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Doping in sports

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Abstract

Physical exercise and exertion impose an increased demand of nutrients and oxygen on the body. To achieve this, some sports persons resort to pills and injections as shortcuts to success. The use of drugs in sports goes back centuries, about all the way back to the very invention of the concept of sports. In sports, doping is the administrations of or used by a competing athlete of any substance foreign to the body or any physiological substance taken in abnormal quantity or taken by an abnormal route of entry into the body with the sole purpose of increasing in as artificial and unfair manner his/her performance in competition. In November 1999, the World Anti-doping Agency (WADA) was founded as an independent foundation with equal representatives from the Olympic Movement and Public authorities. The creation of WADA is one of the most recent and impressive examples of collaboration in international sport. "Think positive - test negative" is the message of WADA to every athlete in all sports. Gene doping, blood doping, blood doping, and human growth hormone are the future challenges in the field of doping agents and improvement of detection techniques. In formation and education should be provided to athletes as well as to the society.

Keywords: Doping, sports, Physical exercise

Introduction

At heart, sport, today, has become badly competition-oriented. No one is bothered how players play the game, keeping the Olympic ideal in mind; every one is interested in and concerned with whether you, as a representative of your institution or nation won or lost the game. This "win-at-all-cost" outlook make the athletes and their trainers go crazy after "winning" caring little for the legitimacy of the means and methods they adopt to accomplish their objective. That is why, competition, at its most basic level, appears to drive athletes to do whatever it takes to win. Perhaps the needs to win at all costs is a Darwinian response, an adoptive mechanism.

In sport, as in life, there are always people out here who do not care about the rules of the game, and take recourse to cheating. The only concern to them is winning and having all the glory. Whether the sport is amateur or professional, there is no exception. Athletes try every means of cheating, but, of course, with all the cameras, officials, and spectators at the sport venues and arenas, they cannot cheat in ways the people can spot them out. So they have come out with unbelievably exotic methods of cheating which leave officials and others guessing and groping in the dark all the time. The so-called "perfect" way of cheating prevalent in the top amateur and professional athletes these days is called doping. The menace of doing in sport has not only risen to the alarming proportions but also become a multifaceted dragon thanks to the fast developing technology.

Defining Doping

In sports, doping refers to the use of performance-enhancing drugs, particularly those forbidden by organizations that regulate competitions. Doping is mostly done to improve athletic performance. It comes in various forms. One common form of doping is orally taking pills containing banned substances; another is injecting into the body such substances as are prohibited on health grounds. Yet another form of doping is blood doping either by blood transfusion or use of the hormone erythropoietin (EPO) steroid Ttrhydrogestrinone (THG). Also considered "doping" by many is the use of substance that mask other forms of doping.

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The origin of the word 'doping' is traced to several sources. Firstly it is said to have been derived from 'dop' and alcoholic drink used as a stimulant in ceremonial dances in 18th. century Southern Africa. Secondly, some people think that the word 'dope' evolved from the Dutch word 'doep' (a thick dipping sauce) that entered American slang to describe how robbers stupefied victims, by mixing tobacco with the seeds of *Datura stramonium*, known as jimsonweed, which contains a number of tropane alkaloids, causing sedation, hallucinations and confusion. By the end of 19th. century, 'dope' came to be used in connection with the preparation of a thick viscous preparation of opium for smoking, and later is extended to any stupefying narcotic drug. Finally, dope was also defined as 'a preparation of drugs designed to influence a racehorse's performance'.

In 1963, the Council of Europe, with the approval of IOC, defined doping as "The administration of or use by a competing athlete of any substance foreign to the body or any physiologic substance taken in abnormal quantity or taken by an abnormal route or entry into the body with the sole intention of increasing in an artificial and unfair manner his/her performance in competition. When necessity demands medical treatment with any substance which, because of its nature, dosage, or application is able to boost the athlete's performance in competition in an artificial and unfair manner, this too is regarded as doping."

