

# Anti-doping and sex-control in kind of sport triathlon

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**Purpose:** to analyze the basic provisions of the World Anti-Doping Code, that regulates activity of the Agency on fight against the use of dope in the world sport.

**Material & Methods:** studying and generalization of special literature on the problem of use of pharmacological substances in sport, analysis of the procedure of carrying out anti-doping and sex-control in triathlon.

**Results:** the groups of the pharmacological substances, which are forbidden to application in sport, are considered; the order of holding procedures anti-doping and sex-control, and also the sanction, which are used concerning triathletes in case of the positive result of doping test, are shown.

**Conclusions:** Pharmacological substances are forbidden to use and entered in the special list by the World Anti-Doping Agency, which promote the improvement of sports results, at the same time the procedure of anti-doping control and the sanction, which are used concerning sportsmen at the confirmation of the fact of application to dope, are severely regulated by the Code, and also sex-control is carried out in addition in doubtful cases at absence of the certificate at triathletes.

**Keywords:** triathlete, World Anti-Doping Agency, the World Anti-Doping Code, dope, special substances, positive result of test, disqualification.

## Introduction

The World Anti-Doping Agency (WADA) was founded on November 10, 1999. Now Craig Collins Reedy is its president, John Fahey was his predecessor.

The World Anti-Doping Code drafted by WADA and approved in March, 2003 at the conference in Copenhagen (150 pages) is the main normative document, regulating the activity of the Agency on fight against use of dope in the world sport [9]. Also rights and sportsman's duties are stipulated in it during the procedure of anti-doping control. The international and national anti-doping organizations and the agencies are obliged to adhere to provisions of the code because it is the part of the World anti-doping program.

The medical commission of WADA develops and makes the list of the substances and methods, which are forbidden to application in sport. This list is annually supplemented and specified on the basis of the results of the researches and other scientific data.

The executive committee of WADA approves "The forbidden list" at the annual September meeting. After the official registration it is published on the website of WADA by the 1<sup>th</sup> of October and comes into force from the 1<sup>th</sup> of January of the new year [8; 12].

"The list of the forbidden substances and methods" includes also substances and methods which are forbidden to use both in competitive, and in out of competition periods as they are capable to improve physical shape on the upcoming sporting events or can mask use of those substances and methods which are forbidden only during the competitive period. According to the recommendation of the International federation, "The list of the forbidden substances and methods"

can be expanded by WADA for a concrete sport. The forbidden substances and methods can be included either in the general category of "List", or in any special [8].

WADA develop the program of monitoring of the substances which are not entering "The list of the forbidden substances and methods", but abuses of which need to be monitored also after consultations with the interested parties. The list of such substances is announced (the substances, which are included in the program of monitoring are not forbidden) before each testing procedure. Laboratories inform periodically WADA on the recorded cases of their use both in competitive, so in out of competition periods. Similar reports do not contain the additional data concerning concrete tests. At least once a year the agency provides the statistical information on use of these substances to the International federations and the National anti-doping organizations. Besides, WADA is responsible for nondisclosure of information on the sportsmen, using such substances, as their application is not violation of anti-doping rules [1; 8; 12].

Out-of-limit mobilization and excessive use of energy sources in organism of a sportsman lie at the heart of application of drug-induced means (dope), improving sports results in cyclic sports on endurance [6].

However, the questions, concerning use of the forbidden pharmacological medicines, special substances, anti-doping and sex control, and also applied to sanction triathletes at the positive result of examination are far not completely studied.

## Communication of the research with scientific programs, plans, subjects

The research is executed according to the Plan of the RW of Kharkov state academy of physical culture.

## The purpose of the research:

to analyze the basic provisions of the World Anti-Doping Code regulating the activity of WADA.

### Research problems:

1. To consider the groups of the pharmacological medicines, which are forbidden to application in sport.
2. To open the order of holding procedure of anti-doping control in triathlon.
3. To show the specifics of the sanctions, which are applied to triathletes at the positive result of doping-test.
4. To disclose the content of selective carrying out sex-control in continuous triathlon.

