

# L- Glutamine

Code: FE2031 – 100 gr, FE0090 – 50 vegetable capsules



L-glutamine is the most common amino acid in serum and spinal fluid. It's the only amino acid that passes the blood-brain barrier easily, and once inside it transforms into glutamic acid and vice versa. Glutamic acid is a neurotransmitter that provides energy to brain cells and is essential for their optimal function, so L-glutamine is considered fuel for the brain.

L-glutamine is also found in large amounts in the muscles, making it especially useful for athletes or people who have had surgical intervention. This amino acid is also a source of energy for the cells that line the intestines and stomach.

## **Powder:**

**Ingredients:** 100% L-Glutamine powder.

## **Vegetable capsules:**

**Ingredients:** L-Glutamine, bulking agent (microcrystalline cellulose), anti-caking agent (magnesium salts of fatty acids), vegetable capsule (glazing agent: hydroxypropylmethylcellulose, humectant: purified water).

### **Nutritional information:**

**1 teaspoon  
(5 g)**

**2 capsules  
(1 302 mg)**

L-Glutamine

5 g

1 000 mg

### **Size and format:**

50 vegetable capsules or  
100 gr (powder)

## **Recommended daily dose:**

**Powder:** 1 teaspoon (5 g) with cold liquid once daily.

**Capsules:** 1 capsule twice daily with food.

Do not exceed the stated recommended daily dose.

## **Indications and uses:**

- Optimizes brain function.
- Useful for athletes.
- Cases of alcoholism.
- Stomach ulcers and excessive intestinal permeability.

## **Cautions:**

Consult a health-care practitioner prior to use if you are pregnant or breast-feeding, or if you are following a low-protein diet.

**L-GLUTAMINE:** a non-essential amino acid and the most common in serum and spinal fluid. It is considered fuel for the brain as it is essential for its optimal function <sup>(1,2)</sup>. Glutamine is not an essential amino acid, since it is derived from glutamic acid, which can be synthesized from the amino acids arginine, ornithine and proline.

It's the only amino acid that passes the blood-brain barrier easily. Once inside it transforms into glutamic acid and vice versa.

Glutamic acid is a neurotransmitter that provides energy for brain cells and is essential for its correct function. With the help of vitamin B6 and through a set of reactions produced in the brain, it is converted into GABA, a calming agent.

Upon binding with nitrogen atoms, with ammonia as a waste product, glutamic acid is converted into glutamine, which consequently detoxifies the brain of ammonia.

Without enough glutamine and therefore glutamic acid in the brain, ammonia levels would increase, which would lead to possible brain damage.

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Behavioural problems and autism in children have had good results with diets that include glutamine as a main component <sup>(3)</sup>. Other applications in which good results have been seen with glutamine include depression, IQ improvement (intellectual coefficient) in children with mental deficiency, schizophrenia, senility and epilepsy <sup>(4)</sup>.

Glutamine is found in large amounts in the muscles and contributes to their formation and maintenance. Intense exercise, stress, sports injuries or surgical interventions make the muscles expel glutamine into the blood, leading to a decrease in the level of this amino acid and therefore loss of muscle mass <sup>(5,6)</sup>. It can be of great use for athletes working on musculature or for preventing the loss of muscle mass from prolonged bed rest <sup>(7)</sup>.

Glutamine is also an important source of energy for the cells lining the intestines and stomach, and can even increase blood flow to this area <sup>(8)</sup>.

It can have a positive effect on cases of gastritis or ulcers and excessive intestinal permeability <sup>(9)</sup>.

It appears that, because of its effect on the appetite centre in the brain, glutamine acts a protector against ethylic intoxication and decreases the desire to consume alcohol. The levels of several amino acids in the blood undergo an alteration in alcoholics due to the liver's role as the main organ involved in alcohol metabolism <sup>(10)</sup>.

Glutamine plays a relevant role in the immune system through multiple routes: on the one hand, as nitrogen donor for the synthesis of purines and pyrimidines, the formation of nicotinamide adenine dinucleotide (NAD) and amino sugars, as well as a substrate for the formation of arginine; and on the other hand, as an energy substrate for enterocytes, fast dividing cells, lymphocytes and macrophages <sup>(11,12)</sup>.

## References:

- 1) Ziegler, Thomas R., et al. "Safety and metabolic effects of L-glutamine administration in humans." *Journal of Parenteral and Enteral Nutrition* 14 (1990): 137S-146S.
- 2) Gismondo, M. R., et al. "Immunostimulating effect of oral glutamine." *Digestive diseases and sciences* 43.8 (1998): 1752-1754.
- 3) Shimmura, Chie, et al. "Alteration of plasma glutamate and glutamine levels in children with high-functioning autism." *PLoS One* 6.10 (2011): e25340.
- 4) Parry-Billings, M., et al. "A communicational link between skeletal muscle, brain, and cells of the immune system." *International journal of sports medicine* 11.S 2 (1990): S122-S128.
- 5) Walsh, N. P., et al. "Glutamine, exercise and immune function: Links and possible mechanisms." *Occupational Health and Industrial Medicine* 1.40 (1999): 47.
- 6) Newsholme, E. A. "Biochemical mechanisms to explain immunosuppression in well-trained and overtrained athletes." *International Journal of Sports Medicine* 15.S 3 (1994): S142-S147.
- 7) Palmer, TE Allan, Richard D. Griffiths, and Christina Jones. "Effect of parenteral L-glutamine on muscle in the very severely ill." *Nutrition* 12.5 (1996): 316-320.
- 8) Rhoads, J. Marc, et al. "L-glutamine stimulates intestinal cell proliferation and activates mitogen-activated protein kinases." *American Journal of Physiology-Gastrointestinal and Liver Physiology* 272.5 (1997): G943-G953.
- 9) Foitzik, T., et al. "Glutamine stabilizes intestinal permeability and reduces pancreatic infection in acute experimental pancreatitis." *Journal of Gastrointestinal Surgery* 1.1 (1997): 40-47.
- 10) Sammalisto, Lasse. "Effect of glutamine on intoxication caused by ethyl alcohol." *Nature* 195.4837 (1962): 185-185.
- 11) Newsholme, E. A., and M. Parry-Billings. "Properties of glutamine release from muscle and its importance for the immune system." *Journal of Parenteral and Enteral Nutrition* 14 (1990): 63S-67S.
- 12) Ayala, Adela-Emilia Gómez. "Inmunidad y nutrición." *Farmacia profesional* 20.3 (2006).