Glutamine is an amino acid classified as non-essential, however, becomes an essential nutrient when the body is under mental stress, trauma, injury, prolonged physical stress, infection and chemical assault. Glutamine is the most prevalent amino acid in the bloodstream, accounting for 30-35 percent of the amino acid nitrogen in the plasma.

Because Glutamine contains two ammonia groups, one from its precursor, Glutamate and the other from free ammonia in the bloodstream, one of Glutamine's roles is that of a 'nitrogen shuttle', which helps protect the body from high levels of ammonia. Thus Glutamine supplementation can act as a buffer, accepting excess ammonia, then releasing it when needed to form other amino acids, amino sugars, nucleotides and urea. This capacity to accept and 'donate' nitrogen makes Glutamine the major vehicle for nitrogen and carbon within and between tissues.

It is an energy source for cell division, for the growth of many different, rapidly dividing cells, such as enterocytes, coloncytes and fibrocytes, as well as for the cells of the immune system. Glutamine is the principal fuel used by the intestinal tract and maintenance of gut immunity.

Glutamine has shown in many clinical studies that it plays a role in neurotransmission in that it reduces anxiety and irritability and improves concentration and short term memory. It can also reduce the desire for alcohol consumption in some individuals.

In clinical practice, it has been widely used with a great deal of success in treating Anxiety, Nervousness, Tension states, Shaking hands, Sleeplessness, Exam Nerves, Anxiety, Alcoholism and Alcohol Dependency, Autism, Behavioral Problems, Chemical Sensitivity, Depression, Epilepsy, Hypertension (High blood pressure), Mood Swings, Irritability and Poor Concentration. Memory and I.Q. are also improved with Glutamine supplementation.

Scientific and clinical studies suggest that Glutamine may be useful in the following conditions:

- Alcohol craving
- Alcoholism
- Anxiety
- Athletic/exercise recovery
- Autism
- Behavioural problems
- Burns
- Cancer
- Chemical sensitivity
- Compromised liver
- Depression
- Epilepsy
- Food intolerance
- Gut infection
- Hypertension
- Irritable Bowel Syndrome
- Irritability
- Leaky Gut Syndrome
- Muscle wasting
- Nervousness
- Peptic ulcers
- Poor concentration
- Poor memory
- Pre-exam stress
- Stress
- Wound healing
- Mouth ulcers

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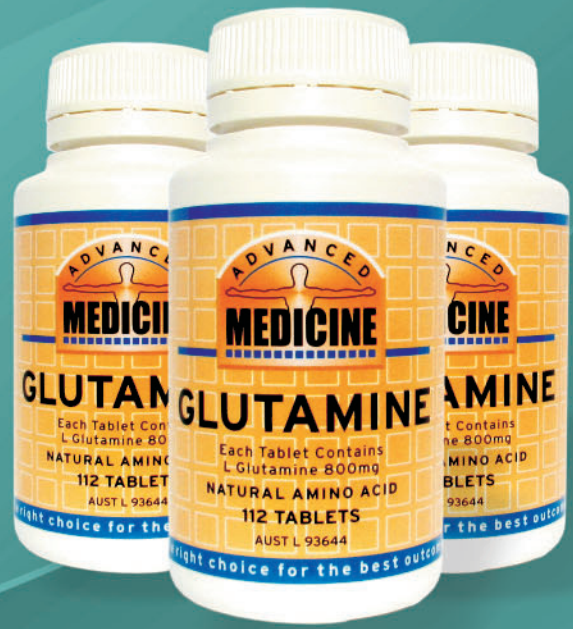
Glutamine

Helps you r body recover after stress

Improves mood and focus

Reduces cravings for sugar and alcohol

Strengthens the immune system and promotes healing



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Glutamine first started to get its recognition in the treatment of alcoholism and other addictive behaviour. It truly is one of the more remarkable amino acids with a wide variety of uses in the human body.

It is considered and classed as a non-essential amino acid as our body can synthesize glutamine. However, studies show that our body becomes deficient when under stress. In another study it showed that the human body was under stress during consumption of alcohol. Glutamine supplements became important for suppressing the cravings for alcohol.

Another study in Tecspertise Resource centers' Human review of Glutamine found that the amount of glutamine supplied by diet and de novo synthesis under stress was not enough. With intracellular glutamine levels dropping more than 50% and plasma concentration falls to 30%. It is under these circumstances that supplementing glutamine is necessary.

