SOME PROBLEMS OF LEGAL SUPPORT FOR GENOMIC RESEARCH1

Olga A.Shevchenko
(Doctor of Law), Professor of the Department of Labor Law and Social Security Law of Kutafin Moscow State Law University (MSAL), Russia

Alena I. Redkina
(PhD (Law), Assistant professor of the Department of Sports Law of Kutafin Moscow State Law University (MSAL) , Russia

Dmitriy I Vorontsov
PhD (Law), Russia

Abstract: *Genomic research in sports can potentially contribute to the improvement of public policy, in particular in fight against gene doping, as well as in development of the sports training system. This article discusses the validity and necessity of conducting genomic research in sports, the features and problems of gene doping detection, as well as potential problems of legal regulation on data privacy protection in scientific genomic research in sports and storing and using genomic information to combat gene doping.*

Keywords: sports, sports law, doping, gene doping, elite sport, genome, DNA

The current level of development of science and technology provides a new approach to solving various problems of public policy, including those in the sport sector.

The ability to study the genomes of athletes to identify the characteristics associated with achieving high results, to improve the system of sports training and medical support for sports teams, as well as the threat of the spread and use of gene doping necessitate the improvement of legal regulation in this area, which, in turn, requires proper scientific understanding of the problem.

Generally, it is now possible to carry out genomic research in sports, especially those related to the achievement of public interests in this sphere, in the framework of the following key areas:

– development of biomedicine in general and in particular sports medicine in order to improve state policy in the field of high performance sport;

– genetic testing conduction in order to identify and to select for high per-

1. Translation from Russian into English is prepared by Kashekhlebova Ekaterina A. - Consultant at the Reporting Department of the High Commissioner for Human Rights in the Russian Federation email: k.kashekhlebova@gmail.com Smolensky Boulevard, d. 19, p. 2, Moscow, Russia, 119121

formance sport those athletes whose genetic characteristics can potentially determine their achievement of the highest sports results;

– improving the system of sports training;

– collection and analysis of athletes' data in order to identify the use of gene doping.

Under this article we will consider some conceptual framework for conducting genomic research in sports, in particular, from the point of view of identifying the use of gene doping, as well as some features of the legal support of such activities with consideration for the experience of some foreign countries.

The reasons and the necessity for genomic research in sports

Currently, the study of the genomes of the high performance sport athletes who achieve high results in various sports is becoming the subject of researchers close attention.

The requirements for training of athletes in popular and spectacular sports are becoming increasingly complex over time and need scientific justification to ensure improved athletic performance by improving training processes[2].

As Sam Mugandani points out the exact role played by genetic polymorphism in sports and athletic performance has yet to be explored , and performance in sport, especially in high performance sport, depends on the complex interaction of environmental factors, athletes lifestyle and genetic parameters[3]. But despite the fact mentioned above, many researchers have noted that there are certain variations of genes that determine the values of such physical qualities such as speed and endurance, muscle strength and control of emotions[4].

Genetic polymorphisms can be defined as genetic markers associated with an athlete's stamina or strength. Currently, more than 200 genetic markers are known that can potentially be associated with certain phenotypes of physical activity, some of which, according to studies, are associated with the possibility of high achievements in sports[5].

---

2. Ahmetov I.I., Fedotovskaya O.N. Current Progress in Sports Genomics // Advances in Clinical Chemistry. – 2015. – Vol. 70. – P. 247–314. <https://www.ncbi.nlm.nih.gov/pubmed/26231489>.

3. Mugandani SC Athletic performance enhancing ACE, ACTN3, AMPD1 genetic markers, fitnesscharacteristics, c-reactive protein and uric acid of cricket, netball, rugby and soccer players: a review // Journal of Applied Sports Sciences. - 2019 .-- Vol. 1. - P. 131–149. - P.141. <http://oaji.net/articles/2019/6163-1564057425.pdf>.

4. Pokrywka A., Kaliszewski P., Majorczyk E., Zembroń-Łacny A. Genes in sport and doping // Biology of Sport. - 2013 .-- Vol. 30. - No. 3. - P. 155–161. - P. 155. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3944571/>.

