

III. PROPHYLACTICAL PROBLEMS

STUDY OF THE NUTRITION OF CHILDREN AGED 6 YEARS IN CONDITIONS OF SEMIBOARDING-SCHOOL OF EDUCATION

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The first task in the field of nutrition, according to the government directions, is rationalizing of children's nutrition and education. Many authors underline the importance of nutrition for physical, nervous-psychiatric and health development of the organism, but also for adaptation possibilities, labour and successes of the pupils (4, 5, 6, 7, 8). Special attention must be paid to the first-class-pupils' nutrition, having in mind their age and higher demands to the organism in connection with adaptation in new environment and increased mental tension. The main aspects of a proper organization of nutrition, according to scientific necessities, are in studying of the factual nutrition (9). All that was the object of our investigation on nutrition of children aged 6 years from Varna schools.

Material and methods

The nutrition of the children was studied for a period of one school year. First-class pupils have three meals in the school: morning, noon and afternoon one. The canteen nutrition and its physiological normatives must compensate 75 % of the day necessities which are the base for comparison. According to the regulations for investigation of nutrition (9) are estimated the energy value and base chemical composition of 225 menu portions. The physiological normatives are considered when estimating the nutrition, also its components, rules, instruments and necessities (3).

Results and discussion

The analysis of the results shows that the mean values of the energy level of a single portion vary from 8,13 MD (1936 kcal) to 8,9 MD (2122 kcal), i. g. with 22—26 % above the age normative at an increased energetic value of the noon meal compensating the second breakfast. The relative part of the energy from the main nutritive substances, excluding the carbohydrates, corresponds to the necessities for a rational nutrition at this age. The disorders of the energy balance are considered as a negative moment in children nutrition, having in mind, that the continuous overfeeding with insufficient physical activity can probably cause an increase of the normal weight and obesitas.

From the positions of the modern science of nutrition certain interest creates the balance in relation to main nutritive and biologically active substances. Despite of the increased with 20 % quantity of proteins, those ones of animal origin are about 47% (fig. 1) without definite differences concerning seasons.

Analysing the quantities of milk it is obvious that the children do not eat every day it and even the average amount of milk (180 g) for the period is about twice less than required. Milk products are also insufficient. As a whole, milk is not enough in the meals and it is very often replaced by tea or other products.

The fats in the meals have a normative of 60 g, but in the investigated schools they vary between 69 and 81 g (fig. 2), i. g. with 15—35 % above the required quantity. Vegetable oils are in excess; instead of 25 they are 50 %. This is due to the improper receipts for meals with 2—3 times more fats and oils than necessary. The average amounts of milk fats are in normal values, but a regular intake of them is recommended, mainly that of the milk butter.

The quantity of carbohydrates varies with seasons in both schools from 261 to 293 g, whereas the normative is 215 g, i. g. 28 % above physiological normatives. The oligosaccharides are 23 % (fig. 3).

Numerous bibliographic data confirm the important role of vitamins in supporting the immunologic homeostasis, adaptational possibilities, labour-skill. Their role increases considerably specially in periods of intensive development.

