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Review of doping in Olympic sports in women and men aged 15 to 25

[Revisión del dopaje en el ámbito deportivo olímpico en mujeres y hombres de 15 a 25 años]

[Revisão do doping no campo esportivo olímpico em mulheres e homens de 15 a 25 anos]

Jayson Bernate^{1*} , Lina María Morales¹ , María Paula Sanabria¹ ,
Laura Melisa Medina¹ 

¹Minuto de Dios University Corporation UNIMINUTO, Colombia.

* Corresponding author: jberate1@uniminuto.edu.co

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ABSTRACT

Introduction: Doping is a worrying and sensitive issue, not only in the sporting world but also within society. The use of doping substances or methods creates difficulties for athletes ethically, physiologically, and in their performance, making it necessary to give it due attention. To this end, research was conducted using various websites to determine the causes and consequences of this method in the daily lives of athletes aged 15 to 25.



Objective: to carry out a documentary review of doping in Olympic sports, using the documentary matrix and state-of-the-art analysis, in order to identify the main causes of doping in high-performance athletes.

Materials and methods: The methodology used in this research is qualitative and its design is a systematic literature review.

Results: The results show a close relationship between the ambition and desire of each athlete to obtain a certain recognition or monetary contribution implied by winning a competition.

Conclusions: In the research conducted by the presenters with athletes in Bogotá, respondents agreed that they have never used any type of doping substance and that their position on this practice is completely immoral. They concluded that one of the main reasons athletes resort to doping is to achieve better personal results, considering that these substances would significantly increase their performance. Other highly voted causes are the opportunity to belong to or remain in leagues, and financial or economic contracts related to sports practices.

Keywords: sport; doping; methods; illegal sphere; performance.

RESUMEN

Introducción: el dopaje es un tema preocupante no solo en el ámbito deportivo, sino también en dentro de la sociedad, debido a que es un tema muy delicado y por ende es necesario atenderlo, ya que el uso de sustancias o métodos dopantes generan dificultades en los deportistas a nivel fisiológico, en el desempeño en el deporte como también a nivel ético. Para ello, se realizó una investigación por medio de diferentes páginas web con el fin de determinar las causas y consecuencias de este método en la vida cotidiana de los deportistas entre los 15 a 25 años.

Objetivo: realizar una revisión documental del dopaje en ámbito deportivo olímpico, por medio de la matriz documental y análisis del estado del arte, para identificar las principales causas del dopaje en los deportistas de alto rendimiento.



Materiales y métodos: la metodología utilizada en esta investigación es cualitativa y su diseño es de revisión bibliográfica-sistemática

Resultados: los resultados arrojan una estrecha relación entre la ambición y el deseo de cada deportista por obtener cierto reconocimiento o aporte monetario que implica el ganar en una competencia.

Conclusiones: en la investigación realizada por parte de las ponentes a deportistas de la ciudad de Bogotá los encuestados concuerdan en que jamás han llegado a consumir ningún tipo de sustancia dopante y su posición hacia esta práctica es totalmente inmoral llegando a la conclusión de que una de las principales causas para que los deportistas incurran en el dopaje es la obtención de mejores logros personales teniendo en cuenta que estas sustancias aumentarían significativamente su rendimiento, otras de las causas más votadas son la oportunidad de pertenecer a ligas o mantenerse en ellas y los contratos financieros o económicos por las prácticas deportivas.

Palabras clave: deporte; dopaje; métodos; ámbito ilegal; desempeño

RESUMO

Introdução: o doping é um assunto preocupante não só no âmbito esportivo, mas também dentro da sociedade, pois é um assunto muito delicado e por isso é necessário enfrentá-lo, uma vez que o uso de substâncias ou métodos dopantes geram dificuldades nos atletas a nível fisiológico. nível, no desempenho no esporte, bem como no nível ético. Para isso, foi realizada uma investigação através de diferentes páginas web a fim de determinar as causas e consequências deste método no dia a dia de atletas entre 15 e 25 anos.

Objetivo: realizar uma revisão documental do doping no âmbito esportivo olímpico, por meio da matriz documental e análise do estado da arte, para identificar as principais causas do doping em atletas de alto rendimento.

Materiais e métodos: a metodologia utilizada nesta pesquisa é qualitativa e seu desenho é uma revisão bibliográfica sistemática.



Resultados: os resultados mostram uma estreita relação entre a ambição e o desejo de cada atleta em obter determinado reconhecimento ou contribuição monetária que a vitória numa competição implica.

