



Effects of Steroids in Sports

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Abstract

The list of prohibited substances in sports includes a group of masking agents that are forbidden in both in and out of competition doping tests. This group consists of a series of compounds that are misused in sports to make the administration of other doping agents, and includes : diuretics, used to reduce the concentration in urine and other doping agents either by increasing the urine volume or by reducing the excretion of basic doping agents by increasing the urinary pH; probenecid used to reduce the concentration in urine of acid compounds, such as glucuronoconjugates of some doping agents; 5 α -reductase inhibitors, used to reduce the formation of 5 α -reduced metabolites of anabolic androgenic steroids, plasma expanders, used to maintain the plasma volume after misuse of erythropoietin or red blood cells concentrates; and epitestosterone, used to mask the detection of the administration of testosterone. Diuretics may be also misused to achieve acute weight loss before competition in sports with weight categories.

Keywords: *Doping Control, Diuretics, steroids, drugs, cardiology, strength, injury.*

Introduction

Performance-enhancing drugs continue to taint competitive sports and their athletes, and sports and athletes have lost credibility among fans due to frequent reports of steroid scandals.

Anabolic steroids are the most commonly abused drugs in weightlifting, bodybuilding and baseball. Such drugs affect testosterone, a hormone important for development and growth. Athletes take steroids because they can increase muscle strength and facilitate injury recovery. Yet these short-term positive benefits may cause long-term negative effects.

Harmful Effects of Steroid Use

- Brain Cancer
- Depression
- Violent Behavior
- Yellowing of Eyes and Skin
- Bad Breath
- Severe Acne
- Deepening of Voice (Women)
- Heart Attack
- High Blood Pressure
- Stroke
- Development of Breasts (Men)
- Breast Reduction (Women)
- Liver Tumors
- Liver Cancer
- Nausea & Vomiting
- Kidney Disease
- Abdominal Pain
- Diarrhea
- Testicular Shrinkage (Men)
- Impotence (Men)
- Irregular Menstrual Cycles (Women)
- Bruising
- Infections (From Injections)
- Stunted Growth
- Weak or Ruptured Tendons

Anabolic steroids are powerful hormones. They affect the entire body. Some of the side effects are common to all users. Other side effects are specifically related to your sex and age.

Men who take anabolic steroids may:

- Develop breasts
- Get painful erections
- Have their testicles shrink
- Have decreased sperm count
- Become infertile
- Become impotent

Women who take anabolic steroids may:

- Grow excessive face and body hair
- Have their voices deepen
- Experience menstrual irregularities
- Have an enlarged clitoris
- Have reduced breast size
- Have a masculinized female fetus

Steroid Reactions

Athletes who take performance enhancers often do not think about the repercussions. Prolonged use of steroids can cause physical and psychological side effects. Some of these effects include high blood pressure, heart disease, liver damage, cancer, kidney and prostate problems and an increased risk of ruptured tendons. Steroid use can also cause acne and hair loss. Men can experience deterioration of the testicles, a reduced sperm count and the growth of breasts. Women using steroids can experience the growth of body hair, a deeper voice and menstrual problems.

➤ Performance enhancing drugs also alter moods, which can lead to depression, and severe aggression or "roid rage." (*Facts on File, 2007*) Steroids were the supposed cause of a mental breakdown of a professional wrestler who killed his wife and child then himself. Police found several bottles of steroids in the home of Chris Benoit and in the toxicology reports Benoit's wife and child also had performance enhancing drugs in their system. Chris Benoit is not the only professional wrestler who has died from prolonged use of steroids.

