

## Impact case study (REF3)

<b>Institution:</b> University of Hull		
<b>Unit of Assessment:</b> UoA24 Sport & Exercise Sciences, Leisure & Tourism		
<b>Title of case study:</b> Tackling doping in sport		
<b>Period when the underpinning research was undertaken:</b> March 2014 to July 2020		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
Adam Nicholls	Professor of Psychology	2003 - 2005 & 2007 - present
Edward Cope	Lecturer in Sports Coaching	2015 - 2017
John Perry	Lecturer in Sport and Exercise Psychology	2015 – 2018
Grant Abt	Reader in Sports Physiology	2009 - present
<b>Period when the claimed impact occurred:</b> September 2015 to December 2020		
<b>Is this case study continued from a case study submitted in 2014?</b> N		
<b>1. Summary of the impact</b> (indicative maximum 100 words)		
<p>Doping poses a significant threat to the physical and mental health of athletes. Researchers at the University of Hull developed the <b>Adolescent Sport Doping Inventory (ASDI)</b>, and educational programmes for young high-level athletes (<b>iPlayClean</b>) and grassroots coaches (<b>Anti-Doping Values in Coach Education: ADVICE</b>). The ASDI, iPlayClean and ADVICE programmes have been used by 68 different national anti-doping organisations, sport governing bodies, sports clubs and schools in 13 countries worldwide across at least 14 sports. The ADVICE mobile app has been downloaded in 33 different countries. This work has significantly contributed to identifying and then reducing key psycho-social variables linked with doping.</p>		
<b>2. Underpinning research</b> (indicative maximum 500 words)		
<p>Doping undermines the key principles of sport, open and fair competition, and can cause serious physical and mental health problems. Instead of just relying on anti-doping testing, alternative approaches are required to pro-actively detect athletes who are in favour of using performance-enhancing drugs and thus susceptible to doping. Pro-active, rather than reactive, anti-doping programmes are also required for athletes and coaches, so that they are exposed to innovative education programmes to eradicate doping before being tempted to dope or recommend doping to their athletes.</p> <p>This impact has arisen directly from anti-doping research conducted at Hull by Professor Adam Nicholls and colleagues, between March 2014 and July 2020. The research has been supported by competitive funding of over <b>£1 million</b> (March 2014 to January 2020) from the <b>International Olympic Committee (IOC)</b>, the <b>World Anti-Doping Agency (WADA)</b>, and the <b>European Commission</b>. This programme of research consists of three specific themes:</p> <p><b>Theme 1:</b> Nicholls and Dr John Perry developed an appropriate framework for understanding the factors that predict doping attitudes among young athletes, called the Sport Drug Control Model for Adolescent Athletes (SDCM-AA) [3.1], which identified new psycho-social factors that influence attitudes towards doping among adolescent athletes (e.g. maturation, competitive level, stress, and country of residence). Nicholls then used the SDCM-AA to create and validate the ASDI [3.2]. The ASDI is a 43-item survey and is the first questionnaire designed for adolescent athletes that assesses the psycho-social predictors of doping. Nicholls then created normative values from a sample of over 2,000 athletes, and identified four distinct clusters of athletes: (1) 'susceptibles' who felt doping would be beneficial, were willing to cheat and saw no threat in doping; (2) 'chancers' who saw the benefits of doping and were influenced by their peers; (3) 'pragmatists' who did not engage in any aspects of doping, but were susceptible; and (4) 'fair players' who were unwilling to cheat [3.3].</p>		

**Theme 2:** The second theme of research involved Nicholls, Dr Grant Abt, and Dr Ed Cope, who developed and then tested the iPlayClean anti-doping education programme for young athletes on a talent pathway programme within the UK, via a clustered randomised controlled design [3.4]. The results revealed that the iPlayClean programme was successful in significantly reducing favourable attitudes towards doping by up to 6% and susceptibility to doping by up to 5%, with large effect sizes.

**Theme 3:** The third theme involved Nicholls and Cope leading an international project, funded by the European Commission, with six organisations. Nicholls initially led a study on doping attitudes [3.5], which informed the content of the ADVICE anti-doping mobile application for grassroots coaches [3.6]. The purpose of the ADVICE mobile application was to increase knowledge about doping and reduce favourable attitudes towards doping among grassroots coaches who coach young athletes. The ADVICE app was tested in seven different languages (English, French, German, Spanish, Danish, Greek, Russian). It was successful in increasing the percentage of coaches with good knowledge of doping from 0% to 30%, and reducing favourable attitudes towards doping by 8.5%.

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

These research studies have been published within international peer-reviewed journals in both psychology and sport psychology.

