

## **Maintaining the healthy body: Blood management and hepatitis C prevention among men who inject performance and image-enhancing drugs**

### **Abstract**

Australia's ambitious aim to 'eliminate' hepatitis C as a public health concern by 2030 requires researchers, policy makers and health practitioners to engage with populations rarely identified as a priority. Men who inject performance and image-enhancing drugs (PIEDs) are one such population, yet research suggests they have low rates of knowledge about hepatitis C. Although rates of needle-sharing in this group are thought to be low, other risks of blood-to-blood contact exist due to the use of large-gauge needles, intramuscular injection, hard-to-reach injection sites, repeated injecting and peer-to-peer injecting. How should health initiatives engage people who might not customarily consider themselves vulnerable to hepatitis C? Drawing on the work of body theorist Margrit Shildrick, this article considers how men who inject PIEDs understand their bodies, with a particular focus on injecting practices, blood awareness and infection control, in order to inform hepatitis C prevention efforts. In our analysis, we draw on qualitative interviews with 60 men who inject PIEDs, which were conducted for an Australian Research Council-funded project focused on better understanding PIED injecting to improve health and minimise hepatitis C transmission. The interviews suggest that men who inject PIEDs closely monitor potential *external* infection risks, such as dirt and bacteria that might intrude upon the 'purity and security' of the body. However, less attention appears to be paid to what might be transferred out of the body and potentially to others, such as blood. Notions of trust and cleanliness, and normative perceptions of intravenous drug use, also shaped injecting practices and cursory attention to blood management. While environmental transmission poses a smaller transmission risk than needle-sharing, educating PIED consumers about it is nevertheless warranted. Focusing targeted health promotion materials on environmental blood as a potential route of hepatitis C

transmission may help engage this population in prevention, and encourage more frequent hepatitis C testing.

**Keywords:** Performance and image-enhancing drugs, injecting, hepatitis C, the body, feminist theory

## Introduction

While the overall prevalence of performance and image-enhancing drug (PIED) use in Australia appears to be relatively low, one in four recent initiates (26%) to injecting reported PIEDs as the last drug injected (Heard, Iversen, Geddes & Maher, 2018). Hepatitis C prevalence in this group appears to be relatively low compared with people who inject other drugs, but it is believed to be approximately ten times higher than the general population (Aitken, Delalande & Stanton, 2002; Hope et al., 2017). As Iverson et al. have noted, this emerging group of people who inject may present a blood-borne virus ‘prevention opportunity not available’ in other groups, particularly in relation to hepatitis C (2013, p. 207). As other research has suggested, hepatitis C health promotion and education is most effective when embedded within the cultural and social contexts of the people it addresses (Fraser, 2004; Winter et al., 2011). To date, however, the social contexts and dynamics of PIED injecting, and its association with blood-borne virus transmission, especially hepatitis C, have rarely been the focus of academic attention.

This article explores how men who inject PIEDs describe their experiences and practices of injecting, with particular attention to blood management and the body. Drawing on the work of poststructuralist body theorist Margrit Shildrick (1997, 2002), we argue that important notions of the healthy, pure and proper body inform their injecting practices and perceptions of risk, hygiene and infection control. Our argument is based on an analysis of interviews with 60 Australian men who inject PIEDs conducted as part of a project designed to better understand PIED injecting for the purpose of improving health and minimising hepatitis C transmission. First, we consider how participants typically described themselves as not at risk of blood-borne virus transmission, although their knowledge of hepatitis C was negligible.

Bodily ideals of the pure and healthy inform inward-oriented hygienic practices, such as swabbing and attention to environmental dirt prior to injecting. Whilst these practices are recommended, our data suggest they are accompanied by relatively cursory approaches to outward-oriented blood management and infection control. Second, we argue that conceptions of the body as clean and secure underpin trust between people who inject PIEDs and, in turn, minimal blood-management practices in peer-to-peer injecting. This is important because participants reported frequently injecting or being injected by others, with some describing significant levels of blood exposure. Lastly, we consider a broader issue in how PIED-injecting men understand their bodies and injecting-related risk: the delineation of ‘monstrous’ other bodies, namely those of people who inject other drugs such as heroin.

In identifying these approaches to the body, we aim to contribute to knowledge on the social and cultural dynamics of PIED injecting and hepatitis C transmission. While environmental transmission and being injected by others pose smaller transmission risks than needle-sharing, educating PIED consumers about it is nevertheless warranted (Brennan et al., 2018; Dunn et al., 2014; Hope et al., 2016; Hope et al., 2015; Kimergård & McVeigh, 2014; Rowe et al., 2017; Van de Ven et al., 2018). Australia’s ambitious aim to ‘eliminate’ hepatitis C as a public health concern by 2030 requires researchers, policy makers and health practitioners to engage with populations rarely identified as a priority (Department of Health, 2018). Men who inject PIEDs are one such population, yet research suggests they have low rates of knowledge about hepatitis C. Focusing targeted health promotion materials on environmental blood as a potential route of hepatitis C transmission may help engage this group in prevention, and in turn encourage more frequent hepatitis C testing. By drawing attention to the contradictions and transgressions in all injecting practice that raise questions about the

boundaries of the healthy body, we also aim to intervene in the stigmatisation of all people who inject drugs, focusing on how *all* bodies struggle to conform to bodily ideals.

## **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, various peptides and insulin (Australian Bureau of Statistics, 2011; Larance, Degenhardt, Copeland & Dillon, 2008).

Anabolic-androgenic steroids are reported to be the most widely used PIED (Larance et al., 2008), and the vast majority of people who use PIEDs are men and appear significantly more likely to be heterosexual (Day et al., 2008; Iversen et al., 2013). Research suggests amateur athletes, older men and occupational users (e.g., fitness trainers, security guards) make up the bulk of PIED users. Motivations for use are diverse, but are typically related to strength and athletic performance, and image-related concerns (Van de Ven et al., 2018; Kimergård, 2015; Zahnow et al., 2018). National data sources and research are scarce and make ascertaining the prevalence of use difficult, but PIED consumers are known to be accessing needle and syringe exchange programs in greater numbers than the past (Iversen et al., 2013; Memedovic et al., 2017).

Australian research suggests that men who inject PIEDs are at higher risk of blood-borne virus acquisition than the general population (Rowe et al., 2017; Van de Ven et al., 2018).

Like other forms of injecting drug use, injecting PIEDs provides opportunities for transmission of blood-borne viruses, especially hepatitis C, due to its high infectiousness compared with HIV (Crofts, Aitken & Kaldor, 1999). Hepatitis C affects the liver and is

transmitted by blood-to-blood contact. In Western developed nations, most transmission occurs through the sharing of injecting equipment. However, hepatitis C can also be transmitted via small amounts of blood in the injecting environment, on injecting equipment and on the body, most commonly the hands (Crofts et al., 1999; Hagan et al., 2001; Rhodes & Davis 2004). While rates of needle-sharing among people who inject PIEDs are thought to be low (Day et al., 2008; Rowe, Berger, Yaseen & Copeland, 2017; Santos & Coomber, 2017), certain practices associated with PIED injecting may increase the risk of blood-borne virus transmission (Aitken et al., 2002).

