What if it really was an accident?
The psychology of unintentional doping

Derwin King Chung Chan[1, 2]
Nikos Ntoumanis[2]
Daniel F. Gucciardi[2]
Robert J. Donovan[2]
James A. Dimmock[3]
Sarah J. Hardcastle[2]
Martin S. Hagger[2]
[1]Institute of Human Performance, The University of Hong Kong
[2]Curtin University, Perth, Australia
[3]The University of Western Australia

Correspondence concerning this article should be addressed to Derwin K. C. Chan, Institute of Human Performance, the University of Hong Kong. Email: derwin.chan@hku.hk.

Acknowledgement

This review is supported by the Australian Government Anti-Doping Research Programme (#01-CURTIN-2011-12) awarded to Professor Martin S. Hagger (Curtin University, Australia). It does not constitute endorsement by ACSM. The authors do not have conflicts of interests directly relevant to the content of the review.

Keywords: anti-doping; prohibited methods; prevention; nutritional supplements; illicit drugs.

Doping refers to the use of prohibited performance-enhancing substances or methods in sport. It is considered a serious offense in sport that has many negative consequences, including titles being stripped, bans from participating, damage to reputation and ill health. As doping is assumed to be a pre-meditated action, engaging in this behaviour has been predominantly attributed to athletes' decision making processes and moral values or obligations[1]. An increasing volume of literature has focused on the psychological factors associated with doping or doping intention, such as motivation, sportsmanship, moral disengagement, and social-cognitive factors[1].

These studies make a central assumption that doping is a consciously-controlled and goal-directed behaviour. However athletes may dope unintentionally because they are not aware that the food, drinks, supplements, or medications may contain doping substances[2, 3]. Therefore, one of the key anti-doping strategies of World Anti-Doping Agency (WADA), apart from doping control, is to enhance athletes' anti-doping awareness and their capacity to avoid unintentional doping.

Why preventing unintentional doping is important?

Unintentional doping could lead to adverse analytical findings (AAFs) in doping controls (e.g., testing positive for a banned substance after providing a urine or blood sample). A substantial number of medications, nutritional supplements, beverages, and herbal products contain doping substances (reviewed by Yonamine[3]) can be obtained from the internet, drug store, or supermarket without prescription. These products present a serious risk for athletes. More than 10% of nutritional supplements (e.g., multivitamins, minerals, and amino acids) on the market contain doping substances such as stimulants and anabolic steroids[4, 5].

Unintentional doping is also possible when athletes are offered unfamiliar food, drinks, supplements, or medication with unknown ingredients from their trusted social agents, such as coaches, parents, or friends[6, 7]. These substances present athletes with a high risk of an AAF in anti-doping procedures that could lead to WADA's investigation and media's attention. At worse, it may result a lengthy ban if an athlete cannot provide proof of the contaminated product.

Axiomatically, athletes who are blind to the potential of unintentional doping have a heightened risk of consuming doping substances. This is also true for athletes who use drugs that are on the banned list to treat their medical conditions. They may breach the anti-doping code if there is no prior approval (i.e., via a therapeutic use exemption). One might argue that the presence of doping substances in food or medical products can depend on governmental policy and legislation. A clear labeling system for product ingredients may make it easier for athletes to identify doping substances in the food or drug products, but is practically impossible to ensure all products' ingredients tables would be updated according to the changes in WADA's list of doping substances. Furthermore, such ingredients lists would need to be enforced by law over the world which is very challenging and costly.

How to help responsible athletes prevent unintentional doping?

Team physicians and coaches, who see athletes on a regular basis, are, well-placed to take the leading role in preventing unintentional use of doping substances[6, 7]. But they are not always present to monitor athletes outside of training. Athletes must therefore be diligent in self-monitoring and regulating their own behaviour for the avoidance of unintended doping. Developing self-monitoring and self-regulation skills is likely to be paramount in combatting unintentional doping.

To avoid unintentional forms of doping, athletes are advised to update their knowledge of doping substances and be aware of their presence in food, drinks, supplements, and medications, and, more importantly, to be ready to manage or avoid the situations where they are likely to be offered unknown food, drinks, supplements, or medications that could contain doping substances[6, 8]. These suggested behaviours for the avoidance of unintentional doping require conscious effort[2, 8].

We and others have reported that the ability to avoid unintentional doping was related to a number of psychological variables such as motivation, social-cognitive variables and beliefs, and self-control[2, 6, 8, 9]. Extending this research would help sport governing bodies, anti-doping agencies, and sport professionals to establish essential training and social environmental conditions that empower athletes to self-monitor and act appropriately to help prevent unintentional doping. Indeed, the research on this topic is still in its infancy because the primary concern in the field has been the psychological antecedents of goal-directed doping behaviours, rather than the factors relating to avoiding unintentional doping[1].

718 words

References

1. Ntoumanis N, Ng JYY, Barkoukis V, Backhouse S. Personal and psychosocial predictors of doping use in physical activity settings: A meta-analysis. Sports Med. 2014;44(11):1603-24.
2. Chan DKC, Donovan RJ, Lentillon-Kaestner V, Hardcastle SJ, Dimmock JA, Keatley D, et al. Young athletes' awareness and monitoring of anti-doping in daily life: Does motivation matter? Scand J Med Sci Sports. 2014;Advanced online publication.
3. Yonamine M, Garcia PR, de Moraes Moreau RL. Non-intentional doping in sports. Sports Med. 2004;34(11):697-704.
4. Baume N, Mahler N, Kamber M, Mangin P, Saugy M. Research of stimulants and anabolic steroids in dietary supplements. Scand J Med Sci Sports. 2006;16(1):41-8.
5. Geyer H, Parr MK, Koehler K, Mareck U, Schanzer W, Thevis M. Nutritional supplements cross-contaminated and faked with doping substances. J Mass Spectrom. 2008;43(7):892-902.
6. Chan DKC, Hardcastle S, Dimmock JA, Lentillon-Kaestner V, Donovan RJ, Burgin M, et al. Modal salient belief and social cognitive variables of anti-doping behaviors in sport: Examining an extended model of the theory of planned behavior. Psychol Sport Exerc. 2015;16(2):164-74.
7. Lentillon-Kaestner V, Carstairs C. Doping use among young elite cyclists: a qualitative psychosociological approach. Scand J Med Sci Sports. 2010;20(2):336-45.
8. Chan DKC, Dimmock JA, Donovan RJ, Hardcastle S, Lentillon-Kaestner V, Hagger MS. Self-determined motivation in sport predicts anti-doping motivation and intention: A perspective from the trans-contextual model. J Sci Med Sport. 2015;18(3):315-22.
9. Chan DKC, Lentillon-Kaestner V, Dimmock JA, Donovan RJ, Keatley DA, Hardcastle SJ, et al. Self-control, self-regulation, and doping in sport: A test of the strength-energy model. J Sport Exerc Psychol. 2015;Advanced online publication.