

STUDIES IN PHYSICAL CULTURE AND TOURISM
Vol. 17, No. 3, 2010

DARIUSZ POSIADAŁA¹, JERZY SMORAWIŃSKI²,
BEATA PLUTA¹, MARCIN ANDRZEJEWSKI¹

¹Faculty of Methodology and Recreation, University School of Physical Education, Poznań, Poland

²Department of Sport Medicine and Physiotherapy, University School of Physical Education, Poznań, Poland

**DOPING IN RECREATION: PUBLIC VIEW VERSUS DECLARED USE OF AAS
AMONG PEOPLE PRACTISING VARIOUS SPORTS
(A STUDY OF POZNAN GYMS AND FITNESS CLUBS PATRONS)**

Key words: doping, recreational sport, health.

ABSTRACT

The aim of the study was to describe a general public view on elite and recreational sports in terms of doping use well as disclose the range of this phenomenon among a group of people practising recreational sport. The study was based on an opinion poll which involved 200 people as well as on an anonymous questionnaire involving 50 men aged 19-45, practising various recreational sports. To express the degree of assumption between the variables, Pearson's correlation coefficient was applied. The average age of those who used doping in the past or use it currently was 24 years. Many respondents taking drugs have a secondary or vocational education. A significant number of respondents have not practised elite sport before and they currently prefer individual sports. Those who have used anabolic-androgenic steroids (henceforth AAS) – the majority of them being weightlifting and bodybuilding amateurs – despite being aware of possible side effects, addiction problems as well as many contraindications, turned out to be proponents of using forbidden substances. In addition, they often abused alcohol, tobacco and other substances. Almost 90% of those who use doping do it without doctor's supervision, and every other respondent indicates experiencing health problems. The majority of the respondents are interested in receiving doctor's help. It is widely believed that doping is reserved for professional athletes and its range is only marginal in recreation. However, the research shows that bad models spread fast and doping in recreation, without restrictions, used irrationally or without doctor's supervision, may lead to serious health deterioration.

INTRODUCTION

According to Article 2 of the World Anti Doping Code enacted in 5 March 2003 by the WADA (World and Anti Doping Agency), doping is clearly defined as “potential to enhance sport performance and either; unnecessary risk of harm or; contrary to the spirit of sport” [33]. The widespread development of doping in elite sport

dates back to the 1950s, when technological and scientific achievements of the time allowed production of substances which could significantly increase one's strength, endurance, resilience as well as the ability to concentrate and to endure or delay fatigue syndromes. A natural way of improving the above qualities is properly planned training, a balanced diet and various psychological techniques. Nevertheless, easy access to forbidden

substances made many athletes become interested to exceed the natural limits of their bodies in order to succeed and turn to using pharmacological doping [34]. The problem was noticed as early as in 1957 by a French sociologist Georges Durand, who wrote that, "Playground was supposed to be a substitute of nature but stadium turned out in contradiction with it; it became a kind of a factory producing running, jumping and ball kicking machines" [12]. Sport which aims at breaking records at all costs, usually at the expense of health, cannot be accepted any longer today, especially since this phenomenon is becoming a serious social problem which affects not only sport elites but also young people who are about the begin their sport career or those practising recreational sport. In the 1950s the use of anabolic steroids and other doping substances aimed at improving appearance and physical capacity increased dramatically [2, 3, 4, 7, 10, 13]. The fact that doping is becoming more and more popular today and that it is used irrationally, without any restrictions and doctor's supervision, make the aforementioned sports communities especially at risk of losing health and, in some cases, life [6, 14, 16, 17, 25].

Recreational activeness has lost its original meaning of restoring, sustaining or stimulating physical fitness. Instead, it is becoming an excuse to experience strong emotional stimuli, look for excitement and the sense of success [11]. Such aspirations are one of the reasons why recreational sport practitioners in their following of sport stars, may turn to pharmacological doping [5]. This tendency is typical of all age groups, beginning with adolescents. Thus, there is risk that anabolic-androgenic steroids (AAS) may become popular in society at large as means of achieving a socially accepted body shape and fitness. In this way drugs will be used for purely cosmetic purposes [6, 9]. The common urge to achieve immediate results may trigger the use of forbidden substances and neglect of a healthy lifestyle as a result.

