



HYGIENIC ANALYSIS OF DAILY NUTRITION OF SCHOOLCHILDREN IN THE WINTER-SPRING SEASONS

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✓ *Resume*

In the hygienic assessment of the daily consumption of food at home in the winter and spring seasons of primary schoolchildren living in rural conditions of Fergana region, 784 schoolchildren received 481(61,3%) boys and 303(38,7%) girls. The ration composition of the school students' meals during the day was assessed according to the requirements of SanNandR 0017-2022, SanNandR 0007-2020, as well as their chemical composition "chemical composition of food products". As can be seen from the results obtained, the mode of nutrition of schoolchildren for breakfast, lunch, tolma tea and dinner does not correspond to hygienic requirements, in ration the amount of flour, bread, rice and macron, confectionery products, sugar, soups, yoghurt, margarine and tomato is sharply excessive, however, cereals are supplied in the winter to 53,3% in the spring to 33,3%, The amount of vegetables and fruits is not sufficiently provided even in the winter and spring seasons, the amount of melons products has decreased from winter season to winter season in the spring season, in the spring season only the amount of greens is provided in excess of 25%. The consumption rate of proteins was 85,4% -82,5%, fats 71,1-64,4%, and the amount of carbs 116,3% -107,4%. The amount of vitamins in the daily ration was consumed in winter from 67,0-87,5%, in the spring-from 60,0 to 82,2% less than the established normative level. This has a negative impact on the health status and performance of schoolchildren.

Key words. Daily ration, eating regimen, food intake, proteins, fats and vegetable oils, carbs and vitamins

ГИГИЕНИЧЕСКИЙ АНАЛИЗ СУТОЧНОГО РАЦИОНА ПИТАНИЯ ШКОЛЬНИКОВ ЗИМНЕ-ВЕСЕННЕГО ПЕРИОДА

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При гигиенической оценке суточного рациона учащихся начальных классов, проживающих в сельской местности Ферганской области, в зимне-весенний период из 784 школьников были исследованы 484 (61,3%) мальчика и 303 (38,7%) девочек. Состав суточного рациона школьников оценивали в соответствии с требованиями СанПиН 0017-2022, СанПиН 0007-2020 и их химический состав по «Химическому составу пищевых продуктов». Результаты показывают, что рацион учащихся на завтрак, обед, полдник и ужин не соответствует гигиеническим требованиям: количество муки, хлеба, риса и макаронных изделий, кондитерских изделий, сахара, соли, кофе, маргарина и томатов - в рационе значительно увеличено, однако обеспеченность крупы ниже на 53,3% зимой и 33,3% весной, а мясными продуктами в аналогичном порядке на 40-58,3% и 35,8-80%. Количество овощей и фруктов также недостаточно обеспечено зимой и весной, бахчевых культур весной меньше, чем зимой, только зелени весной больше нормы на 25%. Потребление белков колебалось от 85,4 до 82,5%, жиров от 71,1 до 64,4%, углеводов от 116,3 до 107,4%. Содержание витаминов в суточном рационе зимой было на 67,0-87,5%, а весной на 60,0-82,2% ниже установленной нормы - что отрицательно влияет на состояния здоровья и успеваемость школьников.

Ключевые слова. Суточный рацион, режим питания, пищевые продукты, белки, жиры, растительные масла, углеводы и витамины.

