

Original Article

Type and frequency of dietary supplement use by Iranian soccer players

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ABSTRACT

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Background: The aim of this study was to determine the type and frequency of dietary supplements use among elite soccer players in 2011/12 season of Iran's Premier Football League.

Methods: This was a cross-sectional study. We randomly selected 13 teams from 18 teams in 2011/2012 season. All players of each team took part in our study. A total of 234 soccer players enrolled in the study. Data were collected in seven-point times using a questionnaire.

Results: All players consumed at least one single supplement. The most common used supplements among athletes were vitamins C and E. No significant association was found between position played and the type or frequency of supplements use by athletes ($p > 0.05$). There was no significant relationship between the ranks of teams at the end of season and types or frequency of dietary supplements consumed by players ($p > 0.05$).

Conclusion: Our findings indicate that the usage of dietary supplements among Iranian elite soccer players is prevalent. Future studies are required to reveal the beneficial and potential hazards of these supplements on athletes' physical performance and their health.

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Introduction

There is no doubt that a well-designed diet can help athletes to achieve their optimal training and performance [1]. Due to high physical demands of professional sports, athletes may use medications, vitamins, herbals or supplements even for the smallest advantage during competitions. In fact, health concerns,

fear of unbalanced diets, and enhancing performance are the major reasons for taking supplements by athletes [2-7]. Although many organizations like International Olympic Committee state that some nutritional supplements may increase performance of some athletes, they warn that athletes should consider the risks to their health, performance, efficacy, and the cost incurred [1]. In addition, athletes are responsible for a positive doping test resulting from any banned substances contained in the supplements [8]. However, regular consumption of supplements is widely reported among athlete populations [9].

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Football is one of the most popular sports in the world as well as Iran. One of the main concerns of the sport authorities is the rise in supplements usage among popular players [6]. Dietary supplements with a variety of health claims have become widely available today while the prevalence and patterns of their consumption among athletes especially soccer players are not clear. Published information on drug and supplements used by elite soccer players shows a high dose intake of nutritional supplements [10, 11]. In this regard, according to results of a cohort study about Italian professional soccer players, 82.8% of the players stated that they regularly take supplements, and 28% of the players commonly used vitamin supplements [11]. In another study conducted in England professional soccer players also reported the usage of different types of nutritional supplements (almost 58% used vitamin supplements, 23% took mineral pills, 24% used protein powders, and 37% used creatine). Moreover, the findings of the study revealed that the blood test for monitoring health status in players was rarely carried out [10]. Similarly, another study shows that 80% of the players participating in the Sydney 2000 Olympic Games reported the usage of at least one sort of nutritional supplements or drugs [12]. Some nutritional supplements such as macronutrients (carbohydrates and proteins) and micronutrients (vitamins and minerals) may have beneficial effects, but most supplements may be of no benefits to athletes [13]. Yet, an alarming trend toward the prevalence of supplement use among athletes has been observed during the last decade. Nutritional supplements were prescribed more in 2006 World Cup compared to 2002; this shows a constant increase in supplement use among athletes. The majority of nutritional supplements for the players (41.1%) were vitamins, followed by minerals (21.2%) and amino acids (11.1%). It should be mentioned that iron supplements were responsible for 11.8% of the mineral supplements by players. However, there was no relationship between the success of teams and the dose or type of supplement or medication they had taken although there was a relationship between the duration of physical activity and the dose of medication or supplement taken [14].

Very little is known about the pattern of supplement use among professional soccer players. However, to the authors' knowledge, there has been no study about the use of sport nutrition

supplements by Iranian soccer players. Therefore, the purpose of this study was to assess the type and frequency of dietary supplements used by the soccer players in the Iranian premier league.

