A BRIEF GUIDE TO DOPING IN SPORTS

Doping in sports has been in the news in the run up to the Olympics. What drugs will doping tests at the Olympics be looking for? This graphic looks at some of the major groups of drugs used in doping, their effects, and why athletes might take them.

**ANABOLIC AGENTS**

- **TESTOSTERONE**
  - Muscle mass & strength
  - 48% of positive tests in 2014
  - 74 no. of named banned agents

   ![Testosterone](image)

The largest class of prohibited drugs, and the most commonly detected. Anabolic steroids mimic the hormone testosterone, increasing muscle mass and physical strength. This class also includes some non-steroidal drugs. They have a range of side effects.

**STIMULANTS**

- **ADRENALINE**
  - Alertness and energy
  - 15% of positive tests in 2014
  - 66 no. of named banned agents

   ![Adrenaline](image)

Stimulants are used to improve alertness, attention, and energy. Many behave similarly to the hormones adrenaline and noradrenaline. They include amphetamines. Taking them can increase blood pressure and cause cardiac problems.

**HORMONES AND MODULATORS**

- **MELDONIUM**
  - Affect hormones/metabolism
  - 5% of positive tests in 2014
  - 20 no. of named banned agents

   ![Meldonium](image)

A range of drugs which generally interfere with human hormones. They can be used with anabolic steroids, to suppress some of the undesirable effects of these drugs. Some affect oestrogen levels in the body, whereas others affect human metabolism.

**DIURETICS AND MASKING AGENTS**

- **FUROSEMIDE**
  - Help to conceal doping
  - 13% of positive tests in 2014
  - 22 no. of named banned agents

   ![Furosemide](image)

Diuretics remove fluids from the body and can be used by athletes to regulate their body mass, as well as diluting urine so lower levels of banned substances are registered in tests. Masking agents are drugs taken to conceal the presence of illegal drugs in urine samples.

**NARCOTICS**

- **MORPHINE**
  - Increase pain tolerance
  - 11 no. of named banned agents
  - Can help reduce anxiety which can be advantageous in some sports

   ![Morphine](image)

This class includes narcotic analgesics such as morphine and codeine which can be enhance performance by increasing a competitor’s tolerance to pain. They can also reduce anxiety which can be advantageous in some sports.

**OTHER BANNED SUBSTANCES**

- **ERYTHROPOIETIN (EPO)**
  - Beta-blocker drugs

- **BETA-BLOCKER DRUGS**

- **ALCOHOL (IN-COMPETITION)**

- **GLUCOCORTICOSTEROIDS**

- **CANNABIS & CANNABINOIDS**

- **BETA-2 agonist drugs**

Many more substances are banned, including EPO, which promotes red blood cell production, getting oxygen to muscles more effectively. Some substances, such as alcohol and beta-blockers, are only prohibited in-competition for some sports.