Conclusões: na pesquisa realizada pelos palestrantes aos atletas da cidade de Bogotá, os entrevistados concordam que nunca consumiram nenhum tipo de substância dopante e sua posição em relação a esta prática é totalmente imoral, chegando à conclusão de que uma das principais causas para os atletas praticarem doping são obter melhores realizações pessoais, tendo em conta que estas substâncias umentariam significativamente o seu desempenho. Outras das causas mais votadas são a oportunidade de pertencer a ligas ou permanecer nelas e os contratos financeiros ou económicos para a prática desportiva.

Palavras-chave: esporte; dopagem; métodos; área ilegal; desempenho

INTRODUCTION

According to Alfaya (2018), the beginnings of doping in the American continent are understood to date back to 1530, when some Incas used coca as a stimulant to travel long distances in short periods of time (Blanco, 2015). On the other hand, in the African continent, Khat leaves were used to reduce the effects of sleep, fatigue and hunger. Finally, in Europe, the Amanita muscaria mushroom began to be used to increase the courage of the Vikings.

Likewise, the main objective of taking prohibited substances in all cultures is based on making humans stronger and invincible, as well as improving their physical condition. Among some substances found throughout history, we can also see the herb "Ma Huang", coca, yagé and mandrake with narcotic effects.

Within history, different types or classifications of doping have been found, such as aphrodisiac doping used to benefit men, socioeconomic doping used by anyone to improve their social standing, and military doping used as a weapon to demonstrate



superiority. Despite all the research, there is no evidence regarding the consequences of doping in ancient times. However, it is known that an attempt was made by priests to control the intake of alcohol or drugs in the practice of sport without any conclusion.

The American continent has been widely involved with the active use of different psychoactive substances, highlighting coca and other substances with similar effects. Its origins date back specifically to Bolivia and Peru thanks to the great knowledge and handling that the indigenous people acquired of the plant. The process consists of burning a snail and then crushing it and consuming it simultaneously with the coca leaf, with this they managed to obtain sensations of well-being and little fatigue in their daily work.

After some time, and upon realizing the effects of coca, the Europeans used it as a means of payment and labor exploitation against the indigenous people, this triggered the decrease of food for the workers and the increase of coca intake to support a greater labor effort in a certain time.

The six main substances most frequently used in the American territory were coca, mate herb, mescaline, yagé, psilocybin and caffeine, all used for narcotic, hallucinogenic and psychotic purposes.

To begin with, it is evident how doping in the Olympics was first seen in Greece in the 7th century B.C., known at that time as the consumption of concoctions, potions and foods with the aim of improving performance. Around the 19th century, cases of doping mainly appeared in cyclists and in athletics, where the death of Arthur Linton due to the consumption of narcotics stood out. It was not until the 20th century when the use of amphetamines and steroids appeared, thus increasing the levels of deaths due to the use of prohibited substances.

During the following years, doping cases increased without any clear consequences, being used in most competitions and finding the proposed controls useless, since they manage to evade them. It was not until 1999 when the World Anti-Doping Agency (WADA) was created and the World Anti-Doping Code was drawn up in 2003, creating



clear national and international rules to achieve a better control of doping in all sports fields with the help of different sports organizations.

Highlighting more relevant cases, we find that on January 17, 2013, Lance Armstrong admitted before a court that he had started practicing doping since he was 21 years old, with which he won seven tours, stating that it would have been impossible to win them without having doped. This statement was the cause of the loss of his Olympic medals and diplomas, apart from generating a series of discredits, leading the athlete to apologize on several occasions and accept the consequences of his actions.

In the same vein, Marion Jones, an American athlete, confirmed that since 2000, when she was only 22 years old, her coach had been providing her with seeds, which she took unconsciously until 2001, when she understood that it was a synthetic steroid. The corresponding judge will decide to charge her with six months in prison and the immediate withdrawal of her five medals won at the Sydney Olympic Games.

According to the National Anti-Doping Organizations (NADOs, 2021), doping is defined as a tactic of using prohibited substances or methods by an athlete in order to improve their performance, since this allows them to become faster and stronger. It is also considered doping to refuse to carry out the respective anti-doping controls imposed by the WADA without a credible argument. However, the use of alternative substances is permitted as long as it is authorized for therapeutic or medicinal use.

Doping in sports is a topic of great concern nowadays, given the constant appearance of positive cases in the different sports modalities at the Olympic level, with multiple reasons or factors that induce an athlete to resort to doping.

Currently, within the Olympic sports field, a special group stands out, being this the youth population who, within high performance training and given their level of demand together with the pressure they handle, manage to lead them to practice doping in order to improve their physical sports capacity and continue to exceed themselves every day. According to (Atienza, 2013), this is in disagreement with the Olympic regulations, violating the principle of equality that governs sports competitions, thus



putting other competitors at a disadvantage. This causes the essence of competition and fair play to be lost, in addition to increasing the risk in which athletes are positioned when carrying out these doping practices, since the ingestion of substances can trigger serious alterations in the body.

