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

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Abstract. Cysteine is a non-essential amino acid that can be synthesized in our body from serine and vitamin B6. Sometimes, hydrogen sulfide can be used as a source of sulfur for the synthesis of cysteine. Cysteine promotes digestion. In addition, it neutralizes some toxic substances in the body.

According to scientists from the Koblek Institute, cysteine helps protect our body from the damaging effects of radiation. Belongs to the group of antioxidants. Its effect on the body is greatly enhanced by the simultaneous use of selenium and vitamin C. It has been noted that cysteine can also prevent the toxic effects of alcohol and nicotine on the human liver, lungs, heart and brain.

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

Cysteine-rich foods:

- Pork
- Salmon fillets
- Chicken
- Chicken egg [1]
- Cow's milk
- Sunflower seeds
- Walnut [2]
- Corn [3] flour
- Brown rice [4]
- Soybeans
- Whole peas, shelled [5]
- Red pepper [6]
- Garlic [7]
- Broccoli [8]
- Brussels sprouts

General characteristics of cysteine

Cysteine is part of keratins, which in turn are a protein derivative of nails, skin and hair. In addition, this amino acid is involved in the synthesis of digestive enzymes.

Cysteine is involved in the biosynthesis of amino acids: cystine, glutathione, taurine and coenzyme A. Cysteine is registered as a food additive E920.

At emergency stations, cysteine is used as a means of protecting the liver from damage from an overdose of acetaminophen.

Daily requirement for cysteine

The daily requirement for cysteine is up to 3 mg per day. In order for this amino acid to have the most beneficial effect on the body, it is imperative to think about activator substances. Activators are vitamin C [9] and selenium [10].

It should be noted that vitamin C should be taken 2-3 times more (in mg) than cysteine. In addition, the daily requirement for cysteine should be coordinated taking into account the consumption of products containing this amino acid in its natural form.

The need for cysteine increases:

- when performing work involving harmful chemicals;
- during the treatment of chronic heart and vascular diseases;
- while in an area characterized by a high degree of radioactive radiation;
- for respiratory diseases;
- in the initial stages of cataracts [11];
- for rheumatoid arthritis [12];
- for oncological diseases, as part of complex therapy.

The need for cysteine decreases:

- while consuming a large number of foods from which cysteine can be synthesized in our body independently (onions [13], garlic [14], eggs, cereals, baked goods);
- during pregnancy and lactation [15,16];
- in case of arterial hypertension;
- for diseases of the thymus gland;
- In cases of diabetes mellitus, cysteine can inactivate insulin.

Cysteine digestibility

Cysteine is best absorbed in the presence of vitamin C, selenium and sulfur [17]. And, therefore, for complete absorption of cysteine, and to provide them with the corresponding functions, you should daily consume products that contain cysteine, its derivatives and activator elements.

Beneficial properties of cysteine and its effect on the body

Cysteine reduces the risk of myocardial infarction [18]. Gives elasticity to blood vessels. Increases the body's defenses and its resistance to various infections. Actively fights cancer. It accelerates healing processes and plays an important role in activating lymphocytes and leukocytes.

Cysteine helps maintain excellent physical shape by stimulating rapid recovery. This occurs due to the acceleration of fat burning and the formation of muscle tissue.

Cysteine has the ability to destroy mucus in the respiratory tract. Due to this, it is often used for bronchitis [19] and emphysema. Instead of cysteine, you can use the amino acid cystine or N-acetylcysteine.

N-acetylcysteine helps reduce the negative effects of chemotherapy and radiation therapy on the human body. In addition, it speeds up recovery after surgery [20], burns [21] and frostbite. Stimulates the activity of white blood cells.

Interaction with Essential Elements

Cysteine interacts with methionine, sulfur and ATP. In addition, it combines well with selenium and vitamin C.

Signs of cysteine deficiency in the body:

- brittle nails;
- dry skin, hair;
- cracks in the mucous membranes;
- memory impairment;
- weak immunity;
- depressed mood;
- problems with the cardiovascular system;
- dysfunction of the gastrointestinal tract.

Signs of excess cysteine in the body:

- irritability;
- general discomfort in the body;
- blood thickening;
- disorders of the small intestine;
- allergic reactions [22].

Cysteine for beauty and health

Cysteine normalizes the condition of hair, skin and nails [23-25]. Improves mood [26], affects the full functioning of the cardiovascular and digestive systems, affects brain function [27], strengthens the immune system [28].

The food additive E920 (cysteine) is commonly found in flour and all kinds of seasonings. For example, in chicken. Cysteine can be found in various medications and household chemicals. It is often added to shampoos.

Improves the taste of food products and has a beneficial effect on health. In general, cysteine is well tolerated by the body as a dietary supplement. The exception is people prone to allergies. People who do not tolerate monosodium glutamate are also at risk.

So, in the article we talked about the nonessential amino acid cysteine, which under favorable conditions can be produced by the body independently. The beneficial properties of this amino acid have been sufficiently studied so that we can talk about its benefits for our health and external attractiveness!

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