One such practice is the use of large-gauge needles for intramuscular injection. PIEDs are generally injected intramuscularly, into large muscle groups such as the gluteus maximus (buttocks) or vastus lateralis (thigh) – rather than intravenously (Hope et al., 2015; Larance et al., 2008; Seear, Fraser, Moore & Murphy, 2015). The greater force and tissue damage required for injecting in this way tends to produce more blood than intravenous injecting. Other contributing practices include the re-use of needles and other injecting equipment, and ‘indirect sharing’ through multi-dose vials and containers (Advisory Council on the Misuse of Drugs, 2010; Larance et al., 2008). Shared injecting spaces, injecting oneself prior to injecting another (or vice versa) and injecting into hard-to-reach muscles can mean that minuscule (including invisible) amounts of blood may adhere to hands, and settle in the injecting environment (Rowe et al., 2017; Van Hout & Kean, 2015). A recent study also reports that some men who consume PIEDs practise ‘self-phlebotomy’ or ‘bloodletting’ (Brennan et al., 2018); this was not investigated in our study.

## **Literature review**

Beyond the suggestion that particular injecting practices may place men who inject PIEDs at higher risk of blood-borne virus infection than the general population, the specificities and embodied practices of PIED injecting that might affect transmission have received little attention from researchers (Sear et al., 2015). The small body of research that does exist, however, highlights the limitations of the dominant conceptual frameworks underpinning knowledge about PIED consumption. Drawing on Keane (2005), Underwood argues that there are two main approaches to understanding PIED use: ‘the illicit drug framework, and the body image disorder framework’ (2017, p. 78). The suggestion that PIED consumption is a pathology inaugurated by a crisis in masculinity or a cultural obsession with muscularity (Basaria, 2018; Griffiths, Jacka et al., 2018; Griffiths, Murray et al., 2018) would seem to overlook how PIED use and different forms of body modification co-produce gendered and social meanings, rather than simply respond to them (Andreasson, 2015, Fomiatti et al., in press; Hart, 2018; Keane, 2005; Latham et al., 2019; Underwood, 2018). That is, the pathologisation of PIED use via the language and tools of psychological research elides its differences from other drug use, and ignores the specificity of PIED injecting and its associated bodily practices (Keane, 2005; Moore, Hart, Fraser & Sear, 2018; Sedgwick, 1993).

Within sociological research on bodybuilding and steroids, Monaghan (2001, 2002) identifies another troubling tendency: excessive emphasis on risk practices and ‘diseased’ bodies. He argues that in-so-far as bodybuilding (and we would argue PIED consumption more broadly) is aligned with fitness and health, men who perform bodybuilding typically take for granted their own status as healthy and their bodies as being free from disease. Monaghan argues that, contrary to this 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' requires a more nuanced and contextualised analysis than previously attempted (Keane, 2005, p. 192). In this article, we aim to do this, illuminating the embodied experiences of PIED use through an analysis of how notions of the healthy body inform the injecting and blood management practices of men who inject PIEDs.

While sociological research on PIED injecting and hepatitis C is limited, there is a well-developed body of critical research on other injecting drug use and hepatitis C (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, hepatitis C and the body have been more fully explored (Fraser & Seear, 2011). This research suggests that injecting practices, ideas of blood, blood management and blood-borne virus prevention are directly shaped by conceptualisations and models of the body (Davis, Rhodes & Martin, 2008; Treloar & Fraser, 2004). In their examination of hepatitis C prevention materials, Treloar and Fraser (2004) illustrate how models of the body and blood underpin advice about injecting and communicate ideas around contagion and responsibility. The body as a 'fortress' or closed system, for example, has implications for the design of health promotion materials and the attribution of responsibility. People who inject drugs are often positioned as dirty and as potential sources of contamination. This informs how they inject, manage bleeding and pursue other hygienic practices (Rhodes & Treloar, 2008). In her analysis of injecting, hepatitis C and stigma, Harris (2009) explores how injecting transgresses the Western ideal of the body as 'bounded and immutable' both figuratively and literally by piercing the skin, rupturing proper bodily boundaries and circumventing the body's 'normative openings' (p. 41). In this sense, people who inject drugs attract stigma and a range of social and legal costs



that inform safe injecting practice. This means that blood management and preventative practices exceed individual responsibility in that they are contingent on social and political dynamics, symbolic associations and knowledges (Davis & Rhodes, 2004). Read together, these studies emphasise the importance of examining the models of the body operating in accounts of injecting and blood-borne virus prevention. We suggest that exploring how men who inject PIEDs understand their bodies and approach safe injecting is crucial to producing effective, non-stigmatising engagement and education strategies.

In what follows, we build upon this research to explore how the body figures in men's accounts of injecting. We also draw attention to the implications of these figurations for hepatitis C prevention. In so doing, we challenge the notion of the stable, natural body and explore the social and cultural dynamics that inform PIED injecting. We ask what beliefs men who inject PIEDs hold about health and their bodies, and how these ideas shape their attitudes towards injecting and risk.

## **Theoretical framework**

Taking on Monaghan's challenge to account for 'healthy' bodies, our analysis uses the feminist poststructuralist work of Margrit Shildrick to draw attention to the performativity of normative 'healthy' embodiment. In her earlier work, Shildrick (1997) critiques the disembodied masculine subject that has functioned as the site of subjectivity in Western thought (see also Butler, 1993; Grosz, 1994; Moore & Fraser, 2006). Shildrick argues that the masculine subject has historically been treated as universal and transcendent, 'disembodied [and] detached from corporeal raw material' (1997, p. 14). At the same time, women and female subjectivity have been marginalised from the status of proper subjecthood, with the

historical reduction of women to the ‘gross materiality’ of their ‘natural’ bodies serving to doubly discredit and exclude them. Responding to what she perceives as the inappropriate devaluation of corporeality, Shildrick sees the theorisation and valorisation of embodiment as a transgressive act able to disrupt foundational (masculinist) notions of unity, autonomy and rationality that underpin Western frameworks and discourses.

Through an exploration of contemporary and historical issues in biomedicine, Shildrick argues that the nature of embodiment has been defined in relation to a series of binaries such as ‘male/female, health/ill health, able-bodied/disabled’ (1997, p. 59). Writing on the performativity of the body, she argues:

Just as we perform our sexed and gendered identities, and constantly police the boundaries between sameness and difference, so too the purity of the healthy body must be actively maintained and protected against its contaminated others – disease, disability, lack of control, material and ontological breakdown. (1997, p. 60)

By this Shildrick means to suggest that the ‘purity of the healthy body’ is an artefact of various disciplinary, discursive regimes and cultural constructions that impose and maintain normative bodily standards. She argues against a dualist notion of the ‘healthy’ body in which the idea of health ‘is some kind of given: a normative state which can be restored by defeating the abnormality of disease’ (p. 17). Highlighting contradictions and transgressions that disrupt these oppositional categories, Shildrick argues, unsettles the ontological and corporeal security of the liberal subject. In this sense, she demonstrates how *all* bodies are unable to comply with the fiction of the unified, neutral and healthy subject (p. 60). We draw on Shildrick’s performative account of the ‘healthy body’ to explore the various ways that men who inject PIEDs work to protect and maintain the ‘clean and proper’ body against

perceived sources of contamination. By analysing the ways in which the men in this study understand and perform their bodies, we consider the implications for hepatitis C transmission and prevention.

