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How the Iranian Football Coaches and Players Know About Doping?

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Background: Nowadays, doping is an intricate dilemma. Football is the nationally popular sport in Iran. On the other hand, doping is a serious health hazard sport faces today. Studies dealing with athletes' knowledge, attitudes and behavior concerning doping in football are scarce.
Objectives: Therefore, we aimed to investigate the knowledge and attitudes toward doping among the football coaches and players.
Patients and Methods: In a cross sectional study, 375 participants (239 football players and 136 coaches) were studied. A specially made questionnaire was applied. In this study, football teams of different provinces of the country were selected by randomized clustered sampling and questionnaires were distributed among coaches and players.
Results: Knowledge of football coaches and players in three categories of doping definitions, recognition of prohibited drugs and side effects of anabolic steroids was poor or moderate in 45.3%, 88.5% and 96.5%, respectively.
Conclusions: Football players and coaches have poor knowledge about doping in Iran. Moreover, they believe in some inappropriate myths without any scientific or rational basis.It seems necessary to design a comprehensive educational program for all of the athletes and coaches in Iran.

Keywords: Doping in Sports; Football; Knowledge; Soccer

1. Background

Doping is a phenomenon as old as the competitive sports (1, 2), although the public opinion considers doping as something modern (2). Doping in sport has been studied mainly from a biomedical point of view, even though psycho-social approaches are also key factors in the fight against doping (3, 4). Researchers in the biomedical field mostly focus on improving the detection methods, while experts in social sciences are trying to understand the psychological factors such as attitudes, environment and beliefs that can stop doping. Although the athletes' beliefs play important roles in their use of drugs, their unavailability makes it difficult to predict drug misuse and doping. World Anti-Doping Agency (WADA) promotes social, behavioral, and ethical research projects on drug misuse among athletes (3). Repeated, ongoing conversation with athletes and coaches can provide an improved understanding of the probability of doping behavior (5).These studies have been mostly conducted in Europe, Oceania and America (more than 92% of studies). Unfortunately, these studies are scarce in Asian countries, including Iran (3). Results of these limited studies are disappointing. According to a study on the high- level endurance walkers, they could mention just an average of 1.5 drugs of the list of prohibited doping drugs (6). Another research regarding health consequences of doping drugs demonstrated that only 20% of the Nigerian athletes were familiar to the side effects of anabolic steroids such as tendon injuries, acne or gynecomastia (7). In another study on French high school athletes, participants mentioned peers or health professionals as the main source of drug supply. Seven percent of them did not believe that doping is always a dangerous behavior (8). A study on 80 weight-lifters showed that the anabolic steroid users found physicians as no more reliable than their friends, internet sites, or the persons who sold them the steroids (7). In another project, 155 American athletes participating in winter games (1992) were investigated. In this study, 80% of Olympic athletes considered steroid use as a serious problem in sports and 43% of them estimated use of anabolic steroids to be more than 10% of participants (9). Football is acknowledged as the most popular sport discipline all around the world. The global organization of FIFA has united over 250 million football players in 207 countries (10). There are approximately 200000 elite players in football all over the world (11). Few studies have been conducted on doping knowledge, attitudes and behavior in football players (12), despite the need for more educational efforts to help football play-

ers in this matter. The lack of systematic or reliable data about the extent of drug use in professional football is evident today (13). Although the prevalence of doping in football seems to be decreasing, more rigorous collaboration and thorough investigation is needed on issues such as banned substances, detection methods and data collection worldwide. Banned and harmful substances are easily available and their use does not usually require a medical prescription (10). Unlimited quantities of drugs such as anabolic steroids can be effortlessly bought over the internet. Since the number of positive samples and cases of recreational drugs such as marijuana and cocaine has increased in the recent years, they have to be addressed closely (10). Another study on more than 1000 African amateur football players showed that more than half denied any kind of knowledge about the prohibited substances. Also, it was claimed by about 68 % of the players that they knew nothing about anabolic steroids. In this study, the players have reportedly vague knowledge of doping. The vague knowledge of doping has also been reported by researchers in other studies on high-level sportsmen (14). Another research study on the Asian under 23 football players focusing on awareness, knowledge and attitudes towards doping also verifies the limited knowledge of the players about prohibited substances and anti-doping bodies in football such as WADA or AFC anti-doping committee. These limited investigations give the readers the opportunity to gain an insight into the overall lack of knowledge and awareness of doping related matters among football players (15). Asia was the place where this type of survey in football was conducted for the first time. These kinds of studies need to be extended beyond the state, nation and continents since they can help and educate all the players as the main target population that can spread the message of anti-doping and Fair Play (16). As a consequence, need for more detailed investigation of athletes' knowledge and attitudes toward doping and its various fields seems mandatory. Existing findings verify the lack of proper knowledge in the field of doping among the football players (16). Collecting such informative data would be necessary and appropriate before taking any preventive measure. FIFA's anti-doping strategy relies mainly on education and prevention (14, 17). FIFA also recognizes that the education of players, coaches and medical personnel in contact with football players is likely to be even more essential in the fight against drugs in sport and creating a culture that recognizes that doping has no place in football (11).

