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ANALYSIS OF NUTRIENTS IN THE DIET OF STUDENT ATHLETES ENGAGED IN BOXING DURING THE ACADEMIC YEAR

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Abstract

The results achieved in sports depend not only on the results of joint training of the athlete and the coach, but also on the athlete's proper nutrition. Daily food needs for the athlete's body must be constantly met. If the body is not provided with the necessary nutrients, it is bound to cause a decline in mental and physical performance, negative changes in anthropometry, and even serious harm to health. It is well known that any student-athlete who aims for high results strictly adheres to a rational diet. The products in the diet should fully cover the energy requirements of the physical activity expended during training and contain the macro and microelements necessary for the body.

Introduction

Specific characteristics of the sport, physical activity, athlete's weight, metabolism - all of these require an individual calculation of the required amount of energy and nutritional components. To do this, student-athletes should increase their consumption of high-quality, high-calorie foods.

Typically, students eat 3 meals a day, but for professional student athletes, it is beneficial to eat 4 or 5 times a day. Even now, nutritionists recommend eating 5-6 times a day. The reason is that nutrients are better absorbed, the load on the stomach is slightly reduced from breakfast to dinner. When gaining muscle mass, it is necessary to increase protein-rich foods, especially at lunch.

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When creating a diet for student-athletes, it is important to consider their favorite foods, as well as their nutritional value and the amount of nutrients they need. The menu should be as varied as possible.

Boxing requires high levels of physical activity from student athletes. To achieve this, it is important to provide the children's bodies with the necessary macro and micronutrients. With proper nutrition, boxers increase their endurance, strength and speed. Food products in the menu are necessary for the development of a growing body, muscle recovery and energy storage.

The purpose of the scientific work is to analyze the food products in the diet of student-athletes involved in boxing throughout the academic year.

Research materials and methods. Scientific research was conducted in the cafeteria of the Bakhodir Jalolov Boxing Sports School. In this regard, all the meals (295 in total) of student-athletes involved in boxing during the 2024-2025 academic year were analyzed, and the composition and analysis of the consumption of food products in the daily diet were calculated using tables.

Analysis of the obtained results. The daily consumption of food products during the 2024-2025 academic year of the sportsmen-students of the boxing specialized school named after Bahadir Jalolov was analyzed and the menus (menus) compiled for each day during this period were studied (Table 1). The data obtained were compared with the recommended daily nutritional standards for student athletes in the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan № 731 dated December 30, 2022 "On measures to organize the activities of training centers for Olympic and Paralympic sports."

Table 1 The number of menus studied at the sports school specialized in boxing named after Bahadir Jalolov

Institution name	Autumn	Winter	Spring	Summer	Total
BJNBISM	77	82	89	47	295

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Accordingly, we assessed the level of consumption of 26 types of food products specified in the resolution relative to the norm (Table 2).

Table 2 Comparison of the actual daily food consumption of the athletes-students of the sports school specialized in boxing named after Bahadir Jalolov compared to the norm

