

LIST OF DOPING CLASSES AND METHODS

I. DOPING CLASSES

- A. Stimulants
- B. Narcotics
- C. Anabolic Steroids
- D. Beta-blockers
- E. Diuretics

II. DOPING METHODS

- A. Blood doping

III. CLASSES OF DRUGS SUBJECT TO CERTAIN RESTRICTIONS

- A. Alcohol
- B. Local anaesthetics
- C. Corticosteroids

NOTE :

The doping definition of the IOC Medical Commission is based on the banning of pharmacological classes of agents.

The definition has the advantage that also new drugs, some of which may be especially designed for doping purposes, are banned.

The following list represents examples of the different dope classes to illustrate the doping definition. Unless indicated all substances belonging to the banned classes may not be used for medical treatment, event if they are not listed as examples. If substances of the banned classes are detected in the laboratory the IOC Medical Commission will act.

## EXAMPLES AND EXPLANATIONS

### A. Stimulants

amfepramone  
amfetaminil  
amiphenazole  
amphetamine  
benzphetamine  
caffeine\*  
cathine  
chlorphentermine  
clobenzorex  
clorprenaline  
cocaine  
cropropamide (component of "micoren")  
crothetamide (component of "micoren")  
dimetamfetamine  
ephedrine  
etafedrine  
ethamivan  
etilamfetamine  
fencamfamin  
fenetylline  
fenproporex  
furfenorex  
meclofenoxate  
mefenorex  
methamphetamine  
methoxyphenamine  
methylephedrine  
methylphenidate  
morazone  
nikethamide  
pemoline  
pentetrazol  
phendimetrazine  
phenmetrazine  
phentermine  
phenylpropanolamine  
pipradol  
prolintane  
propylhexedrine  
pyrovalerone  
strychnine

and related compounds

\*For caffeine the definition of a positive depends upon the following:  
- if the concentration in urine exceeds 12 micrograms/ml

Stimulants comprise various types of drugs which increase alertness, reduce fatigue and may increase competitiveness and hostility. Their use can also produce loss of judgement, which may lead to accidents to others in some sports. Amphetamine and related compounds have the most notorious reputation in producing problems in sport. Some deaths of sportsmen have resulted even

when normal doses have been used under conditions of maximum physical activity. There is no medical justification for the use of 'amphetamines' in sport.

One group of stimulants is the sympathomimetic amines of which ephedrine is an example. In high doses, this type of compound produces mental stimulation and increased blood flow. Adverse effects include elevated blood pressure and headache, increased and irregular heart beat, anxiety and tremor. In lower doses, they e.g. ephedrine, pseudoephedrine, phenylpropanolamine, norpseudoephedrine, are often present in cold and hay fever preparations which can be purchased in pharmacies and sometimes from other retail outlets without the need of a medical prescription.

THUS NO PRODUCT FOR USE IN COLDS, FLU OR HAY FEVER PURCHASED BY A COMPETITOR OR GIVEN TO HIM SHOULD BE USED WITHOUT FIRST CHECKING WITH A DOCTOR OR PHARMACIST THAT THE PRODUCT DOES NOT CONTAIN A DRUG OF THE BANNED STIMULANTS CLASS.

#### **-Beta2 agonists**

The choice of medication in the treatment of asthma and respiratory ailments has posed many problems. Some years ago, ephedrine and related substances were administered quite frequently. However, these substances are prohibited because they are classed in the category of "sympathomimetic amines" and therefore considered as stimulants.

The use of the following beta2 agonists is permitted in the aerosol form :

bitolterol  
orciprenaline  
rimiterol  
salbutamol  
terbutaline

B. Narcotics analgesics e.g.

alphaprodine  
anileridine  
buprenorphine  
codeine  
dextromoramide  
dextropropoxyphen  
diamorphine (heroin)  
dihydrocodeine  
dipipanone  
ethoheptazine  
ethylmorphine  
levorphanol  
methadone  
morphine  
nalbuphine  
pentazocine  
pethidine  
phenazocine  
trimeperidine

and related compounds

The drugs belonging to this class, which are represented by morphine and its chemical and pharmacological analogs, act fairly specifically as analgesics for the management of moderate to severe pain. This description however by no means implies that their clinical effect is limited to the relief of trivial disabilities. Most of these drugs have major side effects, including dose-related respiratory depression, and carry a high risk of physical and psychological dependence. There exists evidence indicating that narcotic analgesics have been and are abused in sports, and therefore the IOC Medical Commission has issued and maintained a ban on their use during the Olympic Games. The ban is also justified by international restrictions affecting the movement of these compounds and is in line with the regulations and recommendations of the World Health Organisation regarding narcotics.

Furthermore, it is felt that the treatment of slight to moderate pain can be effective using drugs - other than the narcotics - which have analgesic, anti-inflammatory and antipyretic actions. Such alternatives, which have been successfully used for the treatment of sports injuries, include Anthranilic acid derivatives (such as Mefenamic acid, Floctafenine, Glafenine, etc.), Phenylalkanoic acid derivatives (such as Diclofenac, Ibuprofen, Ketoprofen, Naproxen, etc.) and compounds such as Indomethacin and Sulindac. The Medical Commission also reminds athletes and team doctors that Aspirin and its newer derivatives (such as Diflunisal) are not banned but cautions against some pharmaceutical preparations where Aspirin is often associated to a banned drug such as Codeine. The same precautions hold for cough and cold preparations which often contain drugs of the banned classes.

