

## The Use of Sports Nutrition by Students in Chelyabinsk: A Case Study

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**Abstract:** Specialized sports nutrition is of great importance for improving the working capacity and maintaining the health of professional athletes, as well as people leading an active lifestyle. The purpose of this paper is to study the prevalence of sports nutrition among students of sports specialties, as well as to analyze students' awareness of the goals, types, and biological effects of these products. The study presents survey results of the student-athletes of the Ural State University of Physical Education (Chelyabinsk, Russia) (n=74). The survey shows that 60% of students use sports nutrition. Students get information about sports nutrition mainly from advertising, acquaintances, and the Internet. The most popular types of sports nutrition have been identified: proteins, energy drinks, vitamin, and mineral complexes. The study clearly shows that students have a low level of knowledge about the metabolic and side effects of these products. The obtained results can be used for identifying problems in the field of using sports nutrition and formulating a strategy for their solution.

### 1. Introduction

Proper and rational nutrition is the most important condition for achieving sports success and maintaining health. Sports nutrition is usually understood as a substrate and some specialized nutritional supplements that supply basic nutritional components. According to the Technical Regulation of the Customs Union 027/2012, "... food products for the nutrition of athletes are specialized food products of a given chemical composition, increased nutritional value, and (or) directed effectiveness, consisting of a complex of products or represented by their individual types, which has a specific effect on increasing adaptive human capabilities for physical and neuro-emotional stress" [1].

The need for sports nutrition is due to the fact that with traditional meals, it is almost impossible for athletes to get the right amount of nutrients to cover their daily energy consumption. After all, the level of modern competitive and training loads is such that energy expenditures reach 8,000 - 10,000 kcal/day [2]. The use of sports nutrition allows one to solve a number of problems: increasing the intensity of training and competitive loads, urgent correction of unbalanced daily diets, individualizing nutrition, increasing the frequency of nutrition in conditions of repeated training, adjusting body weight, including the development of muscle mass [3].

The most common types of sports nutrition are proteins, gainers, amino acids, creatine, vitamin, and mineral complexes, fat burners [4]. The natural composition, relative harmlessness to the body (compared to drugs), and high efficiency play sports nutrition a very attractive product: according to various sources, it is used from 40% to 100% of athletes [5].

The IOC Consensus adopted in 2018 became the fundamental document on the use of sports nutrition and other nutritional supplements in high-level sports [6]. According to this document, the choice of sports nutrition should be based on an analysis of the basic diet, the individual characteristics of the athlete, the results of an in-depth medical examination, the content of the training and competition plans, as well as the price/effectiveness ratio.

It is important to note that in Russia, there is a tendency to increase the number of people involved in sports. The share of the population systematically involved in physical education and sports from 2012 to 2018 increased by 1.5 times, reaching 39.8%. Among pupils and students, this indicator from 47% in 2012 increased to 76.8% in 2018 [7]. The increased demand for sports reflects the general process of changing values in society – increasing attention to one's health, strengthening the sense of responsibility for one's future.

Since the need for sports nutrition is determined by the proportion of people actively involved in sports, it should be expected that interest in these products will continue to grow. At the same time, many athletes use sports nutrition at their peril and risk, without using the advice of specialists. However, if athletes do not have a deficiency of macro and micronutrients, then the use of nutritional supplements may not only not improve the effectiveness of training but may have a negative impact on their physical performance and health [8].

Obviously, numerous studies are currently becoming very relevant. They not only determine the proportion of people who use sports nutrition, but they also analyze the amount of knowledge about directions and effectiveness of these products, their role in the general system of physical fitness, the presence of side effects, and other aspects sport nutrition [9; 10]. Such studies will identify the problems of “nutritional literacy” of students and make adjustments to the content of the relevant programs of sports universities.

The objective of the paper is to study the prevalence of sports nutrition among students of sports specialties UralsUPC, as well as to analyze students' awareness of the goals, types, and biological effects of these products.