№	Food product	Norm, gr	Autumn			Winter			Spring			Summer		
			True, gr	The difference, gr	Shortage, %	True, gr	The difference, gr	Shortage, %	True, gr	The difference, gr	Shortage, %	True, gr	The difference, gr	Shortage, %
1	Wheat bread, 1-varieties	600	579,2±5,1	-20,8	-3,5	600,0±0,0	0,0	0,0	595,5±3,2	-4,5	-0,7	570,2±14,9	-29,8	-5,0
2	Wheat flour, 1-varieties	30	8,4±1,8	-21,6	-71.9	13,9±1,6	-16,1	-53,7	16,2±1,7	-13,8	-45,9	10,9±2,1	-19,1	-63,8
3	Cereals, pasta products	160	121,9±3,2	-38,1	-23,8	141,2±2,7	-18,8	-11,7	144,1±2,1	-15,9	-9,9	145,0±4,2	-15,0	-9,4
4	Sugar	100	89,2±1,8	-10,8	-10,8	95,1±1,4	-4,9	-4,9	99,0±0,7	-1,0	-1,0	96,2±2,3	-3,8	-3,8
5	Honey	30	16,0±1,7	-14,0	-46,8	16,5±1,7	-13,5	-45,1	20,6±1,5	-9,4	-31,5	0,0±0,0	-30,0	-100,0
6	Confectionery	120	81,4±5,4	-38,6	-32,1	97,3±5,0	-22,7	-18,9	103,0±4,2	-17,0	-14,1	77,0±7,0	-43,0	-35,8
7	Butter	80	69,5±1,5	-10,5	-13,1	72,7±1,4	-7,3	-9,1	77,5±1,7	-2,5	-3,1	69,1±2,5	-10,9	-13,6
8	Vegetable oil	30	28,2±0,5	-1,8	-6,1	29,8±0,5	-0,2	-0,6	27,7±0,5	-2,3	-7,7	27,6±0,8	-2,4	-8,2
9	Milk and sour milk	600	571,0±6,8	-29,0	-4,8	567,1±9,3	-32,9	-5,5	587,6±4,5	-12,4	-2,1	562,8±14,5	-37,2	-6,2
10	Cream	50	33,1±2,7	-16,9	-33,8	43,5±1,7	-6,5	-12,9	43,8±1,4	-6,2	-12,4	39,8±2,3	-10,2	-20,4
11	Curd	100	57,1±10,2	-42,9	-42,9	84,14±4,1	-15,9	-15,9	83,1±4,0	-16,9	-16,9	74,5±6,4	-25,5	-25,5
12	Cheese	50	49,4±0,6	-0,6	-1,3	49,4±0,6	-0,6	-1,2	49,4±0,6	-0,6	-1,1	47,9±1,5	-2,1	-4,3
13	Meat, poultry meat	410	377,9±4,5	-32,1	-7,8	394,9±3,8	-15,1	-3,7	390,8±3,5	-19,2	-4,7	392,6±8,7	-17,4	-4,3
14	Sausage products	70	68,1±1,0	-1,9	-2,8	68,9±1,2	-1,1	-1,6	67,3±1,1	-2,7	-3,9	66,6±2,1	-3,4	-4,9
15	Fish	100	0,0±0,0	-100,0	-100,0	86,8±11,7	-13,2	-13,2	41,6±8,6	-58,4	-58,4	0,0±0,0	-100,0	-100,0
16	Eggs (pieces)	2	1,7±0,0	-0,3	-15,6	1,7±0,0	-0,3	-17,1	1,6±0,0	-0,4	-21,3	1,4±0,1	-0,6	-31,9
17	Potatoes	500	424,9±7,8	-75,1	-15,0	423,8±7,5	-76,2	-15,2	442,0±7,8	-58,0	-11,6	413,0±16,2	-87,0	-17,4
18	Vegetables, including tomato paste	700	567,6±10,4	-132,4	-18,9	553,0±12,8	-147,0	-21,0	539,5±10,8	-160,5	-22,9	499,2±18,7	-200,8	-28,7
19	Fruit berries, wet fruits, juices, vitamin drinks	800	441,4±24,2	-358,6	-44,8	699,8±13,3	-100,2	-12,5	674,8±11,0	-125,2	-15,7	535,4±19,9	-264,6	-33,1
20	Dry fruits, including namatak 0.5 gr, bargak	50	37,1±1,1	-12,9	-25,7	46,5±1,0	-3,5	-7,1	46,3±0,8	-3,7	-7,3	38,7±1,9	-11,3	-22,6
21	Tea	3	3,1±0,4	0,1	3,9	2,4±0,1	-0,6	-21,1	1,7±0,1	-1,3	-43,3	1,5±0,1	-1,5	-49,2
22	Cocao	5	2,5±0,5	-2,5	-49,4	3,6±0,5	-1,4	-28,0	4,3±0,5	-0,7	-14,6	3,8±0,7	-1,2	-23,4
23	Iodized salt	10	8,8±0,1	-1,2	-11,8	7,6±0,2	-2,4	-23,8	7,0±0,1	-3,0	-30,3	6,7±0,2	-3,3	-33,0
24	Yeast	1	0,0±0,0	-1,0	-100,0	0,0±0,0	-1,0	-100,0	0,0±0,0	-1,0	-100,0	0,0±0,0	-1,0	-100,0
25	Mineral non-carbonated water	500	0,0±0,0	-500,0	-100,0	0,0±0,0	-500,0	-100,0	0,0±0,0	-500,0	-100,0	0,0±0,0	-500,0	-100,0
26	Wheat grass powder	3	0,0±0,0	-3,0	-100,0	0,0±0,0	-3,0	-100,0	0,0±0,0	-3,0	-100,0	0,0±0,0	-3,0	-100,0