Methods

A total of 234 Iranian male soccer players took part in the current cross-sectional study. The players were from 13 teams, which were selected randomly using convenience sampling among 18 teams in the Iranian Soccer Premier League. The subjects were asked to take part in the study during the 2011/12 season of Iran's Premier Football League and were informed of the purpose of the study before being provided with their consent forms. A dietary supplement questionnaire was designed for collecting the data. Totally, 20 players and 20 professional experts including dietitians and physicians evaluated the content validity of the questionnaire. Moreover, to check the validity and reliability of the questionnaire, a pre-post pilot test was administered to 30 soccer players from other teams, which were not included in the study. The Spearman correlation test showed a high correlation between the pre and the post-test ($r = 0.90$). The questionnaire contained questions about the players' team, the position they played, type of supplements they took and how often they used them. To ensure the confidentiality of personal information, we asked players to sit apart from each other while filling in the questionnaire. A season training program includes several phases of training for intensive, maintenance, technical, and tactical works. Therefore, the players may change their dietary supplements intake based on their training regime. To cover all these variations, data were collected by a single physician every 45 days during the soccer season (seven-time points in total). In order to further ensure that questionnaires were filled out anonymously and by the athletes expected not others, the physician was available to monitor the procedure and answer any questions the players had about the questionnaire. All of the information the respondents provided were kept confidential and anonymous. Then descriptive statistics and correlation analyses were used to describe the basic features of the data. The data were processed using SPSS (version 18), and the statistical significance level was set at $p < 0.05$.

Results

Table 1 summarizes the most frequently used

supplements reported by the subjects in all the seven-point times (point time 4 was the mid-season). All players reported that they had used at least one dietary supplement (regularly, occasionally or seasonally) during the soccer season. Table 2 shows the frequency of dietary supplement used by Iranian elite soccer players in seven-point times. In addition, the frequency of supplements use by the soccer players in each point time is shown in figure 1. The highest and lowest

rates of taking supplements were reported at first and second-point times, respectively. Furthermore, vitamins E and C were the most frequently used supplements. There was no significant association between the position of the players played and the type or frequency of supplement use ($r = 0.04$, $p > 0.05$). Similarly, we found no association between the supplement use by the players and the team ranks at the end of the 2011/12 Iran's Premier Football League ($r = -0.05$, $p > 0.05$).

Table 1. Type of dietary supplements use by 234 Iranian elite soccer players in seven-point times

Supplement point times	Vitamin C	Vitamin E	Mg	Multivitamin	B complex	Ca
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
1	72 (30.8)	88 (37.6)	72 (30.8)	71 (30.3)	53 (22.6)	20 (8.5)
2	126 (53.8)	126 (53.8)	36 (15.4)	54 (23.1)	79 (33.8)	55 (23.5)
3	114 (48.7)	74 (31.6)	91 (38.9)	70 (29.9)	27 (11.5)	53 (22.6)
4	112 (47.9)	99 (42.3)	36 (15.4)	52 (22.2)	46 (19.7)	36 (15.4)
5	140 (59.8)	77 (32.9)	72 (30.8)	18 (7.7)	45 (19.2)	18 (7.7)
6	146 (62.4)	100 (42.7)	89 (38)	58 (24.8)	29 (12.4)	35 (15)
7	79 (33.8)	92 (39.3)	54 (23.1)	76 (32.5)	13 (5.6)	18 (7.7)
Average	112 (48.1)	93.7 (40)	64 (27.4)	57 (24.3)	41.7 (17.8)	33.6 (14.3)

Table 2. The frequency of dietary supplement use 234 Iranian elite soccer players in seven-point times

Supplement frequency	Vitamin C	Vitamin E	Mg	Multivitamin	B complex	Ca
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
0	31 (13.2)	54 (23.1)	55 (23)	87 (37.2)	91 (38.9)	143 (61.1)
1	23 (9.8)	22 (9.4)	71 (30.3)	35 (15)	70 (29.9)	37 (15.8)
2	30 (12.8)	58 (24.7)	0 (0)	60 (25.6)	33 (14.1)	18 (7.7)
3	40 (17.1)	7 (3)	71 (30)	16 (6.8)	17 (7.3)	18 (7.7)
4	17 (7.3)	38 (16.2)	19 (8.1)	18 (7.7)	10 (4.3)	0 (0)
5	40 (17.1)	3 (1.3)	18 (7.7)	0 (0)	13 (5.6)	1 (0.4)
6	53 (22.6)	34 (14.5)	0 (0)	2 (0.9)	0	16 (6.8)
7	0 (0)	18 (7.7)	0 (0)	16 (6.8)	0	1 (0.4)

