
The supply-side: Satisfying the global demand for doping substances

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The use of chemical substances to enhance athletic performance has received an abundance of scholarly attention in recent years and sits firmly in the public zeitgeist as a moral and regulatory debate. However, as Paoli notes, '[m]uch less is known [...] about the supply-side' of the doping market and the networks and mechanisms through which WADA-regulated athletes source their substances (Paoli, 2016, p. 71). This chapter therefore aims to synthesise the existing literature in order to map the production, networks, cultures, evolutions, and future directions of the supply-side of sports doping. Crucially, though scholarship concerning amateur and recreational athletes who are not subject to testing by antidoping authorities will be explored, the focus here is upon 'doping' in competitive sport rather than the image and performance enhancing drugs (IPED) market more generally (for this, see Gibbs, 2023c). Ultimately, this chapter will argue for more critical awareness and research around the 'upstream' aspects of chemical doping and the need to understand the supply of IPEDs in the context of simultaneously globalised and localised networks of actors.

Following Paoli (2016), this piece will employ the term 'doping substances' to describe compounds and products that are on the World Anti-doping Agency's 'Prohibited List' (WADA, 2024) and are therefore outlawed in WADA-regulated sport. The most common, and most researched, group of these substances is anabolic agents (including anabolic steroids) (Krug et al., 2014; Odoardi et al., 2021; Heinsvig et al., 2023). Other substances include peptide hormones, diuretics and masking agents, stimulants, cannabinoids, and beta-blockers. This chapter will first examine the production and manufacture of doping substances, before addressing the various actors involved in 'traditional' culturally embedded supply chains. Following this, some evolutions and changes in the market will be described, followed by an exploration of the online supply on platforms including the surface web, the dark web, and social media. The chapter concludes with a discussion of future developments in the doping substances market and some concluding thoughts will be offered.

Before commencing in earnest however, it is worth noting that the market for doping substances, and the supply of IPEDs more broadly, is unlike any other illicit drug market. Firstly, to describe the doping market as ‘illegal’ and entirely illicit is something of a misnomer. Paoli (2016) argues that the supply of these compounds ‘cannot become fully illegal, as it also involves fully legal products, including life-saving medicines’ (Paoli, 2016, p. 72). As such, the products described here may all be prohibited in sporting competition by anti-doping regulators, but many are legally available either with a prescription or can simply be purchased over the counter. Similarly, in line with Fincoeur’s (2019) assessment that the supply and demand of doping substances are ‘intertwined’, the market ought to be understood as deeply bound up with the sporting cultures and networks that it services. As I will address in relation to ‘traditional’ supply chains, we ought therefore to recognise the unique nature of this drug market as a result of its semi-legal status, cultural specificity, and actors’ motivations. Despite this, recent scholarship has convincingly argued that taking a ‘market perspective’ – that is, understanding the supply of doping substances as a criminological market – is the most effective means of capturing the sale of the compounds that facilitate doping behaviours (see Antonopoulos and Hall, 2016; Paoli, 2019) and I therefore echo this approach in this chapter.

The production of doping substances

The first area worthy of enquiry is the production of the substances that are ultimately ingested by athletes to gain an unfair advantage over others in competitive sport. Unlike the recreational IPED market, where the most common sites of production for substances like anabolic steroids are ‘underground laboratories’ (UGLs) and ‘homebrew’ operations (Kraska et al., 2010; Brennan et al., 2018; Turnock, 2020; Gibbs, 2023a, 2023c; Piatkowski et al., 2024a), elite athletes appear to generally consume ‘pharma’ products. That is to say that the market seems to be typified, but not entirely dominated, by substances produced in licenced laboratories in hygienic and regulated conditions (Paoli and Greenfield, 2017). Evidence provided by Paoli (2019) suggests that many doping scandals and prosecutions involve laboratories licensed to academic physicians, who have access to the facilities, expertise and cultural capital needed to produce and supply elite athletes and their teams. These facilities may be connected to sporting teams and states (Lentillon-Kaestner, 2013; Aubel and Ohl, 2014) or operate independently for profit (Fink et al., 2019). Paoli (2019) also makes mention of organised criminals looting doping substances from trucks in the legitimate pharmaceutical supply chain

