



**L-Glutamine is the one of the most abundant amino acids in our body.**

It is present in virtually all major organs and also in muscle tissue.

**L-Glutamine is a non-essential amino acid.** This means is that our body can actually produce it at need.

**L-Glutamine is used so heavily by the body that our levels need constant replenishing from our diet.**

The body uses L-Glutamine to assist with many body functions and to make other amino acids.

It is very easy to run our levels of L-Glutamine down in this way. When we arrive at the “empty tank” level for L-Glutamine our body will strip down and catabolize muscle tissue to get more of it.

Supplemental use of L-Glutamine can help with the following:

#### **L-Glutamine and the Digestive System**

Because it is essential for the function of the enterocytes which line our entire digestive tract L-Glutamine has a widespread affect in this area of our bodies. It helps in maintaining the integrity of the intestinal mucosa that forms a barrier to entry into the circulation of microorganisms in the gut. Because it serves as an energy source for the intestine it may be a useful supplement in people with disease of the intestinal tract such as Ulcerative Colitis, Crohn's Disease, Coeliac Disease, Peptic Ulcers, Drug-induced Gastric ulcers and Irritable Bowel Syndrome.

L-Glutamine has been investigated intensively in recent years and surprising results have been reported. It is one of the most abundant amino acids in the human body as well as in most foods we eat. It is present in every major organ of the body as well as in all muscle tissue. Perhaps we have ignored L-Glutamine for too long because it's classified as a non-essential amino acid. While it is true that our body can make L-Glutamine, demand in an athlete often far outstrips supply. With increasing amount of therapeutic data available on L-Glutamine it has become an amino acid that is "essential" to consider if you are training or participating in sport. What can L-Glutamine do for me and my body? How does it work?

### **L-Glutamine and Muscle Sparing**

There is only one non-stop muscle in the body and that's the heart. All of our other muscles require constant fuelling to deal with our workout demands. When our body runs out of initial fuels (muscle glycogen) to burn it will actually start to breakdown our muscle itself. This is a process known as Glucomyogenesis (actually it's rather simple when you break it down : Gluco (sugar), Myo (Muscle) and Genesis (The making of). Hence our body makes sugar by breaking down muscle protein to fuel our energy demand. This is the last thing that any dedicated athlete wants to hear. However there is an alternative. L-Glutamine, taken before a workout, acts as a buffer protein to muscle. The body will break down all of the free L-Glutamine before it starts chewing into your muscle. This "spares" our muscle tissue from catabolic death.

### **L-Glutamine and Muscle Growth & Recovery**

The simple act of "working out" places both stress and a recovery demand on our muscle tissue. In addition to the demand for Branch Chain Amino

Acids post workout, high levels of L-Glutamine help to fill in the "missing" protein gaps that normally we attempt to fill haphazardly from our diet. Having the exact amino acids required for muscle fibre formation immediately after a workout speeds tissue synthesis. Faster rates of muscle tissue formation lead to better recovery time and better results from training.

### **L-Glutamine and the Immune System**

Considering all the time that athletes train and the strict diets they eat one would expect them to be the healthiest people in the world. Unfortunately viral illnesses and bacterial infections can affect them as seriously as the next person.

The results of such an illness often spell disaster for any athlete as they have to take time off training and invariably lose muscle tone and condition during the recovery process. A generally unacknowledged fact is that athletes are at a greater risk from illness due to their hard training and dieting. This might sound like a contradiction in terms but think about it for a moment.

Your body is so intent of the rebuilding and conditioning of muscle tissue that it neglects other body systems. It needs protein to rebuild so the digestive system gets service. Strong bones and tendons to help support an advanced musculature are also required so the skeletal system gets service. The immune system can often fall by the wayside in neglect with all the tissue building and development. An under active immune system can mean you're more at risk from illness and infection.

L-Glutamine is a very common energy source for many cells in the immune system, when taken in supplemental levels the body can meet immune system demands as well as support muscle recovery.

Whether or not we have the drive to train like a fanatic, everyone desires both good health and a body that functions without much in the way of unexpected surprises. The fact of the matter is that bodily resources are often shunted away from systems where they could be of greater use because of the strain our lifestyles can place on our body.

There are certain amino acids that can assist relieving these "strained" resources. L-Glutamine has come under increasing medical investigation in recent times. Some of its uses could be of relevance to you and your lifestyle.

Many people neglect certain key aspects of their nutrition and require supplementation to repair the balance. When supplemental levels of L-Glutamine are added to a decent diet there are number of established benefits that can be gained. L-Glutamine treatment is also being used medically, and the benefits observed so far are far reaching. Consider the following L-Glutamine benefits for your lifestyle

#### **L-Glutamine and our Digestive System**

Our digestive system is a work of art, it enables us to process nutrients from many sources and fuel our energy demand. However the cells that accomplish this work are rather specialized. L-Glutamine is a major amino acid used in their structure and creation. The epithelial cells (that's techno speak for the top layer) in the gastro-intestinal tract have very short lifespans. In fact the time between The Footy Show going to air and the first bounce of the game for that week is enough to see an entire generation of these cells, be created, live, perform their function, and be replaced. This is one of the body's main uses for L-Glutamine. If your digestion is sluggish, add one half teaspoon of L-Glutamine morning and afternoon. The difference has to be felt to be believed!

#### **L-Glutamine and the Immune System**

With L-Glutamine demand happening all over the body, one system that often gets a low priority is the immune system. Sometimes it does not swing into full action until we get sick, and for most of us, by then it's far too late. Since the best protection is prevention, you might be advised to take some extra L-Glutamine. L-Glutamine is a very common for a number of specialist cells and antibodies in the immune system. When more raw resources are made available to the body in the form of supplemental L-Glutamine the body can concentrate on making greater amounts of these cells. This leads to correctly functioning, strong immune systems.

#### **L-Glutamine and Brain Fuel**

While a similar sounding amino acid L-Glutamic Acidis known to be a common brain fuel, a lot of people don't know that L-Glutamine is the major provider of this fuel. L-Glutamine is able to circulate freely throughout the brain's blood supply. Inside the brain itself L-Glutamine is used to form various neurochemicals that help us deal with stress, think clearly, and remember things. Extra L-Glutamine has helped sufferers of Chronic Fatigue deal with the debilitating symptom of "brain fog". Keeping higher levels of L-Glutamine circulating can help students in exam cram mode and the rest of us deal with the dreaded 9:30 am production meetings.

#### **L-Glutamine and the Musculoskeletal System**

L-Glutamine has an anabolic effect on muscle by stimulating endogenous protein synthesis. It comprises 10.4% of total Muscle weight and 50% of the total free Amino Acid content in muscles. It can also prevent the breakdown of protein within the muscles, thereby rendering it anti-catabolic as well.

#### **L-Glutamine and Chemotherapy**

L-Glutamine has been shown to reduce gastrointestinal discomfort, diarrhoea, and mouth ulcers formed during chemo- and radiotherapy. It has been found to increase the effectiveness of these therapies, in reducing tumour size.

#### **L-Glutamine and the Metabolism**

Glutamine can reduce craving for carbohydrates. It reduces acidosis from lactic acid production in exercise. It acts as a nitrogen shuttle, 'picking up' and 'dropping off' nitrogen. A level metric teaspoon of L-Glutamine weighs 3.08g.