2. Objectives

So, the present study aimed to determine the Iranian football coaches and players' knowledge regarding the list of prohibited drugs and adverse effects of popular misused drugs. It also tries to assess their attitudes toward critical points of doping.

3. Patients and Methods

The study was performed as a cross-sectional survey. It was carried out in different cities of Iran selected by randomized clustered sampling method. The study was approved by Football Federation of Islamic Republic of Iran. The sample consisted of 375 participants (including 239 football players [63.7%] and 136 coaches [36.3%]) from all 6 geographically identified districts of Iran (Center, North, North West, North East, South West and South). On July 2011 to December 2012, all football coaches and players of selected teams were interviewed in place to ask for their participation in the survey. They received information about the study (the background of the project and project objectives, the possibility of refusing to answer specific questions, etc.) and a questionnaire was distributed. 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 the responders. The research team adapted the questionnaire from studies published elsewhere and included the national doping experts' opinion (18-20).

This questionnaire consists of 88 different questions. It is subdivided into:

1. Questions on definition of doping (10 items)
2. Questions on popular drugs (17 items)
3. Questions on side effects of anabolic steroids (15 Items)
4. Questions on attitude toward use of sport supplements (8 items)
5. Questions on attitude toward the best anti-doping strategy (12 items)
6. Questions on attitude toward the main rationale of sport authorities to combat against doping (7 items)
7. Questions on attitude toward the main consultants of athletes for drug misuse (10 items)
8. Questions on football coaches and players' estimates of where the athletes buy the banned drugs (9 items)

Validity and reliability of this questionnaire were tested beforehand with 30 subjects as a pilot study. To test internal consistency and test-retest reliability, we used Cronbach's alpha and Kappa coefficient of agreement, respectively and internal consistency (Cronbach's alpha = 0.72) and test-retest reliability (Range of Kappa coefficients of agreement for different subscales = 70-97%) of this questionnaire were regarded favorable. The questionnaires were processed, and the data collected were analyzed using the SPSS ver. 17 software. Quantitative variables are described as mean (standard deviation) and categorical variables are presented as frequency (percentage). Comparisons between players and coaches in quantitative and qualitative parameters were made by t test and Chi square, respectively. The significance threshold used was $P < 0.05$.

4. Results

Table 1 shows the frequency of true answers to questions aimed to assess football coaches and players' knowledge in three fields of doping definitions, familiarity

Table 1. Frequency of Correct Answers to Questions Aimed to Assess Knowledge [a]