We can see how doping levels have varied over time, as clearly exemplified by the athlete Kamila Valieva. At only 15 years old, in 2022, she achieved a quadruple jump in her skating debut to great acclaim. However, this was overshadowed when a test taken in December of that year revealed a positive result for trimetazidine, a banned substance that improves physical performance. Ultimately, this controversy ended in a shameful and painful ordeal for the athlete, who wept inconsolably after facing constant pressure and judgment.

In this regard, the first work corresponds to the WADA, which in 1999 defined doping as the presence or absence of prohibited substances through an athlete's biological samples, thus creating common standards to combat doping and articulating strategies with sports organizations and political entities. The purpose of this was to provide other athletes with a safe and regulated game where honesty and other values prevail.

In the same way, the International Federation of Association Football (FIFA, 2021) has focused on supporting the World Anti-Doping Agency (WADA, 2019) to jointly fight against this problem, all of this is generated in order to protect the physical strengths and mental health of soccer players to ensure fair play and transparency among all players. All of this has been possible thanks to the implementation of regulations in conjunction with those already existing, in addition to having professionals and control officials in different parts of the world, who fulfill the function of providing controls inside and outside of competitions.

This documentary review is research into doping in sports field in people between 15 and 25 years old, with the aim of determining the causes and consequences of this method in the daily life of athletes. As mentioned above, a documentary review is



carried out in different websites, finding the history, causes and effects of doping in different sports, countries and with different exponents of real life.

MATERIALS AND METHODS

This research employs a qualitative methodology with a systematic literature review design. According to Hernández, Fernández, and Baptista (2010), the qualitative approach is used to understand the perspectives of participants based on their experiences, opinions, or personal life events. This research method originates from an initial research idea that has not been fully explored, allowing for a more comprehensive investigation. Table 1 shows the information search protocols used in this article. (Table 1).

Search protocol:

Table 1. - Information search protocols

Language		Spanish and English
Time period		1999-2022
Keywords	Individual	Doping, fair play, attitudes, permissiveness, doping in sports, adverse effects, regulations, athletic performance, anti-doping control, doping substances, National Laboratory for the Prevention and Control of Doping
	Combination	Doping, Olympic doping, attitudes, doping, World Anti-Doping Agency, history, WADA, anti-doping control, health protection, cycling, sport, athlete, environments, International Olympic Committee, Olympic sport, doping in sport.
Information resources: Databases: Agencia deporte journal, Redalyc, Dialnet, Polired, Ebscohost, Proquest, Elsevier, Google academic, Academic journals, Elibro, Udea, RCN, Drape Revistas.um, Scielo.		



Strategies	Training	Adaptation and knowledge of new databases and technological elements for information gathering
	Term generation	Review of articles titles and abstracts
	Search	Search for terms, review of citations and bibliographies and year of publication

Note: Own elaboration (2023)

Inclusion criteria:

Keywords are evaluated in the elements found, papers that include exemplification of the cases, laws in force inside and outside the country, previously conducted research that include the same methodology and research or articles that are not older than 15 years from the date.

Exclusion criteria:

Research that did not address the topic in general, laws that are no longer in force, publications that have not been found on official and trusted sites, and publications outside the established timeline were excluded (Figure 1).

