

Research Article

Enhancing Athletes Anti-doping Education Through Mobile Applications: A Review of Current Strategies and Emerging Technologies

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Abstract.

Anti-doping education is crucial for ensuring fairness and integrity in sports. The WADA implemented the ADeL certification program to provide comprehensive anti-doping education for athletes. Mobile applications offer a user-friendly and accessible medium for delivering anti-doping education. ADOs employ various strategies to educate athletes, including developing educational materials, conducting workshops, partnering with schools and sports organizations, using technology, targeting high-risk groups, promoting a clean sports culture, and providing support services. Research has shown that anti-doping education is effective in increasing athletes' knowledge and awareness of doping, and in decreasing doping intentions among adolescent athletes. ADOs are exploring new approaches to anti-doping education such as the use of virtual reality and artificial intelligence. Mobile applications are powerful tools for anti-doping education because they can reach a wider audience, provide personalized learning experiences, and foster clean sports culture.

Keywords: anti-doping education, athletes, mobile applications, anti-doping education and learning (ADeL) certification program, WADA, clean sports

1. INTRODUCTION

Competitive sports serves as a global cultural phenomenon, fostering physical well-being, teamwork, and national pride. However, the pursuit of victory can sometimes lead athletes into an unethical path, doping. Doping is defined as the use of prohibited substances or methods to gain an unfair advantage, thereby undermining the spirit of fair competition. Robust anti-doping measures are essential to safeguard a level playing field and to maintain the integrity of sports. Anti-doping education plays a critical role in this framework, equipping athletes with the knowledge and awareness necessary to make ethical choices and to compete clean.

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1.1. The Importance of Anti-doping Education

Anti-doping education has several important purposes. First, it informs athletes about the WADA's prohibited list of substances and methods [1]. This empowers them to make informed decisions regarding the supplements and medications consumed, thereby preventing inadvertent doping violations.

Second, anti-doping education sheds light on the significant health risks associated with doping substances, including organ damage and psychological dependence [2].

Third, it promotes a clean sports culture by emphasizing values such as fair play, sportsmanship, and ethical competition [3]. This fosters a sense of responsibility and discourages athletes from resorting to doping to gain edge. Educated athletes are less likely to fall prey to misinformation or pressure from their coaches or peers to use banned substances.

1.2. The ADeL Certification Program: A WADA Initiative

Recognizing the vital role of anti-doping education, WADA launched the Anti-doping Education and Learning (ADeL) certification program in 2018 [4]. This online platform offers comprehensive educational experience for athletes, coaches, and support personnel involved in sports. The ADeL program equips participants with the knowledge and tools necessary to comply with the anti-doping regulations. It is continuously updated to reflect changes in the WADA Code and the latest developments in anti-doping practices, ensuring that participants receive accurate and updated information.

1.3. Current Strategies Employed by Anti-doping Organizations

Globally, ADOs across the globe utilize a multifaceted approach to educate athletes on anti-doping regulations. The following are some of the common strategies:

1. **Developing educational materials:** ADOs develop and disseminate educational materials, such as brochures, pamphlets, and online resources that provide athletes with an understanding of anti-doping rules and procedures.
2. **Conducting workshops and seminars:** Interactive workshops and seminars provide athletes with a platform to learn about anti-doping regulations directly from experts. These sessions allowed the athletes to ask questions and clarify their doubts.

3. **Partnering with schools and sports organizations** Collaboration with schools and sports organizations is crucial for reaching out to young athletes at a formative stage in their sporting careers. This could involve integrating anti-doping education into existing curricula or organizing workshops for athletes participating in youth leagues.
4. **Utilizing Technology:** Mobile applications, as discussed further, offer a cutting-edge approach to anti-doping education. Additionally, ADOs are exploring other technological tools such as e-learning platforms and social media campaigns to engage with athletes.
5. **Targeting high-risk groups:** ADOs recognize that certain groups of athletes may be more susceptible to doping temptations owing to factors such as intense pressure to excel. Targeted educational programs for high-risk groups can provide them with additional support and resources to make informed choices.
6. **Promoting a clean sports culture:** ADOs go beyond simply educating athletes about regulations. They actively promote a clean sports culture by organizing events that celebrate ethical competitions and highlight the importance of fair play. This cultural shift fosters a sense of collective responsibility amongst athletes to maintain the integrity of their sport

1.4. The Effectiveness of Anti-doping Education and the Need for Personalization

Research conducted in the past five years has highlighted the positive impact of anti-doping education. A 2022 study published in the “Substance Abuse Policy” found that athletes who received anti-doping education demonstrated significantly greater knowledge than those who did not [5]. Furthermore, a 2021 study published in “Frontiers in Psychology” reported that anti-doping education programs effectively reduced doping intentions among adolescent athletes [6]. These findings highlight the importance of anti-doping education in creating a fair and ethical sports environment.

