

Professional paper

DOPING IN NONPROFESSIONAL SPORT

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Dragan Radovanović¹, Dragoljub Jovanović², Goran Ranković²

¹Faculty of Physical Education, Niš, ²Institute for Physiology, Faculty of Medicine, Niš
University of Niš, Serbia and Montenegro

Abstract. *Association of the notion of doping with the first-class, professional sport by the bulk of physicians, coaches and psychologists brought to the epidemical expansion of the use of doping substances and methods by nonprofessional sportsmen. Data obtained from the investigations conducted in the country and abroad, points to the necessity of prevention and reduction in the incidence of doping drug use in this numerous sportsmen category. Considering the motives for doping drug use in professional and nonprofessional sport, authors wanted to contribute to a better understanding of this problem. At the same time, authors propose a comprehensive plan of prevention and reduction in doping drug use incidence in nonprofessional sportsmen. As a base, the plan contains 1. Informative-educative work on the effect of doping on health, 2. optimal nutrition planning, 3. supplementation planning, and 4. individual training system planning, all in accordance with the personality features, sports discipline and goals that a nonprofessional sportsman sets for himself.*

Key words: *doping, nonprofessional sport, prevention, incidence*

INTRODUCTION

Enhancement of physical abilities has always been wished by people who participated in some sort of a contest that required such ability. In ancient times, competitors resorted to the usage of various substances or methods believing that it might bring them an advantage or victory and for gaining various privileges, awards, posts or advancements. In that regard, the situation has not changed up to the present time.

Doping in sport, represents the use of all substances and methods which enable competitors to acquire dishonest advantage in a competition, with no regards to kind, quantity or way of usage of those substances or methods. Doping as a concept is most frequently attributed to the professional engagement in sport. Such attitude accepted broadly by the public, but also by experts such as physicians, coaches, and psychologists, brought to the

inadequate and insufficiently serious comprehension of doping and all associated consequences. At the same time, this enabled a sudden expansion of various substances and methods abuse and took on the epidemiological proportions. According to the investigations conducted up to now, and data obtained at doping tests, the most frequently used doping substances are anabolic-androgenic steroids (AAS), recombinant human erythropoietin (rhEPO), stimulants (the most frequent are amphetamines and its derivatives) and diuretics (Jovanovic and Radovanovic, 2001).

There are many various adverse effects associated with the use of doping substances and methods which affect almost all organs and systems of the human body. The most pronounced adverse effects in the abuse of AAS are: liver function damage, sterility, gynecomastia, striae, increased aggressiveness etc. In rhEPO abuse, the greatest risk is of increased arterial blood pressure, which combined with induced polycythemia (increased number of blood cells) multiply increases the incidence of cerebrovascular insult or myocardial infarction (Kelly, 1992). The abuse of stimulatives by sportsmen may cause the addiction and conditions similar to schizophrenia with diverse illusions and hallucinations (Jovanovic and Radovanovic, 2001).

Particular adverse effects of AAS abuse are presented in younger categories of sportsmen of incomplete growth process. Namely, the AAS effect the epiphyseal centers of bone growth and lead to their premature closure, resulting in restricted longitudinal growth (Komorski et al., 1992).

STUDY PROBLEM

To establish doping use problem in nonprofessional sport by the analysis of up to now published investigations in this field. To analyze doping abuse motives and propose the plan of reduction in incidence (number of new cases)

EXTENT OF DOPING DRUG USE

Investigations conducted among adolescents in the USA showed that anabolic-androgenic steroids (AAS) were used at least once by about 375.000 boys and 175.000 girls (Elliot et al., 1996; Goldberg et al., 1996). Longitudinal comparisons conducted by the same authors showed that in relation to 1990, when the investigations were done for the first time, the number of boys slightly increased, whereas the number of girls doubled. Similar investigation conducted by another group of authors, showed that 2,7% of the total number of high-school students in the USA use anabolic-androgenic steroids (Fai-genbaum et al., 1998). Assessments of the leading people in the field of doping, e.g. Charles E. Yesalis (Pennsylvania State University, USA) and Gary I. Walder (Manhasset University, New York, USA), show that even 3-12% of male and 1-2% of female adolescents use AAS in the USA (Yesalis and Bahrke, 2000).

Canadian "Center for Drugs free Sport" established that approximately 83.000 children aged 11-18 years used AAS during 1993 (Dawson, 2001).