The main goal of the study was to disclose a general public view on elite and recreational sports in terms of doping use as well as to reveal the scope of this phenomenon among people practising recreational sports. On the basis of the obtained results, it was relevant to show the differences between the commonness of using doping with regard to a particular sport discipline. It was also essential to find out about the participants'

knowledge, opinions and awareness concerning risks of illegal practices.

METHODS

The study aimed at describing a general public view on using doping among people practising elite and/or recreational sports. The main criteria for the choice of respondents were their age and place of residence, i.e. the city of Poznań; Poland. An interview featuring two closed questions was carried out in January 2007. Two hundred adults chosen at random took part in the poll.

In the second part of the research the authors attempted to compare the opinions with the actual declarations made by the respondents practising recreational sports. In order to do so, the authors used the method of diagnostic opinion poll, followed by a questionnaire which contained 37 open and closed questions. All the items were grouped into such categories as demographic data, community, preferred physical activity, knowledge about and views on doping. The study was carried out in the third quarter of 2006 in large gyms and fitness clubs as well as local gyms in Poznań. The questionnaire was distributed in envelopes. After completion, the respondents were asked to seal the envelope and leave it in the provided box. After rejection of 20 incomplete sheets, the gathered data included 50 questionnaires from young men in the age bracket of 21-45 who were practising various recreational sports. For the purpose of further analysis, the group was then sub-divided into those who had never used any forms of illegal substances ($n = 13$), those using supplementation ($n = 19$) and those who had used drugs (the term describing the group using AAS and other doping substances) ($n = 18$).

To express the degree of assumption between the variables Pearson's correlation coefficient test was used. The other methods (non-semi-metrical Kruskal-Wallis and U Mann-Whitney tests), based on descriptive statistics, were also applied. To check the level of statistical significance between the variables, the following criteria were used: $p \leq 0.01^{**}$ and $p < 0.05^*$ – statistically significant; $p \geq 0.05^{NS}$ – statistically non-significant. The empirical data was transferred to a database and analyzed with STATISTICA 6.0 and Excel 7.0.

RESULTS

On the basis of the opinion poll it was concluded that the respondents (n = 200) regard the phenomenon of doping as an inherent element of professional sport, and only one in four of them believes that doping is also used by those practising recreational sport (Fig. 1). Thus, it is necessary to ask to what extent these views reflect the actual state of recreational sport with reference to illegal and harmful doping practices. The analysis that follows is an attempt to answer this question.

The opinions on approving illegal substances are strictly connected with the respondents' own practices. Unsurprisingly, those using doping have a favourable opinion on the phenomenon, which

remains in direct opposition to what is unequivocally declared by the members of the other groups of respondents (Fig. 2). The graphic representation confirms the high level of significance of differences between the examined groups: those who do not use supplementation and those who use doping (t = 3.75; p ≤ 0.01**) as well as those who use supplementation and those using doping (t = 2.88; p ≤ 0.01**).

The respondents are largely aware of the risk of becoming addicted to forbidden substances; however, the difference in opinions (when analyzed with regard to the group variable) proves statistically relevant at p < 0.05* in the case of "Yes" answers, and at p ≤ 0.01** in the case of "No" answer (Fig. 3). Those using doping take up

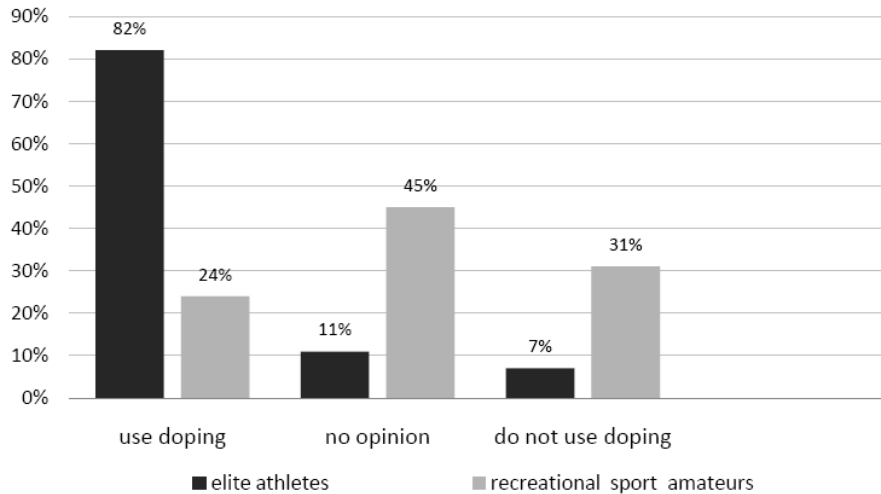


Figure 1. Comparison of public opinion on using doping among elite athletes and recreational sport amateurs (n = 200)

