

Medical doctors and doping in sport: attitudes and experience in Balkan region

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ABSTRACT

Introduction: Athletes from the Balkan have lost on the last two Olympic Games 5 medals and 5 athletes have been doping positive on out of competition testing, which represents 36% doping positive of all athletes in Sidney 2000 and 24% in Athens 2004.

Objectives: The aim of this study is to examine attitudes and experience of medical doctors from Balkan Countries in doping in sport.

Materials and methods: A total of 219 medical doctors from Bulgaria, Greece, Romania, Serbia and Turkey fulfilled the questionnaire related to doping control procedure, athletes' rights and responsibilities, their training in doping prevention and willingness to have more education.

Results: During the period of 12 months, 80% doctors have been asked for information about doping agents, 25% of them have been contacted by athletes for the prescription of doping agents, 14% of doctors think that they should assist athletes who want to use doping so that athletes can use doping safely and in 27% of the doctors have treated athletes who are using doping due to medical problems. They believe that education is the most effective method to fight against doping and they believe that the least effective method is two years ban. They indicated adolescents and children as a first group which needs to be targeted in a doping prevention, professional athletes as a second and amateur athletes as a third one.

Conclusion: Hypothesis that athletes are not informed about doping agents because of poor knowledge of medical doctors about this issue is confirmed. This study suggests that medical doctors from Balkan region recognize doping as a real public health problem, and the need for its prevention. Our study stresses the need for prompt education and adequate training of medical doctors in this domain.

INTRODUCTION

In the history of doping in sport, medical doctors are often seen as only responsible by sport administrators, athletes, and the general public. The main accusations made are, first, that some are engaged in “medically assisted doping”, and second, that they supply athletes with doping agents, either deliberately or through carelessness¹. In study of Laure at al. up to 61% of adult amateur athletes stated that they obtained anabolic steroids and other banned drugs from a doctor². It has been shown that general practitioners’ (GPs) knowledge of prohibited substances in sport is poor. Greenway et al. in their survey has showed that only 53% of GPs were aware of banned drugs, and that 12% believed that medical practitioners were allowed to prescribe anabolic steroids for non-medical reasons³. Nederland’s study on 1000 GPs was even more disturbing, 85% of the respondents admitted that they were not familiar with banned drugs or their side effects¹. If we know that doctors are the most common source of information for the athletes (61%) then situation become more delicate⁴.

Doping tests carried out on last two Olympic Games have showed that 36 athletes have done doping violation.⁵ On the Olympic Games in Sidney 2000 even 36% positive athletes were from Balkan. On the Olympic Games in Athens 2004 again 24% of positive cases have come from Balkan countries. Athletes from the Balkan countries have lost on last two Olympic games 5 medals (4 in weightlifting and 1 in gymnastics) and 5 athletes has been positive on out of competition testing. Andrea Raducan, on Olympic Games in Sydney, was stripped of her all-around gold medal after testing positive for ephedrine, which was in Nurofen, a common over-the-counter medicine. Prince Alexandre de Merode, IOC drug chief, said "We consider it was an accident. The medication was prescribed by the team doctor. She is not directly responsible. The fault falls with the medical doctor. But we have rules and we have to apply the rules."⁶ Bulgarian weightlifting team have lost 3 medals in Sydney because of mistake of team doctor who gave them furosemide (diuretics).

Year	Place	Number of tests	Number of cases recorded	Number (%) of doping positive cases from Balkan countries
2000	Sydney	2359	11	4 (36%)
2004	Athens	3667	25	6 (24%)

In order to investigate knowledge of medical doctors, Anti-Doping Agency of Serbia in cooperation with Balkan Sports Medicine Association has performed a pilot study confirming that medical doctors representing Sport Associations of Serbia don’t know proper answers on one third of the basic questions about doping. The same study showed that Doping Control Officers of ADAS have given wrong answers on 22% questions in spite the previous anti-doping education.

Considering these facts the aim of this study is to examine attitudes and experience of medical doctors from Balkan Countries regard doping. Our hypothesis is that athletes are not informed because of poor knowledge of medical doctors, specially the team doctors and other medical personal that are supporting them.

