



HISTORICAL DEVELOPMENT AND EFFECT OF DOPING IN SPORTS

Dr. B. K. Bhardwaj, Associate professor

Baiswara P. G. College, Lalganj Raibareli

ABSTRACT

Today, there are a wide variety of banned substances in sports, including steroids, stimulants, and blood doping agents. Athletes who are caught using these substances face a range of penalties, including bans from competitions and loss of medals or titles.

Doping is thought to be morally and ethically reprehensible. It is a worldwide issue. Doping is the improper use of specific drugs and techniques to increase athletic ability and endurance since the body can carry more oxygen to the muscles while using such drugs. Consuming these chemicals has numerous negative side effects as they directly affect a person's health and can cause infections, allergies, heart conditions, stroke, pulmonary embolism, high blood pressure, acne, impotence in men, and changes to a woman's menstrual cycle. Doping can therefore directly affect sporting events. Both national and international anti-doping regulations have been created, but because there is no correlation between them, these rules are constantly at odds with one another. The International Sports Federation is working to combat the issue of doping by setting up awareness campaigns and effective medical care, but so far with little success. This is because athletes are adopting strong and covert drug-taking methods, which are challenging the fight against doping because it is getting harder for experts to identify these substances and drugs. Authorities must be aware of these modern substances and medications and enforce their prevention in order to promote fair competition. This research paper aimed to use the Doctrinal research method for doping analysis and provide a critical review of the literature on this topic with a focus on the doping problem, its impact, the actual application of doping, whether it is appropriate or not to enhance performance, all legislative and judicial approaches regarding doping, Indian laws dealing with doping, case laws on doping, obligations of State and judicial trends

INTRODUCTION

Athletes have always sought out ways to improve their physical capabilities and gain an unfair advantage over rivals, raising concerns about doping in sports. The usage of performance-enhancing drugs in sports dates back to the days of the ancient Greeks, who used various plants and mushrooms to enhance their athletic abilities. Athletes started using drugs like caffeine, strychnine, and cocaine in the late 19th and early 20th century to improve their performances. However, it wasn't until the development of anabolic steroids in the middle of the 20th century that doping became a significant issue in sports. In the 1960s and 1970s, anabolic steroids became popular among athletes looking for ways to gain muscle mass and strength quickly. These drugs were initially used primarily by weightlifters and bodybuilders, but their use soon spread to other sports, including track and field, cycling, and baseball.



As the use of doping in sports became more widespread, authorities began to crack down on it. In 1967, the International Olympic Committee (IOC) banned the use of anabolic steroids in the Olympic Games, and various anti-doping agencies were established to test athletes for banned substances.

Despite these efforts, doping in sports continued to be a problem, with new substances and methods of doping frequently being developed. In the 1980s and 1990s, blood doping - the practice of increasing the number of red blood cells in the body to improve athletic performance - became popular among endurance athletes.

The term "dop," which is typically used to describe a stimulant drink used in tribal ceremonies in South Africa during the eighteenth century, is where the word "doping" first appeared. Doping was initially characterised as a narcotic potion for lowering racehorses' performance in an English dictionary in 1889. Doping in sports has a long history. Ergogenic aids in the form of organic substances, tasteless chemicals, and animal extracts have been used to increase human performance ever since the Greco-Roman era. Amazing developments in science and biotech, recombinant hormones and genetic manipulation of athletes. Ergogenic aids are commonly used, misused and abused, to produce a broad scale of effects, ultimately improving performance, body weight, aggressiveness, mental concentration and physical strength, delaying fatigue and pain desensitization. There is increasing evidence that the use of dietary supplements and ergogenic aids is commonplace not only in competitive sports, but also in the daily life. In the latter case, unfair use of such substances is barely restricted or regulated regardless of the potential harms for the health, whereas in the former, there are several national and international bodies who adopt rigorous and expensive policies to prevent cheating in the athletic field. In sports, doping is conventionally referred to the use of performance enhancing drugs, particularly those that are forbidden by the organizations that regulate competitions. From the biological perspective, doping can be regarded as a multifaceted issue and targets all bodily functions including cerebral, metabolic, cardiovascular, respiratory, hematological and, in the very near future, genetic. Accordingly, athletes might take great athletic advantage from a variety of nutritional supplements and drugs, which have been originally developed to supply nutrients that are missing or not consumed in sufficient quantity in a person's diet or treat pathologies, respectively. However, some of these agents often turn out as effective means to enhance performances, attracting unaware athletes or regrettable coaches and physicians.

