



Results of Studying the Actual Nutrition of Students in Rural Conditions

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ABSTRACT

Observations were made to study actual nutrition and an attempt to rationalize it using the example of students aged 11-13 and 14-17 years old in the winter-spring period of rural secondary schools located in the Karshi district of the Kashkadarya region of the Republic of Uzbekistan. The results obtained indicate that in the diet of students of the first group, total protein averages 71.2 ± 1.6 g, the second - 73.3 ± 1.8 g, against the physiological norm of 86 and 94 g, respectively.

In order to improve nutrition, propaganda work was carried out in the form of optional lessons with students, conversations with their parents and seminars with teachers on the rational nutrition of children. As a result, the total protein in the diet of the subjects increased to an average of 77.4 ± 1.9 g in the first group and 80.5 ± 1.6 g in the second. In addition, positive changes were also observed regarding individual mineral elements (Ca) and vitamins B₂ and C.

Keywords:

rational nutrition, proteins, fats, carbohydrates, vitamins, minerals, rural schools

Introduction. It is known that nutrition is a natural biological need of every living organism, and through its rational organization, all physiological and biochemical processes in the body are carried out in moderation. This is especially important in the life of a growing young organism. Our government is paying special attention to this issue. A number of reforms have been implemented in our Republic regarding the healthy nutrition of children and the maintenance and strengthening of their health. At the same time, raising the quality of education in general education schools to a higher level is of particular importance in the education of young people from the point of view of modern demands.

A number of factors are intrinsically dependent on students' ability to acquire knowledge in accordance with the purpose. One of the most important of them is the nutritional factor. Because, in the physical and mental

formation of the student's body, the food they eat serves as a plastic material and energy source [1-3]. Conformity of the amount of nutrients in food to the age and gender of students plays an important role in their health, mental and physical development. In this regard, a number of scientific research works have been conducted, in which they have mainly analyzed how schoolchildren are supplied with food products [4-10, 15-19].

It should also be mentioned that there are significant differences in the nutrition of students living in cities and villages due to objective and subjective reasons, so it is of particular importance to take appropriate measures to organize a reasonable diet of rural school students, since the majority of students studying in our Republic are lives in rural conditions.

Based on the mentioned points, in our investigations, we made it our main goal to

study the actual nutrition of rural schoolchildren and to conduct some activities related to its rationalization.

Material and methodology.

Observations were conducted on 703 students studying in schools in Karshi district of Kashkadarya region. Their actual diet was studied using a traditional questionnaire [11]. The observed boys and girls were divided into 2 groups (11-13 years old and 14-17 years old). The chemical composition and energy value of students' food was determined according to existing tables [12].

In order to rationalize the nutrition of students, special promotional activities were carried out in experimental groups based on a pre-arranged program. In the control groups, only their actual diet was studied in parallel with the experimental groups. Propaganda work was carried out separately among students, with their parents, and among the school's pedagogical team. A 10-hour optional lesson on food culture for students, 30 questions for parents on how a student should eat and interviews on how to eat, and special seminars on how students should eat at school and at home were held among the pedagogical team. In the classrooms where the experimental groups studied, a wall newspaper "right food corner" was organized. Visual aids were used, and booklets were distributed, showing information about healthy nutrition of students. In the control and experimental groups, their actual nutrition was calculated and compared to each other for 7 days in each season. The obtained results were processed by the Student-Fisher method (Rokitsky, 1967), Microsoft Excel and Origin 6.1 software.