#### Theme 1:

3.1. **Nicholls**, A. R., **Perry**, J. L., Levy, A. R., Meir, R., Jones, L., Baghurst, T., Sanctuary, C., Thompson, M. A. (2015). Coach Perceptions of Performance Enhancement in Adolescence: The Sport Drug Control Model for Adolescent Athletes. *Performance Enhancement & Health*, 3(2), 93-101. <https://doi.org/10.1016/j.peh.2015.07.001>

3.2. **Nicholls**, A. R., Levy, A. R., Meir, R., Jones, L., Baghurst, T., Thompson, M. A., Perry, J. L. (2019). The development and validation of the Adolescent Sport Drug Inventory (ASDI) among athletes from four continents. *Psychological Assessment*, 31(11), 1279-1293. <https://doi.org/10.1037/pas0000750>

3.3. **Nicholls**, A. R., Levy, A. R., Meir, R., Jones, L., Baghurst, T., Thompson, M. A., Perry, J. L. (2020). The Susceptibles, Chancers, Pragmatists, and Fair Players: An examination of the Sport Drug Control Model for Adolescent Athletes, cluster effects, and norm values among adolescent athletes. *Frontiers in Psychology*, 11:1564. <https://doi.org/10.3389/fpsyg.2020.01564>

#### Theme 2:

3.4. **Nicholls**, A.R., Morley, D., Thompson, M. A., Huang, C., **Abt**, G., Rothwell, M., Cope, E., Ntoumanis, N. (2020). The effects of the iPlayClean education programme on doping attitudes and susceptibility to use banned substances among high-level adolescent athletes from the UK: A cluster-randomised controlled trial. *International Journal of Drug Policy*, 82, 102820. <https://doi.org/10.1016/j.drugpo.2020.102820>

#### Theme 3:

3.5. **Nicholls**, A. R., Madigan, D. J., Backhouse, S. H., Levy, A. R. (2017). Personality traits and performance enhancing drugs: The Dark Triad and doping attitudes among competitive athletes. *Personality and Individual Differences*, 112, 113-116. <https://doi.org/10.1016/j.paid.2017.02.062>

3.6. **Nicholls**, A. R., Fairs, L. R. W., Plata-Andrés, M., Bailey, R., Cope, E., Madigan, D., Koenen, K., Glibo, I., Theodorou, N. C., Laurent, J-F., Garcia, G., Chanal, B. (2020). Feasibility randomised controlled trial examining the effects of the Anti-Doping Values in Coach Education (ADVICE) mobile application on doping knowledge and attitudes towards doping among grassroots coaches. *BMJ Open Sport & Exercise Medicine*, 6, e000800. <https://doi.org/10.1136/bmjsem-2020-000800>

**Competitive grant income that supported this research programme**

Four grants, **all led by Nicholls at Hull**, from **WADA**, the **IOC**, and the **European Commission** supported this anti-doping research from 2014 to 2020. The full amount and date of each grant is:

**\$61,193.09 (USD): Nicholls et al.** Development and validation of the Adolescent Sport Doping Inventory. (September 2014 - December 2017; Funding Body = WADA).

**\$188,719.00 (USD): Nicholls et al.** The Effectiveness of the Play Clean Group Based and the Mobile Application (iPlayClean) Anti-Doping Education Programs for High-Level Adolescent Athletes and their Entourage: A Randomized Control Trial. (July 2016 - June 2019; Funding Body = IOC).

**€487,529.75: Nicholls et al.** Anti-Doping Values in Coach Education (ADVISE). (January 2017- December 2019; Funding Body = European Commission: Education, Audiovisual and Culture Executive Agency [Unit A.6, Erasmus +: Sport, Youth and EU Aid Volunteers]).

**€473,406.00: Nicholls et al.** Understanding and promoting Whistle-blowing on Doping irregularities in the EU (Win-Dop). (January 2020 - December, 2021; Funding Body = European Commission: Education, Audiovisual and Culture Executive Agency [Unit A.6, Erasmus +: Sport, Youth and EU Aid Volunteers]).

**Total Value = £1,009,669.60**

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

From 2015 onwards, the psychological, social, and cultural impacts of the aforementioned research findings are evidenced by their impact on the:

- education practices of national sports governing bodies, professional clubs, and coaches in the UK, Australia, and Hong Kong;
- attitudes and susceptibility towards doping among high-level adolescent athletes, on talent pathway programmes, in the UK;
- knowledge of doping and attitudes of grassroots coaches towards performance-enhancing drugs.

**This impact has taken place within 68 different national anti-doping organisations, sport governing bodies, sports clubs and schools in 13 countries worldwide across at least 14 sports [A].**

**Theme 1**

The original research at Hull [3.1, 3.2., 3.3] that resulted in the ASDI, has been adopted by **national governing bodies** and **professional clubs**. It is used screen athletes and assign them to specific clusters based on their scores, in sports where doping is more prevalent (e.g., rugby union and rugby league). The ASDI has significantly influenced practices. It is now used to identify players that are at risk of doping in the **Hong Kong Rugby Union (HKRU)** [B] and at the **Newcastle Knights** and the **New South Wales State of Origin** programme (**Australia**) professional rugby organisations [C]:

*“The **HKRU** has used the ASDI to identify the players who have favourable attitudes towards taking PEDS [Performance Enhancing Drugs] and those who are the most susceptible to doping. This has been crucial in helping us identify the players who may dope and has allowed us to provide them additional support, which will lead to less doping.” [B]*