MEANING OF DOPING

Doping refers to the use of performance-enhancing substances or methods by athletes to gain an unfair advantage over their competitors in sports competitions. Such substances may include anabolic steroids, stimulants, hormone boosters, and blood doping agents. Doping is considered unethical and illegal in most sports, and athletes caught doping may face penalties such as suspension, disqualification, and loss of medals. Doping is defined as an occurrence of one or more of the following anti-doping.



-
- Presence of a performance enhancing drugs in a sample.
 - Use of a prohibited substance or method.
 - Refusing to submit sample after being notified
 - Failure to give where about in formation.
 - Tampering with doping control process.
 - Possession of a prohibited substance.
 - Trafficking of a prohibited substance.
 - Administrating a prohibited substance or method to an athlete.

HISTORICAL DEVELOPMENT OF DOPING

Doping, the use of performance-enhancing drugs in sports, has been a controversial issue for decades. The use of performance-enhancing drugs can be traced back to ancient times, where Greek and Roman athletes used substances such as hallucinogens and stimulants to improve their performance.

In the 19th century, the use of performance-enhancing drugs was widespread among British and American professional cyclists. The drugs used at the time included cocaine, strychnine, and caffeine, which were believed to improve endurance and reduce pain.

During the 20th century, the use of performance-enhancing drugs became more widespread in athletics and other sports. The International Olympic Committee (IOC) established a medical commission in the 1960s to study the health risks of doping, and in 1967, the IOC banned the use of stimulants.

The use of anabolic steroids began to rise in the 1970s, especially in weightlifting and bodybuilding. In response, the International Amateur Athletic Federation (IAAF) began testing for steroids in 1976, and the IOC followed suit in 1977.

The 1980s and 1990s saw continued use of steroids, as well as the development of new performance-enhancing drugs such as erythropoietin (EPO), which increases red blood cells and oxygen delivery. The use of EPO was implicated in several high-profile doping cases, including that of cyclist Lance Armstrong.

In an effort to combat doping, the World Anti-Doping Agency (WADA) was established in 1999. WADA has since developed and implemented the World Anti-Doping Code, which sets out the rules and guidelines for testing and sanctioning athletes who test positive for performance-enhancing drugs.

Despite WADA's efforts, doping continues to be a problem in sports. New drugs and methods of doping continue to emerge, and athletes have been caught using banned substances in almost every major sports event. The fight against doping in sports is ongoing, with the ultimate goal of promoting fair play and preserving the integrity of sports.

