



Sports doping

AMMAR AL RJOUB

A green brushstroke graphic with a textured, hand-painted appearance, containing the word "Definition" in white text.

Definition

- In competitive sports, doping is the **use of banned athletic performance-enhancing drugs by athletic competitors.**

Categories of drugs used

- Performance enhancing drugs
 - Anabolic steroids, narcotic analgesics, beta blockers
- Recreational drugs
 - Marijuana, cocaine, heroin

Substances banned by the olympic committee

- Anabolic androgenic steroids
- Stimulants
- Narcotic analgesics
- Beta-adrenergic blockers
- Diuretics
- Recently banned: creatine, human growth hormone and tetrahydrogesterinone

What are the legal substances?

- 1. depressants
- 2. nicotine
- 3. diet regimens (carbohydrate loading)
- 4. amino acids
- 5. vitamins
- 6. creatine (some exceptions)

Anabolic steroids

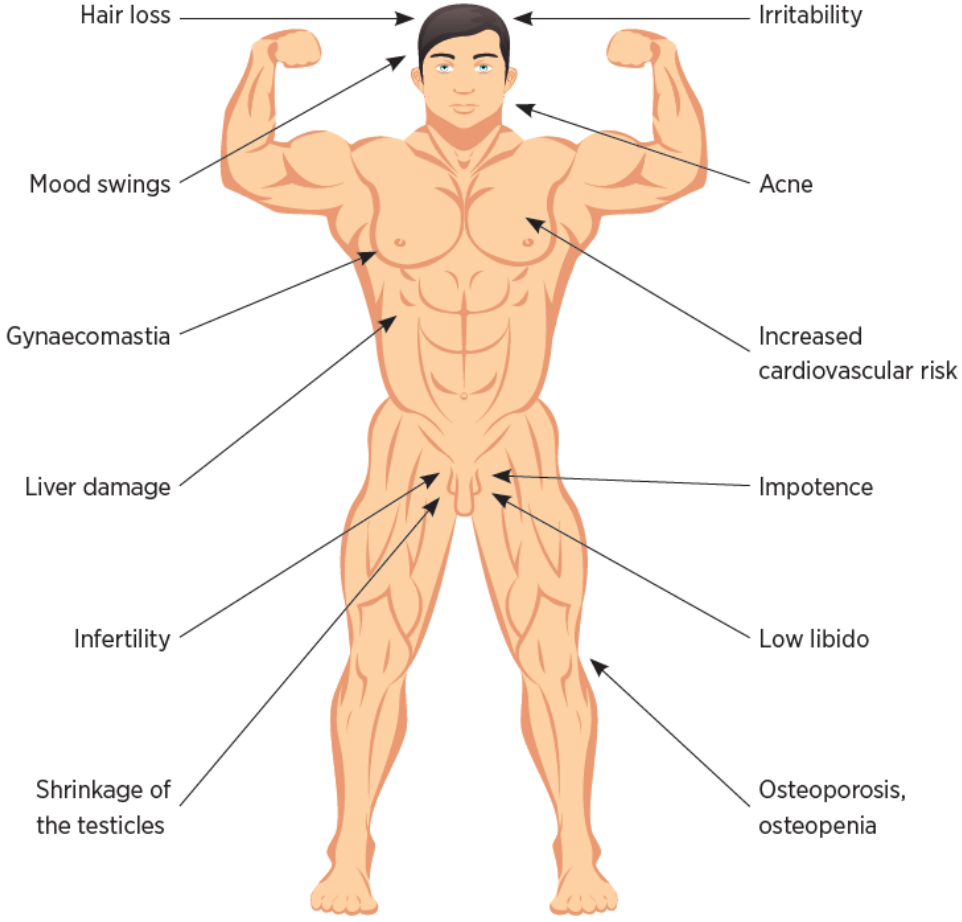
- Increases males androgen hormones and decreases females' estrogen.



Anabolic steroids

- Benefits:
- Depends on the type of skill and physical demands of the sport.
- Increase strength and power
- Enhance recovery, build skeletal muscle tissue
- Used medically to promote muscle growth and tissue repair as part of injury rehabilitation.