## Material and Methods of the research

- 1) studying and synthesis of data literary and Internet-sources for the assessment of the degree of study of problem and allocation of the key provisions which are the cornerstone of the developed WADA of the World Anti-Doping Code;
- 2) analysis of the procedure of carrying out anti-doping and sex-control in sports on endurance.

## Results of the research and their discussion

Because during passing of the combined super-marathon distance, triathletes should overcome enormous loadings, some sportsmen have temptation of use just before start and during participation in competitions of the forbidden pharmacological medicines, promoting the improvement of sports results [2; 4; 8].

However doping has an adverse effect on the state of health of a sportsman as the excessive stimulation causes out-of-limit mobilization and excessive use of energy sources in organism. At the same time conditions for the development of various serious pathological conditions are created as the increase in working capacity by means of stimulators reduces (in some cases removes) the protective mechanism of self-preservation of a person [1; 6; 15].

The following groups of pharmacological substances concern to the forbidden:

- 1) anabolic steroids;
- 2) analeptic;
- 3) anesthetics;
- 4) drugs;
- 5) psychomotor stimulators;
- 6) sympathomimetic amines;
- 7) stimulators of the central nervous system.

However no forbidden drug-induced medicines will replace to correctly constructed training process [5; 7; 11].

Also reception of cordials and drops against cold (containing ephedrine) is forbidden just before start in spite of the fact that the same medicines are used by doctors for the treatment of heart failure, overstrain, cold. It is not recommended to apply adrenaline as haemostatic in the course of the competitions.

The list with the review of the main changes (the forbidden earlier method "Oxygen transfer strengthening" is resolved

now) is published for more objective control of non-use during the competitive and out of competition periods of the forbidden substances and methods on the official site of Federation of triathlon of Ukraine [13; 14].

So, four stimulators were included in addition in "The forbidden list": benfluoreks, prenylamine, methylhexanamine, and also pseudoephedrine (application was not forbidden in sport since 2003) again carried by Executive committee of WADA owing to results of the five-year program of monitoring, to this category as a specific stimulator with the threshold level of concentration in urine of 150 mkg/ml [8].

**Anti-doping control in triathlon.** The system of selection of the sportsmen, who are subject to anti-doping control, are told participants, coaches and representatives of teams before the competitions [3; 10; 13; 14]. This procedure is undergone, as a rule, by winners and prize-winners of competitions, and also the sportsmen, which are determined by the lot. The specified persons together with the representative of judiciary board and a coach go to premises of the medical commission, where they are registered, on the end of passing of distance.

Then, a triathlete accompanied by the medic passes to the adjacent room, where fills the provided sterile capacity with urine (it quite often happens that sportsman have problems with delivery of urine for the analysis of doping control samples as they lose a lot of liquid together with then that they have nothing to fill the capacity provided by the medical board during passing of the track of super-marathon). Further, acidity of urine is defined by litmus paper in the presence of official representatives, then they spill it in two bottles, which are marked by identical encoded numbers close them and seal up. One bottle is sent to laboratory, and another remains in medical commission on case of the repeated examination.

Data of a sportsman, at whom sample is taken, and also surnames of accompanying persons, are entered in the registration card. Date and time of capture of the analysis, volume and acidity of urine, the encoded number of bottles are put down. Respect for all formalities is validated by signatures of attendees [1; 6; 8].