(see also Paoli and Donati, 2014; Paoli, 2016; Paoli and Greenfield, 2017), a claim which is supported by an Interpol report examining the theft of prescription medicines (including potential doping products) in Sweden, the USA, and Canada (Interpol, 2014; see also Dugato and Sidoti, 2023). These substances, we can assume, are destined for medical/commercial or research purposes before being looted and distributed to enhanced athletes.

However, evidence provided by Weber et al. (2015) regarding seizures of doping substances at the Swiss border suggests that clandestine underground laboratories may play a role in providing athletes with doping products, alongside legitimate sites of pharmaceutical production. Paoli and Greenfield (2017), for example, note the crossover between the supply of anabolic steroids in gyms and athletic competitions by a high-profile IPED trafficker whose products were seemingly sourced from underground laboratories alongside legitimate pharmaceutical manufacturers. Gibbs (2023c) has noted the heterogeneity of the UK UGL market, which ranges from small-scale rudimentary facilities with questionable hygiene standards (see Câmara, 2023) to sophisticated laboratories capable of manufacturing compounds as diverse as fat burners and post-cycle therapy products, as well as oral and injectable anabolic steroids at scale. These operations generally rely on imported raw powders, or 'raws', from countries like China (Antonopoulos and Hall, 2016; Dunn et al., 2022), which are then manufactured and sold on the domestic market. Therefore, although the production side of the doping market can be understood as being dominated by legitimate pharmaceutically produced compounds, there appears to be a presence of some UGL-made products.

Market actors

Turning attention to the actors involved in the supply of doping products, it is worth mapping the variety of individuals and teams implicated in facilitating doping behaviours. Perhaps unsurprisingly, research suggests that the IPED market is dominated by men, with a peripheral role played by women (Fincoeur, 2019). Paoli and Donati's (2014) seminal work, which examines the doping market in Italy, also notes that most actors in the market are Italian citizens. This comment on the role of domestic actors echoes scholarship in the UK by Turnock (2020) and Gibbs (2023c), the USA by Kraska et al. (2010), and in Australia by Piatkowski et al. (2024a), suggesting that, although the market is global, localised actors are key, especially at lower levels (Antonopoulos and Hall, 2016). Paoli and Donati (2014) also provide evidence that most actors involved in IPED supply have no or at least few previous criminal convictions (with some exceptions). Indeed, Paoli (2016)

states that: ‘... with the exception of a limited number of underworld characters, most suppliers of doping products are not typical organized crime or underworld figures; they have a legitimate professional background, with a non-negligible share of them belonging to the organized sports world’ (Paoli, 2016, p. 85).

Paoli and Donati (2014) provide a typology of illicit suppliers in Italy, which encompasses ‘Gym’ (those who own or manage gyms or supplement shops); ‘Health care’ (including pharmacists, physicians, nurses, and staff from pharmaceutical companies); ‘(Human) organized sports world’ (those working for sports teams or federations); ‘Horseracing’ (veterinary physicians, breeders, drivers); ‘Use’ (IPED users who also supply); and ‘Other’. Though it should be noted that the authors’ work examines only those convicted or at least arrested for supply offences (neglecting those who may have evaded law enforcement), the involvement of gym staff is supported by Antonopoulos and Hall (2016) as well as Gibbs (2023c), and the preponderance of sports-affiliated actors is reinforced by Fincoeur et al. (2015) and Fincoeur (2019).

