

# We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,900

Open access books available

186,000

International authors and editors

200M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index  
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?  
Contact [book.department@intechopen.com](mailto:book.department@intechopen.com)

Numbers displayed above are based on latest data collected.  
For more information visit [www.intechopen.com](http://www.intechopen.com)



# Human Empowerment between Ethics and Law

*Camilla Della Giustina*

## Abstract

The aim of this work is to highlight the problems that human empowerment poses in the sports field. The phenomenon of sport doping is precisely analyzed as an expression of enhancement in the light of a biogiuridic and bioethical reflection. The question that animates all the digression essentially concerns the definition of doping and therefore whether the same depends on purely legal qualifications and classifications or whether it is a social and cultural phenomenon and therefore whether it is the cultural context of reference to define a given phenomenon, substance or practice as a dopant. To pursue this objective, it was decided to provide a first definition of human empowerment in order to delimit the field of investigation and then analyze only one of the different expressions of this phenomenon, doping precisely. Consequently, it was decided to provide a study of the doping phenomenon both from a legal and ethical point of view within the macro-context doping in sport.

**Keywords:** human empowerment, doping, sports law, sports ethics, sports bioethics

## 1. Introduction

From the moment when there is written news, man has always sought the aid of substances, whether natural or chemical, to seek support in the face of activities that he had to carry out.

Wanting to provide a historical excursus, the first information on doping date back to 2700 BC: the source is a Chinese text in which reference is made to a plant defined almost miraculous and containing the alkaloid Machmane.

In addition to this, in 300 B.C. athletes used to take an alkaloid during sports activities, namely ephedrine. Also during the same period, Greek Olympic athletes took decoctions prepared with mushrooms and herbs while Macedonian athletes used donkey nails boiled in oil and accompanied by rose petals. In Rome, however, more horses than athletes were the recipients of doping substances with the exception of gladiators. The latter to increase their resistance to fatigue took plant stimulants such as betel nuts and ephedrine.

The first evidence of condemnation of the use of these substances is found only in 200 A.D. in a written by the philosopher Flavio Filostrato who in his work "Gymnastikos" argues that athletes should not take mud or other dangerous medicines.

Despite this first act of denunciation the practice of providing empowering, energizing substances to athletes continues to be the constant: In 1800, to increase sports performance, more elaborate and sophisticated substances were used than

those used by Greek and Roman athletes. The new methods of strengthening favor the intake of opium, morphine, caffeine, nitroglycerin, sugar cubes dissolved in diethyl ether as well as strychnine. Unlike in the past, attempts are made to identify the exact substance to be taken by a certain athlete, thus arriving at a differentiation between substances based on the activity that is carried out [1].

The high point in the use of doping throughout the world of sport is only reached during the decade 1950–1960: these are years characterized by the taking of stimulants especially in the performance of those activities that require great effort and great durability as cycling, marathon, football, basketball and American football.

During the '80s the substances that impose themselves most as enhancers the use of cocaine and anabolic; The 1990s were characterized by the spread of peptide hormones (in particular hgh and EPO) and blood doping carried out through the autologous and heterologous blood transfusion process. In contemporary times, the danger comes from what has been defined as genetic doping, that is, from the applications of genetic research consisting in the partial activation or inhibition or suppression of human genes for sports enhancement and therefore doping [2].

The last frontier of doping, genetic doping, poses problems not only in relation to sports ethics and fair play but also integrates unpredictable risks for the same athlete. They are closely related to the difficulty of controlling the expression of the gene that is inserted as well as to the method that is adopted to implement genetic transfer. Side effects include possible morbidity, inflammation stages and immune responses that can be defined as uncontrolled.

To this must be added how the current methods of analysis that are used to detect the presence of any doping substances have been defined as totally inadequate and ineffective to detect those that are defined as “doping genes” as impossible to distinguish from endogenous ones.

The advantage of genetic doping, in other words, is that it is not detectable with the survey tools currently in use [3].

If these are the origins and the problems that have always characterized the relationship man/physical performance and man/sports performance, the focus of this work concerns the classification of doping as a method of human enhancement.

In order to pursue this objective, it was decided to start from a definition of the concept of human empowerment and then to address one of the aspects in which the very concept of empowerment is developed, namely doping.