Methods of thin-layer and gas chromatography, spectroscopy, etc. are used (new are developed constantly) in the chemical-toxicological laboratory in the analysis of urine (also the availability of dope can be determined objectively by blood tests and a sportsman's saliva) on availability of the substances, which are carried to dope. Accuracy of researches is so big that allows to find easily even the minimum doses of the pharmacological substances, which are forbidden to application (specified in the articles of the World Anti-Doping Code), such as:

### Art. 51. STIMULATORS:

adrafinil, Amphetamine, amifenazol, amphetamine, amphetamine, benzfetamine, bromantane, carphedon, katin (test is considered positive for katin, if contents it in urine more than 5 micrograms on milliliter), clobenzorex, cocaine, dimethylamphetaminum, ephedrine, methylephedrine (test is considered positive for ephedrine and methylephedrine, if the content in urine more than 10 micrograms on milliliter), Etilefrinum, ethylamphetamine, fencamfamine, phenethyllean, fenfluramine, fenproporex, furfenorex, mefenorex,

Methylamphetaminum, Methylenedioxyamphetamine, MDMA, methylphenidate, modafinit, Nikethamidum, Fenfluramine, parahydroxyamphetamine, pemoline, Phendimetrazine, Fenmetrazinum, phentermine, selegilinum, strychnine and other substances with the similar structure or the similar pharmacological effect [8; 9].

## Art. 52. DRUGS:

buprenorphine, Dextromoramidum, diamorphine (heroin), hydromorphine, methadone, morphine, oxycodone, oxymorphone, pentazocine, pethidine [8; 9].

## Art. 53. CANNABIOIDS:

marijuana, hashish [8, 9].

## Art. 54. ANABOLIC AGENTS

### 1. Anabolic androgenic steroids:

a) anabolic androgenic steroids of exogenous action ("exogenous" means substances in this section which cannot be produced by organism):

androstadienon, bolasteron, boldenone, clostebol, danazolom, adjay chlordehydromethyltestoster, delta 1-Androstenum-3,17-dion, drostanolone, fluoxymesterone, formebolon, gestrinone, 4-hydroxytestosterone, 4-hydroxy-19-nortestosteron, mesterololum, metandienonum, methenobosoms, Metandriolum, methyltestosterone, mibolerone, Nandrololum, 19-norandrostendiol, 19-norandrostendion, norbolethone, norethandrolone, oksabolon, oxandrolone, oxymesteronum, oxymetholone, quinolone, stanozolol, stenbolone, delta 1-dihydrotestosterone, trenbolone and substances with the similar chemical structure or the pharmacological properties;

b) endogenous ("endogenous" means substances in this section which can be produced by organism), anabolic, androgenic steroids:

androstendioli, androstenedione, DHEA, dihydrotestosterone, testosterone and substances similar to them (it means "substance which turns out at modification or change of the chemical structure of other substance, but with the same pharmacological effect").

### 2. Other anabolic agents:

clenbuterol, zeranol [8; 9].

## Art. 55. PEPTIDE HORMONES.

The following peptide hormones, including their mimetics, analogs and contributing factors are forbidden:

- 1) erythropoietin (ERO);
- 2) hormone of growth (hGH) and insulinoid factor of growth (IGF-1);
- 3) HCG – is forbidden only for men;
- 4) hypophysial and synthetic gonadotrophins – are forbidden only for men;
- 5) insulin;
- 6) corticotrophins, etc. [8; 9].

The head of a team within 24 hours can demand (official

request) from the chief expert in anti-doping control of conducting the repeated examination, when obtaining the written conclusion of laboratory about the positive result at a sportsman (use of the forbidden pharmacological medicines is established).

The counter-examination is carried out by other group of experts, at the same time there can be representatives of a team and a checking. If the result of the second examination is also positive, then the protests will not be accepted anymore and a sportsman will be disqualified, and his result will be cancelled [1; 6].

According to the paragraph 2.1.2 of the article 2 "Violations of Anti-doping Rules" of the World Anti-Doping Code ... the detection of any amount of the forbidden substance, its metabolite or marker in the sample taken at a sportsman is considered violation of anti-doping rules ... [9].

The first time a triathlete is disqualified for 2 years, and in case of dope detection further – for life.

Its result is considered final at not identification in urine the counter-examination of the forbidden substances (dope).