It is also important to understand the various levels of supply, which can broadly be characterised as wholesale and retail. Antonopoulos and Hall (2016) understand wholesale suppliers as ‘importers’ who regularly organise for large quantities of doping products to enter the market. These include UGLs themselves (who generally sell domestically and only import raw powder from overseas), gym owners and workers, and occasionally pharmacists and physicians. They then describe ‘middlemen’, or brokers, whose role is either to connect small-scale buyers to wholesale sellers, or to actually sell non-wholesale quantities of IPEDs to lower-level suppliers. These small suppliers are termed ‘retail sellers’ (Antonopoulos and Hall, 2016, p. 706), supplying individual end-users with the products. Examples of actors operating at this level include sports team members, users themselves, and medical professionals (Paoli, 2016). It should be noted that many of these professions overlap between wholesale and retail involvement, emphasising the difficulty in establishing a simple typology or hierarchy of IPED supply.

Physicians, pharmacists and medical staff generally play an important role in making pharmaceutical-grade doping products available to athletes. Foremost amongst the physicians documented to have played a role in the supply of doping substances is Professor Francesco Conconi who was charged with (but not convicted for) ‘sporting fraud’ (Paoli, 2016) due to decades-long involvement with Olympic athletes’ and professional cyclists’ doping behaviours (Paoli and Donati, 2014; Fincoeur, 2019; Paoli, 2019). On a smaller scale, Paoli (2016) notes that healthcare professionals tend to be involved with

retail selling due to their status and enhanced access to IPEDs. She goes on to note that ‘non-guilty’ pharmacists often inadvertently facilitate sports doping by issuing substances ordered by false or stolen prescriptions or those written by corrupt physicians.

Finally, Paoli and Donati (2014) note both the complicity of some in the licit pharmaceutical industry as well as a number of corrupt figures in sports federations. Highlighting the set-up and profit-incentive of the pharmaceutical market, the authors contend that large pharmaceutical companies over-produce drugs like EPO (erythropoietin) with little regard for the likelihood of their products being used for sports doping. Similarly, they point to the case of Francesco Conconi and his laboratory’s relationship with the Italian subsidiary of the pharmaceutical company Boehringer, who supplied EPO despite the physician’s operation not relating to the treatment of anaemia or cancer (which could have legitimately utilised the substance). More ominously, research has provided evidence of corruption in sports doping bodies associated with regulated sports. Though no research has yet explored this dynamic outside of Italy, Paoli (2016, p. 83) states that officials in national sports bodies acted as ‘protectors’ for actors like Francesco Conconi (Paoli, 2019). This was particularly true of CONI, Italy’s international Olympic committee. Implicit support for doping practices included a lack of doping testing carried out by CONI’s anti-doping laboratory as well as large quantities of funding for Conconi’s research. Notably, such corrupt networks appear to be as close as the doping market comes to ‘organised crime’, as research indicates that – with the exception of some thefts from trucks carrying pharmaceutical products orchestrated by mafia organisations (Paoli and Donati, 2014; Paoli, 2016; Paoli and Greenfield, 2017) – actors in this market are not organised or career criminals. This is an important consideration for those attempting to regulate the supply of doping products.

‘Traditional’ offline markets and sporting cultures

There is a consensus in the current literature that the supply of doping products has traditionally relied on culturally specific networks, heavily linked to strength sports and gym culture (Fincoeur et al., 2015; Antonopoulos and Hall, 2016; Turnock, 2021b; Gibbs, 2023c). Paoli and Donati (2014) stress the importance of cultural embeddedness, with the below table (Table I.) exemplifying the professions of suppliers involved in the Italian doping market. Note, for example, the role of gym owners, those connected to the equine industry, sports federation officials, and staff from cycling teams.

Table 1: The professions of those involved in the Italian doping market (Reproduced from Paoli and Donati, 2014)

Profession	Number of suspects
Gym owners or managers and bodybuilding instructors ^a	158
Veterinary physicians, breeders, horse drivers	140
Owners or managers of dietary supplement shops	64
Pharmacists ^b	20
Physicians ^c	17
Staff members of cycling teams ^d	12
Sports federation officials	10
Law enforcement and military staff	10
Hospital employees (including 5 nurses and 2 former employees)	10
Employees and salesmen of (para)-pharmaceutical companies ^e	6
Staff of private security companies	2

^a An unspecified number of gym owners or managers and bodybuilding instructors was reported in ten investigations.