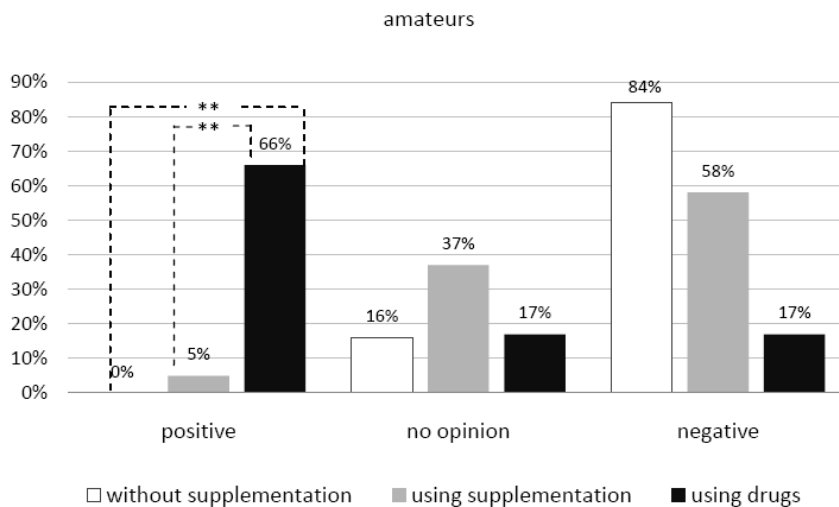


Figure 2. The examined groups and their opinions on using doping (n = 50); p ≤ 0.01**, p < 0.05* – statistically significant; p ≥ 0.05^{NS} – statistically non-significant

the risk consciously as the majority of them are aware of the problem of addiction. This group is the most polarized, with the most clear views on the issue and – contrary to the indecisiveness of the other groups (“I do not know”) – they hold an extreme and controversial opinion that doping is not harmful ($t = -2.68$; $t = 3.56$).

Taking into consideration the character of the undertaken sport activity, it was observed that the respondents inclined towards individual sports, especially those who use supplementation and, most of all, those using drugs (the whole group). This tendency is reverse in the case of team sports and games, which are equally attractive only to those who do not use any kinds of substances (Fig. 4).

When answering research questions, the participants were to enumerate all the sports they practiced. Among all the respondents ($n = 50$), the most commonly chosen sport was bodybuilding (56%), followed by individual sport games (38%), water sports (24%), martial arts (16%), winter sports and other (14% each), team games (10%) and athletics (8%). The sports indicated as “other” included archery, diving, cycling and horse riding.

In comparison with the other groups, the observed trend is more visible among those using doping, ($t = -2.96$; $p \leq 0.01^{**}$), as bodybuilding is the sport which is practised by the majority of them followed by martial arts (Fig. 5).

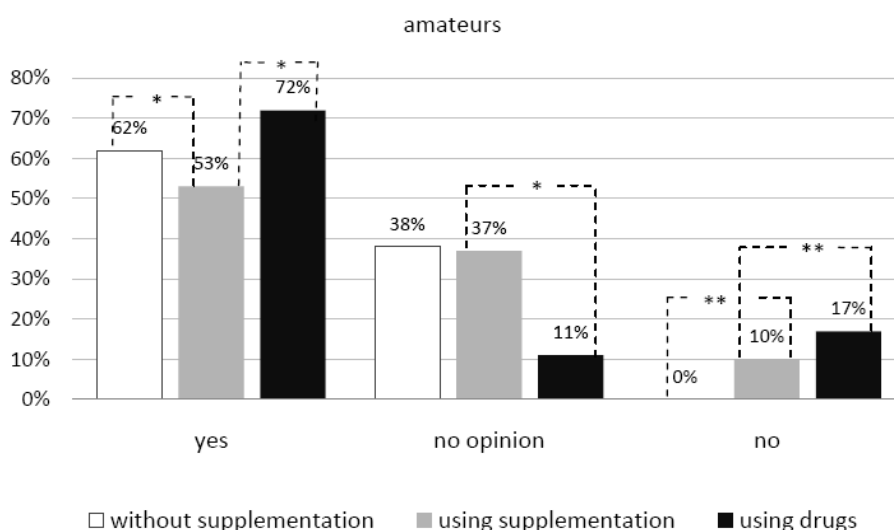


Figure 3. Group opinions about the risk of addiction ($n = 50$); $p \leq 0.01^{**}$; $p < 0.05^*$ – statistically significant; $p \geq 0.05^{NS}$ – statistically non-significant