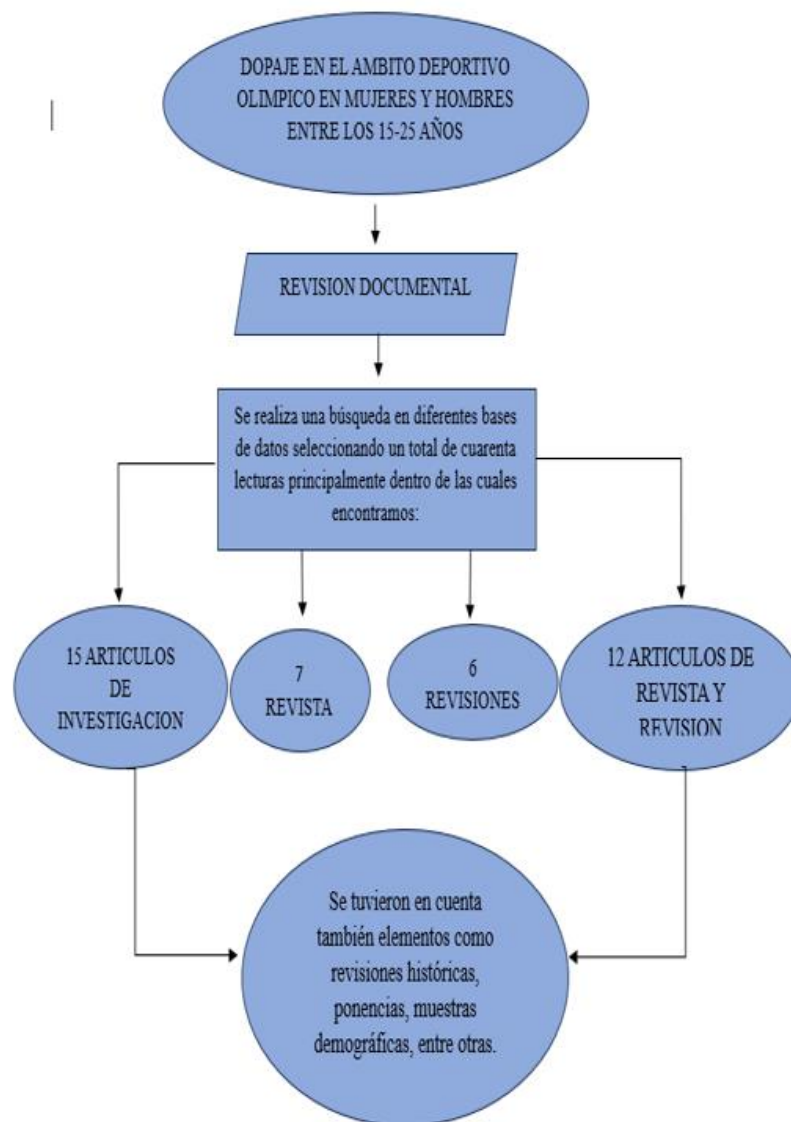


Fig. 1. - Flow diagram

Note: Own elaboration (2023)

The information sources are reviewed and this allows the creation of a data collection matrix showing the research inclusion criteria. The aforementioned documentary matrix is presented below, which contains the following main items within the search: title, author, and year, type of document, problem, contributions and instrument (Table 2).



Table 2. - Sources of information

TITLE/AUTHOR	DOCUMENT TYPE	PROBLEM	CONTRIBUTIONS	INSTRUMENT
Pedraza V. (2013) Despenalización del dopaje y salud pública (Decriminalization of doping and public health)	Article	Public debate on the impact of the sports performance industry on public health. The clandestine practice of doping on professional and aspiring athletes leads to health insecurity and the ethical disorientation of amateur practitioners and sports teachers.	The meanings of doping in the sports field are directly involved, as well as the current legislation or regulations regarding this type of substances to improve performance, taking into account the consequences to the health and integrity of the subject.	This document aims to understand the public health consequences of the use of substances in sports doping and to analyze why the proposed measures are not causing a positive effect on its eradication.
Gerardo José Ruiz, et al. (2017) Actitudes hacia el dopaje según el deporte practicado por los jóvenes (Attitudes towards doping according to the sport practiced by young people)	Article	The ambition to achieve victory in such an important tournament leads to extreme levels such as the use of doping substances, which pose a serious problem for today's society, as it threatens the health of athletes,	This article provides knowledge to different populations, for they know how serious doping can be, and its respective risks for each doping substance, and encourages society to become aware of this problem.	Surveys were conducted which included the following question: were involved What sport do you practice? Classified as "team sport", "individual sport", "gym", "cycling" or "bodybuilding".



		deteriorating their organism.		-The answers indicate whether the attitude is less favorable towards doping or whether the attitude of that individual is favorable to doping.
Mabel Dahiana Roldan, <i>et al.</i> (2019) Dopaje en deportistas: asunto de difícil manejo a nivel mundial (Doping in athletes: a difficult issue to manage worldwide)	Article	The abuse of performance-enhancing drugs represents a major problem in both competitive and recreational sports. The use of PEDs violates the spirit of fair play and represents a significant health problem worldwide.	It shows a direct approach to the existing regulations in this area, in addition to understanding the direct effects on athletes and their own performance, taking into account aesthetic issues and the direct research process in front of athletes.	Comprehensive study on the use of doping in various sports and people of different ages, seeking a comprehensive solution where the causes and consequences of doping are understood.
Cañizares M, Suarez S and Carvajal W (2022) Actitudes y creencias de deportistas cubanos de alto rendimiento sobre el dopaje (Attitudes and beliefs of high-performance Cuban	Article	To determine the main beliefs and attitudes of high-performance Cuban athletes regarding doping. This objective directly contributes to anti-doping education,	To understand the reality of doping in sport in Cuba and the struggle of the institutions responsible for preventing and generating significant sanctions in the midst of the fight against doping.	Continue to deepen the improvement of a diagnostic and evaluation instrument for attitudes and beliefs about doping in sport, including the propensity