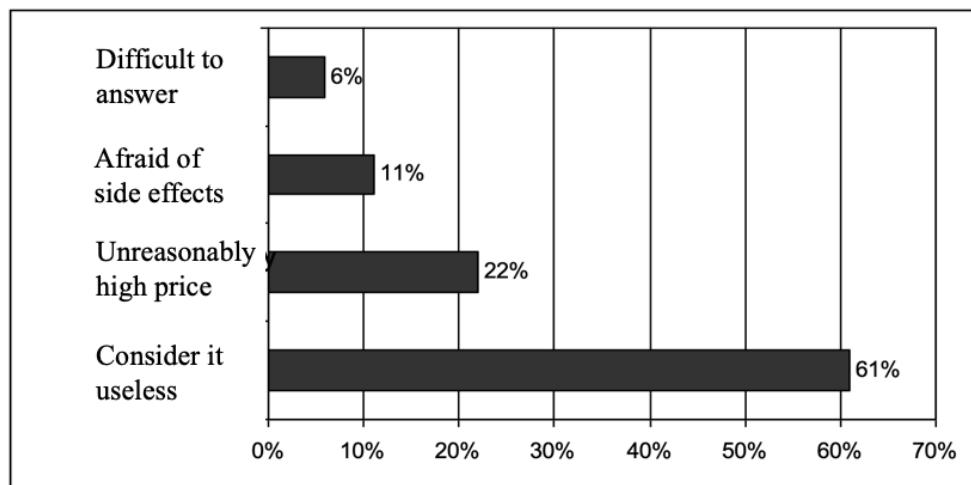
## 2. Materials and Methods

The study was conducted among second-year students of the Ural State University of Physical Education, engaged in various sports ( $n=74$ ). The average age of the study participants was  $19 \pm 0.7$  years. Of these, 14 were qualified as Master of Sports, as well as 28 Candidate for Master of Sports, 30 of them had I or II sports categories.

We used the questionnaire aimed at identifying the frequency of use of sports nutrition among student-athletes, as well as assessing their knowledge about the nature of the metabolic effects of these specialized products. All participants were aware of the purpose of the study, and the survey was conducted anonymously and voluntarily.

## 3. Results

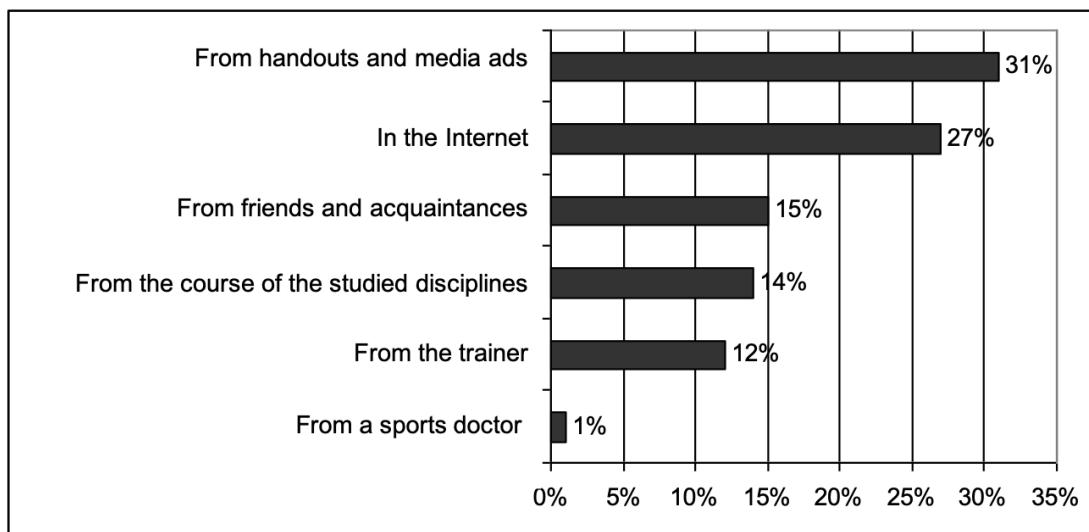
As a result of the study, it is found that 12% of student-athletes regularly use sports nutrition, 48% sometimes supplement their diet with these products, and 40% never do. Among the reasons for not using sports nutrition, the leading opinion is the uselessness of sports nutrition, since “all the substances necessary for health and high performance can be obtained due to balanced basic nutrition” (Fig. 1). In addition, students indicate such reasons as high cost and risk of side effects.



**Fig. 1.** Distribution of answers among the student-athletes surveyed about the reasons for refusing to use sports nutrition.

