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DIETARY HABITS OF SCHOOL CHILDREN IN RURAL AREAS OF THE REPUBLIC SAKHA (YAKUTIA)

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The results of dietary habits and preference of certain products in school children of Kysyl-Syr, Namsky region of the Republic of Sakha (Yakutia) are represented in the article. We have assessed nutrition and health status of 64 adolescents, aged from 12 to 16.

The result of data analysis shows that children in Namsky region consume more meat rather than fish, unlike the children in the Arctic regions of the Republic of Sakha (Yakutia). Fish is consumed rarely, only several times a month – 48.4%, or even less than once a month – 37.5%. Beef is more consumed out of the other meat products. In the Arctic regions poultry and game products are eaten more. It is revealed that dairy products are daily consumed by a less than a half of the survey group – 39%, the rest 37.5% consume several times a week. A lack of vegetables and fruit in the diet results in significant drawback. Only 15.6% ate vegetables daily, and 12.5% ate fruit. Children prefer bakery and confectionary products. Food preferences of most of them are sweets, fizzy drinks and excessive amount of salt.

We have examined and revealed the structure of morbidity in children of the Namsky region.

Dental pathology was most commonly revealed (53.1%). In Namsky region people use water from the river Lena, where the fluoride level is low. The diseases of the respiratory system were present in 37.5%, mostly ENT disorders, which were possibly associated with unfavourable environmental conditions, chronic infections, incorrect dietary habits and stress. Muscular skeletal system diseases were present in 26.6%. Commonly it was associated with the deficiency of vitamin D, lack of exposure to sunlight, as there are few sunny days, and insufficient amount of vitamin D in the diet (fish, eggs, milk).

The obtained results revealed food habits in school children of the Central regions of the Republic of Sakha (Yakutia).

The results of the survey require improved organization of the children dietary habits.

Keywords: dietary habits, school children, the Republic Sakha (Yakutia).

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Introduction. The epidemiological surveys, performed in different regions of Russia, show considerable disturbances in dietary habits and health in school children. These disturbances result from misbalance of main food substances, insufficient amount of polyunsaturated fatty acids, vitamins, macro and microelements (calcium, iron, iodine etc.), and dietary fibers. Excessive amount of bakery, confectionary products, salt and additional sugar is common for all surveys

all over. This dietary misbalance results in decreased health index in children and adolescents.

Dietary habits of children and teenagers of the Republic of Sakha (Yakutia) have their regional peculiarities, characterized by low energy value, deficiency of main food components, unbalanced nutritive density, and poor formation of traditional value and food culture. Diet is restricted it is characterized by insufficient amount of dairy products, meat, fish, veg-

etables, fruit and berries. It is noticed the traditional dietary habits of indigenous peoples of the North are changing, 10% of these children rarely consume traditional products on average. Such irrational dietary habit results in health disorders and disturbance of the development at early life and afterwards [7]. Due to disturbances of principles of the rational dietary habits, health index as well as anthropometric characteristic decrease in children and adolescents population [2, 3, 6, 8]. To reduce the risk of overeating in children, resulting in overweight, it is necessary to counsel the parents informing them about amount and dietary intake at educational institutions [5].

Objectives: The objective of the research is to analyze the dietary intake of school children in Kysyl-Syr, Namsky region of the Republic of Sakha (Yakutia).

Materials and methods. To analyze the attitude to the rational dietary pattern, schoolchildren were questioned. The children from the 6th grade to 10th grade (aged from 12 to 16) of the secondary school of Kysyl-Syr, Namsky region of the Republic of Sakha (Yakutia) were totally selected. Total selection included 64 schoolchildren (the parents agreed their children to participate in the survey). The research was performed in 2017-2018. The parents filled in the form: 'Information on food and dietary behavior' to investigate regular diet and affordability of food. The research is performed within the 'Monitoring the children health status in the Republic of Sakha (Yakutia)'. Actual dietary habits were investigated by the methods of analysis of the frequency of dietary intake (Martinchik A.N. et al, 1998). The questionnaire contained 55 kinds of products. Dietary pattern and dietary behavior were defined additionally. Database was entered by EXCEL program. Statistica for Windows (ver.6) helped analyze statistical data.

Results and discussion. As a result of analysis it was determined that meat products (beef) were present in a daily dietary intake of the rural schoolchildren (60.9%), fish was rarely consumed only once a month (48.4%) or even less than once a month (37.5%) (Table 1). Daily intake of dairy products was only in 39%, the others (37.5%) take it several times a week. Significant negative factors are highly neglected fruit and vegetables. Only 15.6% had vegetables in their dietary intake, and 12.5% fruit.

Most of the respondents (75%) had one glass of milk or dairy products 2 or 3 times a week. 25% of them ate sweets and chocolate, among them 39% had

3 or 4 sweets, 11% had a lot of them; 32.8% had 3 or 4 chocolates, and 17.2% ate a lot, the results show that a daily intake of sweets and chocolate goes beyond the recommended amount. The data shows (Table 1) eggs are daily consumed only by 20.3%, 2 or 3 times a week (46.9%), and 37.5% have eggs only several times a month. Commonly they eat 1 or 2 eggs (54.7%), and 31.2% have 3 or 4 eggs monthly. Bakery products (pancakes, patties) are daily consumed (9.4%), several times a week (42.2%); quantitatively 40.6% eat 3 or 4 pieces, and 43.8% eat a lot. Fizzy drinks are taken several times a week (28.1%), several times a month (50.0%); 45.3% have 1 or 2 glasses, and 29.7% have 2 or 3 glasses (Tables 2-3). As to the salt, the consumption of salt was excessive, 60.1% of the respondents like salty food. Only 21.9% of the respondents do not like salty food.

