



The role of the *Self* in assessing doping cognition: Implicit and explicit measures of athletes' doping-related prototype perceptions



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ABSTRACT

Objectives: To examine athletes' implicit and explicit prototype perceptions of performance enhancing substance (PES) users and non-users.

Design: A cross-sectional mixed-method study.

Methods: Competitive athletes from 39 sports (N = 226; mean age = 27.66 ± 9.74 years; 59% male) completed four self-report questions and two Brief Implicit Association Tests online, assessing prototype favourability and similarity of PES users and non-users.

Results: Athletes explicitly associated themselves with a non-user (M = 3.13 ± 0.92) more than a PES user (M = 0.56 ± 0.88) and perceived a non-user (M = 89.92 ± 14.98) more favourably than a PES user (M = 13.18 ± 21.38). Indexing behaviour on self-reports, doping contemplators did not differ from 'clean' athletes in their perceptions of PES user prototypes while dopers perceived PES users favourably and similar to themselves. In comparison, doping contemplators paired the concept of 'dopers' easier with themselves than with others, while clean athletes and dopers had no preference for either pairing (D = -0.33, -0.08 and 0.01, respectively). All groups demonstrated some degree of preference for 'good and doper', moving from slight to moderate to strong preference in the groups of clean athletes, dopers and contemplators, respectively (D = -0.20, -0.37 and -0.80, respectively).

Conclusions: Results suggest that doping contemplators may have a positive bias towards doping which is not endorsed in self-reports. Implicit preferences, along with the disparity between the implicit and explicit measures of athletes' doping-related prototype perceptions advance understanding of doping behaviour and make a unique contribution to research methodology. Factors influencing the interplay between explicit and implicit endorsements of PES user prototypes warrant further research.

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1. Introduction

Since the introduction of the World Anti-Doping Agency's (WADA) social science research programme in 2005, the number of individuals conducting research in the area of anti-doping has grown. Building on an initial focus on athletes' attitudes towards doping, there has been a switch in focus to other doping risk and protective factors. Yet one factor that has received little attention thus far - but may help to increase understanding and the prevention of doping behaviour - is an individual's prototype perceptions.

Drawing upon the tenets of the Prototype Willingness Model (PWM; Gibbons, Gerrard, & Lane, 2003), prototype perceptions represent the images of the type of person an individual thinks engages in a particular behaviour (e.g., the 'typical' doper). These prototypes form when people make comparisons with others to evaluate opinions and behaviour (Scott, Mason, & Mason, 2015). Prototypes for any given behaviour are distinct and are made up of both positive and negative attributes (Ouellette, Hessling, Gibbons, Reis-Bergan, & Gerrard, 2005). According to the PWM, there are two aspects of prototype perceptions that influence an individual's willingness to engage in risky behaviour: prototype favourability (how favourable/unfavourable the overall evaluation of the image is) and prototype similarity (how similar an individual feels they are to the image). When considering whether to engage in a behaviour, people compare themselves to their images of the

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prototype and the positive and negative attributes that are associated with it. The more favourable and similar to themselves a prototype is perceived to be, the more likely an individual will engage in the behaviour (Zimmermann & Sieverding, 2010). Accordingly, if an athlete perceives the image of a performance enhancing substance (PES) user (an individual who uses prohibited substances) favourably and/or believes they themselves are similar to a PES user, theoretically they will be more willing to dope themselves.

Athletes' perceptions of the type of person who engages in doping are important because they may help to identify those who are vulnerable to doping. For example, if an athlete perceives a PES user to consist of many positive characteristics, they may aspire to become like them, which could lead to doping (Whitaker, Long, Petróczi, & Backhouse, 2012).

As individuals, we develop self-schemas from our past experiences that we use to process self-related information (Cross & Markus, 1994). The schemas that we develop influence our sensitivity to information and our ability to predict our future selves within a specific domain (Cross & Markus, 1994). Our possible selves provide an important link between motivation and our self-concept and represent how we see ourselves in the future including our *ideal self*, along with our hopes and fears (Markus & Nurius, 1986). Possible selves also represent what an individual perceives to be attainable and therefore act as a goal to strive towards (Stevenson & Clegg, 2011). If an athlete's *hoped for self* reflects the prototype of a PES user, an individual may be motivated to strive to become like a PES user. Alternatively, an athlete may fear becoming like a PES user and as a result be less willing to dope.

