

Institution: University of Birmingham		
Unit of Assessment: 24 – Sport and Exercise Sciences, Leisure and Tourism		
Title of case study: Internationally Informing Anti-Doping Policy and Education in Sport and Exercise		
Period when the underpinning research was undertaken: 1 January 2007 – 31 July 2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Dr Ian D. Boardley	Reader in Sport and Exercise Psychology	2008 – present
Dr Maria Kavussanu	Reader in Sport and Exercise Psychology	2002 – present
Period when the claimed impact occurred: 2014 – December 2020		
Is this case study continued from a case study submitted in 2014? No		
1. Summary of the impact (indicative maximum 100 words)		
<p>In a demonstrable collaboration with the World Anti-Doping Agency (WADA), the sole global agency combating use of prohibited substances and methods in sport, we have helped to transform anti-doping policy and education globally. This has led to changes in educational practices within national anti-doping organisations, resulting in demonstrable changes in the health and wellbeing of athletes. Our other contributions include support for continued professional development of healthcare workers engaging with image and performance enhancing drug users, and changes to the UK clean sport curriculum informed by our research.</p>		
2. Underpinning research (indicative maximum 500 words)		
<p>The use of doping is a significant global issue in sport and exercise. In sport, Image and Performance Enhancing Drug (IPED) use undermines the principles of fair competition and is therefore, against the rules. Expanding use in exercise and fitness communities is likely to have further, considerable, detrimental effect on population health due to the known impacts on psychological and physical health (UKAD, 2020). Our research has made significant global contributions to empirical enquiry on IPED use in sport and exercise contexts.</p> <p>Our research has identified psychological factors linked to doping and developed valid and reliable instruments to assess them. Research by Boardley and Kavussanu has linked IPED use in sport and exercise with moral disengagement (MD) [R1, R4]. MD is a collective term for eight psychosocial mechanisms people use to rationalise harmful or transgressive acts such as doping, so that they do not experience unpleasant feelings (e.g., guilt, shame) when engaging in them. Through our research, MD has been positively associated with self-reported doping, susceptibility to doping and doping likelihood. Boardley and Kavussanu have developed and validated four psychometric instruments to assess MD and another to measure doping self-regulatory efficacy (i.e., an athlete's confidence in his/her ability to resist personal and social inducements to dope) [R3, R4, R5].</p>		

We have also developed interventions that reduce athletes' proclivity to dope. Research by Kavussanu developed a 'moral' anti-doping intervention that targeted MD alongside other antecedents of doping, as well as a standard knowledge-based intervention [R2]. The two interventions were delivered to young athletes in the UK and Greece. Evaluation showed the interventions reduced MD and doping likelihood, and increased anticipated guilt with medium-to-large effects. These effects were maintained at three- and six-month follow-ups.

Finally, we established expert consensus on priority areas for research over the next 10 years and used this to create the first agenda for doping prevention research. This was achieved by using a questionnaire approach, followed by the Delphi Method, with relevant experts (i.e., experienced anti-doping practitioners/academics and senior anti-doping governance officers) from 30 countries. The three priority areas identified were:

- Effectiveness of anti-doping interventions/education programmes, including development, implementation, and long-term evaluation;
- Developmental influences (e.g., parental, peer, school education, etc.) from outside of sport on young athletes regarding doping and clean sport;
- The role of athlete support personnel (e.g., coaches, doctors, agents) in anti-doping and clean sport.

These formed the basis of a 10-year plan for research on doping prevention. Potential barriers and facilitators to delivery were also identified [R6].

Key Findings (KF)

KF1 – MD, anticipated guilt and self-regulatory efficacy have strong, consistent links with doping outcomes in sport and exercise and can be reliably assessed using our psychometric instruments [R1, R2, R3, R4, R5].

KF2 – Our anti-doping interventions reduced athletes' MD and doping likelihood and increased anticipated guilt, from pre- to post-intervention and at six-month follow-up [R2].

KF3 – International expert consensus was established on eight priority topics and 18 priority research questions to be addressed in doping-prevention research over the next 10 years, and, based on these priorities, a research agenda was created [R6].

KF4 – Key barriers and facilitators to delivery of our research agenda for doping prevention were identified [R6].