While most physicians are unwilling to violate laws, regulations, and medical standards by doping athletes, a significant minority of doctors has used one or more arguments to justify doping athletes:

- drugs are necessary to compete effectively;
- athletes should be free to medicate themselves as they please;
- drugs do not differ essentially from other performance enhancing techniques or equipment;
- medically supervised doping is safer than self-medication by athletes⁸.

It would be therefore essential that not only athletes, but also their physician understand they can do doping offence⁹, and because of that it is important to assess knowledge of medical doctors regarding doping issues.

METHODS

Total of 219 members of Balkan Sport Medicine Association (Bulgarian Scientific Society of Sports Medicine and Kinesiology, Sports Medicine Association of Greece, Sport Medicine Association of Serbia, Romanian Society of Sports Medicine, Turkish Association of Sports Medicine) have been involved in study.

The project was carried out in 4 phases. The first phase was the initial screening of knowledge of medical doctors during 14th Balkan Sports Medicine Congress in Albena, Bulgaria, September 2006. During that phase questionnaire was constructed using principles outlined in a number of publications.^{1, 4, 10-12}. The questions have been divided in 4 sections: first regarding "Personal data", second "Attitudes to and knowledge of doping in sport" had basic questions about doping, third "Medical doctors faced with doping" which tried to examine relationship between doctors and athletes and the fourth section "Role of medical doctors in the prevention of doping in sport" had intention to see possible solution and attitude towards the problem of doping. The Ethics Committees of Sport Medicine Association of Serbia had approved the project. All answers have been calculated and final amount was presented as Doping knowledge score.

All participants have fulfilled questionnaire until May 2007. They have received information about the study (the background of the project and project objectives, the possibility of refusing to answer specific questions, etc). Participation in the study was voluntary and the subjects were free to withdraw from the study without any prejudicial consequences. Confidentiality and anonymity were ensured for all participants.

The second phase was Master Workshop where investigators from each country have discussed all answers on questionnaire in order to prepare national meetings. In the same time interactive web portal www.bsma.info is introduced which is considered as important initiative for increasing of anti-doping awareness through internet.

The third phase has considered national workshops with aim to educate wider population of medical doctors involved in sport, with target on team physicians from each country.

The fourth phase was final workshop during 15th Balkan Sports Medicine Congress in Bucharest in order to present major conclusion of project and give future directions of anti-doping fight in Balkan region.

Data Analysis

Descriptive data were calculated as frequencies (%) and expressed as mean values \pm 1SD. We have used Spearman's nonparametric correlations test. A 2-tailed probability value (p) of less than 0.05 was considered statistically significant. Data were analyzed using SPSS for Windows 15 (SPSS Inc., Chicago Illinois)

RESULTS

Among 219 medical doctors, 86 are women (39%) and 123 are men (56%). The mean age was 43,96 years, and the mean number of years of professional practice were 15,28. We have found out statistical significant correlation between Doping knowledge score and years of professional practice of medical doctors ($\rho = 0,143$; $p=0,040$). All participating doctors are involved in sports medicine, but not all as a specialist of sports medicine, majority are orthopedics, surgeons, specialist of physical medicine, specialist of internal medicine, cardiologist, nutritionist etc. We have also found out statistical significant correlation (Mann Whitney $z = 5,013$; $p<0,0001$) between specialist of sport medicine and the group of all other medical doctors in Doping Knowledge Score. As was the case with other studies we could not present rejection rate because all of them fulfilled the questionnaire on voluntarily base.

Table 1. Participant's characteristics

		Bulgaria	Greece	Romania	Serbia	Turkey	Mean
No of participants:	№	41	56	41	44	37	
	%	19%	26%	19%	20%	17%	
age	yrs.	52,4	40	43,4	45	39	43,96
professional practice	yrs.	25,6	10	12,8	15	13	15,28
female	№	12	8	23	14	29	
	%	29%	14%	56%	32%	78%	39%
male	№	27	40	18	30	8	
	%	66%	71%	44%	68%	22%	56%
anonymous	№	2	8	0	0	0	
	%	5%	14%	0%	0%	0%	5%

Second section "Attitudes to and knowledge of doping in sport" was consisted of 28 basic questions about doping. With first two questions we have tried to investigate do medical doctors are familiar with Anti-doping Code and List of prohibited substances. The response rate on both questions was about 70%, while on third question regarding the knowledge of classes of prohibited substances response rate was significantly lower. There is statistical significant correlation between Doping knowledge score between medical doctors who read Anti Doping Code ($\chi^2 = 0,187$; $p < 0,005$) and have the list of prohibited substances ($\chi^2 = 0,353$; $p < 0,0001$) and the ones who didn't read Code and don't have List. All medical doctors recognize only anabolic steroids, 80% of them pointed out hormones, and on third place they have put narcotics, masking agents and diuretics, stimulants, other doping methods and blood doping.