МАКТАБ ЎҚУВЧИЛАРНИНГ ҚИШ-БАҲОР МАВСУМЛАРИДА КУНЛИК ОВҚАТЛАНИШИНИ ГИГИЕНИК ТАҲЛИЛИ

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Фарғона вилоятининг қишлоқ шароитида истиқомат қилаётган бошланғич синф ўқувчиларининг йилнинг қиш ва баҳор фаслларида уй шароитида кунлик истеъмол қилаётган овқатланиш тартибини гигиеник баҳолашда 784 нафарни мактаб ўқувчиларидан 481(61,3%) нафари ўғил ва 303(38,7%) нафари қиз болалар олинди. Мактаб ўқувчиларнинг кун давомидаги овқатланиш рационали таркиби СанНваҚ 0017-2022, СанНваҚ 0007-2020 талаблари ҳамда уларнинг кимёвий таркиби «Озиқ-овқат маҳсулотларининг кимёвий таркиби» бўйича баҳоланди. Олинган натижалардан кўриниб турибдики, ўқувчиларнинг нонушта, тушлик, толма чой ва кечқурунги овқатланиш тартиби гигиеник талабларга мос келмайди, рационда ун, нон, гуруч ва макрон, қандолат маҳсулотлари, шаккар, ош тузи, қажва, маргарин ва томатнинг миқдори кескин даражада ортиқча, бироқ, ёрмалар қиш мавсумида 53,3%га баҳорда эса 33,3%га, аналогик тартибда зўшт маҳсулотлари 40-58,3% ва 35,8-80%гача таъминланган. Сабзавот ва меваларнинг миқдори қиш-баҳор фаслларида ҳам етарли даражада таъминланмаган, полиз маҳсулотларнинг миқдори баҳор фаслида қиш фаслига нисабтан камайган, баҳор фаслида фақат кўкатлар миқдори 25%гача ортиқча таъминланган. Оқсилларнинг истеъмол даражаси 85,4%-82,5%ни, ёғлар 71,1-64,4%ни, карбонсувларнинг миқдори эса 116,3%-107,4%ни ташкил қилган. Кунлик рацион таркибида витаминларнинг миқдори қиш мавсумида 67,0-87,5%га, баҳор мавсумида эса белгиланган меъёрий даражадан 60,0дан-82,2%гача кам истеъмол қилинган. Бу эса мактаб ўқувчиларнинг саломатлик ҳолати ва ишлаш қобилиятига салбий таъсир кўрсатади.

Калит сўзлари. Кунлик рацион, овқатланиш тартиби, озиқ-овқат маҳсулотлари, оқсиллар, ёғлар, ўсимлик мойлари, карбонсувлар ва витаминлар.

Relevance

One of the important factors that determine the nature of nutrition in children and adolescents is the connection with the observance of eating behavior and flour. Studies on the short and long-term regulation of eating behavior have shown that the benefits associated with taste are determined by two leading factors: the innate characteristics of the perception of taste qualities and their changes within certain limits, depending on ethnic and social characteristics. At the same time, the assimilation of food preferences largely depends on the mode of nutrition in the family, the parents' knowledge of healthy eating, as well as their propaganda about healthy eating and eating behavior in the media and their effectiveness [1,2,3,5,6,7].

According to modern researchers, the impact of internal environment factors on the change in student health indicators is 20-40%. At school age, students are characterized by a high intensity of growth and formation of students' life support systems on the basis of their high sensitivity to environmental factors [2,3].

The increase in daily loads increases the child's nervous system's need for neurotropic vitamins (Group B), minerals (magnesium, iron, Cink, kaltsium), vitaminized substances (ω-3 -3 polyunsaturated fatty acids, lecithin, carotene) and energy [6,8,9].

Hygienic research has shown that 50% of primary and secondary school age students eat no more than 3 times a day in an orderly manner, one of the main causes of malnutrition is excessive educational overload. With the presence of high stress and low stress resistance, food intake has instead of a specific protective mechanism against stress, but this form of protection is pathological and leads to obesity[1,6,8].

In conditions of irregular, improper and unbalanced nutrition on the main components of food, with an increase in training loads, fatigue of the nervous system begins quickly. According to leading scientists, the issue of ensuring regular, rational and healthy nutrition of students in various

educational institutions, the formation of proper nutrition behavior is one of the main ways of maintaining and strengthening the health of the younger generation [6,10,11-19].

A sharp increase in the number of diseases associated with nutrition among schoolchildren, regardless of how much scientific research is being conducted, entails carrying out profilactic work among them, hygienic analysis of the quality and order of meals.

Research goal. Currently, the school is conducting an analysis of hygiene procedures.