By analyzing the data on the extent of use i.e., abuse of various substances in Great Britain, it was found that AAS holds the third position in the list of the most abused substances among teenagers (13-19 years of age), right after cannabis and amphetamines (Dawson, 2001).

Extensive investigation carried out in Sweden on 5.827 pupils, 16 and 17 years of age, showed that 3,6% of males 16 years and 2,8% of males 17 years of age use AAS. These persons also use alcohol and narcotics more frequently than persons of the same age who do not use AAS. An interesting finding is that AAS use among females was not established by this poll (Nilsson et al., 2001).

Epidemiological investigations conducted in France showed higher prevalence of doping drug use in men, aged 20-25 and 35-39 years, and in those engaged in competitive sport (Laure, 2000).

In our country, investigations in this field have not been conducted, or at least have not been published in the corresponding literature. For acquiring a comprehensive insight into this problem, a poll on the use of permitted and prohibited substances among unprofessional sportsmen and recreationists was conducted (Jovanovic and Radovanovic 2001). The poll was anonymous and voluntary and included 363 persons of male sex, involved in weight training activities i.e., exercised body building (the sample of females was insufficient for statistical investigations). None of those polled was involved in body building professionally or participated in a body building competition. Results showed that 5,23% of the polled used AAS at least once. All of them were above 18 years of age, exercised four and several times a week and they were considered to be informed of the damaging effects of doping drug use. An interesting finding was that there were fewer cigarette smokers among persons using AAS expressed in percentages than in general population and corresponding age group.

MOTIVES FOR DOPING DRUG USE

We considered that there are mutual but also particular motives, which cause a person to use doping depending on whether a professional or nonprofessional sportsman is regarded.

a. Motives for doping drug use in professional sport

Numerous motives can make a sportsman choose a wrong way – use doping. The understanding of those motives is very important for taking the adequate and effective measures in education of sportsmen and all others interested in sport, as well as in prevention of doping drug use.

For easier consideration, motives are classified into three categories:

1. Motives and factors related to the substance or method of doping itself

In short, the effects of the applied substance or method are the most important in this category. Namely, if a sportsman observes that the administered doping makes the advantage in a competition possible, it will be very difficult to exert influence on him not to use it, despite pointing to all possible harmful consequences. The second significant factor is that the easier a sportsman acquires doping the more probably he will use it. The third factor is legal status of a substance. Unfortunately, in previous decades certain substances were classified as banned for use in sport only after many years of abuse and drastic instances of adverse effects. Physical and psychological addiction is also a factor that has to be considered.

2. Motives related to the personality of a sportsman who uses doping

A series of motives can be classified into this category and the most important are: personality features, discontent by efficiency and advances in a sports discipline, attempt to cope with anxiety and stress, belief that others use doping, incomplete ethical values, falling under somebody's influence, lack of self confidence, incomplete knowledge of side effects of doping drug use, etc.

3. Motives originating from the encirclement of a sportsman

Motives classified in this category, in coaction with those mentioned above, certainly mark out a route of a sportsman toward doping use. Sources of these motives originate from coaches, family, friends, audience, supporters, mass media, society, financial and material awards, national and political reasons, etc.

b. Motives for doping drug use in nonprofessional sport

Most of previously considered motives related to professional sport are less significant or absent among nonprofessional sportsmen. That is why these motives are classified into a separate category, but with the same purpose, to contribute to a better understanding of doping problem and thereby make the resolution more efficient. Without providing the detailed explanation, we consider that this category includes the following motives: dissatisfaction with one's own physical appearance, striving for exceptionality (macho look), and enhancement of one's own results.

MEANS OF DECREASE IN DOPING INCIDENCE IN NONPROFESSIONAL SPORT

Having in mind that there is the presence of doping problem in nonprofessional sport in our country too, and knowing all possible harmful consequences of doping to one's health, we considered indispensable the formation of action plan and program aimed at reduction in doping incidence (number of new cases) in this category.

French authors Laure and Lecerf (1999) suggested one of possible programs of prevention. According to them, it is necessary to conduct a specific teaching program that would decrease the interest of adolescents in doping substances use. The suggested program consists of four parts:

1. Information on the frequency of doping drug use in sport.
2. Conversation on the use of permitted supplements.
3. Simulation of possible negative influence of doping on a sportsman performance.
4. Information on drugs that sportsmen can purchase and use by themselves.