5. Leońska-Duniec A. Genetic research in modern sport // Central European Journal of Sport

It is also noted that genetic polymorphisms can be considered as genetic markers of a predisposition to a certain type of sports activity or to specific sports[6].

Liza Gut and Stephen Roth note that one of the main problems in identifying the influence of genetic factors of sports results achievement is their complexity due to the fact that each sport is unique and requires certain physical characteristics[7].

Understanding the genetic determinants of the various aspects of sport and physical activity can generally provide the opportunity to clarify the criteria for physical activities for individual athletes, with the help of which it will be possible to ensure efficiency and safety training, to improve the approaches to preventing and treatment of sports injury, to recovery and rehabilitation[8].

In addition, the genetic test potential can used to predict susceptibility to injury to provide the higher level of athletes safety[9].

One of the promising and comprehensive areas of genomic research in sports is also the study of the characteristics of the influence of genetic predisposition on the athlete's phenotype and on the athletes high results achievement in the context of preventing the use of gene doping.

In particular, due to the fact that the genetic diversity of individuals also affects the metabolism of substances and in some cases may interfere with the detection of prohibited substances in the athlete body[10].

Gene doping detection features and problems

The WADA Prohibited List of 2020[11] includes such prohibited methods as gene and cell doping , which entail the use of nucleic acids or nucleic acid analogs that

Sciences and Medicine. - 2013 .-- Vol. 3. - No. 3. - P. 19–26. - P. 21.

6. Pokrywka A., Kaliszewski P., Majorczyk E., Zembroń-Łacny A. Genes in sport and doping // Biology of Sport. - 2013 .-- Vol. 30. - No. 3. - P. 155–161. - P. 156. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3944571/>.

7. Guth LM, Roth SM Genetic influence on athletic performance // Current Opinion in Pediatrics. - 2013 .-- Vol. 25. - No. 6. - P. 653–658. - P.653. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3993978/>.

8. Leońska-Duniec A. Genetic research in modern sport // Central European Journal of Sport Sciences and Medicine. - 2013 .-- Vol. 3. - No. 3. - P. 19–26. - P. 22.

9. Guth LM, Roth SM Genetic influence on athletic performance // Current Opinion in Pediatrics. - 2013 .-- Vol. 25. - No. 6. - P. 653–658. - P.656. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3993978/>.

10. Pokrywka A., Kaliszewski P., Majorczyk E., Zembroń-Łacny A. Genes in sport and doping // Biology of Sport. - 2013 .-- Vol. 30. - No. 3. - P. 155–161. - P. 158. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3944571/>.

11. Prohibited List (january 2020) / World Anti-doping Agency // <https://www.wada-ama.org/sites/default/files/wada_2020_english_prohibited_list_0.pdf>.

can change the sequence of the genome and / or modify gene expression by any mechanism that includes, but is not limited to genes editing technologies, gene expression and gene transfer suppressing, as well as the use of normal or genetically modified cells[12].

An artificial gene can be incorporated in various ways, in particular, by direct injection of DNA into the muscle, the introduction of genetically modified cells, and also by using the virus[13].

Now the scientific literature in the field of gene therapy and the use of genetically counter of doping don't contain the clear consensus on methods of application of the detection of gene doping that are to be used.

In particular, this is due to the fact that the identification of the use of gene doping is difficult compared to the identification of the use of other prohibited substances or methods[14]..

There are direct and indirect methods of gene doping detection.

Direct methods allow you to identify directly applied substance or method, while indirect methods are aimed at fixing changes in cells, tissues or throughout the body as a whole The use of direct methods is more preferable[15].

Direct detection methods can include, in particular, biopsy (although for the application of this method it is necessary to know the exact injection site and this method is too invasive), virus detection by PCR method, the study of post-translational modifications and others[16].

The use of genetic technologies that are aimed, for example, at increasing muscle strength, may not be detected by examining an athlete's blood or urine, as it may involve local production of proteins in a particular muscle. A reliable method for such technologies detection will require a biopsy, which is almost impossible to implement in relation to athletes[17].