Material and methods

In the hygienic assessment of the daily consumption of food at home in the winter and spring seasons of the schoolchildren living in rural conditions of the controlled Fergana region, 481(61,3%) of schoolchildren and 303(38,7%) of boys and girls accounted for 784. San NandR 0017-2022 "Sanitary rules, norms and hygienic norms of Organization of nutrition of pupils in general secondary, secondary special, professional educational institutions", SanNandR 0007-2020 "The main food products of the ration of schoolchildren's day-long nutrition", SanNandR 0007-202020 "the age of the population of the Republic of Uzbekistan, the norms of the average daily rational diet aimed at ensuring a healthy diet for groups of sex and professional activity" the requirements of sanitary norms and rules were carried out according to the "Chemical composition of food products", the amount of the chemical composition of the daily ration.

In the statistical processing of the results of the study, a practical application package of the computer "Statistica for Windows 7,0" was used.

Discussion of the results obtained

The findings of the study show that the mode of school students nutrition is as follows. Most of the students eat different, that is, irregular meals throughout the day. 20-25% of them do not have breakfast in the morning. 35-40% of students eat at breakfast only sweet tea, bread with butter, or margarine with butter, biscuits. 22-27% of schoolchildren consumed milk porridge, sweet tea, low-fat bread, or margarine with butter during the morning breakfast, 15-20% of schoolchildren found that they ate sweet tea and bread with home-made food in the evening. And the morning breakfast, in which this procedure is prescribed, does not comply with hygienic requirements and negatively affects the ability of students to work in the day. 85-90% of schoolchildren have a second breakfast at school, and its composition consists of the following, one of which is a school bun or a variety of buns. In some days in the composition they eat cottage cheese, jam, buns with kernels or nuts. Also, in some cases, instead of buns, together with sausage buns, they introduce pumpkin, potato and meat pie, cutlets with bread, mayyoneze and ketchup. On the second breakfast, it was determined to eat a variety of carbonated drinks in combination with tea, sweet tea, Bran with the addition of sugar and dried milk. Breakfast in such an order or a second breakfast does not meet the hygienic requirements at all. The level of consumption of food consumed by schoolchildren in the winter season is given in Table 1.

As can be seen from the hygienic analysis of the order of feeding of schoolchildren in the seasons under control, we analyzed the aggregate of the products listed in the normative documents in a series of 45 products.

The analysis obtained shows that it is desirable to study all consumed products in aloe, but there are more than 10 types of cereals, all of which can not be studied in one group, and the chemical composition of all is different. As can be seen from the hygienic analysis of food consumed by schoolchildren in winter, the level of consumption of legumes was 53,3% compared to the physiological norm. And this in its place indicates that the level of supply of vegetable proteins necessary for the body is less than 46,7%.

The role of groats among schoolchildren is great. We have recommended the following types of groats for children and adolescents, namely, sorghum, legumes, millet, oats, barley and peas, while in our research made up 46,6% of the supplied with groats. Types of cereals recommended without rice. And the consumption rate of rice is 113,3%, that is, 13,3% is provided in excess. As can be seen from the hygienic analysis of the level of supply of cereals, the level of consumption of barley and lentils among the controlled schoolchildren was quite low, schoolchildren consumed only rice at home.

It was determined that students who were under control would eat bread made from high-grade flour without cream, in which there would be more than 500 different types of bread in the world. And the amount of daily consumption of bread indicates an excess of 1,7 times from the physiological normative indicator [15-19]. The consumption rate of rye noninng was 37,5%.

Children were recommended bread made from corn and rice flour, and they are not used in this region. Macron and confectionery products were introduced into the group of bakery products. The rate of consumption of pasta was 186,7%. Normative indicators of confectionery products are not specified in the established physiologic normative indexes and sanitary norms and rules. If we talk about the composition

of the consumed products, then most of them are used high-grade flour, sugar, vegetable margarine, salt, yeast and whisk, in some of them fruit jam or syrup, cottage cheese. The level of consumption of confectionery products increased by 350% in winter and increased by 250% from the normative figure. It is worth noting that the ration of schoolchildren's second breakfast or lunch time at school consists of a single bun or soms, pies with potatoes, zucchini or meat, fried in vegetable oil. No matter what season of the year the daily ration of schoolchildren is, the Coca-Cola consists of other carbonated snacks and teas. Separately studied all kinds of vegetables, we will dwell on the most basic of them-potatoes.