^b An unspecified number of pharmacists was reported in five other investigations.

^c An unspecified number of physicians was reported in three other investigations, and an unspecified number of vets in another.

^d An unspecified number of staff members of cycling teams was reported in two other investigations.

^e An unspecified number of employees of pharmaceutical companies was reported in another investigation.

Specifically examining the doping products for strength athletes like powerlifters, research highlights the need for customers to possess certain levels of cultural and bodily capital in order to purchase IPEDs (Coomber et al., 2014; Antonopoulos and Hall, 2016; Salinas et al., 2019; Turnock, 2021b; Piatkowski et al., 2024c). Gibbs (2023c), building on Turnock (2021a), therefore suggests that ‘traditional’ offline IPED markets exclude prospective customers who are not part of the sporting or gym community, and networks and ‘introductions’ therefore become extremely important for accessing the ‘traditional’ doping market. Similarly, emphasising the cultural embeddedness of suppliers connected to sports clubs and teams, Paoli and Donati (2014) state that ‘[s]taff members of sports teams and sports federations are [...] often motivated by the same overconformity to a sports ethic that also drives elite athletes to dope’ (Paoli and Donati, 2014, p. 60). As such, unlike those driven by profit, some suppliers of athletes adhere to the higher loyalty of victory over sporting integrity. Because of this, Fincoeur (2019) highlights the lack of violence and animosity in culturally embedded doping markets as, it can be assumed, suppliers are less concerned with monopolising the supply chain than they are with supplying effective doping products to their customers. Paoli and Donati (2014) sum this up well, stating that ‘[t]he closer the supplier comes to the organized sports system, the more important nonfinancial motives become’ (Paoli and

Donati, 2014, p. 82). This logic extends to coaches and team members who may not be involved in the purchase of IPEDs but nonetheless are tolerant and unquestioning when administering them to their athletes, particularly given their routine utilisation of supplementary medicine like vitamin B12 injections (see Voy and Deeter, 1991).

Finally, the involvement of athletes/users themselves as suppliers is highlighted in the literature. Piatkowski et al. (2024b) note the presence of ‘user-manufacturers’ (those who produce and sell doping products for themselves and others) in the Australian market. This is echoed by Coomber et al. (2014) in their mention of ‘social supply’ and ‘minimally commercial supply’ (see also Van de Ven and Mulrooney, 2017), wherein the profit motive is either eclipsed entirely or at least reduced due to cultural ties and a belief in the outcomes of performance enhancement. Conversely, the overlap between profit-driven organised IPED supply and strength sports networks has recently become apparent with the conviction of former Mr Scotland John Barry McDuff for wholesale polydrug supply, which was facilitated in part by his employment at a sports nutrition store²⁴¹. Therefore, regulators ought not to overlook the role of athletes and other IPED users in doping supply chains. Paoli and Donati (2014) suggest that, due to their highly mobile lifestyles, ‘elite athletes are in an ideal position to import doping substances’ given that ‘famous athletes are likely to be less frequently and less intensively checked at customs controls’ (Paoli and Donati, 2014, p. 80). Indeed, as discussed by Dunn et al. (2022), pharmaceutical-grade IPEDs including anabolic androgenic steroids (AAS) may be purchased over the counter in countries with laxer regulations on a specific overseas visit. Termed ‘steroid holidays’ (Coomber-Moore et al., 2023; Gibbs, 2023b), this means of supply relies upon legislation like that in the UK allowing for ‘personal use’ (ACMD, 2010) and effectively affords athletes a means to import banned substances entirely legally. This speaks to the ‘semi-legal’ nature of the market and the challenges in regulating the movement of substances between nations with different legal systems.