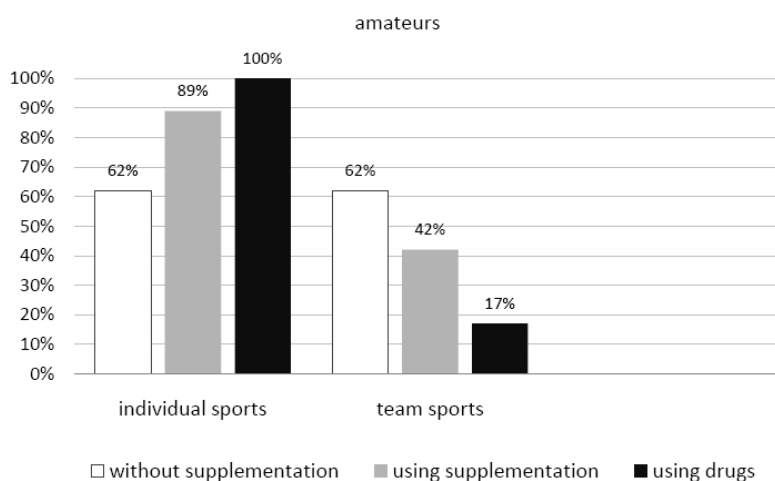


Figure 4. Comparison of the groups in terms of practising individual and team sports ($n = 50$). The percentage values do not add up because of the multiple choice possibility

Having stated that the majority of those who turn to illegal substances are practitioners of individual sports (bodybuilding and weightlifting and, in some cases, martial arts), it is worth scrutinizing this group. Those people make up 36% of all the participants (n = 18) and in most cases they have a secondary or vocational education (89%). A significant percentage of them have never practised professional sport before (67%). All the examined within the group took AAS orally, they also frequently used intramuscular injections. The least popular way of taking the substances was by

means of gels, ointments and inhalants (11%). The most commonly used substances were AAS. Ephedrine and clenbuterol, stimulants and cannabinoids were among ingredients of the other drugs mentioned by the subjects (Fig. 6). Over one half of those taking AAS and other drugs (61%) also abused alcohol, tobacco and other substances.

Respondents who use doping, despite being aware of contraindications and side effects (56% of them), still take the risk and, as a result, suffer from many disorders: every other respondent complains about problems with the digestive system (liver

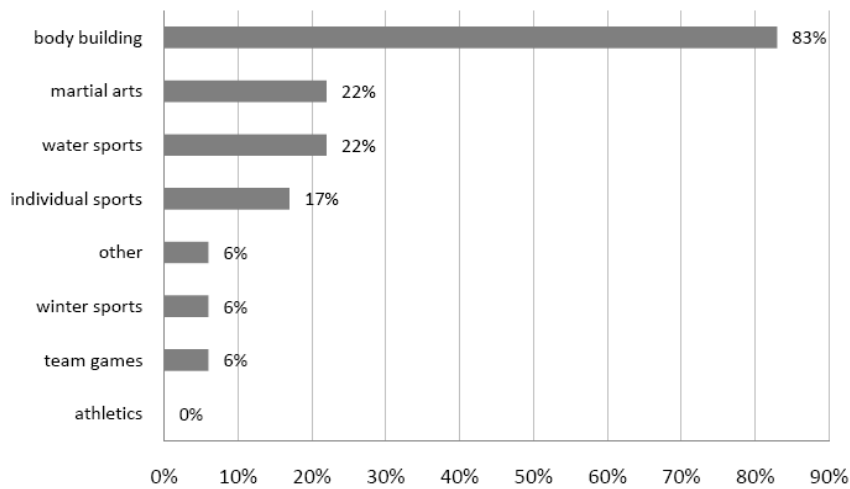


Figure 5. Sports practised by the participants using drugs (n = 18). The percentage values do not add up because of the multiple choice possibility

