

## Deterrents of Modern Anti-Doping Approaches – Are the Efforts Making a Difference?

Trent Stellingwerff<sup>1</sup> and Miranda P Kaye<sup>2\*</sup>

<sup>1</sup>Canadian Sport Institute Pacific, USA

<sup>2</sup>Department of Exercise and Sport Sciences, Ithaca College, Ithaca, NY, USA

### Introduction

To dope or not to dope – a question facing every elite athlete. On one hand, news reports of doping are increasing in both number and magnitude. On the other hand, global sport statistics suggest that doping appears to be on the decline [1]. This shift from the “steroid era” in baseball, to MLB’s Joint Drug Prevention and Treatment Program and the recent Barry Bonds and Roger Clemens Hall of Fame candidacies being rejected, indirectly suggests a shift in attitude toward doping. Despite these testing and attitude shifts, individual athlete and sport doping deterrents, and the associated risk/reward balance, need to be further examined and understood to continue the effective war on doping. The choice athletes have between doping or not is influenced by their assessment of the profitability of the reward (a sports financial compensation for performance), versus the risk of testing positive. If doping control methodologies and modern doping intelligence can continue to increase the risk of a doping positive [1,2], resulting in an ever increasing risk of a sanction, as opposed to a lost spot on the podium, perhaps the doping risk/reward continuum can be shifted, such that modern athletes perceive doping to be high risk with little reward.

### The modern anti-doping approach – it is not just about doping controls

World Anti-Doping Agency (WADA) was set up in 1999 to promote, coordinate and monitor the fight against drugs in sport. WADA is responsible for the World Anti-Doping Code, followed by more than 600 sport organization including the International Olympic Committee. However, beyond routine testing of athletes for the specific illegal drugs highlighted in the World Anti-Doping Code, WADA has now progressed to a modern global anti-doping approach featuring shared intelligence between each countries’ anti-doping efforts, developing coach/athlete relationships to track suspicious athletes, performance and biological passport tracking software/algorithms and athlete whereabouts systems [2]. These modern anti-doping approaches have the potential to push the deterrents of doping to a level higher than ever before.

### Indirect evidence that the war on doping is making an impact

Doping conjecture risks labelling individual athletes as cheats before their due course. However, when examining large bodies of data, the indirect evidence of an entire population can sometimes be too strong to dismiss. On a population level, the most appropriate sports to indirectly examine are ones that have a large global participation base (lots of athletes), are highly quantifiable (direct performance measures like time or wattage), and in which a systemic global doping control intervention exists that can delineate a ‘pre’ versus ‘post’ scenario. A sport which eloquently lends itself to indirect analysis is athletics (track and field), which provides some correlative food for thought.

It has been suggested that women have lower natural baseline androgenic hormones compared to males, and thus may actually benefit relatively more when it comes to androgenic steroid interventions related to muscle growth [3]. Indeed, it is interesting to examine the 15 women’s track and field speed/power events and notice that 13 of

the World-Records (WR) have been set during, or prior to 1988. What is even more fascinating is that ‘out of competition’ unannounced doping controls only started in 1988, which would cause an immediate large deterrent due to increased doping risk (getting caught). Further correlative evidence of a shift in doping practices is the absolutely massive decline in women’s performances in speed/power athletics events since the late 1980’s. For example, the women’s discus WR of 76.80m was set in 1988. But, despite increased prize money, modern medical, physiological and training knowledge, the world’s average leading discus throw over the last 10 years has been a paltry 68.29 m - some ~12.5% decrease in performance compared to the average women’s leading discus throw in the 1980’s. This analysis is nearly the same when examining across all women’s athletics speed/power events and the depth of performances (e.g. average top-10 performances). Interestingly, a recent editorial [4] and anecdotal evidence [1] has highlighted similar data in professional cyclists.

### Tipping the risk/reward balance of doping

Through the combination of enhanced legal and modern training approaches that enhance performance, and the modern anti-doping approaches that result in much higher risk than in previous years, given the risk involved, the advantage gained by doping has narrowed considerably. In other words, the deterrents to dope are now greater than ever, and are starting to outweigh the rewards of doping. Even so, athletes may choose to dope for reasons including enhanced performance outcomes, prestige and achievement [5,6], the belief that doping is necessary to be competitive, and social and financial interests [7,8]. Additionally, influential others such as coaches, teammates, and team doctors often create a pro-doping culture. Together these influences have been found to alter how athletes perceive doping, allowing them to morally disengage and justify their behaviour [9,10]. Continuing the tipping of the risk/reward balance toward high risk with little reward, which is paramount in influencing athletes (and coaches) to move away from the belief that doping is required for world-class sporting success.

### Conclusion

Indirect evidence in this editorial suggests gains in the fight against doping in sport have been made – now is not the time to give up the fight. To preserve sport as a contest of human excellence and to address the morality of doping, deterrence methods are important. Without this approach the sanctity of sport will slowly

\*Corresponding author: Miranda P. Kaye, Department of Exercise and Sport Sciences, Ithaca College, Ithaca, NY 14850, USA, E-mail: [mkaye@ithaca.edu](mailto:mkaye@ithaca.edu)

Received January 15, 2013; Accepted January 16, 2013; Published January 22, 2013

Citation: Stellingwerff T, Kaye MP (2013) Deterrents of Modern Anti-Doping Approaches – Are the Efforts Making a Difference? J Sports Med Doping Stud 3: e131. doi:10.4172/2161-0673.1000e131

Copyright: © 2013 Stellingwerff T, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

erode into just commercialized entertainment and übermenschen, similar to “professional” wrestling, where society will only care about extreme performance outcomes, regardless of the health risks and emotional costs to get there.

## References

1. Tucker R, Dugas J (2011) Tour de France 2011: leaving the mountains and onto the TT. *The Science of Sports*.
2. Agency WAD (2011) Coordinating Investigations and Sharing Anti-Doping Information and Evidence. World Anti Doping Agency.
3. Thompson H (2012) Performance enhancement: Superhuman athletes. *Nature* 487: 287-289.
4. Seiler KS, Beneke R, Halson SL, Impellizzeri FM, Mujika I, et al. (2013) Is Doping-Free Sport a Utopia? *Int J Sports Physiol Perform* 8: 1-3.
5. Mazanov J, Huybers T (2010) An empirical model of athlete decisions to use performance-enhancing drugs: qualitative evidence. *Qualitative Research in Sport and Exercise* 2: 385-402.
6. Petroczi A, Aidman E (2008) Psychological drivers of doping: the life-cycle model of performance enhancement. *Subst Abuse Treatment Prev Policy* 3: 7.
7. Anshel MH, Russell KG (1997) Examining athlete's attitudes toward using anabolic steroids and their knowledge of the possible effects. *J Drug Educ* 27: 121-145.
8. Donovan RJ, Egger G, Kapernick V, Mendoza J (2002) A conceptual framework for achieving performance enhancing drug compliance in sport. *Sports Med* 32: 269-284.
9. Boardley ID, Grix J (2013) Doping in bodybuilders: A qualitative investigation of facilitative psychosocial processes. *Qualitative Research in Sport, Exercise, and Health*.
10. Zelli A, Mallia L, Lucidi F (2010) The contribution of interpersonal appraisals to a social-cognitive analysis of adolescents' doping use. *Psychology of Sport and Exercise* 11: 304-3.