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Perceptions of assisted cognitive and sport performance enhancement among university students in England

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ABSTRACT

There has been an ongoing research effort to understand the morality of athletes using prescription and illicit drugs to enhance sporting performance. By comparison, perceptions around the ethics of university students using prescription drugs to enhance academic performance (known as cognitive enhancement or *neuroenhancement*) are less well understood. This study compared how university students responded to the ethical considerations of using performance enhancing substances across sporting and academic contexts. A total of 98 participants from universities in the United Kingdom completed a Brief Implicit Association Test, a brief version of the Performance Enhancement Attitude Scale, an explicit cognitive enhancer attitude assessment and reported their views on four scenarios regarding sports doping and the use of cognitive enhancers by university students. The implicit association did not show a significant polarisation of students' moral attitudes. Explicit measures showed a stronger disagreement towards doping behaviours. Those professionally involved in sport found chemical enhancement more acceptable than other respondents, suggesting an instrumental viewpoint and a transfer of social knowledge from one domain of drug use to the other. Participants perceived the use of enhancers in sport and education as "cheating" when it affected others, but believed cognitive enhancement could be necessary due to competitiveness of the job market. Results suggest that chemical enhancement was considered acceptable by some student groups. The proportion of the sample knowing someone who used cognitive enhancers (13%) or someone who doped (19%) suggests that substance based performance enhancement may be normalising and increasing in popularity.

1. Introduction

There is a growing debate around the widespread use of drugs to enhance physical performance and cognitive capacity, including the use of prescription drugs beyond therapeutic use (Møldrup & Rie Hansen, 2006; Petersen, Nørgaard, & Traulsen, 2014; Smith & Farah, 2011). The pressure arising from the real or perceived need for performance excellence can lead to using artificial enhancement (McVeigh, Evans-Brown, & Bellis, 2012). Emerging evidence suggests that using "neuroenhancement" (a term utilised to define the use of prescription drugs to improve cognitive capacity) in the absence of any medical need is only the most recent addition to the already extensive array of drugs that enhance human performance or experience (Franke et al., 2013; Møldrup, Traulsen, & Almarsdóttir, 2003; Savulescu, ter Meulen, & Kahane, 2011). Even though such "academic doping" is by no means new, the side effects arising from the unsupervised use of powerful new amphetamines, narcoleptics and analeptics present a significant threat to individual and public health. Given the prominent role of ethicality in models of athlete doping and anti-doping interventions (Miah, 2006), ethicality may prove a viable basis for interventions designed to control the health threat posed by misuse or abuse of substances to improve academic performance (Cakic, 2009; Outram & Racine, 2011). The current study therefore explores how university students construct the ethicality of using prescription drugs to enhance academic performance in relation to the ethicality of using substances to enhance performance in sport.

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1.1. Cognitive enhancement in academia

With the rise in university enrolments and increasing university tuition fees (Hübner, 2012), students in many post-industrial societies endure more pressure to perform well, aiming for high marks in response to the increased competitiveness of the graduate job market. These shifts in the academic environment have led to a reported rise according to frequent media reports, of "smart drug" use among students who wish to optimise academic performance (Forlini & Racine, 2009; Partridge, Bell, Lucke, Yeates, & Hall, 2011). The evidence suggests that students use these substances to increase studying periods and levels of concentration, and decrease anxiety (DeSantis, Webb, & Noar, 2008; Judson & Langdon, 2009; Rabiner et al., 2009). It has also been evidenced that students attempt to self-medicate the lack of sleep through these substances (Wolff & Brand, 2013). Neuroenhancement appears to be correlated with faculty of study, attitude and the use of other substances (Mazanov, Dunn, Connor, & Fielding, 2013).

Neuroenhancing drugs act on a variety of neurotransmitter systems and appear to be able to enhance cognition, mood and pro-social behaviour (De Jongh, Bolt, Schermer, & Olivier, 2008). Nonetheless, their efficacy in enhancing overall memory and intellectual performance is yet to be established, and side effects can be detrimental to the individual's health and psychological well-being (Farah, Smith, Ilieva, & Hamilton, 2014). Misuse or abuse of prescription medication can be very dangerous and is an ongoing challenge for public health. Inappropriate use of these compounds can impair cognitive function and cause substance dependency; the side effects of long-term use are not yet fully understood (Sahakian & Morein-Zamir, 2011).

