

Drug Misuse in Sport

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There is a general impression that doping in sport is just a recent phenomenon. This is far from the truth as "even as early as the third century B.C., athletes in the Olympic games tried to improve their performance by eating mushrooms..." (Hanley 1979). During the last century, such drugs as cocaine, strychnine, caffeine and heroin were abused of by athletes in various sports. In a survey carried out by the Italian Football Association (FIGC) in 1961, it was found that 17% of all players took psychotonics and 94% of first division clubs used some sort of drug¹.

In the early 1960's, society as a whole came increasingly to believe that the cure to most ills and problems lay in drugs. Sport, being a social phenomenon, was no exception and, with time, drugs also caught up with sports. By the time the legislation responsible shook off complacency and prepared to start taking action, the cancer was now established and invading in increasing number of sporting bodies and disciplines. Unfortunately, it appeared necessary to have deaths in sport before definitive action was taken. Among the better known sportsmen whose death was attributed to the misuse of drugs were K. Jensen, a Danish cyclist - Rome Olympics in 1960 - from use of stimulants; and Tommy Simpson, a British cyclist - Tour de France in 1967 - from use of amphetamines.

In 1965, antidoping laws were introduced in France and Belgium. In 1967, the International Olympic Committee established a Medical Commission. The tasks of this Commission were basically to consider control and types of drugs to be classed as doping agents, as well as to establish suitable methods for testing for such drugs.

The greatest stumbling block in the efforts to control use of drugs in sport was the fact that not all doctors and coaches considered the welfare of competitors under their care as the first priority. Pressures to succeed at all costs led to an escalation and more potent drugs were regularly being tried, using athletes as guinea-pigs. The basis of fair play in sport was being threatened. We have thus arrived at a situation where countries with sophisticated and ruthless physicians and sports administrators have an unfair advantage in seeking success at international competition.

Classes of Drugs and Problems of Misuse

1. Stimulants:

Studies by Laties and Weiss (1981) have demonstrated that their use gives a competitive advantage; by enhancing acute bursts of strength and improving the ability in endurance events. A 0.5% improvement was demonstrated in Athletics whereas a 1% improvement was shown in Swimming (Beecher

1959; Cochram 1961). Other studies have demonstrated the advantageous effects of stimulants in various other activities, such as running on a treadmill and on a cycle ergometer. The introduction of antidoping measure led to a reduction in abuse of such drugs, but only in sports in which testing is carried out. On the other hand, certain sports do not carry out such testing and drug abuse is still rife eg. American football (Mandell 1976). Side effects of stimulants include personality problems and impairment of judgement. Deaths have also been reported.

2. Anabolic Steroids:

Just as the misuse of stimulants was being brought under control, there was an abrupt increase in misuse of anabolic steroids. Nowadays, they constitute the drugs most abused of in sports. The use of anabolics steroids in sport is believed to have been triggered off by a report in a magazine for weight-lifters and body-builders by an American doctor, who was also a weight-lifter. He had claimed that the drugs produced gains in muscle size and strength (Ryan 1981).

The increase in total body weight with use of these drugs together with a high protein diet is substantially a result of retention of salts and fluid. However, those directly involved strongly affirm the beneficial effect of these drugs on performance. Being synthetic analogues of the male hormone testosterone, they cause induction of greater aggression - a more vigorous and sustained approach to training and greater competitiveness (Brooks 1975).

Anabolic steroids are increasingly being used in various sports. Athletes, coaches and physicians in sport are well aware of their effectiveness. Those deprived consider the *Drug gap* as a definite competitive disadvantage and this has led to escalation of their misuse (Burks 1981).

