

PREVALENCE OF SUPPLEMENTS USE AND KNOWLEDGE REGARD TO DOPING AND ITS SIDE EFFECTS IN IRANIAN ATHLETE UNIVERSITY STUDENTS PARTICIPATED IN SPORTS OLYMPIAD COMPETITIONS AT SUMMER 2012

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Abstract

The prevalence of supplements use has increased progressively in athletes. Therefore, the purpose of this study was to investigate Prevalence of supplements use and knowledge regard to doping and its side effects in Iranian athlete university students participated in sports Olympiad competitions at summer 2012. The statistical sample included 253 male athlete university students from different events (wrestling, football, handball, volleyball, basketball and track and field). Researcher- build questionnaire which was developed to determine prevalence of supplement use and knowledge about doping and its side effects were distributed between athletes. The reliability analysis yielded cronbach alpha values of 0.81. The collected data of this study was analyzed by descriptive and deductive (spearman test) in significant level ($P \leq 0.05$). The results showed that 70.7% of student athletes want to use supplements. The consumption of supplements and drugs by wrestling (82.5%) and track and field (76%) athletes were more than other fields. 45% of athletes estimated that their knowledge of doping and supplement was average, 15.4% without, 13.4% low and 13.3% good knowledge. Also, wrestling (53.3%) and track and field (57.7%) had more knowledge than other fields. With regard to providing drug and supplement, athletes reported that they got them more from pharmacy (29.8%), friends (26.3%) and coach (21.1%). They received the most consultation from their friends (29.8%) and coach (28.1%). Based on the result of this study, it seems that the degree of student knowledge and information was low and they had a strong willingness to consume supplements. Therefore, there must be some instructional programs and courses for student athletes to modify their understanding and knowledge about side effects of doping and supplements.

Keywords: doping, knowledge, supplements prevalence, sport competitions

Introduction

Today, using external substances along with professional and non-professional growth of sports and significant improvements in athletes' social position but the abuse of such drugs leads sports and athletes toward serious troubles (Halabchi, 2007; Rahnama, 2009). During recent decades, excess attention paid by sport authorities, coaches and athletes to sports and economic events and sport materialism has led to an increase in immoral behaviors expressed by athletes. One of these behaviors is doping and some athletes believe that they can overcome their sport capabilities by using these drugs (Rahnama et al, 2009; Halabchi et al, 2006; Kargarfard et al, 2009). Extensive media advertising on men's ideal body shape lead teenagers and adolescents to think boys with bigger muscles are more attractive. Dissatisfaction with body shape and tendency to change it is a main factor affecting the use of some drugs such as anabolic steroids the main objective of use of which is to enhance muscle mass and improve body shape (Kargarfard et al, 2009). The first users of these drugs were mainly body builders, weight lifters, football players, cyclists and athletes in difficult sports but consumption of such substances gradually prevailed among all sportsmen (Pavlović et al, 2013). Death of Danish cyclist in Rome's Olympics in 1960 (caused by Amphetamine abuse) forced world sport authorities to develop specific drug tests (Juhn et al, 2001& 2003).

However, despite these tests and identifying over 240 forbidden drugs by the WADA (World's Anti-Doping Agency), the last scandal of London Olympics revealed that 12 athletes used the drugs the most well-known of whom was the cyclist Lance Armstrong (champion of Tour de France). The agency reported deprivation of 107 athletes during the first half of 2012. The considerable statistics indicate increasing prevalence of and lack of knowledge on these drugs among sportsmen (Pavlovic et al, 2013). Pavlovich et al (2013) examined viewpoints and knowledge of 100 PE students on consumption of supplements and doping drugs. Results showed that 57% of students lack enough knowledge on forbidden drugs and 32% have direct access to such substances (Pavlovic et al, 2013). In another research in France 4% of participants stated that have used forbidden supplements at least once in their life and 21% believed no one can become a popular champion without doping (Laure et al, 2004). Results of the two studies reveal lack of knowledge and tendency toward addiction to these supplements among athletes. Halabchiet al (2009) investigated knowledge of wrestler in Tehran's clubs on doping and its estimation and 35.4% 12.5% of wrestlers estimated supplement abuse prevalence in the league over 50%. Besides, most athletes receive more consultations from their friends (40.8%) and coach (13%) than from physicians (5.2%).

