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

Tkacheva Natalya, herbalist, nutritionist

Eliseeva Tatyana, editor-in-chief of the EdaPlus.info project

E-mail: tkacheva.n@edaplus.info, eliseeva.t@edaplus.info

Abstract. Translated from Greek, its name means “sweet”. It is due to its sweet nature that this amino acid is capable of inducing a feeling of satisfaction and peace in people. It is used to treat nerves and increased irritability. Improves mood and suppresses anxiety. At the same time, it is produced exclusively from natural components, without the use of modern chemicals.

Glycine is involved in DNA synthesis. It is an indispensable assistant for traumatic brain injuries and strokes. Also, it can significantly reduce the toxicity of alcohol and drugs. Glycine is a probiotic that activates the body's internal defenses.

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

Interesting fact:

According to research by American scientists, cosmic dust, which is over 4.5 billion years old, also contains glycine molecules. Based on this, it can be assumed that the primary amino acids that gave rise to life on Earth were brought to our planet from Space.

Glycine-rich foods:

- Aspic
- Khashch (Abkhazian national dish)
- Quail eggs
- Marmalade
- Soya beans
- Pumpkin seeds
- Chickpeas
- Ginger [1]
- Peanuts raw
- Walnuts [2]
- Basil of Yerevan [3]
- Sesame seeds
- Fennel
- Pine nuts
- Pistachios

General characteristics of glycine

Glycine or *aminoacetic acid* is an amino acid that belongs to the group of non-essential ones. Under favorable conditions, glycine can be produced by the body independently. In the cells of our body, purine bases (xanthine, adenine, guanine, etc.) and natural pigments porphyrins, which are involved in the most important biological processes, are synthesized from glycine. Glycine is part of many

biologically active compounds and proteins. The chemical formula of glycine is: $NH_2 – CH_2 – COOH$. Typically, glycine is formed by the interaction of proteins with water, as well as through chemical synthesis.

Glycine, obtained chemically, is a colorless, sweetish powder without taste or odor. It dissolves well in water.

In the food industry, the amino acid glycine is used to improve the taste of food. It is usually listed as E-640 on labels and is completely safe for most people.

Daily requirement for glycine

The amount of glycine that should be consumed per day is 0.1 grams for children, and 0.3 grams for adults. As for athletes experiencing increased physical activity, the consumption of this amino acid can be increased to 0.8 grams per day.

The need for glycine increases with:

- stressful situations [4];
- weaknesses of the central nervous system;
- alcohol and drug intoxication;
- traumatic brain lesions;
- vascular accidents - strokes [5] and heart attacks [6].

The need for glycine decreases with:

- individual amino acid intolerance;
- pregnancy and lactation [7,8];
- hypotension;
- work requiring quick response.

Glycine digestibility

During metabolism, glycine breaks down into carbon dioxide and water. It does not accumulate in the body.

According to research conducted at Simon Fraser University in Vancouver, the absorption of glycine depends, first of all, on how much the body perceives its deficiency. Naturally, provided that the body itself was not subject to genetic anomalies and was sensitive to the lack of this amino acid.

Beneficial properties of glycine and its effect on the body:

Glycine is an essential component of the brain [9] and spinal cord [10]. Receptors that transmit inhibitory signals to neurons are composed of glycine. This amino acid reduces mental and emotional stress. It has a positive effect on metabolic processes in the body and helps restore brain function.

Glycine facilitates falling asleep, counteracts insomnia [11], normalizes sleep rhythms, and is an excellent means for a good mood [12]. Scientific research has shown that glycine helps reduce the

destructive effects of alcoholic beverages on the human body. Normalizes the processes of inhibition of the central nervous system. In neurology, glycine is used to relieve increased muscle tone.

Interaction with Essential Elements

Glycine interacts with iron [13] and calcium [14]. Thanks to the combination of these microelements with amino acids, they are more completely absorbed by the body. In addition, glycine interacts with some essential amino acids. As for the synthesis of glycine, choline (one of the B vitamins) takes an active part in it.

Signs of glycine deficiency in the body:

- increased nervous excitability;
- poor sleep;
- trembling in the body;
- weakness;
- depression [15].

Signs of excess glycine in the body:

- hyperactivity;
- rapid heartbeat;
- various allergic reactions [16];
- facial redness;
- fatigue.

Factors influencing glycine content in the body

Medical sources indicate the importance of following all the rules of a healthy lifestyle for the full absorption of glycine. Among these, the following can be noted:

- compliance with the drinking regime;
- gymnastics;
- staying in the fresh air;
- balanced diet.

Glycine for beauty and health

To keep the body healthy for a long time, you should regularly consume glycine-containing products, which can streamline the processes of excitation and inhibition. They will relieve the feeling of hopelessness, and also help others feel happy and needed. At the same time, the quality of sleep improves, energy and sociability appear.