During the fall season, sportsmen-students of the sports school specializing in boxing named after Bahadir Jalolov consumed an average of 579.2 grams of wheat bread per day, which is 3.5% less than the daily norm. It was found that

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this product was consumed 9 g less in summer compared to autumn, and almost completely consumed in winter and spring (100% and 99.3%, respectively). Along with wheat bread of the first grade, it is also possible to consume no more than 30 g of wheat flour of the first grade per day, according to Resolution No. 731. While 8.4 g of wheat flour of the first grade was consumed in the autumn months and 13.9 g in the winter, in the spring and summer months, the amount was consumed by 45.9% and 63.8% less, respectively.

We all know that the main food items are cereals and pasta. According to the results of the above analysis, the largest amount of cereals and pasta was consumed by athletes and students in the spring and summer months. On the contrary, the lowest amount (121.9 g) was consumed in the winter months, which was 19.9 g more than in the autumn.

Sugar, honey and confectionery products, which are considered as one of the 6 main products that provide daily energy, were found to be 2:1.5:1:3. The main reason for this was that honey was not included in the summer menu.

According to the decision, as a result of our analysis of milk and dairy products, it was determined that 5 different types of products were consumed, and it was calculated that student-athletes were covered by these products on average by 81.02% in the fall months. This figure is 10.46% less than in the winter months. Among the most consumed milk and dairy products in the spring, milk and yogurt and cheese products were found to be 2.1% and 1.1% below the norm, respectively. The amount of butter in the summer was found to be 10.9 g below the norm, milk and yogurt 37.2 g, cream 10.2 g, cottage cheese 25.5 g, and cheese 2.1 g below the norm.

Student athletes consume beef, chicken, and sausage products (total 480 g) of meat and meat products. These products together rank first in the winter season (5.3%) with the lowest percentage deficiency, followed by spring (8.6%), summer (9.2%), and autumn (10.6%), respectively.

We also calculated the quantitative ratios of vegetables that make dishes tasty and rich in vitamins. During the 2024-2025 school year, an average of 37.675% of vegetables did not meet their standards. Of these, an average of ~426 g of potatoes were consumed throughout the year.

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The combined consumption of fresh and dry fruits (850 g) is several times more than all other products, because the role of these products in the growth and development of adolescents is incomparable. However, the consumption of fruits, berries, wet fruits, juices, and vitamin drinks in the fall and summer months was found to be 44.8% and 33.1%, respectively. The high figure in the summer was explained by the small number of meals, i.e., athletes and students were on vacation. We can see that dried fruits were covered by about 93% in winter and spring.

We have seen that the consumption of vegetable oil, one of the largest energy-producing products, was almost completely satisfied in winter, and in the remaining seasons, 93.9% was met in autumn, 92.3% in spring, and 91.8% in summer.

The analysis of tea (3 g), cocoa (5 g), and salt (10 g) products, which are quantitatively low in the norm, was even emphasized. The most notable thing is that throughout the year, only in the autumn season, tea was found to be 0.1 g more than its norm, while in the remaining three seasons, it was found to be 0.6 g, 1.3 g, and 1.5 g less. Cocoa is also included in the daily menu, and we calculated the average daily amount of 2.5 g in autumn, 3.6 g in winter, 4.3 g in spring and 3.8 g in summer. If we consider the analysis of iodized salt in the proportions of the sequence of the season of the academic year, it turned out to be 8.8:7.6:7.0:6.7 g.

It is noteworthy that food products such as yeast, mineral water without gas, and wheatgrass powder are not included in the diet at all throughout the year. Even fish products are not served in the fall and summer months, and we can see an increase of 86.8% in winter and 41.6% in spring.

Conclusion

The scientific study concludes that student-athletes who regularly engage in boxing have significantly lower intakes of almost all food products than the norm in their annual diet. Our analysis shows that 23 different products were consumed in each season, and it is important to note that products such as yeast, still mineral water, and wheatgrass powder were not included in the diet.