Market evolutions – digitisation and globalisation

A raft of recent scholarship has identified the changing face of the IPED market and the subsequent increase in availability of doping products. Gibbs (2023c) claims that the market has experienced a simultaneous commercialisation,

241. Former bodybuilder involved in organised crime jailed for seven years. [online] BBC News. Available at: <https://www.bbc.co.uk/news/articles/ckg9qjgx0jqo> [Accessed 27 Sep. 2024].

normalisation, and digitisation. With an increase in amateur and recreational IPED consumption globally (Sagoe et al., 2014; McVeigh and Begley, 2017) scholars have argued that the use of doping products, particularly anabolic steroids, has become normalised (Turnock and Gibbs, 2023b). It seems clear that the culture and norms of social media, bound up in the rapid digitisation of contemporary life, have both driven and facilitated the demand and subsequent supply of lifestyle and IPED products (Hall, 2019).

Though it should be noted that the above dynamics have not nullified or entirely undermined the traditional culturally embedded supply chains described earlier (Turnock, 2021a), they have seen the advent of a highly sophisticated and multi-faceted online IPED market. Pineau et al. (2016) understand the digital IPED market as serving three overlapping processes; the promotion and advertisement of products; the selling process; and information sharing and discussion of compounds and consumption. Even as far back as the year 2000, scholars have noted the ease with which prospective customers can purchase doping substances online (Dumestre-Toulet, 2000). However, the digitisation of everyday life has seen an upsurge in online IPED supply on the surface web, social media and, to a lesser extent, the dark web.

Online pharmacies, e-commerce sites and surface web forums

As documented by Hall and Antonopoulos (2016), the digitisation of licit and illicit pharmaceutical markets has led to a groundswell of surface websites selling lifestyle drugs, including IPEDs and other doping products. Indeed, Paoli and Greenfield (2017) suggest that:

‘... the availability of doping products has increased tremendously with the spread of websites selling steroids and other pharmaceuticals. Internet sales have made it possible for users in Italy – and elsewhere – to bypass domestic distribution chains, by ordering doping products online and having them delivered by mail at home’ (Paoli and Greenfield, 2017, p. 255).

A growing body of literature has explored ‘online pharmacies’ (OPs) as prime sites for purchasing IPEDs on the surface web (Antonopoulos and Hall, 2016; Garcia et al., 2023). OPs can be divided into those that are either legitimate or rogue (Monteith et al., 2016), however the distinction between the two is at times blurred. Mackey and Nayyar (2016) define rogue OPs as ‘pharmacies that either fail to meet national or international pharmacy regulations or have not been subjected to requisite regulatory review, licensure

and/or certification' (Mackey and Nayyar, 2016, p. 116). Further, Cordaro et al. (2011) highlight the poly-pharmaceutical nature of OPs. Alongside IPEDs, other doping products including post-cycle therapy drugs like aromatase inhibitors and a host of other banned substances are highly accessible to those with basic digital literacy. Highlighting the ease with which these products can be purchased, Van de Ven and Koenraadt (2017) state that most online sellers operate quality websites and build trust with customers through 'responsible vending' practices (Van Hout and Bingham, 2014) including providing information about responsible IPED use as well as clear channels of communication. OPs then distribute their products via international shipping, meaning that an athlete could simply order compounds to their home or an alternative address and receive them swiftly and discreetly (Garcia et al., 2023).

Similarly, work by Turnock and Gibbs (2023a) has noted the use of licit e-commerce platforms like Amazon, eBay and Alibaba for many grey area doping products and equipment (needles, etc). Significantly, unlike the culturally embedded offline markets described earlier, these platforms are remarkably simple to access and reduce the purchase of banned substances, including otherwise legal sports supplements that are banned by WADA (Duiven et al., 2021), to a highly normative consumer purchase, akin to buying groceries or fashion items.