athletes about doping)	considered a priority of the sports system in the country.	factors found to be relevant.
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Jean Noel Missa - translation: Gustavo Chirrolla (2015) El deporte de competición, laboratorio de la medicina del mejoramiento: análisis ético y filosófico del dopaje. (Competitive sport, laboratory of improvement medicine: ethical and philosophical analysis of doping).	Paper	The ineffectiveness of anti-doping controls means that a large number of doped athletes are able to slip through the net of the anti-doping network. The problem is structural. After 15 years of experimentation, the time has come to find out whether the current policy of prohibition is the best way to minimize the harmful effects of doping.	Therefore, the main objectives of WADA's policy, allowing athletes to compete on equal terms and eradicating doping, are not achieved.	To propose an ethical and philosophical analysis of the phenomenon of doping in competitive sport by questioning the basis of the current policy led by the WADA and international sports authorities.
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Atienza Macias, E (2016)) El dopaje en el derecho deportivo actual: Análisis y revisión bibliográfica (Doping in current sports law: Analysis and bibliographic review)	Article	The sporting phenomenon has acquired, in recent decades, a spectacular dimension, which is projected in all areas: social and cultural. The practice of sport has penetrated the social fabric to such an extent that it has become an important part of daily life, of the daily activity of millions of people around the world.	Generate a broad space for debate where athletes and people involved in all these areas can generate and resolve various doubts regarding doping and everything that derives from it.	This monograph includes a multidisciplinary bibliographic repertoire that reflects the positions offered by the different disciplines involved in the study of doping: from Philosophy, Bioethics and Biolaw, Sociology, Psychology, medical sciences and of course Law.
RCN News (2022) Una mancha que sigue vigente: los pedalistas colombianos bajo lupa del ciclismo mundial (A stain that is still valid: Colombian cyclists under the magnifying glass of world cycling)	Journal article	Professional cycling is one of the sports where the most controversy and scandals have been generated due to doping. In different seasons, more cyclists are brought to light due to some substance prohibited in international competitions, generating	Direct interaction with the reality of Colombians immersed in doping practices without measuring the consequences and in some cases involuntarily since they are substances detected that were in food or drinks and without realizing it they have committed a crime.	Bibliographic review regarding the history of these doping cases specifically in Colombians in order to provide then a complete and detailed report based on the most recent case of our cyclist Nairo Quintana.



multiple sanctions
or punishments
from the Union
Cycliste
Internationale
(UCI) to the
athletes.

Congress of Colombia (2021) Ley 2084 del 03 de marzo del 2021 (Law 2084 of March 3, 2021)	Legal document	Adopting measures to prevent and combat doping in sport.	To understand and implement current rules and regulations in the future, while ensuring that they are respected in all areas in order to ensure adequate prevention of doping in all types of sporting events.	To establish provisions to combat doping in sport, in accordance with the parameters and standards of the WADA, enshrined in the current World Anti-Doping Code, seeking to protect the health of athletes and preserve fair play.
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Silvana Irene Guzman (2017) El Dopaje Genético y la Manipulación de Genes en el Deporte (Genetic Doping and Gene Manipulation in Sport)	Article	The problem of doping in sport requires international action to combat a phenomenon that is growing faster every day. One of the forms of doping that presents specific challenges for science and law is genetic doping, which is recognized in world anti-doping legislation. It is still very difficult to find an accurate method for detecting genetic manipulation using existing mechanisms.	Direct learning about the most commonly used substances over the years, their causes, consequences and direct and indirect effects of their use.	Extensive research on substances and other important elements that help readers understand the why, how and purpose of each element used in sports and doping.
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RedaccionRMC (2022)) Nairo Quinta inicia su carrera más difícil (Nairo Quinta begins his most difficult career)	Journal article	The Colombian and world cycling communities was shaken by the appearance, on the official UCI website, of a statement stating verbatim: Analysis of two blood samples provided by the cyclist on July 8 and 13 during the 2022 Tour de France revealed the presence of tramadol and its two main metabolites.	It is a direct approach to Colombian doping where one of our athletes was directly related to a case where he refutes his innocence and hopes to have positive changes since it is believed in the athlete's physical capacity and in his ethics that he did not incur in this practice.	It is a report that contains the exact phrases from the committee and the Colombian cycling movement, which show their guilt and their rejection of such a case.
Merkado Karina, et al. (2012) Sustancias dopantes y su incidencia: una visión retrospectiva del laboratorio nacional de prevención y control del dopaje en México (Doping substances and their incidence: a retrospective view of the national laboratory for prevention and	Journal article	The use of substances to enhance the athletic development of athletes has been a scourge in international sport. In this regard, the WADA has implemented a series of standards that allow for harmonizing the fight against	To demonstrate a broader, more rigorous and realistic process regarding testing and its development in multiple athletes with their respective results, taking into account various genetic samples of the same.	Only the results obtained from the analysis of 18,085 biological urine samples were considered , which were received during the period between 2009 and 2015. These samples according to the EIL



