

Chitin - description, benefits, effect on the body and the best sources

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Abstract. When it comes to chitin, school biology lessons immediately come to mind. Arthropods, crustaceans and everything connected with them...

But despite this, chitin also turned out to be very useful for humans.

Keywords: chitin, general characteristics, daily requirement, digestibility, beneficial properties, signs of deficiency, signs of excess

General characteristics of chitin

Chitin was first discovered in 1821 by the director of the botanical garden, Henry Bracon. During chemical experiments, he discovered a substance that could not be dissolved in sulfuric acid. And two years later, chitin was extracted from tarantula shells. At the same time, the term “chitin” was proposed by the French scientist Odier, who studied the substance using the outer shells (external skeleton) of insects.

Chitin is a polysaccharide that belongs to the group of difficult-to-digest carbohydrates. In its physicochemical properties, as well as its biological role, it is close to plant fiber.

Chitin is part of the cell membrane of fungi, as well as some bacteria.

Formed from amino sugar residues of acetylglucosamine, chitin is one of the most abundant polysaccharides in nature.

This is a substance found in fungi, bacteria, and arthropods. Several types of chitin have been isolated, differing in their chemical composition and properties.

Products with the maximum chitin content:

- gladius squid
- Cancers
- Crabs (shell)
- Moss mushroom (Polish mushroom)
- Shrimps
- Lobsters
- White mushroom [1]
- Gamarus
- Japanese mushroom
- Saffron milk caps
- Milk mushrooms
- Antarctic krill
- Russula

- Champignon
- Baker's yeast [2]

Daily requirement for chitin

Consuming more than 3000 mg per day may cause problems with the functioning of the gastrointestinal tract. Therefore, it is advisable to follow the golden mean when using any nutritional components.

The need for chitin increases:

- with excess body weight;
- violation of fat metabolism in the body;
- high levels of cholesterol [3] in the blood;
- liver steatosis;
- with excess fat in the diet;
- frequent constipation [4];
- diabetes mellitus [5];
- allergies [6] and intoxication of the body.

The need for chitin is reduced:

- with excessive gas formation;
- dysbacteriosis;
- gastritis [7], pancreatitis [8] and other inflammatory diseases of the gastrointestinal tract.

Digestibility of chitin

Chitin is a solid, transparent substance that is not digested by the human body. Like cellulose [9], chitin improves gastrointestinal motility and also has other beneficial properties for the body.

Beneficial properties of chitin and its effect on the body

Based on some medical studies, conclusions have been drawn about the benefits of chitin for the human body. Chitin is used for hypertension [10], obesity [11], and diabetes, as an immunomodulatory substance that prevents early aging of the body. Just like fiber [12], chitin improves the functioning of the intestines, facilitating the evacuation of contents, and cleanses the intestinal villi well. Cleans blood vessels from harmful cholesterol [13].

The latest medical research indicates the benefits of chitin in the prevention and treatment of many cancers [14].

Interaction with other elements

Chitin interacts with polysaccharides and proteins [15]. Insoluble in water and other organic solvents, although it is capable of retaining moisture in the body. When heated, interacting with certain salts, it is hydrolyzed, that is, destroyed. Reduces the absorption of chlorine ions [16] into the circulatory system, thereby correcting the water-salt balance in the body.

Signs of a lack of chitin in the body:

- obesity, overweight;
- sluggish functioning of the gastrointestinal tract (GIT);
- unpleasant body odor (excess waste and toxins);
- frequent allergic diseases;
- problems with cartilage and joints.

Signs of excess chitin in the body:

- disturbances in the functioning of the stomach (nausea);
- flatulence, bloating;
- discomfort in the pancreas area;
- allergic reactions to chitin.

Factors influencing the content of chitin in the body

The human body does not produce chitin on its own, so its content in the body depends entirely on its availability in the diet. Based on this, it follows that if you want to be healthy, you need to regularly consume chitin in the form of its monomer - *chitosan*.

Chitin for beauty and health

Recently, cosmetologists are increasingly writing about the positive effect discovered from the use of medicinal and cosmetic products with chitin. It is added to shampoos to increase hair volume and elasticity, used in lotions, added to creams, shower gels, and personal hygiene products (gel toothpastes). It is included in various styling sprays and varnishes.

Chitin is used as dietary supplements in the diet to improve skin elasticity, as an anti-inflammatory [17] and moisturizing agent. Creates a protective film on the skin and hair, thereby facilitating the combing process, prevents the skin from losing moisture and brittle nails.

Argentine scientists have identified the peculiarity of chitin as an assistant regenerator for the speedy healing of the skin when damaged. In addition, chitin is transformed by heating into a new water-soluble substance, *chitosan*, which is part of anti-aging cosmetics. Thanks to anti-aging cosmetics, the skin smoothes out faster and wrinkles become less noticeable. The skin takes on a fresher and more youthful appearance, thanks to the property of chitin to relieve spasm of the smallest capillaries of the skin.

As for the benefits of chitin for slimming your figure, it is obvious. Chitosan is also called animal fiber, which binds in the body and removes excess fat, helps with overeating, increases the number of bifidobacteria in the intestines and gently helps reduce excess weight. In addition, it is responsible for the adsorption of pollutants, after the evacuation of which our body feels light and free.

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