

Ursolic acid - description, benefits, effects on the body and the best sources

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Abstract. Aging of the body and various diseases often lead to atrophy of muscle tissue. Patients recover more slowly, and it is quite difficult for an athlete to return to action after a long pause in his career. Where is the exit?

Having diagnosed more than 1000 various biologically active substances, scientists came to the conclusion that it is ursolic acid that receives the palm in the fight against skeletal muscle atrophy.

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

Foods rich in ursolic acid:

- Apples (peel) [1]
- Quince
- Garnet [2]
- Raspberry [3]
- Rowan [4]
- Cranberry [5]
- Blueberry
- Cowberry
- Sea buckthorn [6]
- Lavender
- Oregano
- Thyme [7]
- Mint [8]
- Mate
- Rosemary

General characteristics of ursolic acid

Ursolic acid is a biological substance that actively affects the human body. Ursolic acid is found naturally in more than a hundred plants. It can be found in many berries, fruits, leaves and other parts of plants.

In the literature you can find such names for ursolic acid as *urson*, *prunol*, and *malol* and some others.

Industrially, ursolic acid is obtained from plant raw materials (waste from the production of juices from chokeberries and lingonberries).

Daily requirement for ursolic acid

A dosage of ursolic acid of 450 mg per day showed good results. That is, the recommended intake of ursolic acid for today: 150 mg three times a day. Acid should be taken with meals.

Christopher Adams, who studies the properties of ursolic acid at the University of Iowa (USA), believes that one apple a day will help keep us healthy and toned.

The need for ursolic acid increases:

- with a decrease in muscle tone (with age, during acute and chronic diseases);
- with excess body weight;
- for diabetes [9] and metabolic disorders;
- during active physical activity;
- dandruff and hair loss [10];
- for oncological diseases;
- with elevated cholesterol levels [11];
- for disorders of the gastrointestinal tract;
- with vasoconstriction.

The need for ursolic acid is reduced:

- in case of dysfunction of the adrenal glands [12];
- with excess sodium ions in the blood;
- with increased acidity of gastric juice;
- with reduced activity of the catabolic genes MuRF-1 and Atrogin-1, which are responsible for the destruction of muscle tissue.

Absorption of ursolic acid

The digestibility of ursolic acid is perhaps the only weak point of this beneficial substance. It is extremely poorly adsorbed, although it has an effect whether it is used internally or externally.

Beneficial properties of ursolic acid and its effect on the body

Scientists are actively conducting research to identify the beneficial qualities of ursolic acid and the possibility of using them most effectively. Ursolic acid has a number of advantages that make it indispensable for our body. Its effects are similar to those of deoxycorticosterone (an adrenal hormone). It retains chlorine [13] and sodium [14] ions, without affecting potassium metabolism [15].

Ursolic acid blocks the development of a gene that promotes muscle atrophy, while promoting muscle development. Ursolic acid also helps reduce fat deposits. It activates the growth of brown adipose tissue, while reducing the growth of white adipose tissue. This allows the body to spend first “reserves”, and then the calories received recently.

Recently, the ability of ursolic acid to prevent the development of cancer cells has been established. In some countries it is even prescribed as a preventive measure for skin cancer.

One of the properties of ursolic acid is its ability to reduce estrogen, without affecting testosterone production.

The results of some studies show that ursolic acid is a selective inhibitor of enzymes that raise cortisol levels, as well as aromatase.

In addition, ursolic acid, as a biological substance, helps to normalize all vital processes in the human body. It controls such important indicators as cholesterol and sugar levels [16] in the blood.

Ursolic acid is used to create healing, antimicrobial, anti-inflammatory [17] drugs.

Interaction with other elements

Interacts with chlorine and sodium. In addition, it normalizes metabolism, promoting the absorption of substances in the body.

Signs of ursolic acid deficiency

- obesity [18];
- weakening of skeletal muscles;
- metabolic disease;
- disruption of the digestive system.

Signs of excess ursolic acid

- excessive growth of muscle mass;
- impaired joint mobility (contracture);
- reduced level of fat layer;
- increased insulin levels;
- infertility (suppression of spermatogenesis).

Factors influencing the content of ursolic acid in the body

To maintain normal levels of ursolic acid in the body, a complete diet that includes foods containing it is sufficient.

In recent years, scientists have been trying to create drugs that can effectively saturate the body with ursolic acid. So far their performance is not high enough.

Ursolic acid for beauty and health

Interest in ursolic acid and its uses has increased recently due to a number of studies that have discovered its tonic effects on human muscles.

So athletes began to actively use it to effectively increase muscle mass, and overweight people began to use it to lose weight.

In addition, in the cosmetic industry, ursolic acid is used to restore and tone the skin [19]. Used to care for sensitive skin prone to redness. In addition, its ability to activate hair growth [20], eliminate dandruff and hide odors has been revealed.

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