgenicity, which is your aggression levels and all that stuff, that you know people go crazy on that, because they take too much. Some people genuinely can't handle it.

**I: Have you tried it?**

James: Yeah. I function very well with it.

**I: You enjoy the effects?**

James: I actually enjoy the effects because I find that, so on trenbolone, food nutrients are actually a lot more valuable as such. So it has an ability to store basically every single nutrient that you eat. It has this ability to do that and it doesn't convert to oestrogen. So it's a very desired compound. It's very versatile too.

This extract suggests a significant level of knowledge and appreciation of the substance and its effects, as well as the broader process of consumption and related training. Heath (Qld, 19, sole trader and bodybuilder), another participant, takes his level of technical knowledge and judgement even further than James in that he has purchased testing equipment that allows him to run his own tests on the compounds he buys online. This kind of engagement can be readily described as connoisseurship, in Stengers' terms. James and Heath are, as explained above, 'intelligent' (2018, p.4) 'connoisseurs' of complex, highly refined, social bodily practices and the specialist scientific knowledges associated with them.

To sum up these two sections, many participants identify GPs as their preferred source of health information and advice, but describe their relationships with GPs as often unsatisfactory or non-existent. In their eyes, GPs dwell too heavily on the dangers of PIED use, lack credibility, and are often ill-informed or unhelpful. The health information available on scientific sites is too technical for some participants, while the information available via consumer internet forums and peer networks lacks the veracity and necessary detail for those PIED connoisseurs with extensive, highly specific knowledge and complex consumption regimens. While this combination of desire for engagement with GPs and doubt

about their skills may appear paradoxical, this would be to misread the interview accounts. The participants see themselves as possessing enough reliable knowledge, gained through hard work, to recognise the limits of GP expertise. In their estimation, GPs should be able to provide such knowledge, and if they reach the limits of their knowledge, should take steps to learn more.

### ***Seeking symbiosis***

If some PIEDs consumers can be seen as connoisseurs, exactly what kind of relationships make most sense in their interactions with medical practitioners such as GPs? Here, Stengers' (2018) notion of symbiosis emerges as especially relevant. As noted above, Stengers sees the symbiotic relationship between science and public as one in which neither party seeks to impose its priorities and interests on the other, and 'capture' is not the aim. Instead, the parties work together, with the point of departure being the overlap in their interests.

Simon's (Vic, 32, health consultant and coach) experience exemplifies how the relationship between those who consume PIEDs and their doctors rarely qualifies as symbiotic. When he does approach GPs for advice or help, he is often confronted with very different concerns from his own, and finds it difficult to bridge the gap between them:

Like I've said to you before, one of the concerns GPs always raise is the cholesterol. I've always taken dietary [measures] to counteract that. I always make sure that if there's something that I can be doing or taking or eating that will have a good effect around those potential side effects, I'm doing that stuff. So really, it's just the blood pressure and that's one of those things that I'm generally on top of and keep track of, but at the same time, I know that they are strong drugs, so I know that that's a potential risk there.

While Simon wishes to find a GP who will help him keep track of his blood pressure, he describes encountering doctors determined to pursue issues of little interest to him, or which

he feels he has resolved already (see also Charles & DeMaio, 1993). In this respect, Simon's comments reflect Arnold's, quoted above, whose proposal that 'open dialogue' is the best doctor–patient relationship for men who consume PIEDs reflects his sense that these men need to be able to bring their own priorities to the consultation and be engaged on an equal footing (Gatellari et al. 2001).

Jasar (NSW, 44, small business owner) goes further than Arnold and Simon, explaining that his motivation for taking part in our research was the desire to draw attention to the lack of effective relationships between doctors and people who consume PIEDs:

That's why I'm taking [part in] this interview – because of the medical department. They don't help. They just ... and then they wonder why people get hurt or do the wrong things with [PIEDs]. With me, it's been trial and error for twenty-something years until now, like I know what I'm doing, you know. Back then, there was no knowledge, and if you said to a doctor now, these days, 'hormone replacement therapy', which is steroids, they won't talk to you about it, you know. They look at you and go, 'No, no, no, no.' Look, I've got hypertension, I've got heart problems and I still take steroids, but I'm very monitored, I'm well educated in this. I've educated myself to monitor my bloods and my cholesterol.

