

Date: 17<sup>th</sup> June-2025

## **HYGIENIC METHODS FOR STUDYING THE NUTRITIONAL STATUS OF PRESCHOOL CHILDREN**

**Ashurova Mukadas Djaloldinovna**

Head of the Department of Food Children and teenager's hygiene  
Fergana Medical Institute of Public Health, PhD

**Abstract:** Monitoring the nutritional hygiene of preschool children is essential for ensuring their health and proper development. This paper explores practical hygienic methods for evaluating dietary practices in preschool institutions, focusing on observing food preparation, analyzing meal composition, and assessing the sanitary conditions of food storage and distribution. The study emphasizes the importance of laboratory analyses for detecting harmful substances and pathogens, as well as the role of natural experiments and statistical assessments in evaluating the effectiveness and safety of nutritional interventions. These methods collectively contribute to identifying deficiencies in children's diets, preventing gastrointestinal and chronic illnesses, and optimizing nutrition protocols according to age-specific physiological needs. The application of international and national hygiene standards throughout the monitoring process ensures the scientific reliability and relevance of the findings.

**Keywords:** Preschool nutrition, hygienic monitoring, food safety, laboratory analysis, dietary assessment, natural experiment, sanitary standards, child health.

In hygienically assessing the nutrition of preschool-aged children, monitoring principles are considered one of the main approaches to maintaining children's health. Hygienic surveillance aims to systematically evaluate the status of the nutrition system and ensure its compliance with sanitary norms and hygienic requirements. This process includes observing children's dietary habits, analyzing food preparation and serving conditions, and assessing the hygienic safety of the diet.

Primarily, direct observation of the feeding process is conducted. This involves analyzing the composition, quality, and hygienic safety of meals prepared for preschool children. According to international recommendations, it is essential that meals include appropriate proportions of proteins, fats, and carbohydrates. Furthermore, vitamins and micronutrients must be present in sufficient quantities. Such surveillance helps identify deficiencies and enables improvements in meal quality.

The second important aspect is the control of food preparation and storage processes. Monitoring involves checking whether food products meet sanitation requirements, verifying preparation technologies, and assessing storage conditions. Violations of hygienic standards can lead to widespread gastrointestinal diseases among children. Adherence to sanitary rules during food transportation is also crucial, including proper packaging, refrigeration, and monitoring of expiration dates to ensure food safety. During monitoring, laboratory tests are used to evaluate food quality and safety. Testing



Date: 17<sup>th</sup> June-2025



for pesticides, heavy metals, microorganisms, and chemical additives plays a central role in assessing hygienic food safety. The implementation of modern laboratory equipment and technologies in Uzbekistan enhances the effectiveness of hygienic monitoring. Additionally, children's health indicators-such as height, weight, and other physiological metrics-are regularly tracked and analyzed. Monitoring helps identify dietary needs and nutritional issues early. The children's adherence to meal schedules and their acceptance of food are also observed.

Based on monitoring results, specific recommendations are developed to address identified problems. These focus on improving children's diets, refining hygiene standards, and enhancing food safety. For example, introducing structured monitoring programs in preschool institutions can significantly improve effectiveness. Hygienic monitoring methods form an integral part of assessing preschool nutrition by ensuring food safety, monitoring dietary schedules, and enforcing sanitary requirements. International standards and national regulations are used throughout the process, contributing to improved child nutrition and overall health.

Analyzing the nutritional status of preschool children is a key step in promoting their health and development. The analysis involves assessing dietary composition, nutritional adequacy, and compliance with hygienic standards. Special attention is given to the balance of proteins, fats, and carbohydrates, as well as to the energy value and biological safety of the meals. International guidelines indicate that a child's diet should match their age, physiological traits, and energy demands. During this process, macronutrient ratios are thoroughly assessed. Proteins are necessary for tissue repair and growth, fats support energy supply and cell structure, and carbohydrates provide the main source of daily energy. The compliance of these elements with hygienic norms is evaluated, along with the adequacy of vitamins and micronutrients which strengthen immunity and promote general health.

A critical part of the analysis is evaluating the hygienic safety of the food. This includes examining product origins, harmful substances, and adherence to manufacturing protocols. Contamination with pesticides, heavy metals, and microbes can compromise dietary safety. Therefore, regular laboratory analyses help ensure food safety and protect children from exposure to harmful components.

In identifying hygienic standards, attention is also paid to feeding routines. Children should receive three main meals and two snacks daily to meet energy requirements. The organization of meals, food preparation, and serving hygiene are also evaluated. This includes compliance with hygienic norms by kitchen staff, cleanliness of equipment, and appropriate food storage.