Stimulants like Ritalin, a drug normally prescribed to attention deficit hyperactive disorder patients, are estimated to be used by 5–35% of the student population in the United States (DeSantis et al., 2008; Wilens et al., 2008). While a low prevalence of use (1.3%) was observed among German students (Franke et al., 2011), the same study reported 80% of participants stating that they would consider using these stimulants. Swiss university students had experience with neuroenhancement but only 4.1% reported methylphenidate (Ritalin) use, finding that a significant proportion of students felt neuroenhancement was acceptable as long as it served performance related (as opposed to "recreational") goals (Maier, Liechti, Herzig, & Schaub, 2013). Neuroenhancer use has also been observed among Australian university students (Mazanov et al., 2013; Partridge, Lucke, & Hall, 2012), although these students were concerned about possible side effects and the drugs' effectiveness in improving grades. In a study surveying UK students (Singh, Bard, & Jackson, 2014), less than 10% reported lifetime prevalence, but one third expressed an interest in experimenting with neuroenhancement. One university student newspaper has reported that 20.5% of a convenient sample of local students has used cognitive performance enhancing drugs, and 54% indicated that they would use stronger substances than coffee or energy drinks if such substances were available to them (Ibrahim, 2012). To date, no epidemiological study has comprehensively examined and compared prevalence rates.

Despite students' willingness to try these stimulants (Forlini & Racine, 2009) is associated with the belief that they are not dangerous (De Santis et al., 2009), side and long term effects are still of concern (Forlini & Racine, 2012). Due to the strong contrast in responses (Sattler, Forlini, Racine, & Sauer, 2013) and the high variability in prevalence rates, more research is needed to understand these differences. Although the non-prescribed use of neuroenhancers is – in most cases – illegal and students are obtaining these drugs from the black market (Greely et al., 2008), no regulations exist regarding their use in academia (Coenen, Schuiff, & Smits, 2014). Conversely, in the sporting environment the use of performance enhancing drugs is strictly regulated by the World Anti-Doping Agency (WADA) which defines doping as contrary to fair play and to the virtues of sport. Despite the intensified effort to curb doping use in sport, a concerning level has been documented in and outside WADA auspices (e.g., Dimeo & Taylor, 2013; Pitsch & Emrich, 2012). Similar to neuroenhancement, doping in sport raises issues regarding functionality for performance enhancement and ethicality in competitive contexts.

1.2. Performance enhancers in sport

General attitudes towards doping have been extensively researched (Sjöqvist, Garle, & Rane, 2008; Stamm, Lamprecht, Kamber, Marti, & Mahler, 2008; Yager & O'Dea, 2014). The most commonly identified motives for taking performance enhancing substances are mainly related to external pressures (Bilard, Ninot, & Hauw, 2011; Curry & Wagman, 1999; Pappa & Kennedy, 2013; Singhammer, 2013) and a desire to win (Baron, Martin, & Magd, 2007; Lucidi et al., 2008). Taken together, available research suggests that doping is used as a way to cope with training and competition demands, as well as recover from injury quickly and more efficiently. In this sense, doping in the athletic domain could be seen as a means to cope with environmental demands, presenting similarities to students' motivations related to using neuroenhancers. Athletes often acquire performance enhancing substances via the black market, thus the health risks of their conduct can be even more critical and unpredictable (Paoli & Donati, 2014).

Prevalence rates emerging across samples and methods (e.g., James, Nepusz, Naughton, & Petroczi, 2013; Mottram, 2005; Pitsch & Emrich, 2012) indicate higher rates of doping than official records of adverse analytical findings suggest (approximately 2%; WADA, 2013). Furthermore, the Athlete Biological Passport (ABP) has shown an estimated average of 14–19% blood dopers among track and field athletes (Sottas et al., 2011), suggesting a considerable discrepancy between doping prevalence rates based on direct evidence and the ABP. However, prevalence rates can only be interpreted in the contexts in which the information is obtained. Often, the target populations vary in sporting levels and investigations lack a uniformly accepted definition of what constitutes doping (Lentillon-Kaestner & Ohl, 2011).

Many athletes do not consider taking performance enhancers as deceitful and believe these are necessary to compete, regardless of health consequences (Curry & Wagman, 1999; Kayser & Broers, 2013; Morente-Sanchez & Zabala, 2013). Research on doping has often focused on attitudes of elite athletes and suggests that motivations tied to initiating or maintaining doping use are extremely diverse (Bloodworth & McNamee, 2010; Kirby, Moran, & Guerin, 2011; Lentillon-Kaestner & Carstairs, 2010; Overbye, Knudsen, & Pfister, 2013). Regarding stimulants in particular, it is suggested that athletes consider them as "performance enablers", as they are required to maintain homeostasis during prolonged and intense training (Bilard et al., 2011). Athletes believe hard work alone is insufficient when competing against someone who is doping (Maycock & Howat, 2005). Considering the social and economic impact of the sports enterprise, doping and anti-doping attempts are to be considered a public issue (Kayser, Mauron, & Miah, 2007). Athletes are often confronted with a competitive environment which enables the functionality of doping, thus interventions based on morality and ethicality do not appear to successfully contain the phenomenon (Kayser & Broers, 2013; Petróczi, 2013a, 2013b).

1.3. Comparing cognitive enhancers to performance enhancers

Neuroenhancement is a relatively new phenomenon, and people may not have a ready-formed social representation unless they

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