

Galactose – description, benefits, effect on the body and the best sources.

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Abstract. From the first days of life, a child needs galactose for growth and strengthening of the immune system. The baby receives a large amount of this substance through mother's milk. Over the years, the need for galactose decreases, but still remains one of the main ones.

Galactose is one of the main sources of energy for the body. It is simple milk sugar. It is necessary for the full functioning of our body, and is also used in medicine and microbiology.

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

Galactose-rich foods:

- Serum
- Milk
- Kefir
- Curdled milk [1]
- Ryazhenka [2]
- Yogurt [3]
- Ice cream
- Cottage cheese [4]
- Sour cream
- Cheese
- Margarine
- Celery
- Butter [5]
- Cream
- Milk chocolate

General characteristics of galactose

Galactose is a monosaccharide that is very common in nature. It is close in composition to glucose, only slightly different from it in its atomic structure.

Galactose is found in some microorganisms and in almost all products of plant and animal origin. Its highest content is found in lactose.

There are two types of galactose: L and D. The first, in the form of a share of polysaccharides, was found in red algae. The second is much more common; it can be found in many organisms as part of various substances - glycosides, oligosaccharides, a number of bacterial and plant polysaccharides, pectin substances, gums. When galactose oxidizes, it creates galacturonic and galactonic acids.

Galactose is used in medicine, as a contrast agent for ultrasound, and also in microbiology to determine the type of microorganisms.

Daily requirement for galactose

Galactose levels should remain at 5 mg/dL in the blood. You can easily get your daily requirement of galactose if you consume dairy products or celery. Despite the fact that galactose is found very often in foods, it simply does not exist in pure form in organisms or foods. That is, galactose in products should be looked for by the presence of lactose.

The need for galactose increases:

- in infants;
- during breastfeeding (galactose is a necessary component for lactose synthesis);
- with increased physical activity [6];
- with increased mental stress [7];
- under stress [8];
- with constant fatigue.

The need for galactose is reduced:

- in old age;
- if you are allergic [9] to galactose or dairy products;
- for intestinal diseases;
- for inflammatory diseases of the female genital organs;
- with heart failure;
- if absorption is impaired - galactosemia.

Galactose digestibility

Galactose is quickly absorbed by the body. As a monosaccharide, galactose represents the fastest source of energy.

In order for the body to absorb galactose, it enters the liver and is converted into glucose. Like any carbohydrate, the level of absorption of galactose is very high.

Impaired absorption of galactose is called galactosemia and is a serious disease that is inherited. The essence of galactosemia is that galactose cannot be converted into glucose due to the lack of an enzyme.

As a result, galactose accumulates in body tissues and blood. Its toxic effect destroys the lens in the eye, the liver and the central nervous system. If not treated promptly, the disease can be fatal as it causes cirrhosis of the liver.

Galactosemia is treated mainly with a strict diet, in which the patient does not consume foods that contain galactose or lactose.

Beneficial properties of galactose and its effect on the body

- Galactose is actively involved in the creation of cell walls and also helps tissues be more elastic. It is part of the lipids of the brain, blood and connective tissue.
- Galactose is indispensable for both the brain [10] and the nervous system. Normalized galactose levels prevent the development of dementia and nervous disorders. The risk of developing Alzheimer's disease is reduced.
- It also has a beneficial effect on the functioning of the gastrointestinal tract.
- Galactose takes part in the creation of hemicellulose, which is necessary for the creation of cell walls.
- Prevents the development of certain diseases of the nervous system.

Interaction with other elements

Galactose reacts with glucose to create the disaccharide you've probably heard a lot about - lactose. Easily dissolves in water.

Signs of galactose deficiency in the body

Signs of a lack of galactose are similar to a lack of carbohydrates [11] - a person gets tired quickly and severely, and feels that it is difficult for him to concentrate. He gets depressed easily and is unable to develop physically.

Galactose, like glucose, is a source of energy for the body, so its level should always be normal.

Signs of excess galactose in the body

- disruption of the nervous system and hyperactivity;
- liver dysfunction;
- destruction of the eye lens.

Factors influencing galactose content in the body

Galactose enters the body with food and is also formed in the intestines by hydrolysis from lactose.

The main factor influencing the galactose content is the presence of a special enzyme that converts galactose into a substance (glucose-1-phosphate) that can be absorbed by humans. In the absence of this enzyme, an imbalance of galactose in the body begins, which leads to the development of diseases.

Regular consumption of foods containing galactose is also very important. For a healthy person, insufficient consumption of appropriate foods leads to developmental disorders, both physical and mental.

Galactose for beauty and health

Galactose is very important for the human body as a source of energy. It allows him to grow and develop, remain cheerful and energetic.

Galactose is important for the physical development of the body, so athletes actively consume foods and medications containing this substance.

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