

**BIOLOGICAL ROLE OF ESSENTIAL FATTY ACIDS IN THE HUMAN ORGANISM****Askarova Khurshida Ekram kizi**

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**Annotation**

This article discusses the biological role of essential fatty acids in the human body and their importance for health. Essential fatty acids, in particular the omega-3 and omega-6 groups, are not synthesized independently in the body and must be obtained through food. These substances, as components of cell membranes, ensure their elasticity and functional activity. They also play an important role in protecting the cardiovascular system, regulating inflammatory processes, supporting brain activity, and strengthening the immune system. The article also analyzes the negative consequences associated with a deficiency of essential fatty acids. The results of the study substantiate the role of these substances in the diet and their importance in a healthy diet.

**Keywords**

essential fatty acids, omega-3, omega-6, biological role, cell membrane, metabolism, cardiovascular system, immune system, healthy nutrition, inflammatory process.

A balanced diet is one of the important factors in maintaining and strengthening human health. Among the beneficial substances in food, fats, especially essential fatty acids, occupy a special place. Essential fatty acids are substances that are not synthesized independently in the body, but are necessary for vital processes. They mainly belong to the omega-3 and omega-6 groups and perform various biological functions. This article will extensively cover the biological role of essential fatty acids in the human body, their physiological significance and health benefits.

Essential fatty acids are unsaturated fatty acids that are necessary for cell activity. The most important representatives are linoleic acid (omega-6) and alpha-linolenic acid (omega-3). These substances enter the body through food and can then be converted into other important biologically active compounds.

Omega-3 fatty acids include eicosapentaenoic (EPA) and docosahexaenoic (DHA) acids. They are mainly found in fish products and plant sources. Omega-6 fatty acids are widely distributed in vegetable oils.[3]

Essential fatty acids are an important component of cell membranes. They provide the fluidity and elasticity of the membrane and regulate the entry and exit of substances into the cell. Therefore, these substances are necessary for the normal functioning of cells.

In addition, essential fatty acids also serve as signaling molecules. They participate in intercellular communication processes and control various physiological reactions.

Essential fatty acids are very useful for the cardiovascular system. They reduce the amount of “bad” cholesterol in the blood and increase the level of “good” cholesterol. As a result, the risk of developing atherosclerosis decreases.

Omega-3 fatty acids regulate blood clotting and prevent blood clots. This reduces the risk of heart attacks and strokes. They also play an important role in normalizing blood pressure.

A large part of brain tissue consists of fats, in which essential fatty acids play an important role. DHA in particular is necessary for the development and functioning of brain cells.

Essential fatty acids improve the transmission of nerve impulses, enhance memory and attention. They also have a positive effect on reducing depression and stress. Therefore, these substances are important for the development of children and the mental activity of adults.[2]

Essential fatty acids also play an important role in strengthening the immune system. They have an anti-inflammatory effect and protect the body from various diseases.

Omega-3 fatty acids reduce inflammatory mediators and prevent the development of autoimmune diseases. Omega-6 fatty acids are involved in the regulation of immune reactions.

Essential fatty acids are actively involved in metabolism. They serve as a source of energy and regulate lipid metabolism. In addition, they play an important role in the synthesis of hormones.

Biologically active substances such as prostaglandins, thromboxanes and leukotrienes are formed from essential fatty acids. These substances control many physiological processes in the body.

Essential fatty acids are also important for skin and hair health. They maintain skin moisture, increase elasticity and slow down the aging process. They also help prevent skin diseases.

And for hair, these substances are nutrients have a strengthening and strengthening effect. They reduce hair loss and stimulate its growth.[1]

A deficiency of essential fatty acids can lead to various negative consequences. These include dry skin, brittle hair, decreased immunity, and an increased risk of cardiovascular diseases.

In children, a deficiency of these substances can lead to stunted growth and development. Therefore, it is important to have a sufficient amount of essential fatty acids in the diet.

The main sources of essential fatty acids are vegetable oils (sunflower, flaxseed, soybean), fish products, nuts, and cereal grains. Regular consumption of these products provides the body with essential fatty acids.

The modern food industry also produces products enriched with essential fatty acids. This is important in ensuring a healthy diet.

In recent years, many scientific studies have been conducted on the health benefits of essential fatty acids. These studies confirm their role in the prevention of heart disease, diabetes, obesity, and neurological diseases.

In the future, there are prospects for creating new drugs and functional food products based on these substances. This will be of great importance in improving human health.[4]

In conclusion, essential fatty acids are vital substances for the human body. They ensure the normal functioning of cellular activity, the cardiovascular system, the nervous system, and the immune system. Consuming these substances in sufficient quantities is an important condition for a healthy lifestyle. By including foods rich in essential fatty acids in the diet, many diseases can be prevented and overall health can be improved.

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