On the next 20 questions they didn't answered correctly on 36% of them. Two groups of question have been noted as the most problematic, that is a role of WADA and NADO and the rights of the athlete. Majority of participants believe that WADA and NADO could advise athletes which nutritional supplements are safe (81%) and that WADA could test athletes in competition (63%). Moreover, they don't know that the name of the athletes should not be on the form that will be sent to laboratory (89%), that athletes drawn for doping control have right to attend a medal ceremony and fulfill media commitments, to complete a training session, to seek medical attention and to compete in further events (65%) and they are not completely sure that athlete is ultimately responsible for what is in his/her body (50%). On other side 72% of them believe that doping is a public health problem, but they don't consider doping as drug addiction (63%). Almost half of participating doctors (42%) believe that most records in the past 10 years have been broken due to doping and the same percentage of doctors think that most of the great champions resort to doping.

Third section "Medical doctors faced with doping" tried to examine relationship between doctors and athletes. Medical doctors believe that the main sources of doping drugs are suppliers and team members, they put themselves on a third place before pharmacist and athletes family members. They believe that adolescent athletes are the first who should be educated, then professionals and at last amateur athletes. Eighty percent of the medical doctors have been directly confronted by a request for information about doping agents over the last 12 months: 14% had received requests at least once a week, 35% at least once a month, and 29% less than once a month. The medical doctors were mainly asked for their opinion on the use of the drug and supplements (25%) and information on the list of prohibited substances (27%). They provided information on anti-doping regulations (11%), health risks (24%), and sport ethics (4%). Twenty five percent of medical doctors have been asked for the prescription of doping agents over the last 12 months: 2% had received requests at least once a week, 3% at least once a month, and 13% less than once a month. The requested substances were mainly anabolic steroids, corticosteroids and beta 2 agonists. In 12% of the cases doctors applied for TUE and prescribed corticosteroids, beta 2 agonists and local injection of corticosteroids. During the same period, 14% of medical doctors stated that medical doctors should assist athletes

who want to use doping so that athletes can use doping safely. What is even more important there is statistical significant correlation between Doping knowledge score and idea to assist athletes to use doping safely ($\rho = 0,149$; $p=0,028$). Over the same 12 month period, 27% of the medical doctors had been consulted by an athlete who was using doping drugs and was concerned of the health risks: 4% at least once a month and 23% less than once a month. The substances used were mainly anabolic steroids. Medical doctors prescribed additional examinations, mainly biochemical (46%) and blood (20%) examinations. It is peculiar that 19% of them stated that they prescribed cannabinoides tests as well. Interesting data is that they have performed ECG and echocardiography in only 17% of the cases.

Last part "Role of medical doctors in the prevention of doping in sport" had intention to seek possible solution and attitude towards the problem of doping. Most of the medical doctors (68%) stated that the current methods of preventing doping in sport are ineffective, 70% believe that education is most effective method and 35% think that 2 years ban is least effective. They considered that adolescents and children should be the first targets of doping prevention initiatives followed by professional athletes on second and amateur athletes on third place. In the opinion of the medical doctors, prevention initiatives should be undertaken because of 1.the risks to health, 2. sport ethics, 3. addiction and 4. loss of public support. Most (79%), however, considered themselves poorly trained in the doping issues and we have found out statistical significant correlation between Doping knowledge score and perception of own education ($\rho = 0,143$; $p=0,040$). They are mostly (24%) interested to be educated in prevention of doping, then from general point of view (23%) and on third place concerning effects of doping (20%). Majority of them see Internet (50%), literature (33%) and WADA (16%) as the main sources of doping education.