Following this premise, the reflection focused on the problem that doping poses within the sports world not only from a strictly legal point of view but also from an ethical point of view. In other words, the question has been raised as to whether the definition of a particular practice has an impact on its acceptance or not.

The conclusions, on the basis of this line of interpretation, arrive at analyzing the hypothesis of athletes who, due to a genetic pathology, are possessing an empowerment that could be defined “natural”. In this hypothesis is it right that they are excluded from the competition or not because of their genetic structure?

## **2. Human empowerment: definitions and delimitation of the scope of investigation**

The term human empowerment refers to an improvement of the human condition through the use of *techne*, precisely nanotechnologies, biotechnology and computer technologies are used to achieve this goal. These biomedical technologies or, alternatively, the use of drugs are applied to pursue, as a final purpose, the increase of the normal functioning of the body and/or psyche.

In other words, scientific and technical knowledge is not used to treat a disease or disease processes, but to improve natural human performance through overtaking [4].

This phenomenon involves the use of psychopharmacological products studied, created and tested to solve, at first, the disorders and therefore having strictly therapeutic purposes, to be used to manipulate in the sense of improving minds not affected by pathologies, that is, normal minds.

In contemporary society there is a medicalization of life and the corresponding creation of a need for care for any human condition, not pathological but physiological; This is an appropriate aspect to determine the promotion of any successful drug [5].

This reflection leads to question the distinction between normality and abnormality, between physiological and pathological event and finally between therapeutic treatment and enhancement.

In order to investigate the latter binomial, the present literature is used, according to which, by treatment, reference should be made to employment, the use of biotechnological means and pharmacological treatments to treat individuals with known diseases or disabilities in order to restore a normal state of health [6].

Strengthening, on the contrary, concerns all interventions intended to improve the human condition both in its physical and mental condition regardless of what is necessary to maintain or restore health [7].

The distinction just presented is based on two crucial points.

The former has moral connotations and tries to distinguish between acceptable uses and uses that cannot be defined as such: if medicine is considered as a good, from an ethical point of view, empowerment would bring with it aspects that can be defined as suspicious. In addition to this, on the basis of this first criterion, the priorities of medicine could be defined, namely that of treating patients, in the first instance, and subject to the application of practices aimed at improving certain characteristics.

The second concerns a strictly political-economic aspect and, according to this criterion, only therapeutic treatments are subsidized in an almost integral way, while the improvement treatments remain the responsibility of the individual.

The above distinction has its pitfalls, since it must be considered that any therapeutic treatment is proposed to offer an improvement and that a complete restoration of normality is often not possible [8]. Another consideration concerns the reflection that it is almost impossible to distinguish unequivocally between therapy and empowerment as concepts with a cultural foundation and convention and therefore not a certain definition. This statement is of greater importance in the light of the historical and cultural evolution that has affected the concept of health [9, 10] and disease which, in turn, have uncertain and blurred boundaries in the light of biotechnology evolution [11].

The idea behind the strengthening is that of a new concept of health based on a subjective conception: we are witnessing a transition from a concept of objective health, that is to say as psycho-physical integrity and assessed on the basis of certain biological parameters, to a modern understanding of health based on a strictly personalistic meaning [12]. The latter would have as parameters not only the biological ones currently in use but also the experience of the person and, of consequences, dynamic and relational aspects of the context in that particular individual is to live.

The new meaning of health is also supported by normative sources: the Constitution of the World Health Organization (WHO) defines health as «a state of complete physical, mental and social well-being, and not only absence of disease or infirmity». This definition provides an all-round picture of health which is

composed of two elements: one negative understood as absence of disease and one positive integrated by a complete state of well-being [13].

In the light of this it emerges that the state of complete physical, mental and social well-being belongs to the world of desire and not to reality, In addition, if a subjective notion of health is adopted, every form of empowerment must be qualified not only as lawful but also as a genuine right forming part of the evolution of mankind. Consequently, if the objective becomes the pursuit of the desired state of well-being, then an indiscriminate use of the new technologies that technical and scientific evolution makes available to the individual will be admissible. At the same time, however, a concept of health totally detached from a previous state of pathology or in any case not characterized by a preventive or curative purpose is served by the limited financial resources that a State can make available to an individual.

