



## DRUGS IN SPORT

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### Abstract

*Performance enhancing drugs never seem to be out of the news. Here we explain many of the various substances cheats may use to try and gain an advantage as well as WADA the world anti doping agency who is responsible for testing.*

**Keywords:** Drugs, Sport.

### INTRODUCTION

The use of drugs in sports with the aim of improving performance is a major problem for sports governing bodies. This however is not a new phenomenon. Drugs have been used to enhance performance since ancient times. Greek and roman civilisations used mushrooms and herbs to improve their performance.

### DRUG TESTING IN SPORT

Drug testing has become an increasingly large part of both professional and amateur sports. An athlete can be called for drug testing at any time, in or out of competition. During competition, some sports only carry out drug testing on the winning team or top three competitors. Others will test by random selection from all competitors.

### DIURETICS

Diuretics (sometimes called water pills) are drugs including Frusemide, Chlorothiazide and Hydrochlorothiazide. Their purpose is to remove excess water from the body although each type of diuretic does this in a different way.

### AMPHETAMINES

Amphetamines are stimulants which act on the central nervous system to delay fatigue and increase alertness.

### BLOOD DOPING

Blood doping is defined by WADA (World Anti-Doping Agency) as the misuse of techniques and/or substances to increase one's red blood cell count. Most commonly this involves the removal of two units (approximately 2 pints!) of the athlete's blood several weeks prior to competition.

### HUMAN GROWTH HORMONE (HGH)

Human Growth hormone (hGH) is also sometimes known as somatotrophic hormone or

somatotrophin. It is produced by the pituitary gland and is essential for normal growth and development. hGH is anabolic, meaning it accelerates protein synthesis and also aids the metabolism (breaking down) of fat stores.

### NARCOTICS

Narcotics are derived from the opium poppy and include the commonly known painkillers morphine, diamorphine and pethidine.

### ERYTHROPOIETIN (EPO)

Erythropoietin (often shortened to EPO) is a naturally occurring hormone, secreted by the kidneys, whose function is to regulate red blood cell production. The use of EPO started in the 1980's as a quicker, cleaner alternative to blood doping.

### BETA-2-AGONISTS

Beta-2-Agonists are dilators which cause dilation (widening) of vessels by relaxing the smooth muscle surrounding them.

### ANABOLIC STEROIDS

Sometimes also known as Anabolic androgenic steroids (AAS's), these are derivatives of the hormone testosterone. There are two types of AAS: **Exogenous**: Synthetic versions of testosterone. Common examples include Nandrolone and Danazol

### GENE DOPING

Gene doping or transfer is based on the principles of gene therapy. Here a healthy gene is transplanted into cells or directly into the genome to replace a mutated or absent gene. Currently this process is still in the research and trial stage.

### EPHEDRA

Ephedra is a shrub, native to northern areas of China and Mongolia and found mainly in dry desert-like conditions. It has traditionally been used in weight loss supplements, although has been removed from the market in the USA since 2004 over growing health concerns. There are various species of Ephedra, with

some being more potent and containing higher volumes of ephedrine alkaloids (which produces the pharmaceutical effect).

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### **CANNABINOIDS / CANNABIS**

Cannabinoids are a compound contained in the Marijuana plant and its products. The cannabinoid compound contains a substance called THC which has psychoactive properties. Due to the fast absorption rate of THC by the lungs, cannabinoids have a rapid onset, with the effect on the central nervous system being obvious within 20 minutes with duration lasting 4-6 hours.

### **GLUCOCORTICOSTEROIDS**

Glucocorticosteroids are anti-inflammatory steroid hormones produced in the adrenal glands. Examples are Hydrocortisone, Prednisolone and Prednisone.

### **CAFFEINE**

Caffeine is a naturally occurring substance, found in over 60 different plants and is a stimulant and mild diuretic. It is the most commonly used drug in the world as it is found in coffee, tea, chocolate (and chocolate based drinks) and many carbonated and energy drinks.

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