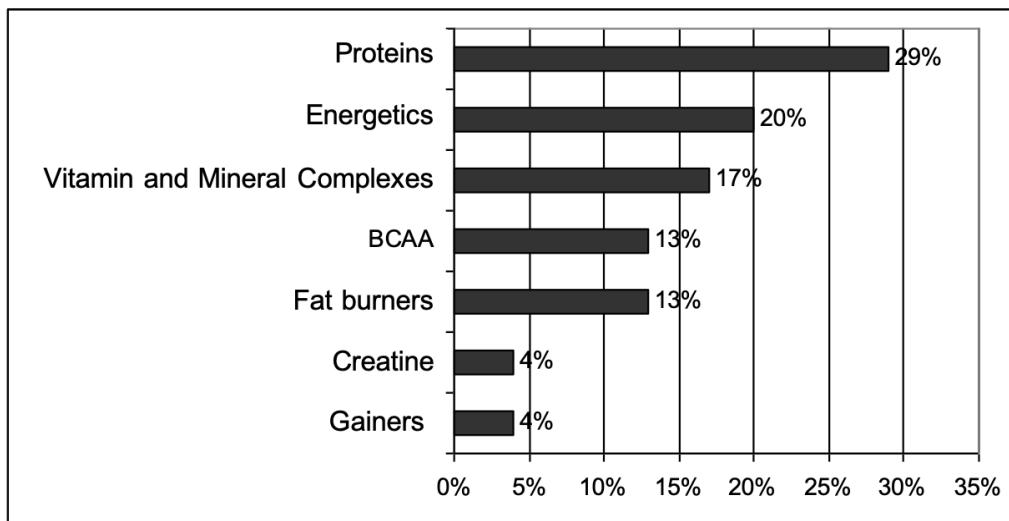
Among the factors determining the choice of sports nutrition, the majority of students (83%) consider proven biological effectiveness a priority. In addition, the most important factors include the absence of side effects and substances included in the prohibited WADA list (77% and 73%, respectively). Less significant was the absence of impurities (65%), as well as the price and taste of the product was not taken into consideration (34% and 28%).

An analysis of the answers to the question "Where do you get information about sports nutrition?" showed that the main source of information for students (31%) is advertising. In turn, 27% of respondents said that they independently seek information on the Internet, read reviews of athletes, and comments of specialists. Some noted that they receive information about sports nutrition from friends (15%), studied subjects (14%), and trainers (12%). 1% of them indicated the advice of a sports doctor (Fig. 2).



**Fig. 2.** Distribution of answers among the student-athletes surveyed about sources of information about sports nutrition.

Information on the types of sports nutrition used by students is presented in Fig. 3. Proteins were the most common (29%), while only half of the students answered the question about the direction of action of proteins, indicating muscle building. Even fewer (about 22%) students are aware of the negative effects of excess protein intakes.



**Fig. 3.** Types of sports nutrition most commonly used by student-athletes.

In addition to proteins, energetic and vitamin-mineral complexes turned out to be popular types of sports nutrition among students (20% and 17% respectively take them). Such products as BCAAs, fat burners, creatine supplements, and weight gainers were also listed. It should be noted that 63% of athletes found it challenging to answer our questions focused on reasons for using nutrition and its effect on metabolism. The rest gave general answers, such as “strengthening muscles” or “improving recovery” when taking creatine or BCAA. Almost no one could describe the negative effects of an excess of vitamins and minerals in the body, as well as other types of sports nutrition.

#### 4. Discussion

An analysis of the data obtained as a result of the questionnaire allows us to conclude that about 60% of students involved in sports systematically or occasionally use sports nutrition. A high sense of responsibility among athletes who indicated the absence of substances related to doping as a factor determining the choice of sports nutrition should be noted. Currently, the unregulated sports nutrition industry and contamination of its prohibited substances increase the risk of positive doping tests, which is becoming a serious problem [11].

An equally important problem of sports nutrition is the lack of information [12]. This deficit is expressed in the uncontrolled distribution of advertising, often not supported by scientific data, as well as in the absence of teaching aids of varying difficulty. The questionnaire revealed a depressing fact: most of the information about sports nutrition students receive from advertising, acquaintances, and on the Internet. It is not surprising that students' knowledge of sports nutrition is fragmented and often erroneous.

Currently, a considerable amount of information has been accumulated on the mechanisms of various nutritional supplements, experience with their use, side effects, and other aspects of sports nutrition. This led to the formation of new science, actively progressing in recent years – sports nutrition [2]. However, the level of competence of people involved in the implementation of programs related to the athletes' diet is often very low.

#### 5. Conclusion

The study helped to identify urgent problems in the use of sports nutrition and to identify ways to solve them. The immediate consequence of the study should be changed to the content of the programs of disciplines that study nutrition in sports, in particular, such a discipline as biochemistry. It is also relevant to engage students in research on sports nutrition, conducting student round tables and conferences on this topic. A more global task is the adjustment of training programs in universities of a sports profile and the emergence of a discipline that studies the basics of sports nutrition and the technology of their practical implementation.

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