Doping is increasingly advancing in Iran and this leads to serious problems for country's sports. Some of these problems include positive doping test of 9 national team wrestlers (Dominican's world cup in 2006), 1-year deprivation of Iranian Federation of Wrestling as a result of positive cases in Workers and Ringmasters competitions and among athletes of national boxing team (Sydney Olympics, 2000), numerous positive cases among wrestlers participating in world cups, etc. Unofficial reports indicate that relative abundance of positive doping cases of Iranian athletes is even higher than that of sport-owning countries (Halabchi, 2009; Kargarfard, 2007). With regard to recent studies, athlete university students (whether professional or not) are increasingly using supplements. Besides, wrong beliefs and lack of knowledge among athletes may threaten their health seriously so that they may be followed by dangerous consequences (Halabchi et al, 2007; Kargarfard et al, 2009).

In Iran, numerous studies have investigated doping among national and adult athletes. But, considering enhancements in competition levels and increase of doping among university students and transfer of this issue to lower age groups, knowledge on doping and its side effects is less investigated and most studies have focused on a certain sport or some sports in a specific city. Accordingly, the present paper aims to investigate prevalence of supplement use and knowledge of athlete university students participating in national sport Olympiad competitions on doping in football, volleyball, handball, basketball, wrestling and track and field. Moreover, it tries to present strategies to prevent and reduce doping to focus more on health of young athletes.

Methodology

A total number of 253 male athlete university students (average age: 22.45 ± 2.86 years, average height: 178.18 ± 6.22 cm, average weight: 71.81 ± 10.03 kg) participating in different sports (wrestling, football, basketball, handball, volleyball and track and field) in national sport Olympiad competitions of male students took part in this descriptive – survey research. First, 300 questionnaires were distributed among students of which 253 were responded and returned and, hence, were selected as research sample. In order to measure supplement use and knowledge on doping and its side effects the self-reporting, nameless, realized questionnaire was employed. Validity and reliability of the questionnaire were determined through viewpoints of PE professors and pharmacologists and Cronbach's Alpha of 0.81, respectively. The first section of questionnaire included personal information (age, education, marital status, height and weight). Next questions concerned period of national team membership, the highest rank achieved, rate of prevalence, knowledge on (and approach to) doping, supplements and their side effects.

Furthermore, questions pertaining place of supplement purchase and the way of getting information on them were included in the questionnaire. The last item in the questionnaire had 8 choices. Athletes were asked to prioritize and rank strategies of enhancing information on supplements from 1 to 8. Having questionnaires distributed, researchers provided athletes with a short description of the research and its methodology. Then, they were asked to answer all questions accurately. Data were analyzed in descriptive and deductive levels. In the former level indexes such as mean, standard deviation, tables and charts were employed. Deductive statistics used Spearman's correlation test and SPSS 16 in significance level of P ≤ 0.05.

Results

Among all participants, 7.3% were married and 92.7% were single of which only 25.4 had an experience of national team membership. Table 1 shows the number and abundance distribution of tested subjects in different sports.

Table 1 Number and abundance distribution of tested subjects

sports	number of tested	frequency
Football	63	24/9
handball	46	18/1
volleyball	45	17/7
basketball	45	17/7
wrestling	29	11/1
track and field	25	9/8

Results indicate that 72.3% and 64.4% of athlete students are satisfied with their body shape and body weight, respectively. Moreover, 37.9% of athletes are tended to lose weight and 51.3% to gain weight. Since 94.8% of athlete students oppose permitting use of doping drugs, 68.3% recognize drugs and supplements as requirements for their performance improvement and 37.8% of them believe most records are changed because of doping. In athlete students' viewpoint, reasons of consuming supplements include enhancing power (30%), strength (27.2%), speed (22.1%), preventing injuries (9.8%) and improving health (7%).