An attempt to delimit between enhancement and therapeutic treatment was made by the Science and Technology Options Assessment (STOA) which in the “Human Enhancement Study has tried to delimit the field between three different types of intervention:

1. The non strengthening, that is the treatment of a disease;
2. Therapeutic enhancement that is the treatment of a disease with effects exceeding the restoration of the initial state of health;
3. The non therapeutic strengthening that is the treatment aimed at improving a functioning already considered as “normal” [14].

Given the problems highlighted briefly, five different models of possible regulation have been proposed.

The first is that of prohibition, as opposed to this is that of total laissez-faire, the third is characterized by an approach that can be defined as moderate and pro-enhancement, the fourth from a restrictive approach and the last from the case by case approach model [15].

At present, the greatest moral and ethical problem is the impact that new technologies of empowerment could have on the nature and authenticity of man understood as identification of the individual with their own fundamental abilities and characteristics that could be altered by interventions which are not strictly therapeutic and medical [16].

### **3. Doping as human empowerment**

Doping has been defined as one of seven types of enhancement (cosmetic surgery, prohibition of eugenics selection, smart drugs, deep brain stimulation, military enhancement and biological enhancement. Doping is therefore a strengthening technique whereby the physical and/or biological conditions of the athlete are artificially altered through the administration of substances and certain methods.

At a time when we are dealing with the problem of doping, we must remember, as has been said, that if every historical moment provides for the creation of its own sport at the same time, every epoch is inclined to create its own doping.

The very essence of doping appears to be closely linked to the results of medical and pharmacological research, whereas.

The assessment of the eligibility of substances suitable for enhancing an artificial performance depends on a strictly legal choice as well as anthropological, moral and social based on the definition of the model of man and opponent that you want to admit.

From an etymological point of view the word doping seems to derive from the term “dap” that was used in the Dutch colonies in Africa and that indicated a fortifying alcoholic drink that was taken by the warriors of the Zulu ethnic group to face the battle with the best possible personal performance.

A further origin of the noun doping seems to be “dope” that is a trade name of a liquid used by the pioneers of North America to be able to harden the leather already used to then obtain soles from shoes. For others, doping should come from the word “doop” which indicated an exciting drink that was used by hunters in the Hudson Basin to withstand the physical difficulties of the environment.

In doctrine and literature it has been argued that the most credited hypothesis of the word doping would be nothing more than a transcription in English of the word “dop” with which was indicated an exciting drink used by the Kafir tribe during the performance of ritual dances.

The date certain concerning the first appearance in the word doping is 1889 year in an English vocabulary, in the same year the term sees its introduction in the world of sport to indicate a mixture formed by opium, other narcotics and tobacco that is administered to racehorses in North American racecourses to reduce performance and then to control the results of races and the related money from illegal betting.

Despite the controversial origins of the etymology of the term, the greatest difficulty is in arriving at a definition of this word. The most problematic aspect is that the expression doping is suitable to indicate an extremely heterogeneous phenomenon.

In 1962, the Italian Sports Medicine Federation (FMSI) qualified the doping phenomenon as the intake of substances suitable to artificially increase the performance in the race of competitors thus affecting the moral and physical and mental integrity.

The Council of Europe considered doping the ingestion or use of non-biological substances of any nature or physiological substances by healthy individuals with the aim of artificially and unfairly improving its own advantage in anticipation of a competition.

### **3.1 Doping and law**

The first bans on the use of substances capable of exceeding the natural limits [17] of the human body were banned only from 1920: from that date on, due to the progressive spectacularization of sports performance, be it single or collective. Only between the '40s and the '70s of the previous century was created an organism (AMA-WADA: Agence Mondiale Antidopage - World Anti-doping Agency) aimed at carrying out scientific research and controls to combat doping in the sports world.

The main objective of the AMA-WADA is to promote and coordinate worldwide the fight against doping in sport in all its forms (art.4) in order to support ethical principles for the practice of doping-free sport and to contribute to the protection of the health of athletes (Art. 4 co.2) [18].

