

Performance-Enhancing Drugs: Understanding the Risks



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KEYWORDS

- Anabolic steroids • Blood doping • Dietary supplements • Growth hormone
- Nonanalytical positive doping cases • Sports doping • Stimulants
- Therapeutic use exemptions

KEY POINTS

- The risks associated with taking performance-enhancing drugs concern users other than athletes because the general public, including youth, also takes them.
- The risks go beyond textbook side effects because adverse reactions can be triggered by megadoses, polypharmacy practices, drugs unapproved for human use, and exercise.
- Athletes who need a prohibited substance for legitimate medical reasons can request a Therapeutic Use Exemption with their physician's help.
- A positive anti-doping test is only 1 of 10 ways to commit an anti-doping rule violation.
- Athletes are not the only ones at risk for violating anti-doping rules. Physicians and other entourage members can do so even inadvertently.

INTRODUCTION

Risk in sport takes many shapes, and doping issues add many ways for athletes and their health care professionals to violate the rules. In addition to the adverse effects of misused pharmaceuticals, dopers are at risk for toxicity with black market products unapproved for human use, and clean athletes are at risk for inadvertent doping offenses because of dietary supplement contamination or failure to respect administrative procedures, to give only a few examples. Some unethical physicians deliberately engage in doping activities, as highlighted by occasional sports headlines.

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However, in this article the case examples were selected to illustrate how even honest physicians and athletes have also had to cope with doping problems.

OVERVIEW

Anti-Doping Programs

Doping is prohibited in most sports. Anti-doping programs should include the following:

- A written drug-testing protocol
- A list of prohibited substances and methods
- A consent form
- A process for athletes to request permission to use a banned substance for legitimate medical treatment (Therapeutic Use Exemption [TUE])
- Sanctions
- An appeal process

Athletes in Olympic sports are subject to the rules of their sports federations, which are signatories to the World Anti-Doping Code.¹ The National Collegiate Athletic Association (NCAA)² and professional sports organizations, such as Major League Baseball (MLB)³ or the National Football League (NFL), also conduct anti-doping programs.

Prohibited Lists

For a given athlete, the relevant prohibited list depends on which sport authority has jurisdiction over the athlete, which may depend on the event. For example, it would be the NCAA Banned Drugs list⁴ when competing at the NCAA Championships, but the World Anti-Doping Agency (WADA) Prohibited List⁵ at the Olympics.

WADA's harmonization efforts have led sports and national anti-doping organizations (eg, the United States Anti-Doping Agency [USADA]) to accept and implement the Code, including by adopting the WADA Prohibited List. To reflect trends in drug use, WADA updates the list annually as one of its responsibilities for monitoring anti-doping worldwide.

Substances or methods are considered for inclusion on the list if they meet any 2 of the following 3 criteria:

- Scientific evidence of (potential) sport performance enhancement
- Scientific evidence of (potential) health risk
- Violation of the spirit of sport

Alternatively, a single criterion is that the substance or method could mask doping.¹

One skeleton athlete paid a high price for missing an update. He was using finasteride to treat alopecia and did not notice when WADA banned the drug as a masking agent in 2005. After a positive test and appeal procedures, he was barred from the 2006 Turin Olympics.⁶ By 2009, testing advances made it possible to remove finasteride from the banned list.⁷

To help athletes and their entourage stay up to date, WADA makes its list available as an App, USADA helps to manage a global drug reference online database (www.globaldro.org), and the National Center for Drug Free Sport, which manages the NCAA drug testing program, operates the Resource Exchange Center, a drug information service to which anti-doping programs (eg, NCAA, MLB) can subscribe so that their athletes can consult it.⁸

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