Besides, the tested population included students of Associate's Degree (6.41%), Bachelor's Degree (69.63%), Master's Degree (22.53%) and PhD (2.37%). Most of them (70.7%) tended to use supplements (unless they are harmful) and 10.3% of athlete students consumed them despite being aware of their side effects. Among all individuals, 66% tried to collect scientific and accurate data on doping drugs and their side effects of which 34.4% succeeded. 68.4% of athletes had used such drugs at least once during their career and wrestlers (82.5%) and track and field athletes (76%) had the most contributions (Figure1).

The highest rates of knowledge deficiency on harms and benefits of 18 supplements (mentioned in the questionnaire) were related to Oxandrolon (86.4%), Dianabol (83.7%), Oxymetholone (83.7%), Amphetamines (76.7%), Methane (76.7%), Ephedrines (74.9%) and Beta Blockers (69.6%), respectively. In addition, some classified Testosterone (67.8%), growth hormone (63.6%) and Marijuana (53.3%) as harmful supplements.

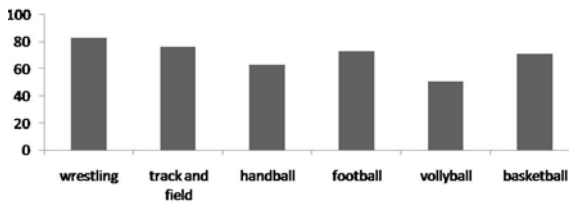


Figure 1: relative abundance of supplement consumption in each sport

On the other hand, percentages of athletes estimating their knowledge on doping drugs as average, deficient, low, and high were 45%, 15.4%, 13.4% and 13%, respectively. Most wrestlers (53.3%) and track and field athletes (57.7%) estimated their knowledge on doping drugs higher than other sports (Figure 2 and 3). In response to the item concerning place of drug and supplement purchase athlete students identified pharmacy (29.8%), friends (26.3%), coach (21.1%), club (12.3%), the Internet (5.3%) and other items (5.3%) as the most common ones.

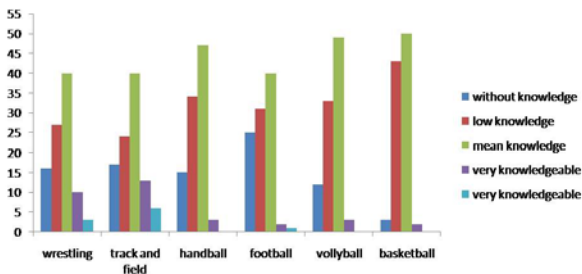


Figure 2: abundance of athletes' knowledge in different sports

According to reports, most students obtain required data on drugs from their friends or teammates (29.8%), coach (28.1%), the Internet (19.3%), physician (10.5%) and media (5.3%). They also recognize obligatory instructional courses, dissipating information through media such as newspaper and TV and developing an information website on supplements and doping as the best ways of data collection.

Discussion and conclusion

The present paper aimed to investigate prevalence of supplement consumption and knowledge of athlete students on doping and its side effects. Results demonstrated that 68.4% of students have consumed drugs and supplements at least once during their career and some identify themselves needing to consume them for their improvement and success.

Moreover, 70.7% of athletes are willing to consume supplements unless they are harmful. The results indicate prevalence of doping and ideas of athlete students and teenagers on doping drugs. One of factors affecting this is pressures on athletes exerted by coaches, authorities, sponsors and sport clubs. These usually encourage athletes to consume doping drugs and supplements in order to achieve physiological, biomechanical, nutritional and mental advantages (Minasiyan et al, 2009).

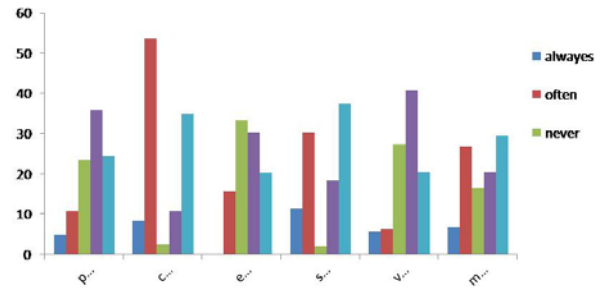


Figure 3: prevalence of consumption of some supplements among athlete students

Another factor affecting consumption of anabolic steroids and supplements is the tendency to gain ideal weight, increase muscle mass and improve body shape in athletes and amateurs (Laber, 2002; Scofield, 2006). Zawila et al showed negative tendency of runner university athletes to supplement consumption which is opposed to results of the present research (Zawila et al, 2003). This may result from enough information on correct consumption of nutrients to improve body performance. The present paper revealed that 66% of athlete students try to collect scientific and correct data on supplements and their side effects and only 34% succeeded in gathering their required information. In addition, athletes in different sports (except for wrestling and track and field) reported their knowledge on doping drugs and supplements as average-to-low.