In analysing these dynamics, we also work with the concepts of monstrosity and vulnerability developed in Shildrick's later work (2002). In *Embodying the Monster*, Shildrick turns to non-normative morphology, or what she refers to as 'monstrous bodies', as a means of further thinking through the nature of embodiment. It should be noted that Shildrick does not use the term 'monstrous' as a negative charge against 'abnormal' bodies. Shildrick is primarily interested in theorising disability, and conceptualises monstrous bodies as those produced and embodied differently from the white, rational, masculinist standard of subjectivity (for example, women, people with disabilities and people who inject drugs). These bodies are excluded and made marginal via various regulatory frameworks and social practices, and via abjection are made to inspire fear and disgust. Although corporeal vulnerability is typically expunged from understandings of normative healthy embodiment, it is the rejection of vulnerability (and the reiteration of rigid boundaries) that makes contagion (i.e. the transgression of boundaries) possible. As Shildrick argues:

Above all, vulnerability must be managed, covered over in the self, and repositioned as a quality of the other. And yet for all its putative lack of integrity and closure, that same other – monstrously embodied – poses the greatest risk to the self's clean and proper body. (p. 68)

For Shildrick, it is through the abjection of those deemed diseased and unhealthy that the normative parameters of the invulnerable and inviolable body are secured, and the healthy subject is constituted. In this sense, the political productivity of abjection shows how the

‘constitutive outside’, in this case, monstrous bodies, ‘is, after all, “inside” the subject as its own founding repudiation’ (Butler, 1993, p. 3).

Scholars in critical drugs studies have drawn on Shildrick’s work to explore issues related to the lived body, health and stigma. Fraser and Treloar (2006) and Lenton and Fraser (2016), for example, critique the binary logics of clean/contaminated and normal/abnormal that characterise hepatitis C infection, and in turn, the bodies produced in relation to disease transmission. Harris (2009) has also worked with Shildrick’s concept of the ‘monstrous’ or the ‘abject’ in her account of the embodied production of stigma through injecting and hepatitis C. She argues that ‘the person who injects, by breaking the boundary of the skin, epitomises the monstrous or abject, which needs to be set at a distance or Othered in order for society to maintain its fiction of the coherent inviolate body’ (Harris, 2009, p. 41). This account of instability and vulnerability in the work of Butler and Shildrick, and elaborated on by critical drug sociologists, is a useful framework through which to explore the dynamics of health and illness, hygiene and contagion, which shape accounts of some men’s own healthy bodies and injecting practices, and the stigmatised bodies and injecting practices of people who inject other drugs. Not only does this approach allow us to trouble boundaries between PIED consumers and people who inject other drugs, but in foregrounding the vulnerability and instability of *all* bodies, we challenge the distinction often made between PIED-consuming bodies as ‘healthy’ and the bodies of people who inject other drugs. Ultimately, we ask, is it possible to reconceive vulnerability not in terms of the risk posed to one’s self, but as a recognition of shared responsibility for health and well-being, including blood-borne virus prevention?

## **Method**

This article draws on 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’. In-depth, qualitative interviews were conducted with 60 men who inject, or have experience of injecting, PIEDs across Australia. Participants were recruited through a wide range of strategies. Recruitment flyers were placed in 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 steroid and bodybuilding online forums and in *Men’s Health* magazine. During the initial stages of the project, numerous attempts to engage gyms and other fitness organisations in recruitment were unsuccessful, likely due to the stigma associated with PIED consumption and injecting more broadly (see Fraser et al., 2017). In Victoria, participants were also recruited with the assistance of Australia’s only peer-run outreach service for steroid users (Aitken et al., 2002). Participants were over the age of 18 and had reported using a PIED in the last 12 months. Aside from one participant who solely used peptides, all other participants used a range of PIEDs, and almost all used anabolic androgenic steroids.

The 60 participants were recruited from urban and regional locations in Victoria (n = 20), Queensland (n = 15), Western Australia (n = 13) and New South Wales (n = 12). Men were aged 19 to 72 years, with 18 aged under 25 years and 42 aged over 25 years. Forty-seven men identified as heterosexual, eight as gay and one as bisexual. None disclosed that they were trans or had a trans history. Thirty-three participants reported that both they and their parents were born in Australia, 13 participants reported that they were born in Australia and one or both of their parents were born overseas, and 14 participants reported being born overseas.

The interviews ranged from 45 to 90 minutes in duration. The interview schedule was developed with reference to the existing literature, the project's aims, input from the project advisory board, and also further developed during the course of the project as the interviews highlighted new issues. Overall, the interviews explored experiences of PIED use including: initiation to injecting, injecting settings, fitness settings and routines, practices and patterns of injecting and consumption, experiences of PIED use and its effects, interactions with health service providers, and sources of information about safe injecting and hepatitis C. In asking these exploratory questions, our aim was to develop a balanced understanding of men's experiences and perspectives, placing issues of blood-borne virus transmission in the context of whole lives and diverse priorities. In doing so, we engaged with participants directly through in-depth, (predominantly) face-to-face conversations to understand the pleasure and rewards of consumption as well as any potential for harm. This strategy reflects the authors' approach in previous research projects (Fraser et al. 2017; Fraser & Seear, 2011; Fraser, Treloar, Bryant & Rhodes, 2014). While we aimed to explore the specificities and dynamics of PIED injecting, we were also careful not to make assumptions about, or overstate, distinctions between PIED consumers and other drug consumers, as such distinctions depend on, and further amplify, injecting drug use-related stigma (for related comments, see Underwood, 2019). Interviews were conducted between September 2017 and September 2018 by the first two authors and Aaron Hart, Mair Underwood, Jeanne Ellard and Dean Murphy. Private rooms within community health services, or public places such as libraries and cafes were used, and some interviews were conducted via telephone. All were given an information sheet in person or via email 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.

They were also offered hepatitis C health information. Curtin University's Human Research Ethics Committee approved the study (HRE2017-0372).

All 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: some codes were identified in response to previous research on PIED consumption, on the basis of emerging themes in the data, and in consultation with the project's advisory board. The first and second authors coded the interview transcripts, using an iterative process in which they compared coding in collaboration with the lead investigator (author four) to maximise coding consistency and comprehensiveness. To protect participant identities, each was given a pseudonym and all identifying details were removed from the transcripts.