This extract suggests very different priorities and concerns for Jasar and, in the absence of a model allowing his knowledge and interests to be engaged symbiotically by his doctor, a failure of support and healthcare. How could this relationship be different? Joel's (Qld, 26, student) comments suggest another way that, at least for him, created a safer context in which to consume PIEDs:

I had to go around to quite a few doctors before I found one that didn't think that steroids injection would just kill you and that your penis would fall off. But yeah, once I actually did find one of those doctors, yeah, he was really good. I talked to him about everything that I was thinking about taking. He would give me some advice [...] I'd get as much information until I felt like I was prepared to try something and I knew

what to expect and, yeah, I'd say about every single time there were no surprises for me and, yeah, so it all actually worked out pretty well.

Of course, it would be a mistake to suggest that the answer here is for GPs and other health practitioners to respond purely by doing precisely as people ask, irrespective of their own knowledge or the consequences. To do this would be to become captured by the priorities of the patient in a relationship that would not amount to the symbiosis we have proposed.

David's (Vic, 27, concreter) story illustrates the complexities of the relationship we are attempting to describe here. In it he talks about approaching a doctor seeking specific tests, and not receiving the services he wanted:

He was pretty sort of rude and arrogant towards me [...] I had a list of things that I wanted to get checked. So, for example, my oestrogen levels was one of them because I know that if you've got high testosterone levels, your body will then...you can have high oestrogen levels as well, which can have... some negative side effects. So it's one thing I wanted to check for and so when I asked for the blood tests, I said, 'Can I get this, this, this?', and he's like, 'Oh no', he's like, 'No, we'll test your cholesterol, your this and your that, and your testosterone. Anything else is not necessary for what you're doing and you don't need it'. And I was like, 'Okay', I'm like, 'So could you at least maybe test for my oestrogen levels?' He goes, 'No, no, no. For the purposes of what you're doing, coming in and asking for the blood test, you don't need that, it's not necessary, so I won't be looking at testing for it'.

**I: Did he mean for the purposes as in you'd already explained to him that you wanted the tests because you're using steroids?**

David: Yeah, and he said that it wasn't necessary to test my oestrogen, but I disagreed and felt that it was, so I was annoyed because I wanted to test that anyway and he's my doctor, like he's a doctor. He's there to sort of make sure I'm healthy and everything like that, and if I've got a concern about something, I felt that he should have been working with me a little bit more on what I wanted as well because it's not just about what he thinks is best for my health. So that annoyed me a lot, yeah, because out of

the list of maybe ten things that I wanted tested, I only got three ...like the three main things tested.

This extract reflects some of the important challenges that arise when connoisseurs and GPs engage on terrain characterised by illicit activity and competing priorities. As David sees it, the doctor should have worked with him more. We do not have access to the thoughts and intentions of the doctor in this story, of course, but it is possible to imagine many interactions in which disagreement over necessary treatments and other services would arise when both parties have knowledge and expertise but very different priorities and concerns (including the costs of services such as tests). In Stengers' account, these engagements would benefit from symbiotic approaches that begin from recognition of differing interests and seek to identify and work from areas of overlap.

In sum, in describing their relationships with GPs, participants often highlight the absence of open dialogue, and the difficulty in having their priorities and concerns respected. As we have noted, the symbiotic relationship Stengers proposes is complex, and its complexities need to be addressed if such relationships are to be developed between PIED consumers and GPs. In addition, it is important to note that not all participants had sufficient technical knowledge about PIEDs to allow them entry into the relations of informational exchange or equivalence implied in some of these responses. This does not mean that the potential for developing symbiotic relationships between GPs and these participants should be discounted. Firstly, were information more reliable and accessible, the depth of knowledge across the group would likely increase, thereby affording this relation more and producing more connoisseurs. That said, technical knowledge approaching that of the experts is not the defining criterion of the symbiotic relationship. As noted above, this relationship is one in which neither party seeks to impose its priorities and interests on the other, and neither aims to 'capture' the other. Instead, the parties work together, with the point of focus being the overlap in their interests. This process could apply to PIED consumers whose technical knowledge is limited but who nevertheless possess their own priorities, forms of knowledge

drawn from experience about their own bodies, and interests. This group could no doubt benefit from specific analysis, and it is not our argument that PIEDs consumers ought to become more knowledgeable about the technical aspects of consumption. We simply note that while symbiosis is relevant to the scientific connoisseurs of PIED use, it is also relevant to other groups of consumers whose levels of knowledge, kinds of experience, and perspectives do not match the particular mode of connoisseurship described above.

