



## THE ROLE OF MINERALS AND VITAMINS IN HUMAN NUTRITION

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### Abstract

Health is the greatest value of human life. Everything that makes our life full and happy depends on the state of health: the quality of life, its duration, physical activity, etc. There is a well-founded scientific opinion that with rational nutrition, the duration of human life can reach 120 - 150 years. Food provides the body with the energy necessary for movement and labor activity, serves as a source of "plastic" substances, proteins, fats and carbohydrates, as well as vitamins and mineral salts, due to which cells and tissues are renewed.

**Keywords:** phosphorus, calcium, sodium, potassium, thiamine, pyridoxine, folic acid.

### Introduction

*Minerals*- do not have energy value, like proteins, fats and carbohydrates. However, without them, human life is impossible. Minerals perform a plastic function in the processes of human life, participate in the metabolism of all human tissues, but their role is especially great in the construction of bone tissue, where elements such as phosphorus and calcium predominate. Minerals are involved in the most important metabolic processes of the body - water-salt, acid-base, determine the state of the blood coagulation system, and participate in muscle contraction. Many enzymatic processes in the body are impossible without the participation of minerals [1-9].

Absorbed in the gastrointestinal tract, minerals enter the bloodstream. Many of them combine there with transport proteins and in the form of such complexes are transferred to places of active exchange or accumulation. Mineral substances are excreted from the body mostly with urine and sweat, insoluble in feces. The human body needs minerals, and in unequal quantities [10-19].



Vitamins are substances of protein origin, metabolic regulators involved in complex biochemical processes in the human body.

With a lack of vitamins, the supplied activity of the body is disrupted, and efficiency is reduced.

Water soluble vitamins.

Vitamin B (thiamine) is used for disorders of the nervous system, memory impairment, insomnia, fatigue. It has a beneficial effect on the cardiovascular system, normalizes acidity, the activity of the gastrointestinal tract. Participates in carbohydrate metabolism - and the more carbohydrates a person consumes, the more vitamin B his body needs, respectively. Vitamin B is involved in the synthesis of fatty acids, which prevent the formation of stones in the liver and gallbladder. Improves the functioning of the digestive system and fat metabolism in the body. Contained in legumes - beans, peas, as well as in unpolished rice, nuts, raisins, green peas, potatoes [20-37].

Without vitamin B, the normal functioning of the visual apparatus, the central and peripheral nervous system is impossible. He takes part in protein-fat metabolism. Lack of vitamin B2 in the body causes photophobia, dry nails and skin, cracks in the corners of the lips. Found in green vegetables, spinach.

Vitamin B3 (vitamin PP, nicotinic acid) is involved in the process of cellular respiration, regulates the metabolism of proteins and carbohydrates in the body, normalizes the secretory and motor functions of the gastrointestinal tract, improves the functioning of the cardiovascular system. Promotes the production of insulin, cortisone, thyroxine in the body, lowers cholesterol levels in the blood. It is used for the prevention and treatment of atherosclerosis, diseases of the gastrointestinal tract, poorly healing wounds and ulcers. Contained in legumes - beans, peas, beans, as well as green vegetables, peppers, mushrooms (champignons and porcini), asparagus, beets, cauliflower [26-41].

Vitamin B4 helps to eliminate toxins from the body, lowers cholesterol levels, participates in the transmission of nerve impulses, and improves memory. Found in green vegetables.

Vitamin B5 is one of the few vitamins synthesized by the human body. Regulates the state of the central and peripheral nervous systems, the work of the adrenal glands, takes part in the synthesis of hemoglobin, antibodies.



Prevents fatigue, relieves stress. Found in legumes and mushrooms.

Vitamin B plays an important role in nitrogen metabolism, ensures the normal absorption of proteins and fats, and is involved in the process of hematopoiesis. It is necessary for increased fatigue, anemia, dermatitis, eczema, neuritis and other diseases. With a deficiency, the functions of the nervous system of the brain, blood, and vascular function are disrupted. This can affect the development of various skin diseases. Found in cereal sprouts, legumes, walnuts and hazelnuts, carrots, lettuce, potatoes, tomatoes, spinach, cauliflower, cabbage, cherries, strawberries, oranges and lemons.

Vitamin B9 (folic acid) plays an important role in amino acid metabolism and is essential for normal tissue growth and development. It is very important for the processes of hematopoiesis and the normal functioning of the digestive tract. Vitamin deficiency causes a special form of anemia, the digestive system is affected. Vitamin B9 is found in lettuce, early cabbage, onions, parsley, spinach, green peas. In the normal state of the intestinal micro flora, the body can synthesize folic acid on its own [38-47].

Vitamin C (ascorbic acid) increases the body's resistance, stimulates the functions of the central nervous system and the activity of the endocrine glands, increases capillary permeability, promotes the absorption of iron by the body. Vitamin C prevents circulatory disorders, the formation of carcinogens, is of great importance for the prevention of diseases of the upper respiratory tract. The lack of vitamin C is manifested in rapid fatigue, a general decrease in immunity, bleeding gums. Prolonged lack of vitamin C in food leads to the development of scurvy, which is characterized by loosening, swelling and bleeding of the gums and loss of teeth, small subcutaneous hemorrhages. Vitamin C is not accumulated and synthesized in the body, and a person receives all the necessary amount from food. Vitamin C found in vegetables, fruits and berries

Vitamin C is found in rose hips, citrus fruits, black currants, dogwood, mountain ash, sea buckthorn, potatoes, cabbage, rutabaga, green onions, dill, red pepper, parsley, watercress, horseradish, vegetable tops [48-51].

Vitamin C is very unstable. It quickly oxidizes, breaks down when exposed to high temperatures. The content of vitamin C decreases rapidly during storage of fruits, vegetables and berries during cooking.



Therefore, it should be borne in mind that if, when cooking, vegetables are lowered not into cold, but into boiling water, this will make it possible to preserve the vitamin - both in the vegetables themselves and in the broth or broth. Vitamin C is well preserved in fresh and sauerkraut.

*Water-* makes up about 65% of the total body weight of a person. A special place for normal life and the preservation of high efficiency are places in which the supply of water is stored and then gradually consumed. The main savings places are muscles, skin, liver, spleen.

Normally, water is excreted through the kidneys, skin, and lungs. Carbohydrate food contributes to water retention, and dairy and vegetable food - to its increased release.

### Conclusion

During muscular work, the formation of water increases, but its return also increases. The amount of water that should enter the human body per day depends on many factors: the level of metabolic processes, the state of the nervous system, the quantity and quality of pleasant nutrition, the volume and intensity of working capacity, temperature and air humidity.

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