

Performance Enhancing Drugs in Sports

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Abstract – Professionalism and commercialism ultimately led to corruption. Bribing and cheating became common place, and competitors of this period were reputedly willing to ingest any preparation which might enhance their performance. There is simply too much money involved in national and international level sports today. One needs to understand that the officials in charge of operating sports at the amateur level need world class performance to keep their business rolling forward. The sad thing is that people do not pay to watch loser, and corporations don't sponsor teams that can't bring the gold. The athletes and the officials realize this, so they are they are willing to do whatever it takes to win. According to IOC, the use of doping agents in sports is both unhealthy and contrary to the ethics of sports. It is necessary to protect the physical and spiritual health of athletes, the value of fair play and of competition, the integrity and unity of sports, and the right of those who take part in at whatever level. At that time a list of banned substances was released by IOC which included narcotic analgesics and stimulants, which comprised sympathomimetic amines, psychomotor stimulants and miscellaneous central nervous system stimulants.

INTRODUCTION

The use of drugs in an attempt to improve sporting performance is often referred to as doping. The word 'dope' originated from the South African language. 'Dope' referred to a primitive alcoholic drink that was used as a stimulant in ceremonial dance. Gradually the term adopted a wider usage and in reference to sports, it became as 'Doping' in today's sporting context. A drug is a chemical substance that, when absorbed into the body, can alter normal bodily function. Many drugs have been banned in sport if they are deemed to provide an unfair advantage, pose a health risk, or are seen to violate the 'spirit of sport'. The use of banned drugs by athletes is referred to as 'doping'.

Most athletes take drugs to enhance their physical performance in an attempt to prevent them falling behind other competitors, even if it does mean damaging their health and risking their sports careers. Other athletes may use drugs to help them wind down and relax, to cope with the pressures and stress associated with a constant battle to win all the time, to boost their own self-esteem and confidence, to mask the pain of certain sports injuries, to control and reduce weight, and to hide the use of any other banned substances.

Dope testing was originally scheduled after a competition had taken place. Athletes having taken part in an event knew there was a possibility that they could be selected for testing. To counter this, athletes started to reschedule their drugs use to the training period and to calculate clearance time in the body. It

was evident reschedule their drugs use to the training period and to calculate clearance time in the body. It was evident that the testing programmed would also required changes. Testing out of competition was introduced and found to be a useful deterrent as athletes could be testing at any time. Sydney Olympic have been the most drug-testing Olympics in history, with more than 3000 in and out of competition tests carried out and testing of Erythropoietin (EPO) was introduced for the first time in Sydney Olympics.

The wide's spread use of drugs in sports however began in 1960 Rome Olympic. In this Olympic one of the cyclist was died after competing cycle race because he has taken 'Ronical' (a type of drug). After this incident the drug test in Olympics began from 1968 Mexico Olympic. In India there is only one dope control centre which is situated at Jawaharlal Nehru Stadium, New Delhi, but it is just like a drop of water in the Ocean. This is the reason that Indian sports person gave good result freely to enhance the performance, it was also one of the News of 'Aaj Tak' Channel that Indian athlete's gives better performance in domestic competition in comparison to international due to the use of banned drugs.

There are three major reasons why drugs are banned:

HEALTH CONCERN- Some drugs used by athletes can have serious effect on an individual's health.

ETHICAL CONCERN: The use of certain drugs, which do not pose a major health risk, but may offer a performance advantage over other athletes.

LEGAL CONCERNS: Some drugs banned due to they are illegal in general society, e.g. Cocaine.