---

12. 2020 Prohibited List // < https : // rusada . com / upload / iblock / bbb / 2020% 20 Prohibited % 20 List % 20 RUS % 20% D 0% BF % D 0% BE % D 1% 81% D 0% BB % D 0% B 5% D 0% B 4% D 0% BD % D 0% B 8% D 0% B 9. pdf >.

13. Unal M., Ozer Unal D. Gene Doping in Sports // Sports Medicine. - 2004. - Vol. 34. - No. 6. - P. 357–362. - P. 358. <https://www.ncbi.nlm.nih.gov/pubmed/15157120>.

14. Van der Gronde T., de Hon O., Haisma HJ, Pieters T. Generation: an overview and current implications for athletes // British Journal of Sports Medicine. - 2013 .-- Vol. 47. - P. 670–678. <https://bjsm.bmj.com/content/47/11/670>.

15. Baoutina A., Alexander IE, Rasko JEJ, Emslie KR Developing strategies for detection of generation doping // The Journal of Gene Medicine. - 2007. - Vol. 10. - No. 1. - P. 3–20. - P. 4. <https://onlinelibrary.wiley.com/doi/abs/10.1002/jgm.1114>.

16. Van der Gronde T., de Hon O., Haisma HJ, Pieters T. Generation: an overview and current implications for athletes // British Journal of Sports Medicine. - 2013 .-- Vol. 47. - P. 670–678. <https://bjsm.bmj.com/content/47/11/670>.

17. Brzeziańska E., Domańska D., Jegier A. Generating in sport - perspectives and risks // Biol

In general, the methods of gene doping detection should be specific, sensitive, relatively fast, cost-effective and provide highly-accurate analysis[18].

Thun van der Gronde, Olivier de Hon, Hidde Heisma, Toyne Peters note, inter alia, the following characteristics of the preferred methods of gene doping detection:

– availability and ease of use for large-scale use;

– reliability ;

– fast application[19].

An ideal probe for the gene doping detection is to be collected using noninvasive techniques, and there should the possibility to study it in a relatively long period of time[20].

Researchers specify that an individual athlete doping control method should be introduced in addition to other control methods. Under this method each athlete will be considered as a starting base for himself. To implement this method, it is necessary to collect data on each athlete, the results of his biochemical and hematological analyzes and gene expression profiles in order to be able to constantly monitor[21].

In the case of applying genome editing technologies, one of the probable ways to identify the use of such a prohibited method is to track changes by studying the genomic information of athletes. Despite the fact that now the technologies for editing the human genome are not widely available and widespread, nevertheless, this approach will create the basis for the prevention of the potential wider use of gene doping in the future.

However, to implement this approach it is necessary to ensure the collection and storage of such information, which raises many questions regarding legal regulation in this area.

Sport. - 2014 .-- Vol. 31. - No. 4. - P. 251–259. - P.253. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4203840/>.

18. Baoutina A., Alexander IE, Rasko JEJ, Emslie KR Developing strategies for detection of generation doping // The Journal of Gene Medicine. - 2007. - Vol. 10. - No. 1. - P. 3–20. - P. 4. <https://onlinelibrary.wiley.com/doi/abs/10.1002/jgm.1114>.

19. Van der Gronde T., de Hon O., Haisma HJ, Pieters T. Generation: an overview and current implications for athletes // British Journal of Sports Medicine. - 2013 .-- Vol. 47. - P. 670–678. <https://bjsm.bmj.com/content/47/11/670>.

20. Baoutina A., Alexander IE, Rasko JEJ, Emslie KR Developing strategies for detection of generation doping // The Journal of Gene Medicine. - 2007. - Vol. 10. - No. 1. - P. 3–20. - P. 4. <https://onlinelibrary.wiley.com/doi/abs/10.1002/jgm.1114>.

21. Brzeziańska E., Domańska D., Jegier A. Generating in sport - perspectives and risks // Biol Sport. - 2014 .-- Vol. 31. - No. 4. - P. 251–259. - P.257. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4203840/>.

