

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

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Abstract. Phenylalanine belongs to the group of essential amino acids. It is a building material for the production of proteins such as insulin, papain, and melanin. In addition, it promotes the elimination of metabolic products by the liver and kidneys. It also plays an important role in improving the secretory function of the pancreas.

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

Foods rich in phenylalanine:

- Roasted peanuts
- Parsley leaves [1]
- Chanterelles (dried)
- soybean sprouts
- White mushroom [2]
- Sesame
- Jerusalem artichoke
- Dried apricots
- Dried bananas [3]
- Chicken
- Dried figs
- Yogurt 3.5% fat [4]
- Sour cream 10% fat
- "Gouda", "Mozzarella" and "Gorgonzola"
- Powdered milk

General characteristics of phenylalanine

Phenylalanine is an aromatic amino acid that is part of proteins [5] and is also available in the body in free form. From phenylalanine, the body produces a new, very important amino acid, tyrosine.

For humans, phenylalanine is an essential amino acid, since it is not produced by the body itself, but is supplied to the body along with food. This amino acid has 2 main forms - L and D.

The L shape is the most common. It is part of the proteins of the human body. The D-form is an excellent analgesic. There is also a mixed LD form that has combined properties. The LD form is sometimes prescribed as a dietary supplement for PMS.

Daily requirement for phenylalanine

- up to 2 months, phenylalanine is required in an amount of 60 mg/kg;
- up to 6 months - 55 mg/kg;

- up to 1 year - 45-35 mg/kg;
- up to 1.5 years - 40-30 mg/kg;
- up to 3 years - 30-25 mg/kg;
- up to 6 years – 20 mg/kg;
- over 6 years of age for children and adults – 12 mg/kg.

The need for phenylalanine increases:

- for chronic fatigue syndrome (CFS);
- depression [6];
- alcoholism and other forms of addiction;
- premenstrual tension syndrome (PMS) [7];
- migraine [8];
- vitiligo [9];
- in infancy and preschool age;
- in case of intoxication of the body;
- with insufficient secretory function of the pancreas.

The need for phenylalanine decreases:

- with organic lesions of the central nervous system;
- for chronic heart failure;
- with phenylketonuria;
- with radiation sickness;
- during pregnancy [10];
- diabetes [11];
- high blood pressure.

Phenylalanine absorption

A healthy person absorbs phenylalanine well. When consuming foods rich in phenylalanine, people who have a hereditary disorder of amino acid metabolism called phenylketonuria should be careful.

As a result of this disease, phenylalanine is not able to be converted into tyrosine, which has a negative effect on the entire nervous system and the brain in particular. In this case, phenylalanine dementia, or Felling's disease, develops.

Fortunately, phenylketonuria is an inherited disease that can be overcome. This is achieved with the help of a special diet and special treatment prescribed by a doctor.

Beneficial properties of phenylalanine and its effect on the body:

Once in our body, phenylalanine can help not only with protein production, but also with a number of diseases. It helps well with chronic fatigue syndrome. Provides rapid restoration of vigor and clarity of thinking, strengthens memory [12]. Acts as a natural pain reliever. That is, with sufficient levels of it in the body, sensitivity to pain is significantly reduced.

Helps restore normal skin pigmentation. It is used for attention disorders and hyperactivity. Under certain conditions, it is converted into the amino acid tyrosine, which in turn is the basis of two neurotransmitters: dopamine and norepinephrine. Thanks to them, memory improves, libido increases, and learning ability increases.

In addition, phenylalanine is the starting material for the synthesis of phenylethylamine (the substance responsible for the feeling of falling in love), as well as epinephrine, which improves mood.

Phenylalanine is also used to reduce appetite and reduce cravings for caffeine [13]. It is used for migraines [14], muscle cramps in the arms and legs, postoperative pain, rheumatoid arthritis [15], neuralgia, pain syndromes and Parkinson's disease [16].

Interaction with other elements

Once in our body, phenylalanine interacts with compounds such as water [17], digestive enzymes and other amino acids. As a result of this, tyrosine, norepinephrine and phenylethylamine are formed. In addition, phenylalanine is able to interact with fats.

Signs of a lack of phenylalanine in the body:

- weakening of memory;
- Parkinson's disease;
- depression;
- chronic pain;
- loss of muscle mass and sudden weight loss;
- hair bleaching.

Signs of excess phenylalanine in the body:

- overexcitation of the nervous system;
- memory loss;
- disruption of the entire nervous system.

Factors influencing the content of phenylalanine in the body:

Systematic consumption of foods containing phenylalanine and the absence of hereditary Felling's disease are two main factors that play a major role in sufficiently supplying the body with this amino acid.

Phenylalanine for beauty and health

Phenylalanine is also called the good mood amino acid [18]. And a person in a good mood always attracts the glances of others, being particularly attractive. In addition, some people, with the help of phenylalanine, manage to reduce unhealthy cravings for tasty foods and become slimmer.

Sufficient phenylalanine content in the body gives hair a rich color [19]. And by giving up regular coffee consumption and replacing it with phenylalanine-containing products, you can improve your complexion and improve your health.

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