Table 1

Indicator of the number of products consumed by schoolchildren in winter

№	Product name	f/m	consumption rate	sufficiency, %	%, less	less, gr
1	Legumes	15	8±0,26	53,3	46,7	-7
2	Wheat flour	15	28±0,92	186,7	+86,7	+13
3	Rice	15	17±0,54	113,3	+13,3	+2
4	cereals (no rice)	15	7±0,23	46,6	53,3	-8
5	Wheat flour bread	150	266±9,0	177,3	+77,3	+116
6	Rye bread	80	30±0,99	37,5	62,5	-50
7	Macaroons	15	28±0,89	186,7	86,7	+13
8	Potato	250	175±5,8	70,0	30,0	-75
9	Cabbage	50	25±0,83	50,0	50,0	-25
10	Cucumber	40	12±0,40	30,0	70,0	-28
11	Tomato	30	9±0,29	30,0	70,0	-21
12	Beet	25	13±0,43	52,0	48,0	-12
13	Carrot	40	25±0,81	62,5	37,5	-15
14	Onion	30	35±1,2	116,6	16,6	+5
15	Other vegetables	50	35±1,1	70,0	30,0	-15
16	Melon products	50	25±0,84	50,0	50,0	-25
17	Pumpkin	30	25±0,82	83,3	16,7	-5
18	Greens	5	2±0,07	40,0	60,0	-3
19	Apple	200	95±3,2	47,5	52,5	-105
20	Dried	15	9±0,30	60,0	40,0	-6
21	Grapes	30	10±0,32	33,3	66,7	-20
22	Citrus	10	9±0,31	90,0	10,0	-1
23	Beef	95	45±1,5	47,3	52,7	-50
24	Lamb	20	25±0,81	125,0	+25,0	+5
25	Rabbit meat	20	5±0,24	25,0	75,0	-15
26	Poultry	40	24±0,78	60,0	40,0	-16
27	Fish	60	25±0,83	41,6	58,4	-35
28	Fish products	20	6±0,19	30,0	70,0	-14
29	Milk	300	175±6,0	58,3	41,7	-125
30	Sour milk	150	80±2,6	53,3	46,7	-70
31	Sour cream, cream	10	6±0,20	60,0	40,0	-4
32	Butter	30	16±0,52	53,3	46,7	-14
33	Cottage cheese	50	22±0,73	44,0	56,0	-28
34	Cheese	10	7±0,22	70,0	30,0	-3
35	Egg (pices)	1,0	0,5±0,02	50,0	50,0	-0,5
36	Sugar	30	35±1,1	116,7	+16,7	+5
37	Honey	5	2±0,06	40,0	60,0	-3
38	Margarine	-	15±0,49	0,0	0,0	+15
39	Vegetable oil	15	11±0,36	73,3	26,7	-4
40	Iodized salt	5	12±0,40	240	+140,0	+7
41	Tea	0,4	0,2±0,01	50,0	50,0	-0,2
42	Café	1,2	2,0±0,07	166,6	+66,6	+0,8
43	Tomato	3	5±0,16	166,6	+66,6	+2
44	Species	2	1±0,03	50,0	50,0	-1
45	Confectionary	10	35±1,2	350,0	+250,0	+25

It is necessary that the physiological normative index of potatoes is 250 gr. In our research, however, it has made up 70% of the students ' daily ration. In the daily ration of schoolchildren, the rate of

consumption of other vegetables was reduced from 30 to 70% in the winter of the year, while the consumption rate of onions alone was increased by 16,7%. The daily ration contained garlic onions, the consumption rate of greens was 40%. It is worth noting that in the consumption of carrots, we saw a sharp correlation with the seasonality of cultivation of local products in the daily ration of the level of consumption. In the following years, despite the high popularity of greenhouses in our country, the moderation of storage places of fruits and vegetables, melons are considered seasonal products. We considered it permissible to conduct our own analysis on the basis of the sequence of products listed in the normative documents. The daily ration of schoolchildren and the role of meat, fish and dairy products in the unit of the structure of the organism are listed in the works of a number of authors [10,11,15-19].