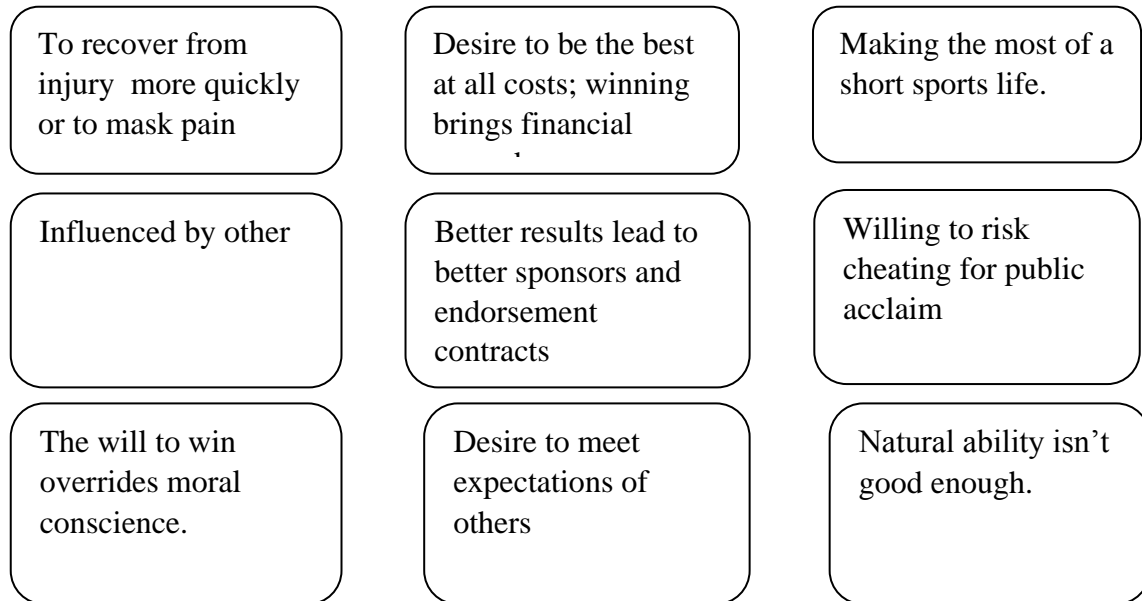


Over time, there have been several definitions of doping. Beckmann's sports dictionary describes doping as the use of performance-increasing substances, which would place the athlete on a superior position than that he would normally have obtained. The first official definition of doping dates from 1963 and it was issued by the European Committee Council: "Doping represents the use of substances or physiological mediators, which are not normally present in the human body, introduced as an external aid to increase the athletes' performance during a competition". According to the Anti-doping Convention of the European Council - "Doping in sports" means the administration or use of doping agents or doping methods by athletes. The doping agents or methods referred to are those doping agents which have been banned by the Anti-Doping Agency and which appear on a list of ineligible substances. "Athletes" are those persons normally participating in organized sports activities. Doping is not a modern term; in Norwegian mythology the use of performance/strength-increasing substances has been reported; as bufotenin, a substance known to increase the physical performance obtained from frogs skin or from Amanita mushrooms species. In ancient Greece, the use of prohibited substances was not discouraged, as specialists offered athletes various ingredients in order to increase physical performance; and this was considered absolutely normal, those who offered such substances being considered medical specialists in sports. Doping methods were used also in the Roman Empire, where racing horses were doped with various blends of substances aimed to increase their speed and stamina; also gladiators have been mentioned as users of strength-increasing agents. Doping was described in modern sports in the second half of the XIX century. During the Saint Louis marathon in 1904, Tom Hicks died as a result of using a mixture of cognac and strychnine. After multiple incidents in competitions, in 1928, the International Athletics Federation (IAF) became the first international federation to ban doping in athletic competitions; 32 years later anti-doping testing was implemented. Regarding the Olympics, the first official controls took place at the 1972 Olympic Games in Munich for conventional substances. Anabolic steroids were the first substances controlled at the 1976 Olympics in Montreal and as a consequence many athletes were disqualified and lost their medals. This led to a decision by the International Olympic Committee (IOC), which stated that the results of doping tests should be made public within the competition. That was the beginning of an open fight that begins in the 1980s between those seeking and finding new doping substances that are not yet on the antidoping list and the authorities that try to detect these substances. It is clear; however, that between these two sides there is a gap in favour of those interested in cheating. Introducing anti-doping controls outside competitions was a new milestone in the anti-doping campaign in 1989. In modern professional sports, many athletes have been tested positive with forbidden substances, perhaps the most publicized case being that of Canadian Ben Johnson, the famous 100 meters runner for the use of anabolic steroids. It was the first doping scandal in the history of the Olympic Games, which led to Johnson's suspension for two years and then for life, because he tested positive again in 1993. After the fall of the Iron Curtain, information about industrial, systematic and scientific doping from the former German Democratic Republic and in general from the communist states started appearing, with dozens of athletes experimenting the side-effects after the end of their career. This information revealed a negative aspect of sports history, unscrupulously used as a propaganda tool to demonstrate the superiority of the socialist society in which the athlete and his health represented nothing. Currently, doping is considered as any violation of the following rules: the use or attempt to use a forbidden substance or a prohibited method, refusal for sampling after receiving an invitation to doping



control in accordance with anti-doping rules, avoidance of sampling, falsification or attempt to falsify any part of the doping control, possession of prohibited substances and / or methods, trafficking or attempted trafficking of any prohibited substance and / or methods.