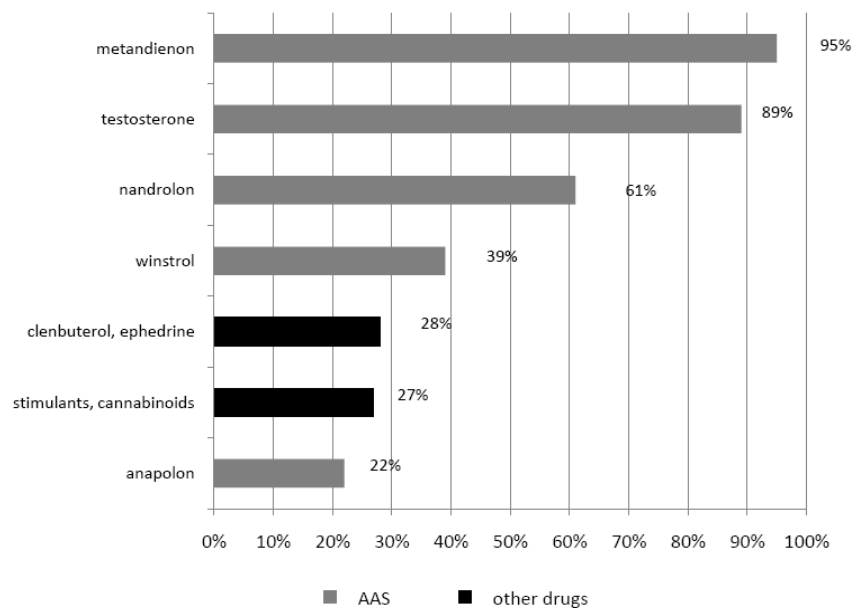


Figure 6. The most frequently taken substances among doping users (n = 18). The percentage values do not add up because of the multiple choice possibility



Figure 7. Reported side effects and disorders connected with using doping (n = 18). The percentage values do not add up because of the multiple choice possibility

pains, stomachache, bowel cramps). A lower percentage of the same group pointed to cardiovascular system disorders and diseases (heart palpitations, myocardial infarction, hypertension, high pulse, hypertrophied left ventricle of the heart) as well as psycho-motor ailments (balance disorders, aggression, sleeping disorders, hyperactivity). Problems with potency are reported by every third respondent (Fig. 7).

The respondents who use forbidden substances rarely consult doctors – only 11% of them have visited a specialist. The majority of the remaining participants (72%) feel they would need doctor’s help, often as a result of side effects of using doping.

DISCUSSION

The obtained results clearly show that doping among practitioners of recreational sports is not a marginal phenomenon. On the contrary, easy access to illegal substances along with the shortage of law regulations concerning possession of drugs make the practice of doping more and more common. There are some restrictions on using drugs in sport (dope tests, sanctions and punishments). However, recreational sport amateurs do not have to undertake anti-doping control. There are, in fact, very few countries where doping is fought with beyond the boundaries of elite sport.

Pharmaceutical law forbids producing and trading with steroids. Nevertheless, the Polish law allows buying and possessing steroids for individual use [21]. Thus, it is the Polish authorities which should pass laws and undertake actions

aimed at reducing accessibility to illegal substances (including control of turnover, possession, import, sale and trade) as there are still no legislative proceedings in the country [8, 20, 26, 27, 31, 32].

As many as 36% of the respondents have used AAS. This number is rather high, taking into consideration that these people’s aim was not to achieve sport results but to take care of their appearance, health and general fitness. Taking forbidden substances, both in elite and recreational sport, is in contradiction with the main objectives of sport. Despite suffering from side effects (almost half of the respondents experience digestive and cardiovascular system disorders or complain about mental problems), the steroid users do not feel discouraged from taking the substances. It may be assumed that their determination resembles that of a professional athlete, for whom the idea of fame, records, awards and glorification is so tempting that they risk losing health or even life [23, 34].

The popularity of fitness classes, together with a wide array of available substances supporting physical exercise entail a growing interest in supplementation, especially among adolescents. Unfortunately, young people (including weightlifting novices) do not have sufficient knowledge of how to use such substances as dietary supplements [18, 22]. This might indicate that the issue of supplementation is not properly understood: supplementation together with proper nourishment form a part of successful training. Popinigis [19] uses the term “training-related supplementation” noting that “dietetic aiding in physical effort aims at increasing physical capacity of a body through creating optimal conditions for chemical reactions taking place in the body”. The

present analysis showed that the average age of men who used doping in the past or are using it now is 24 years old – as many as 61% of them practice weightlifting or bodybuilding. This may confirm the thesis that these two sports are “burdened” with doping use [5, 25, 28, 29].