Potential Legal Issues in Genomic Research

The issue of legal support in this area is complex, as it affects the following public interests:

– the interest of the state in the development of sports, both of high-performance sports and mass sports, which in any case requires a cautious approach to solving the issue of conducting such studies and using their results;

– interests related to the provision of doping-free sports;

– state interests in the field of healthcare (including the need to care for the health of athletes);

– interests in the field of guarantee of personal information confidentiality, protection of the right to privacy.

Accordingly, the legislative regulation of genomic information collection and storage should take into account all of these interests and ensure their proper balance.

It should be noted that the approaches to the legal provision of the collection and storage of such information for different purposes (the purposes of the science development and the purposes of gene doping identification) will be slightly different.

Guarantee of confidentiality of data under the scientific genomic research in sport

Ellen Wright Clayton, Barbara Evans, James Hazel and Mark Rothstein point out the dual nature of the value of information about the human genome: on the one hand, this information is confidential, since it contains personal data of specific individuals, and on the other hand, only the study of the genome of many people can pursue the development of some areas of biomedicine[22] . This is of particular relevance to genomic research in sports.

The development of science in the field of genomic research increases the risks of violating the confidentiality of personal information of those people whose data are being studied, due to the expansion of the possibilities of combining data from various sources, such as records fro medical records, data on the lifestyle of the studied individuals and their behavior[23].

---

22. Clayton EW, Evans BJ, Hazel JW, Rothstein MA The law of genetic privacy: applications, implications, and limitations // Journal of Law and the Biosciences. - 2019 .-- Vol. 6. - No. 1. - P. 1–36. - P. 1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6813935/>.

23. Federal Policy for the Protection of Human Subjects / A Rule by the Homeland Security Department, the Agriculture Department, the Energy Department, the National Aeronautics and Space Administration, the Commerce Department, the Social Security Administration, the Agency for International Development, the Housing and Urban Development Department, the Labor Department, the Defense Department, the Education Department, the Veterans Affairs

In the field of sports the data of the high-performance and professional athletes are more often on the focus of research. So these categories of people are more exposed to the risk of being identified.

Accordingly, in order to conduct scientific genomic research in sports, it is necessary to guarantee the adequate protection of such information.

State policy in the field of genetic information storage often suggests a balance between the right of individuals for guarantee of the confidentiality of such information and the rights of other individuals and society to have an access to it[24].

As a rule, to conduct research of genomic information for scientific purposes, it is necessary to get the consent of the relevant person, to ensure anonymity (deleting or encoding identifying information), and also to destruct DNA samples after the completion of a research project.

Clause 6.3 of the Article 6 of the World Anti-Doping Code (as amended from 2019)[25] states that the samples of athletes may be subject to research for scientific purposes with the written consent of the athletes, as well as with the deleting of any identifying information.

Let us consider the examples of some foreign countries, the legislation of which contains provisions relating to genomic research.

In particular, there are such rules in the laws of a number of US states.

For example, in accordance with Section 192.537 of the Oregon Code of Revision[26], a DNA sample or genetic information obtained from biological material can be used for research only with informed consent of the person who owns such data for a specific anonymous research project, or a research project in which the data is encrypted. In addition, the law states the necessity of destroying a DNA sample after the completion of a project or after the person leaves the project.

In accordance with Section 10: 5-46 of the New Jersey Code[27] it is possible to store the genetic information of a person without his prior informed consent for anonymous research, which does not reveal his identity. In this case, the

---

Department, the Environmental Protection Agency, the Health and Human Services Department, the National Science Foundation, and the Transportation Department on 01/01/2017 / / <https://www.federalregister.gov/documents/2017/01/19/2017-01058/federal-policy-for-the-protection-of-human-subjects>.

24. Clayton EW, Evans BJ, Hazel JW, Rothstein MA The law of genetic privacy: applications, implications, and limitations // Journal of Law and the Biosciences. - 2019 .-- Vol. 6. - No. 1. - P. 1–36. - P. 4. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6813935/>.

25. World Anti-Doping Code 2015 (with 2019 change) / World Anti-doping Agency // <https://www.wada-ama.org/sites/default/files/resources/files/wada_anti-doping_code_2019_english_final_revised_v1_linked.pdf >.