Subdivision	Correct Answer	Frequency of Correct Answers			P Value
		Players	Coaches	Total	
Doping definitions					
Administration of prohibited substances by physician	Yes	185 (77.4)	109 (80.1)	294 (78.4)	0.12
Announcement of special financial rewards for moral enhancement	No	174 (72.8)	101 (74.3)	275 (73.3)	0.16
Enhancing performance with high altitude training	No	181 (75.7)	102 (75)	283 (75.5)	0.70
Inadvertent use of prohibited drugs by athletes	Yes	160 (66.9)	78 (57.4)	238 (63.5)	0.001
Power enhancement using special nutritional supplements	No	92 (38.5)	54 (39.7)	146 (38.9)	0.54
Presence of prohibited substance in doping urine sample	Yes	179 (74.9)	104 (76.5)	283 (75.5)	0.76
Refusing to doping sample collection	Yes	177 (74.1)	107 (78.7)	284 (75.7)	0.34
Tampering with doping sample collection	Yes	196 (82)	117 (86)	313 (83.5)	0.53
Trafficking in prohibited substances by coach	Yes	168 (70.6)	91 (66.9)	259 (69.1)	0.65
Use of vitamins and nutritional supplements	No	191 (79.9)	109 (80.1)	300 (80)	0.29
Drug names					
Amino acids	No	118 (49.4)	61 (44.9)	179 (47.7)	0.54
Amphetamine	Yes	115 (48.1)	72 (52.9)	107 (28.5)	0.65
Antibiotic	No	145 (60.7)	88 (64.7)	233 (62.1)	0.70
Antihistamin	No	117 (49)	68 (50)	185 (49.3)	0.95
Cannabis	Yes	192 (80.3)	114 (83.8)	306 (81.6)	0.32
Corticosteroids	Yes	131 (54.8)	66 (48.5)	197 (52.5)	0.37
Creatine	No	89 (37.4)	55 (40.4)	144 (38.4)	0.83
Diazepam	No	84 (35.3)	46 (33.8)	130 (34.7)	0.61
Diuretics	Yes	127 (53.1)	74 (54.4)	201 (53.6)	0.68
Expectorant syrup	No	134 (56.3)	80 (58.8)	107 (28.5)	0.79
Growth hormone	Yes	145 (62)	95 (70.4)	240 (64)	0.26
Laxatives	No	86 (37.6)	53 (39.6)	139 (37.1)	0.44
Metocarbamol	No	81 (34)	52 (38.2)	133 (35.5)	0.65
Morphine	Yes	189 (79.1)	109 (80.1)	298 (79.5)	0.65
Nandrolone	Yes	123 (51.7)	67 (49.3)	190 (50.7)	0.90
Salbutamol syrup	Yes	104 (43.7)	55 (40.4)	159 (42.4)	0.65
Vitamin E	No	169 (71)	101 (74.3)	270 (72)	0.60
Side effects of anabolic steroids					
Aggresion	Yes	156 (65.5)	100 (74.6)	256 (68.3)	0.19
Alopecia	Yes	146 (61.3)	90 (67.1)	236 (62.9)	0.22
Arthritis	No	41 (17.8)	15 (11.4)	56 (14.9)	0.190
Constipation	No	29 (12.1)	10 (7.4)	39 (10.4)	0.263
Cough and dyspnea	No	53 (22.3)	22 (16.4)	75 (20)	0.339
Drug dependence	Yes	142 (60.7)	80 (59.3)	222 (59.2)	0.938
Gastric ulcer	No	30 (12.6)	17 (12.7)	47 (12.5)	0.908
Gynecomastia	Yes	137 (58.3)	88 (66.2)	225 (60)	0.274
Hyperlipidemia	Yes	88 (37.6)	53 (39.3)	141 (37.6)	0.952
Infertility	Yes	145 (60.9)	86 (64.2)	231 (61.6)	0.350
Muscle weakness	No	80 (33.6)	40 (29.9)	120 (32)	0.748
Nausea and vomiting	No	29 (12.2)	12 (9)	41 (10.9)	0.523
Severe acne	Yes	155 (65.1)	85 (63.4)	240 (64)	0.694
Sleepiness	No	37 (15.5)	17 (12.7)	54 (14.4)	0.735
Tendon injuries	Yes	67 (28.5)	55 (41.4)	122 (32.5)	0.023

[a] Data are presented as No. (%).

with banned drugs and side effects of anabolic steroids. Regarding doping definitions, power enhancement using special nutritional supplements were regarded as doping in about 40% of participants. On the subject of familiarity of football coaches and players with generic names of popular prohibited drugs, a few athletes knew amphetamines as doping agents. The frequency of true answers was a little higher in the case of corticosteroids and diuretics. Regarding side effects of anabolic steroids, football coaches and players were not so familiar with side effects of these drugs, especially tendon injuries and hyperlipidemia which football coaches and players selected as true answers only in 32.5% and 37.6% of cases, respectively. The frequency of true answers was slightly more in some other side effects such as aggression, alopecia, drug dependence, gynecomastia, infertility and

acne. Level of participants' knowledge toward each field was categorized using sum score of true answers in each field (1 point for each true answer). These scores were presumed good, moderate and poor, if the calculated sum scores were more than 70%, 40-70% and less than 40%, respectively. Distribution of football coaches and players by their knowledge in three categories of doping definition, familiarity with drug names and side effects of anabolic steroids is presented in Table 2.