Earlier the IOC Medical defined doping as "the use of certain substances and methods intended to enhance and/or having the effect of enhancing athletic performance, such practices being contrary of medical ethics." With the rising number of harmful performance-enhancing drugs and diversification of 'doping' methods, the Olympic Movement Anti-doping Code, as articulated in the recent World Conference on Doping defined doping as articulated in the recent World Conference on Doping defined doping "as the use of an artifice, whether substance or method, potentially dangerous to athletes, health and/or capable of enhancing their performances, or the presence in the athletes, body of a substance or the ascertainment of the use of a method on the list annexed to the Olympic movement anti-doping code.

History

The spirit of sport is the celebration of the human spirit/the body and the mind. Physical exercise and exertion impose an increased demand of nutrients and oxygen on the body. The body can meet the demand only up to a certain level beyond which exhaustion sets in. To achieve this, some sports persons resort to pills and injections as shortcuts to success, as they do not understand that good genes, scientific coaching proper nutrition and dedication to task are what ultimately bring them success. The origin of the word "doping" has many suggestions. One is that it is derived from "dop" and alcoholic drink used as a stimulant in ceremonial 'RSLQ dances in the 18th century Southern Africa. Another suggestion is that the word comes from the Dutch word "doop" (a thick dipping sauce) that entered American slang to describe how robbers stupefied victims by mixing tobacco with the seeds of *Datura stramonium* known as jimsonweed, which contains a number of tropane alkaloids, causing sedation hallucinations and confusion [2, 3]. By 1889 "dope" was used in connection with the preparation of a thick, viscous preparation of opium for smoking, and during the 1890, this extended to any stupefying narcotic drug. In sports, doping is the administrations of or used by a competing athlete of any substance foreign to the body or any physiological substance taken in abnormal

quantity or taken by an abnormal route of entry into the body with the sole purpose of increasing in an artificial and unfair manner his/her performance in competition.

The first recorded during death in 1886 when cyclist Linton Redrenn overdosed on tri-methy during a race. In 1967, another British cyclist Tommy Simpson died during a televised Tour de France race. The public outrage led the Olympic Committee to establish a special commission to study doping in sports. In 1984, one-third of the US cycling team received blood doping transfusions before LA Olympic Games, where they went on to win a record of nine medals. Perhaps, the most sinister of all is the publication of the book "Faust's Gold" which gave an in-depth look at the systematic doping machine implemented by the German Democratic Republic (GDR) in 1970. Many of the athletes were given performance-enhancing agents and around 142 former female athletes experienced androgenic changes. It is estimated that around 10,000 athletes were processed through the GDR doping machine. In 1988, a famous case of illicit use of androgenic steroid in competition was Canadian. Ben Johnson's victory in the 100 m at the 1988 summer, Olympics. He failed the drug test when stanozolol was found in his urine. He later admitted of using steroid as well as Dianabol, testosterone, cypionate, furazabol, and human growth hormone (HGH) among other things. Johnson was, therefore, stripped of his gold medal and lost his recognition of what has been a world record performance. This was in number of respects, a watershed in the history of doping in sports. This event generated huge media coverage, and it raised public awareness about doping in sports. Major doping scandal in the 1998 Tour de France cycle race will come to be regarded as a second watershed, both in terms of the amount of media coverage which it generated and in terms of the amount of information about the systematic organization of doping in professional cycling. Where the entire Festina team was excluded from the Tour de France following the discovery of a team car containing large amounts of various performance-enhancing drugs. The team director later admitted that some of the cyclists were routinely given banned substances. Recently, Martina Hingis, the tennis superstar tested positive for cocaine in Wimbledon 2007. Consequently, she received a 2 years ban but decided to quit the sports altogether. She made a comeback in 2013 playing doubles; however, it was no match for her glory days. Lance Armstrong was world number one in 1996. In the same year, he recovered from severe testicular cancer and continued to break records and win his seventh Tour de France in 2005. After beating cancer and breaking records, he was accused of doping. On 22 Oct. 2012, Lance Armstrong was stripped on his Tour de France titles since 1998. Even in Asian countries such as Pakistan Shoaib Akhtar and Mohammad Asif, the Fast bowlers tested positive for the performance-enhancing drug nandrolone before Pakistan's opening match of the champion's trophy against Sri Lanka in 2006. India has been making strides on the international sports scene and now has been associated with what often comes with success - A doping scandal. Indian weight lifters, Karnam Malleswari, Kuntejaurani, Tejinder Singh and Edwin, were banned after they tested positive for banned drugs. Indian team players in the 4 m × 400 m relay squad that won gold at the Commonwealth and Asian Games were among eight track and field athletes banned for out of competition doping violations. No game is spared from doping. In Kabaddi world cup 2011, India lifted the title. It was found out later that 53 players including an Indian player were tested positive for

