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THE INFLUENCE OF NUTRITION AND DIGESTION PROCESSES ON CHILDREN'S PHYSIOLOGY

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Abstract: The article examines the impact of nutrition and digestion processes on children's physiology. It explores the importance of proper nutrition for the growth and development of a child's body, age-specific features of the digestive system, and the effects of nutrients on physical and mental health. Additionally, the effectiveness of teaching this topic through interactive methods in education is analyzed. **Keywords:** nutrition, digestion, children's physiology, growth, development, nutrients, interactive education, metabolism, nervous system, health.

Eating and digestion processes are one of the most important physiological mechanisms in human life, especially vital for children's bodies. Childhood is characterized by growth, development, and the formation of organ systems, which places high demands on the quality of nutrition and the efficiency of digestive processes (Guyton & Hall, 2016). Children's physiology differs significantly from that of adults, as their digestive system, metabolic processes, and ability to process nutrients are not yet fully developed. Therefore, proper nutrition ensures not only physical development in children, but also mental and emotional stability. For example, poor eating habits or digestive system disorders can lead to various diseases in children, including growth retardation, anemia, or decreased cognitive abilities (Karimov, 2022). This article aims to study the impact of nutrition on children's physiology, age-specific characteristics of digestive processes, and their

impact on the general condition of the body. The importance of teaching the subject through interactive methods in the educational process is also considered.

Children's food choices and eating habits directly affect their growth. As Karimov (2022) noted, proper nutrition ensures the development of the skeletal system, muscles, and nervous system in children. If there is not enough protein, vitamins, and minerals in the diet, this leads to growth retardation (Tukhtamurodov, 2019). For example, vitamin D deficiency can cause rickets, which causes bone deformation (Sadikova, 2020).

The frequency of meals and the quality of food are also important. Khudoyberdiyeva's (2022) studies have shown that a violation of the daily diet leads to an imbalance of metabolic processes in children. For example, frequently consumed sugary foods change blood sugar levels and reduce insulin sensitivity (Alberts et al., 2014).

The digestive system in children is still in the developmental stage, and the gastrointestinal tract and enzymatic activity are different from those of adults. According to Usmanov (2023), while the lactase enzyme is high in newborns, its activity decreases with age, which affects the ability to digest milk. At the same time, the acidity of gastric juice and the amount of pepsin enzyme also increase with age (Moore & Persaud, 2015).

The efficiency of the digestive process depends on the absorption of nutrients and energy metabolism. Romer & Parsons (1986), studying the phylogenetic development of the digestive system, emphasize that these processes have adaptive features in children. For example, the digestion of carbohydrates occurs not in the stomach, but in the small intestine, which ensures energy efficiency in children (Kardong, 2018).

Eating and digestive processes are closely related to the nervous system of children. Zaynabiddinov (2023) studies have shown that nutrient deficiencies have a negative impact on brain development, especially a lack of omega-3 fatty acids reduces

cognitive functions. At the same time, problems in the digestive process (for example, dysbacteriosis) can send signals to the nervous system via the vagus nerve, leading to mood changes (Ergashev, 2024).

The use of interactive methods in teaching this topic helps to form a deep understanding in students. Kholmuratova (2021) recommends visualizing digestive processes through virtual laboratories and 3D models. Baharian (2021) suggests analyzing the physiological effects of nutrients using graphic organizers. These methods serve to simplify complex aspects of children's physiology.

Conclusion. The processes of eating and digestion have a profound impact on all aspects of children's physiology, including physical growth, metabolic stability, and mental development. Proper nutrition determines not only the child's current health, but also his future quality of life. Age-specific features of the digestive system, the absorption of nutrients, and their effects on the nervous system indicate the complexity of the children's organism. Therefore, special attention should be paid to eating habits by parents, educators, and medical personnel. The use of interactive methods in education allows making this topic more interesting and understandable for students. In the future, it is recommended to use modern research and technologies more widely to study the physiological effects of children's nutrition and digestive processes. This will not only improve the quality of education, but also serve to strengthen children's health.

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