Internationally protected and regulated core values are:

1. Support ethical principles for the practice of sport without doping;
2. To contribute to the protection of the health of athletes.
3. These are provisions contained within the Code Mondial Antidopage which is defined as mandatory by art. 43 of the Olympic Charter. This code was adopted for the first time in 2003 and entered into force the following year.

The main features of the World Anti-doping Programme are:

1. The same Code;
2. International Standards;
3. Good practice models and guidelines [19].

The intrinsic value that animates and pervades this document is the pursuit of human excellence through the perfection of natural talents that each subject possesses. It is a principle that has some declinations, such as: ethics, fair play and honesty, health, excellence in sports performance, fun and joy, teamwork, compliance with rules and laws, respect for oneself and the other participants, courage, group spirit and solidarity. The use of doping is contrary to all the principles mentioned above [20].

The same Code also contains a definition of doping: the violation of one or more of the rules of the Code among those contained in art. 2 from paragraph 1 to paragraph 1; art. 2 co.1 stresses that the presence of a prohibited substance, or of its metabolites or markers in the sample provided by a sportsman, is considered a violation of the anti-doping rules; the violation is independent of intention, the error, negligence or conscious use of the substance. There is therefore an objective responsibility of the athlete who must ensure that no substance among those prohibited is present within his body [21].

This objective responsibility of the athlete is mitigated if it is not relevant the existence of the prohibited substance but a quantity of it or if it can be demonstrated that a certain substance has been produced by the organism endogenously [22]. In such cases, the responsibility of the athlete appears to be subject to further investigation consisting in the exact determination of the prohibited substance or the determination that the substance was produced endogenously by the organism.

Finally, art. 4 co.4 contains a hypothesis of non-existence of responsibility if a specific authorization for the use of the prohibited substance is found: it is an authorisation for therapeutic purposes in favor of the athlete which has been issued in accordance with procedural rules contained in international standards.

### **3.2 Doping and sport ethics**

The reflection of the practice of doping within sport [23, 24] has not only a legal but also an ethical aspect. When a definition of doping is approached, reference is made to regulatory requirements or an attempt is made to reach a clear and unambiguous definition.

The problem is that doping is not a theoretical and abstract concept but is closer to the definition of Greek *pharmakon* [25], ie poison and antidote, good and evil at the same time. Consequently, if we do not have a clear distinction for drugs, we cannot look for a legal framework to establish *ex ante* what doping is because the problem of doping in sport is the result of ethical and political influences [26].

The logical consequence of this is that the answers sought, be they philosophical, political, sociological, medical and legal, are qualified as mere rhetorical experiments insufficient to understand this practice. The understanding of the practice of doping depends, in fact, not only on the impossibility of adopting an objective and exhaustive definition but also on the circumstance under which it is a cultural construction in continuous mutation.

Ultimately, doping is defined as undecidable, that is, a concept whose definition is always under construction and training and whose meaning is increased on the basis of binary opposition: good or evil, admitted or forbidden, for example.

The beating heart of the problem is that doping is going beyond any limit that is placed: it becomes the tool to extend natural limits, to overcome human potential but also to go beyond the limits set by the rules that govern it. It is therefore clear that doping is essentially a cultural problem because it requires reflection and distinction between natural and artificial [27].

A further consideration is the distinction between two aspects of doping: the hemical and the ethical. The first refers to the personal point of view, the second concerns the values existing in society. The hemi-point of view makes athletes argue the need to take doping substances while the ethical perspective imposes as necessary the condemnation of doping. Part of the doctrine also argued that the regulation of doping in sport has become maniacal as if the aim was to seek and then find in sport forms of disease, of corruption, of ethical degeneration forgetting the neuralgic aspect of sport, that is, the playful dimension.

The latter is the great absent because very often sports competitions can be defined as “zero sum game”: the victory is interpreted as a definitive and irreparable achievement by the winner. It is clear that it appears to be extremely contrasting with the pedagogical function of sport which qualifies sport as a confrontation between peers who are confronted to highlight their skills and to deserve a prize that derives not only from the value that has been but also by respecting the rules that govern that specific activity.

