

Drugs, Doping and Their Effects on Sports Performance

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Abstract

Drug is defined as a substance that alters the physiological processes of the body which is used for the diagnosis, prevention and treatment of disease. Abuse denotes injudicious or irrational application. The use of performance-enhancing drugs is probably the major problem facing sport today. Despite intense efforts by sporting bodies and the medical professionals to eliminate the problem, drug taking to enhance sport performance remains widespread. No player should gain an unfair advantage over other players by using an unethical substance or method. The use of drugs may also be extremely dangerous to the health of players. Drug testing programs have been established by amateur and professional sports authorities to promote a safe and fair competitive environment. Clinicians who treat player should be familiar with the commonly abused substances and doping methods.

Key words: Drug abuse, doping, sports.

Drug

A drug is any chemical substance you take that affects that way your body works. Most drugs are developed for medical purpose, but doping means taking drugs to improve sports performance.



Doping

Doping is usually considered to be the deliberate or accidental use by athletes of substances or technique that may enhance performance of sports players.

The substances and methods that are banned by the International Olympic Committee (IOC) are:-

- Stimulants
- Anabolic Steroids
- Diuretics
- Narcotic Analgesics
- Peptide Hormones and related substances
- Blood doping

Pharmacological, Chemical and physical manipulation

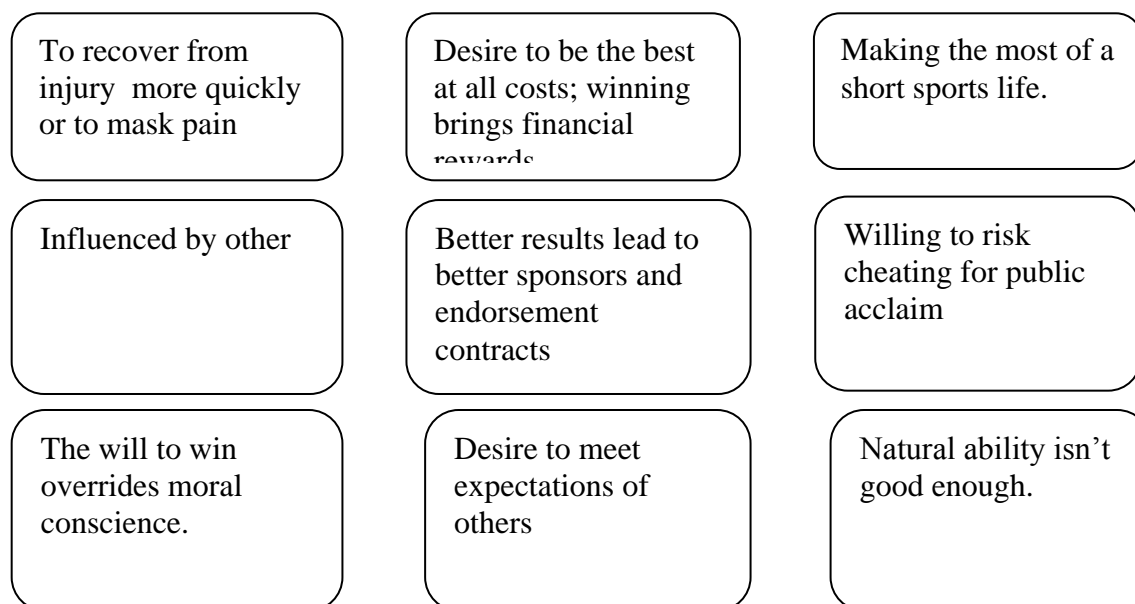
Why are they banned?

There are three major reasons why these substances are banned. These are:

- **Health Concerns** – some drugs used by athletes can have serious effects on an individual's health. e.g. Anabolic Steroids
- **Ethical Concerns-** The use of certain drugs which do not pose a major health risk, but may offer a performance advantages over other athletes. This may be considered cheating. E.g. Beta Blockers.

