

Enzymes - description, benefits, effects on the body and the best sources.

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Abstract. Enzymes are the workhorses of our body. If you look at an academic reference book, you can find out that the word enzymes translated from Latin means leaven. And it is thanks to this kind of leaven that a huge number of chemical processes occur in our body every second.

Each of these chemical processes has its own specialization. During one, proteins are digested, during the other, fats, and the third is responsible for the absorption of carbohydrates. In addition, enzymes are capable of converting one substance into another, more important for the body at the moment.

Key words: Enzymes, general characteristics, daily requirement, digestibility, beneficial properties, signs of deficiency, signs of excess

Enzyme-rich foods:

- wheat sprouts
- Papaya
- Pineapple [1]
- Avocado [2]
- Nuts
- Sesame
- Cottonseed oil
- Beef tripe
- Garlic [3]
- Horseradish
- Cowberry
- Soybeans
- Cheese
- Tea mushroom
- Malt

General characteristics of enzymes

The discovery of enzymes occurred in 1814, thanks to the conversion of starch into sugar. This transformation occurred as a result of the action of the amylase enzyme isolated from barley seedlings.

In 1836, an enzyme was discovered, later named pepsin. It is produced independently in our stomach, and with the help of hydrochloric acid it actively breaks down proteins. Pepsin is also actively used in cheese making. And in yeast transformation, alcoholic fermentation is caused by an enzyme called zymase.

According to their chemical structure, enzymes belong to the class of proteins [4]. These are biocatalysts that carry out the transformation of substances in the body. Enzymes according to their purpose are divided into 6 groups: lyases, hydrolases, oxidoreductases, transferases, isomerases and ligases.

In 1926, enzymes were first isolated from living cells and obtained in crystalline form. Thus, it became possible to use them in medications to improve the body's ability to digest food.

Today, science knows a large number of various enzymes, some of which are produced by the pharmaceutical industry as medicines and dietary supplements.

Pancreatin, extracted from the pancreas of cattle, bromelain (pineapple enzyme), and papain, obtained from the exotic papaya fruit, are in great demand today. And fatty foods of plant origin, for example, avocados, and the pancreas of animals and humans contain the enzyme lipase, which is involved in the breakdown of fats.

Daily requirement for enzymes

The total number of enzymes required by the body for full functioning during the day is difficult to calculate, due to the large number of enzymes that exist in our body in very different quantities.

If gastric juice contains few proteolytic enzymes, then the amount of products containing the necessary enzymes should be increased. Pancreatin, for example, is prescribed in amounts ranging from 576 mg per day and ending, if necessary, with a 4-fold increase in the dosage of this medication.

The need for enzymes increases:

- with sluggish functioning of the gastrointestinal tract;
- for some diseases of the digestive system;
- overweight;
- weak immunity;
- intoxication of the body;
- in old age, when your own enzymes are less well produced.

The need for enzymes is reduced:

- in the case of an increased amount of proteolytic enzymes of gastric juice;
- individual intolerance to foods and medications containing enzymes.

Beneficial properties of enzymes and their effect on the body

Enzymes are involved in the digestive process, helping the body process food. They normalize metabolism, promoting weight loss. They strengthen the immune system [5] and remove toxins from the body.

Promote the renewal of body cells and accelerate the process of self-cleaning of the body. Converts nutrients into energy. Accelerate wound healing.

In addition, foods rich in enzymes increase the number of antibodies that successfully fight infections, thereby strengthening our immunity. The presence of digestive enzymes in food facilitates its processing and proper absorption of nutrients.

Interaction with Essential Elements

The main components of our body - proteins, fats [6], carbohydrates [7] - interact closely with enzymes. Vitamins also contribute to the more active functioning of certain enzymes.

Enzyme activity requires an acid-base balance in the body, the presence of coenzymes (vitamin derivatives) and cofactors. And also the absence of inhibitors - certain substances, metabolic products that suppress the activity of enzymes during chemical reactions.

Signs of enzyme deficiency in the body:

- disturbances in the gastrointestinal tract;
- general weakness;
- malaise;
- joint pain [8];
- Achilles gastritis;
- increased unhealthy appetite.

Signs of excess enzymes in the body:

- headache [9];
- irritability;
- allergies [10] .

Factors influencing the content of enzymes in the body

Regular consumption of enzyme-containing foods helps replenish the lack of essential enzymes in the body. But for their full absorption and vitality, it is necessary to ensure a certain acid-base balance, characteristic only of a healthy body.

In addition, with some diseases of the gastrointestinal tract, certain types of enzymes are no longer produced by the body in sufficient quantities. In this case, dietary supplements and some medications come to the rescue.

Enzymes for beauty and health

Since enzymes transform some compounds into other, more important ones, their functioning determines not only the health of our entire body, but also affects the appearance of skin [11], hair [12], nails [13], and optimal body weight.

Therefore, by consuming foods containing enzymes, you can not only improve the overall nutrition of the whole body, but also enhance your external beauty and attractiveness. No wonder they say that beauty is, first of all, excellent health of the whole body!

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