

**DRUGS**

**IN**

**SPORT**

## Drugs in Sport

The International Olympic Committee and other sporting bodies have banned the use of certain drugs by competitors in sporting events.

Care has been taken to ensure minimal interference to the therapeutic use of drugs so that the health care of competitors is not compromised.

Banned drugs are not only contained in medicines which may be prescribed by medical officers. They can be found in over the counter preparations which can be purchased without a prescription.

Some so called vitamins may contain banned drugs eg. Catovit contains a banned stimulant.

Particular attention should be given to combinations of drugs eg. plain aspirin is permitted. Aspirin and codeine combinations may not be.

### **If there are any doubts:**

**Doctors  
Athletes**

**Don't give it!  
Don't take it!**

Most drugs effect:-

- motor control
- reaction time
- the ability to maintain attention

The effect of many drugs is also related to body weight. Generally lighter people are more affected.

Drugs obtained from illicit sources ie. black markets, are more likely to contain a greater range of impurity and adulterants. In addition the quantity of the active drug is not really known.

Some drugs interact or even enhance the effects of another drug so it is not advisable to take any medication prescribed for another person or supplied by someone other than a medical practitioner.

Some drugs are not banned but that does not mean that they are good for you!

## **Social Drugs**

Alcohol:-

- is readily available to anyone over the age of 18 years
- is a drug which slows down the actions of the brain. It is a central nervous system depressant
- moves very quickly to all parts of the body and increases the occurrence of injury

Problems caused include:-

- decrease in accuracy of balance
- movement will become slow and clumsy
- harder to concentrate
- eyesight may become blurred
- decisions being made are not rational

Alcohol may also effect:-

- how strong you feel
- how fast you move
- behaviour, may become violent and aggressive

Alcohol is a potent dehydrating agent. Athletes should replace fluids before, during and after training and competition.

Athletes should not consume alcohol prior to training or competition! Re-hydrate with water after!

## **Tobacco**

Contains three particularly harmful elements:-

- Tar:- mixture of many different chemicals, some of which cause cancer. It is responsible for the sludge that builds up in the lungs
- Nicotine:- a very dangerous drug which is capable of exciting the central nervous system. It is also responsible for addiction to smoking cigarettes and makes the heart beat harder and faster than it needs to
- Carbon Monoxide:- is a poisonous gas (car exhaust) which reduces the amount of O<sub>2</sub> that your blood can carry. Therefore it is harder for the heart to pump blood to the muscles and there is a decrease in energy.

Smoke from one cigarette can make it 2-3 times harder for air to move in and out of the lungs within seconds.

It only takes one cigarette to:-

- increase breathing
- increase blood pressure
- increase heart rate
- decrease body temperature
- decrease peripheral circulation

All side effects related to smoking tobacco make it harder for an athlete to perform to the best of their ability.

Athletes who smoke do not show as much improvement in their fitness as those that don't smoke. It appears that smoking decreases lung capacity by 15-20%.

An athlete who smokes tobacco will never reach peak personal fitness potential!

### **Passive Smoking:-**

Two types:-

- Mainstream Smoke:- The smoke breathed out by the smoker
- Sidestream Smoke:- The smoke from the burning cigarette. This smoke contains the same tar, nicotine and carbon monoxide that cigarettes contain

Passive smoking is dangerous to a non smoker's health and may cause sore throats, coughs and runny nose.

An athletes performance can be made worse by exposure to cigarette smoke before, during or after a game or training session. Breathing in someone else's smoke makes it harder for O<sub>2</sub> to reach the athletes working muscle.

### **No smoking in dressing rooms!**

### **Caffeine**

Caffeine is a drug found in coffee, tea, chocolate and many soft drinks.

Caffeine is a stimulant ie. it speeds up certain parts of the brain and body.

Caffeine should not be used to cover up the body's message of tiredness. This can lead to injuries and sickness.

Caffeine can cause:-

- increase on blood pressure
- increase in body temperature
- diuresis, increase need to go to toilet!
- sleep difficulties
- headaches, shakiness, irritability, mood changes (withdrawal).

A urinary concentration of 12 micrograms per millilitre must be exceeded before a sample is considered positive. An athlete would need to consume approx. 500 mg in a short period of time ie. about 6-8 cups of coffee, 10 cans cola, 3 family bars of chocolate.

Coffee	50-100 mg per cup
Tea	40-80 mg per cup
Cola drink	30-50 mg per cup
Chocolate bars	150 mg per family block

## **Marijuana**

The most powerful ingredient is a depressant drug. It slows down the action of the body and the brain.

Can cause:-

- impaired balance co-ordination
- decreased concentration
- increased heart rate
- drowsiness

Large doses will increase the above as well as distort the perception of time, sound and colour. It can also cause confusion, anxiety and hallucinations.

Long term users increase the risk of diseases associated with cigarette smoking ie. lung cancer, bronchitis and respiratory disease.

Marijuana is an illegal substance!

## **Drugs-permitted-restricted.**

These drugs should only be used on the advice of a medically trained person.

### **Do not use indiscriminately.**

Analgesics (non narcotic)

Minor painkillers - Paracetamol – Aspirin.

Beware of combinations - Codeine – Panadeine.

These act on the central nervous system as a depressant. They are not as strong as the narcotic analgesics. Non narcotic analgesics are used to control pain, however pain is nature's way of telling the athlete that there is something wrong!

Too many analgesics can cause:

- nausea and vomiting
- bleeding from the stomach
- kidney damage

If a pain doesn't go away, seek medical advice.

Antiasthmatics (check for restrictions)

Bronchodilators - eg. Salbutamol, (Ventolin-Respolin), and Terbutaline (Bricanyl) which are permitted in aerosol form only.