## ***Conclusion***

Perhaps one of the most striking aspects of the interview material collected for our project on men who inject PIEDs is the volume of technical knowledge many collect and use in their everyday lives. This knowledge, along with the repeated calls for better relationships with GPs, relationships allowing more transparency about consumption, more exchange of information and better health support, led us to think carefully about the kinds of relationships available in general practice and their relevance for people who could be considered, following Stengers (2018), connoisseurs of drugs. As we noted earlier in the article, controversial issues such as climate change both highlight and prompt public scepticism about scientific knowledge, and point to the need for science and its representatives to develop more humble and open engagements with their publics. The objects and outcomes of science are not ‘matters of fact’ but ‘matters of concern’, and what is needed, Stengers (2018) argues, is an approach to science that recognises and cultivates a ‘public intelligence of the sciences’ (p. 4). We also noted a growing literature complicating early formulations of the doctor–patient relationship that tended towards paternalism and a reliance on institutionalised expertise. Our project, we argue, offers a very clear example of the utility of these observations and challenges. We encountered many men whose comments indicate an existing relation of ‘intelligence of science’: a relation in which accurate, credible, reliable knowledge is sought and mastered for use in maximising the benefits of PIED consumption while minimising risks and harmful effects. These men do not claim to be independently capable of mastering the knowledge they need to be safe and



achieve the results they seek. Instead, they consistently articulate a desire for an honest and productive relationship with a professional health practitioner – often a GP. According to their comments, however, this desire is rarely capitalised on by health professionals, who are not seen as responding in useful ways. As we have noted, there is room for rethinking some men who consume PIEDs as connoisseurs of these drugs and associated practices, and as collaborators in producing the healthiest outcomes possible for them. At the same time, as we have also noted, Stengers is not arguing for a relation in which GPs simply provide whatever these connoisseurs request. The challenge in creating a new relation is not as simple as this. GPs should not simply be ‘captured’ by connoisseurs, just as connoisseurs should not simply be ‘captured’ by GPs. The knowledge and priorities of each party needs respectful engagement, and active processes of identifying and working with the overlaps need to be pursued. Perhaps the most immediate way this could be progressed is for GPs to consider engaging in more transparent and informed discussions with men who consume PIEDs, discussing the issues they raise without demonising use or exaggerating risks. This first step would go some way towards addressing men’s articulated desire to have direct, informed conversations with trusted healthcare professionals about what they are doing. It may be that open, non-judgmental discussion of this kind creates room for other engagements and new kinds of reflection on PIED use and related priorities and interests. We don’t yet know, because these engagements and the relationships they may cultivate appear to be rare. In this sense, a new ‘cultivated science’ of GP–connoisseur PIED care may be called for, one in which connoisseurs’ perceptions of knowledges worth cultivating and lives worth living are preserved and addressed, and which in turn may create room for further reflection among both parties.

## REFERENCES

Advisory Council on the Misuse of Drugs. (2010). *Consideration of the anabolic steroids*. Home Office, London.

Aitken, C., Delalande, C., & Stanton, K. (2002). Pumping iron, risking infection? Exposure to hepatitis C, hepatitis B and HIV among anabolic–androgenic steroid injectors in Victoria, Australia. *Drug and Alcohol Dependence*, 65, (3), pp. 303-308.

Andreasson, J. (2015). Reconceptualising the gender of fitness doping: performing and negotiating masculinity through drug-use practices. *Social Sciences*, 4, pp. 546-562.

Andreasson, J., & Johansson, T. (2016). Gender, fitness doping and the genetic max. The ambivalent construction of muscular masculinities in an online community. *Social Sciences*, 5, (1), p. 11.