EARLY GAMES

By 800BC the Greeks had incorporated sport into their lifestyles to similar extent as the cultural and religious observations of the time. Athletic festivals were common in the Greek calendar. Emphasis was placed on the artistic nature of athletics as the preparatory role athletics played for warriors. Participants were required to write poetry, or perhaps display another artistic ability, as well as perform physical feats. Athletic celebrations of this time were also an important ability, as well as perform physical feats. Athletic celebrations of this time were also an important means of establishing the eographic, economic and political importance of an area or From about 400 BC sport achieved a status in the social life of Greece similar to, if not greater than, its place in society today. Mass spectator sport was the order of the day and rich prizes for winners led to the emergence of a class of highly paid sports people, resulting in the demise of the amateur competitor. Writings from the time of plato reveal that the value of a victory in the ancient Olympics was the equivalent of nearly half a million dollars. This was complemented by other rewards including food, homes, tax exemptions and even deferment from the armed services. Reg Professionalism and commercialism ultimately led to corruption. Bribing and cheating became commonplace, and competitors of this period were reputedly willing to ingest any preparation which might enhance their performance, including extracts of mushrooms and plant seeds.

ROMAN PERIOD

The increased status of sport and the elevated position of athletes continued into the Roman period. However, the Romans adopted different sporting activities to the Greeks. Spectatorship thrived at gladiatorial competitions and chariot races, and these sporting events reigned as a source of public entertainment. The Coliseum was restructured in 100AD to hold 60,000 spectators. The use of drugs during this period has also been recorded. Chariot racers fed their horses a potent mixture to make them run faster, while many gladiators were 'doped-up' to make their fights sufficiently vigorous and bloody for the paying public.

CHRISTIAN ERA

The onset of the Christian era signaled the demise of these early games. The blood-letting nature of many of the Roman 'sports' was unacceptable to the new order of society. Eventually in 396 AD the Emperor Theodosius called an end to the ancient games with a rule banning all forms of 'pagan' sports. While sports

such as wrestling and boxing were initially promoted as substitutes for the disfavored Roman activities, these were not widely accepted and their popularity as a form of sport subsided. Furthermore, the ethos that physical development hindered intellectual development was widely encouraged and accepted. Furthermore, the ethos that physical development hindered intellectual development was widely encouraged and accepted. It was not until the nineteenth century that sport reemerged. The impetus for this resurgence occurred in rural England and quickly spread throughout the rest of the world.

SPORT IN THE EARLY NINETEENTH CENTURY

Sport in the English society of the early nineteenth century was comprised largely of unstructured recreational activities. England was an agricultural and rural-based society and displayed form of physical activities that were casual, communal and regionalized in nature. The type of recreational activity mirrored the pace of society. Celebrations in respect of the harvest, or religious holidays such as Christmas, would bring the village together for a central form of entertainment.

Typical celebrations consisted of:

- ◆ Drinking and dancing
- ◆ Games such as sack races, leapfrog and pig chasing
- ◆ Activities like cockfighting and boxing matches
- ◆ Football games with over 1,000 players on a field several miles long.
- ◆ The onset of industrialization and urbanization transformed the pattern of these rural games.
- ◆ The industrial Revolution had a significant impact on all aspects of sport and recreation.
- ◆ Technology was used to develop new equipment in sports such as golf, tennis and cricket.
- ◆ Other inventions also had a major impact, for example, the electric light which permitted the playing of games at night. A number of developments occurred that changed the format of traditional activities.

These included:

- ◆ Restrictions of time and space
- ◆ Formation of clubs and organized competitions

- ◆ Restriction on the number of players
- ◆ Development of rules
- ◆ Standardization and modification of equipment as the old forms of activities were modified, new sports such as rugby union, roller skating and ten-pin bowling emerged, while activities like animal baiting and cockfighting lost popularity and were eventually banned. Two significant outcomes of the increased involvement and interest in sport were commercialism and professionalism. Mass spectator sport replaced the communal festival and religious celebrations of earlier times, Crowds at major soccer matches grew from a few thousand during the middle of the nineteenth century to over 100,000 by the early 1900s. Sporting facilities such as major stadiums were built and sporting events received greater coverage in newspapers and specialist magazines. Soon the professional sports person took a place in society. Sport was no longer a frivolous activity to be played solely in free time. Sport, for some, now became a profession.

SPORT AND THE TWENTIETH CENTURY

By the turn of the century, sport was resuming a place similar to that which it held in Greek and Roman societies. Further advances in technology combined with social, economic and political developments influenced sports development during the twentieth century. During the twentieth century, sporting activity has gradually evolved into a 'big business' providing a significant, world-wide source of entertainment, revenue and employment. Sport has also developed into a significant social institution and to succeed in sport has become highly valued. This pressure has contributed to the escalation in the incidence of drug taking and the number of drug related deaths within the sporting community.