## **Analysis**

We begin our analysis by considering how notions of the 'healthy and pure' body operate in participants' accounts to inform injecting practices and attitudes towards risk and blood management. First, we explain how participants described monitoring their bodies to safeguard against the *intrusion* of dirt and bacteria, and adopted relatively cursory approaches to *outward-oriented* blood management and infection control. Second, we consider how understandings of cleanliness and trust overlap in the interviews, and how this seems to inform peer-to-peer injecting in settings where risks of viral transmission are heightened. Third, we examine how the 'monstrosity' of people who inject intravenously operates in the interviews to buttress the 'healthiness' of PIED-injecting bodies. We tease out how this opposition relates to participant statements that hepatitis C transmission is of little concern to them. We conclude by returning to Shildrick's notion of shared vulnerability to complicate

the distinction PIED consumers make between other injecting drug users and themselves, foregrounding the possibilities for education on hepatitis C and blood management.

### **Hygiene and the security of the healthy body**

A key theme in participants' accounts of injecting was the use of hygiene to secure and fortify the body against risk. In line with critical literature exploring perceptions of hepatitis C transmission risk, in the absence of biomedical knowledge, hygiene narratives can function to downplay risk (Davis & Rhodes 2004; Treloar & Fraser 2004). This is particularly relevant to our study in that participants typically described themselves as *not at risk* of acquiring hepatitis C, despite very low, if any, knowledge of hepatitis C and how transmission might occur. Some participants, such as Tibor (23, NSW), had 'heard of it' but did not know how it was transmitted, while others, such as Ryan (43, NSW), knew only that it could be 'transferred by people sharing needles' but did not know what it was or its effects. Importantly, as is evident in Don's (28, Vic) account, hepatitis C was commonly conflated with ideas of poor hygiene:

How would you get the blood-borne [virus] unless you're sharing needles? Like, how would you get hepatitis C, like unless you're, I don't know, rolling it [the needle] round in filth or something?

Like Don, most participants linked hepatitis C transmission principally to needle-sharing. Other scholars in the field have previously remarked on this conflation of blood-borne virus transmission with 'filth', and the symbolic association between hepatitis C, dirt and contamination (Fraser & Seear, 2011; Rhodes & Treloar, 2008). We begin by flagging these knowledge ambiguities in PIED consumers' accounts of hepatitis C because, as we argue below, it informs their strong emphasis on bodily invulnerability and inward-oriented



hygiene. Further, we speculate that limitations in knowledge about hepatitis C also shape a habitual lack of attention to the presence of blood during injections by themselves and with others.

In describing their injecting preparations, many participants characterised themselves as ‘clean freaks’ or ‘neat freaks’. Detailed and careful routines for cleaning hands and bodies prior to injecting were often described. As David (27, Vic) explains, ‘I clean myself up, especially my hands, because I’d be handling the stuff first’. Ben (44, Vic) also describes washing and sanitising his hands prior to injecting, while Gabe (22, Vic) explains that he does not ‘go to the gym and then come home and just inject. I have a shower. I make sure my body’s completely spotless’. After multiple experiences of developing abscesses, showering was also important to Nathan (26, Qld), a competitive bodybuilder:

So I’ll have a shower before I inject [...] I didn’t used to do that. I just swabbed the area and, you know, if you’re dirty, chances are you’re just rubbing dirt around a little bit if you don’t do it properly. [...] Yeah, I’m big on that, the showers beforehand now. [...] Since abscesses and things like that, definitely, those were a big wake-up call.

In these accounts, men closely monitor potential external infection risks, such as dirt and bacteria, which might threaten the health and security of their bodies. Participants were largely motivated to avoid bacterial infections caused by injecting and, in our reading, were informed by an abstract sense of the body as a closed and secure system (Treloar & Fraser, 2004). Of course, in line with contemporary blood-borne virus prevention discourses, cleanliness *is* an important method for infection management (Davis & Rhodes, 2004). We would also contend, however, that it is an equally important *symbolic* practice for attempting

to secure the insecure and inconsistent boundaries of the ‘clean and proper’ body (Shildrick, 1997). This is perhaps particularly important in practices of injecting, in which the literal boundary of the body (the skin) is breached (Harris, 2009; Lenton & Fraser, 2016). In this way, we see this version of the proper, secure subject produced and reiterated in and through particular injecting practices.

Participants also reported closely monitoring other potential external infection risks, such as via injecting equipment, or dirt and bacteria in the injecting environment. Some participants, such as Alex (38, Qld), described monitoring ‘exposed surface[s]’, and avoiding touching sterile injecting equipment, such as the syringes and vials containing his PIED compounds. Other participants explained paying special attention to the sterility of the injecting environment. Matthew (26, Vic), for example, detailed how in his previous house he had had a separate room ‘that was like my man cave’ with a ‘little desk in the corner [...] that had all my sanitary stuff’, which he made sure ‘was cleaned each week’. In his current apartment, which he shares with his training partner, they inject together in the kitchen:

So we have our gear in the cupboard and all the needles and the syringes and stuff and then we have a clean kitchen top, just pull it out and we just wipe a few swabs over the kitchen top as well to make sure it’s really cleaned over and then we get it set up and then we usually do our injections usually on the same day, so I can do mine and then he’ll get his ready and then I just have to do the action [injecting] for him.

(Matthew, 26, Vic)

There is an evident focus here on environmental dirt, understood as contaminating and unclean matter that threatens the integrity of the body. Matthew appears less concerned about blood as a matter to be managed. This is especially notable in the context of injecting another

person and possible blood flow in a domestic space. We discuss peer-to-peer injecting practices at length in the next section. For now, our point is that risk is typically conceived in relation to perceived environmental contaminants that threaten to violate the integrity of the body but rarely considered in relation to outward-oriented risk management practices, especially bleeding.

This lack of attention to viral transmission risk and blood flow is also apparent in men's reports of their post-injecting practices. Following intramuscular injecting, participants frequently recounted rubbing or massaging the injection site, which they understood to 'help disperse' the viscous compound and aid absorption. For example, Basil (25, Vic) described giving the injection site 'a good rub for a couple of minutes just to help disperse the oil through the muscle and warm it up'. Similarly, Dylan (19, NSW) reported that after he injects, he massages the area:

**Dylan:** Pretty much just grab my fingers, or even sometimes if it's a bit tougher, I'll grab my knuckles and I'll just rub where I injected pretty much. [...] Move it all around and get some blood flowing.

*Interviewer: Yeah, and then what do you do post that [rubbing] to kind of finish up?*

**Dylan:** Well, obviously I get rid of my needle in the little disposable box thing that you get from the needle exchange. [...] And just clean up the bench and, you know, get rid of the needles and stuff out of the way in the bathroom, so the family doesn't have to see it, and that's pretty much it. As well, I'll try and make sure that I always have an injection just after a shower.

When asked to describe how they inject PIEDs, participants tended to outline in great detail routine practices such as swabbing, carefully preparing injecting equipment so as not to

compromise its sterility, swapping the needle tips for drawing up and injecting, warming up the compound prior to injection, cleaning the injection site and aspirating (pulling back the plunger of the syringe prior to injecting to ensure the needle is correctly positioned away from a blood vessel). When asked what they do after injecting, participants commonly mentioned rubbing the injecting site and disposing of injecting equipment. In general, they paid significantly less attention to blood remaining after injecting, and to hand washing. Hand washing after injecting has been identified as an important blood-borne virus transmission prevention strategy, but participants were much more likely to mention doing so and cleaning surfaces *before* injecting, and not after. This means participants may have small amounts of blood on their hands and fingertips following injecting, which can increase the potential for the transmission of blood-borne viruses, particularly hepatitis C (Hagan, 2001; Crofts et al., 1999).