Also from an ethical and philosophical perspective, similarities between sport and doping have been found: Practicing sports involves exceeding a limit and provides a feeling of pleasure to people as exercise releases endorphins that cause a feeling of pleasure and are substances similar to morphine and opium.

By adhering to this reconstruction the same sport can be defined doping place that the first one meets all the requirements to determine the overcoming of human limits; to pursue this objective means are used, tools and practices needed to increase physical effectiveness. It therefore emerges that overcoming oneself is one of the peculiar characteristics of both sport and drugs in general [28].

In conclusion, it can be said that sport behaves like a form of doping and drugs for the following reasons:

1. It can lead to dependence and habituation in the masses which are reduced to mere consumers without consciousness;
2. It is a tool to strengthen and extend the body, implying an overcoming of the human not only in his physical but also psychic dimension [29].

#### **4. Conclusions**

The reflections expressed in the previous paragraphs have highlighted how the concept of doping and its discipline, regulation appears to be a cultural product and, consequently, just as social and cultural perception leads to a certain definition of a substance as a dopant.

At the same time, it has been stressed that it is necessary to curb the phenomenon of human empowerment implemented and implemented through the use of medicines or special techniques cannot be separated from an education aimed at making the true essence of values and mentality that permeates the world of sport.

One of the peculiar and difficult aspects of definition and solution concerns the situation of athletes who, due to an endocrine disease, possess a high concentration in the blood of anabolic hormones. In other words, they are women characterized by a masculine appearance with particular reference to muscle mass or athletes with peculiar genetic conditions that allow a higher supply of oxygen in the blood.

The cases that will be analyzed have as their main characteristic to relate with athletes who, like equal climatic and training conditions, they have in the abstract an objective advantage over others precisely because of their genetic constitution.

Precisely a particular pathology from which a particular individual is affected can turn into a positive aspect in a specific situation, namely, in the case of a species a sports competition.

If this is the premise, the question that animated the bio-ethical and bio-legal debate is whether it is possible to exclude legitimately from the competition the subject that should be in that situation.

This would protect the needs of justice in the broad sense, but it would bring with it problems of discrimination: a person suffering from a genetic disease would suffer unfavorable treatment precisely because of the effect that this disease determines. In this sense it should be clarified that no subject can be recognized the merit to be born with a certain DNA profile or a certain genetic profile suitable to make it “more powerful” than others [30, 31].

The “naturally” enhanced subjects refer to the epithet that was attributed to Achilles, that is, the fastest Achilles. This expression indicates that the Achaean hero had in his point of weakness, namely the heel, his point of strength and, in the opinion of the writer, Achilles can become the paradigmatic example of naturally enhanced subjects due to a genetic mutation that characterizes them. As Achilles found his weak and strong point in the heel, athletes who possess a genetic characteristic that many times results in pathology their most important aspect compared to others during the course of a sports competition. The comparison just made could also flow into a pedagogical perspective, Educational and sports inviting to reflect how the limit of each individual subject can be transformed into the point of strength and how it is crucial to exploit their weaknesses to make them become virtues.

By adopting a strictly legal view it is stated that the objective responsibility of the athlete for doping concerns the introduction of one of the substances defined as prohibited within the body of the athlete as it is the duty of the latter to use so that no entry is made, penetration of one of the prohibited substances into his body.

In the present case, it is a biological, genetic, peculiar characteristic of that particular subject that does not derive from the intake of particular substances or from the penetration of those substances within his organism. On the contrary, its genetic peculiarity is the source of the empowerment itself.

If that is the legal response, then bioethics is faced with two alternatives. The first is the exclusion of the athlete enhanced because of his pathology in order to establish competitions reserved for subjects with the same characteristics.

The second, on the other hand, proposes the possibility of allowing other athletes to use biotechnology to make genetic endowment homogeneous. This is a very problematic solution because it is in contrast with the principles that inform sports practice to the point of shifting the focus from the importance of commitment, training to the creation and establishment of laboratories capable of studying, analyze and then administer biotechnological and genetic substances and treatments in order to make the performance of athletes homogeneous.

In addition to the risk, should it be decided to follow this second option, is to provide an almost unlimited power to the scientific technical power as the only objective that animates the life of men is to become more and more enhanced than

the other. In this way the danger is that the other becomes more and more a model to reach and in which we see only the aspects of empowerment that he possesses when we relate to ourselves.