Why sports performance take drugs:



CURRENT SITUATION IN DOPING

Depending on the country's legislation, doping substances can be bought from pharmacies / supplement stores or, most commonly, from the black market. For a substance or performance improvement method to be classified as doping, it must meet at least two of the following three criteria: to improve performance, to present a hazard to the health of the athlete and to violate the spirit of sport. Other methods of improving performance such as blood transfusions are also included in the doping category. The number of doping substances is very high, and their individual cataloging is not the purpose of this article. Instead, we can make a general classification according to how they act. A classification from S0 to S9 (Table 1) for prohibited substances and from M1 to M3 (Table 2) for prohibited methods has been developed.



| Event/Regulation | Description |
|--------------------------------------|---|
| World Anti-Doping Agency (WADA) | Founded in 1999 to promote, coordinate, and monitor the fight against doping in sport worldwide. |
| Code of the World Anti-Doping Agency | A set of anti-doping regulations adopted by sports organizations worldwide to ensure fair play in sports and protect the health of athletes. |
| Athlete Biological Passport (ABP) | Introduced by WADA in 2009, the ABP monitors biological markers over time to detect changes that could indicate doping. |
| 2016 Rio Olympics | Russian athletes were banned from competing due to accusations of a state-sponsored doping program. |
| 2021 Tokyo Olympics | Russia was banned from competing as a country due to ongoing doping concerns, but some athletes were allowed to compete under a neutral flag. |

Table 2
Prohibited methods

| | | |
|---|--|--|
| M1. Manipulation of blood and its components | Administration of products containing red blood cells in the circulatory system | Increasing the amount of oxygen or its transport |
| M2. Physical and chemical handling | Altering the integrity and validity of the sample collected during anti-doping control | Intravenous infusions or injections of more than 50 mL for 6 hours |
| M3. Genetically doping | Transfer of polymers of nucleic acids or their analogs | Use of normal or genetically modified cells |

Since 2004, the World Anti-Doping Agency (WADA) has annually updated their Code and related documents that outline the official international anti-doping standards.

PERFORMANCE ENHANCING DRUGS

Performance enhancing drugs are banned from sports but this does not stop athletes from taking them.

Anabolic steroids: When these are taken the body breaks them down into smaller molecules that can enter cells and bind to a structure called androgen receptor. Normally testosterone binds to this but anabolic steroids can too. Once the androgen receptor is activated body starts to produce more proteins during the process of anabolism, the cells in the skeletal muscles start to replicate and this means muscles will start to grow and become stronger. Anabolic steroids help athletes train harder and recover faster by shortening catabolism the process in which proteins are broken down into amino acids but not all effects of anabolic acids are positive it can cause acne, high blood pressure and baldness in both men and woman, they can cause men’s testicle to shrink, decrease sperm count and increase risk for prostate cancer and women using these steroids can develop facial hair, a deepened voice and their periods may change or even completely stop.



Creatine: Creatine is produced by body to release energy from muscles. It can produce power and energy; these supplements are taken by weight lifters and sprinters. The effects of creatine are stomach and muscle cramps and weight gain.

Stimulants: Stimulants are used by athletes to increase blood pressure to stimulate brain and increase the rate of heart, this increases endurance power, reduce appetite and fatigue. Caffeine is a very common stimulant and is taken by athletes in large quantities in their energy drinks this makes them more alert and aggressive. The side effects of stimulants are heart diseases, dehydration, insomnia, addictions, and weight loss.

Diuretics: Athletes prefer diuretics as by this there is water loss from the body which reduces the weight. The side effects of diuretics are dehydration, dizziness, cramps and sometimes death.

Erythropoietin: It is used to increase endurance as it increases the oxygen flow to muscles by increasing the production of red blood cells in the body in 1990s eighteen cyclists died due to the erythropoietin. The side effects of erythropoietin are heart attacks and blockage of arteries of lungs.