Based on findings, more information available among wrestlers (53.3%) and track and field athletes (57.7%) may be a result of their higher rate of supplement consumption. An effective factor is the physical and mental pressure in most individual sports from coaches, authorities and people's expectations (Halabchi et al, 2007; Minasiyan et al, 2009). Wanjek et al studied knowledge of athletes in several sport and non-sport schools of Germany on doping supplements. Their results indicated that 60% of students (whether athlete or not) have weak knowledge on doping drugs and supplements and a plan must be conducted to enhance information level on the subject among lower age groups (Wanjek et al, 2007). Many studies reported average or low level of athletes' information on supplements which are used by most sportsmen regardless of their destructive physical and behavioral effects (Wanjek et al, 2007; Ziegler, 2003; Van Eenoo, 2003).

Some athletes believe that supplement consumption is associated with no consequences. Although short-term use of vitamins, minerals, proteins, etc. poses no danger and side effect, the supplements are approved and confirmed by no organizations and producers can sell forbidden and harmful drugs in the form of such supplements.

In addition to side effects on athletes' health this can lead to their positive doping test in international competitions (Kargarfard et al, 2009). With regard to advances in Iranian sports and increased competition among adolescents and teenagers, lower age groups (Pavlovic et al, 2013; Scofield et al, 2006) are progressively consuming supplements so that, consistent with literature, athlete students used supplements to enhance power (30%), strength (27.2%) and speed (22.1%), to prevent injuries (9.8%) and to improve their health (7%). Moreover, the present paper demonstrated that 37.9% and 51.3% athletes are willing to lose and gain weight, respectively to meet their ideal body weight. The dissatisfaction with body shape and appearance may be a significant factor in consuming some drugs such as anabolic steroids (Kargarfard et al, 2007). Therefore, the dissatisfaction in amateurs and non-athletes may lead to drug consumption and pose serious threats on their health. Correlation results indicated a significant, reverse relationship between education level and supplement consumption and knowledge on doping and its side effects so that an enhance in education level and consequently in knowledge level leads to a reduction in supplement consumption rate.

But, it must be noticed that most athletes are of lower education levels and must be provided with opportunities to enhance their education. Most athlete students selected obligatory instructional courses, dissipating information through media such as newspaper and TV and developing an information website on supplements and doping as the best ways of data collection. Hence, sport experts are suggested to conduct plans for different sports starting from lower ages and emphasizing reduction of danger factors of supplements. Besides, instructional courses can be held in schools and universities on ways of fighting doping. As doping is prevailed among amateurs and non-athletes, media are expected to inform people on dangerous factors and effects of such substances in the form of targeted and instruction-based programs. According to Chart 3, Creatine is the most widely used supplement among athlete students of different sports. Literature has also reported consumption of Creatine, sport drinks and vitamins among athletes (Tian et al, 2009).

Creatine keeps body water, gives muscles more access to ATP and makes energy system, especially that of Phosphagen. This postpones fatigue and is considerably effective on sport events (Robert et al, 2000). Furthermore, because of their anti-oxidant role, vitamins preserve cell membrane against free radicals with oxidizing role

during activities and this may be a strong reason why athletes consume them (Tian et al, 2009). Athletes, however, consume supplements based on their own experiences and friends' suggestions, hence needing more scientific knowledge. Findings of the present paper revealed that most students gain their required information on supplements from their teammates (friends) (29.8%), coach (28.1%), the Internet (19.3%), physician (10.5%) and media (5.3%). Friends or coaches usually lack correct information on side effects of such drugs or ascribe numerous unreal benefits to gain higher financial profits of drug sell (Halabchi et al, 2007). Although physician is the best one to consult on supplements and their side effects, most athletes prefer their friends or coaches probable because of close relationships and rapid progress.