- Legends like have died from heart failures due to prolonged use of performance enhancing drugs. The primary harm resulting from an athlete's usage of banned performance-enhancing substances is to the sport's integrity.
- Florence Griffith Joyner ("Flo-Jo") died at age 38, from a heart seizure on September 21, 1998. Even before her untimely death, the shadow of suspicion hung over her glorious two gold medals and one silver at the Seoul Olympics in 1988. Joyner had a muscular form and a husky voice that was typical of steroid users and with her retirement announced abruptly in 1989, when mandatory random testing for drugs was introduced, there were whispers that Flo-Jo had use performance enhancing drugs.
- Flo-Jo's death threw the spotlight back on to the debate over drugs in sports. Early the same month another athlete was etching his name in the record books. The US baseball player Mark McGwire hit the most home runs ever in a single season; America's most prestigious sporting record. He is the first athlete in history to break a record while publicly admitting his use of performance-enhancing drugs. McGwire has admitted taking the drug androstenedione, which helps to build muscle and aids recovery from injury or exhaustion. The drug is on the banned list of the International Olympic Committee but is not banned by baseball's governing body, nor is it illegal. So far, the use of drugs has not doomed baseball. (*Barnard, 1998*)
- According to the Associated Press, on December 12, 2007, the International Olympic Committee (IOC) formally stripped former track and field athlete Marion Jones of her five Olympic medals, wiping her name from the record books following her admission that she started using steroids before the Sydney Games. Marion Jones had already handed back the three gold medals and two bronze she won at the 2000 Sydney Olympics.
- The International Association of Athletics Federations erased all Jones' results dating to September 2000, but it was up to the IOC to formally disqualify her and erase her Olympic medals. "We disqualified Marion Jones from the five events she participated in Sydney, and for one event in Athens, that was the long jump," IOC president Jacques Rogge said at the close of a three-day executive board meeting. Marion Jones won gold medals in the 100 meters, 200 meters and 1,600-metres relay in Sydney, and bronze in the long jump and 100-meter relay. She was the first female track and field athlete to win five medals at a single Olympics.

Cardiac Arrest

Anabolic steroids may play a role in the sudden death of athletes. News stories and case studies have often suggested such a relationship. For example, a 1995 case reported by the journal "Cardiology" describes the death of an otherwise healthy bodybuilder. This 20-year-old-man died from cardiac arrest resulting from an enlarged heart. Because the bodybuilder had no previous health complaints, the illegal use of anabolic steroids was implicated in his death. Yet a cause-effect relationship remains impossible to document in this instance as well as the small number of similar cases. The bodybuilder, for example, may have had an undiagnosed predisposition to heart disease. And other factors, like work-related stress, may have contributed to his pathologic symptoms and untimely death.

Organ Damage

Steroid-induced mortality remains difficult to document, but performance-enhancing drugs clearly damage the body's major organs. Such damage can increase mortality rates. A 2010 study presented in the "Journal of the American Society of Nephrology" looked at kidney structure and function in bodybuilders taking anabolic steroids. These athletes showed several symptoms of organ damage such as kidney scarring and inflammation. Cessation of steroid use greatly improved these symptoms, and recidivism caused symptom recurrence. Other studies have reported that performance-enhancing drugs cause similar damage to the testes, ovaries and liver.

Mental Illness

Performance-enhancing drugs affect the mind in addition to the body. For example, steroid users typically show unwanted increases in aggression and depression. A 2009 survey presented in "The Physician and Sports Medicine" revealed other psychological consequences of anabolic steroid use. Male bodybuilders taking steroids showed greater weight preoccupation, body dissatisfaction and perfectionism than peers not using drugs. Such men also frequently reported binge eating and bulimia nervosa. Female bodybuilders exhibit similar psychological issues.

Accidental Toxicity

Professional and recreational athletes often take anabolic steroids illegally and typically obtain them through nontraditional means like the "black market." The intake of such "street drugs" brings additional risks. A 2000 investigation in "Sportverletzung Sportschaden" reveals that one third of illicit drugs are mislabeled. This study also shows the difficulties associated with

identifying these errors, making it nearly impossible to rectify the situation. Such contamination can have negative consequences. For example, a 2010 report in the "Medical Journal of Australia" describes a case of transient diabetes caused by using counterfeit medications.

Conclusions

The most important aspect to curtailing abuse is education concerning dangerous and harmful side effects, and symptoms of abuse. Athletes and others must understand that they can excel in sports and have a great body without steroids. They should focus on getting proper diet, rest, and good overall mental and physical health. These things are all factors in how the body is shaped and conditioned. Millions of people have excelled in sports and look great without steroids.

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