At this juncture, it is worth emphasising that attention to hygiene prior to injecting is important for minimising viral and bacterial infections. Our argument is not to question this attention to pre-injecting hygiene, but to illuminate the ways hygiene narratives convey and reproduce ideals of the body that may obstruct hepatitis C prevention efforts. By thinking through the model of the secure body, we can see how men who inject PIEDs pay noticeably less attention to some aspects of injecting procedure in which risk of blood-borne virus transmission may be present. Post-injecting routines such as rubbing the injecting site were common for the participants in this study, and references to hand washing after injecting were relatively few. Without wanting to overstate the risks associated with environmental transmission, it is worth noting these practices, and considering the role of conceptualisations of the body as healthy and pure in shaping blood management practices and responsibility for transmission.

## **Cleanliness and trust**

In addition to informing inward-oriented hygiene practices, conceptions of PIED-consuming bodies as clean, secure and fortifiable against risk shape expressions of trust and intimacy. In turn, these conceptions inform blood-management practices in peer-to-peer injecting, which we found tended to be cursory. Men in this study commonly reported being injected by another person in the context of sexual relationships, with intimate partners regularly assisting with injections, particularly in hard-to-reach muscles. However, the most common time when participants report being injected by, or injecting, other people was during the period of initiation: a period that is known to be associated with higher rates of hepatitis C transmission in injecting drug use of other kinds (Judd et al., 2005; Maher et al., 2006). During initiation, men with experiences of PIED injecting were typically relied upon as sources of information, providing advice and guidance on injecting by demonstrating techniques and hygiene processes. For example, Joshua (46, NSW) described relying on his training partner, who had also studied nursing, to show him how to undertake his first injections, while Grant (25, NSW) explained that when he purchased his first combination of PIEDs ‘from a friend or a friend of a friend’, he asked his friend to instruct him the first time he injected. For Tony (27, Vic), injecting PIEDs for the first time involved re-using another man’s needle:

Oh, I remember one day we were in the locker room, somebody was, you know, asking, why don’t you try this? [...] and I said, ‘Sure, what type of thing?’, because he was someone I could trust and then I did try it, I did try it, with the same needle.

It is important to emphasise here that accounts of needle-sharing among participants were rare. Indeed, a few moments later, Tony told the interviewer, ‘I don’t remember if it was the

same needle or the vial that he gave me, you know what I'm saying?' This uncertainty perhaps speaks to some of the spontaneity and ambiguity that characterises experiences of initiation and injecting PIEDs more broadly. It may also be that stigma surrounding needle-sharing shapes research participants' willingness to disclose sharing events (see Hart, 2018, p. 3). What emerges in Tony's account, however, is that his decision to share a needle or a vial, and try injecting for the first time, was influenced by his perception of his friend as 'someone [he] could trust'.

Importantly, often these expressions of trust are also entangled with intimacy (see Fraser, 2013; Morris et al., 2019; Rhodes et al., 2008), producing perceptions of friends as clean and their practices as sterile. For example, Chris (Qld, 32) described being quite unconcerned about initiating injecting because he was with friends:

So the first couple of injections was me and some friends... So the first times, yeah, there was three of us who had first tried it, and for the first couple of injections, we had done it to each other, but I dare say, it was very sterile and [we] never shared needles or anything like that.

Despite his unfamiliarity with PIED injecting, and having consulted only a website prior to injecting, Chris assumed that the injecting process 'was very sterile' because he was with friends and they 'never shared needles'. Here, trust in his friends (along with the simultaneous repudiation of sharing needles and scanty knowledge of hepatitis C transmission) overlap with perceptions of sterility, potentially mitigating some of the uncertainty present at initiation (see Rhodes & Treloar, 2008). The focus on trust and friendship in experiences of initiation is perhaps understandable in light of the criminalisation

of drug injecting, and the absence of biomedical knowledge, which makes learning about safer injecting difficult.

This symbolic connection between perceptions of cleanliness and trust was also evident in participants' accounts of injecting and being injected by other people at times other than initiation. As we mentioned earlier, being injected by and injecting other people commonly happened in the contexts of friendships, training partnerships or sexual relationships. Like Matthew (26, Vic), who we discussed earlier, some participants described injecting together with relatively cursory attention to blood management and other harm reduction measures, such as avoiding sharing vials and containers. Matthew explained that his housemate and training partner, with whom he regularly injects, used to be injected by his wife, but after they separated Matthew began injecting him. That Matthew took over from his friend's wife is a reminder of the intimacy of injecting, in which trust and safety are central dynamics. Matthew reported that he and his training partner also bought and shared vials of compounds together, but used different needles to draw and inject. Despite describing their injecting practices as 'on point with everything', Matthew does not mention blood management or hand washing in the interview. Instead, his account focuses on fastidious swabbing and avoiding 'needle to needle' contact by each person using different needles to draw and inject. As Rhodes and Treloar (2008) argue, trust is contingent upon assessments of risk and the social relationship, and here we can see how the intimacy of Matthew's relationship overlaps with his perceptions of cleanliness and hygiene. Matthew emphasises their regimented approach to injecting and their commitment to hygiene: they 'go through boxes of swabs' and 'want everything to be sanitary'. This *externalisation* of risk, in which threats exist in the environment and can be safeguarded against in the ways described, turns attention away from the risk of blood-to-blood contact between injecting partners, or those injecting together (the

main route of transmission for hepatitis C). Our point here is not to over-emphasise PIED injecting practices as risky, but rather to show how broader ideas of cleanliness, safety and trust serve as a proxy for scientific and medical knowledge concerning transmission risk (Rhodes & Treloar, 2008).

Similarly, Martin (29, Vic) also injects with his training partner, and on one occasion shared a particular compound with him, and described feeling confident in doing so due to his assessment of his partner's injecting practice:

In this case we did [buy and share the compound], I had one injection from it, but I know what his needle protocol is too. I know he does exactly the same [as] I do, and he's even more anal [meticulous] about it than I am, so that's why I felt safe enough drawing from the same vial as him.

In these accounts we see that being injected by and injecting other people is a regular occurrence for some men who inject PIEDs. However the presence of blood did not seem to register as a source of potential risk of contamination or warrant the same level of scrutiny towards hygiene. Rather, our analysis shows how risk was largely attached to perceived external, nonhuman threats such as dirt. Undertaking such an analysis lets us see how blood, in turn, is co-constituted through its relation to the interiority (and purity) of the body, and as such is considered to be a minimal threat to the security of 'the healthy body', both one's own and that of others.