anabolic steroids. Most recently, Pradeep Sangwan, who played for Kolkata Knight Riders in the sixth edition of the Indian premier leagues in 2013, was the first Indian professional cricketer to be banned after he had tested positive for stanozolol, a prohibited steroid which was found in his urine sample.

The Aim behind Doping

In order to enhance their performance, sports use specific “methods”, which optimize the qualities needed for their sport, on the basis of various physiological, biological and psychological factors.

According to a wider spread opinion, “upstream” doping, used for the above-mentioned aim, is bad and should be distinguished from downstream or good doping, meant to help athletes recover their physiological and biological balance. In fact, both types of doping are complementary, since they artificially boost the body’s abilities, the second type of doping aiming to make up for the negative effects of the former.

Aerobic potential can be increased by increasing the boold’s oxygen transfer capacity, This is very important in sports requiring staying power, rely on the body’s energy metabolism, or require intense effort and varying sources of energy. After long-lasting or intense effort, glycogen reserve must be restored. A specially adapted nutritional strategy and drugs are then needed to modify the metabolic process. Methods include altitude training, self-transfusion, more recently, recombinant EPO, and, of course, glucocorticoids, etc.

When the aim is to increase strength and muscular power and improve technique, protein, natural or synthetic agents are frequently used, in combination with hyper-protein diets and muscle-building exercise. The balance between the increase in muscle mass and the loss of fat mass can be maintained thanks to growth hormones associated with amino acids or other drugs with anabolic properties (but whose initial medical purpose is other), or with nutritional supplements.

To postpone fatigue and enable the body to reach its utmost limits, one can use analgics, cardio-respiratory analeptics, central nervous system stimulants, several of which are strong, anti-depressants and stimulants.

In sports where body features or size, tall or short, are important, such as body-building, the shape of the body can be modified through hormonal manipulations.

In order to flight stress, facilitate sleep, remain in good physical shape, various drugs such as benzodiazepine derivatives and amphetamines, canabinoids, alcohol, beta-blockers are used. For discipline where it is important to stay alert, the sleeping-waking rhythm can be controlled, thanks to phetamines or more recent drugs.

Finally, cultural and individual factors also play a role in drug taking behavior. On the one hand, as it concerns men, value is placed on the mesomorphic body type and muscular strength; physical stereotypes are spread by the media and the athletic subculture. On the other hand, one must take into account factors such as low self-esteem, or other pychological problem linked to for example to one’s body image and which existed prior to drug-taking. Illicit drugs are of course taken on the sly. Several ways of hiding the fact exist; for instance, diluting urine, haemodilution, reducing kidney tubular secretions or the testosterone/espitestosterone ratio.

