



## **PRINCIPLES OF PROPER NUTRITION OF CHILDREN IN PRESCHOOL EDUCATIONAL ORGANIZATIONS**

Sobirova Gulnoza Lochinbek qizi

2nd Stage Graduate of the Pedagogical Institute of Andijon Theory and Methodology of Education (Preschool Education)

### **Annotation:**

The paper presents contemporary data of foreign and Russian researchers on the healthy nutrition of schoolchildren. An analysis of the existing forms and principles of school catering is provided; school rations around the world, different approaches to their formation, and new school nutrition standards in the USA and Eastern Europe are described and discussed. The authors focus on the implementation of the National Government programs on the organization of school healthy nutrition in foreign countries. Original research data collected by the Russian scientists on students' taste preferences are also provided in the paper.

**Keywords:** School meals, School feeding, School health food programs, School ration, Foodpreferences, Students.

In most modern countries of the world with a developed state social security, such as Sweden, Denmark, Germany, and Finland, government subsidies can account for up to 80% of the cost of a school ration (Aurino et al., 2018). None of these countries shifts the burden of financially ensuring children's nutrition completely to budget sources. Parents are involved in financing school lunches, but the quality of food services provided to a child, for example in the USA, is higher than in Eastern Europe and Russia (Martinchik et al., 2018). In the EU, until recently, there were two basic school feeding schemes. The first one was providing children with fruits and vegetables, and the second one supplied milk. As of now, it is merging into one system.

The main method used in this work is the method of modeling namely highlighting certain properties of an object that are significant from the perspective of a research task. A review of domestic and foreign experiences provided in the paper was carried out from two perspectives, taking into account (1) the quality and variety of products for school feeding and (2) state participation in the organization and control of nutrition in educational organizations. From the aforementioned perspective, we would like to consider how the systems of school meals in a number of countries are organized and functioning. School meals in the United States are implemented as part of the "National School Lunch Program" and the "Program for Providing Free School Breakfasts" (6 cents to 2.78 dollars). These measures and much more are provided for by the new rules of school feeding in the USA (Drake et al., 2018). New school feeding standards are designed to reduce the problem of overweight and other diseases. School food makes up 30-50% of the children's and teenagers' diets. In addition, in the United States, there is a federal program entitled "Nutrition for Children in Summer Camps." In the Federal Program for Low-Income Families, there is a special section on nutrition for school children. In total, the USA allocates



about 12 billion dollars a year for free food under the four programs indicated. In 2003,  $\frac{2}{3}$  expenditures were spent on providing children with meat and milk, a little more than one quarter was for purchasing fruits and vegetables, mostly canned or frozen. However, a number of products are constantly criticized, because according to current recommendations, the nutrition of children at school age should mainly include whole grains, natural fruits, vegetables, moderate amounts of meat, fish, dairy products, and legumes (Russian Academy of Education, 2018; Kuchma & Gorelova, 2008). The US law defines school lunches as “safe for health and beneficial for children’s development.” In this regard, all school rations of any state in the country must meet strict requirements of specialists, as reflected in the “Dietary Guidelines for Americans” (U.S. Department of Health and Human Services, 2015). The Guide determines the diversity of food rations, the degree of presence of fruits and vegetables in them, determines a recommended content of sugars and salts, recommends the principles of nutrition with less than 30% of calories derived from fat and less than 10% of calories derived from saturated fat. In addition, lunches and breakfasts should contain at least  $\frac{1}{3}$  of the daily child’s need for protein, iron, calcium, vitamins A and C. American scientists together with invited foreign colleagues have developed four approaches in the formation of school rations. School nutrition specialists (SN operators) are free to choose any of these four approaches (Drake et al., 2018). A traditional approach. According to the traditional approach, a school operator should prepare 5 dishes from 4 types of products: meat or meat containing products, vegetables and/or fruits, cereals/bakery products, and dairy products. The minimum portion sizes are determined according to the age groups of school children. The approach is based on the nutritional standards of American doctors. An “increased” approach. According to this approach, calories are increased in diets by using low-fat sources. A total of five components remain, but the supply of fruits, vegetables, carbohydrate-containing cereals, and bakery products increases. A standard nutrient approach. This approach to the formation of rations (“NuMenus”) is a planning system based on a computer program that calculates a nutrient composition of each dish automatically upon entering data on the menu composition. In Russia, such a program was developed by such companies as “RST,” the corporations “MAGNAT,” “1C: School Nutrition,” etc. An assisting approach. This approach requires participation of medical specialists, nutritionists, pediatricians, immunologists, and allergists of a particular state or city in advising an operator in choosing a specific menu, taking into account the seasonal availability of certain types of food, climatic regional features, as well as physiological features of children’s health identified during monitoring. A typical American school lunch often includes French fries, a hot dog, and a milk drink. Only recently, an atypical American school lunch appeared in connection with new standards (increasing a proportion of fruits and vegetables in the diet): lettuce, a thinly sliced cucumber, carrots, a piece of grilled chicken, grated cheddar cheese, a boiled egg, blueberries, a slice of tomato, homemade bread, juice, and strawberries. In contrast, a French school lunch consists of guinea fowl, vegetables, lettuce, cheese, bread, etc. And a Polish school lunch includes a piece of chicken, mashed potatoes, a piece of cabbage, a soup, and a drink.

In conclusion, this paper presents the results of a cross-national review focused on the key problem existing in schools with providing school children with healthy nutrition. The authors



reviewed both international (USA, Sweden, UK) and domestic (Russia) experiences and demanding challenges. The research clearly shows that (a) a number of products that are offered in a school menu do not meet the taste preferences of school children and (b) there is no continuity between home and school meals. Based on the conducted research, the authors recommend creating an effective model of school feeding in the Russian Federation. On the one hand, this model takes into account local experience, while on the other hand, this model is quite universal (consequently, it is applicable in any foreign country, not only in Russia).

## Literature:

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