

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

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Abstract. Isoleucine is an aliphatic α -amino acid found in all natural proteins. It is one of the essential amino acids, since it cannot be synthesized in the human body on its own and is supplied there only with food. Produced by plants and microorganisms from pyruvic acid.

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

Isoleucine-rich foods:

- Almond
- Cashew
- Chicken
- Chickpeas
- Chicken and quail eggs
- Sea fish
- Lentils [1]
- Liver
- Pork and beef
- Rye
- Soya beans
- Bread "Borodinsky"
- Milk
- Hard cheese
- Buckwheat [2]

General characteristics of isoleucine

Isoleucine belongs to the group of proteinogenic amino acids. It is involved in the synthesis of tissues throughout the body. It is a source of energy in the implementation of neuroregulatory activity of the central nervous system.

Daily requirement for isoleucine

The body's daily need for isoleucine is 3-4 grams.

At the same time, to achieve the best results, it is necessary to maintain a balance in the consumption of essential amino acids. The most acceptable option is the following: for 1 milligram of isoleucine you need to consume 2 mg of leucine and 2 mg of valine.

In order to meet the daily requirement of isoleucine, a person needs to eat approximately 300-400 grams of beef or poultry. If you consume vegetable protein [3], then to obtain the required amount of

the above-mentioned amino acid, you need to eat 300-400 grams. beans [4] or walnuts [5]. And if you eat only buckwheat (for example, on a fasting day), then its amount should be 800 grams per day.

The need for isoleucine increases:

- with muscle tremor (shaking);
- for symptomatic hypoglycemia;
- with chronic lack of appetite (anorexia);
- in case of damage to muscles and tissues of internal organs;
- for nervousness and disorders of the nervous system.

The need for isoleucine decreases:

- for disorders of the gastrointestinal tract [6];
- with increased protein intake;
- for allergic reactions [7] to isoleucine;
- for liver and kidney diseases.

Isoleucine Absorption

Since isoleucine is an essential acid, its consumption is necessary to ensure the health of the body. However, the absorption of isoleucine depends, first of all, on whether a person has liver and kidney damage. Secondly, the absorption of isoleucine depends on accompanying acids such as valine and leucine. Only in the presence of the above acids does this amino acid have a good chance of being absorbed.

Beneficial properties of isoleucine and its effect on the body:

- it regulates blood sugar levels;
- stabilizes energy supply processes;
- carries out the synthesis of hemoglobin [8];
- promotes muscle tissue restoration;
- increases the body's endurance;
- promotes rapid tissue healing;
- regulates blood cholesterol levels [9].

Interaction with other elements:

Isoleucine belongs to the group of hydrophobic amino acids. Therefore, it does not mix well with water. At the same time, it interacts well with plant and animal proteins, which take an active role in the life support of the whole organism.

In addition, isoleucine can be combined with unsaturated fatty acids [10], present in sunflower and cotton seeds, almond seeds, peanuts, and olives.

Signs of isoleucine deficiency in the body:

- severe headaches [11] and dizziness;

- irritability and fatigue;
- weakened immunity;
- depression [1 2];
- muscular dystrophy;
- hypoglycemia.

Signs of excess isoleucine in the body:

- blood thickening;
- increasing the concentration of ammonia and free radicals in the body;
- apathy;
- allergic reactions.

People suffering from kidney [13] and liver [14] diseases should not get carried away with supplements containing this amino acid!

Isoleucine for beauty and health

As mentioned earlier, isoleucine takes an active part in the higher nervous activity of our body. At the same time, it not only regulates a person's energy potential, but also provides our body with the ability to regenerate. It is this condition that allows isoleucine to be classified as an amino acid responsible for maintaining the health and beauty of the entire body. After all, healthy, elastic skin [15], strong nerves [16] and a radiant look are the main signs of the health of our body.

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Received 10.01.2019

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