The ASDI has *“been extremely helpful and changed the way we monitor players”* [C] at Australia’s **National Rugby League (NRL)** club the **Newcastle Knights** and the NRL’s **State of Origin Pathways programme** (which develops the most talented emerging players under

the age of 20). The information generated by the ASDI *“helps clubs and ourselves at NSWRL (New South Wales Rugby League) have a greater holistic understanding of each player, so we can reduce doping.”* [C]

## Theme 2

The iPlayClean anti-doping intervention [D], developed at Hull [3.4], was presented to over 2,000 high-level athletes on talent programmes in the United Kingdom. These presentations were made at national governing bodies' headquarters, professional sports clubs, or at schools. One sport that traditionally tops or features highly in the league tables for the number of doping offences is rugby league. iPlayClean has changed how the **Rugby Football League (RFL)** achieves its strategic vision of being a clean sport, by influencing how **professional Super League clubs** fulfil their obligation to provide education around doping to academy players:

*“iPlayClean has helped and will continue to help the **Rugby Football League's** (RFL) strategic vision of: (1) creating a generation of players who have confidence in their ability to be successful without doping, (2) creating a generation of sporting personnel to encourage players to achieve their goals without using prohibited substances or methods, and (3) achieve a greater awareness of anti-doping throughout the game of rugby league.”* [E] This was achieved by iPlayClean, which *“was successful in reducing key factors that are associated with doping.”* [E]

In addition to being used in the professional game of rugby league, the iPlayClean programme will also be used in the community game for scholarship players, and it will become *“compulsory for all players throughout the UK on a rugby league scholarship programme to complete the iPlayClean educational programme. We selected the iPlayClean programme because it contains key modules that are crucial to promoting positive values and clean sport among players.”* [F]

## Theme 3

The original research led by Hull [3.5, 3.6.] resulted in the development of the ADVICE mobile application for grassroots coaches [G]. Since it was published in April 2020 on iTunes and Google Play, the ADVICE mobile application has been downloaded 372 times, across 33 countries [A]. Further, the ADVICE mobile application has impacted coach education policy within national governing bodies and national anti-doping organisations (e.g. in the UK [F] and Spain [H]).

A key strategic role of the **RFL** is to reduce or eradicate doping in rugby. To this end, the ADVICE mobile application has been adopted and forms part of continued professional development for all of RFL's rugby coaches, which has helped coaches' understanding of doping and helped them change the attitudes of players [F]. The Spanish national anti-doping organisation (**La Agencia Española de Protección de la Salud en el Deporte**) also uses the ADVICE mobile application as part of its education package, which has been useful in enhancing coaches' knowledge [H].

*“We wanted an evidence backed anti-doping education programme for coaches, and selected the ADVICE programme because it has been shown to increase the knowledge of coaches about performance enhancing drugs, something that we think is very important at the RFL.”* [F]

*“We have decided to offer the ADVICE programme to coaches because it is supported by research which revealed that it was able to enhance coaches' knowledge about doping, which is something that AEPSAD is keen to do because coaches can be important in reducing doping prevalence among athletes. It is important that coaches know about different banned substances, the rules, and how to deal with situations. The ADVICE mobile application achieves this.”* [H]

The **European Commission** commented on the positive impact from the ADVICE mobile application, which it said had *“a good impact on participants and participating organisations throughout the whole life cycle of the project... The sustainability of the project is ensured even after the EU grant has been used up thanks to the mobile application created during the project.”* [1].

Overall, the anti-doping research activity at the University of Hull has had demonstrable impact for key stakeholders of sport and is at the forefront of the implementation of evidence-based assessment and education for athletes and coaches across different sports nationally and internationally. Indeed, a fundamental indicator of impact is the translation of research publications into shaping policies and education.

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

A. Evidence of organisations impacted, countries in which impact occurred, and number of downloads of the ADVICE mobile application.

B. Testimonial from the General Manager of Rugby Performance at Hong Kong Rugby Union, corroborating that ASDI has been used to screen athletes, and the consequential impact of monitoring such players and providing education.

C. Testimonial from the Head of Performance at National Rugby League (NRL) Australia and Player Development Officer for the NRL's New South Wales State of Origin, corroborating that ASDI has been used to screen athletes and provide support to susceptible players and those with favourable attitudes towards doping.

D. The online version of the iPlayClean education programme ([www.iplayclean.co.uk](http://www.iplayclean.co.uk))

E. Testimonial from the Welfare Director at the UK's Rugby Football League, corroborating how the iPlayClean programme has been used across Super League clubs to reduce favourable attitudes and susceptibility towards doping.

F. Testimonial from the Compliance Manager at the UK's Rugby Football League, corroborating the impact and adoption of ADVICE for coaches.

G. The ADVICE app ([www.coachadvice.org/about-the-app](http://www.coachadvice.org/about-the-app))

H. Testimonial from the Head of the Education and Research, La Agencia Española de Protección de la Salud en el Deporte (Spanish Anti-Doping Agency), corroborating the use of the ADVICE mobile application and why it is being used.

I. The European Commission's Final Report Evaluation (ref. no. 579605-EPP-1-2016-2-UK-SPO-SCP) for the ADVICE project, corroborating the sustained impact of the ADVICE mobile application on coaches and sporting organisations.