Efremova A. V., Mironova G. E., Konstantinova L.I., Semenova E.I.

The Content of Vitamins and Nutrients in Food Ration of Natives of the Republic of Sakha (Yakutia)

ABSTRACT

The assessment of content of vitamins and nutrients in a daily ration of natives of Yakutia is shown in this article. The analysis has revealed the low-grade macro and micronutrient content in the ration, especially of such elements as calcium (Ca) and magnesium (Mg), as well as the excess of phosphorus (P) and sodium (Na) in the daily food. The acute deficiency of vitamins B (B1, PP) and C is detected in the analysis of vitamin content of the ration.

Keywords: nutrition, daily ration, nutrients, vitamins.

INTRODUCTION

Nutrition of indigenous people of the North has undergone considerable changes for the last century, and it is not considered as traditional nowadays. For the last decades in the Republic of Sakha (Yakutia) there have been cardinal social and economic transformations which had impact on all aspects of life of indigenous people including nature of food. Qualitative nutritional status is not only the sufficient contents of basic macronutrients, but also vitamins, both macro - and microelements in a daily diet.

The Aim of the Research: to estimate the content of vitamins and mineral elements in a daily diet of the natives of Yakutia.

MATERIALS AND METHODS

Data of a daily ration of 268 rural natives of Yakutia (Yakuts, Evens, Evenks), aged from 30 to 50 years are studied. Actual food of the surveyed was studied by means of a method of daily food reproduction [3] by receiving data on the food taken within the last days with use of an album of foodstuff and dishes [2]. On the basis of the obtained data with the help of the tables "Chemical Composition of the Russian Foodstuff" a chemical composition of the daily ration was determined [6]. The balance of the ration was estimated in sizes of consumption of the main nutrients, energy, comparing them with provided in methodical instructions "A balanced diet. Norms of physiological needs for feedstuffs and energy for various groups of the population of the Russian Federation" (MU 2.3.1. 2432-08) [7].

At implementation of the statistical analysis an inspection on a normality of distribution of the studied quantitative indices was carried out according to Kolmogorov's test – Smirnova. Reliability of distinctions between average sizes was estimated by means of criterion of t of Styyudent for independent selections, the probability of justice of a zero hypothesis was accepted at $p < 0,05$.

RESULTS OF THE RESEARCH

In earlier conducted researches in diets of inhabitants of Yakutia the insufficient amount of mineral substances, first of all, to is revealed, Ca, Mg, P, Fe [1,4,5,8,9]. In the analysis of the content of vitamins B an average daily diet it is shown (tab. 1) that consumption of vitamin A among men exceeded the recommended sizes twice. While intake of vitamin A with a diet at women by 1,3 times was lower than norm. The extremely poor receipt β-каротин with food – 61% lower than the recommended sizes in both studied groups is revealed. Average daily consumption of B1 vitamin in both studied groups was slightly lower than the recommended sizes. So, the content of B1 vitamin in a diet of women was lowered by 38,0%, and in a diet of men is 18,6% lower than the recommended consumption size. Receipt with food of B2 vitamin corresponded to the recommended sizes in both groups. The content of RR vitamin in a daily diet of men met standard, and in group of women was lowered by 24% of the recommended size. Despite high consumption of grain products, the content of vitamins of group B (B1, B2, PP) attracts attention. Perhaps, it is connected with prevalence in structure of food of the refined grain products. The extremely poor consumption of vitamin C with a diet in both studied groups is revealed. So, receipt with food of vitamin C among men for 60, 0% below the recommended norm, and at women – for 68,6%. It should be noted that in the studied groups the lowest consumption of fresh vegetables, fruit and berries is revealed.

The analysis of consumption of mineral substances in a daily diet of all surveyed showed that consumption almost analyzed macro - and microcells at men was higher than all, than at women ($p < 0,05$) (tab. 2). So, daily consumption of phosphorus among men exceeded value of norm by 2,1 times, among women – by 1,6 times. As for sodium consumption, its average daily receipt with a diet at men was 3,7 times higher, and among women – is 2,8 times higher than the recommended sizes. Insufficient average daily consumption of calcium and magnesium in diets, both women, and men is revealed. So, the average daily level of calcium in a diet was lower than norm for 29,0% at men and for 28,8% at women. Consumption of magnesium in a diet of men was below the recommended sizes for 13,5%, and among women – for 29,2%. Consumption of iron was sufficient among women, and at men exceeded the recommended norms by 2,3 times.

CONCLUSION

Assessment of contents macro - and microcells in a daily diet revealed the expressed insufficiency of such mineral substances as, calcium and magnesium, and the excess contents in the consumed diet of phosphorus and sodium that characterizes the actual food of the examined persons as unbalanced on micro and macroelement structure. The analysis of vitamin structure of a daily diet showed that insufficiency is combined and mentions vitamins of group B (B1, PP) and A. Otmechen an acute shortage of consumption of vitamin C both in group of men, and in group of women. It should be noted that among men higher consumption of vitamins A, B1, B2, PP was noted.

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Authors

Mironova Galina Egorovna – doct. biol. sc., professor of Institute of Natural sciences, Northeast federal university of M. K. Ammosov;

Efremova Agrafena Vladimirovna – cand. boil. sc., junior researcher laboratories of studying mechanisms of adaptation of Yakut scientific center of complex medical problems;

Konstantinova Lena Ivanovna – junior researcher laboratories of studying of mechanisms of adaptation of Yakut scientific center of complex medical problems;

Semenova Evgenia Ivanovna – cand. boil. sc., junior researcher laboratories laboratories of studying of mechanisms of Yakut scientific center of complex medical problems.

Table 1

Average daily consumption of vitamins in diet of aboriginals of Yakutia

vitamin	male, n = 57	female, n = 211	The recommended sizes #
A, mg/days	1,83 ± 0,04*	0,58 ± 0,03	0,90
Carotinoids, mg/days	1,95 ± 0,06*	1,92 ± 0,03	5,00
B_1, mg/days	1,22 ± 0,06*	0,93 ± 0,03	1,50
B_2, mg/days	2,74 ± 0,22*	1,89 ± 0,05	1,80
PP, mg/days	23,22 ± 1,46*	15,20 ± 0,46	20,00
C, mg/days	36,01 ± 3,44*	28,26 ± 1,35	90,00

Note: # Norm of physiological needs for energy and feedstuffs for various groups of the population of the Russian Federation (MP 2.3.1.2432-08); * $p < 0,05$ in comparison with group of female