

Table 3

Risk factors of the acid diseases in the population, depending on the area of residence

Risk factor	Diet	Central Yakutia	The Arctic	p
Eating regime	Regular	98	87	-
The number of meals per day	3 and more than 3 times a day	36 68	37 66	- -
Dry rations food	Sometimes	29	26	-
The main meal in the evening	Sometimes often	21 13	20 12	0.02
Big interval between meals	Yes	11	12	-
Quick and hasty food	Yes	39	20	-

to them therapeutic and prophylactic measures.

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ACTUAL NUTRITION INDEXES OF THE INDIGENOUS RURAL POPULATION OF YAKUTIA

ABSTRACT

We researched the actual nutrition among persons of the indigenous nationality of Yakutia. By our study we proved imbalance of the actual nutrition by macro - and micronutrients. Besides we revealed increase in a share of fats (10%) and carbohydrates (12%) in a daily diet.

Keywords: indigenous population, the actual nutrition, traditional nutrition, obesity.

INTRODUCTION

Food of indigenous peoples of the North developed protractedly, under the influence of regional features and social and economic conditions. The state of health of aboriginals of Yakutia substantially is defined by their features which have developed in the course of centuries-old selection in extreme conditions of Far North. The traditional way of life and type of food developed

during many millennia don't contribute to development of much known "diseases of a civilization". At the same time, the separation of inhabitants of a radical nationality from a native habitat, a traditional way of life and a food allowance is caused at them by growth of diseases of the blood circulatory system and digestion.

Research objective: to estimate actual food of radical villagers taking into

account a floor and nature of activity.

MATERIAL AND METHODS

During our study 307 representatives of adult population are examined (the 239 woman and 68 men aged from 30 till 50 years). The actual food of surveyed was studied by means of a method of daily reproduction of food [2], receiving data on food eaten within the last days by poll with use of an album of foodstuff and dishes [1]. On the basis

of the obtained data with the help of the tables "Chemical Composition of the Russian Foodstuff" defined a chemical composition of a daily diet [3]. Balance of a diet was estimated in sizes of consumption of the main nutrients, energy and compared to MP 2.3.1. 2432 – 08 "Norms of physiological needs for feedstuffs and energy for various groups of the population of the Russian Federation" [4]. For an assessment of the food status used a body weight index (IMT = the body weight, kg/height, m²). The IMT normal value - 18,5 to 25 kg/m².

RESULTS AND DISCUSSION

The main reasons leading to obesity are the excess quantity, and high caloric content of the consumed food in a combination to decrease in energy consumption. The excess mass (25,0 – 29,99 kg/m²) of a body is revealed at 32% of men and 37% of women, obesity (IMT of 30 kg/m² and more) it is noted at 22% of men and 20% of women.

All examined persons treated working-age and lived in rural areas. Physical activity surveyed generally was formed of agricultural work, truck farming, care of house conditions, gathering wild berries, hunting and fishing.

Most of the examined persons have been busy with easy physical work (group I, 40,5%) (fig. 1), mainly were engaged in brainwork 27% (group II), work of average weight – 28% (group III), 5% treated the IV group, that is did hard manual work. In this regard patients have been divided according to weight of work. Indicators of the actual food of men depending on physical activity are given in table 1.

The obtained data confirm discrepancy of the actual food of the examined men to the norms developed by scientific research institute of food of the Russian Academy of Medical Science (table 1). At the persons occupied mainly with brainwork excess body weight prevailed. Consumption of almost all main components exceeded the recommended norms: consumption of protein was above the recommended norm for 28%, fats – for 19%, carbohydrates – for 20%. The power value of a daily diet exceeded the recommended size for 21%.

The IMT average value was in the second group on the upper bound of norm that testifies to imbalance of all components of food. The amount of the consumed protein among men of this group exceeded the recommended norm for 18%, consumption of fats met standard, and the amount of the

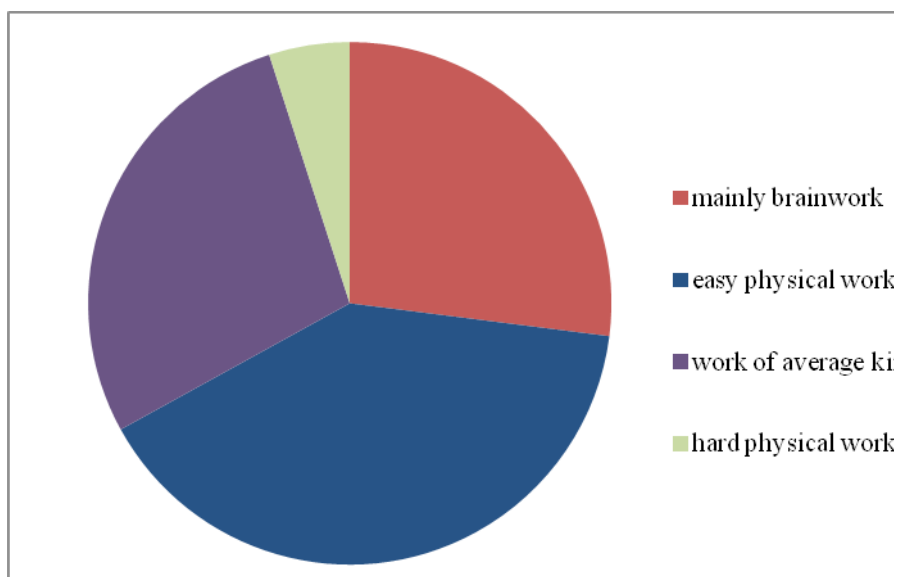


Fig. 1. Distribution of the examined aboriginals of Yakutia on nature of kind of work

consumed carbohydrates were slightly lower than norm (for 10%). Caloric content of a diet of the men occupied with easy work met the recommended standard.