L Glutamine is unique among the amino acids in that it is able to readily cross the blood-brain barrier and be metabolized by the brain tissue. It is then converted into Glutamic acid, a precursor of gamma amino butyric acid (GABA) a neurotransmitter that supports the central nervous system. Glutamine together with glutamic acid is said to represent about 80% of the amino nitrogen of the brain tissue. Glutamine is an important vehicle for transporting nitrogen and carbon within the tissue.

L Glutamine supplementation helpts to protect bacteria cells from poisoning by alcohol. Further research has shown that L Glutamine in a dose of 500 mg, four times daily, decreases the craving for alcohol. This amino acid is now commonly used in alcoholism clinics. There are added benefits to L Glutamine, as it seems to reduce the craving for sugar and carbohydrates and so may be helpful for people dealing with obesity or sugar abuse.

It is generally accepted that L Glutamine acts and protects the cells in the appetite centre of the brain (hypothalamus). It is here where the alcohol that has been consumed does not upset the mechanism but creates a temporary block in the appetite cycle for alcohol and sugar.

Dr. Rogers and Dr. Pelton undertook a study with mentally retarded children as subjects. It was found that their IQ improved dramatically and their behaviour became evenly balanced when L Glutamine was given. Sporadic fits of temper and frustrated outbursts also decreased remarkably.

One of Glutamine's most unique abilities and important function is to detoxify brain cells of excess ammonia. The smallest amount of ammonia is toxic to the central nervous system and can lead to such symptoms as slurring of speech, blurring of vision, nervous tremors, and in severe cases, coma and or death.

Glutamine, in gastro-intestinal function.

Glutamine is the principal fuel used by the intestinal tract. “It has also been shown to decrease bacterial translocation after intestinal insult.” Comparing the healing benefits of conventional treatment and glutamine of gastric ulcers in double-blind trials: In a double blind clinical study of 57 patients, 24 were taking 1600mg of Glutamine twice daily before food. The remaining 33 patients were treated conventionally (antacids, antispasmodics, diet, milk and bland diet). Glutamine (1600mg) proved to be the most effective treatment with 22 of the 24 patients showing complete healing within 4 weeks. (Shown by radiographic analysis).The 33 remaining patients (on conventional therapies) had much less results over the 4 weeks.

The gastro intestinal tract is certainly a high user of Glutamine. The small intestine accounts for the largest uptake of Glutamine of any organ, absorbing the amino acid from the lumen of the gut as well as the bloodstream. Epithelial cells lining the small intestine (enterocytes) use glutamine as their principal metabolic fuel. Glutamine is converted in the mitochondria of intestinal cells to glutamate, then alpha ketoglutarate, which is utilised in the tricarboxylie acid cycle for ATP production. Since enterocytes have little glutamine synthetase activity and a great amount of glutaminase, which metabolises glutamine, they are also dependent on a supply of pre-formed Glutamine.

The small intestine mucosa is comprised of single cell thickness of mostly column epithelial cells, with endocrine, mucosa and paneth cells interspersed between them. The most mature cells occupy the tip of the villi, while immature cells are at the base of the villi in the crypts. The immature cells proliferate and migrate to the tip, where they mature, and then are reabsorbed or sloughed off into the lamen. This entire process takes only three to six days. This high rate of proliferation and turnover is usually well regulated by nutrient availability, gastrin, growth hormone, bacterial flora and neuro-regulatory activity. It is also stimulated and regulated by food. **After seven days of fasting, gut mass can be reduced by as much as 50%.**

The increasing consumption of fast and refined foods, white flour, coffee, sugar and meal-skipping habits as well as high use of drugs such as antibiotics decreases the health of the villi and causes damage to occur. It is in this instance that our gut starts to be compromised and where 'leaky gut syndrome' has its beginnings. Glutamine taken at 800mg to 1600mg, twice daily will help to prevent the gut lining from deteriorating.

In scientific evidence and clinical use, Glutamine plays a successful role in the following conditions: Nervous Stomach, Food Intolerance, Gut Infection, Immune Suppression, Leaky Gut Syndrome, Peptic Ulcers, Mouth Ulcers, Poor Gut Immunity, Poor Absorption, Villi Atrophy and damage.

Glutamine and the Liver.

Glutamine is involved in the building blocks for Glutathione within the liver. It is an important intracellular antioxidant and is essential to normal cell function and replication, as well as hepatic detoxification. Glutamine is hepatic protective against the toxic effects of paracetamol.

The right choice for the best outcome.

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