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Supply of Essential Nutrients to Nukus City Students

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Abstract. This article presents the results of a study of macronutrient intake among 18- to 29-year-old students in Nukus. The findings indicate that the daily diet of male students is characterized by lower protein and fat content than the norm, while carbohydrate content and daily caloric intake are close to the norm. This trend is also evident in the modern diet of female students. It was found that the daily diet of female students is, on average, 5-10% lower in protein and fat than that of male students, and 6-8% higher in carbohydrates.

Keywords: macronutrients, proteins, fats, carbohydrates, energy value of daily nutrition, daily physiological need for nutrients.

Introduction. It is known that the study and analysis of the current nutrition of various groups of the population is one of the important factors determining their health [1]. Rational nutrition plays a special role in maintaining and further strengthening the health of students, in organizing their healthy lifestyle. In this regard, the study of the current nutrition of university students, in particular, the analysis of the level of their provision with macronutrients - proteins, fats and carbohydrates, remains one of the urgent tasks of physiology and medicine [2].

Literature analysis shows that the macronutrient intake of the population living in the South Aral Sea region, and especially students studying in higher education institutions, has been studied extremely poorly. In addition, in recent years, the rate of children's enrollment in higher education has been increasing year by year. This, in turn, requires constant study and analysis of their current

nutrition [3]. Based on the above considerations, we set out to study the current nutrition and physical development of 18-29-year-old male and female students studying in higher education institutions in the city of Nukus during our observations[4].

Material and methods. Observations were conducted among 143 students aged 18-29 studying at Karakalpak State University and the Nukus branch of SamDVMCHBU in Nukus in 2024-2025. The amount of macronutrients in their daily diet was studied using a questionnaire and a 24-hour food diary [5].

Result and discussion. Volunteer students were involved in the observations. Also, the tests were conducted in accordance with the rules of the “Declaration of Helsinki of the World Medical Association”. The results obtained were analyzed using the Windows OS Microsoft Excel program[6]. **Results and discussion.** According to the results of the observations, the amount of proteins and fats in the daily food intake of 1st-year students studying at higher educational institutions in Nukus is on average 82.0% and 80.0% of the norm, respectively, and the amount of carbohydrates and the total energy value of daily food is on average 86.0% and 85.4%, respectively[7].

If we compare these indicators with girls of the same age, their protein intake is on average 77.0%, fats are 70%, carbohydrates are 92.0%, and daily calorie intake is on average 85.1% of the norm. It was noted that the amount of proteins and fats in their daily diet is 5-10% less than that of boys, and carbohydrates are on average 6-8% more. The amount of proteins in the daily diet of boys and girls aged 18-29 is 59.04 ± 1.19 g and 46.97 ± 1.11 g, respectively[8].

The amount of fat in boys is on average 64.81 ± 0.97 g, and in girls - on average 50.25 ± 1.20 g, which in turn indicates that their fat intake is 20-30% lower than the norm. The carbohydrate intake of the students under observation differs from the norm by an average of 8-14%[9]. Also, the daily calorie intake is on average 85%. 288 According to the preliminary results of the observations, it can be said that more than 30% of boys and girls living in student dormitories do not eat breakfast, and most of them eat fast food at lunch. They eat the largest part of their daily intake mainly at dinner[10].

Conclusion. The daily physiological requirement of the observed students for macronutrients does not fully correspond to the norm. The ratio between the amount of protein, fat and carbohydrates is violated. This, in turn, indicates the need for a systematic study of the current nutrition of students and the development of a plan of appropriate measures to optimize it and its proper implementation. Such measures, in turn, are of great importance as one of the important steps that serve to ensure that students work hard and perform mental and physical loads in a purposeful manner.

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