3. References to the research (indicative maximum of six references)

[R1] Boardley, I. D., Smith, A. L., Mills, J. P., Grix, J., & Wynne, C. (2017). Empathic and self-regulatory processes governing doping behavior. *Frontiers in Psychology*, 8, 1495. doi:10.3389/fpsyg.2017.01495

[R2] Kavussanu, M., Hurst, M., Yukhymenko-Lescroart, M., Galanis, E., King, A., Hatzigeorgiadis, A., & Ring, C. (2020). A moral intervention reduces doping likelihood in UK and Greek athletes: Evidence from a cluster randomized control trial. *Journal of Sport & Exercise Psychology*, 1-53

[R3] Boardley, I. D., & Kavussanu, M. (2007). Development and validation of the Moral Disengagement in Sport Scale. *Journal of Sport & Exercise Psychology*, 29, 608–628. doi: 10.1123/jsep.29.5.608

[R4] Kavussanu, M., Hatzigeorgiadis, A., Elbe, A. M., Ring, C. (2016). The moral disengagement in doping scale. *Psychology of Sport and Exercise*, 24, 188–198. doi: 10.1016/j.psychsport.2016.02.003

[R5] Boardley, I. D., Smith, A. L., Mills, J., Grix, J., Wynne, C., & Wilkins, L. (2018). Development of moral disengagement and self-regulatory efficacy assessments relevant to doping in sport and exercise. *Psychology of Sport and Exercise*, 36, 57–70. doi: 10.1016/j.psychsport.2018.01.007

[R6] Boardley, I., Chandler, M., Backhouse, S. H., & Petroczi, A. (2020, December 3). Co-creating a Social Science Research Agenda for Clean Sport: An International Delphi Study. *SportRxiv*. doi: 10.31236/osf.io/fr32a (Version 3)

Research Grants:

Erasmus+ Sport Programme (€388,415). Research-Embedded Strategic Plan for Anti-Doping Education: Clean Sport Alliance Initiative for Tackling Doping in Para-Sport (RESPECT-P).

Erasmus+ Sport Programme (€388,028). Research-Embedded Strategic Plan for Anti-Doping Education: Clean Sport Alliance Initiative for Tackling Doping (RESPECT).

Economic and Social Research Council doctoral scholarship (£60,000). Psychosocial Factors Influencing the Harmful Use of PIED in Sport and Exercise.

International Olympic Committee (\$367,012). Preventing doping in sport: A moral intervention in young British, Greek, and Italian athletes.

International Olympic Committee (\$173,699). Sport Coaches' Doping Confrontation Efficacy and Athletes' Susceptibility to Intentional and Inadvertent Doping.

World Anti-Doping Agency (\$85,762). From evidence to application: A psychosocial anti-doping intervention for young athletes.

World Anti-Doping Agency (\$65,000). The effects of permitted forms of performance enhancement on determinants of doping in UK student-athletes.

World Anti-Doping Agency (\$34,000). Designing and Validating Measures of Doping Moral Disengagement and Self-Regulatory Efficacy and Assessing a Model of Doping Behaviour.

World Anti-Doping Agency (\$45,445). A cross-cultural approach to a cross-cultural issue: Psychosocial factors and doping in young athletes.

World Anti-Doping Agency (\$30,397). A National Investigation of Psychosocial Factors Facilitating Doping in Bodybuilders.

4. Details of the impact (indicative maximum 750 words)

Impacts on policy and practice by influencing the global governance agency for anti-doping

We have impacted on the policies and practices of the World Anti-Doping Agency (WADA), the global organisation responsible for promoting, coordinating and monitoring the fight against drugs in sport. WADA is solely responsible for determining the operations of 154 Anti-Doping Organisations (ADOs) operating across the globe. We have specifically impacted on WADA in two key ways:

1. We have **contributed to an extensive review and restructure of WADA's Social Science Research Program**. In particular, we have **influenced funding policy** and, drawing on University of Birmingham (UoB) Research [KF3, KF4], have enabled WADA to identify "research priorities that will guide investment decisions for the coming four years of the strategy" [E1]. WADA's Education Senior Manager, attests to our importance in this change, stating that our findings "underpinned the selection of the priorities that were subsequently chosen", with WADA "already starting to address some of the issues identified in the Barriers and Facilitators section" identified in our work [E1].
2. We have **changed the educational practices** of WADA. The psychometric instruments we developed [KF1; E1] **have been adopted within the professional standard** used to measure athletes' doping beliefs/behaviours and to assess the general effectiveness of anti-doping programmes. The package was downloaded 1248 times by ADOs between 2017 and 2019 [E2].