The indicator of IMT of the patients occupied with work of average weight was on the upper bound of norm. Consumption of protein was 36% lower than norm, consumption of fats met standard, the amount of carbohydrates was below the recommended size for 18%. Caloric content of a diet of men of this group of employment was below the recommended norm for 7%. The power value of a diet of the men occupied with hard physical work was 16% lower than the recommended norm as consumption of protein was 14% lower than norm,

consumption of fats – for 14%, the content of carbohydrates in a daily diet was lower than the sizes of norm for 24%. All examined men in this group had normal body weight.

Among the women occupied with an intellectual kind of activity, average daily consumption of proteins and fats exceeded the recommended norms for 17% and 15% respectively (tab. 2), and the amount of the consumed carbohydrates was above norm for 12%. Respectively and the caloric content of a diet of the examined women was 13% higher than the recommended norm. The average value of IMT of women of this group was also above norm $\geq 25,0$.

In the second group all main indicators met standard, except for protein content

Table 1

The main indicators of the actual food of men depending on kind of work

Indicator	Kind of work			
	Group I, n = 15	Group II, n = 17	Group III, n = 21	Group IV, n = 15
IMT, kg/m ²	27,18±1,22	25,75±0,87	25,79±0,68	23,92±0,97
Proteins, gr	106,52±11,31 76,47*	104,06±7,79 85,67*	135,75±8,94 99,47*	132,94±14,37 113,85*
Fats, gr	104,06±9,79 84,52*	93,82±10,01 98,62*	115,15±9,01 116,72*	115,71±9,97 133,97*
Carbohydrates, gr	457,09±58,94 366,85*	383,14±28,31 423,97*	419,72±30,41 514,05*	447,28±35,59 590,52*
Energet. value, kcal	3220,62±334,49 2530*	2797,85±196,26 2961,25*	3262,89±189,50 3507,50*	3367,91±167,62 4025*

Note: * Norms of physiological needs for energy and feedstuffs for various groups of the population of the Russian Federation (Methodical recommendations 2.3.1.2432-08).

Table 2

The main indicators of the actual food of women depending on kind of work

Indicator	Kind of work			
	Group I, n = 65	Group II, n = 91	Group III, n = 52	Group IV, n = 15
IMT, kg/m ²	26,09±0,7	25,28±0,45	24,44±0,46	24,55±1,54
Proteins, gr	81,07±3,85 67,27*	84,13±3,12 73,60*	88,21±4,41 83,95*	115,01±12,23 95,45*
Fats, gr	83,61±4,57 70,72*	80,67±3,57 81,65*	85,62±4,68 96,60*	103,82±8,34 110,97*
Carbohydrates, gr	345,29±15,20 305,53*	343,6±12,49 354,20*	382,32±24,14 424,35*	485,76±40,55 488,17*
Power value, kcal	2448,56±103,85 2127,50*	2438,39±80,89 2443,75*	2658,70±142,49 2903,75*	3342,72±309,04 3335*

Note: * Norms of physiological needs for energy and feedstuffs for various groups of the population of the Russian Federation (Methodical recommendations 2.3.1.2432-08).

(norms for 13% are higher).

Caloric content of a diet of the women occupied with work of average weight was below norm for 9% as average daily consumption of fats and carbohydrates was below norm for 11% and for 10%

respectively, and intake of protein met standard.

In group of the women occupied with hard physical work the increased protein consumption (for 17%) is revealed whereas intake of fats with a diet was

below the recommended size for 7%, and consumption of carbohydrates met standard. Among women of this group of excess body weight it isn't revealed.

Thus, the analysis of average daily diets, depending on nature of work, has revealed that with power consumption increase the index of body weight of the examined patients corresponds to normal values.

Average daily consumption of proteins, among all examined persons has made 91,90 ± 2,13 g/days, fats – 87,66 ± 2,15 g/days, carbohydrates – 371,35 ± 8,37 g/days. The power contribution of the main components to diet power value, among all examined persons, has made: proteins – 14,0%, fats – 30,0%, carbohydrates – 56,0%.