Accordingly, knowledge of football coaches and players in three categories of doping definitions, recognition of prohibited drugs and side effects was poor or moderate in 45.4%, 88.6% and 96.5% of cases, respectively. Table 3 illustrates the attitudes of football coaches and players toward different fields of doping, including supplement use and the best anti-doping strategy (multiple choice questions).Table 4 demonstrates the attitudes of football coaches and players toward different fields of doping, including the main rationale of sport authorities to combat against doping and the main consultants of athletes for drug misuse and where the athletes buy the banned drugs (Single choice questions).

Table 2. Frequency of Football Coaches and Players by Their Knowledge in Three Fields of doping [a, b]

Knowledge	Good			Moderate			Poor		
	Players	Coaches	All	Players	Coaches	All	Players	Coaches	All
Doping definitions	129 (54)	76 (55.9)	205 (54.7)	71 (29.7)	40 (29.4)	111 (29.6)	39 (16.3)	20 (14.7)	59 (15.7)
Name of prohibited drugs	27 (11.3)	16 (11.8)	43 (11.5)	113 (47.3)	79 (58.1)	192 (51.2)	99 (41.4)	41 (30.1)	140 (37.3)
Side effects of anabolic steroids	10 (4.2)	3 (2.2)	13 (3.5)	104 (43.5)	63 (46.3)	167 (44.5)	125 (52.3)	70 (51.5)	195 (52)

[a] Finally, mean of knowledge scores for doping definitions, drug names and side effects of anabolic steroids were compared between players and coaches and showed no significant differences (P = 0.96, 0.39 and 0.74, respectively).
[b] Data are presented as No. (%).

Table 3. Ideas About Toward Different Fields of Doping (Five-Point Likert Scale)

Ideas About Supplement Use	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
If used properly, they have great effects on athletes' performance and success.	145 (38.7)	139 (37.1)	46 (12.3)	31 (8.3)	14 (3.7)
Although supplements may not have significant benefit, they are harmless.	5 (1.3)	78 (20.8)	102 (27.2)	140 (37.3)	50 (13.3)
Use of sport supplement is waste of money without any benefit.	23 (6.1)	48 (12.8)	90 (24)	141 (37.6)	73 (19.5)
They may contain prohibited substances	84 (22.4)	225 (60)	44 (11.7)	22 (5.9)	0 (0.00)
Natural and herbal supplements are safe and harmless.	56 (14.9)	112 (29.9)	91 (24.3)	97 (25.9)	19 (5.1)
Athlete who have a good and healthy diet, does not need any supplement	201 (53.6)	102 (27.2)	42 (11.2)	28 (7.5)	2 (0.5)
Without supplement use, no athlete can reach a good status in professional sport.	13 (3.5)	61 (16.3)	34 (9.1)	163 (43.5)	104 (27.7)
To avoid inadvertent doping, it is better to introduce standard supplements to athletes by sport authorities	184 (49.1)	149 (39.7)	25 (6.7)	17 (4.5)	0 (0.00)
Ideas about the best anti-doping strategy	**Completely Agree**	**Agree**	**Fair**	**Disagree**	**Completely Disagree**
Allow free use of all drugs	28 (7.5)	11 (2.9)	32 (8.5)	119 (31.7)	185 (49.3)
Use of indirect measures including cultural interventions	113 (30.1)	144 (38.4)	81 (21.6)	25 (6.7)	12 (3.2)
Enhance doping control via increased in-competition testing	90 (24)	213 (56.8)	37 (9.9)	18 (4.8)	17 (4.5)
Enhance doping control via increased out of competition testing	78 (20.8)	191 (50.9)	73 (19.5)	15 (4)	18 (4.8)
Educate athletes about effective and safe doping methods	141 (37.6)	161 (42.9)	38 (10.1)	19 (5.1)	16 (4.3)
Educate athletes about harms and side effects of prohibited drugs	220 (58.7)	118 (31.5)	36 (9.6)	1 (0.3)	0 (0.00)
Educate coaches about harms and side effects of prohibited drugs	232 (61.9)	119 (31.7)	20 (5.3)	4 (1.1)	0 (0.00)
Educate youth about harms and side effects of prohibited drugs	230 (61.3)	119 (31.7)	17 (4.5)	5 (1.3)	4 (1.1)
Increase doping sanctions for doping offence	130 (34.7)	150 (40)	76 (20.3)	17 (4.5)	2 (5)
Consider heavy financial penalties for doping offence	145 (38.7)	90 (24)	84 (22.4)	30 (8)	26 (6.9)
Consider imprisonment for doping offence	73 (19.5)	63 (16.8)	102 (27.2)	90 (24)	47 (12.5)
Deprive doping offenders from all citizenship rights	27 (7.2)	34 (9.1)	51 (13.6)	151 (40.3)	112 (29.9)