At the Olympic games of Montreal 1976 tests for anabolic steroids were first performed, with the intention of taking disciplinary measures against offenders. In fact, there were eight positive results. Two gold and one silver medals were withdrawn. Since then the list of offenders has been never-ending. Side-effects of anabolic steroids include:-

- Reduced output of testosterone and gonadotrophins, with lowered spermatogenesis;
- In as many as 80% of persons receiving C₁₇ derivatives of testosterone, there was altered liver function. Four cases of death directly attributed to liver failure have been reported (Sherlock - Diseases of Liver and Biliary System);

- From 1965 to 1981, there have been reported 14 cases of hepatocellular carcinoma developing in persons taking the orally active drugs (17-alkyl steroids);
- Personality changes;
- Cardiovascular changes;
- In females, masculinizing features particularly male-pattern hirsutism.

3. Testosterone:

The endogenous hormone was brought into use as so to circumvent the strict control on anabolic steroids. The hormone was included in the list of banned drugs in February 1982.

4. Caffeine:

The drug is used as a stimulant in various sports, especially cycling. However, due to the presence of the substance in tea, coffee, soft drinks etc., a limit to the amount present has had to be set up in its control.

5. Others:

These substances are being misused but, as yet, action has not been decided for various reasons.

- β -blockers — in pistol shooting, ski-jumping, archery.
- Diuretics — to reduce weight quickly before weighing-in procedures.
- Infusion of dextrose and salts — soon afterwards in certain events.
- Corticosteroids — in cycling.
- Benzodiazepines — in shooting, archery and golf.

Samples and Analysis

A urine sample is preferable to blood for use in analysis. Reasons include a higher concentration of drugs present in urine, urine constituents cause less interference in tests, less invasion of rights of the individual in sampling. The sample taken is subdivided - one part going to the lab for analysis, the other being

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The number of authors should be kept to one or two: further acknowledgements can be added to the text. The authors' appointments and qualifications should be given and the Editor informed of any change of appointment. It should be made clear on the manuscript which author is responsible for correcting gally proofs and answering queries and correspondence. His/her address and telephone number must be stated. Proof corrections must be kept to a minimum; sizeable alterations should be discussed with the Editor.

A summary of about 80 words should precede the article giving the main argument or findings. The manuscript submitted **MUST** be typed with double spacing and one inch of margin on either side of the text. Articles should be typed on only one side of the paper; sheets should be numbered and the end of the article denoted by a double line. Authors are strongly advised to keep a copy. Acceptance of material sent for publication is at the sole discretion of the Board.

References:

References should be limited to approximately half a dozen. They should be in alphabetical order of the Authors' names and should conform to the following style:

Articles in Journals:

Authors' names and initials; year of publication; title of article; title of journal, abbreviated to the style of **Index Medicus**: volume number; first and last page numbers. e.g.:-
 Birth, C. (1910): Phlebotomus Fever in Malta and Crete. J. Royal Army Med. Corp. p. 238-260.
 Roberts, S.A. and Soothill, J.F. (1982): Provocation of Allergic Response by Supplementary Feeds of Cow's Milk. Arch. Dis. Child. 57: 127.

Articles in Books:

Authors' names and initials; year of publication; title of article; Editor of book; title of book; publisher; place of publication; first and last page numbers. e.g.:-
 Feroze, R.M. (1981): Benign Tumours of the Uterus. Dewhurst, J. (ed): Integrated Obstetrics and Gynaecology for Postgraduates. Blackwell Scientific Publ., London. p.698-703.

Books:

Authors' names and initials; year of publication; title of book; publisher; place of publication; pages of reference. e.g.:-
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Letters:

Letters to the Editor are welcome, particularly those which take up points from material published in the journal. They should not normally exceed one type-written page in length and may include an illustration or table.

The Editorial Board would like to take this opportunity to thank all those who help in materialising each issue of **Medi-Scope** as well as those who by their kind words, constructive criticism and suggestions are helping in making this a fine journal. The Board will be pleased to discuss any problems or difficulties as may arise in connection with **Medi-Scope**.

stored for any recheck which may be necessary. The collection, transport and receipt of samples is under very strict control and security. Samples are coded and can only be decoded by the Chairman of the Medical Commission. A representative of the involved country must be present during analysis of a duplicate sample, after the first analysis has given a positive result. The latest and more sensitive methods of analysis utilize gas-liquid chromatography. Previously, Radio-immunoassay techniques were used for analysis of anabolic steroids. These methods, however, gave many false positive results.