- **Legal Concerns-** some drugs are banned because they are illegal in general society. E.g. Cocaine
- Restrictions on other drugs.
- **Other drugs are subject to certain restrictions depending on the sports and the level of competition. These are:-**
- **Alcohol-** not banned but tests may be requested by a responsible authority.
- **Cannibinoids (marijuana & hashish)-** not banned but tests may be requested by a responsible authority.
- **Local Anaesthetics-** injectable local anaesthetics are **permitted under certain conditions.**
- **Restrictions on other drugs.**
- **Corticosteroids** –the systemic use is prohibited.
- **Beta Blockers** – only tested for in sports where they are likely to enhance performance e.g. archery, shooting
- **Sometimes athletes also use other substance like vitamin supplements, amino acids and special diets to enhance their performance.**

Why sports performance take drugs:



Effects of Substances- Stimulants

Drugs used by athletes to increase alertness and hide their natural feelings of tiredness. Get them keyed up for competition; e.g. Cocaine, pseudoephedrine.

The use of stimulants can lead to:

- A rise in body temperature
- The body having difficulty cooling down
- Faster breathing
- Increase in blood pressure
- Problems with coordination and balance
- Violent and aggressive behavior

Effects of Substances- Diuretics

Drugs used to increase fluid loss from the body in an attempt to decrease weight. These drugs are used by athletes in sports with weight categories. They are also used by some athletes in an attempt to dilute their urine so to avoid detection of anabolic steroids.

The use of diuretics may cause the athlete to:

- Faint and become dizzy
- get headaches
- feel nauseous
- lose coordination and balance
- get cramps
- have kidney and heart failure

Effects of Substance- Anabolic Agents

Anabolic steroids are a manufactured version of the hormone testosterone which is found naturally in our bodies.



Anabolic steroids are used to increase muscle strength and power.

Male Athletes might:

- develop breasts
- develop acne on face and back
- produce less sperm
- see testicle size decrease
- become aggressive and violent towards others

Effects of Substances- Anabolic Agents

- Female athletes might:
- Grow hair in places they never have before e.g. faces, backs and buttocks
- Develop acne
- Stop menstruating
- Develop a deeper voice
- Become aggressive and violent towards others

Effects of Substances- Narcotic Analgesics

These are strong painkillers used by athletes to mask the pain of injury; e.g. heroin, morphine.

These can affect the athlete in the following ways:

- A loss of balance
- Decreased ability to concentrate
- Sleepiness
- Breathing becomes slower
- Nausea and vomiting
- Further aggravation of injury

Effects of Substances- Peptide Hormones and others

Hormones have taken in an attempt to increase the size and strength of muscles ; e.g Human Growth Hormone

Health risks includes:

- Acromegly athlete's hands , feet and face grow very large
- Problems with joints and muscles making it difficult to train or compete
- Diabetes

Effects of substances –peptide Hormones and others

E.g Erythropoietin (EPO)

It has taken to increase red blood cell count to increase oxygen uptake.

Health risks include

- Thickening blood
- Clots , thrombosis
- Stroke or heart –failure

Effects of substances –blood doping

A procedure which involves injection extra blood , red blood cells , artificial oxygen carries and related blood products into the body as a means of increasing the oxygen carrying capacity of the blood .for increase the energy available and used primarily in endurance events.



- Flaws in technique can lead to complication ranging from bacterial infections to fatal reactions.
- The sharing of needles or blood can lead to diseases such as hepatitis or HTV.

Effects of substances –Beta Blockers

Beta blockers is a type of drug often used by people with heart problems or high blood pressure. Athletes competing in such events as archery or shooting might use them to try and stop their hands and bodies from shaking when they aim at a target.

Beta blockers act to:

- Lower blood pressure
- Slow the heart rate
- Steady hand movement

They may cause:

- Harm to athletes with low blood pressure , heart problems ,asthma .
- Deperessive symptoms such as insomnia , nightmares and depression
- Sexual dysfunction
- Tiredness

Effects of substances- Anti-inflammatories

- Athletes using anti-inflammatories may have problems with
- gastric irritability
- gastric bleeding
- the symptoms of injury being masked
- Athletes using steroidal anti-inflammatories such as corticosteroids may have problems with:
- softening of scar tissue
- weaking of injured area (muscle , bones , tendons , ligaments)

Alcohol

There is little difference in amount of alcohol consumed between athletes and the general population.