60.1% of schoolchildren prefer salty food, 17.2% like spicy hot food, and 21.9% do not like salty products.

As a part of the research the schoolchildren of Kysyl-Syr, Namsky region of the Republic of Sakha (Yakutia) were examined and the structure of morbidity was determined (Table 4). Dental disorders (53.1%) are in the leading position, according to the results of the research; they are represented by multiple caries (39%) (Table 4). One of the factors for caries development is low concentration of fluoride in the drinking water. The mineral components of the main sources of drinking water

were analyzed, according to The Federal Service for Supervision of Consumer Rights Protection and Human Well-Being "Center for hygiene and epidemiology in the Republic of Sakha (Yakutia) for the period of 2009-2010 (in the rivers Lena, Aldan, Kolyma, Indigirka, Yana, Viluy and underground source of the drinking water in Neryungry). In these water sources the level of fluoride was extremely low (from 0.04 to 0.3 mg/l, together with the other factors it can certainly result in caries [1]. In winter time people use ice water (melted water), where the level of fluoride is even a lot less than in water itself. In Namsky region people drink water of the river Lena. Active ions of fluoride, taken from the drinking water, are of great importance in structural resistance of the hard tissues of the teeth.

Moreover, sweets are considered to be one of the factors for caries development. Many respondents take excessive amount of sweets.

The diseases of the respiratory organs (37.5%) are in the second position, being represented by ENT disorders as hypertrophic and hyperplastic changes of pharyngeal lymphoid ring or Waldeyer's lymphatic ring, chronic tonsillitis, nasal septum deviation without respiratory disturbances. Immune deficiency is likely to be associated with unfavorable conditions of the environment, chronic infections, unhealthy diet and stress.

The diseases of muscular skeletal system are in 26.6% of respondents, mostly there are cases of spinal curvature 18.8%. In the North it is mostly associated

Table 1

Dietary intake of schoolchildren in Kysyl-Syr, Namsky region of the Republic of Sakha (Yakutia)

Food	Percentage of schoolchildren consuming the product. %				
	Several times a day	Daily	Several times a week	Several times a month	Less than once a month
Meat products	9.3	60.9	25	1.6	3.1
Milk and dairy products	9.3	39	37.5	9.3	4.7
Vegetables	0	15.6	67.1	10.9	6.2
Fish and fish products	3.1	1.6	9.4	48.4	37.5
Eggs	1.6	20.3	46.9	37.5	3.1
Fruit	0	12.5	51.6	31.3	4.7
Butter	14.1	57.8	17.2	7.8	3.1
Pasta (macaroni products)	4.7	21.9	68.8	4.7	0
Porridge	3.1	23.4	35.9	23.4	14
Sausages	3.1	6.3	56.2	26.6	7.8
Sweet. chocolate	3.1	25	56.3	15.6	0
Fizzy drinks	6.3	3.1	28.1	50	12.5
Packaged natural juice	4.7	4.7	18.7	48.4	23.4
Fried food	1.6	12.5	48.4	29.7	7.8
Bakery products	3.1	9.4	42.2	37.5	7.8

Table 2

A distribution of the respondents according to the consumed product, %

Drinks	1-2 glasses	2-3 glasses	3 glasses	Do not consume
Milk and dairy products	75	12.5	12.5	0
Fizzy drinks	45.3	29.7	25	0
Packaged natural juices	54.7	40.6	4.7	0

Table 3

A distribution of the respondents according to the consumed product, %

Food	1 or 2 pieces	3 or 4 pieces	A lot	Do not eat
Sweets	50	39	11	0
Chocolate	50	32.8	17.2	0
Eggs	54.7	31.2	14	0
Bread	28.1	53.1	18.8	0
Cookies	15.6	43.8	40.6	0
Sugar	26.6	32.8	40.6	0
Pancakes, patties	15.6	40.6	43.8	0

Table 4

Prevalence of pathology in children of Kysyl-Syr, Namsky region

Morbidity	Amount of the schoolchildren	
	Absolute number	%
Disorders of endocrine system	9	14.1
Disorders of respiratory organs	24	37.5
Disorders of digestive system	7	10.9
Disorders of muscular skeletal system and connective tissue	17	26.6
Disorders of the nervous system	8	12.5
Eye disorders	12	18.8
Disorders of cardiovascular system	7	10.9
Dental disorders	34	53.1

with the deficiency of vitamin D, as there are few sunny days and, as we can see from the questionnaire, it may also be connected with insufficiency of vitamin D containing products (fish, egg, and milk).

Conclusion. Thus, the questionnaire revealed insufficient amount of fish, dairy products, eggs, vegetables and fruit in the diet, while sugar and salt were in excess. Moreover, the results show that the quality of the food does not correspond to the standards and recommendations. Children sometimes prefer to eat sweets (candies, chocolate, fizzy drinks) when they are hungry; they eat pasta with meat and bakeries (pancakes and patties) at home, sometimes it can be associated with familial dietary habits. The situation is aggravated by the fact that most of the children did not realize possible negative consequences of such dietary pattern for their health.

As for the type of morbidity the situation is the following: 53.1% of respondents suffer from dental disorders; 37.5% from the diseases of the respiratory system; and 26.6% from disorders of muscular skeletal system. On a whole both the questionnaire data and type of morbidity reveal grave dietary breakdown in schoolchildren of Namsky region and require complex measures, aimed at dietary optimization.

It is necessary to update and improve the organization of the diet at home and school meal according to the modern guidelines and standards. Schoolchildren meals are organized according to the out-of-date management, financing and producing programs and rules. Changes in school meal organization and dietary habits at home should pass more actively together with the development of modern food technologies.

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