### **Healthy bodies and 'monstrous' others**



The final theme we address is how this ‘healthy body’ of men who inject PIEDs, the body that is fundamentally clean, proper and free of infection, is co-constituted via the stigmatisation of other people who inject drugs, that is people who inject intravenously, and the implications of this dynamic for hepatitis C prevention. People who inject drugs such as heroin and methamphetamine have long figured as monstrous in political, media and other public discourse, understood as inherently risky, vulnerable, violent, dirty, chaotic and abject (Moore & Fraser, 2006; Fraser & Moore, 2008; Fraser & valentine, 2008; Harris 2009). Given the authority and pervasiveness of such normative cultural representations, it is perhaps unsurprising that the men we interviewed in our study typically distinguished themselves from these people, even though they too inject drugs. Some participants, for instance, tended to differentiate PIED injecting from other drug injecting by describing it as an individual practice that is regimented, controlled and technical. As Martin (29, Vic) said, ‘It’s not like *Trainspotting*, [where] all the junkies are shooting up, you know what I mean. It’s like a regimented thing’. The distinction being made between men who inject PIEDs (as rational, meticulous, controlled and intelligent) and ‘junkies’ (as irrational, desperate and untrustworthy) also has implications for how participants thought about hepatitis C transmission. For example, Alex (38, Qld) explained that he had never considered hepatitis C specifically because of its association with intravenous drug use:

I have always tried to have really clean and proper injecting practices just from ... because I’m a neat freak and a clean freak. But to be honest, even I haven’t given any thought to hep C, ever. So it’s never been like, ‘Oh, I can’t do that because I might get hep C.’ So, as I said before, I don’t really know much about it. I know that intravenous drug users get it. I know you get it, like it’s a hygiene thing, it’s blood-borne I think, but yeah, that’s about it.

Here, Alex suggests that hepatitis C is not a concern because he has ‘really clean and proper injecting practices’, and furthermore he is a ‘neat freak and a clean freak’. He has a sense that it is associated with poor hygiene and something that ‘intravenous drug users get’. In this account, hepatitis C risk is conflated with intravenous drug use, which is cast as unhygienic and associated with disease. Reflecting the general knowledge limitations we observed of other participants in this study, other routes of hepatitis C transmission, including blood in the environment, are overlooked.

The stigmatised association between hepatitis C and intravenous drug injecting has several consequences, not least that hepatitis C transmission and acquisition are presented as implausible for ‘healthy’ men who inject PIEDs. For example, Don (28, Vic) explained that although he does not usually bleed a lot, if he ‘go[es] through a vein or a capillary’ when he is injecting, ‘it just, like, pours out’. On these occasions, he explained, he uses ‘some tissues’ or his hand to ‘wipe it off’:

**Don:** Yeah, because I’m pretty comfortable with my own body and my own blood. If it was somebody else’s blood, I’d be like, Aaah! But it’s in my room, it’s me, you know. [...] Well, actually where I’m staying now, it’s a shared room, but I don’t inject in that room.

*Interviewer: Where do you inject?*

**Don:** In the shower. [...] Yeah, but I guess people would be there too, one after the other, but yeah. I guess I should, yeah well, like I mean I’m pretty... I’m clean. I don’t have hepatitis or anything or AIDS or any of these, but I guess I should be mindful of others.

Here, Don performs himself and his body as ‘clean’, confirming himself as healthy and undiseased in comparison to those who have ‘hepatitis or anything or AIDS’. Although Don concludes by suggesting he ‘should be mindful of others’ he describes a relatively cursory approach to outward-oriented blood management and infection control because he does not consider himself vulnerable, or his own blood as risky if others should come into contact with it. While we do not wish to enjoin men who inject PIEDs to adopt a sense of themselves as ‘a risk’ to others (Davis & Rhodes, 2004), the promotion of heightened blood awareness during (and after) injections is important for effective and targeted health promotion.

At the same time that hepatitis C transmission is presented as implausible for ‘healthy’ men who inject PIEDs, acquisition is commonly described as equally inconceivable. On this view, one participant, Tom (43, Qld) explained:

Other intravenous drug users are generally a bit reckless and careless, so they sort of don’t give a shit. Whereas you probably find that most steroid-only users are more conscious of their health and their body, so they just have...the idea of sharing a needle to them is just stupid anyway. They’re probably not even thinking about hep C. [...] There’s a perception...unfortunately, there’s a perception that, you know, most people with hepatitis C are either junkies or...and that’s probably true, but so if you’re trying to target hep C education to weightlifters in gyms and that, they’d be like, ‘What the fuck are they trying to tell us about this for? We’re not junkies.’

Returning to Shildrick, we can see how the healthy, proper and normative body is actively performed and maintained through boundary-work that (re)asserts binaries of sameness and difference, health and ill-health, and normality and abjection. Here, Tom makes a distinction between ‘reckless and careless’ intravenous drug users and ‘steroid-only users’ who are

purportedly ‘more conscious of their health and their bod[ies]’. This binary functions to attribute hepatitis C and risk not to injecting per se (Harris, 2009; Fraser & Seear, 2011), but to specific forms of irresponsible and reckless injecting, where that irresponsibility is attributed to those who inject intravenously. In this sense, particular kinds of injecting subjects are constituted as more or less vulnerable to hepatitis C. Furthermore, not only is transmission presented as irrelevant to PIED consumers, it is suggested here that targeting hepatitis C health education to PIEDs consumers is intrinsically irrelevant and in and of itself stigmatising. Significantly, it is evident that because ‘junkies’ ‘serve to define by difference’ (Shildrick, 2002, p. 71) the parameters of the healthy PIED-consuming body – and because hepatitis C is conflated with intravenous drug use – health education around hepatitis C is rendered for some participants a stigmatising enterprise. This raises several tensions and questions about the nature of targeted hepatitis C health promotion and health education messages for PIEDs consumers, which we turn to now briefly in our conclusion.

## **Conclusion**

In this analysis we have explored the ways in which notions of the body as healthy, secure and normatively embodied shape injecting practices, perceptions of risk, and engagements with blood-borne virus prevention, particularly hepatitis C prevention. We argued that a conceptualisation of the body as clean, proper and fortifiable against risk underpins attention to particular hygiene practices that work to maintain the security and integrity of the body. At the same time, these perceptions also informed relatively little attention to the management of blood produced during injecting and the possibility of infection for others, particularly as these issues relate to hand-washing after injecting. We then observed how trust and hygiene overlapped to shape injecting practices during initiation and among peers. Assumptions about

other people's cleanliness informed decisions to share injecting equipment, and to inject and be injected by others. Finally we explored how the abjection of the 'monstrous' other, that is, people who inject (other non-PIED) drugs intravenously, is central to the performance of healthy embodiment for PIED consumers. Significantly, the stigmatisation of people who inject other drugs, and the conflation of hepatitis C with intravenous drug use, function to render hepatitis C transmission and acquisition as irrelevant, remote and implausible for men who inject PIEDs.