Those who use illegal substances are largely aware of the risk of addiction (72%) and despite knowing the side effects and contraindications, usually take AAS: testosterone and its derivatives (89%) either orally or intramuscularly, which is in accordance with findings in other research studies. The authors of NIDA Research Report [15], Su et al. [30] and Ciapponi and Fahey [1] all claim that professional athletes and sport amateurs take AAS orally, by means of injections, gels or creams, and the dosage is from 10 to 100 times larger than the dosage used therapeutically. They take the substance in a weekly or monthly cycles with breaks, in order to improve the effectiveness of training, muscle mass growth or volitional control.

Is this community, despite being quite approving (67%) of these illegal and harmful practices, uncritical of their own conduct and so “hermetic” to be unaware of the necessity for help? On the contrary – the research results seem to confirm that even though the majority of those taking forbidden substances did not consult a doctor (89%), as many as 72% would be willing do visit a specialist, mainly because of numerous health problems.

Nevertheless, studies on doping control in elite sport in Poland show that the use of forbidden substances affects a small percentage of the athletes [28]. The opinion poll revealed a strict public view that doping is only reserved for professional athletes (82%), and is only a marginal phenomenon in recreational sport (24%). In other words, most people believe that there are no reasons to use doping outside elite sport. Nonetheless, in reality, the situation looks different and a large number of people is not aware of it. Bad models and habits spread quickly in different areas of sport activity, including children and adolescents’ sport as well as recreational sport [5, 24].

Because the survey group which took part in this research was not substantial enough to draw definite conclusions, this paper may serve as a pilot study revealing some important trends. Further research is needed to show the full scale of the problem of doping in recreation.

REFERENCES

- [1] Ciapponi T.M., Fahey T.D., Health risks of anabolic steroids: update 2003, *Medicina Sportiva*, 2003, 7: 41-47.
- [2] Delbeke F.T., Desmet N., Debackere M., The abuse of doping agents in competing body builders in Flanders (1988-1993), *International Journal of Sports Medicine*, 1995, 16: 66-70.
- [3] Dezelsky T.L., Toohey J.V., Shaw R.S., Non-medical Drug Use Behavior at Five United States Universities: A Fifteen-Year Study, *Bulletin on Narcotics*, 1985, 37: 49-53.
- [4] George A.J., The Anabolic Steroids and Peptide Hormones, (in:) D.R. Mottram, ed., *Drugs in sport*, 2nd edition, E&FN Spon, London 1996, pp. 173-214.
- [5] Gracz J., Sankowski T., Motywy niedozwolonego wspomaganie w ruchowej aktywności rekreacyjnej (Motives for forbidden doping in recreational motor activity), *Medicina Sportiva*, 2006, vol. 10, suppl. 3: S311-S316.
- [6] Griffiths P., Bacchus L., Use of Anabolic Steroids and Other Doping Substances Outside Competitive Sport: Literature review and European key information survey, Council of Europe, Strasbourg 1998.
- [7] Herrmann M., Steroids: A vague threat, *Newsday*, 1988, 30 October: 31-36.
- [8] Kijowski A. Prawne aspekty dopingu (Legal aspects of doping), (in:) K. Nazar, W. Rewerski eds, *Doping (Doping)*, PZWL, Warszawa 1995, pp. 47-49.
- [9] Korkia P.K., Stimson G.V., Indications of prevalence, practice and effects of anabolic steroid use in Great Britain, *International Journal of Sports Medicine*, 1997, 18: 557-562.
- [10] Laure P., Epidemiological Approach to Doping in Sport. *Journal of Sports Medicine and Physical Fitness*, 1997, 37: 218-224.
- [11] Lipoński W., Psychologiczne bariery w uprawianiu sportu rekreacyjnego (Psychological barriers in practising recreational sport), Skrypt nr 282, AWF Poznań 1990.
- [12] Lis J., Olszański T., *Czysta gra (Fair play)*, Sport i Turystyka, Warszawa 1984.
- [13] Ljungqvist A., The use of anabolic steroids in top Swedish athletes, *British Journal of Sports Medicine*, 1975, 9: 82.
- [14] Mekolichick J.T., Anabolic-androgenic steroids: The construction of a social problem, *Journal of Sport & Social Issues*, 1997, 21: 260-273.