Saving Soul of Sport

Many sports organization have banned the use of

performance-enhancing drugs and have very strict rules and penalties for people who are caught using them. The International Amateur Athletic Federation now the International Association of Athletics Federation now the international Association of Athelatics Federation was the first international governing body of sport to take the situation seriously. In 1928, they banned participants from doping but with little in the way of testing available, and they had to rely on the word of the athlete that they were clean. It was not until 1966 the FIFA and Union Cycliste International (Cycling) joined the IAAF in the fight against drugs followed by the international the International Olympic Committee in 1967 ^[11]. In November 1999, the World Anti-doping Agency (WADA) was founded as an independent foundation with equal representatives from the Olympic Movement and Public authorities. The creation of WADA is one of the most recent and impressive examples of collaboration in international sport ^[12]. “Think positive - test negative” is the message of WADA to every athlete in all sports. It helps nations to enhance and develop effective anti-doping programs. It works for promotion and coordination of research. Its primary interest lies in new substances and methods used by athletes and in psychological and sociological aspects of doping. Updating, modifying, and adapting the common list of prohibited substances and methods is another responsibility of WADA.

Anti-doping research contributes to the development and implementation of the efficient program for the control of doping and to provide much-needed information and education regarding doping to the concerned sports bodies as well as the public. It unutilizes research, analytical services, and education to identify dangerous and banned substances in sports and help halt their use. Testing and analysis of samples are done in WADA-accredited laboratories, and the results are reviewed and notified and appropriate action taken including suspension from athletics and forfeiture of medals, points, and prizes.

NADA

National Anti-Doping Agency also referred to as NADA is the national organisation responsible for promoting, coordinating, and monitoring the doping control program in sports in all its forms in India. As listed on its official web portal, NADA deals with adopting and implementing anti-doping rules and policies which conform with the World Anti-Doping agency, cooperates with other anti-doping organizations and promotes anti-doping research and education

Banned Drugs

i. Substances and methods prohibited at all times (in and out of competition)

- a. Anabolic androgenic steroids
- b. Peptide hormones, growth factors, and related substances
- c. Beta-2 agonists
- d. Agents with anti-estrogenic activity
- e. Diuretics and other masking agents
- f. Enhancement of oxygen transfer
- g. Chemical and physical manipulation
- h. Gene doping.

ii. Substances and methods prohibited in competition.

All the categories under Section I, plus

- a. Stimulants
- b. Narcotics
- c. Cannabinoids.

- iii. Glucocorticosteroids
- iv. Substances prohibited in particular sports
 - a. Alcohol
 - b. Beta blockers.

Test Methods

Under established doping control protocols, the participant will be asked to provide a urine sample which will be divided into two, each portion to be preserved within sealed container bearing the same unique identifying number and designation, respectively, as A- and B-samples. The WADA's Executive Committee and Foundation Board decided that an athlete whose A-sample has revealed the presence of a prohibited substance or method to request the analysis of his or her B-sample. The B-sample helps conform that an anti-doping rule violation has occurred and protected the rights of the athlete.

III- Effects of Doping:

The recent doping scandals and ever diversifying doping practices in sport competitions just for petty gains, are indicative of the potential threat to more than just the world of sports, especially in terms of health and well being for the doping issue has reached such proportions that it now concern society as a whole. As the stakes involved in sport grow higher and the phenomenon more widespread, the moral values attached to sport are increasingly called into question and the health of athletes increasingly at risk. Doping is now being considered as a crime against health of those who use drugs to enhance performance.

In the first place, it involved potentially fatal risks to health. Several incidents and accidents point to this bitter reality. In 1886, Arthur Linton died during the Bordeaux-Paris race. In 1904, the marathon runner Thomas Hicks collapsed after winning the Saint-Louis Olympics: he had taken strychnine. Dorando Pietri died in London in 1908 for the same reason. In 1960, the cyclist K. Jensen died during the 100km road run in the Rome Olympics. The drug Ronicol was blamed. In 1967, Tom Simpson, a professional world cycling champion, collapsed and died while climbing the Mont Ventous after having taken amphetamines. In 1975, anabolics killed Kangasniemi, a weight lifter. His muscles gave in under the weight and the iron bar fell down, breaking his spine.