The results of dietary evaluations inform recommendations for improving nutrition and hygiene. These aim to ensure nutritional adequacy and food safety for all preschool children. A systematic, hygiene-based approach to nutritional assessment is crucial for promoting healthy development. This process helps optimize dietary plans, guarantee food

Date: 17<sup>th</sup> June-2025

safety, and improve children's overall health. These findings support scientifically based interventions to enhance preschool nutrition. Using laboratory and statistical methods in hygienic assessments is essential for a detailed understanding of nutritional conditions and their alignment with hygienic standards. These methods evaluate the biological safety of foods, nutrient content, and the impact of diets on children's health.

Laboratory tests are among the most reliable tools for assessing food safety and quality. These tests detect harmful chemicals, such as pesticides, heavy metals, microorganisms, and contaminants. For instance, biochemical and microbiological analyses are performed using modern technologies to verify the environmental safety of foods consumed by children. This ensures that preschool foods are free from dangerous substances and pathogens. The natural experiment method is fundamental in hygiene science, enabling researchers to study how environmental factors affect children's bodies under real-life conditions-during classes, physical activity, play, etc. It allows direct observation of dietary changes and their effects on development. Unlike lab settings, natural experiments occur in real environments, increasing reliability and practical relevance.

The aim of a natural experiment is to study how hygienically designed dietary changes affect children's health and development. For example, changes in daily nutrition, such as the inclusion of new nutrients, vitamins, and minerals, are followed by assessments of children's height, weight, and overall condition. In natural experiments, children are divided into control and experimental groups. The control group follows the usual diet, while the experimental group receives a modified diet. Outcomes are then compared to assess the effectiveness, safety, and acceptance of the changes. Other influencing factors such as physical activity, sleep patterns, and overall health are also tracked to ensure valid conclusions. Moreover, children's interest in food, eating habits, and psychological responses are observed during the study.

The strength of natural experiments lies in their comprehensive nature. Laboratory analyses assess food quality, while natural experiments assess the health impact. These methods together produce scientifically grounded recommendations for improving preschool nutrition. The natural experiment method is particularly valuable for assessing the physical and mental effects of dietary changes in preschool children, offering a scientific basis for enhancing food hygiene and health outcomes.

Statistical analysis plays a vital role in organizing and interpreting hygienic assessment results. It enables large-scale evaluation, identification of common dietary deficiencies by age group, and data comparison. Statistical analysis helps determine dietary effectiveness based on physiological indicators such as height and weight, and it also links nutrient balance to health outcomes.

In hygienic evaluations of preschool children, physiological and hygiene reference materials-like the "Textbook of Physiology and Hygiene"-are used to establish baseline developmental metrics. These guide the formulation of appropriate dietary standards. Hygienic assessment methods provide reliable tools for evaluating the quality of



**Date: 17<sup>th</sup> June-2025**



food provided to preschoolers. These tools determine whether food meets hygiene and sanitation standards. Laboratory tests detect harmful substances, while statistical analysis reveals the impact of dietary errors on health. Combining these methods is ideal. Lab findings and statistical data are jointly analyzed to create scientifically valid recommendations for improving preschool diets. Identifying and correcting deficiencies is essential for child health.

In summary, laboratory, natural experiment, and statistical methods are integral to hygienic assessment. They serve to enhance the quality and safety of preschool nutrition and provide the scientific foundation for continuous improvement. These approaches help solve critical issues in nutrition management and ensure the health of young children in early education settings.

#### **REFERENCE:**

1. Qurbonov, Sh.Q., Qurbonov, A.Sh. Fundamentals of Nutrition Physiology. Karshi, 2000, 205 pages.
2. Rahmatullayev, Y.Sh., Avliyoqulova, M.B., Hakimova, M.A. Actual Nutrition and Physical Development of Schoolchildren in the Southern Regions of the Republic of Uzbekistan. Khorezm Ma'mun Academy, 2023.
3. Rajamuradov, Z.T. et al. Physiology and Hygiene of Children and Adolescents: Textbook. Samarkand State University. – Tashkent: Tafakkur Bostoni, 2013, p. 11.
4. Rakhmatullayev, Y., Kurbanov, A.Sh., Hazratova, H.N. Physical Development of Rural and Urban School Children and Its Comparative Characteristics. Annals of R.S.C.B., ISSN: 1583-6258, Vol. 25, Issue 4, 2021, pp. 7603–7608.
5. Physiology and Hygiene of Children and Adolescents: Textbook. Z.T. Rajamuradov et al. Samarkand State University named after A. Navoi. – Tashkent: Tafakkur Bostoni, 2013, p. 11.
6. Chen, G. How Diet and Nutrition Impact a Child's Learning Ability. Public School Review, May 20, 2022.