control of doping in Mexico)		doping from different angles.		
Manuel Víctor Cabrera, <i>et al.</i> (2018) Los Errores de Interpretación de Conceptos en la Lucha Contra el Dopaje (Misinterpretations of Concepts in the Fight Against Doping)	Review and Update Article	The fight against doping worldwide has become a task whose main objective is to save sport as an educational, cultural and recreational means for humanity. However, there is also the impact that the incorrect or ill-intentioned use of technological resources such as the synthesis of prohibited substances has on sport.	The text is too broad to extract relevant information regarding the most important aspects of doping – its why, how, and purpose – in an attempt to offer solutions and a different way to eradicate this practice, from youth to adults.	In recent years, doping, as a harmful phenomenon for sport, has appeared in its most sophisticated forms. In sport, and all of them are difficult to combat due to the great conflicts of interest of all kinds that they have generated.



Antonio Villegas and Luque Rubia (2013) Guía del dopaje (Doping guide)	Document review	The evolution of doping over the last 50 years is much greater than that observed throughout the 20th century, using increasingly sophisticated doping methods and drugs, accelerating the techniques for detecting substances used in laboratories accredited by the International Olympic Committee (IOC) in a large part of the member countries.	This article is of great support to us as it carries out an in-depth investigation into the origin and evaluation of doping over the years and all the elements or aspects that it brings with it within the field of high-performance sports.	Conduct a bibliographic review on the historical origin of doping, causes, dangers, reasons, regulations to eradicate it, possible solutions, etc.
"Elena García Grimau Arturo Casado Ricardo de la Vega" (2021) Evolución de la Investigación Psicosocial del Dopaje en el Deporte de Competición: Revisión Narrativa (Evolution of Psychosocial Research on Doping in Competitive	Narrative Review	Identify new anti-doping research challenges to improve prevention strategies in Spain. The review indicates that there are different theoretical models applied to understand attitudes, intentions and	The review indicates that different theoretical models are applied to understand attitudes, intentions, and behaviors toward doping. Similarly, numerous individual, social, and sport-specific factors can influence doping.	International and national literature of scientific articles published in PubMed and the Web of Sciences was carried out over a nine-month period (from February to October 2019). The review was limited to



Sport: Narrative Review)	behaviors towards doping.	scientific articles published in English from January 1900 to September 2019.
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Sandra Velásquez (2021) La lucha contra el dopaje en el deporte: un problema actual en el contexto del derecho deportivo internacional (The fight against doping in sport: a current problem in the context of international sports law)	Article	The fight to eradicate the use of prohibited substances and methods in sport has gained prominence in recent decades, initially driven by the International Olympic Committee and International Sports Federations, and subsequently strengthened by the increasingly active participation of other sports organizations within the Olympic Movement, the WADA, and the	To highlight the anti-doping efforts and how they now unite all international sporting institutions. As well as the governments of most countries, either directly or through their involvement in supranational governmental organizations active in this area, and how Colombia is not exempt from this process.	Conduct an analysis of the constitutionality in Colombia of one of the main challenges of the disciplinary regime regarding doping: the definitive suspension of an athlete who engages for the third time in behaviors that constitute doping in sport.
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Ibero-American
Sports Council.

Note: Own elaboration (2023)

RESULTS AND DISCUSSION

Over time, doping has been understood as the voluntary and conscious consumption of prohibited substances with the main objective of improving sports performance, reducing fatigue and avoiding considerable tiredness. The use of these types of substances shows a clear failure in the values and morals of the people involved in the sport practiced. Likewise, the sports doctor Chailley Bert (1949) defines it as the determined use of drugs to achieve better physical performance, thus generating an exaggeration of the same performance causing multiple consequences in the short and long term.

The main characteristics of doping include the presence of prohibited substances in the body, where people also refuse to take the daily doping tests, doping consists of the possession and sale of these substances and finally the total violation of the rules imposed previously, thus generating a certain disadvantage for other people in everyday life.



The main types of doping that have been found are the following: Aphrodisiac doping used since ancient times to increase male virility, socioeconomic doping used to improve work performance and thus obtain better income, and military doping used to maintain superiority over others. Additionally, narcotic analgesics used to suppress pain, stimulants delaying the onset of fatigue, increasing capacity and decreasing judgment, anabolic steroids to increase muscle mass and strength in the subject, peptide hormones to maintain and increase strength with respect to the athlete's energy resources also have been found.