THE BANNED SUBSTANCES AND TECHNIQUE FALL INTO THE FOLLOWING GATEGORIES:

- ◆ Stimulants
- ◆ Narcotics
- ◆ Anabolic agents
 - (a) Anabolic androgenic steroids
 - (b) Beta-2 agonist
- ◆ Diuretics
- ◆ Peptide hormones, mimesics and analogues

- ◆ Beta blockers

STIMULANTS

This group of drugs includes psychomotor stimulants, sympathomimetic amines and miscellaneous CNS stimulants. They may produce alertness, wakefulness and an increase in the ability to concentration. Amphetamines and its derivatives, ephedrine, phenylpropanolamine, caffeine and cocaine are among the most common central nervous system stimulants used by athletes. The problem of stimulants in sport reached public attention in 1960 when the Danish cyclist Knut Jensen died in the Rome Olympics and it transpired that he had been taking amphetamines.

NARCOTICS

Narcotics are derivatives of the opium poppy and include morphine, pethidine and diamorphine (heroin). They are commonly used in the management of moderate to severe pain. Narcotics are not perceived as ergogenic drugs. However, their use, misuse and abuse potential in sports may be high because of pressure on the athlete to perform competitively despite varied muscular skeleton injuries or as an emotional escape. These drugs are banned so as to limit the potential abuses which may lead to career ending injuries as well as reduce the risk for tragic addictions.

ANABOLICAGENTS

Anabolic steroids are a generic term for male hormones. The idea behind their abuse in sport is that they promote muscle growth and protein synthesis. However, abuse also has side-effects such as cardiomyopathy, atherosclerosis, hypercoagulopathy, hepatic dysfunction and psychiatric and behavioral disturbances. They may be used for hypogonadism or diseases such as aplastic anemia but such people are unlikely to compete at an elite level.

Female hormones also have anabolic effects, although not as marked as male hormones. Athletes who return to training after pregnancy often find that they are stronger than they were before.

DIURETICS

The main reason for wishing to use diuretics is to produce more dilute so that illicit substances are not detected. For this reason they are banned. They may also be used in sports with weight categories, such as judo and weightlifting. The competitor can dehydrate, make the weight at the weigh-in and then dehydrate before the competition, as even dehydration can ebb fitness significantly. Diuretic use in sports to reduce weight so as to participate in

lower weight categories e.g. boxing, weight lifting and judo.

PEPTIDE HORMONES, MIMETICS AND ANALOGUES

This type of substance e.g. human chorionic gonadotrophins (LH) prohibited in male only, Corticotrophins (ACTH), Human growth hormones, Insulin, Erythropoietin are used in sports to encourages muscle growth and prevents fatigue mainly for events requiring endurance, power and strength.

BETA BLOCKERS

These type of substance used in sports needing concentration and stability like Shooting, Archery, Billiards, Golf and Automobile, After taking these substance you are very calm and steady, your heart rate breathing rate slow down and you concentrate on target easily. Beta blockers were added to the IOC list of prohibited substances in 1985. The IOC has decided that beta blockers will only be tested for in those sports where they are likely to enhance performance.

NICOTINE AND ALCOHOL

- ◆ Nicotine is highly addictive and is taken into the bloodstream through smoking. It raises the heart rate and blood pressure.
- ◆ Alcohol contains ethanol which acts on the part of brain responsible for a negative effect on athlete performance performance, impairing reaction time, hand-eye coordination, accuracy, balance, speech and gross motor skills and strength. It's very bad for sports. Alcohols are prohibited in-competitions only.

PROHIBITED METHODS

- ◆ Blood doping
- ◆ Artificial oxygen carries or plasma expanders
- ◆ Pharmacological, chemical and physical manipulation

BLOOD DOPING

Blood doping is the administration of blood, red blood cell and related blood products to an athlete to increase the red blood cell mass. The aim of the procedure is to increase the red blood cell mass and therefore increase the oxygen carrying capacity of the blood. Improved endurance may occur as a result of blood doping. Blood doping is used by athletes in aerobic athletic activities for example long distance running, cross country, skiing and cycling. Blood doping has been prohibited by the IOC.

