

## Research Article

# Evaluation of the consumption of authorized and illegal supplements among ski athletes in Tehran

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### Abstract

**Background:** In line with the general policy of quantitative and qualitative development of sports by relying on scientific and research achievements and in order to keep sports clean from the harmful and destructive phenomenon of inappropriate use of drugs and supplements, an exorbitant amount is paid annually to track drugs and control doping. The purpose of this research is to investigate the consumption of permitted and unauthorized supplements among skiing athletes in Tehran.

**Materials and Methods:** According to the nature of the subject and research objectives, the present research uses the analytical descriptive research method along with the survey method, which was conducted in the field by presenting a standard questionnaire. The statistical population in this research is 103 people from the first to tenth place in national championships. In this research, after collecting data, we use factorial variance analysis, Friedman test and linear regression to perform statistical analysis.

**Results:** The findings of the research showed that according to the results of this research, we find that all the selected variables in this research, which include (effects on muscles, physical effects, doping and motivation), have a significant effect on the consumption of sports supplements by They have athletes. Also, considering that the selected sample is from the first to tenth champions of the country's skiing championships, most of these people have an acceptable quality of sleep without any particular problem.


**Conclusion:** It seems that the variables of this research include effects on muscle, physical effects, doping and motivation. The test results showed that the importance and ranking of these criteria are different among athletes. The comparison of the average ranks shows that the most important variable influencing why sports supplements are used among ski athletes was the positive effects on the muscles and improving their performance. The third and fourth are ranked for doping and motivation, respectively.

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## 1. Introduction

Fasting exercise is an important part of the life of many people. Some do it for fun and some do it professionally. The increasing attention of people to this phenomenon makes sports an international base industry all over the world. In spite of all the benefits and benefits derived from sports, one of the problems and problems associated with it, especially in the last few decades, is the excessive attention given to officials, coaches and athletes to the results of sports competitions and marginal issues such as improving the appearance of the body. A means of increasing the volume and mass. It may have caused nutritional disorders caused by the habit of consuming energizing substances among young people (1-3) In line with the general policy of quantitative and qualitative development of sports by relying on scientific and research achievements and in order to keep sports clean from the phenomenon Harmful and destructive misuse of drugs and supplements, an exorbitant fee is paid annually to track drugs and control doping. Unfortunately, despite the efforts of sports federations to preserve the sports dignity of the champions, with the growing growth of sports clubs, drug abuse has taken on a special and dangerous form and exposed the young people of the countries to terrible complications, even death, and on the other hand, the culture of sports and respect, It has been invaded (4). With the advancement of the sciences of sports physiology, metabolism and nutrition, it has been proven that diet and nutritional intake have an effect on the performance of athletes (5). But the benefits of nutritional supplements have not been fully proven as the athletes themselves believe.

On the other hand, smuggled supplements (which are manufactured and supplied illegally and with low-quality raw materials) or prohibited (which contain energizing substances) as well as some food supplements that are not indicated on their labels, but contain non-food substances such as Prohormones and stimulants and each has its own side effects (6,7) The consumption of various food supplements is also increasing dramatically all over the world, which includes daily vitamins, supplements, herbal supplements and performance enhancers. At present, a large number of supplements that are commonly bought and sold in the market, not only have not been assured about their consumption, nor have they been proven safe and harmless by reliable scientific research. but there are concerns from the athletes of different sports for their consumption (8,9) Athletes find that certain foods or herbs help their athletic performance. For example, from the leaves of a kind of tree to fight with They used fatigue from training or hard work, or they used a kind of mushroom because of its high protein percentage (10,11) Today, the use of these substances to increase sports performance is very widespread, and a large group of athletes in different disciplines have a history of using these substances or are currently using them (12). Sports supplements are classified into two categories: permitted and non-permitted, non-permitted supplements refer to those substances that cause abnormal changes in the level of improvement in a person's sports performance by influencing factors such as stimulation of the nervous system, blood pressure, and vasodilation. Abnormal increase of growth hormone and testosterone and sometimes blood volume and other factors.