According to Rodríguez (2012), doping appeared in sport right at the dawn of the same when work and physical-sporting activity were united in hunting as the only utilitarian exercise, where the same people of the tribes made preparations generally based on plants which made the individuals feel stimulating and energy-boosting sensations facilitating the capture of their prey.

On the other hand, following the thread of his research, Rodríguez (2012) explains that pharmaceuticals began to replace the ancient plant-based substances used by tribes. This marked the full-scale introduction of laboratory-manufactured or synthetic drugs. The discovery of stimulant amines signifies the beginning of doping with pharmacological products, initially involuntary and mandated by military authorities.

In defining doping in sport, it's a term used to refer to the use of illegal chemical substances in sport. These substances are used to enhance an athlete's physical performance and abilities, as explained by Carrillo (2020): "Doping is known as the conscious use or consumption of substances, drugs, or pharmaceuticals to enhance athletic performance, reduce recovery time after exertion, or increase strength and endurance" (p. 51).

Therefore, we can understand that within the sporting world; to enhance physical performance, athletes use substances ranging from drugs to pharmaceuticals to guarantee improvements in physical performance. Among these, we find several types, which are:



Blood doping: consists of extracting a quantity of blood from the athlete and then reintroducing it after a period. This causes the hemoglobin to set in motion a series of mechanisms to return to normal levels. When the blood is reintroduced, this causes an overload of total hemoglobin. With this, it can be said that, theoretically, the athlete could have better physical performance.

Pharmaceutical manipulations: within this group are:

- Anabolic steroids: obtained synthetically from the male hormone (testosterone), which allows athletes to strengthen their muscles, improve their muscle power and have better muscle tone.
- Narcotic analgesics: This group includes substances such as morphine, which is responsible for suppressing the pain of some sports injuries.
- Amphetamines: they reduce the feeling of tiredness, sleepiness and appetite, and also increase concentration levels and produce a state of well-being when carrying out difficult activities.
- Caffeine: stimulates the brain and makes the body have better physical resistance during prolonged exercise. Recently, the IOC considered carrying out a urine test to be able to show the concentration of caffeine ingested. If it exceeds 12 micrograms/ml (approximately 5 cups), this could be a fault.
- Diuretics: This group includes all the drugs whose main function is to increase urine output. It is widely used by athletes as it helps them lose weight more quickly, allowing them to compete with lower categories, thus giving them an advantage.

The effects of doping on the human body are a serious problem due to the magnitude and severity of its consequences, many of which are irreversible. Doping can affect various parts of the body, causing damage to organs such as the liver (liver failure), lungs (dehydration), heart (blood can thicken, causing the heart to pump harder and potentially leading to heart attacks), and kidneys (type II diabetes). Furthermore, the use of narcotics and diuretics can significantly affect blood pressure, both raising and



lowering it. Testosterone use can also negatively affect libido and increase aggression levels.

The psychological aspect is also affected, as various, psychological illnesses are generated that impact their thoughts, mood and behaviors, such as anxiety, hallucinations, chronic psychosis and substance dependence. A direct impact on the moral ethics of the athlete is evident, since the simple fact of having used supplements to have an advantage over their peers also generates a loss of admiration, respect and credibility on the part of society or the public.

To determine some of the short, medium, and long-term consequences of doping, we contacted the International Federation of Basque Pelota (Spanish: Federación Internacional de Pelota Vasca (FIPV), which is responsible for regulating and organizing international competitions in this sport. Their website lists the following consequences that athletes who engage in doping may face:

Short-term: Depression, drug dependence, psychological changes, increased aggression and irritability, sleep disorders, hallucinations, muscle injuries, and fines.

Medium and long term: It reduces the feeling of fatigue in athletes who act in a self-deceived way by working beyond their normal capabilities. This has consequences that over time could be fatal for the body, since it will no longer have signals that alert the body to stop or reduce the intensity of the exercise, and this would lead to cardiovascular problems that could cause the death of the athlete.

Preventing doping in all areas of life requires raising awareness and visibility, especially among young people. It is crucial to educate them about the potential risks of using psychoactive substances. This requires a multifaceted approach, aligning with WADA standards, and implementing prevention systems through education. Activities should encourage students to understand the ethical and recreational implications of using prohibited drugs in sport, promoting fair play.



It is noteworthy that doping prevention is being neglected. This is a societal issue requiring widespread involvement, particularly from government bodies. They should guarantee that individuals participating in sports, whether recreationally or competitively are fully informed. This includes providing awareness talks and constantly monitoring the behavior of those involved. This will foster greater civic awareness and effect fundamental changes in behavior.