Recent research has also identified surface web forums as spaces of IPED commerce. Sometimes termed 'grey web forums' (Wang et al., 2008), these spaces are conspicuous on account of their dialectic nature, as sellers and users can converse openly and supply is often offered in conjunction with guidance and advice (Van de Ven and Koenraadt, 2017; Turnock, 2021b; Gibbs et al., 2022; Turnock, 2022; Turnock and Townshend, 2022; Nyssanbayeva et al., 2024). Turnock (2021b) offers a forum seller typology, recognising 'established and general suppliers', 'specialist suppliers', and 'casual/opportunistic sellers'. This categorisation captures the heterogeneity of the forum-based market, with varying levels of professionalism and scale. It is also important to note the overlap here between forums and OPs, as forums may serve as spaces to advertise products, before users are directed to OP sites. Further demonstrating the interconnection between digital spaces of supply, Brennan et al. (2018) suggest that forums also allow potential homebrew suppliers to learn the process of production and order the requisite raw materials, highlighting their role as platforms of knowledge exchange as well as commerce (Andreasson and Henning, 2023). In conjunction with OPs then, IPED-specific forums represent a risk environment for the purchase of doping substances by athletes who may lack the higher level connections to access the 'traditional' offline market.

Dark web supply

Unlike recreational drug markets, relatively little research has mapped the sale of doping substances over the dark web. Indeed, a recent WADA (2022) report contends that IPEDs ‘represent only a very small fraction of all dark web marketplace listings (WADA, 2022, p. 14). cursory observations point to a vast clear web PED marketplace which dwarfs its much smaller dark web equivalent’. The report further suggests that the customer base is predominantly made up of amateur bodybuilders rather than athletes or those in the elite sport industry, though WADA do note that if athletes are engaged in this market, they are likely to be communicating through private channels like WhatsApp (see Moyle et al., 2019). Similarly, unlike the surface web forums described above and the wider sense of community and knowledge sharing that has been reported in the IPED-using population (Tighe et al., 2017; Gibbs et al., 2022; Piatkowski et al., 2024a), WADA characterise dark web spaces as strictly business.

In the only dedicated article studying dark web doping products supply, McLean et al. (2023) identified 72 products from WADA’s prohibited list for sale on the darknet, most commonly anabolic agents. They state that ‘apart from Beta 2 agonists, all other WADA ‘prohibited at all times’ substance classes were identified as available for purchase within the darknet’ (McLean et al., 2023, p. 4), suggesting that more research is warranted given the potential risk (see also Richardson et al., 2019). Of course, purchasing illicit goods over the dark web requires specific knowledge as well as cultural and digital capital (Bakken et al., 2023) but this does not negate the potential for its use, especially by wholesale suppliers. Transactions on the dark web are completed via bitcoin or other secure payment means. Though seemingly not the common means of IPED supply then, it can be assumed that some doping substances are entering the market through this means.

Social media markets

The supply of IPEDs on social media represents a growth area in social scientific and public health research. Cox et al. (2023) suggest that social media sites like Instagram, Facebook and TikTok provide sellers with a platform to advertise their products and negotiate sales (through the direct messaging feature). Marketing efforts often feature prominent members of the IPED-using community as well as content mirroring strength sports and bodybuilding culture (see Cox and Paoli, 2023; Gibbs, 2023a; Cox and Piatkowski, 2024; Paoli and Cox, 2024). Gibbs (2023c) describes ‘underground lab

representatives', who sell on behalf of a specific brand of IPED producer, and 'independent resellers', who carry a variety of brands and products. Research also emphasises the multi-platform nature of social media supply, with sellers frequently employing encrypted platforms like WhatsApp to share price lists and 'haggle' with customers. Payments are then generally made via money transfer services like PayPal and Western Union (see Choo and Smith, 2008) or bank transfer.

Existing scholarship does however suggest that social media customers tend to be amateur and inexperienced IPED users who lack the cultural and sporting networks described by Paoli and Donati (2014) (see Gibbs, 2023c). Therefore, it is unclear what role these sites have in facilitating the supply of doping substances to those competing in WADA-tested sporting competitions.