Among the illegal supplements are stimulants such as amphetamine, ephedrine, cocaine, steroids, steroid compounds, etc. (13,14). Researches that have been carried out abroad in order to investigate the consumption of drugs, energy supplements, the awareness and attitude of athletes and non-athletes regarding doping and its harmful effects, show that athletes are more exposed to the consumption of such substances and the consumption patterns of various substances in Different sports are different (15). Since the interest of young people in the sport of skiing is increasing all over the world and also in Iran, which will naturally lead to the tendency to abuse these substances, and considering that so far a study in This has not been done in Tehran, this study has been designed and carried out in order to investigate the use of permitted and unauthorized supplements in ski athletes in Tehran, to identify the existing weaknesses and strengths based on the results and to propose basic solutions to In order to improve and solve the existing obstacles and problems, it is a small step to prevent injury to the country's athletes. The main purpose of this research is to investigate the consumption of permitted and unauthorized supplements among skiing athletes in Tehran.

## 2. Materials and Methods

According to the nature of the subject and research objectives, the present research uses the analytical descriptive research method along with the survey method, which was carried out in the field. Also, due to the length of the research, it was cross-sectional. The library method has been used to collect information in the field of literature and research background. In this way, the required information has been collected by reading books and articles and researches of other researchers. Also, the field method has been used to collect information to investigate the research questions. In this research, in order to achieve the set goals and collect the necessary information from a standard questionnaire according to reliable sources. The questionnaire to investigate the consumption of permitted and unauthorized supplements among ski athletes is designed in a practical way and in three parts, the first part is to obtain the necessary information and individual characteristics of ski athletes, the second part is for the time and duration of the use of supplements during sports and the third part of this questionnaire was compiled using the opinions of ski athletes in this field and foreign article. The questionnaire to investigate the consumption of permitted and unauthorized supplements among ski athletes is designed in a practical way and in three parts, the first part is to obtain the necessary information and individual characteristics of ski athletes, the second part is for the time and duration of the use of supplements during sports and the third part of this questionnaire was compiled using the opinions of ski athletes in these field and foreign articles. The questionnaire in this research was prepared and compiled using the articles of (16,17).

### 3. Results

Considering that in our research, we have 1 dependent variable, i.e. (amount of consumption of sports supplements) and 4 independent variables, which include :Effects on muscle, physical effects, doping, motivation and sufficient information to perform statistical tests on them, it is first necessary to determine the normality of the variables; So that parametric or non-parametric test suitable with variables can be selected to check the data. We obtain the normality of the research variables by checking the skewness and kurtosis.

Skewness and standard error of skewness along with its skewness and standard error are reported. Now, in order to find out whether the distribution of the desired variables is normal or not, we need the Z-statistic of skewness and the Z-statistic of kurtosis. Z skewness is obtained by dividing the skewness by the standard error of skewness, and Z kurtosis is also obtained in the same way. It should be noted that the values of these two Z values should be in the range of -1.96 to +1.96 in order to determine the normality of the variables.

**Table 1: Crookedness and Elongation of variables**

		<b>Statistics</b>			
		Effects.on.muscle	Physical effects	doping	motivation
number	a valid	103	103	103	103
	missing	0	0	0	0
crookedness		-.553	-.671	.500	.623
Standard error of the square		.241	.241	.241	.241
Elongation		-.586	-.891	-1.055	1.344
standard error of elongation		.478	.478	.478	.478

Considering that all the statistics of the variables are between -1.96 and +1.96;

Therefore, all the variables are normal and we use factor variance analysis test to test the variables.

**Table 2: table of Friedman's statistical test**

<b>Test statistics</b>	
Number	103
The amount of df	3
Significance level	.000
<b>Friedman test</b>	

Table 2: is related to statistical significance. The chi square value obtained in this test is equal to 134.241, which is at an error level of less than 0.05. Meanwhile, the significance of the test itself is equal to 0.000, which indicates that there is a relationship. The significance of Friedman's test means that the ranking of the criteria related to the research is meaningful from the point of view of the statistical community and the skiing athletes have different rankings of the variables of this research.

According to the statistical analysis, we find that all the selected variables in this research, which include (effects on muscles, physical effects, doping and motivation), have a significant effect on the consumption of sports supplements by athletes. Also, considering that the selected sample is among the first to tenth champions of the skiing field, most of these people have an acceptable quality of sleep without any particular problem. And in the section related to the general mental health questionnaire, we found out that according to the successes of these people, all of them have high general mental health.