Australian Bureau of Statistics (2011). The Australian Standard Classification of Drugs of Concern. Online resource accessed 24/05/19 at [www.abs.gov.au/ausstats/abs@.nsf/mf/1248.0](http://www.abs.gov.au/ausstats/abs@.nsf/mf/1248.0)

Basaria, S. (2018). Use of performance-enhancing (and image-enhancing) drugs: a growing problem in need of a solution. *Molecular and Cellular Endocrinology*, 464, pp. 1-3.

Brennan, R., Wells, J., & Van Hout, M. C. (2018). ‘Blood letting’—self-phlebotomy in injecting anabolic-androgenic steroids within performance and image enhancing drug (PIED) culture. *IJDP*, 55, pp. 47-50.

Charles, C., & DeMaio, S. (1993). Lay participation in health care decision making: a conceptual framework. *Journal of Health Politics, Policy and Law*, 18, (4), pp. 881-904.

Charles, C., Gafni, A., & Whelan, T. (1999). Decision-making in the physician-patient encounter: revisiting the shared treatment decision-making model. *Social Science & Medicine*, 49, pp. 651-661.

Christiansen, A. V., Vinther, A. S., & Liokaftos, D. (2017). Outline of a typology of men’s use of anabolic androgenic steroids in fitness and strength training environments. *Drugs: Education, Prevention and Policy*, 24, (3), pp. 1-11.

Crofts, N., Aitken, C., & Kaldor, J. M. (1999). The force of numbers: why hepatitis C is spreading among Australian injecting drug users while HIV is not. *MJA*, 170, (5), pp. 220-221

Davis, M., & Rhodes, T. (2004). Managing seen and unseen blood associated with drug injecting: implications for theorising harm reduction for viral risk. *IJDP*, 15, (5), pp. 377-384.

Davis, M., Rhodes, T., & Martin, A. (2004). Preventing hepatitis C: ‘common sense’, ‘the bug’ and other perspectives from the risk narratives of people who inject drugs. *Social Science & Medicine*, 59, (9), pp. 1807-1818.

- Dodge, T., & Hoagland, M. F. (2011). The use of anabolic androgenic steroids and polypharmacy: a review of the literature. *Drug and Alcohol Dependence*, 114, (2), pp. 100-109.
- Farrugia, A., & Fraser, S. (2017). Young brains at risk: co-constituting youth and addiction in neuroscience-informed Australian drug education. *BioSocieties*, 12, (4), pp. 588-610.
- Fox, N., & Ward, K. (2006). Health identities: from expert patient to resisting consumer. *Health*, 10, (4), pp. 461-479.
- Fraser, S. (2013). The missing mass of morality: a new fitpack design for hepatitis C prevention in sexual partnerships. *IJDP*, 24, (3), pp. 212-219.
- Fraser, S., & Seear, K. (2011). *Making disease, making citizens: the politics of hepatitis C*. Ashgate, Aldershot.
- Fraser, S., Treloar, C., Bryant, J., & Rhodes, T. (2014). Hepatitis C prevention education needs to be grounded in social relationships. *Drugs: Education, Prevention and Policy*, 21, (1), pp. 88-92.
- Fraser, S., valentine, k., & Ekendahl, M. (2018). Drugs, brains and other subalterns: public debate and the new materialist politics of addiction. *Body & Society*, 24, (4), pp. 58–86
- Gattellari, M., Butow, P.N., & Tattersall, M.H. (2001). Sharing decisions in cancer care. *Social Science & Medicine*, 52, pp. 1865-1878.
- Gidman, W., Ward, P., & McGregor, L. (2012). Understanding public trust in services provided by community pharmacists relative to those provided by general practitioners: a qualitative study. *BMJ Open* 2012, 2: e000939.
- Griffiths, S., Jacka, B., Degenhardt, L., et al. (2018). Physical appearance concerns are uniquely associated with the severity of steroid dependence and depression in anabolic-androgenic steroid users. *Drug and Alcohol Review*, 37, (5), pp. 664-670.
- Grogan, S., Shepherd, S., Evans, R., et al. (2006). Experiences of anabolic steroid use: in-depth Interviews with men and women body builders. *Journal of Health Psychology*, 11, (6), pp. 845–856.
- Guadagnoli, E., & Ward, P.S. (1998). Patient participation in decision-making. *Social Science & Medicine*, 47, (3), pp. 329-39.
- Hall, J. A., & Dornan, M. C. (1988). What patients like about their medical care and how often they are asked: a meta-analysis of the satisfaction literature. *Social Science & Medicine*, 27, pp. 935-939.
- Hart, A. (2018). Making a difference? Applying Vitellone's *Social Science of the Syringe* to performance and image enhancing drug injecting. *IJDP*, 61, pp. 69-73.
- Heritage, J., & Maynard, D.W. (2006). Problems and prospects in the study of physician-patient interaction: 30 years of research. *Annual Review of Sociology*, 32, pp. 351-374.