Human Growth Hormone: It increase athletes sprinting capacity by up to 4% and increase muscle growth as well. The side effects of taking human growth hormone are pain in joints, weakness of muscles, diabetes, and hypertension and eye problems.

Blood doping: The goal of blood doping is to increase the amount of oxygen carrying red blood cells in the blood and this is usually done with either blood transfusions using own blood or by injecting with erythropoietin a molecule that stimulates the production of more red blood cells and the basic idea is that the more oxygen that can get to bodies muscles the more endurance. The side effects of blood doping are heart diseases as it becomes difficult for heart to pump blood due to the thickening of blood and cerebral embolism.

Gene Doping : Body cells or genes are manipulated by use of substances that improve performance. In 2003 WADA has added gene altering techniques to the list of prohibited substances however gene doping is not as popular as blood doping as it is costly and is risk oriented too. The side effects of gene doping are increased blood viscosity, hypertension, abnormal vision and headache.

Sportspersons usually are well versed with the fact that these performance enhancing drugs will affect their health and if caught will affect their career too. As their comes a time in the career of sportspersons that there performance is not improving despite of all training so they take these banned substances to improve their performance, coaches too at that time refer such substances to athletes, when a sportsperson is not ready for a competition they dope before some months to fool the test later, when facilitates are not available to sportspersons they take such substances, sometimes they directly don't take such substances but in other forms. Basically, the purpose behind doping is performance enhancement and winning and no fear of getting caught and what if got caught they always have another job.

CONCLUSIONS

Anti-doping organisations will always lag behind producers of new undetectable compounds with pharmacological qualities comparable to those of those already on the market in the fight against doping. The Anti-Doping Federation could benefit from the development of better, quicker, less expensive technologies as many of the chemicals used now are easily detectable. Doping is becoming more and more challenging to accomplish due



to the existence of rules, codes, anti-doping procedures, and biological passports. The money aspect is another important issue that can encourage doping; for certain athletes, getting sponsors and exposure through successful competition is more than enough incentive. Another factor endangering many athletes' position as "clean" athletes is injuries; their determination to compete again can result into competition can lead to compromises that can end their career. Coaches have an important role in athletes' doping, most of the time, they are responsible for the illegal actions of athletes by offering them the forbidden substances or by acquainting them with people who are involved in doping. There are also athletes who do not know the utility of a substance or if it is on the forbidden list and with their doctor's recommendation they use the substance which may be on the forbidden list. Another interesting case is that of food supplements purchased from unauthorized sites on the Internet. By having good ads with a convincing message, these supplements can be bought by an athlete. Unfortunately there is no organization to determine the composition of these food supplements, so when an athlete decides to use them, he is taking the risk of potential doping. It is important to note that from the legal point of view, the athlete is 100% responsible for the substances that enter his body. Thus, if the athlete ingests accidentally a forbidden substance, he is still responsible for it. Carrying out anti-doping controls both in and out of competitions is a benefit for athletes who do not use banned substances; the number of athletes who have been positively detected outside competitions is much higher than those who are found doped in competitions. Physicians should pay attention when prescribing different substances, as well as pharmacists who release the medication. By releasing a drug on the list of prohibited substances, the athlete may be disqualified, so the regulations and the list of prohibited substances should be carefully studied before prescribing a medicinal product. The effect it has on the body is also an important topic when discussing about doping. For example, artificial testosterone leads to stopping endogenous production of natural testosterone in the body. The difference is that today's doping substances are safer than they were 40-50 years ago, when some athletes died because of them. In fact, many steroids are of medical use today and are administered to patients who have undergone difficult operations and need faster recovery. Athletes who use different medication and have the consent of physicians should be careful to declare the use of such substances so that if the athlete is positively detected with it, the authorities know that the substance is needed to improve their health condition. Current legislation is not very severe, perhaps if the repercussions of being positive with illegal substances were higher, violation of rules would not be so common. Athletes should be educated about doping, and about the side and adverse effects of the use of the various prohibited substances, with the aim of educating athletes to prevent the doping phenomenon. To minimize the phenomenon of doping, information and prevention programs, starting with athletes at a young age, and involving other stakeholders (e.g. the athletes' doctors, coaches or family), are necessary to establish and maintain correct attitudes and behaviours. Finally, we can conclude that taking into account the human nature and the social and economic implications of professional sports, the end of doping in sports is most likely an unrealistic term.