The variables of this research include effects on muscle, physical effects, doping and motivation. According to the results of this research, the significance level of each of these variables should be less than 0.05. that this problem is observed, the variables of physical effects, doping and motivation are less than 0.05, so it should be noted that the variables of physical effects, doping and motivation also have an effect on the consumption of sports supplements.

Also, according to the Friedman test, the independent variables of this research were ranked as follows: Effects on muscle (3.21), physical effects (3.14), doping (1.93) and motivation (1.73)

## 4. Discussion

In this research, it should be determined that all the people of the statistical community start using supplements according to their needs and the recommendations of bodybuilding trainers and nutritionists. In this research, it was revealed that 52% of respondents use protein powders, 48% of amino acids, 57% of vitamin supplements, 61% of athletes use creatine, 77% of glutamine and 31% of testosterone during their sports activities. have used In addition, it was found that the consumption of amino acids and creatine is higher among men and protein powders among women. From a total of 103 people in the research sample, it was found that 19 of the sample athletes use sports supplements before starting training, 10 people (9%) of the respondents to the questionnaire use sports supplements during training, and 74 athletes take sports supplements after training. In addition, 20% of the respondents (20 people) less than 5 grams, 52% (53 people) between 5 and 10 grams, 21% (22 people) between 10 and 20 grams and 7% of the sample athletes also more They use 20 grams of sports supplements. Also, it is clear in this research that most of the amino acids are consumed by the athletes before starting the training and protein powders, creatine and glutamine are used by the athletes to increase the efficiency of the muscles and accelerate the recovery of the muscles after training. becomes Vitamin supplements are also used more during training than other supplements to increase the body's energy (18).

Considering that the people in the sample are national champions, they mostly consume sports supplements according to the programs provided to them by the official bodybuilding coach and nutrition and drug experts. According to the extracted information, it is determined that 49% of the athletes who responded to the questionnaire use the program provided to them by the official bodybuilding trainers, and 43% of these respondents seek the help of a nutritionist and medicine specialist. And only 7% of people use sports supplements arbitrarily or with the guidance of other people. According to the research data, it is determined that 40 people (40 percent) of the statistical sample use sports supplements due to the promotion and improvement of sports performance and 33 people (33 percent) use sports supplements due to the increase in strength and muscle mass. The total is 77% of the entire society and this shows that athletes and especially skiing champions use sports supplements for the reason of improving their sports performance and increasing their strength.

Also, according to the information provided, it is determined that 15 people, equivalent to 15% of the sample, use supplements to speed up the body's recovery and delay fatigue. Also, about 12 people (12 percent) use these supplements for the following reasons: 1) meeting metabolic needs (preserving health). 2) Preventing oxidative destruction of muscles. 3) strengthening the immune system. According to these materials, it is clear that all the sample people use different sports supplements in some way and most of this use is aimed at increasing their strength and improving their sports performance in skiing.

## Conclusion

It seems that the variables of this research include effects on muscle, physical effects, doping and motivation. The test results showed that the importance and ranking of these criteria are different among athletes. The comparison of the average ranks shows that the most important variable influencing why sports supplements are used among ski athletes was the positive effects on the muscles and improving their performance. The third and fourth are ranked for doping and motivation, respectively.

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## Compliance with ethical standards

**Conflict of interest** None declared.

**Ethical approval** the present research is the result of the findings of Mosab Master's thesis of Islamic Azad University, Tehran East Branch.

**Informed consent** Informed consent was obtained from all participants.

## Author contributions

Conceptualization: A.K., A.I.; Methodology: A.K., A.I.; Software: A.K., A.I.; Validation: A.K., A.I.; Formal analysis: A.K., A.I.; Investigation: A.K., A.I.; Resources: A.K., A.I.; Data curation: A.K., A.I.; Writing - original draft: A.K., A.I.; Writing - review & editing: A.K., A.I.; Visualization: A.K., A.I.; Supervision: A.K., A.I.; Project administration: A.K., A.I.; Funding acquisition: A.K., A.I.

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