

DIGESTION AND METABILITY IN THE HUMAN BODY

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Today, the process of digestion is well known. This was made possible thanks to the efforts of scientists who have tried for many years to figure out what happens in the body when we swallow food. This involuntary process has been a mystery for a very long time [5].

As we have found that digestion is a chemical, sometimes also mechanical processing of food and it is a set of processes that ensure the breakdown of food substances into components suitable for absorption and participation in metabolism. Mechanical processing is grinding and mixing. Chemical processing is carried out by enzymes - substances of a protein nature and consists in the splitting of complex molecules into simple ones, capable of being absorbed in the intestine and entering the blood and lymph from the digestive canal [2].

Our findings reveal the digestive system includes the alimentary canal and digestive glands. The digestive canal includes the following sections: oral cavity, pharynx, esophagus, stomach, duodenum, small and large intestine.

Moving along the digestive tract, food experiences both mechanical and chemical influences, breaking down into molecules at the end. For a chemical effect on food, special glands enter the robots that secrete the most important enzymes necessary for the digestion and assimilation of food. These glands are: salivary glands - secrete saliva; the stomach glands produce gastric juice; pancreas - secretes enzymes to break down food in the small intestine; liver - secretes bile; intestinal glands - secrete intestinal juices [1].

Next, we should take a closer look at the metabolism itself.

Our study clarifies the metabolism and energy consists of two interrelated and opposite processes - assimilation and dissimilation. Assimilation, anabolism, or plastic metabolism is a set of reactions for the synthesis of high molecular weight organic substances, accompanied by the absorption of energy due to the breakdown of ATP molecules. Dissimilation, catabolism, or energy metabolism is a set of reactions of decomposition and oxidation of organic substances, accompanied by the release of energy and its storage in the synthesized ATP molecules.

Our findings confirm that metabolism as the main process of life can be divided into three stages. The first is enteral metabolism (digestion) - is the mechanical and chemical processing of food components in the digestive and absorption organs.

The second stage is intermediate or intracellular metabolism, which includes the processes of decomposition and synthesis of substances in body tissues. It is accompanied by the formation of a large number of intermediate and later end products of metabolism. Intermediate exchange is characterized by step-by-step processes. In this case, high-molecular and low-molecular compounds, before being transformed into end products of metabolism (CO_2 , H_2O , urea, etc.), undergo a number of intermediate stages, in which the decomposition reactions alternate with the synthesis processes.

The third stage is the excretion of end products of metabolism from the body with urine, feces, exhaled air, etc [3].

We can confirm the value of ATP in metabolism. The energy released during the breakdown of organic substances is not immediately used by the cell, but is stored in the form of high-energy compounds, usually in the form of adenosine triphosphate (ATP). By its chemical nature, ATP belongs to mononucleotides and consists of the nitrogenous base of adenine, the carbohydrate ribose, and three phosphoric acid residues.

The energy released during the hydrolysis of ATP is used by the cell to perform all kinds of work. Significant amounts of energy are spent on biological synthesis. ATP is a universal source of energy supply for the cell. The stock of ATP in the cell is limited and is replenished due to the process of phosphorylation, which occurs with different intensities during respiration, fermentation and photosynthesis. ATP is renewed extremely quickly (in humans, the lifespan of one ATP molecule is less than 1 minute).

To summarize, the basis of cell life is metabolism and energy conversion - metabolism. Cell metabolism is a complex multistage process consisting of assimilation (synthesis reactions) and dissimilation (decay reactions). These processes are interconnected and provided by the enzymatic systems of the cell. Primary synthesis of organic matter - photosynthesis is carried out from inorganic substances under the influence of the energy of sunlight. It ensures the accumulation of this energy into the energy of chemical bonds of organic substances.

All other metabolic processes occurring in the cell use the energy of chemical bonds stored in the primary synthesized organic substances. The transformation of energy in the cell is carried out by a universal source of energy - ATP [4].

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