26. 2017 Oregon Revised Statutes // <https://www.oregonlaws.org/oregon_revised_statutes>.

27. New Jersey Statutes // <https://lis.njleg.state.nj.us>.

DNA sample used to implement the research project must be destroyed after its completion.

Vermont has a slightly different approach, described in section 9332 of the Vermont Code[28]. The written informed consent of the person is not required to use the results of genetic testing for research purposes, if such a research is conducted using anonymous information. A unique identifier of such results is to be encrypted or encoded, and the identity of the person is not to be specified.

In accordance with articles 16-10 of the French Civil Code[29], the study of human genetic characteristics is possible only for medical or scientific purposes.

In Spain, specialized committees are responsible for ensuring compliance with data confidentiality standards and the ethics of ongoing research projects.

Article 12 of the Law of Spain No. 14/2007 "On Biomedical Research[30]" dated 03.07.2007 states that there should be the Certified Committees on Ethics of Biomedical Research, that in the frameworks of their activity ensure the observation of the legislation on personal data protection, and also carry out assessment of the feasibility, methodological, ethical and legal aspects of the research projects .

The key requirements for the use of genomic information for scientific research in the field of sports include the deletion of personal data, on the basis of which you can later identify the athlete who participated in the study, as well as his written consent to participate in such a study.

Storage and use of genomic information to combat gene doping

Paragraph 6.2 of the Article 6 of the World Anti-Doping Code (as amended from 2019) allows the creation of genomic or DNA profiles of athletes.

To improve legal support in this area, it is necessary to balance the interests of all parties, avoiding an unnecessarily restrictive position.

Despite the fact that the legislative measures are usually aimed at ensuring the complete confidentiality of such information, there are exceptions that provide for the possibility other persons' access to such information and identifying data.

So, Ellen Wright Clayton, Barbara Evans, James Hazel and Mark Rothstein highlight the following purposes for the provision of such information:

– to inform the tested person relatives who are at risk regarding any disease;

– to get the information tested person relatives;

28. Vermont Statutes // <https://legislature.vermont.gov/statutes/section/18/217/09332>.

29. Code civil // <https://www.legifrance.gouv.fr/affichCode.do?cidTexte=LEGITEXT000006070721&dateTexte=&categorieLien=cid>.

30. Ley No. 14/2007, de 3 de julio de 2007, de Investigación biomédica // Boletín Oficial del Estado. - July 4, 2007. - No. 159. <https://www.boe.es/buscar/act.php?id=BOE-A-2007-12945>.

– for law enforcement agencies, in order to administer criminal justice;
– issues related to the implementation of labor relations;
– to implement some health insurance goals[31].

In general, if we talk about the Russian and foreign experience, the collection, use and storage of genetic information can be carried out in two main ways: with the consent of the person who is the owner of such information, or as a part of mandatory genomic registration. Moreover, the list of situations to which the latter applies is strictly limited.

For example, in accordance with the Federal Law of the Russian Federation No. 242-FZ "On State Genomic Registration in the Russian Federation"[32] dated 03.12.200, compulsory genomic registration is provided for persons convicted and serving sentences of imprisonment for the commission of certain types of criminal acts, as well as for unidentified persons whose biological material was seized during the course of investigative actions (Article 7).

The Swiss Federal Law "On the use of DNA profiles in criminal proceedings and on the identification of unknown or missing persons" dated 20.06.2003is similarly applicable.[33]. This regulatory act is aimed at regulating the use of DNA profiles in the criminal proceedings, as well as for identifying of persons whose identity it is not possible to establish in another way, or missing or dead people. The data system containing DNA profiles functions under this act.

Article 81 g of the German Criminal Procedure Code provides for the similar approach, aimed at ensuring the possibility of investigating future crimes[34].

Legal support for the conduction of genomic research in relation to athletes to identify gene doping will require the creation of unique mechanisms similar in nature to the mechanisms of compulsory genomic registration.