Also in paragraph 2.1.3 of article stated above it is told: "As exceptions of the general rule in "The list of the forbidden substances and methods" the special criteria for detection of the forbidden substances, which can appear in organism, can be established endogenously".

If the forbidden substance can be produced in the natural way in a sportsman's organism from the specified list, the test will surely contain the forbidden substances which concentration or their metabolites deviates from usually available in organism and does not correspond to its usual endogenous development. The test will not be considered positive if a sportsman provides proofs that concentration of the forbidden substance or its metabolites can be caused it by pathological or physiological state. In all cases (at any concentration) the laboratory reports about the adverse result of the analysis if, based on the reliable method, it can prove that availability of the forbidden substance has a exogenous character [9].

In case the result of the laboratory research is not final, and there is no concentration turning usual endogenous development of organism, then the relevant anti-doping organization makes further investigation if there are serious reasons to believe that there was the fact of use of the forbidden substance [1; 9].

The special substances included in "The list of the forbidden substances and methods", which use can be considered as inadvertent, in view of their general availability or doubtfulness of their influence on sports results, are defined specially in the World Anti-Doping Code in the paragraph 10.3 of the article 10. If it is established that a sportsman used this substance not for the purpose of the improvement of the results, then one of the following punishments is applied to him:

- the first violation: minimum –prevention, maximum – 1 year of disqualification;
- second violation: two years of disqualification;
- third violation: lifelong disqualification.

Nevertheless, each sportsman (or his representative) has to have opportunity before the disqualification comes into force, to provide justifications for the reduction of its term or cancellation [9].

**Sex-control in triathlon.** Along with the anti-doping control at responsible competitions (championships, superiority, European cups and the world, the Olympic Games) in doubtful cases for female-triathletes (in the absence of the certificate) also sex-control, i.e. definition of their sex is entered.

After the special researches of epithelial cells of mucous membrane of mouth (undertakes scrape in cheek) allowing to find the sexual chromatin containing characteristic chromatin lump (inherent only in female persons), the relevant medical commission issues to the sportswoman the certificate valid for all the time of its sports activity.

The males who are revealed as a result of sex-control (they are declared for participation in competitions on triathlon as females), and also the sportsmen who were not on anti-doping and sex-control, act from competitions and are disqualified [1; 6].

**Note.** The legendary American bicycle racer, the seven-time winner of "Tour de France" (extent of cycling race of 3642 km, begins on July 3 in Rotterdam (Netherlands) and comes to the end with the finish on July 25 in Paris) Lance Armstrong, who come to cycling on triathlon, where also in due time was the champion, didn't undergo anti-doping control, was disqualified and deprived of all received awards, having finished his sports career disgracefully.

## Conclusions

It is possible to draw the following conclusions on the basis of the conducted research:

1. The groups of the pharmacological substances causing out-of-limit mobilization and excessive use of energy sources in organism, which promote the improvement of sports results, but create conditions for the development of heavy violations of the state of health owing to decrease in the protective mechanism of self-preservation of the person, are forbidden to application in sport by the World Anti-Doping Agency.

2. The procedure of anti-doping control is carried out concerning winners and prize-winners of significant competitions, and also sportsmen, which were determined by lot and includes registration of the sportsman, delivery of necessary portion of urine by it, definition of its acidity, division of test into two bottles, marking, sealing up and sending one sample to the laboratory for identification of existence or lack of dope in it.

3. The main type of the sanctions, which are applied to triathletes at the confirmed positive result of doping test, is disqualification, which can have duration, various on time (of 1 year to lifelong) depending on the premeditation or inadvertency of the use of the forbidden substances and the existence of similar violations in the previous sports career of the sportsman.

4. Sex-control is carried out for the definition of their sex in doubtful cases at responsible competitions in triathlon at the absence at female persons of the certificate.

**Prospects of further researches.** The subsequent researches will be directed to the assessment of the elicited facts of application of the forbidden pharmacological substances by triathletes and studying of the key questions, which are devoted to sport, free from dope.

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