Overall, doping in sports remains a significant concern, as athletes continue to seek ways to gain an advantage over their rivals. However, with strict anti-doping policies and increased testing, authorities are working to keep doping under control and maintain the fairness and integrity of sports competitions.



References

1. Gerdes L. Performance Enhancing Drugs. Farmington Hills, MI: Greenhaven Press; 2008.
2. World Anti-Doping Code. The World Anti-Doping Agency (WADA), Mar. 2003
3. Bowers LD. Athletic Drug Testing. Clinics in Sports Medicine. Apr 1998; 17 (2) :299-318 Graf?Baumann T. Medicolegal aspects of doping in football. Br J Sports Med. 2006 July; 40(Suppl 1): i55–i57.
4. Brukner P. Drugs in Sport. SMA publications, Canberra 1995. 2–3.
5. Tricker R, Cook DL, McGuire R. Issues related to drug abuse in college athletics: athletes at risk. Sport Psychol. 1989; 3:155-156
6. Brukner P, Khan K. Drugs and the Athlete. In: Clinical Sports Medicine. New York: McGraw-Hill;2001. 872-899
7. Taylor TL. Physiology of Exercise and Healthy Aging. In: Older Athletes and Substance abuse. Illinois : Human Kinetics; Edition illustrated 2008. p.180
8. Steroids in Professional Sports: An Overview. Available from : www.steroidsinbaseball.net/overview.htm
9. Brukner P, Khan K. Drugs and the Athlete. In: Clinical Sports Medicine. 3rd Ed. New York: McGraw-Hill; 2007. p. 977-978
10. Corrigan B, Kazlauskas R. Medication use in athletes selected for doping control at the Sydney Olympics2000. Clin J Sport Med. 2003;13:33-40
11. Catlin DH, Hatton CK. Use and abuse of anabolic and other drugs for athletic enhancement. Adv Intern Med. 1991; 36:399-424.
12. Bouchard R, Weber AR, Geiger JD. Informed decision-making on sympathomimetic use in sport and health. Clin J Sport Med. 2002; 12:209-24.
13. Rosenberg JM, Fuentes RJ, Woolley, et al. Questions and answers - what athletes commonly ask. In: Fuentes RJ, Rosenberg JM, eds. Athletic drug reference '99. Durham, N.C.: Clean Data, Inc.; 1999. p.1-128.
14. Hoffman BB. Catecholamines, sympathomimetic drugs, and adrenergic receptor antagonists. In: Hardman JG, Limbird LE, eds. Goodman and Gilman's the



-
- pharmacologic basis of therapeutics. 10th ed. New York: McGraw-Hill; 2001. p. 215-68
15. Westfall DP, Westfall TC. Miscellaneous Sympathomimetic Agonists. In: Brunton LL, Chabner BA, Knollmann BC. Goodman & Gilman's Pharmacological Basis of Therapeutics. 12th ed. New York: McGraw-Hill; 2011. p. 297-304
 16. Kernan WN, Viscoli CM, Brass LM et al. Phenylpropanolamine and the risk of hemorrhagic stroke. N Engl J Med. December 2000; 343 (25): 1826–32.
 17. Graham TE. Caffeine and exercise: metabolism, endurance and performance. Sports Med. 2001; 31:785-807.
 18. Julien RM. A Primer of Drug Action. 11th ed. Advokat C D, Comaty JE. editors. New York: Worth Publishers: 2008. p. 537.
 19. Drug abuse in sports. Utox Update 2002; 4(1):2-3 Haupt HA, Rovere GD. Anabolic steroids, a review of the literature. Am J Sports Med. 1984; 12:469–484.
 20. Beaver KM, Vaughn MG, Delisi M, Wright JP. Anabolic-Androgenic Steroid Use and Involvement in Violent Behavior in a Nationally Representative Sample of Young Adult Males in the United States. Am J Public Health December 2008; 98 (12): 2185–7