Peptides: substances of tomorrow – Moving beyond the traditional framework of Performance Enhancing Drugs (PEDs)

Simon Gellar, University of Kent

Often confused or conflated with anabolic-androgenic steroids (AAS), peptides are synthetic substances that have increasingly become of use in regenerative therapy and life extension treatments. They are synthetically made, injectable sequences of amino acids that are anabolic and non-androgenic, and which simulate natural production that occurs in parts of the body such as the stomach and pancreas. Insulin is a well-known peptide commonly prescribed to diabetics. To date, more than 60 different peptides have been approved for medical use, but many others have been developed without approval and made available via online sales as ‘research chemicals’, not for human consumption. As the legitimate use of peptides for medical purposes has increased, somewhat inevitably, the unregulated use of peptides as ‘Performance Enhancing Drugs’ (PEDs) has also increased. Athletes and gym enthusiasts often use steroids to build muscle and may also be interested in peptides for their ability to facilitate the repair of damaged parts of the body, for example when recovering from an injury. The limited existing research on peptides, however, suggest that their regenerative properties may have much wider appeal than the relatively narrow steroid user base (Dr Lam Coaching, 2022).

One key difference between peptides and other more established Performance Enhancing Drugs, is that they are not currently controlled under the Misuse of Drugs Act 1971 (MDA 1971). Steroids or the smart drug Ritalin, for example, are categorised as class C drugs when used without prescription, and criminal penalties can be applied for importation, supply, or possession with intent to supply. Many peptides have not yet even been approved for human clinical use, for example as a prescription medication, due to newly emerging understanding of their benefits and a lack of clinical trials. This places them in a legal grey area, outside of any legitimate quality control standards. Many are sold as research chemicals ‘not for human consumption’, increasing the risk to novice users.

Nevertheless, online forums such as Reddit or Facebook, as well as a proliferation of online sites purporting to sell peptides, indicate a rising user base. In the absence of clinical trial data or research into the potential harms of peptide use (Langen, 2010), user discussion boards currently provide the best place to share information on side-effects, dosages, methods of use, and perceived benefits and harms (Facebook, 2022). Given the lack of research data available on these substances, the rapid emergence of new and increasingly complex peptides, and the rise in user base, it might be tempting for Governments to respond by banning them before they become even more widely used. It is the aim of this brief policy commentary to outline some of the drawbacks to such an approach and, drawing on case
studies, to explain why the issue of regulation needs to be approached in a more nuanced manner.

BPC-157

One peptide for which the effects on humans have been researched relatively thoroughly is the synthetically produced BPC-157, available on prescription. Existing data suggests it can be used for a variety of regenerative purposes such as: the repair of damaged muscles and tendons; and the treatment of gut-related issues, arthritis, and skin burns. It supersedes the effective ability of natural healing by reducing scar tissue and speeds up recovery time beyond the body’s normal capabilities (Staresinic et al., 2003). These properties are of clear interest to athletes seeking to stimulate muscle gain/recovery – so much so that as of 2022 the World Anti-Doping Association (WADA) has designated BPC-157 as a Performance Enhancing Drug, placing it on its list of banned substances.

At the same time, recent research has found BPC-157 to be so effective in reducing the damage done by arthritis that it has been noted as reversing some of the effects of this degenerative condition, with the potential to considerably improve the quality of life of those suffering from it (Lee & Padgett, 2021). Any move to bring substances under criminal legislative control, for example via the MDA 1971, makes ongoing research into its medical benefits more difficult to conduct. In seeking to regulate and control the use of BPC-157 it is thus important to balance the potential risks to unauthorised athletic users, against the potential benefits to authorised medical users, such as those suffering from arthritis.

CJC-1295

Another relatively well-known, licenced for prescription peptide, CJC-1295, has also been banned by WADA in 2020 for the competitive advantages deriving from its regenerative properties. Like BPC-157, however, CJC-1295 has become prominent amongst diverse groups as a substance that can ‘turn back the clock’, reversing some of the symptoms of ageing. Documenting the increasing number of women reporting off-prescription self-administration of this substance, van Hout & Hearne (2016) conducted a netnography examining online forums and exploring the conversations among women using CJC-1295. They found the primary motivation for use was to attain more youthful skin, with getting a better body and combatting ageing in general also important.

Whilst the use of peptides may seem a risky and novel practice to the uninitiated, mainstream consumer brands such as L’Oreal already incorporate peptides into their own treatment products (L’Oreal, 2022), particularly those aiming to improve the smoothness and firmness of the skin to reduce the signs of ageing (Gorouhi & Maibach 2009). Peptides sold as transdermal applications that ‘firm up’ and regenerate skin are only the tip of the iceberg in terms of marketability, appealing to people from a wider range of ages, backgrounds, and other demographics. The existing commercial use of peptides in skin products and the potential widespread appeal for self-administration makes some form of regulation desirable,
but prohibition via the MDA 1971 seems disproportionate and unlikely to deliver a nuanced policy of benefit to the user base.

**Epitalon**

A final relevant example here is provided by the as yet unapproved peptide Epitalon. Emerging research suggests frequent subcutaneous injection of this substance may effectively reduce the ageing process by enabling the body to begin systematically healing itself with, for example, the potential to postpone the onset of dementia, treat cancer and heart disease, rejuvenate skin, improve sleep, and ultimately extend the human lifespan (Korkushko et al 2011, Khavinson et al 2014). Simultaneously, Epitalon has found notoriety among online social groups using peptides for varied cell regenerative purposes, such as wound healing, neurological degeneration, and neuroprotection.

Any attempt to enact legislation prohibiting the importation, supply, or possession of Epitalon would result in the same issues as already discussed: difficulties in access for legitimate user base; limitations on continued medical research; potential criminalisation of diverse user base; increase of harms and risks to users. One further aspect to draw out in relation to Epitalon, which perhaps seems to have the most extensive range of regenerative benefits, is that peptides self-administration usually comes to light via WADA placing bans on the use of such substances in competitive sport. This means that Epitalon, and many other peptides, are primarily categorised as illegitimate Performance Enhancing Drugs, rather than the legitimate regenerative medicines of tomorrow.

**Concluding Thoughts**

An increasing variety of peptides are being developed and made accessible to a wide and varied user base interested in recovering from injury, reversing the ageing process, and treating a range of diseases. The current legal situation means that peptides are easy to purchase over the internet as ‘research chemicals’ not for human consumption, and thus their sale to non-prescription users is unregulated by either illegal drug legislation or food safety legislation. This lack of regulation leaves users without any means to assure the quality of the substances they are purchasing. At the same time, the relative newness of the substances means that accurate information about side-effects, dosage and recommended methods of use is often difficult to obtain. Within this context, some kind of regulation of off-prescription use of peptides probably would be beneficial, but only if it is nuanced in its approach, seeing to reduce harm to the end user, and keeping avenues for legitimate research and access open.

Academic social research has the potential to play a useful part in understanding the variety of motivations for use, as well as the potential risks to off-prescription users, and could thus be used to inform any policy developed in this area. It must, however, take care to avoid the practice of treating PEDs as though they are an cohesive category of substance and as though it is appropriate to regulate or control them all in the same way (Brennan et al., 2017), be prepared to turn the focus from more well-known PEDs such as steroids to the plethora of
much less well understood substances, and be capable of imagining a diverse user base extending far beyond gym enthusiasts and competitive athletes.

References