The Present Situation

There is great variation in the attitudes taken up by different countries with regards to control of drug misuse in sports. Certain countries eg. Norway and Denmark, carry out testing not only in competitions but also in training, with particular emphasis on the control of misuse of anabolic steroids. Other federations oppose testing or are indifferent to the problem. American football is renowned for the widespread use of illicit drugs in the sport. Not infrequently, competitors claim for damages after drug administration.

At the 1982 World Cup in Spain, testing was only carried out for stimulants and narcotics, but not for anabolic steroids. Sports such as Rugby and International tennis have not introduced any controls to date, as they claim they are *clean*. Despite halting the escalation of drug misuse, dope control has failed to eradicate the problem completely. Pressures to succeed are immense. Financial advantages being gained by athletes are always on the increase. Such

factors, and others, will perpetuate the problem of drug misuse. With the passage of time, the types of drugs misused will change. The present trend is towards the application of hormones and short acting drugs so as to try to avoid detection during anti-doping tests. The 1984 Los Angeles Olympic Games were a particular example of the great pressure on athletes to succeed both from patriotic or personal satisfaction point of view and from the financial aspect. The latest reports alleged the introduction of human growth hormone into the family of misused substances. Such reports, however, still await substantiation.⁷

The problem on drug misuse in sport in Malta has never really been delved into, for various reasons. First of all, it is not much of a problem really. Pressures for success are minimal. Maltese sportsmen are on the whole well conscious of their limitations, as do Sports administrators. Misuse of drugs, mostly stimulants, is known to occur but cases are probably few and occasional. Such sports as weight-lifting and body-building, as well as soccer, could be prime offenders but evidence is lacking.

References:

1. **Beckett** 1976 The Olympic games
2. British Journal of Sports Medicine 9,11,12
3. **Hanley D.F.:** (1979) Sports Medicine and Physiology
4. **Sherlock S.:** (1969) Diseases of the Liver and Biliary Systems 4th edition
5. J. Am. Med. Assoc.
6. J. Phys.
7. Sunday Telegraph August 1984

IOC Medical Commission

The Medical Commission decided to include classes of drugs only if suitable methods of analysis were available. Thus, although anabolic steroids were increasingly misused since the early 1960's, the class was not banned definitively until 1974.

Banned Compounds — Classes

1. Psychomotor Stimulants

amphetamine, benzphetamine, chlorphentermine, cocaine, diethylpropion, dimethylamphetamine, ethylamphetamine, fencamfamin, meclofenoxate, methylamphetamine, methylphenidate, norpseudoephedrine, pemoline, phendimetrazine, phenmetrazine, phentermine, pipradrol, prolintane, and related compounds.

2. Sympathomimetic Amines

clorprenaline, ephedrine, etafedrine, isoethrane, isoprenaline, methoxyphenamine, methylephedrine, and related compounds.

3. Miscellaneous CNS Stimulants

amiphenazole, bemegrade, doxapram, ethamivan, leptazol, nikethamide picrotoxin, strychnine, and related compounds.

4. Narcotic Analgesics

anileridine, codeine, dextromoramide, dihydrocodeine, dipipanone, ethylmorphine, heroin, hydrocodeine, hydromorphone, levorphanol, methadone, morephine, oxycodone, oxymorphone, pentazocine, pethidine, phenazocine, priminodine, thebacon, and related compounds.

5. Anabolic Steroids

clobestol, dehydrochlormethyltestosterone, fluoxymesterone, mesterolone, methenolone, methandienone, methyltestosterone, nandrolone, nandrolone decanoate, nandrolone phenylpropionate, norethandrolone, oxymesterone, oxymetholone, stanozolol, and related compounds.