In light of these findings, we argue that targeted hepatitis C prevention education is warranted. As we have already noted, the risk of environmental transmission of hepatitis C should not be overstated, but given current ambitions in Australia and around the world relating to the elimination of hepatitis C, attending to it makes sense. In closing, we offer some suggestions for the development of these materials for men who inject PIEDs. Although hepatitis C did not register as a source of concern for almost all participants in this study, many articulated a preference for reliable, scientifically based or otherwise legitimate health information. Possible transmission avenues emerging from the data include: rubbing the injecting site after injecting, the absence of hand-washing after injecting, group and peer-to-peer injecting, particularly around initiation, and sharing vials and bladders. Focusing health promotion materials on post-injecting practices and environmental blood may help engage this population, and in turn encourage more frequent hepatitis C testing.

However, efforts to alert men who inject PIEDs to the possibility of hepatitis C and blood-borne virus transmission in general need to be approached sensitively. Among other things, attention needs to be paid to how the hepatitis C virus, side effects and transmission are

represented (Winter, et al. 2011). As hepatitis C can be transmitted in small amounts of blood, or in ‘unseen’ blood, it can be inadvertently characterised as sneaky, aggressive and elusive (Fraser & Seear, 2011). These articulations can provoke anxiety and stigma both in relation to the virus itself but also in relation to people who inject drugs intravenously (Fraser & Seear, 2011). This is all the more pertinent for the development of targeted messages for PIEDs consumers who typically conflate hepatitis C with intravenous drug use, dirt and carelessness. To this end, we would suggest framing prevention efforts on better injecting technique and blood management via positive discourses of physical health, bodily care and satisfaction.

To be read as informative and useful, this prevention education also needs to be grounded in the social dynamics and relationships that characterise PIED injecting. To this end, new resources should acknowledge that men who use PIEDs regularly inject with other people and within training partnerships, particularly around initiation, and in social settings and intimate relationships. Materials could acknowledge the reasons why men participate in peer-to-peer injecting, and also explain that it raises specific issues of blood management, especially if the person who is injecting has injected others beforehand (including themselves). These materials could also inform consumers that small amounts of blood in the environment are possible sources of hepatitis C transmission. Messages clarifying that it is not possible to assess whether a person has hepatitis C based on their appearance, or on a broad assessment of their ‘clean’ injecting practice, may also be useful.

Lastly, it is important to note that prevention education can operate as an individualising technology that places responsibility for the prevention of health problems on individuals in

contexts that do not support their efforts (Fraser, 2004). This is a criticism that has been made of prevention education aimed at other people who inject drugs, given that their ability to minimise transmission is largely structurally constrained by the criminalisation of drugs and related measures. In offering these suggestions for prevention education, therefore, we do so cautiously, recognising that many other broader issues need to be addressed to aid hepatitis C prevention efforts. The themes that have emerged in this article serve as a reminder of the need and importance of addressing blood-borne virus and injecting drug use-related stigma more broadly through means other than health promotion and education. This might include addressing the regulatory and legal processes prohibiting access to, and safe usage of, *all* drugs – including performance and-image enhancing drugs – in that these are widely recognised as producing complex harms and stigma. That said, prevention education also has the potential to intervene positively in structural concerns such as the stigmatisation of people who inject drugs (here, those against whom some of our participants defined themselves). When there is a tendency to draw negative distinctions, general messages about blood awareness may be of use, suggesting that vulnerability is a foundational condition of *all* bodies, including those perceived as healthy and ‘normal’. If one of the very terms of normative embodiment is vulnerability, then responsibility for risk reduction, safety and health, including blood-borne virus prevention, cannot be framed as an individual problem or a problem of the monstrous other. Instead, by rethinking hepatitis C prevention education as a shared and social responsibility, the stigma and blame accruing to individuals who inject drugs may be challenged.

## References

- Advisory Council on the Misuse of Drugs. (2010). Consideration of the anabolic steroids - annexes. London: Home Office.
- 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), 303-308.
- Andreasson, J. (2015). Reconceptualising the gender of fitness doping: Performing and negotiating masculinity through drug-use practices. *Social Sciences*, 4(3), 546-562.
- Australian Bureau of Statistics (2011). Australian Standard Classification of Drugs of Concern. Canberra, ABS.
- Basaria, S. (2018). Use of performance-enhancing (and image-enhancing) drugs: A growing problem in need of a solution. *Molecular and Cellular Endocrinology*, 464, 1-3.
- Brennan, R., Wells, J. & Van Hout, MC. (2018). ‘Blood letting’—Self-phlebotomy in injecting anabolic-androgenic steroids within performance and image enhancing drug (PIED) culture. *International Journal of Drug Policy*, 55, 47-50.
- Butler, J. (1993). *Bodies that matter: On the discursive limits of sex*. Routledge: London, New York.
- Crofts, N., Aitken, CK. & Kaldor, JM. (1999). The force of numbers: Why hepatitis C is spreading among Australian injecting drug users while HIV is not. *Medical Journal of Australia*, 170(5), 220-221.
- Davis, M. & Rhodes, T. (2004). Managing seen and unseen blood associated with drug injecting: Implications for theorising harm reduction for viral risk. *International Journal of Drug Policy*, 15(5-6), 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), 1807-1818.

Day, CA., Topp, L. Iversen, J. & Maher, L. (2008). Blood-borne virus prevalence and risk among steroid injectors: results from the Australian Needle and Syringe Program Survey. *Drug and Alcohol Review*, 27(5), 559-561.

Department of Health. (2018). *Fifth national hepatitis C strategy*. Canberra: Australian Government.

Dunn, M., McKay, F., & Iversen, J. (2014). Steroid users and the unique challenge they pose to needle and syringe program workers. *Drug and Alcohol Review*, 33(1), 71-77.

Fomiatti, R., Fraser, S., Latham, J., Moore, D., Seear K., Aitken, C. (in press). A 'messenger of sex'? Making testosterone matter in motivations of anabolic-androgenic steroid injecting. *Health Sociology Review*.

Fraser, S. (2004). 'It's your life!': injecting drug users, individual responsibility and hepatitis C prevention. *Health*: 8(2), 199-221.

Fraser, S. (2013). The missing mass of morality: A new fitpack design for hepatitis C prevention in sexual partnerships. *International Journal of Drug Policy*, 24, pp. 212-219.

Fraser, S. & Moore, D. (2008). Dazzled by unity? Order and chaos in public discourse on illicit drug use. *Social Science and Medicine*, 66, pp. 740-752.