Side effects of using steroids



Side effects of using steroids

- Females: masculinizing effect- increases facial and body hair, lowered voice, temporary sterility, reproductive problems

Anabolic Steroids

- Potential Female Side Effects:
 - Masculinization
 - Growth of facial hair
 - Male-pattern baldness
 - Changes in or cessation of the menstrual cycle
 - Enlargement of the clitoris
 - Deepened voice
 - Severe acne

Side effects of using steroids

- Males : increase feminine characteristics- decreased facial and body hair, decreased sperm production, sterility, impotence
- Increased injury to muscles, tendons, ligaments.
- Adolescents: stunted growth due to premature fusion of epiphyseal plate.
- Other: liver cancer, HTN, heart disease, strokes.
- Clinical depression when use is stopped.

Roid rage

- Hightened uncontrolled aggression when using
- Examples include:
 - Increased domestic violence, suicide, murder, sport violence.



stimulants

- Increase HR, RR, nervous system activity
- Enhance performance by increasing alertness, or weight loss (amphetamines) to compete at lower weight.



stimulants

- Psychomotor: amphetamines and diet supplements
- Sympathomimetic amines: stimulate sympathetic and autonomic nervous system
- Hallucinogens: recreational and mind altering drugs.
- Caffeine in high amounts

Narcotic analgesics

- Used by athletes during soreness to reduce fever or swelling – anti-inflammatory effect
- But they can slow performance due to their sedative effect
- Examples : codeine, heroin, opium, morphine.
- Produce dependance very commonly



Beta blockers

- Aid performance by slowing HR, decrease anxiety, steadying natural body tremors.
- Adverse effects: bronchospasm, CNS disturbances, hypotension, impotence.
- In sports it interferes with high intensity, long endurance tasks.
- More difficult to induce dependence.

diuretics

- Increase the rate at which salt and water leave the body.
- Abused in order to lose weight- for boxers and wreslers to compete at a lower weight.
- Can cause nausea stroke, heat exhausation, impairs thermoregulatory control, blood clotting, reduced blood volume, and muscle cramps.



Caffeine

- CNS STIMULANT , it is banned with more than 18 ounces consumption
- Prolongs endurance performance at high intensity short duration exercise.
- Combined with insufficient water intake, athletes internal body temperature rises inducing premature fatigue and dangerous heat related illnesses.

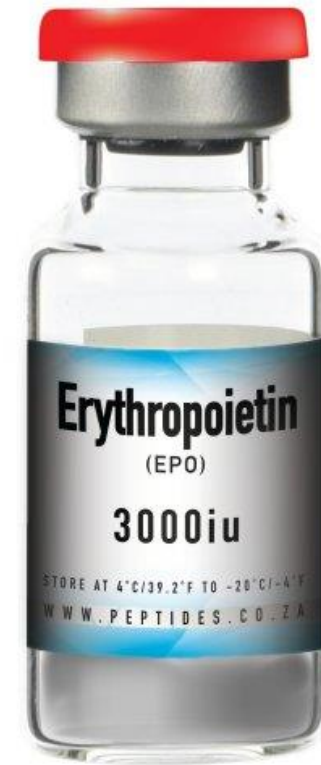


Blood doping

- Remove one liter of the athlete's blood 1-2 months before competition and freeze it.
- Inject red blood cells back into the athlete before competition.
- Benefits: increase oxygen carrying capacity and thus aerobic performance.
- Dangers include hepatitis B or C or HIV if blood sample gets contaminated.

Erythropoietin (EPO)

- Naturally secreted by the kidneys in response to hypoxia that stimulates production of red blood cells.
- Enhances the body's ability to transport oxygen to peripheral exercising muscles.
- Reduces the onset of muscular fatigue and improves regulation on internal body temperature, thus providing an unfair advantage.



Creatine

- Not considered a steroid
- Popular for 3 reasons :
- Assumed safe in reasonable amounts
- Legally available in health stores and fitness clubs
- May increase lean body mass and performance in repetitive, high intensity, very short-term tasks with brief recovery periods.

Human growth hormone

- Naturally secreted through the pituitary gland, but has been created through recombinant technology.
- It increases body mass while reducing fat mass.
- Mixed evidence on performance enhancement