Theophylline - usually taken orally.

Corticosteroid anti-inflammatories e.g. Beclomethasone, (Becotide and Becloforte inhalers) and Budesonide (Pulmicort inhaler and turbuhaler) are permitted.

Anti-allergenic agent eg. Sodium Chromoglycate (Intal via inhalation) are permitted.

Ephedrine and related substances are prohibited as they are classed as stimulants and are not the drug of choice for the management of asthma.

Asthma is a serious condition and at times can be managed too lightly. An asthmatic participating in sporting activity must be fully educated about their condition and the medication prescribed.

## **Amino Acids**

Chemicals needed in the process of building body tissue. They are found naturally in protein food eg. eggs, meat.

Amino acids are critical for the synthesis of body proteins and other body tissue. It has not been proven that amino acid supplements can benefit athletes who are in good health and are eating a balanced diet.

They have been claimed to:-

- build muscle
- aid fat loss
- provide energy
- speed up muscle repair
- stimulate the production of growth hormones

Excessive protein or amino acid intake can result in:-

- excessive weight gain
- dehydration (large amounts of fluid to excrete protein)
- gout, effects the joints
- loss of urinary calcium
- stress on liver and kidneys
- toxic levels may build up in the blood
- well planned fitness, weight training program

## **Vitamins**

Some combinations may contain banned substances.

## **Balanced diet**

## **Anti-Inflammatories**

All non steroidal anti-inflammatories are permitted for use in approved conditions, but certain restrictions apply to corticosteroid anti inflammatories by injection. Oral and parenteral corti are prohibited anti inflammatories. Inhalation therapy is permitted.

## Hydration

Hydration is one of the best performance enhancers!

- less than 1 hour - water (cool to cold)
- greater than 1 hour - "exceed" or such to replace electrolyte losses
- Lucozade - glucose causes an increase in blood sugar which stimulates the release of insulin, which then causes hypoglycaemia
- a decrease in the blood sugar level

## Prohibited Drugs

### Stimulants

Act on the central nervous system to speed up parts of the brain and body, similar to the effects of Adrenalin. It makes you feel more awake and alert.

Stimulants such as cocaine and amphetamines cause:-

- a rise in body temperature
- faster breathing
- increased heart rate
- problems with co-ordination and balance
- violent aggressive behaviour

Stimulants can cause death. They make it very difficult for the body to cool down, then the heart and other organs stop working properly.

Athletes must be careful as many cough and cold medicines contain small amounts of stimulants.

Don't forget other stimulants such as coffee, tea, cocoa etc.

### Narcotic Analgesics

These are the strongest painkillers (Heroin, Morphine, Pethidine and Codeine).

They are dangerous in that they hide any pain. The injury may become worse or permanent damage may result.

Narcotic analgesics can cause:-

- loss of balance, co-ordination
- decreased ability to concentrate
- drowsiness
- slower breathing
- nausea
- vomiting

These side effects make it difficult for the athlete to train properly or to compete to the best of their ability.

### **Anabolic Steroids**

Anabolism is the building up of the body substances.

Anabolic steroids are a man made version of a hormone known as testosterone, found in men and women.

Men are bigger and stronger than women and this is partly because men have more testosterone in their bodies.

Athletes take anabolic steroids to build up their muscles so they become bigger, faster and stronger. They provide an unfair advantage - taking the easy way out.

### **Side Effects**

Men:-

- breast development
- acne, especially on back and face
- decreased size of testes and the amount of sperm produced
- violence, aggression and mood swings
- liver disease - water retention
- kidney disease
- cancers etc, etc

Women:-

- hair growth, face, back and bottom
- Acne
- deeper voice
- violence, aggression
- clitoral hypertrophy
- liver disease - water retention
- kidney disease
- cancers etc, etc

Beta Blockers

Used to manage people with hypertension.

Athletes such as pistol shooters, archers etc. who require a steady hand use these to stop shaking.

Athletes without heart problems may develop:-

- (hypotension) low blood pressure
- slow heart rate
- the possibility of the heart stopping because it has been slowed down too much

**Diuretics**

Used to increase urine output which promotes the removal of banned substances. They are used where weight loss is needed in sport.

Can cause dehydration. The athlete will become:-

- faint
- dizzy
- get headaches
- nauseous
- uncoordinated
- get cramps
- cause the kidney and heart to stop working, which could lead to death

## **Growth Hormone**

Growth hormone determines a person's height. It helps to build muscle and bone. Produced in the pituitary gland. Production can be increased by:-

- eating foods high in protein
- exercising
- getting plenty of sleep

Children with growth problems may be given a man made growth hormone which some athletes try to use to try and build their muscles (unfair advantage).

Growth hormones can cause:-

- acromegaly, hands, feet and face grow very large
- problems with joints and muscles making it difficult to train or compete
- Diabetes

Once an athlete has matured and stopped growing, growth hormones will not make them grow any taller.

## **Blood Doping**

Involves an athlete putting extra blood or red blood products into their body, whether it be their own or somebody else's!

Blood Doping involves:-

- **Withdrawal Stage:-** removal of about 1 litre of blood from the body. The body remakes the litre of blood to make up for what has been taken out.
- **Storage:-** the blood is stored in large freezers.
- **Re-infusion:-** about 1 week before competition day, the stored blood is returned to the athletes body.

Blood Doping provides:-

- more red blood cells to carry O<sub>2</sub>
- more O<sub>2</sub> going to the muscles
- more energy to train or compete

It is dangerous to a player's health. The sharing of needles or blood can lead to diseases such as Hepatitis or Aids!

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