Involvement in sport may actually encourage alcohol consumption:

- after game drinks to celebrate wins or commiserates losses
- after training drinks
- spectator consumption of alcohol during sporting events
- sporting stars promoting alcohol
- sports events sponsored by alcohol companies
- The link between alcohol and the sporting culture is very strong, therefore young athletes may be vulnerable to the misuse of alcohol.

Caffeine

Caffeine is sometimes used by athletes to try to hide how tired they are feeling .covering up this feeling of tiredness can result in injury of sickness . Caffeine is also responsible for:



- A small increase in blood pressure
- A small increase in body temperature
- An increase in how often a person may need to go to the toilet (diuresis)
- Making it more difficult to fall asleep
- Headaches in some athletes
- Caffeine

Amino Acids

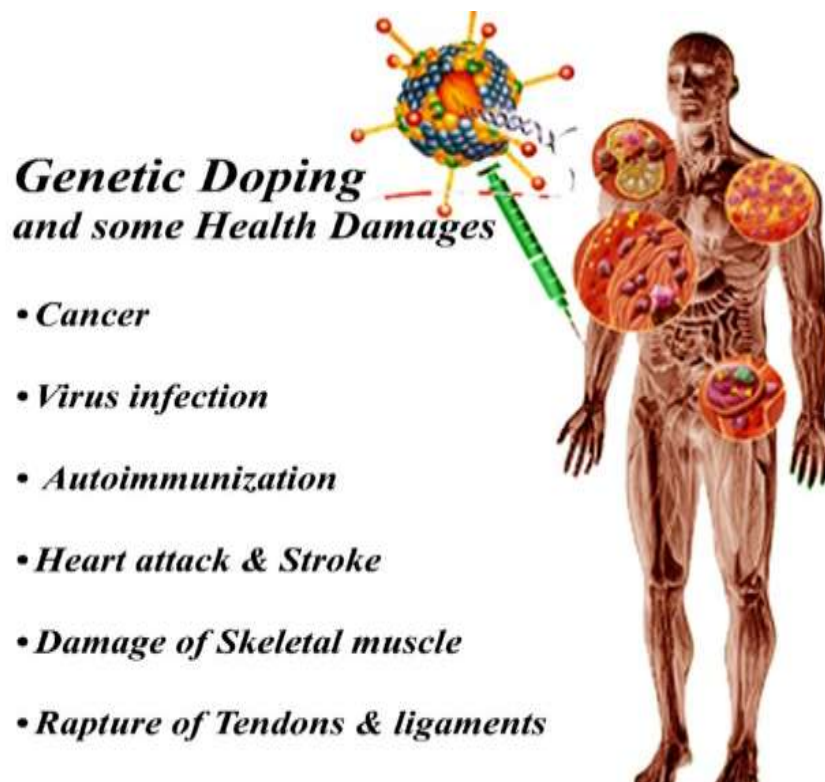
Amino Acids are found naturally in protein foods or can be taken artificially in the form of amino acid supplements. Athletes may use supplements in an attempt to improve their performance or physique.



This may result in an excess intake of protein or amino acids which may cause:

- Excessive weight gain
- Dehydration – the body requires large amount of fluids to excrete protein
- Gout- affects the joints
- Excessive loss of urinary calcium
- Excessive stress on the liver and kidneys
- A buildup in the blood to toxic levels

Overall Impact of Doping on Body System



Conclusion

It is observed by researchers that engaging in drug use and doping in sports have both acute and chronic effects on cardiovascular system. The acute effects are alleviation of heart rate, reduction in stroke volume and cardiac output, inadequate redistribution of blood, oxygen and nutrients to active muscles that results to high blood pressure. While chronic effects of drug use and doping among sports persons can results to heart failure, heart attack, thrombosis, arrhythmia, stoke and even death.

The use of performance-enhancing drugs is probably the major problem facing sport today. Despite intense efforts by sporting bodies and the medical professionals to eliminate the problem, drug taking to enhance sport performance remains widespread. Doping is against “the spirit of the game”.

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