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## **HISTORICAL DEVELOPMENT AND EFFECT OF DOPING IN SPORTS**

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### **ABSTRACT**

Doping is considered as a moral and ethical wrong. It is a global problem. Doping is the misuse of certain substances and methods to enhance sporting performance and stamina as by taking such substances body can transport more oxygen to muscles. However, there are a lot of side effects of consuming such substances as they directly affect health of a person leading to infections, allergies, heart diseases, stroke, pulmonary embolism, high blood pressure, acne, impotency in men and alterations in menstrual cycle of women. Thus, doping can have a direct impact on sports competitions. Anti-Doping laws are framed at both National and International level but these laws are always in a conflict with each other as there is no co-relation between them. International Sports Federation is making efforts to combat this problem of doping by organising awareness programmes, efficient medical treatment but despite of this little success is achieved, as strong and unnoticeable techniques are adopted by sportspersons, these new innovative techniques of taking drugs are evolving thus challenging the war against doping as it is becoming quite a task for experts to detect these substances and drugs. It is the responsibility of authorities to be aware of these updated substances and drugs and to ensure prevention of them to facilitate fair competition. This research paper aimed to apply Doctrinal research method for doping analysis and provide a critical review of the literature on this topic and focus on the problem of doping, its impact, 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 and obligations of State and judicial trends.

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## INTRODUCTION

The word doping originates from ‘dop’, a term that conventionally refers to a stimulant drink used in tribal ceremonies in South Africa during the eighteenth century. Doping first appeared in an English dictionary in 1889, where it was described as a narcotic potion for reducing the performance of racehorses. There is a long history of doping in sport. Since the ancient Greco-Roman times, ergogenic aids in the form of natural products, bland chemicals and animal extracts have been commonplace in the attempt to push human performances to the limit. In recent times, remarkable advances in science and biotechnology have favored the introduction of synthetic molecules, 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.

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## MEANING OF DOPING

Doping is the use of performance enhancing drugs by competitors. Simply doping is the use of substances that are foreign to body or any substance that it is taken in abnormal quantity to increase the performance in an unfair manner. Doping is the violation of anti-doping rules. 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

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

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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

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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.

**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.

▪ **Table 1**

**Banned substances both during and outside the competition**

**S0. Substances**

**that have not been placed on the market** Retired drugs such as Designer substances: Drugs used in sibutramine; tetrahydrogestrinone veterinary medicine

**S1.Anabolic agents**

Exogenous anabolic Endogenous anabolic Other anabolic steroids: steroids with exogenous agents: tibolone, androstendiol and administration: zilpaterol, zeranol

	gestrinone	dihydrotestosterone, testosterone	
<b>S2. Peptide hormones and growth factors</b>	Erythropoiesis stimulating agents: erythropoietin, darbositin	Luteinizing hormone in men; choriogonadotrophin	Corticotrophins, Growth Hormones. Insulin-like growth factor 1 (IGF 1)
<b>S3. Beta 2 agonists</b>	Salbutamol-1600 µg /24h	Formoterol 54 µg/ 24h	Clenbuterol
<b>S4. Hormones and metabolic modulators</b>	Aromatase inhibitors: aminoglutethimide	Metabolic mediators: insulin	-
<b>S5. Diuretics and other masking agents</b>	Masking glycerols, substitutes	agents: plasma Diuretics: Acetazolamide, Furosemide, Indapamide	-
<b>S6. CNS stimulants</b>	Nonspecific stimulants: amfepramone, fenfluramine	Specific stimulants: adrenaline, pseudoephedrine	-
<b>S7. Narcotics</b>	Buprenorphine, fentanyl	Metadone, morphine	-
<b>S8. Cannabis extracts</b>	Cannabis, hashish	Tetrahydrocannabinol	-
<b>S9. Corticosteroids</b>	Cortizon, Hydrocortisone	Prednison, Metilprednisolone	-

**Table 2**

**Prohibited methods**

<b>M1. Manipulation of blood and its components</b>	Administration of products containing red blood cells in the circulatory system	Increasing the amount of oxygen or its transport
<b>M2. Physical and chemical handling</b>	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
<b>M3. Genetically doping</b>	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.

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**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.



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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.

## **CONCLUSSIONS**

The fight against doping continues, but anti-doping agencies will always be one step behind manufacturers of new undetectable substances with pharmacological properties similar to those already available on the market. Much of the substances used today can be easily detected, but the development of new, cheaper and faster methods could help the Anti-Doping Federation. The existence of rules and Codes, as well as Anti-Doping Procedures and Biological Passports make doping more and more difficult to achieve. Another major factor that can lead to doping is the financial side, good results get sponsors and publicity, for some athletes being more than enough motivation for doping. Injuries are another reason why many athletes endanger their "clean" athletes' status; their will to return to 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

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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.

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