ARTIFICIAL OXYGEN CARRIES OR PLASMA EXPANDERS

Artificial oxygen carries are chemical used to increase the ability to carry extra in the blood. Artificial oxygen carries are of potential use when human blood is not available: the risk of blood infection is high or when times to proper undertake cross-matching donated blood with a recipient is short.

Plasma expanders are used to expand the volume of plasma in the blood. Examples are: Haemaccel, Albumex and Gelofusine. They are mainly used in medicine to replace fluid in case of severe shock.

PHARMACOLOGICAL CHEMICAL AND PHYSICAL MANIPULATION

Pharmacological chemical and physical manipulation is the use of substances and of methods that alter, attempt to alter or may reasonably be expected to alter integrity and validity of urine sample used in doping controls.

Drugs/Methods	Side effects
Stimulants	Hide fatigue, Increase anxiety, Heart rate, Blood pressure
Narcotics	Mood disturbances, vomiting, constipation, respiratory depression, Hypotension, Addiction (Physical and psychological)
Diuretics	Dehydration, hypotension, muscle cramps, muscle weakness, low BP, Headaches, nausea, dizziness
Peptide hormones, mimitics And analogues	Higher risk of stroke, acne and muscle temper, abnormal growth, High BP, diabetes, arthritis
Beta blockers	Upset stomach, fatigue, depression, nightmares, sexual dysfunction, Bronchospasm, dizziness
Blood doping	Allergic reactions, blood born diseases as hepatitis B,C and HIV, High BP, kidney failure, overload on the circulatory system
Artificial oxygen carries and Plasma expanders	Hypertension, vasoconstriction,

kidney damage and iron overload

There are a large number of reasons why an athlete decides to take drugs. Selections are listed here:

- ◆ Pressure to succeed, either from themselves or caches/family.
- ◆ Belief that their competitors are taking drugs.
- ◆ Pressure from governments/national authorities Financial rewards for outstanding performance. Lack of access to, or funding for training facilities and additional support (nutrition, psychological support)
- ◆ Community and media attitudes and expectations of success.

GETTING DRUGS OUT OF SPORT

There is a constant battle between those seeking new techniques to detect illicit use of performance enhancing substance and those who wish to circumvent the rules. Testing is vigorous and can be unannounced and the penalties for being discovered are severe. Nevertheless, there are and always will be those who attempt to use illicit ways of enhancing performance to get the necessary slight edge that is required to win. From time to time illegal substances are discovered. In British sport this should not be seen as evidence of widespread abuse of drugs but evidence that a vigorous and effective system of monitoring is in place. Some would argue that the only way to get a 'level playing field is to lift all bans on drugs and let us push human endurance to the limit. Records have tumbled with new technologies going back to spikes and starting blocks and including modern running shoes and fiberglass poles for vaulting. Should we encourage the same with pharmacological technology?

This is a false athlete is free argument, as the banned substances are not without significant risk. It cannot even be argued that the athlete is free to make his or her own choice because if the opposition uses drugs to gain advantage, he or she will have to do the same to be able to compete.

The 2012 London Olympics acted as a stimulus for UKAD, the UK anti-doping organization affiliated to WADA, to strengthen its anti-doping initiatives. These were brought together under the umbrella of its win clean: Say No to Doping' campaign.

WORLD ANTI DOPING ANENCY

WADA (1999) was founded with the belief that 'athletes have a fundamental right to participate in doping-free sport and that doping endangers athlete

health and the integrity of sport'. It serves as the independent international body responsible for coordinating and monitoring the global fight against doping in sport.

OTHERS ORGANIZATION

Structuring a system (e.g. National anti doping agency, National Olympic committee, national sports association , Government department, sports federation, independent National anti doping organization, others.

Planning activities (Seminal, conference, lectures, coaching classes)

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