The comparative analysis of the actual food depending on a floor has shown that men consume slightly more proteins and fats, and women – carbohydrates (tab. 3). Caloric content of a daily diet as among women (12%), and among men (13%) was below the recommended norms developed by scientific research Institute of food of the Russian Academy of Medical Science. Average daily intake of protein with a diet of men exceeded the recommended size for 22%. The protein contribution to diet power value, both among men, and among women exceeded norm. Consumption of fats corresponded to norm indicators, and consumption of carbohydrates was slightly lower than the recommended sizes. The insufficient use in food of vegetables and fruit leads to the low level of receipt in an organism of cellulose and can be the cause of

Table 3

Indicators of the actual food of aboriginals of Yakutia depending on depending gender distinctions (man, woman)

Indicators	Man, n = 66	Recommended norms for men *	Woman, n = 210	Recommended norms for women *
Proteins, gr	117,48±5,26	96,61-102,35	85,35±2,07	82,80-85,17
Fats, gr	104,00±5,00	112,73-120,75	83,40±2,30	95,45-97,75
Carbohydrates, gr	416,18±17,96	496,83-531,34	358,83±9,28	420,96-427,80
Power value, kcal	3053,53±113,39	2700,45-3622,54	2541,44±58,41	2875,00-2932,57
Proteins, %	15,38	11,31-12,03	13,43	11,52-11,61
Fats, %	30,64	29,89-29,98	29,54	29,88-30,00
Carbohydrates, %	54,51	58,58-58,66	56,48	58,56-58,35
Ratio of proteins: fats: carbohydrates	1:0,88:3,55	1:1,17:5,16	1:0,98:4,22	1:1,15:5,05

Note: * Norms of physiological needs for energy and feedstuffs for various groups of the population of the Russian Federation (Methodical recommendations 2.3.1.2432-08).

development of diseases of a digestive tract. We have revealed deviations in intake of food fibers with a daily diet. So, men consumed $19,48 \pm 1,07$ g/days. food fibers, and the woman – $14,93 \pm 0,50$ g/days at norm of 20 g/days.

CONCLUSION

We revealed that the actual food of indigenous people of Yakutia is characterized by imbalance of a diet on macro - and to micronutrients. Increase in a share of fats and carbohydrates (for 10% and 12% respectively) in a daily diet testifies to a carbohydrate and lipidic orientation of modern food of indigenous country people of Yakutia.

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EVALUATION OF THE WATER QUALITY IN THE KOLYMA RIVER ON AN AQUATIC BIOTA

The article reports an analysis of hydro-chemical parameters of water in comparison to the MPC for fishery and drinking water use. Due to a comprehensive assessment in 2010 the water quality of river Kolyma was characterized as the 3rd class category «A» «polluted». Typical contaminants were phenols, copper and zinc compounds.

Keywords: salinity, cationic composition, gas mode, biogenic element, the maximum permissible concentration.

INTRODUCTION

The Kolyma River, that has a length of 2129 km, is formed by the confluence of Kullu and Ayan-Yuryakh, originating in Cherskiy mountain range and flows into the East Siberian Sea. Delta length is 110 km, an area - 3000 km². Mixed supply: snow (47%), rain (42%) and underground (11%). Flood: from mid-May to September. Swipe level fluctuations up to 14 m. The annual flow at the mouth - 123 km³ (3,900 m³ / s). The average annual sediment load - 5.5 mln tons. It freezes in mid-October, rarely - at the end of September. Before freezing – ice-drift and slush lasting from 2 days to a month, ice dams. In winter, frazil - river-bed and extensive ground. Ice reveals in the second half of May and early June. Debacle lasts from 2 to 18 days. Area of lake fisheries fund - 12716 km² [13, 9].

The purpose and objectives of the research: the study of the contemporary composition of the major chemical ele-

ments and their impact on aquatic biota structure in the formation of modern hydrochemical regime of the Kolyma River.

Research objectives included the determination of salinity, anionic and cationic composition, total hardness, pH, dissolved oxygen, carbon dioxide, nutrients and conclusions about the sanitary condition of the pond for drinking water and fishery use.

MATERIALS AND METHODS

Chemical analysis of the water was carried out according to generally accepted in hydrochemistry freshwater techniques [1].

RESULTS AND DISCUSSION

We investigated the Kolyma River area within Srednekolymsk and Nizhny Kolymsky areas. These areas are replete with lakes, interconnected river and canals, dominated by sand and mud and silt. The average flow rate - 0.4-0.5 m³ / s, in the delta - 0.2-0.3 m³ / sec, acquires the reverse direction at the time

of the tides.

The Kolyma River is ice-free from 125 to 157 days, the mode level of the Kolyma river is most dependent on the discharge of the Kolyma hydroelectric power station, located in the Magadan region, and therefore characterized by high spring and august floods. Most of the flow is noted from June to August. In general, during the warm season (May-October) is held up to 90-95% of annual runoff. A. Novikov [3] noted that the minimum winter water discharges, before the construction of HPP cascade Kolyma, in the middle and lower reaches could drop to 30-50 m³ / sec.

The temperature regime of the Kolyma River is quite hard. In Srednekolymsk surface water temperature in summer is above 10 ° C and keeps 2-2.5 months, and in some years the water temperature reaches 10 ° C.

According to Anadyr-Kolyma Water Association, in 1990 into the Kolyma