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ENGL 102: OP-01

7 May 2026

Biohacking and the Risks of Gray Market Peptides

The ongoing pressure to improve cognitive and physical performance through unregulated substances is becoming increasingly common and dangerous. Social media influencers and individuals presenting themselves as “medical professionals” frequently recommend unregulated substances despite the lack of credible and scientific evidence supporting their safety or effectiveness. These substances may cause significant bodily harm or even death. It is critical to consult licensed medical practitioners before using performance-enhancing substances in order to determine whether a treatment is medically appropriate. The general public must become more cautious about trusting health information online.

Biohacking is broadly defined as the self-directed use of biotechnology, digital tools, supplements, and lifestyle interventions to optimize human performance and health (Bautista and López-Cortés, p. 1). While many forms of biohacking involve the practice of evidence-based wellness regimens, online communities have increasingly promoted experimental and unregulated substances such as synthetic peptides for cognitive enhancement, anti-aging, and physical performance despite limited empirical evidence regarding their safety and efficacy.

Internet influencers encourage the purchase of many unregulated peptides which can be sold through gray markets and manufactured outside of regulatory oversight and are often labeled as "research chemicals" or "not for human consumption" in order to bypass safety regulations. Without a standardized manufacturing practice, these substances may contain inaccurate dosages, impurities, or contaminants which significantly raise health risks to unknowing consumers of these synthetic drugs (Mendias and Awan p. 1-2).

A study by Singleton and Wantuch on the Evaluation of TikTok social media posts on side effect information for popular weight loss medications analyzed 165 total TikTok videos after exclusions and discovered 90% of those posting did not have the credentials of a health care worker. Only 16 videos (10%) were published by explicitly identified health care workers (Singleton and Wantuch, p. 1081). This exposes a major gap in the credibility of health-related information presented to people on the internet. (Turnock and Hearne, p. 1)

A growing online subculture commonly referred to as "looksmaxxing" encourages individuals to inject and consume peptides to enhance their cognitive performance, physical appearance, and perceived social attractiveness. Peptides are short chains of amino acids which are the building blocks of proteins in the body. They play a key role in many biological processes, including immune function and hormone production.

Peptides can be found in skincare products that are either consumed or applied topically, such as collagen supplements and creams. There is also an abundance of FDA-approved peptide drugs, most of them injectable: Insulin and GLP-1 drugs for diabetes and obesity are among the

most well-known examples (Elias et al p. 117). However, the growing popularity of unapproved synthetic peptides marketed online has raised significant ethical and clinical concerns.

Luke Turnock, a researcher from the University of Lincoln who studies the rise of synthetic drug use, states that recently, there has been "an explosion of interest in synthetic peptide hormones promoted for wellbeing enhancement purposes, including BPC-157, TB-500 and CJC-1295" (Turnock and Hearne p. 2-3). These substances are often promoted online in gray markets for injury recovery, anti-aging, athletic performance, and muscle growth despite lacking sufficient human clinical trials.

The lack of basic pharmacodynamic and pharmacokinetic profiling is a major issue in the scientific validation of substances such as BPC-157, TB-500, and CJC-1295. Research conducted by Józwiak et al. identified inconsistencies regarding dosage, toxicity observations, bioavailability, and compound stability in peptide testing. The researchers noted that the absence of observable toxic effects at extremely high doses was surprising and suggested that rapid systemic clearance, instability, or insufficient peptide content may have affected the results. The inconsistencies found demonstrate the lack of reliable evidence currently available regarding the long-term safety and effectiveness of many unregulated peptides. (Józwiak et al. p. 1451)

The growing trend of peptide injections has been amplified through the use of social media algorithms. These algorithms observe user behavior and recommend people increasingly similar content based on their previous engagement. As a result, users are repeatedly exposed to the same health and wellness messaging which can strengthen persuasive influence, normalize

risky behaviours and increase consumer influence (Kiaei p. 377). Many users place trust in influencers online due to their perceived authenticity and relatability despite lacking medical qualifications.

In order to reduce the growing risks associated with gray market peptides, stronger regulatory oversight and public education are necessary. Online marketplaces and social media platforms should face greater accountability for promoting and distributing unapproved experimental substances to consumers. Improving digital health literacy is critical as many individuals struggle to differentiate credible medical information from influencer marketing and misinformation online (Singleton and Wantuch p. 1082).

Public health organizations and educational institutions should place a greater emphasis on educating people regarding the risks associated with unregulated performance enhancing drugs. Most importantly, individuals should always consult a licensed medical professional before using peptide therapies in order to ensure treatments are evidence-based, medically appropriate, and safely monitored.

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