Importantly, the IOC defines doping as the use of substances foreign to the human body by an athlete seeking to increase artificially and dishonestly their performance in competition by means of abnormal amounts or irregular administration. The WADA defines doping as the use of substances, methods, or falsification of medical records, etc., considered illegal under anti-doping rules (as outlined in Article 2, sections 1-11 of the WADA Code). A list of prohibited substances and methods includes:

- Anabolic agents: steroids, peptide hormones and related substances
- "Erythropoiesis": Creation of a greater number of red blood cells for better oxygenation of the muscles.
- Antagonist and modulating hormones: Hormones that help muscle growth.
- Diuretics: These drugs have the ability to hide the effects of other doping agents by facilitating the elimination of fluids by the body or diluting the levels of the drug or metabolites.
- Masking agents: These are taken with the aim of hiding the presence of specific active ingredients, to avoid doping tests, by deteriorating and covering up the prohibited substance in the urine.
- Stimulants: This group includes amphetamines, ephedrine, caffeine and cocaine.
- Narcotics: A substance used to treat moderate to severe pain.
- Cannabinoids: A type of chemical in marijuana that causes drug-like effects throughout the body.
- Glucocorticoids: They are mainly anti-inflammatory and immunosuppressive.



Within the legal framework, we find Law 2084 of 2021 that allows the establishment of certain provisions in the fight against doping, taking into account the parameters of the WADA, also seeking the well-being and protection of athletes, as well as fair play. Regarding this law, it establishes the responsibilities of the public sectors, establishes the anti-doping disciplinary court as a regulatory and judging body in various cases and, finally, establishes the internal anti-doping procedure.

It is important to note that all parties involved in the National Sports System, including coaches, sports officials, and other entities, must comply with the provisions established by law. Similarly, in Colombia, the Ministry of Sport must create a National Anti-Doping Organization to ensure compliance with anti-doping regulations throughout the country.

Likewise, the National Anti-Doping Organization must implement the World Anti-Doping Code, investigate violations, inform the authorities about the violations and follow up on them. In the event of finding irregularities in the anti-doping testing processes, the disciplinary court, divided into a disciplinary and appeals chamber, with at least one woman on its lists, will be in charge of carrying out a more exhaustive process. Finally, it is established that sanctions will be imposed in accordance with the World Anti-Doping Code and with a statute of limitations equal to 10 years from the date of the violation.

CONCLUSIONS

In this documentary review, knowledge is acquired regarding the history, main parties involved and other relevant aspects of doping. A study carried out by the Polytechnic University of Madrid is taken as a reference, with the aim of understanding the reasons why an athlete takes or does not take drugs. In the research studied, interviews are conducted with 90 Spanish athletes in sports such as basketball, athletics and cycling and with an average age of 12 to 30 years.



It is determined that in the applied interviews the athletes do not claim to have consumed prohibited substances, in addition to denying any interest in consuming them and completely rejecting this type of action. Likewise, in other investigations such as Laure (1955) the causes are divided into two categories, which are primary needs, which are guided by physiological needs such as recovering after a greater work or even increasing their strength.

In a survey conducted by the presenters with athletes in Bogotá, respondents unanimously stated that they had never used any type of performance-enhancing substance and considered the practice completely immoral. They concluded that one of the main reasons athletes resort to doping is to achieve better personal results, given that these substances significantly increase performance. Other highly cited reasons include the opportunity to join or remain in leagues and secure financial contracts related to sports.

Secondary motivations encompass a wider range of social and other factors influencing an athlete's decision. These include financial pressures, selection processes for national leagues, difficult-to-beat records, media pressure, demanding training regimens, the dream of victory, and the desire to prolong their career. These motivations can be categorized into two groups: the internal logic of sport (referring to rules and physical environments) and the external logic of sport (including fame, pressure, and the spectacle of professional sports).

The research showed that gender did not significantly affect the results. However, women have fewer competitive opportunities, races, and financial rewards compared to men. This suggests that women often have diverse goals, such as combining studies with sports training and holding less ambitious expectations, while men generally prioritize pursuing a competitive professional sports career to earn a living. Leading to the conclusion, that doping tends to occur more in men than in women. Overall, the responses indicated that the main reasons for not doping were health concerns, ethical/moral considerations, and legal ramifications.



Finally, the constant need to create strategies to prevent doping in athletes is evident. This would be easier if coaches received more information and knowledge on the subject, and if it ceased to be a distant issue handled solely by doctors or healthcare professionals. Similarly, there is a need to train both athletes and coaches so that federations have the foundation to prevent these practices, and so that efforts to eradicate them are not left until it is too late. These individuals are the primary agents of change, thus preventing the emergence of more serious and complex cases.

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Melisa Medina