- [15] National Institute on Drug Abuse, About anabolic steroid abuse, *NIDA Notes* 2000, 15: 15.
- [16] Pac-Pomarnacki A., Niektóre elementy antydopingowej kampanii informacyjno-edukacyjnej w polskim sporcie (Selected elements of anti-doping information-educational campaign in Polish sport), *Sport Wyczynowy*, 1991, 7-8.
- [17] Perry H.M., Wright D., Littlepage B., Dying to be big: a review of anabolic steroid use, *British Journal of Sports Medicine*, 1993, 26: 259-261.
- [18] Pietruszewski M., Lewicki R., Zagrożenie zjawiskiem dopingiem w środowisku uczniów szkoły podstawowej klas V-VIII (The risk of doping among elementary school children from grades V-VIII), *Polish Journal of Sports Medicine*, 2000, vol. 108 (7): 33-36.
- [19] Popinigis J., Podstawowe zasady żywienia i wspomaganie w sporcie (Principles of nutrition and supplementation in sport), (in:) Konferencja Naukowo-Szkoleniowa: Doping a dozwolone wspomaganie treningu sportowego (Conference: Doping and legal supplementation in sport training), Warszawa 2001.
- [20] Posiadała D., Najważniejsze dokumenty regulujące zwalczanie dopingiem w sporcie. Polityka antydopingowa (Essential documents regulating fighting doping in sport), *Rocznik Naukowy AWF i S Gdańsk*, 2007, XVII: 73-77.
- [21] Prawo farmaceutyczne. Ustawa z dnia 06.09.2001 (Polish pharmaceutical law, September 06, 2001), (In:) *Dziennik Ustaw* 2004, 53 item 553.
- [22] Sacharuk J., Huk-Wieliczuk E., Witkowski K., et al., Dozwolone wspomaganie treningu w kulturystyce (Legal supplements in bodybuilding training), *Medicina Sportiva*, 2006, vol. 10, suppl. 3: S327-S330.
- [23] Sahaj T., Doping. Koń trojański współczesnego sportu (The Trojan Horse of contemporary sport), *Sport Wyczynowy*, 2002, 1/2: 81-89.
- [24] Sas-Nowosielski K., Doping nie tylko w sporcie: przyczyny, skutki, przeciwdziałanie (Doping – not only in sport: causes, consequences and prevention), AWF Katowice 2002.
- [25] Sas-Nowosielski K., The use of anabolic-androgenic steroids in people practicing in Gymnasiums. *Polish Journal of Sports Medicine*, 2005, 21: 93-98.
- [26] Skalski K., Wybrane aspekty dopingiem w sporcie (The chosen aspects of doping in sport), Uniwersytet Warszawski 2000.
- [27] Smorawiński J., Zapobieganie stosowaniu dopingiem w sporcie. Zadania państwowe w walce z dopingiem. Ekspertyza przygotowana dla Ministerstwa Edukacji Narodowej i Sportu (Doping prevention in sport. Government prevention targets. Opinion prepared for the Ministry of National Education and Sport), Warszawa 2004.
- [28] Smorawiński J., Gucza R., Polish achievements in the fight against doping, *Biology of Sport*, 2000, vol. 17 (2): 107-119.
- [29] Stefaniak T., Witkowski K., Maśliński J., i in., Doping farmakologiczny w kulturystyce amatorskiej kobiet i mężczyzn (Pharmacological enhancement in amateur women's and men's bodybuilding), *Medicina Sportiva*, 2006, vol. 10, suppl. 3: 321-325.
- [30] Su T.P., Pagliaro M., Schmidt P.J., et al., Neuropsychiatric effects of anabolic steroids in normal male volunteers, *Journal of the American Medical Association*, 1993, 269: 2760-2764.
- [31] Szwarz A.J., Prawne problemy dopingiem w sporcie (Legal aspects of doping in sport), Seria wydawnicza nr 2, Sport i Prawo, Poznań 1992.
- [32] Wach A., O celowości uchwalenia ustawy o zwalczaniu dopingiem w sporcie (The purposefulness of passing a bill against doping in sport), *Sport Wyczynowy*, 2005, 11/12: 32-41.
- [33] World Anti-Doping Code, Article 1: Definition of doping, World Anti-Doping Agency, March 2003.
- [34] Ziemia A., Mroczna strona medalu (The dark side of the medal), *Wiedza i Życie*, 2000, 9: 16-21.