However, current strategies face limitations, particularly in terms of reach and personalization. Traditional methods, such as workshops and seminars, often have limited reach, geography, and in terms of athlete participation. Educational materials, while readily available, may not cater to individual learning styles or evolving information requirements. This necessitates a shift towards more personalized and accessible approaches.

1.5. Mobile Applications: A Personalized and Accessible Solution

Mobile applications offer a user-friendly and accessible platform for delivering anti-doping education, thereby addressing the limitations of traditional methods. Here's how:

1. **Wider Audience Reach:** Mobile applications can reach a wider audience than traditional methods can. Athletes can access anti-doping information and educational modules anytime, anywhere, on their smartphones or tablets. This removes geographical barriers and caters to athletes who have busy training schedules.
2. **Personalized Learning Experiences:** Mobile applications can be designed to incorporate elements of personalized learning. Features such as quizzes with personalized feedback, adaptive learning modules that adjust difficulty based on user performance, and the ability to bookmark relevant information contribute to a more engaging and effective learning experience.
3. **Interactive Learning:** Mobile applications can leverage interactive elements, such as gamification, simulations, and multimedia content, to make the learning process more engaging and memorable. Interactive quizzes, for instance, can test athletes' knowledge in a fun and challenging way, whereas simulations can allow them to practice making ethical decisions in real-world scenarios.
4. **Accessibility of Information:** Mobile applications can provide athletes with easy access to constantly updated information on the WADA prohibited list, recent changes in antidoping regulations, and resources such as athlete testimonials and clean sports initiatives. This ensures that athletes have access to the most accurate and up-to-date information on their fingertips.
5. **Promoting Clean Sports Culture:** Mobile applications can integrate features that promote clean sports culture. Athlete stories highlighting the importance of fair play, motivational content from clean athletes, and interactive forums for athletes to discuss ethical dilemmas can foster a sense of community and responsibility towards maintaining a level-playing field.

1.6. Emerging Technologies and the Future of Anti-doping Education

The rapidly developing field of anti-doping education has shown great potential for the future thanks to the introduction of cutting-edge technologies such as virtual reality (VR)

and artificial intelligence (AI). VR simulations can immerse athletes in realistic scenarios in which they encounter ethical dilemmas related to doping, allowing them to make informed decisions in a safe and controlled environment. AI-powered chatbots can provide athletes with personalized anti-doping information and answer their questions in real-time, offering 24/7 access to support and guidance.

2. CONCLUSION

Anti-doping education remains the cornerstone of a fair and ethical sports environment. Mobile applications, with their potential for personalized learning, accessibility, and interactive features, are powerful tools for anti-doping education in the digital age. However, a multifaceted approach that combines traditional methods with innovative technologies such as VR and AI is crucial to maximize the impact of anti-doping education. As the field of anti-doping continues to evolve, embracing new technologies and prioritizing personalized learning experiences will remain key to fostering athlete awareness and promoting a clean sports culture.

References

- [1] World Anti-doping Agency (WADA). (2023). World Anti-doping Code. Retrieved from <https://www.wada-ama.org/en/what-we-do/world-anti-doping-code>
- [2] Lundberg A, Eklund A. Health risks of doping in sports. *J Intern Med.* 2020;287(4):427–44.
- [3] Wicker L, Breuer C. Fair play and anti-doping education in youth sports. *Sport Educ Soc.* 2019;24(3):326–43.
- [4] World Anti-doping Agency (WADA). (2023). Anti-doping Education and Learning (ADeL) Program. Retrieved from <https://www.wada-ama.org/en/what-we-do/education-andtraining/about-adel>
- [5] Matsumura T, Murakami H, Nakanishi N, Uchitomi H. Impact of anti-doping education and doping control experience on anti-doping knowledge among Japanese university athletes: A cross-sectional study. *Subst Abuse Treat Prev Policy.* 2022;17(1):18.
- [6] Lechner A, Riedl R, Gebhard M, Sagebieler R. Answering the call for value-based anti-doping education: an evidence-informed intervention for elite adolescent athletes in Germany and Austria. *Front Psychol.* 2021;12:621744.