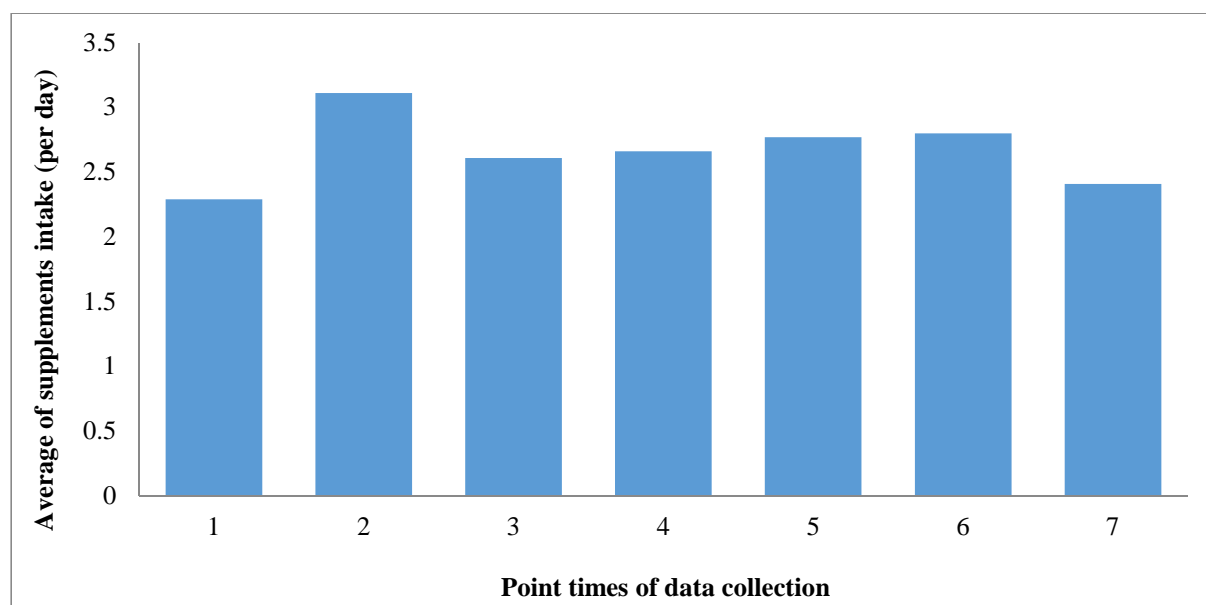


Figure 1. Average dietary supplements use by elite soccer players in 2011/12 Iran's Premier Football League

Discussion

To our knowledge, this is the first study, which shows the pattern of nutritional supplements uses by the Iranian professional soccer players. All participants in the present study reported that they were using at least one type of nutritional supplements. This is the highest rate of supplements usage reported by the soccer players so far since, for example, in the survey conducted among the Italian professional soccer players, 82.8% of the players reported the current use of supplements and 28% reported using vitamins [11], and the percentage of current users was 69% in the Atlanta Games and 74% in the Sydney Games [7]. The findings of our study also indicate that vitamin E and C are the most commonly used supplements among the Iranian professional soccer player. In line with our findings, results of a study conducted by Fédération Internationale de Football Association (FIFA) showed that vitamins are the most common nutritional supplement used by players [14]. In order of frequency, vitamins E and C were followed by Mg, multivitamins, B complex, Ca, Q10, and Fe.

The frequency of supplements use in seven-point times shows that the mean frequency of dietary supplements consumption among the Iranian elite soccer players was from 3.11 to 2.29 times per day. The players reported the lowest rate of supplements use in the first-point time and the highest rate in the second-point time. The prevalence of supplementation was almost one and a half times more than those previously reported for soccer players in the 2002 and 2006 FIFA World Cup. More specifically, the number of dietary supplements used by the players in our study was about 3 supplements per day while it was 1.8 for the players in the 2002 and 2006 FIFA world cup [14].

One of the interesting results of our study (data not shown) was the similarity of supplement types used by the players of each team which shows that they obtained information regarding dietary supplements from the same source such as the pre-season workshop for athletics trainers and/or team physicians. In addition, we found no significant association between the position players played and the frequency or type of supplements. This result was the same for the frequency and type of supplement used by the players and the team ranks at the end of the 2011/12 Iran's Premier Football League.

Conclusion

Finally, this study revealed that the prevalence of consuming dietary supplements among the elite soccer players who participated in the current study was high. The findings showed that all players consumed, on average, 2-3 supplements a day and vitamins C and E were the most frequently used supplements. Further studies may address more details about patterns of dietary supplements use among Iranian soccer players. Safety and potential health hazards are other issues, which should be considered in relation to the type, dose, and frequency of supplements.

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Conflict of interest

The authors state no conflicts of interest.

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