DISCUSSION

Our findings have shown that medical doctors from Balkan countries are aware of their inappropriate level of knowledge concerning doping problem in sports. This is a disturbing fact since participants were doctors who are involved in sports medicine: team doctors from national teams, best clubs, university teams and laboratories. Moreover, our results probably underestimate the situation, since only in 2008, eleven Greek weightlifters, one Bulgarian female weightlifter and one shooter, one Greek track and field athlete and one swimmer (both on methyltrienolon), have been doping positive and one Serbian athlete in karate, one wrestler and one wieghtlifther were also doping positive.

During discussion on national workshops we have found out that in many situations medical doctors are not consulted by athletes and thier coaches, since they took doping agents on thier own. Even if they have been asked, they could not positivly identified doping agents, since they could only recognized two or three classes of prohibited substances (anabolic steroids, hormones and one from the list). According to this it seems that medical doctors are not familiar with the List of prohibited substances and that they do not use it in practice. As a result, doctors are not always aware of what they are being

asked, or do not realize that certain prescribed medications can be misused for doping purposes¹⁸. In the same time TUE is used only in 12% of the cases and misused in 15% cases of all submitted TUE, because of inadequate use of ephedrine as TUE agent.

Our results have shown that medical doctors don't recognize basic issues of doping regarding athletes right, position, nutritional supplements and role of WADA and NADO. Unfortunately, they don't have contact with doping on an everyday basis. For example, only 25% stated that they had received requests for the prescription of doping agents over the preceding 12 months. Even more of 14% of medical doctors stated that medical doctors should assist athletes who want to use doping to use doping safely.

During National workshops we have recognized the necessity to systematically work with doctors and athletes about: 1) use of performance enhancing drugs (including pain killers, doping agents, etc), recreational drugs³ and other products (extra proteins, vitamins)¹⁵, and legal substances such as tobacco or alcohol; 2) health risks (physical and psychological) as effect of doping agents and a way to identify them during a clinical and/or biological examination¹⁶. It was concluded this is especially important not abandon athletes who use doping drugs, but to try to stop their use, as well as to inform them about possible harmful side effect¹⁷. It is disturbing to note that medical doctors from the Balkan region do not regularly improve their knowledge and attitudes to doping issues. This could seriously bring into question the quality of training of medical doctors involved in sport on the subject of doping.

Most of the medical doctors stated that education is best prevention, which has supported in the literature and in official documents of 3rd World Conference on Doping in Sport^{13, 14}. It is not uncommon that medical doctors see Internet as main source of knowledge, since the literature in general is poor. Fact that WADA is on third place as source of education is interesting because from the one side doctors are not properly informed about role of WADA, and from another side they believe that WADA should provide information and facts about doping. This is completely in accordance with suggestions from elite sportspeople, who believe that anti-doping education should be spread and improved through Internet, and regularly updated list of acceptable supplements and medicines⁴ should be also available.

Medical doctors involved in sports medicine recognize doping as public health problem. They pointed out that adolescent athletes are the ones who should be educated first, which qualified opinion is comparing with some previous studies¹. They are aware that some old arguments that justify doping in athletes such as: drugs are necessary to compete effectively; athletes should be free to medicate themselves as they please; drugs do not differ essentially from other performance enhancing techniques or equipment; medically supervised doping is safer than self-medication by athletes⁸; should be eradicated. From another side there is still present Eastern German strategy where sporting excellence was seen as an inexpensive way to achieve international prestige, common believing that there is no success in sports without support of certain performance-enhancing drugs⁷

It is interesting to note that 27% of medical doctors have been treated athletes who have used doping agents, but they didn't observed them according to European recommendations (ECG and echo is done in only 17% of the cases), which means that they mainly relayed on biochemical diagnostic including cannabinoides test, which doesn't have too much sense.

CONCLUSION

Hypothesis that athletes are not informed about doping because of poor knowledge of medical doctors is supported. Medical doctors from Balkan region are confused and controversial about this issue, and they recognize the need for better education. This study suggests that medical doctors from Balkan consider that doping is a real public health problem, and also that they want to participate in its prevention. However, although this observation does seem encouraging, their limited knowledge of doping should prompt the introduction of adequate training in this domain.

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