

# L-Arginine vs. the Athlete

Regardless of age, everyone can be an athlete. Some enter into competitions requiring certain skills of a sport while others may compete against themselves. Still, there are those who just compete against “Old Man Time.” According to Webster, an athlete is a person who is trained or skilled in exercises, sports, or games requiring physical strength, agility, or stamina. This embodies a lot of people, believe it or not. And to keep their competitive edge, these athletes go through their daily behavioral ritual to include:

**Replenish** – Meal planning and nutritional supplementation.

**Rest** – a relax state and not the point of retiring for the night (sleep state), but to relax the mind.

**Repair** – a sound sleep state allows the body to repair itself.

**Repeat** – a good day’s accomplishment is worth repeating.

Embla Arginine assists and aids the athlete in support of these regiments. This first complete L-Arginine product embodies all the benefits of Arginine and beyond.

Arginine (L-Arginine) is a semi essential or conditionally essential amino acid, depending on the developmental stage and health status of the individual. In general, most people do not need to take arginine supplements because the body usually produces enough. More often than not, this is true, with the exception of particular dietary and physical stress placed daily on the body because of an active life style or pharmaceutical usage.

L-Arginine is considered the most beneficial amino acid in the entire amino chain:

- Stimulates the release of growth hormone by suppressing the release of somatostatin, a hormone released by the pituitary, which inhibits the release of growth hormone, insulin, and glucagon.
- Produces nitric oxide (required for sexual function and cardiovascular health).
- Improves immune function.
- Reduces healing time of injuries (particularly bone).
- Increases muscle mass.
- Reduces adipose body fat.
- Helps improve insulin sensitivity.
- Helps decrease blood pressure.
- Helps increase blood flow.

L-Arginine has been well tolerated by most people in studies lasting for up to six months, although there is a possibility of serious adverse effects in some individuals. Stomach discomfort, including nausea,

stomach cramps or an increased number of stools, may occur. People with asthma may experience a worsening of symptoms if arginine is inhaled, which may be related to allergy. Headache has also been reported.

Other potential side effects include low blood pressure and changes in numerous chemicals and electrolytes in the blood. Examples include high potassium, high chloride, low sodium, low phosphate, high blood urea nitrogen and high creatinine levels. People with liver or kidney disease may be especially sensitive to these complications and should avoid using arginine except under medical supervision.

In theory, arginine may increase the risk of bleeding. Patients using anticoagulants (blood thinners) or antiplatelet drugs, or with underlying bleeding disorders, should speak with a qualified healthcare provider before using arginine and should be monitored.

Arginine may increase blood sugar levels. Caution is advised in patients taking prescription drugs to control sugar levels.

L-Arginine is a growth hormone releasing agent (GHRA). This point is very important to athletes, particularly the older athletes, because as we age there is a reduction in the release of HGH (human growth hormone.) HGH, or somatotropin, is the most abundant hormone secreted from the anterior pituitary gland, a process that peaks during adolescence. It may be made and stored in the body but it is not necessarily released. Gradually this hormone secretion diminishes with age. By the time you reach the age of 60, you may only secrete 25% as much as the average 20 year old. This greatly contributes to the acceleration of the aging process.

HGH is typically secreted during sleep, with peak release occurring at REM sleep. Over 50% may be released at this time while pulsatile release of HGH may also occur throughout the day. Most of the effects of HGH are mediated by other hormones, including the somatomedins, IGF-I (somatomedin C) and IGF-II, which are insulin-like growth hormones that also influence linear growth, and the two hypothalamic hormones (GHRH (growth hormone releasing hormone) and GHIH (growth hormone inhibiting hormone)) that regulate HGH by responding to changes in the individual's blood sugar (glucose) and protein levels. When blood glucose levels fall, GHRH triggers the secretion of stored HGH. As blood glucose levels rise, HGH secretion is turned off by GHIH activity. Increases in blood protein levels trigger a similar response. This feedback loop, along with the effects of eating and exercise, is responsible for the fluctuating levels of HGH throughout the day.

The liver is a major target organ of growth hormone where it is quickly converted into the important growth-promoting metabolite somatomedin C (IGF-1), which then circulates throughout the body. Somatomedin C has growth-stimulating effects on a wide variety of tissues and is vital in instructing cells to produce protein and repair themselves. Perhaps the most interesting and potent effect somatomedin C has on the human body is its ability to cause hyperplasia, which is an actual splitting of cells. Hyperplasia is different from hypertrophy in that the adaptive cell change in hypertrophy is an increase in cell size, whereas hyperplasia involves an increase in the number of cells. By contrast, hypertrophy is what occurs, for example, to skeletal muscle cells during weight training and steroid use

and are simply an increase in the size of the cells. Weight training with or without anabolic steroid use enables these new cells to mature in size and strength.

The decline and lack of growth hormone contributes to increasing body fat, cardiovascular disease, osteoporosis, and an inclination toward other aging-related diseases which are counterproductive in the eyes and minds of the athlete.

A person's growth hormone level should increase after exercise. The levels at the end of an exercise period are expected to be maximal. With the use of high-glycemic sports drinks and proteins directly before or during or immediately after the exercise period negate this increase.

Effects of growth hormone on the tissues of the body can generally be described as anabolic (building up). Like most other protein hormones, growth hormone acts by interacting with a specific receptor on the surface of cell as it has many other effects on the body:

- Increases calcium retention, and strengthens and increases the mineralization of bone.
- Increases muscle mass through sarcomere hyperplasia.
- Promotes lipolysis (breakdown of fats).
- Increases protein synthesis.
- Stimulates the growth of all internal organs excluding the brain.
- Plays a role in homeostasis.
- Reduces liver uptake of glucose.
- Promotes gluconeogenesis in the liver.
- Contributes to the maintenance and function of pancreatic islets.
- Stimulates the immune system.

Each serving (10grams) of Embla Arginine contains 5 grams of elemental pharmaceutical grade L-arginine. Since the production of nitric free radicals also accompanies nitric oxide production, our formula includes several ingredients that directly combat free radicals to protect our cells. Visit [www.MyLArginine.com](http://www.MyLArginine.com) for more information.