As can be seen from the hygienic analysis of the level of consumption of meat, it was mainly determined that they consumed beef, sheep, rabbit, poultry, fish and fish products. During the research it was determined that if not used other meat products on the day of the use of beef in home conditions. The meat products listed in the sequence table were used. The consumption rate of meat products was from 47,3% to 60%, depending on the types, while the consumption rate of lamb was 125%. In Fergana Valley lamb is used more than in other climates. The level of consumption of rabbit meat is quite low. The level of physiologic normalization of the total consumption of meat products did not correspond. This created conditions for the spread of various diseases among pupils. Fish and fish products contain omega 3 and omega 6 fats, vitamins D and E, and zinc and selenium from microelements, are a source of iron. As can be seen from our research, the level of consumption of Fish and fish products is negligible. In the daily ration, the consumption of pure fish products was 41.6%, while the consumption of fish products was 30%. The role of milk and dairy products in the daily ration of children and adolescents is higher than in other products.

It is a source of calcium, combined with a number of micro- and macronutrients, in combination with proteins, saturated fats, combined with energy to the body through milk and dairy products [1,10,11,15-19].

Dairy products take an active part in the formation of the body's digestive system, their physical development.

The fat content of milk is of great importance, the fat content of milk consumed today is 3,2, 4, 6 and 8% of the species used. Most of the controlled schoolchildren used milk, which was bought in the population at home conditions. Their ratio is as follows: 70-75% of their own private farmers, 15-20% of their own homes drink cow's milk, while 10-20% of students found that they consumed pure milk, which was sold at the counters. However, in the daily ration, the rate of milk consumption was 58,3%. Among dairy products, the importance of butter in the body can not be overestimated. It actively participates in the synthesis of essential oils and hormones. It is a source of vitamins A, E and D species supply.

Together with the consumption rate of 53.3% butter, its fat content is significant. It was found that in the majority of the schoolchildren we controlled it consisted 72.5%.

From dairy products, the amount of cottage cheese, sour milk and sour cream was also estimated at 44-70%. The level of sugar consumption was 116,7% among schoolchildren, in addition to other products. The level of consumption of pure vegetable oil was 73,35, but the level of consumption of margarine was 15 Gramm per day, while the daily ration of margarine school students should not be entered.

We dwell on the hygienic analysis of products, it is worth noting that the daily amount of table salt is more than 2,4 times more than in the prescribed physiologic norms. Based on the analysis and conclusions of scientific sources, it is worth noting that the lack of iodine microelement in the composition of table salt creates conditions for the development of endemic bull disease, it is observed that there is a sharp increase in iron and iodine deficiency among schoolchildren without an excess of salt ration [15-19]. In the composition of children's daily ration it is recommended to add cocoa to milk. In the daily ration of schoolchildren, the level of consumption of cashew and tomato paste was 166,6%. Excessive consumption of tomato paste creates conditions for violations of the intestinal activity of the stomach among schoolchildren. And the amount of spices seems to be less than the established physiological norm. The analysis carried out shows that the school does not comply with the established hygienic requirements of the winter feeding regime of students, there are visible changes that are characteristic of the school, this condition is caused by a number of changes in the growth and development, functional state, body movement system in the body of students.

In the next task of our study, it consists of a hygienic analysis of the spring-season eating regimen of schoolchildren under control, the results of which are presented in Table 2.

The spring season of the year is one of the seasons in which the deficiency in the body is clearly visible, the season in which the quality of a number of products and the amount of nutrients contained in it are reduced.

However, for the first time in this season, various fresh greens, later, fresh carrots and fruits begin to be added. Nevertheless, this month the shortcomings are clearly visible. From the hygienic analysis of the food consumed by schoolchildren in the spring season, it can be seen that the rate of consumption of

legumes is 13,3% less than in the winter, and it is seen that the rate of consumption of legumes decreases by 60% compared to the physiological norm. And the consumption rate of cereals is plus by 20,1% compared to the winter season, but in comparison with the physiological norm it is consumed by 33,3% less. The daily ration content indicates that the consumption rate of bread in rice 23,3%, macaroni products 106,6% is 83,3%, confectionery products 2,6 times, the consumption rate of sugar exceeds 33,3%.