This is a dangerous mechanism because it risks leading to the qualification of empowerment as a right of absolute freedom [32]. But even the latter could be problematic as it is suitable to conceal the risk of a possible exploitation [33] by technology, science, biopolitics and bioeconomy excluding any judgment of lawfulness [34–36].

Human empowerment is a subject that turns out to be extremely complex mainly because of its transversality and with respect to which it is necessary to adopt an attitude of study and analysis that draws from different perspectives declining their convictions in the light the different fields of possible application [37]. In other words there is no definitive and conclusive answer as it is impossible to adopt a position of total acceptance or totally uncritical refusal [38].

The method of approaching the problem is to reflect on the circumstance that man inevitably tends to the process of improvement and that, at the same time, the advances that technical evolution [39]. The European Commission has made it possible to achieve these objectives by defining them as new instruments but at the same time considered essential for achieving the objectives.

At the same time it is necessary to reflect on the goal of improvement, that is, which objectives are pursued and relate them to one's own experience [40] in addition to past, present and future society, always remembering the existence of a limit [41]. The latter indicates the characterizing aspect of the human being and the concept of humanity beyond which it is not possible to continue to use the concept of the human being [42, 43].

IntechOpen

## **Author details**

Camilla Della Giustina  
Constitutional Law, University of Padua, Padova, Italy

\*Address all correspondence to: [camydg94@gmail.com](mailto:camydg94@gmail.com)

## **IntechOpen**

© 2021 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. 

## References

- [1] U. Welsing, *The History of Medical Enhancement: From Restitutio ad Integrum to Transformatio ad Optimum?* In B. Gordijn, R. Chadwick, *Medical Enhancement and Posthumanity*, 2009.
- [2] C. BACCINI, F. BEZZI, M. CONTI, V. TAZZARI, *Doping e antidoping nello sport*, in *Caleidoscopio italiano*, n. 195, pp. 9-10.
- [3] G. NOVELLI, *Il doping genetico: ipotesi surreale o inquietante realtà?* In *Medicina dell'Esercizio Fisico e dello Sport*, vol. 2/2010, pp. 9-11.
- [4] W. GLANNON, *Brain, Body and Mind: Neuroethics with a Human Face*, Oxford University Press, 2011.
- [5] Si tratta di quello che è stato definito come disease mongering. M. CONFORTI, G. CORBELLINI, V. GAZZANIGA, *Dalla cura alla scienza. Malattia, salute e società nel mondo occidentale*, EncycloMedia Publishers, 2011, p. 434
- [6] D. Callhan, *The WHO Definition of Health*, in *Hastings Center Studies*, I, 1973, p. 77.
- [7] A. Den Exter, *The right to Health Care in several European Countries*, Kluwer Law International, 1999.
- [8] S. Segall, *Helath, Luck and Justice*, Princeton University Press, 2010.
- [9] K. Sadegh-Zadeh, *Fuzzy health, illness, and disease*, in *Journal of Medicine and Philosophy*, 2000.
- [10] K. Sadegh-Zadeh, *The prototype resemblance theory of disease*, in *Journal of Medicine and Philosophy*, 2008.
- [11] G. CORBELLINI, *Breve storia delle idee di salute e malattia*, Roma, 2004.
- [12] C. Elliott, *The tyranny of happiness: ethics and cosmetics psychopharmacology*, in *E. parens, Enhancing Human Traits: Ethical and Social Implication*, Georgetown University Press, 1998.
- [13] «Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity».
- [14] European Parliament, Science and Technology Options Assessment (STOA), C. COENEN, M. SCHUIJFF, M. SMITS, P. KLAASSEN, L. HENNEN, M. RADER, G. WOLBRING, *Human Enhancement Study*, pp. 19-20, 2009.
- [15] O. ERONIA, *Doping mentale e concetto di salute: una possibile regolamentazione legislativa?* In *Archivio penale*, n. 3/2012, pp. 1-23.
- [16] L. RICCI, M. CERSOSIMO, P. RICCI, *Human enhancement: questioni biogiuridiche*, in *International Journal of Developmental and Educational Psychology*, n.1/2019, pp. 215-223.
- [17] J. Hughson, *The ancient sporting legacy: between myth and spectacle*, in *Sport in Society*, vol. 12, n. 1, 1999, pp. 18-35. E.N. Gardiner, *Athletic of the ancient world*, Clarendon Press, Oxford, 1930.
- [18] V. Mele, D. Vantaggiato, M. Chiarotti, *Il doping biotecnologico: una proposta di lettura tra medicina, biomedica e biodiritto*, in *Medicina e Morale*, 2009, pp. 413-424.
- [19] Code Mondial Antidopage, *Object, portée et organization du programme mondial antidopage et du Code*, AMA-WADA, 2016, p.12.
- [20] H. Haisma, O. De Hon, *Gene doping in International Journal of Sports Medicine*, n. 27/2016.
- [21] T. Garcia, R. Sandler, *Enhancing Justice?* In *Nanoethics*, 2008, p. 277.