Looking forward – future developments

Research into the supply of IPEDs has continued apace in the last decade and several emergent areas are worthy of consideration. Firstly, Turnock and Hearne (2024) recently identified the prevalence of novel wellbeing and repair peptide use in the UK (see also Hirst and Turnock, 2024). These substances build muscle and reduce fat, as well as improving athlete's recovery time, giving clear competitive advantages that have been recognised by WADA (WADA, 2024). Crucially, Turnock and Gibbs (2023a) note that these compounds are relatively unregulated on licit e-commerce platforms and are often marketed rather coyly as being 'not for human consumption'. The availability of such novel substances on mainstream platforms like Amazon and Alibaba as well as surface web forums poses significant risk to anti-doping authorities across a range of sporting competitions. Similarly, research continues to highlight the many incidences of 'accidental doping' (Somerville and Lewis, 2005) through the ingestion of dietary supplements containing banned compounds (Petróczi et al., 2011; Paoli and Donati, 2014; Denham, 2017; van Wagoner et al., 2017). With the continued growth of the sports supplement market (Alonso and Fernandez-Garcia, 2020) and the potential 'criminogenic asymmetries' (Passas, 2003) resulting from the disparity between what is legal to sell and what is banned by WADA, enhancements in potency, availability, and popularity of licit sports supplement represent an area of concern for anti-doping efforts.

Another area that has received a surge in scholarly input is the use of doping products in esports (Richardson et al., 2024). As a growing area of competitive sport (Lehnert et al., 2022) which does adhere to WADA's Code²⁴², concerns have been raised regarding the use of stimulants and the misuse of prescription medicines (Holden et al., 2019; Schöber and Stadtmann, 2022; Schubert et al., 2022; Bennett, 2023; Tweedie et al., 2023; Friehs et al., 2024; Schubert et al., 2024). Given the specific enhancement outcomes of esports compared to traditional sports, this is an area that could impact the prevalence of specific compounds in the doping markets as well as the actors involved.

Finally, recent empirical work by Gibbs (2023c) suggests that heightened demand for IPEDs has increased the profitability of the doping market, ushering in less culturally embedded 'market-oriented' suppliers. Though Fincoeur et al. (2015) attribute this evolution to increased regulatory efforts intimidating sports-adjacent dealers (see also Fincoeur, 2019), Gibbs contends that the profitability of selling anabolic steroids and other compounds has been recognised as a lucrative opportunity by those with fewer community ties. Though the IPED market has long been understood as a relatively placid non-violent space (Antonopoulos and Hall, 2016; Fincoeur, 2019; Turnock, 2020, 2021a, 2021b), evidence suggests that, amongst UGLs, we are now witnessing a more competitive marketplace which has become more proximate to 'traditional' recreational drug supply (see Treadwell et al., 2020). Future research is required to track these developments and the potential overlaps between the recreational drugs and doping substances market.

Conclusion

This chapter has mapped the current literature relating to the supply-side of the sports doping market, highlighting the various online and offline spaces which cater for the global demand for IPEDs utilised in a regulated sporting context. This has encompassed research on the production of doping substances, an area where athletes seemingly differ from recreational IPED users in their preferences for 'pharma' products rather than UGL-made substances. Leaning heavily on the work of Paoli and Donati (2014), the various actors involved in the culturally embedded offline market have been laid out, before accounting for the profound impact of globalisation and digitisation on the supply of doping substances. Several online means of supply have been presented, including online pharmacies, surface web forums, dark web supply, and social media selling. Though the literature has mainly been concerned

with recreational IPED use, it is apparent that these channels present some risk for WADA-regulated competitions on account of the ease and professionalism of the online market. Finally, several emergent areas of scholarship have been highlighted. These include the prevalence of novel wellbeing and repair peptide use and supply, banned sports supplements that have been implicated in ‘accidental doping’ cases, demand for IPEDs in the growing esports market, and the increased profit motive in the doping market more generally.

Ultimately, this chapter serves as a roadmap of the current research into the sports doping market and the various channels through which substances appearing on WADA’s banned list are produced, marketed and sold. It is hoped that this synthesis can inform the regulation of doping products and contribute to building a cleaner and fairer sporting industry.

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