Table 2

Indicator of the number of products consumed by schoolchildren in spring

№	Product name	f/m	consumption rate	sufficiency, %	%, less	less, gr
1	Legumes	15	6±0,20	40,0	60,0	-9
2	Wheat flour	15	27,5±0,91	183,3	+83,3	+12,5
3	Rice	15	19±0,63	126,6	+26,6	+4
4	cereals (no rice)	15	10±0,34	66,7	33,3	-5
5	Wheat flour bread	150	247±8,3	164,7	+64,7	+97
6	Rye bread	80	42±1,4	52,5	-47,5	-38
7	Macaroons	15	31±1,1	206,6	+106,6	+16
8	Potato	250	132±4,5	52,8	47,2	-118
9	Cabbage	50	15±0,49	30	70	-35
10	Cucumber	40	9±0,30	22,5	77,5	-31
11	Tomato	30	5±0,17	16,6	83,4	-25
12	Beet	25	11±0,37	44,0	56,0	-14
13	Carrot	40	15±0,51	37,5	62,5	-25
14	Onion	30	25±0,83	83,3	16,7	-5
15	Other vegetables	50	24±0,80	48,0	52,0	-26
16	Melon products	50	11±0,37	22,0	78,0	-39
17	Pumpkin	30	11±0,36	36,7	63,3	-19
18	Greens	5	6±0,21	120,0	+20,0	+1
19	Apple	200	65±2,2	32,5	67,5	-135
20	Dried	15	5±0,17	33,3	66,7	-10
21	Grapes	30	5±0,16	16,6	83,4	-25
22	Citrus	10	11±0,35	110,0	+10,0	+1
23	Beef	95	35±1,2	36,8	63,2	-60
24	Lamb	20	15±0,48	75,0	25,0	+5
25	Rabbit meat	20	5±0,24	25,0	75,0	-15
26	Poultry	40	34±1,1	85,0	15,0	-6
27	Fish	60	15±0,50	25,0	75,0	-45
28	Fish products	20	5±0,15	25,0	75,0	-15
29	Milk	300	155±5,2	51,7	48,3	-145
30	Sour milk	150	65±2,1	43,3	56,7	-85
31	Sour cream, cream	10	5±0,17	50,0	50,0	-5
32	Butter	30	13±0,43	43,3	56,7	-17
33	Cottage cheese	50	12±0,39	24,0	76,0	-38
34	Cheese	10	5±0,15	50,0	50,0	-5
35	Egg (pieces)	1,0	1,0±0,04	100,0	0,0	0,0
36	Sugar	30	35±1,1	133,3	+33,3	+10
37	Honey	0	2±0,06	0,0	0,0	+2
38	Margarine	-	25±0,84	0,0	0,0	+20
39	Vegetable oil	15	13±0,43	86,7	13,3	-2
40	Iodized salt	5	10±0,32	200,0	+100,0	+5
41	Tea	0,4	0,2±0,01	50,0	50,0	-0,2
42	Café	1,2	2,0±0,06	166,6	+66,6	+0,8
43	Tomato	3	5±0,17	166,6	+66,6	+2
44	Species	2	1±0,03	50,0	50,0	-1
45	Confectionary	10	36±1,3	360	+260,0	+26

All kinds of carrots are supplied by 30-83,3%, if in the spring season of the year the amount of pure tomatoes and almonds is sharply reduced, then the amount of other carrots is also increased by 20%, however, the amount of greens is sharply increased compared to the winter season and appears to be excretion by 20% compared to the norm. It is no secret that in the spring season of the year the amount