Fraser, S., Pienaar, K., Dilkes-Frayne, E., Moore, D., Kokanovic, R., Treloar, C. & Dunlop, A. (2017). Addiction stigma and the biopolitics of liberal modernity: A qualitative analysis. *International Journal of Drug Policy*, 44, pp.192-201

- Fraser, S. & Seear, K. (2011). *Making disease, making citizens: The politics of hepatitis C*. Ashgate: Aldershot.
- Fraser, S., & Treloar, C. (2006). 'Spoiled identity' in hepatitis C infection: The binary logic of despair. *Critical Public Health*, 16(2), 99-110.
- Fraser, S., Treloar, C., Bryant, J. & Rhodes, T. (2014). Hepatitis C health promotion needs to be grounded in social relationships. *Drugs: Education, Prevention and Policy*, 21, (1), pp. 88-92.
- Fraser, S. & valentine, k. (2008). Trauma, damage and pleasure: Rethinking problematic drug use. *International Journal of Drug Policy*, 19, (5), pp. 410-41
- Griffiths, S., Jacka, B., Degenhardt, L., Murray, SB. & Larance, B. (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), 664-670.
- Griffiths, S., Murray, S. B., Krug, I. & McLean, SA. (2018). The contribution of social media to body dissatisfaction, eating disorder symptoms, and anabolic steroid use among sexual minority men. *Cyberpsychology, Behavior, and Social Networking*, 21(3), 149-156.
- Grosz, Elizabeth. (1994). *Volatile bodies: Toward a corporeal feminism*. Indiana University Press: Bloomington, Indianapolis.
- Hagan, H., Thiede, H., Weiss, NS., Hopkins, SG., Duchin, JS. & Alexander, ER. (2001). Sharing of drug preparation equipment as a risk factor for hepatitis C. *American Journal of Public Health*, 91(1), 42.
- Harris, M. (2009). Injecting, infection, illness: abjection and hepatitis C stigma. *Body & Society*, 15(4), 33-51.

Hart, A. (2018). Making a difference? Applying Vitellone's Social Science of the Syringe to performance and image enhancing drug injecting. *International Journal of Drug Policy*. In press April 2018.

Heard, S., Iversen, J., Geddes, L. & Maher L. (2018). Australian Needle Syringe Program Survey National Data Report 2013-2017: Prevalence of HIV, HCV and injecting and sexual behaviour among NSP attendees. Sydney: Kirby Institute, UNSW Sydney. ISSN: 1448-5915.

Hope, V., McVeigh, J., Marongiu, A., Evans-Brown, M., Smith, J., Kimergård, A., . . .

Ncube, F. (2015). Injection site infections and injuries in men who inject image-and performance-enhancing drugs: prevalence, risks factors, and healthcare seeking.

*Epidemiology & Infection*, 143(1), 132-140.

Hope, V., Harris, R., McVeigh, J., Cullen, K., Smith, J., Parry, J., . . . Ncube, F. (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), 237-245.

Hope, V. D., McVeigh, J., Smith, J., Glass, R., Njoroge, J., Tanner, C., ... & Desai, M. (2017). Low levels of hepatitis C diagnosis and testing uptake among people who inject image and performance enhancing drugs in England and Wales, 2012-15. *Drug and alcohol dependence*, 179, 83-86.

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), 205-207.

Judd, A., Hutchinson, S., Wadd, S., Hickman, M., Taylor, A., Jones, S., ... & Bird, S. (2005). Prevalence of, and risk factors for, hepatitis C virus infection among recent initiates to

injecting in London and Glasgow: Cross sectional analysis. *Journal of Viral Hepatitis*, 12(6), 655-662.

Keane, H. (2005). Diagnosing the male steroid user: Drug use, body image and disordered masculinity. *Health*, 9(2), 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), 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. *British Medical Journal open*, 4(6), e005275.

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

Latham, J., Fraser, S., Fomiatti, R., Moore, D., Seear, K. & Aitken, C. (2019) Men's performance and image-enhancing drug use as self-transformation: Working out in makeover culture. *Australian Feminist Studies*, 34(100), 149-164.

Lenton, E. & Fraser, S. (2016). Hepatitis C health promotion and the anomalous sexual subject. *Social Theory & Health*, 14(1), 44-65.

Maher, L., Jalaludin, B., Chant, KG., Jayasuriya, R., Sladden, T., Kaldor, JM. & Sargent, PL. (2006). Incidence and risk factors for hepatitis C seroconversion in injecting drug users in Australia. *Addiction*, 101(10), 1499-1508.

Memedovic, S., Iversen, J., Geddes, L. & Maher, L. (2017). Australian needle syringe program survey national data report 2011-2015: Prevalence of HIV, HCV and injecting and sexual behaviour among NSP attendees. *Kirby Institute, UNSW Australia: Sydney*.

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

Monaghan, L.F. (2002). *Bodybuilding, drugs and risk*. Routledge: London.

Moore, D. & Fraser, S. (2006). Putting at risk what we know: Reflecting on the drug-using subject in harm reduction and its political implications. *Social Science & Medicine*, 62(12), 3035-3047.

Moore, D., Hart, A., Fraser, S. & Seear, K. (2018). Masculinities, practices and meanings: A critical review of recent literature on the use of performance and image-enhancing drugs among men. (Under review).

Morris, M. D., Andrew, E., Tan, J. Y., Maher, L., Hoff, C., Darbes, L., & Page, K. (2019). Injecting-related trust, cooperation, intimacy, and power as key factors influencing risk perception among drug injecting partnerships. *PloS one*, 14(5): e0217811.  
<https://doi.org/10.1371/journal.pone.0217811>

Rhodes, T., Prodanović, A., Žikić, B., Kuneski, E., Pavićević, T., Karadžić, D., & Bernays, S. (2008). Trust, disruption and responsibility in accounts of injecting equipment sharing and hepatitis C risk. *Health, Risk and Society*, 10(3), 221-240.

Rhodes, T. & Treloar, C. (2008). The social production of hepatitis C risk among injecting drug users: A qualitative synthesis. *Addiction*, 103(10), 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), 658-666.

Santos, GH. & Coomber, R. (2017). The risk environment of anabolic–androgenic steroid users in the UK: Examining motivations, practices and accounts of use. *International Journal of Drug Policy*, 40, 35-43.

Sedgwick, E. (1993). Epidemics of the will. In E. Sedgwick, *Tendencies* (pp. 130–142). Durham: Duke University Press.

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), 449-455.

Shildrick, Margrit. (1997). *Leaky bodies and boundaries: Feminism, postmodernism and (bio) ethics*. Routledge: London, UK.

Shildrick, Margrit. (2002). *Embodying the monster: Encounters with the vulnerable self*. Sage: United States.

Treloar, C. & Fraser, S. (2004). Hepatitis C, blood and models of the body: New directions for public health. *Critical Public Health*, 14(4), 377-389.

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. *International Journal of Drug Policy*, 19(1), 59-65.

Underwood, M. (2017). Exploring the social lives of image and performance enhancing drugs: An online ethnography of the Zyzx fandom of recreational bodybuilders. *International Journal of Drug Policy*, 39, 78-85.

Underwood, M. (2019). The unintended consequences of emphasising blood-borne virus in research on, and services for, people who inject image and performance enhancing drugs: A commentary based on enhanced bodybuilder perspectives. *International Journal of Drug Policy*, 67, 19-23.

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

Van de Ven, K., Maher, L., Wand, H., Memedovic, S., Jackson, E. & Iversen, J. (2018). Health risk and health seeking behaviours among people who inject performance and image enhancing drugs who access needle syringe programs in Australia. *Drug and Alcohol Review*, 37(7), 837-846.

Winter, R., Fraser, S., Booker, N., & Treloar, C. (2011). Technical review of hepatitis C health promotion resources. *Technical review of hepatitis C health promotion resources. Sydney: National Centre in HIV Social Research, The University of New South Wales.*

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, 105-112.