Glycine and its compounds have proven themselves well as beauty stimulants. In combination with other nutritional components, glycine is responsible for the condition of hair [17], improving its structure and shine. In addition, this amino acid has proven itself in the production of creams and ointments that are responsible for the nutrition and blood supply of the skin.

Literature

1. Eliseeva, T., & Tarantul, A. (2019). Ginger (lat. Zingiber). *Journal of Healthy Eating and Dietetics, 1* (7), 22-34. DOI: 10.59316/.vi7.36
2. Eliseeva, T., & Yampolsky, A. (2019). Walnut (lat. Júglans régia). *Journal of Healthy Eating and Dietetics, 4* (10), 2-14. DOI: 10.59316/.vi10.53
3. Eliseeva, T., & Yampolsky, A. (2020). Basil (lat. Ócimum). *Journal of Healthy Eating and Dietetics, 2* (12), 25-37. DOI: 10.59316/.vi12.72
4. Tkacheva, N., & Eliseeva, T. (2020). Food against stress. *Journal of Healthy Eating and Dietetics,* (11). DOI: 10.59316/j.edpl.2020.11.47
5. Lazareva, V., & Eliseeva, T. (2021). Stroke - signs and symptoms, useful and dangerous foods, folk remedies. *Journal of Healthy Eating and Dietetics,* (16). DOI: 10.59316/j.edpl.2021.16.39
6. Lazareva, V., & Eliseeva, T. (2021). Myocardial infarction - signs and symptoms, useful and dangerous foods, folk remedies. *Journal of Healthy Eating and Dietetics,* (16). DOI: 10.59316/j.edpl.2021.16.40
7. Eliseeva, T., & Tkacheva, N. (2020). Food during pregnancy. *Journal of Healthy Eating and Dietetics,* (11). DOI: 10.59316/j.edpl.2020.11.24
8. Tkacheva, N., & Eliseeva, T. (2020). Food for a nursing mother. *Journal of Healthy Eating and Dietetics,* (11). DOI: 10.59316/j.edpl.2020.11.25
9. Shelestun, A., & Eliseeva, T. (2021). Food for the brain – 12 products for effective work. *Journal of Healthy Eating and Dietetics, 3* (17), 22-27. DOI: 10.59316/.vi17.116
10. Eliseeva, T., Tkacheva, N. (2020). Nutrition for the bone marrow - useful and dangerous foods, recommendations. *Journal of Healthy Eating and Dietetics,* (12). DOI: 10.59316/j.edpl.2020.12.26
11. Lazareva, V., & Eliseeva, T. (2021). Nutrition for insomnia. *Journal of Healthy Eating and Dietetics,* (16). DOI: 10.59316/j.edpl.2021.16.13
12. Eliseeva, T., & Tkacheva, N. (2011). Food for a good mood (lat. Artemísia). *Journal of Healthy Eating and Dietetics, 2* (20), 32-42. DOI: 10.59316/j.edpl.2020.11.44
13. Eliseeva, T. (2021). Iron (Fe) for the body – 30 best sources and importance for health. *Journal of Healthy Eating and Dietetics, 4* (18), 66-75. DOI: 10.59316/.vi18.148
14. Mironenko, A., & Eliseeva, T. (2020). Calcium (Ca, calcium) - description, effect on the body, best sources. *Journal of Healthy Eating and Dietetics,* (12), 83-92. DOI: 10.59316/.vi12.77
15. Tkacheva, N., & Eliseeva, T. (202 0). Food against depression. *Journal of Healthy Eating and Dietetics,* (1 1). DOI: 10.59316/j.edpl.2020.11.46
16. Lazareva, V., & Eliseeva, T. (2021). Nutrition for allergies. *Journal of Healthy Eating and Dietetics,* (16). DOI: 10.59316/j.edpl.2021.16.11
17. Tkacheva, N., & Eliseeva, T. (2020). Nutrition for healthy hair - healthy and dangerous foods, recommendations. *Journal of Healthy Eating and Dietetics,* (12). DOI: 10.59316/j.edpl.2020.12.12

HTML version articles

Received 08.01.2019

Glycine - description, benefits, effects on the body and best sources

Tkacheva Natalia, phytotherapist, nutritionist

Eliseeva Tatyana, editor-in-chief of the EdaPlus.info project

E-mail: tkacheva.n@edaplus.info, eliseeva.t@edaplus.info

Abstract. Translated from Greek, its name means "sweet". It is because of its sweet nature that this amino acid is able to induce feelings of contentment and calmness in people. It is used to treat nerves and increased irritability. It improves mood and suppresses anxiety. At the same time, it is produced exclusively from natural components, without the use of modern chemistry. Glycine is involved in the synthesis of DNA. It is an indispensable assistant in brain injuries and strokes. Also, it is able to significantly reduce the toxicity of alcohol and drugs. Glycine is a probiotic that activates the body's internal defenses.