of melons products is sharply reduced, it seems that their volume is 22,0 and 36,65. The daily ration also significantly reduced the amount of fruits. As can be seen from the hygienic analysis of the level of consumption of meat products, the level of their supply was from 36,8% to 80%, among which the most abundant poultry meat was consumed. In the case of excessive consumption of poultry meat in the winter, poultry meat in the spring season is more excessive than in the winter, however, by 20% less than the norm. At the level of general consumption of meat products, even in the spring season, it did not correspond to the physiologic normative level. And this creates conditions for the development of a decrease in the immune system and anemia, at first among schoolchildren. The daily ration of schoolchildren shows that the level of consumption of Fish and fish products, milk and dairy products is sharply lower than the level of physiological norm. In the spring season, as in winter, ration, the amount of pilaf, tomato and kakhva was consumed from 66,6 to 100% in excess. As can be seen from the hygienic analysis of the consumption composition of products, it is seen that in the spring season, in addition to some greens, there is a sharp decrease in meat, fish, dairy products, carrots and fruits.

The quantitative indicators of the nutrients consumed by schoolchildren in winter are presented in Table 3.

Table 3

Indicator of nutrients consumed by schoolchildren in winter

№	Name of product	Physiological norm	Consumption rate	%, difference	g, difference
1	Proteins, g	77	65,8±2,5	85,5	-11,2
1.1.	Animal proteins,g	48	36,9±1,2	76,8	-11,1
1.2.	Vegetable proteins, g	29	28,9±1,1	99,6	-0,1
2	Fats,g	79	56,1±1,9	71,1	-22,9
	Animal fats, g	59	36,9±1,2	62,5	-22,1
2.1	Vegetable fats, g	20	19,2±0,71	96,0	-0,8
3	Carbs,g	335	389,9±12,7	116,3	+54,9
4	Energetic value, kcal	2350	2334,28	99,3	-0,7
5	P:F:C ratio	1:1:4	1:0,85:5,88		

As can be seen from the information presented in Table 3, the rate of consumption of proteins in the winter season of schoolchildren was 85,4%, of which the amount of animal proteins was 76,8%, while the amount of vegetable proteins was 99,6%, the rate of consumption of Fats was 56,1%, the rate of consumption of animal fats was 62,4 And the consumption rate of carbs was 116,3% in the winter season, its daily energy value was 2334,3 kcal (2350 kcal in the norm). And the ratio of protein, fat and carbs was 1:0,85:5,88.

And the quantitative indicators of the nutrients that school students consume during the spring season are presented in Table 4.

Table 4 **Indicator of nutrients consumed by schoolchildren in spring**

№	Name of product	Physiological norm	Consumption rate	%, difference	g, difference
1	Proteins, g	77	63,8±2,1	82,8	-13,2
1.1.	Animal proteins,g	48	35,3±1,1	73,5	-12,7
1.2.	Vegetable proteins, g	29	28,3±1,0	97,5	-0,7
2	Fats,g	79,0	50,9±1,7	64,43	-28,1
2.1	Animal fats, g	59,0	28,3±0,9	47,9	-30,7
2.1	Vegetable fats, g	20,0	22,6±0,75	+113,0	+2,6
3	Carbs,g	335,0	359,8±11,7	+107,4	+24,8
4	Energetic value, kcal	2350,0	2158,8	91,86	-191,2
5	P:F:C ratio	1:1:4	1:0,79:5,63		

As can be seen from the information presented in Table 4, the rate of consumption of proteins in the spring season of schoolchildren was 82,8%, of which the amount of animal proteins was 73,5%, while the amount of vegetable proteins was 97,5%, the rate of consumption of Fats was 64,3%, the

rate of consumption of animal fats was 47,9 And the consumption rate of carbs was 107,4% in the winter season, the daily energy value of 2334,3 (2158,8 kcal in the norm) kcal. And the ratio of protein, fat and carbs was 1:0,85:5,88. The amount of vitamins contained in food products that schoolchildren consume in the winter season is listed in Table 5.