Hope, V., Harris, R., McVeigh, J., et al. (2016). Risk of HIV and hepatitis B and C over time among men who inject image and performance enhancing drugs in England and Wales: results from cross-sectional prevalence surveys, 1992–2013. *Journal of Acquired Immune Deficiency Syndrome*, 73, (3), pp. 237-245.

Hope, V. D., McVeigh, J., Marongiu, A., et al. (2013). Prevalence of, and risk factors for, HIV, hepatitis B and C infections among men who inject image and performance enhancing drugs: a cross-sectional study. *BMJ Open*, 3, (9).

Irwin, A., & Michael, M. (2003). *Science, social theory and public knowledge*. Open University Press, Philadelphia.

Iversen, J., Topp, L., Wand, H., & Maher, L. (2013). Are people who inject performance and image-enhancing drugs an increasing population of needle and syringe program attendees? *Drug and Alcohol Review*, 32, (2), pp. 205-207.

Keane, H. (2005). Diagnosing the male steroid user: drug use, body image and disordered masculinity. *Health*, 9, (2), pp. 189-208.

Kimergård, A. (2015). A qualitative study of anabolic steroid use amongst gym users in the United Kingdom: motives, beliefs and experiences. *Journal of Substance Use*, 20, (4), pp. 288-294.

Kimergård A., & McVeigh, J. (2014). Environments, risk and health harms: a qualitative investigation into the illicit use of anabolic steroids among people using harm reduction services in the UK. *BMJ Open*, 4, (6).

Kutscher, E. C., Lund, B. C., & Perry, P. J. (2002). Anabolic steroids: a review for the clinician. *Sports Medicine*, 32, (5), pp. 285-296.

Larance, B., Degenhardt, L., Copeland, J., & Dillon, P. (2008). Injecting risk behaviour and related harm among men who use performance- and image-enhancing drugs. *Drug and Alcohol Review*, 27, (6), pp. 679-686.

Lupton, D. (1997). Consumerism, reflexivity and the medical encounter. *Social Science & Medicine*, 45, pp. 373-381.

May, C. (2007). The clinical encounter and the problem of context. *Sociology*, 41, (1), pp. 29-45.

Mead, N., & Bower, P. (2000). Patient-centeredness: a conceptual framework and review of the empirical literature. *Social Science & Medicine*, 51, pp. 1087-1110.

McIntosh, J. (1974). Processes of communication, information seeking and control associated with cancer: a selective review of the literature. *Social Science & Medicine*, 8, pp. 167-187.

Memedovic, S., Iversen, J., Geddes, L., & Maher, L. (2017). *Australian needle syringe program survey national data report 2012-2016*. Kirby Institute, UNSW, Sydney.

Monaghan, L. (2001a). *Bodybuilding, drugs and risk*. Routledge, London & New York.

Monaghan, L. (2001b). Looking good, feeling good: the embodied pleasures of vibrant physicality. *Sociology of Health & Illness*, 23, (3), pp. 330-356.

Monaghan, L. (2002). Vocabularies of motive for illicit steroid use among bodybuilders. *Social Science & Medicine*, 55, (5), pp. 695-708.

Moore, D., Hart, A., Fraser, S., & Seear, K. (2019). Masculinities, practices and meanings: a critical analysis of recent literature on the use of performance- and image-enhancing drugs among men. *Health*.

Nettleton, S. (2013). *The sociology of health and illness*. Polity Press, Cambridge UK.

