

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

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**Abstract.** The first news of aspartic acid appeared in 1868. It was experimentally isolated from asparagus sprouts - asparagus. It is thanks to this that the acid received its first name. And after studying a number of its chemical characteristics, aspartic acid received its second name and was called *aminosuccinic acid*.

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

## **Foods rich in aspartic acid:**

- Asparagus [1]
- Soy sprouts
- Sprouted rye grains
- Alfalfa
- Soya beans
- Peanut
- Coconuts
- Tropical fruit juice
- Semerenko apple juice
- Eggs [2]
- Potatoes [3]
- Tomatoes [4]
- Sea fish
- Poultry meat
- Beef

## **General characteristics of aspartic acid**

Aspartic acid belongs to the group of amino acids with endogenous properties. This means that in addition to its presence in food, it can also be formed in the human body itself. Physiologists have discovered an interesting fact: aspartic acid can be present in the human body both in free form and in the form of protein compounds.

In our body, aspartic acid plays the role of a mediator, which is responsible for the correct transmission of signals from one neuron to another. In addition, the acid is famous for its neuroprotective properties. During the embryonic development stage, an increase in the concentration of acid in the retina and brain is observed in the body of the future person.

Aspartic acid, in addition to its natural presence in foods, is available in the form of tablets for the treatment of heart diseases, is used as a food additive to give drinks and confectionery a sweet and sour taste, and is also used as a sports nutrition drug in bodybuilding. In the ingredients it is usually listed as *D-Aspartic acid*.

### **Daily requirement for aspartic acid**

The daily requirement for acid for an adult is no more than 3 grams per day. At the same time, it should be consumed in 2-3 doses, calculating its quantity so that no more than 1-1.5 grams are consumed per meal.

### **The need for aspartic acid increases:**

- for diseases associated with dysfunction of the nervous system;
- with weakening memory;
- for diseases of the brain;
- for mental disorders;
- depression [5];
- decreased performance;
- in case of vision problems (“night blindness”, myopia [6]);
- for diseases of the cardiovascular system;
- after 35-40 years. It is also necessary to check the balance between aspartic acid and testosterone (male sex hormone).

### **The need for aspartic acid is reduced:**

- for diseases associated with increased formation of male sex hormones;
- with high blood pressure;
- with atherosclerotic changes in cerebral vessels.

### **Absorption of aspartic acid**

Aspartic acid is absorbed very well. However, due to its ability to combine with proteins [7], it can be addictive. As a result, food without this acid will seem tasteless.

### **Beneficial properties of aspartic acid and its effect on the body:**

- strengthens the body and increases performance;
- participates in the synthesis of immunoglobulins;
- plays a vital role in metabolism;
- accelerates recovery from fatigue;
- helps extract energy from complex carbohydrates to form DNA and RNA;
- capable of deactivating ammonia;
- helps the liver remove residual elements of chemicals and drugs from the body;
- helps potassium [8] and magnesium [9] ions penetrate into the cell.

### **Signs of a lack of aspartic acid in the body:**

- memory impairment;
- depressed mood;
- decreased performance.

### **Signs of excess aspartic acid in the body:**

- overexcitation of the nervous system;
- increased aggressiveness;
- blood thickening.

## Safety

Doctors do not recommend regularly consuming products containing aspartic acid in an unnatural form. This is especially true for children, whose nervous system is extremely sensitive to this substance.

In children, this acid can be addictive, as a result of which they may completely abandon products that do not contain aspartates. For pregnant women [10], consuming large amounts of foods containing aspartic acid can negatively affect the child's nervous system, causing autism.

The most acceptable acid for the human body is one that is initially present naturally in food products. Natural aspartic acid does not cause addiction to the body.

As for the use of *D-Aspartic acid* as a flavor enhancer, this practice is undesirable due to the possibility of developing food addictions, against which products without this additive will seem tasteless and not at all attractive.

## Literature

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