Therefore, practicing with knowledgeable coaches and promoting their scientific level (and that of athletes) is a necessary task. Athletes consult physician less probably since doctors are not permanently accessible and some lack up-to-date and new information fitting requirements of modern sports. In response to the item concerning place of drug and supplement purchase athlete students identified pharmacy (29.8%), friends (26.3%), coach (21.1%), club (12.3%), the Internet (5.3%) and other items (5.3%) as the most common ones and 41.7% of them suggested other students to consume supplements. This indicates increasing prevalence of supplements and their easy provision among athlete students. Thus, authorities should closely monitor certified and uncertified places selling such substances (such as clubs and pharmacies). Besides, athletes and coaches have to learn more about drugs and supplement because of their important role in country's sports. According to literature and findings of the present paper, the speed of supplement consumption prevalence among professional and amateur athletes is observable.

The prevalence is not only limited to professional and national-level athletes but they are current in lower age groups among students and university students. Thus, low age of consumers along with their low information on side effects of these supplements is considered a serious hazard for athlete teenagers and adolescents. Improved competition among age groups, increased ads on body fitness and muscled body and increased number of body building clubs lacking coaches informed and knowledgeable on correct nutritional issues may be significant elements influencing prevalence of supplements and drugs among the youth. Therefore, it seems necessary to regularly monitor sport clubs along with holding instructional programs for coaches and PE authorities. Also, providing athletes in lower age groups with explanations on side effects and immorality on supplements and doping drugs enhances their information on the subject so that no one consumes supplements without information and knowledge and no Iranian athlete is omitted from international competitions.

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UČESTALOST KORIŠTENIH DODATAKA I ZNANJE OBZIROM NA DOPING I POPRATNE POJAVE KOD STUDENATA IRANSKOG SPORTSKOG UNIVERZITETA KOJI SU SUDJELOVALI U LJETNJIM OLIMPIJSKIM IGRAMA 2012.

Sažetak

Prevalencija dodataka korištenja povećala se progresivno u sportaša. Dakle, svrha ovog istraživanja bila je ispitati prevalenciju korištenja dodataka i obzirom na znanje o doping i njegovim nuspojavama kod iranskih sportaša studenata koji su sudjelovali u sportskim natjecanjima na Olimpijadi ljeta 2012. Statistički uzorak uključuje 253 muška sportaša studenta iz različitih događanja (hrvanje, nogomet, rukomet, odbojka, košarka i atletika). Upitnik građen istraživanjem koji je razvijen kako bi se utvrdilo prevalenciju uporabe dodataka i znanja o doping i njegove nuspojave je raspoređen između sportaša. Analiza pouzdanosti Cronbach alfa je dala vrijednosti 0,81. Prikupljeni podaci ovog istraživanja analizirani su opisno i deduktivno (Spearman test) u značajnoj razini ($P \leq 0,05$). Raspravljani rezultati su pokazali da je 70,7% od studenata sportaša htjelo koristiti dodataka. Potrošnja dodataka i lijekova u hrvanju (82,5%) i atletici (76%), sportaši su više od drugih područja. 45% sportaša procjenjuje da je njihovo poznavanje dopinga i dopuna je prosječno 15,4% bez, 13,4% niska i 13,3% dobro znanje. Također, hrvanje (53,3%) i atletika (57,7%) su imali više znanja od drugih područja. S obzirom na pružanje lijeka i dodataka, sportaši su izvijestili da su ih dobili više od ljekarne (29,8%), prijateljima (26,3%) i trenera (21,1%). Oni su dobili najviše konzultacije sa svojim prijateljima (29,8%) i trenera (28,1 %). na temelju rezultata ovog istraživanja, čini se da je stupanj studentskog znanja i informacija bila je niska, a imali su jaku želju za konzumiranje dodataka. Dakle, mora postojati neki nastavni programi i tečajevi za studentske sportaša modificirati svoje razumijevanje i znanje o nuspojavama dopinga i dodataka.

Ključne riječi: doping, znanje, učestali dodaci, sportska natjecanja

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