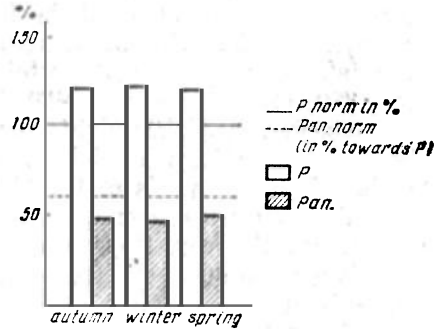


Fig. 1

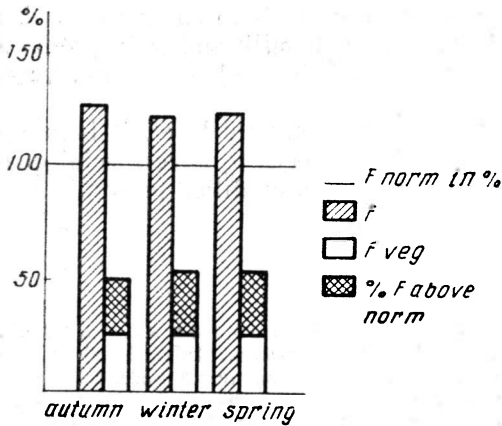


Fig. 2

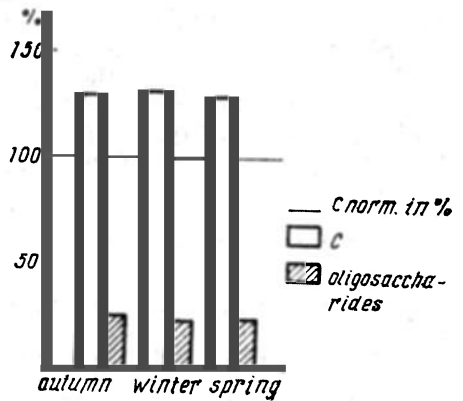


Fig. 3

and definite mental tension, which is the time of education in the first class at school. The quantities of vitamins, B₁ and B₂ are not enough. The day dose is sufficient for only 73 % of that what is required. This is due to the little amount of rice, vegetables, milk, eggs, refined products of flour. Unfavourable effect of the lower amount of vitamin B₁ is observed with the increased quantities of carbohydrates. The amount of vitamin C concerning various periods and seasons is between 6 and 130 mg. In winter it is with 13 % below the physiological normatives for the age. This is due to the nonrational meals, where the main quantities of vitamin C are from thermally cooked products or conserved food.

Special role in children nutrition play mineral salts. Our results show a disbalance here too, mainly because of the lower amount of calcium. The day dose is sufficient for only 63 % of the physiological needs of the organism at this age. The phosphates are enough, but the relative excess of phosphates in relation to the lower quantity of calcium can contribute to certain disorders in the resorption and utilization of the latter (1, 2). Though the iron is enough too (11 mg) we presume that this biomicroelement is also relatively insufficient because of the deficiency of animal proteins which determine the iron resorption from the food (10, 11).

The variety of the nutritive products is a very important condition for proper and balanced quantities of biologically active substances. All 7 groups of them are included in the meals of the children but the analysis shows that those from I and V group are not enough, neither regularly presented. The breakfasts are similar, usually from flour products, in the morning and afternoon, without enough milk products and fruits. The deserts are also all the same and not suitable for this age.

The data of our study confirm our opinion that there are certain defects in the nutrition of children aged 6 years, showing excess or disbalance of energy, insufficient important factors and nutritive substances rich of biologically active compounds.

It is recommended that the nutrition for this age in both schools must be according to the normatives, i. g. lower energetic value, better quality, specially concerning animal proteins and vitamins.

It is necessary for the rationalized receipts of the meals to change everyday assortment of the breakfasts and deserts, include enough milk and milk products according to the age, once or twice a week to serve fish, fresh fruits and vegetables every day despite the season.

In order the nutrition of the children to be at the required level, it is necessary all members of the staff working in the pupils' canteens to have special qualification and the menu of the meals to be done only by a qualified person.

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ИЗУЧЕНИЕ ПИТАНИЯ ШЕСТИЛЕТНЫХ ДЕТЕЙ НА ПОЛУИНТЕРНАТНОМ РЕЖИМЕ ОБУЧЕНИЯ

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Р Е З Ю М Е

Питание шестилетних первоклассников на полуинтернатном обучении прослеживалось в течение одного учебного года. Устанавливается увеличение энергетических стоимостей дневного количества пищи на 26 %, что достигалось увеличением количества углеводов. Количество белков и жиров животного происхождения недостаточно. Количество принимаемой пищи удовлетворяет потребность в кальции лишь в 63 %. Содержание витаминов В₁ и В₂ недостаточно, а витамин С значительно варьирует и получается детьми преимущественно в составе обработанных фруктов и овощей. Недостаточно количество пищевых продуктов биологически ценных для детского возраста первой и пятой групп.

Делаются рекомендации с целью улучшения организации питания школьников.