Table 4. Ideas about different fields of doping (Single choice) [a, b]

Variables	Frequency
Main rationale of anti-doping activities	
To maintain athlete's health	143 (38.1)
To maintain sport dignity	33 (8.8)
To create a fair medium for athletes' competition	148 (39.5)
To prevent national scandals	34 (9.1)
To combat unreasonable world records	7 (1.9)
To combat trafficking of prohibited drugs	0(0.00)
Others	10 (2.7)
Main consultant of athletes	
Physicians	24 (6.4)
Friends	101 (26.9)
Club owners	25 (6.7)
Physiotherapists	3 (0.8)
Dietitians	30 (8)
Coach	30 (8)
Drugstore vender	1 (0.3)
Senior athletes	3 (0.8)
Team bodybuilders	117 (31.2)
Others	41 (10.9)
Main places where the athletes buy the banned drugs	
Club	47 (12.5)
Athletes	34 (9.1)
Special supplement stores	83 (22.1)
Buy on foreign trips	18 (4.8)
Drugstores	23 (6.1)
Prescription by physician	0 (0.00)
Black market	99 (26.4)
Technical Staff (Technical team)	7 (1.9)
Others	64 (17.7)

[a] Comparison of ideas regarding other doping fields showed no significant difference between players and coaches ($P > 0.05$).
[b] Data are presented as No. (%).

5. Discussion

Due to different methods and instruments used, it is not prudent to directly compare data from previous studies regarding knowledge of athletes about doping. Our study shows variable knowledge of Iranian football coaches and players in different categories of doping. Fortunately, overall knowledge of participants regarding doping definitions is good. More than 50% of participants were well familiar with doping definitions. Interestingly, the most frequent correct answer was tampering with doping sample collection. This may reflect the over-emphasis of public media on numerous cases of reported tampering in the country. Another interesting matter was that 25% of participants did not consider the presence of a prohibited substance in urine sample as doping. Also, more than 2/3 of participants knew that doping violation is not just related to the athletes and may involve physicians or coaches. When the knowledge level of Iranian football coaches and players was assessed in the field of drug names, more than one third of participants (37.3%) had poor knowledge. More than half (60%) of the participants declared lack of knowledge in this subject. The most common drugs that participants knew were cannabis (81.6%) and morphine (79.5%), respectively. It is in accordance with a similar study in which anabolic steroids and cannabis were substances that athletes had heard much about, compared with amphetamines and erythropoietin (14). Participants were not familiar enough with amphetamine (28.5%) and salbutamol syrup (42.4%) as prohibited drugs. Such inappropriate awareness of doping by high level sportsmen has been also reported in other studies (14). Almost 50% of participants did not regard corticosteroids as prohibited drugs. Since glucocorticosteroids are widely used in the management of sports related injuries, as well as in the disorders of the musculoskeletal system, it may result in some cases of doping among Iranian athletes (21). Also, approximately 50% of Iranian football coaches and players were not familiar with the generic name of nandrolone as a doping drug. Similarly, another study on wrestlers showed that more than 50% of wrestlers were not familiar with the names of anabolic steroids and popular generic drugs of this group such as testosterone and nandrolone (7). Although Creatine is one of the most popular supplements used to improve athletic performance (22), more than 60 percent of participants consider creatine as a doping drug. In other words, contrary to the classification of Australian Institute of Sport (AIS) in which creatine is categorized in the group A supplements with established evidence for legal performance enhancing performance, safety and efficacy (1), football players considered it as a doping agent, which demonstrates the lack of proper knowledge about supplements notwithstanding the high prevalence of anabolic steroid use which has been reported in the literature (23). The knowledge of participants about side effects of anabolic steroids was poor and more than 50% of participants were not familiar with side effects of anabolic steroids. It is comparable to the results of a similar study done on wrestlers, in which less than 30% of athletes knew the most common side effects and almost 40% did not have any idea about side effects (2). Also, in a prospective cross-sectional study, Tyrolean junior athletes aged between 14 and 19 years, the overall knowledge especially regarding side effects of prohibited substances were poor (24, 25). Only, 3.5% of participants had good knowledge regarding the side effects (more than 70% correct answers). Only near 1/3 of participants