However, the limits of such genomic registration are clearly set. Usually it can be carried out only for identification purposes, while the study of the athletes' genomic information as a part of the fight against doping involves more in-depth studies.

So, in accordance with Article 2 of the Federal Law of the Russian Federation No. 242-FZ "On State Genomic Registration in the Russian Federation" dated 03.12.2008 the purpose of state genomic registration is to identify a person.

---

31. Clayton EW, Evans BJ, Hazel JW, Rothstein MA The law of genetic privacy: applications, implications, and limitations // Journal of Law and the Biosciences. - 2019 .-- Vol. 6. - No. 1. - P. 1–36. < https : // www . ncbi . nlm . nih . gov / pmc / articles / PMC 6813935 />.

32. Federal Law of the Russian Federation dated 03.12.2008 No. 242-ФЗ "On State Genomic Registration in the Russian Federation" // ATP "Consultant Plus".

33. Loi fédérale du 20 juin 2003 sur l'utilisation de profils d'ADN dans les procédures pénales et sur l'identification de personnes inconnues ou disparues // <https://www.admin.ch/opc/fr/classified-compilation / 20031383 / index.html>.

34. Strafprozeßordnung // <https://www.gesetze-im-internet.de/stpo/>.

In accordance with Article 81e of the German Criminal Procedure Code, biological material may be subjected to analysis to establish a DNA profile of a person, his or her origin and gender, but other genetic studies of this material cannot be conducted.

In accordance with the Part 2 of the Article 2 of the Swiss Federal Law "On the Use of DNA Profiles in Criminal Proceedings and on Identification of Unknown or Missing Persons" dated 20 June 2003, it is forbidden to determine the state of health and other characteristics of the persons, whose material is tested, other than his or her gender.

There are some similarities to genomic research tools used to identify and prevent occupational diseases.

For example, the Swiss Federal Law "On the human genetic analysis"[35] of 2004 provides for the possibility of conducting genetic analysis when applying for a job or as part of an employment relationship in order to prevent occupational diseases and accidents. Moreover, the analysis can only be aimed at identifying a person's genetic predisposition to diseases or injuries; it is forbidden to search and study other genetic data (in accordance with Articles 22–23 of this act). This act also provides for the possibility of conducting relevant studies to establish the identity or origin of a person, in particular, as part of a civil process.

A similar approach is implemented in the Law of Germany "On genetic research in humans"[36] of 2009.

Conclusion

The collection, use and storage of athletes genomic data should be addressed through legislation, despite the fact that there are relevant rules also at procedural level (in particular, the World Anti-Doping Agency documents have now set some regulatory framework of collection and study of such information).

It seems that the legal basis for conducting genomic research in sports, including those aimed at combating gene doping, should be enshrined in legislation in the field of biomedical research and genomic registration.

At the same time it is necessary to adopt special rules in the field of sport that combine elements of the approach of mandatory and voluntary genomic registration.

35.Loi fédérale sur l'analyse génétique humaine // Recueil officiel RO. - 2007. - No. 635. <https://www.admin.ch/opc/fr/classified-compilation/20011087/index.html>.

36.Gesetz über genetische Untersuchungen bei Menschen // <https://www.gesetze-im-internet.de/gendg/BJNR252900009.html>.

Bibliography

1. Ahmetov I.I., Fedotovskaya O.N. Current Progress in Sports Genomics // Advances in Clinical Chemistry. – 2015. – Vol. 70. – P. 247–314. <https://www.ncbi.nlm.nih.gov/pubmed/26231489>.

2. Baoutina A., Alexander I.E., Rasko J.E.J., Emslie K.R. Developing strategies for detection of gene doping // The Journal of Gene Medicine. – 2007. – Vol. 10. – № 1. – P. 3–20. – P. 4. <https://onlinelibrary.wiley.com/doi/abs/10.1002/jgm.1114>.

3. Brzeziańska E., Domańska D., Jegier A. Gene doping in sport – perspectives and risks // Biol Sport. – 2014. – Vol. 31. – № 4. – P. 251–259. – P.253. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4203840/>.