- [22] A. Miah, *Philosophical and ethical questions concerning technology in sport. The case of genetic modification*, in *Human Enhancement Study*, p. 67.
- [23] M.A. Holowchak, *Philosophy of Sport: Critical Readings, Crucial Issues*, Upper Saddle River, New Jersey, 2002.
- [24] L. Gardela, *What the Vikings did for fun? Sports and pastimes in medieval northern Europe*, in *World Archeology*, vol. 44, n. 2, 2012, pp. 234-247.
- [25] N.B. Crowther, *Sports, nationalism and peace in ancient Greece*, in *Peace Review*, vol. 11, n. 4, 1999, pp. 585-589.
- [26] J. L. TRIVIÑO J.L., *Ética y deporte*, Bilbao 2011.
- [27] E. ISIDORI, *Il doping alla luce della dike educativa tra punizione e comprensione*, in *Rivista Internazionale di Diritto ed Etica dello Sport*, n. 6-7-8/2016, pp. 287-299.
- [28] E. ISIDORI, *Il doping nello sport tra diritto, etica ed educazione*, in *Rivista Internazionale di Diritto ed Etica dello Sport*, n. 1/2014, pp. 71-83.
- [29] E. ISIDORI, *Filosofia dell'educazione sportiva. Dalla teoria alla prassi*, Roma.
- [30] L. PALAZZANI, *Il potenziamento umano. Tecnoscienza, etica e diritto*, Torino, pp. 80-81.
- [31] I. Austen, *Athletic Profiling in The New York Times*, September, 2004. R. Sandomir, *Olympics: Athletes may next seek genetic enhancement*, in *The New York Times*, March, 2002.
- [32] D. De Grazia, *Human Identity and Bioethics*, Cambridge University Press, 2005.
- [33] N. Agar, *There Is a Legitimate Place for Human Genetic Enhancement*, 2013.
- [34] National Research Council, *Opportunities in Neuroscience for future*, 2009.
- [35] B. Pardy, *Applying the Precautionary Principle to Private Person: should Affect Civil and criminal Liability?* In *Les Cahiers de droit*, 2002.
- [36] E. Black, *There Is No Legitimate Place for Human Genetic Enhancement The Slippery Slope to Genocide. Contemporary Debates in Bioethics*, 2013.
- [37] J. Harris, *Enhancing evolution. The ethical case of making better people*, Princeton University Press, 2007.
- [38] C. Elliott, *Better than Well: American Medicine Meets American Dream*, Norton, 2003.
- [39] A. Caplan, *Is better best?* In *Scientific American*, 2003, 389, p. 84.
- [40] I. Hyun, *Autentic Values and Individual Autonomy in The Journal of Value Inquiry*, 2001.
- [41] D. Callahan, *What Kind of Life. The Limits of Medical Progress*, Simond and Schuster, 1990.
- [42] M.J. Farah, *Emerging ethical issues in neuroscience*, in *Nature Neuroscience*, 2002, p. 1123.
- [43] I. Persson, J. Savulescu, *The Perils of Cognitive Enhancement and the Urgent Imperative to Enhance the Moral Character of Umanity*, in *Journal of Applied Philosophy*, 2009.