were familiar with tendon injuries and hyperlipidemia as the side effects of anabolic steroids (32.5% and 37.6%, respectively). Among all participants, only 48 participants (12.8%) were familiar with all definitions of doping and none were completely knowledgeable (full score) about the names of popular prohibited drugs and side effects of anabolic steroids. Interestingly, the knowledge scores of football players and coaches were better in comparison to free-style wrestlers in a similar knowledge and attitude study, which may reflect the results of continuous anti-doping educational courses conducted by the medical committee of national football federation (2). There was not a significant difference between coaches and players in the case of knowledge. This means that knowledge of coaches as the first- line consultants of athletes is not better than players. So, educational programs should focus on coaches to facilitate the proper data transfer between coaches and players. Regarding participants' idea about supplement use, more than 80% of participants believe that supplements may contain prohibited substances. This belief is valuable, because the likelihood of contamination with drugs is a real risk and it is estimated that near 15% of sport supplements may be contaminated, purposefully or unintentionally, with prohibited drugs which are not declared on their labels (26, 27). Furthermore, there are some myths among athletes regarding sport supplements including the safety and purity of natural and herbal supplements (44.8% of participants). Manufacturers of supplement usually use terms such as natural and herbal in their products and thereby benefit from these athletes' myths (2). Some cases of positive drug tests may be related to this inappropriate idea. For example, the urine of a Dutch professional cyclist was found to be positive for norpseudoephedrine and ephedrine with consumption of a liquid herbal food supplement containing ephedra, which could have caused the positive doping test (28). According to the majority of participants, it is reasonable that standard supplements be introduced to athletes by sport authorities to avoid inadvertent doping. This reflects the major concerns of the players and coaches toward the supplements in use with regard to safety, efficacy and legality and is consistent with this point that 68% of participants know that supplements may be feigned. Regarding the best anti-doping strategy, participants consider that indirect strategies such as education of athletes and coaches, especially young players about harms and side effects of prohibited drugs may be more effective. However, they also found helpful to use direct measures such as increased doping testing (in and out of competition). More than 82% of participants disagreed to allow free use of all drugs which indicates their agreement with doping control. Surprisingly, more than 80% of participants supported the education of athletes about effective and safe doping methods. This conflict reflects the fact that majority of participants either cannot discriminate between doping and other methods of performance enhancement or oppose doping only because of its lack of safety and effectiveness. Another important point is that a big part of participants think doping is necessary for international success of athletes, such that 39% of athletes consider that achieving the international excellence is not probable without illegal drug use. More than half of the participants know that if it is proved that positive doping test is the consequence of contaminated supplements, the athlete will be exempted from any sanction. This means that athletes do not have a good understanding about the rule of strict liability, which is one of the main educational prerequisites of players and coaches. Regarding the main consultants of Iranian football coaches and players for drug use, participants respectively cited the team fitness trainer (31.2%), peers and friends (26.9%), coaches (8%), dietitians (8%), club owners (6.7%) and physicians (6.4%) as their main advisor. In other words, only 15% of athletes consult with a sports medicine team including physicians, physiotherapists and dietitians. These findings are partially consistent with another study on French high school athletes who declare their peers as main source of supply (16). So, it seems necessary to incorporate important groups such as team fitness trainers and coaches in the audience of educational programs as well as medical practitioners (25, 29). So, it seems in order to develop evidence-based education and awareness raising campaigns about doping (4, 30, 31), the educational process has to be intensified with the help of national associations, as FIFA medical committee has declared (32). Our study shows variable knowledge of Iranian football coaches and players in different categories of doping. Fortunately, knowledge regarding doping definition is good, but participants had poor knowledge in familiarity with the generic names of prohibited drugs and their side effects of anabolic steroids. Furthermore, improper ideas are prevalent among football players and coaches which should be addressed and modified to increase the success of any anti-doping activity.

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Authors' Contributions

Dr. Tohid Seif Barghi developed the original idea and the protocol, abstracted and analyzed data, wrote the manuscript. Dr. Farzin Halabchi contributed to the development of the protocol, abstracted data, and prepared the manuscript. Dr. Heydar Hosseinnejad contributed to implementation. Dr. Jiri Dvorak helped with paper revision

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