Nøkleby, H., & Skårderud, F. (2013). Body practices among male drug abusers: meanings of workout and use of doping agents in a drug treatment setting. *International Journal of Mental Health and Addiction*, 11, (4), pp. 490 – 502.

Oakley, A. (1984). *The captured womb: a history of the medical care of pregnant women*. Blackwell, Oxford.

Onakomaiya, M., & Henderson, L. (2016). Mad men, women and steroid cocktails: a review of the impact of sex and other factors on anabolic androgenic steroids effects on affective behaviors. *Psychopharmacology*, 233, (4), pp. 549-569.

Ong, L.M., de Haes, J.C., Hoos, A.M., & Lammes, F.B. (1995). Doctor-patient communication: a review of the literature. *Social Science & Medicine*, 40, pp. 903-918.

Parsons, T. (1951). *The social system*. The Free Press, Glencoe.

Petrocelli, M., Oberweis, T., & Petrocelli, J. (2008). Getting huge, getting ripped: a qualitative exploration of recreational drug use. *Journal of Drug Issues*, 38, (4), pp. 1187-1205.

Pilnick, A., & Dingwall, R. (2011). On the remarkable persistence of asymmetry in doctor/patient interaction: a critical review. *Social Science & Medicine*, 72, (8), pp. 1374-1382.

Race, K. (2009). *Pleasure consuming medicine: the queer politics of drugs*. Duke University Press, Durham NC.

Rhodes, T., & Treloar, C. (2008). The social production of hepatitis C risk among injecting drug users: a qualitative synthesis. *Addiction*, 103, (10), pp. 1593-1603.

Rowe, R., Berger, I., Yaseen, B., & Copeland, J. (2017). Risk and blood-borne virus testing among men who inject image and performance enhancing drugs, Sydney, Australia. *Drug and Alcohol Review*, 36, (5), pp. 658-666.

Seear, K., Fraser, S., Moore, D., & Murphy, D. (2015). Understanding and responding to anabolic steroid injecting and hepatitis C risk in Australia: a research agenda. *Drugs: Education, Prevention and Policy*, 22, (5), pp. 449-455.

Stengers, I. (2018). *Another science is possible: a manifesto for slow science*. Polity Press, Cambridge, UK.

Stewart, M.A. (1984). What is a successful doctor-patient interview? A study of interactions and outcomes. *Social Science & Medicine*, 19, pp. 167-175.

Timmermans, S., & Tietbohl, C. (2018). Fifty years of sociological leadership at Social Science and Medicine. *Social Science & Medicine*, 196, p. 209.

Treloar, C., Laybutt, B., Jauncey, M., Van Beek, I., Lodge, M., Malpas, G., & Carruthers, S. (2008). Broadening discussions of “safe” in hepatitis C prevention: a close-up of swabbing in an analysis of video recordings of injecting practice. *IJDP*, 19, (1), pp. 59-65.

Underwood, M. (2017). Exploring the social lives of image and performance enhancing drugs. *IJDP*, 39, pp. 78-85.

Underwood, M., & Olson, R. (2018). ‘Manly tears exploded from my eyes, lets feel together brahs’: emotion and masculinity within an online body building community. *Journal of Sociology*, 55, (1), pp. 90-107.

Van de Ven, K., & Mulrooney, K. (2017). Social suppliers: exploring the cultural contours of the performance and image enhancing drug (PIED) market among bodybuilders in the Netherlands and Belgium. *IJDP*, 40, pp. 6-15.

Van Hout, M.C., & Kean, J. (2015). An exploratory study of image and performance enhancement drug use in a male British South Asian community. *IJDP*, 26, (9), pp. 860-867.

Warner, M. (2002). *Publics and counterpublics*. Zone Books, New York.

Yesalis, C., & Bahrke, M. (2002). Anabolic-androgenic steroids and related substances. *Current Sports Medicine Reports*, 1, (4), pp. 246-252

Zahnow, R., McVeigh, J., Bates, G., Hope, V., Kean, J., Campbell, J., & Smith, J. (2018). Identifying a typology of men who use anabolic androgenic steroids (AAS). *International Journal of Drug Policy*, 55, pp. 105-112.

This research project was approved by Curtin University's Human Research Ethics Committee (HRE2017-0372).