These grave accident, the there are many more, are well-known. It would be difficult to ignore them, since they happened during competitions, in view of the public and TV cameras. This, however, is only the visible part of the damage done by doping: indeed, little is known about its effects once the athlete has left the sports arena or given up his/her career. We do know for a fact that several great champions suffered from serious health problems after leaving sport. And we also know that there is a direct relationship between certain drugs and certain health problems, such as heart disease or cancer: the existence of a causal relationship between doping and disease thus appears increasingly probable. However, an additional difficulty resides in the fact that some substances are very often used together with another, main, drug, that some substances of the same nature (but bearing different names) are used together, and that these cocktails undeniably have a positive effect on performance.

Secondly, potentially dangerous are drug cocktails. No single drug can satisfy the numerous demand made on athletes to improve performance, stimulate staying power, sustain effort during training, and eliminate stress. For this reason, he/she can be tempted to use drug cocktails, either a s "scientific doping" and/or as "easy" doping, the latter being used by

athletes with limited financial means. These "cocktails" can be made up of different drugs whose combined effect increases their power, or of similar drugs with different names, which, when taken together, bring the dosage to toxic levels. Among these combinations are: amphetamines combined with corticoids, cardio-respiratory analeptics or cocaine, caffeine or ephedrine; EPO with aspirin and/or an anticoagulant, or natural or synthetic glucocorticoids; to recover strength, a combination or glucose-enriched serum added to insulin, IGFI, and as a supplement, androgens, GH, beta 2-agonists. The list of possible combinations is much longer, since cocktails are elaborated and adapted according to need.

Thirdly, doping leads to pharma codependency. Several doping substances used by athletes are considered by psychiatrists as addictive, leading to drug abuse and dependence, and their psychological effects and impact on behavior have been described in the contest of the study of dysfunctions linked to drug use. Caffeine intoxication can lead to nervousness, overexcitement, insomnia, or attacks or anxiety in certain persons. Cocaine or amphetamine intoxication can cause hyperactivity, anxiety, stereotyped and repetitive behaviour, anger and violent behaviour altered judgement. Their chronic use can cause dulled emotions, fatigue, sadness, social withdrawal, or, as concerns cocaine, persecution mania and aggressiveness. According to De Mondenard (1991), marijuana, which is used by some athletes either for its disputed stimulating effect or for the feeling of calm it provides before an event, can sometimes cause anxiety, dysphoria and social withdrawal.

Fourthly, clinical and biological signs and drug abuse are indicative of an iatrogenic disease. Drug abuse can lead to the development or iatrogenic diseases which must be diagnosed early and with precision. The drugs used-generally in combination and at high dosages-provoke changes in the person taking them, modifies in his/her homeostasis, behaviour, and morphology. As a result, a clinical and biological semiology of doping with a diagnostic trees should urgently be drawn up as a diagnostic tool for physicians. This could serve as a deterrent against doping in sport and also spread awareness about it.

Finally, doping is potential breeding ground for psychopathological problems among athletes. Depending upon the kind of sports they play and the reason for which they resort to doping in form or another, athletes can suffer from variety of psychopathological problem. For example, problem linked to body image occur more frequently than average in body-builders taking anabolic steroids. These subjects often suffer from "reverse anorxia", feelings or dissatisfaction regarding their body, and bulimia. Amateur weight-lifters of the male sex taking high doses of anabolic steroids are more aggressive towards oibjects and verbally aggressive during training. Their periods of waking are longer and they are more irritable, anxious, suspicious and negative. Mood changes are more frequent and personal relationships more difficult when they are "on" drugs than when they are "Off", or than in non-users.

Conclusion

Despite the development and research, doping in sports is on the rise in elite, amateur, and school sports. Going with the nation of "once a cheat always a cheat" an effective anti-doping program must incorporate educational components in addition to testing. With "sports medicine" coming up as an emerging field it needs to be encourage in medical schools

Research needs to be undertaken on potential doping agents and improvement of detection techniques. Information and education should be provided to athletes as well as to the society.

The potential benefits to society and the individual from sports will only be maximized where fair play is ensured at all costs.

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