NOTE : DEXTROMETHORPHAN IS NOT BANNED AND MAY BE USED AS AN ANTI-TUSSIVE  
DIPHENOXYLATE IS ALSO PERMITTED

C. Anabolic steroids e.g.

bolasterone  
boldenone  
clostebol  
dehydrochlormethyltestosterone  
fluoxymesterone  
mesterolone  
metandienone  
metenolone  
methyltestosterone  
nandrolone  
norethandrolone  
oxandrolone  
oxymesterone  
oxymetholone  
stanozolol  
testosterone\* and related compounds

\*For testosterone the definition of a positive depends upon the following - the administration of testosterone or the use of any other manipulation having the result of increasing the ratio in urine of testosterone/epitestosterone to above 6.

This class of drugs includes chemicals which are related in structure and activity to the male hormone testosterone, which is also included in this banned class. They have been misused in sport, not only to attempt to increase muscle bulk, strength and power when used with increased food intake, but also in lower doses and normal food intake to attempt to improve competitiveness.

Their use in teenagers who have not fully developed can result in stunting growth by affecting growth at the ends of the long bones. Their use can produce psychological changes, liver damage and adversely affect the cardiovascular system. In males, their use can reduce testicular size and sperm production; in females, their use can produce masculinisation, acne, development of male pattern hair growth and suppression of ovarian function and menstruation.

D. Beta-blockers e.g.

acebutolol  
alprenolol  
atenolol  
labetalol  
metoprolol  
nadolol  
oxprenolol  
propranolol                      and related compounds  
sotalol

The IOC Medical Commission has reviewed the therapeutic indications for the use of beta-blocking drugs and noted that there is now a wide range of effective alternative preparations available in order to control hypertension, cardiac arrhythmias, angina pectoris and migraine. Due to the continued misuse of beta-blockers in some sports where physical activity is of no or little importance, the IOC Medical Commission reserves the right to test those sports which it deems appropriate. These are unlikely to include endurance events which necessitate prolonged periods of high cardiac output and large stores of metabolic substrates in which beta-blockers would severely decrease performance capacity.

E. Diuretics e.g.

acetazolamide  
amiloride  
bendroflumethiazide  
benzthiazide  
bumetanide  
canrenone  
chlormerodrin  
chlortalidone  
diclofenamide  
ethacrynic acid  
furosemide  
hydrochlorothiazide  
mersalyl  
spironolactone  
triamterene                      and related compounds

Diuretics have important therapeutic indications for the elimination of fluids from the tissues in certain pathological conditions. However, strict medical control is required.

Diuretics are sometimes misused by competitors for two main reasons, namely: to reduce weight quickly in sports where weight categories are involved and to reduce the concentration of drugs in urine by producing a more rapid excretion of urine to attempt to minimise detection of drug misuse. Rapid reduction of weight in sport cannot be justified medically. Health risks are involved in such misuse because of serious side-effects which might occur.

Furthermore, deliberate attempts to reduce weight artificially in order to compete in lower weight classes or to dilute urine constitute clear manipulations which are unacceptable on ethical grounds. Therefore, the IOC Medical Commission has decided to include diuretics on its list of banned classes of drugs.

## II. METHODS

### A. Blood doping

Blood transfusion is the intravenous administration of red blood cells or related blood products that contain red blood cells. Such products can be obtained from blood drawn from the same (autologous) or from a different (non-autologous) individual. The most common indications for red blood transfusion in conventional medical practice are acute blood loss and severe anaemia.

Blood doping is the administration of blood or related red blood products to an athlete other than for legitimate medical treatment. This procedure may be preceded by withdrawal of blood from the athlete who continues to train in this blood depleted state.

These procedures contravene the ethics of medicine and of sport. There are also risks involved in the transfusion of blood and related blood products. These include the development of allergic reactions (rash, fever etc.) and acute haemolytic reaction with kidney damage if incorrectly typed blood is used, as well as delayed transfusion reaction resulting in fever and jaundice, transmission of infectious diseases (viral hepatitis and AIDS), overload of the circulation and metabolic shock.

Therefore the practice of blood doping in sport is banned by the IOC Medical Commission.

### III. CLASSES OF DRUGS SUBJECT TO CERTAIN RESTRICTIONS

#### A. Alcohol

Alcohol is not prohibited. However breath or blood alcohol levels may be determined at the request of an International Federation.

#### B. Local anaesthetics

Injectable local anaesthetics are permitted under the following conditions :

- a) that procaine, xylocaine, carbocaine, etc. are used but not cocaine;
- b) only local or intra-articular injections may be administered;  
(intra-vascular injections are not permitted);
- c) only when medically justified (i.e. the details including diagnosis; dose and route of administration must be submitted immediately in writing to the IOC Medical Commission)

### C. Corticosteroids

The naturally occurring and synthetic corticosteroids are mainly used as anti-inflammatory drugs which also relieve pain. They influence circulating concentrations of natural corticosteroids in the body. They produce euphoria and side-effects such that their medical use, except when used topically, require medical control.

Since 1975, the IOC Medical Commission has attempted to restrict their use during the Olympic Games by requiring a declaration by the team doctors, because it was known that corticosteroids were being used non-therapeutically by the oral, intramuscular and even the intravenous route in some sports. However, the problem was not solved by these restrictions and therefore stronger measures designed not to interfere with the appropriate medical use of these compounds became necessary.

The use of corticosteroids is banned except for topical use (aural, ophthalmological and dermatological), inhalational therapy (asthma, allergic rhinitis) and local or intra-articular injections.

ANY TEAM DOCTOR WISHING TO ADMINISTER CORTICOSTEROIDS INTRA-ARTICULARLY OR LOCALLY TO A COMPETITOR MUST GIVE WRITTEN NOTIFICATION TO THE IOC MEDICAL COMMISSION.