Typically, prototype perceptions have been investigated solely with the use of self-report measures (e.g., Blanton et al., 2001; Spijkerman, Van Den Eijnden, Vitale, & Engels, 2004; Thornton, Gibbons, & Gerrard, 2002). Not only have studies identified that individuals hold distinct prototypes of the type of person they think engages in a particular behaviour (e.g., condom users/non-users; Blanton et al., 2001), they also indicate that prototype perceptions predict willingness to engage in risky behaviours (e.g., smoking, alcohol use, unsafe sex). For example, positive associations have also been made between prototype perceptions and adolescents' intentions to smoke and drink in the future (Spijkerman et al., 2004). Similarly, perceived social images were significantly related to young adults' willingness to engage in unprotected sex, which later predicted contraceptive use six months on (Thornton et al., 2002). However, the inherent limitation in self-report methodology lies with the assumption that respondents are willing and able to report what they think and how they feel. Proponents of implicit assessments argue that despite the deceptively reassuring feeling of cognitive certainty most people experience, what is available to conscious self-examination is only a small fraction of what is in the mind (Nosek, Hawkins, & Frazier, 2011). For example, social projection, attribute substitution and heuristical decision making happens outside conscious awareness (Kahneman, 2003; Robbins & Krueger, 2005), meaning self-reported and automatic motivations or preferences can differ widely (McClelland, Koestner, & Weinberger, 1989; Nosek, 2007). This intriguing characteristic calls for alternative measurement processes in order to capture the mental processes that happen outside conscious control.

Because implicit measurements do not require respondents to make explicit connections or evaluations about the target construct (e.g., doping attitude or PES user prototypes), they are assumed to be able to tap into people's subconscious and uncontrolled thought processes. Response time-based implicit tests, such as the Implicit Association Test (IAT) variants (Greenwald, Mcghee, & Schwartz, 1998) utilise the stimulus-response compatibility

(SRC) concept whereby the speed by which one is able to perform the task is influenced by compatibility between (a) the stimuli and the required response (S-R) and/or (b) features of the stimuli (S-S) (De Houwer, 2001; Kornblum, Hasbroucq, & Osman, 1990). Inferences are made from the response times of each S-R pair to determine which pairing represents the compatible S-R pair and which is the incompatible S-R pair (e.g., 'doping and cheating' vs. 'doping and fair', or vice versa). The easier pairing, which is performed quicker, is presumed to be subconsciously preferred by the respondent.

Recent research into the phenomenology of implicit measures and implicit attitudes suggests that a measurement being *implicit* does not equate to being automatic or outside conscious awareness (De Houwer & Moors, 2007; Fazio & Olson, 2003). Under the right conditions, people can have accurate introspection into their implicit attitudes (Cooley, Payne, Loersch, & Lei, 2015). Yet, implicit measures can be constructed in multiple ways, with the retrieval process being influenced by both external and internal factors as well as the interaction between them. In turn, this makes them quite malleable (Payne & Cameron, 2013; Payne & Gawronski, 2010; Petróczi, 2013). Recognising the importance of capturing both implicit and explicit thought processes when dealing with socially sensitive issues such as doping in sport, there is an increasing trend of employing both indirect measures and direct assessments, such as self-report questionnaires, whilst also accounting for socially desirable responding (Gucciardi, Jalleh, & Donovan, 2010). With regards to researching doping behaviour, a handful of IAT test variants have been developed and tested, focusing on attitudes and automatic associations (for a review, see Brand, Wolff, & Baumgarten, 2015; Petróczi, 2013).

The most popular implicit measurement tool utilised by researchers is the IAT (Greenwald et al., 1998). IATs involve a double-category lexical or pictorial sorting task where two concepts (the target category and the attribute) are represented by the same response key. The time taken to accurately select the correct response key is recorded and a latency score is then calculated to determine which categories are easier to pair together. The sorting task is perceived to be easier when there is a strong association between two concepts sharing the same response key, resulting in a faster response time and fewer errors than when two concepts assigned the same key are not associated (Nosek, Greenwald, & Banaji, 2007). Recognising a need to employ indirect methods to assess socially undesirable behaviours such as doping, research teams are beginning to use IATs to investigate doping-related attitudes (e.g., Brand, Heck, & Ziegler, 2014a; Brand, Wolff, & Thieme, 2014b; Petróczi, Aidman, & Nepusz, 2008). In addition, Petróczi et al. (2011) used a Brief IAT (B-IAT) combined with self-report measures and hair analysis to investigate doping behaviour/attitudes.

To our knowledge, there have been no studies that have assessed athletes' prototype perceptions using direct and indirect measures. An individual's self-concept can influence the association between two concepts measured using an IAT (Greenwald et al., 2002). However, Ratliff and Howell (2015) examined the role of implicit and explicit prototypes on engagement in risky sun-related behaviour (e.g., using sunbeds, use of high SPF sun cream) and demonstrated that implicit prototypes were more predictive of white American women's risky sun-related behaviour than explicit prototypes. Thus it is assumed that the speed at which the IAT task can be performed is influenced by whether the relevant descriptor (e.g., PES user) is readily accessible in the working self-concept (Cross & Markus, 1994). If the descriptor is readily available in the working self-concept, response latencies on the IAT will be faster (Fazio, 1990).

It is important to identify both implicit and explicit prototype

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