The role of a physician would be of significance in careful planning and dosage of nutrition and training system providing the enhancement of physical abilities, and for achieving the set goals without doping drug use. Realization of this objective requires the close cooperation of the physician and coach, which would by careful planning and coordination of the training process, develop the physiological maximum in a sportsman and provide the conditions for maximal performance. It would be optimal to include a psychologist in the whole process; however, professional sport usually excludes that aspect.

Although C.I. Yesalis emphasizes the necessity and importance of educative and preventive work and creation of certain programs, he considers that requirements for doping drug use originate from the social fixations on winning and physical appearance, so that the use of doping will be present and increase until the change of such ethic values.

PROPOSAL OF A PLAN OF PREVENTION AND DECREASE IN DOPING INCIDENCE
AMONG NONPROFESSIONAL SPORTSMEN

Based of the above stated facts and attitudes regarding doping, we consider that in our conditions, it is necessary to conduct a specialized plan of prevention and reduction in the incidence of doping drug use among nonprofessional sportsmen. This plan would include:

1. Educative work:
 - Information on what doping is, that is, which substances and methods are forbidden for use in sport.
 - Information of possible harmful effect of doping substances and methods on particular organs and organism in general.
 - Information on long-term consequences of doping drug use on health.
2. Information and planning of optimal nourishment as a base of enhancement of psychophysical abilities:
 - Information on the role of nutritious substances.
 - Information of biological and energetic value of food.
 - Information on combination and coordination of groceries in nutrition.
 - Making of plan of nutrition for certain time period in accordance with goals and training system.
3. Conversation and creation of a plan of supplement use in relation to person, sports discipline, plan of preparation and set goals:
 - Information on supplement use in the nutrition of sportsmen.
 - Information and advice on supplement choice, use, dosage and duration of supplementation process.
 - Designing the plan of supplementation for certain time period in accordance with goals and training system.
4. Conversation and instructions for making of a plan of individual training system in relation to personality features, sports discipline and set goals:
 - Information on physiological bases of training process.
 - Information on managing the process and methods of training.
 - Making of individual training plan.

The application of such plan in nonprofessional sportsmen is aimed at the realization of aspirations and wishes present in this group of sportsmen, and thereby outgrowing i.e. excluding the motives for doping drug use. In this way, a comprehensive prevention and reduction in doping incidence would be realized.

CONCLUSION

The use of doping substances and methods surpassed greatly top professional, well paid sport. Data on investigations carried out all over the world, show that there is a universal problem of doping use among nonprofessional sportsmen, especially adolescents. Numerous adverse effects associated with doping use, thus affect broad population in the delicate period of psychophysical development. All those facts point to the necessity of

planned action in reducing this phenomena. Recognition of doping use motives in non-professional sportsmen is a starting point for successful preventive work.. Additionally, it is necessary to create, through interdisciplinary approach, adequate, individually adaptable plans, which would be an effective alternative to doping use in this sportsmen category. We hope that the proposed plan can be a quality basis for achieving this goal.

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DOPING U NEPROFESIONALNOM SPORTU

Dragan Radovanović, Dragoljub Jovanović, Goran Ranković

Vezivanje pojma doping samo za vrhunski, profesionalni sport od strane većeg dela lekara, trenera i psihologa dovelo je do epidemijske ekspanzije korišćenja doping supstanci i metoda kod neprofesionalnih sportista. Podaci iz istraživanja rađenih u svetu i kod nas ukazuju na neophodnost preventivnog rada i smanjivanja incidence korišćenja dopinga kod ove, veoma brojne, kategorije sportista. Autori kroz razmatranje motiva za korišćenje dopinga u profesionalnom i u neprofesionalnom sportu žele da doprinesu boljem razumevanju ovog problema. Istovremeno autori predlažu obuhvatni plan za prevenciju i smanjenje incidence korišćenja dopinga kod neprofesionalnih sportista. Plan kao osnovu sadrži: 1. informativno-edukativni rad o uticaju dopinga na zdravlje, 2. planiranje optimalne ishrane, 3. planiranje suplementacije i 4. planiranje individualnog sistema treniranja, sve u skladu sa karakteristikama osobe, sportske discipline i željenih ciljeva koje neprofesionalni sportista postavlja pred sobom.

Ključne reči: *doping, neprofesionalni sport, prevencija, incidenca.*