4. Clayton E.W.,Evans B.J., Hazel J.W., Rothstein M.A. The law of genetic privacy: applications, implications, and limitations // Journal of Law and the Biosciences. – 2019. – Vol. 6. – № 1. – P. 1–36. – P. 1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6813935/>.

5. Guth L.M., Roth S.M. Genetic influence on athletic performance // Current Opinion in Pediatrics. – 2013. – Vol. 25. – № 6. – P. 653–658. – P.653. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3993978/>.

6. Leońska-Duniec A. Genetic research in modern sport // Central European Journal of Sport Sciences and Medicine. – 2013. – Vol. 3. – № 3. – P. 19–26. – P. 21.

7. Mugandani S.C. Athletic performance enhancing ACE, ACTN3, AMPD1 genetic markers, fitness characteristics, c-reactive protein and uric acid of cricket, netball, rugby and soccer players: a review // Journal of Applied Sports Sciences. – 2019. – Vol. 1. – P. 131–149. – P.132. <http://oaji.net/articles/2019/6163-1564057425.pdf>.

8. Pokrywka A., Kaliszewski P., Majorczyk E., Zembroń-Łacny A. Genes in sport and doping // Biology of Sport. – 2013. – Vol. 30. – № 3. – P. 155–161. – P. 155. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3944571/>.

9. Unal M., Ozer Unal D. Gene Doping in Sports // Sports Medicine. – 2004. – Vol. 34. – № 6. – P. 357–362. – P. 358. <https://www.ncbi.nlm.nih.gov/pubmed/15157120>.

10. Van der Gronde T., de Hon O., Haisma H.J., Pieters T. Gene doping: an overview and current implications for athletes // British Journal of Sports Medicine. – 2013. – Vol. 47. – P. 670–678. <https://bjsm.bmj.com/content/47/11/670>.

11. Kalinichenko P.A., Ponomareva D.V. Ethical and legal aspects of the regulation of genomic research in international and Russian practice // Medical Radiology and Radiation Safety. 2019.V. 64. No. 5. P. 69–70

12. Shevchenko O.A., Redkina A.I., Vorontsov D.I. Features of legal support of genomic research in sports: foreign experience // Theory and practice of physical culture - 2020 - No. 4 - No. (982) - P. 77-80

PUBLIC ADMINISTRATION IN THE FIELD OF PREVENTION AND ELIMINATION OF THE USE OF DOPING IN SPORT: ADMINISTRATIVE AND LEGAL ASPECTS

Degtyarev Mikhail Vladimirovich (Ph.D.)
Acting Governor of Khabarovsk region in the Russian Federation , Russia

Abstract: *The Article is devoted to systematisation of public administration instruments and public policy in the field of prevention and elimination of the use of doping in sport, based on foreign experience. The legislative experience of foreign countries was investigated and involved.*

Keywords: doping in sports, public administration in the field of sport, anti-doping support for sports, sport, administrative law.

Keywords: Sport, doping, public administration, WADA, administrative law, sports law

Introduction

The doping problem in sports is still more than relevant. Public administration and the state policy in the field of combating doping in sports is still far from being ideal in all countries worldwide, have both many shortcomings and generic, long time unsolved, problems and issues (the problem of abuse of Therapeutic Use Exemption of doping drugs in sports, the intentional avoidance by some organisations (e.g., in the USA) of the interference of WADA representatives in their business, developments in the field of difficult to detect gene doping in sports, and other).

At a fundamental level of understanding and with a significant scope of coverage national science hardly contains analytical systematisation of public administration tools in the field of doping elimination in sport. However, in recent years this topic has become more relevant than ever and deserves a more fundamental scientific understanding and legal interpretation, especially in administrative law and state management aspects.

The main idea of the dissertation research was to provide sample reference due to the study covering a sufficiently large number of countries (and a sufficiently large volume of investigated regulatory legal acts) - from different continents, with legal systems from different legal families.

In this paper we provide extracts not from all the foreign regulatory legal acts we analysed by on the studied thematic horizon (this was made not to overload the text with unnecessary duplications or analogues).

While conducting our scientific research, we have studied the legislative ex-