This collaboration with WADA has led to **changes in educational practices** within national ADOs. For example, our intervention research [KF2] has influenced the thinking of the Australian ADO, who "found it invaluable when modelling their evaluation system" [E3]. They have since "adopted components of our interventions" within their anti-doping education programme. Similarly, the Greek ADO considered the interventions "extremely helpful in guiding the design" of their anti-doping programmes [E4]. The associated impact on **health and wellbeing** of these interventions is evidenced by improved doping attitudes in >500 regional and international athletes from the UK, Greece and Italy [E5]. WADA have also developed an infographic detailing the interventions, to help translate the findings for their stakeholders and encourage their further implementation by practitioners [E6].

Impacts on practitioners by defining anti-doping best practice

We have **informed evidence-based practice for anti-doping practitioners** by summarising key research evidence and providing examples of best practice through a freely available web resource [E7]. Co-created with five European ADOs, a platform to exchange knowledge between researchers and practitioners was developed to showcase the research agenda that influenced WADA [KF3] and the broader implementation plan [KF4]. The beta version was launched in September 2019 at an International Forum (120 attendees) and presented at UKAD's Clean Sport Forum (100 attendees) in March 2020. The final version was launched through a global virtual conference in December 2020. Attendees at these events included decision makers and practitioners from the global anti-doping community.

We have also contributed to **continuing professional development** for healthcare professionals working with IPED users informed by UoB research [KF1]. Through a co-creation process, **best practice guidance** on delivering services to IPED users was developed. This guidance was summarised in three pamphlets distributed to needle-exchange clinics in the UK and Australia and led to evidenced changes in practice amongst healthcare professionals [E8]. The pamphlets have since been adopted in online training for needle and syringe programme workers by Exchange Supplies, a global enterprise developing products and information for injecting drug users, drug services and needle exchanges [E9].

Impacts on learning and understanding by developing the clean sport curriculum

UKAD's Clean Sport Curriculum has been informed by our research and includes a dedicated unit, developed by Boardley, based on societal factors [KF1, E10a]. The curriculum forms the basis of UKAD's Clean Sport Education throughout the UK, influencing five athlete pathways from recreational to elite level [E10b]. Our findings also contributed to Clean

Sport Week 2019 through a webinar [KF1]. The webinar had 299 sign-ups, 140 live attendees and a further 58 downloads; 238 people requested further information from UKAD because of the webinar [E10b].

5. Sources to corroborate the impact (indicative maximum of 10 references)

[E1] Testimonial from Tony Cunningham, WADA Education Senior Manager. Testimonial confirming the inclusion of our psychometric instruments in the WADA's ADO Evaluation package and stating the importance of our RESPECT research (i.e., Delphi poll) to the WADA research-funding strategy and evidence-based practice by ADOs. The testimonial also highlights WADA are starting to address some of the issues identified in the Barriers and Facilitators section of our research paper. [Dated 15 December 2020]

[E2] Email from Tony Cunningham, WADA Education Senior Manager confirming the number of times the WADA's ADO Evaluation package was downloaded between 2017–2019. [Dated 7 February 2020]

[E3] Testimonial from Alexis Cooper, ASADA Director of Education confirming elements of the intervention have been adopted by the Australian National Anti-Doping Organisation. [Dated 13 February 2020]

[E4] Testimonial confirming the intervention has guided the anti-doping programme of the Greek National Anti-Doping Organisation. [Dated 6 April 2020]

[E5] Dataset highlighting improved doping attitudes in athletes [available on request].

[E6] Email from Tony Cunningham, WADA Education Senior Manager confirming the development of infographics detailing the interventions and draft infographic. [Dated 9 October 2020]

[E7] [Clean Sport Knowledge Exchange Platform](#) - Bridging the gap between research, policy and practice to develop effective anti-doping education programs by bringing together anti-doping researchers, representatives of anti-doping organisations and athletes.

[E8] Results from post-workshop evaluation and follow-up contact with attendees testifying to the impact on needle-exchange workers' practice of the action-research workshop and pamphlets generated from it [available on request].

[E9] Email from Andrew Preston, general manager of Exchange Supplies (company supplying products and information for injecting drug users, drug services and needle exchanges nationally and international). [Dated 2 July 2020]

[E10a] UKAD Technical Reference Document, Version 4, [Published 2020] and emails from UKAD confirming numbers of training sessions for educators, and number of educators reached [Dated 19 October 2020] and inviting Boardley to develop the UKAD curriculum [Dated 20 April 2020].

[E10b] [Image and Performance Enhancing Drugs: Myth and Reality Webinar](#) hosted on Human Kinetics' website and email confirming numbers attended and downloaded.