The obtained results and their analysis. According to the results of the study of the nutrition of students in the control and experimental groups aged 11-13 years, both boys and girls of both groups have a much lower amount of total protein taken with food compared to the daily physiological norm. Although this trend was maintained in the experimental group, the total protein content was significantly increased compared to the control group. That is, in boys, this indicator increased from 72.1 ± 1.6 g to 77.3 ± 1.6 g, while in

girls it increased from 70.3 ± 1.6 g to 77.5 ± 2.2 g. Also, this increase in animal protein can be partially explained by the higher consumption of eggs and milk-yogurt products by students in the experimental group. However, it should be noted that the animal protein intake of 11-13-year-old children is 2-3 times less than the norm. The consumed fats are also 1.5-2 times less than the physiological norm intended for this age in both groups. Only girls in the experimental group had a partial increase in the amount of total fat in their daily meals. That is, their fat consumption increased from 45.4 ± 2.2 g to 52.4 ± 2.8 g. Regarding total carbohydrates, it can be noted that, firstly, the demand for them is close to the level of physiological demand in the control group, and secondly, the total carbohydrates in the daily meals of students in the experimental group increased significantly compared to the control group. Sugar was noted to be much less than the physiological norm in all groups.

When talking about the macroelements Ca, P and water-soluble vitamins B₁, B₂, C in the food consumed by students, it is worth noting that although the standard requirement for Ca is 1200 mg per day, its amount in the food consumed by students does not exceed 400 mg at most. At the same time, as noted in the table, the amount of Ca in the experimental group compared to the control group increased from 339.5 ± 9.9 mg to 401.0 ± 20.6 mg in girls.

Roughly similar conclusions can be made regarding P from minerals, and vitamins B₁ and B₂. However, the amount of vitamin B₁ in the food of both groups of students was significantly higher than the physiological norm. Only the amount of vitamin C in the food consumed by children increased significantly in the experimental group compared to the control group. For example, in boys it increased from 39.4 ± 1.2 mg to 49.5 ± 2.7 mg, and in girls from 45.0 ± 1.8 mg to 56.7 ± 3.4 mg. But it is also worth mentioning that these indicators remain below the level of physiological norms accepted for students of this age.

Although the total energy value of the daily food consumed by students is much lower than the physiological norm, there is a significant increase in the experimental groups

compared to the control groups, that is, such an increase in boys from 2019.5 ± 49.5 to 2236.5 ± 49.8 kcal, in girls and it increased from 1970.0 ± 42.3 to 2272.5 ± 69.1 kcal.

It was observed that the amount of nutrients in the daily food intake of 14-17-year-old students was close to the results of the subjects of the 1st group. However, the fat intake of boys and girls in this age-matched experimental group was significantly higher than that of the control group. Also, intake of vitamin V2 in girls of this age group was statistically significantly higher than in the control group.

Thus, it is possible to summarize the obtained results in the form of a general conclusion, first of all, the amount of proteins, especially animal proteins, mineral substances Ca and P, and vitamins vitamin B₂ and vitamin C in the daily diet of students receiving education in rural school conditions in the winter and spring seasons is physiological. was found to be much less than the standard level. Only the amount of total carbohydrates was recorded at the level of the physiological norm. Similar conclusions have been previously reported by other authors [1-9] and in our previous observations [15, 16]. This does not leave a negative impact on the physical and mental activity of students. Secondly, the promotional activities conducted for the purpose of rationalizing the nutrition of students lead to at least partial correction of the negative conditions observed in their nutrition. For example, facultative classes with students on rational nutrition, interviews and question-and-answer sessions with parents, and seminars in the teaching team, compared to the control group, the total protein in the experimental group increased by 77.3 ± 1.6 g in 11-13-year-old boys and 77 in girls. $.5 \pm 2.2$ g, and 84.8 ± 2.3 and 76.3 ± 1.0 g in 14-17-year-old children, respectively. Also, the amount of total carbohydrates in the food of the students was 372.7 ± 9.2 g in the experimental group compared to the control group, in 11-13-year-old boys, by 373.0 ± 13.9 g, in 14-17-year-old children, respectively. 405.6 ± 10.4 and 366.2 ± 6.5 g were observed. Such a positive

change can also be said about vitamin V2 and vitamin C.

Therefore, the observations made in the conditions of rural schools show that certain positive results can be achieved by carrying out promotional activities on rational nutrition in the improvement of the actual nutrition of students, and this situation is important for the physical and mental development of young students.

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