Table 5

The level of consumption of vitamins in the composition of food products consumed by schoolchildren in winter

№	Name of product	Physiological norm	Consumption rate	%, difference	g, difference
1	Retinol	700,0	536,9±17,6	76,7	-163,1
2	Thiamine, mg	1,2	0,9±0,03	75,0	-0,3
3	Pyridoxine	1,6	1,4±0,05	87,5	-0,2
4	Cyanocobalamin,mcg	2,0	1,3±0,04	65,0	-0,7
5	calciferol, mcg	2,5	2,1±0,07	84,0	-0,4
6	Tocopherol, mg	10,0	6,7±0,21	67,0	-3,3
7	ascorbic acid	60	42,2±1,5	70,3	-17,8

According to the table 5, the daily ration of schoolchildren can be seen from the hygienic analysis of the level of consumption of vitamins in winter, the consumption rate of retinol was 76,7%, the amount of thiamine was 75,0%, pyridoxine 87,5% and the consumption rate of calciferol was 84,0%, the consumption rate of tocopherol was 67,0%, and the A sharp decrease in the amount of vitaminstiradi reduces the absorption of essential nutrients among schoolchildren. A sharp increase in the number of certain vitamins in the spring season is carried out as a result of the addition of some products to their daily ration. These occur mainly as a result of the beginning of spring with the addition of a noun, Greens, mint. The amount of vitamins contained in food products, which schoolchildren consume in the spring season, is listed in Table 6.

Table 6

The level of consumption of vitamins in the composition of food products consumed by schoolchildren in spring

№	Name of product	Physiological norm	Consumption rate	%, difference	g, difference
1	Retinol	700,0	558,9±18,6	79,84	-141,1
2	Thiamine, mg	1,2	0,96±0,03	80	-0,24
3	Pyridoxine	1,6	1,3±0,04	81,5	-0,3
4	Cyanocobalamin,mcg	2,0	1,2±0,04	60	-0,8
5	calciferol, mcg	2,5	2,0±0,06	80	-0,5
6	Tocopherol, mg	10,0	6,95±0,23	69,5	-3,05
7	ascorbic acid	60,0	49,36±1,6	82,26	-10,64

As shown in Table 6, the daily ration of schoolchildren can be seen from the hygienic analysis of the level of consumption of vitamins in the spring season, the consumption rate of retinol was 79,84%, the consumption rate of thiamine and calciferol was 80%, the consumption rate of tocopherol was 69,5%, and the minimum amount of vitamin V12 was 60%. It is worth noting that the controlled school does not comply with the established physiological normative students of the winter-spring season diet regime of schoolchildren. The fact that the bulk of the daily energy value is enriched in the calculation of carbs, the energy value in the spring season is not in line with hygienic requirements, the lack of animal proteins and fats in the main nutrients, the lack of a number of vitamins, the disruption of the agenda and healthy nutrition of students, the disruption of the educational process

Conclusion

1. Schoolchildren nutrition in the winter and spring seasons of the year does not correspond to hygienic requirements, that is, the established breakfast, second breakfast, lunch, tolma tea and dinner have sharp differences in the ratio of percentages.

2. In the composition of the daily ration, the amount of flour, bread, rice and macron products, confectionery products, sugar, as well as soups, cereals, margarine and tomato, included in the group of bread and products, is sharply increased in winter and spring seasons. And the amount of groats is sharply reduced and does not correspond to physiological normative indicators. Cereals were consumed 53,3% less than in the spring season to 33,3% in winter.
3. In the daily ration, the amount of meat, fish and dairy products is also low consumption, although in winter meat products are low by 40-58,3%, in the spring season they are provided from 35,8 to 80%, however, despite the fact that the amount of poultry meat increases in the spring season, it is less than the normative indicators.
4. The amount of vegetables and fruits is not sufficiently provided even in the winter and spring seasons, while the amount of melons products has decreased from winter season to winter season, in the spring season only the amount of greens is provided in excess of 25%.
5. The rate of consumption of proteins was 85,4% in winter, of which animal proteins 76,8%, vegetable proteins 99,6%, the amount of fats 71,1%, animal fats 62,5%, vegetable oils 96,0%, the amount of carbs to 116,3%, in the spring season 82,5%, animal proteins 73,5%, vegetable proteins 114,8%, the amount of fats 64,4%, animal
6. The amount of vitamins in the daily ration was consumed in winter from 67,0-87,5%, in the spring- from 60,0 to 82,2% less than the established normative level.

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