

Frequently Asked Questions by Athletes

By Harry Elwardt, N.D., Ph.D.

Who Can Use Arginine?

Arginine supplements were designed for use by adults who have declining levels of the natural anti-aging hormone; human growth hormone (HGH). That group includes male and female:

- Baby-boomers
- Elderly
- Anti-aging candidates
- Those seeking a natural alternative to *Viagra*
- Endurance and strength athletes
- Athletes over the age of 23
- Athletes that have completed their long-bone growth

(See Cautions and Contraindications below for exemptions)

NOTE: Arginine use is not just for athletes.

Has arginine been proven to be safe for humans to use?

Yes. Arginine has been used safely in humans for the past 27 years. Thousands of professional athletes, as well as non-athletes, have used arginine supplements with no adverse side effects.

Is arginine accepted for use by athletes by the Olympic Committee?

Yes. Athletes using **arginine** supplements have won Gold medals. **Arginine** supplements are used and promoted by famous world-class athletes who have used arginine supplements during their careers and in their competition events. **Arginine** is legal for use in Olympic

games, IFBB world body building competitions, WPF powerlifting events, fitness pageants, NFL events, NBA events, the Ironman competition, and any other sports event.

Is arginine a drug?

No. **Arginine** has non-drug status because it does not contain illegal or drug-status pharmaceutical HGH or ingredients which are harmful to humans. Natural peak growth hormone (GH) levels occur 20 minutes after exercise and during Delta sleep. **Arginine** accesses the dietary-induced HGH pathway in humans evidenced in hundreds of growth hormone clinical studies.*

Do arginine *formulas* contain any hormones?

No. Hormones can only be prescribed safely by a physician. The human body produces its own growth hormone naturally. The hypothalamus regulates the release of growth hormones as well as thyroid stimulating hormone, Lutenizing hormone (LH) and Follicle stimulating hormone (FSH). The anterior pituitary makes Tropic hormones, which activate endocrine system glands. Growth hormone is a Tropic hormone, and as such can be promoted by administration of a natural Homeostatic HGH protocol.*

Is arginine just for athletes?

No. Athletes derive tremendous biochemical advantages from using **arginine**, but its benefits are not limited to the athlete.

Can arginine be mixed with protein drinks?

No. Other amino acids may not be ingested with **arginine**, and that includes protein and amino acid supplements, and foods or drinks containing protein and/or amino acids. Other amino acids compete with arginine, particularly Lysine, and can render the formula inert. You can take your protein supplement, shake or bar, following your workout. Make sure the product or meal is also low glycemic unless you have depleted muscle glucogen during your workout or training regimen.

Arginine is an ingredient in my protein shake. Can't I take a double dose, say 50 grams of protein, to get sufficient arginine?

No. Very little of the **arginine** in the protein shake will be able to cross the blood-brain barrier. Again, we're dealing with amino acids that compete for the same pathway. The stomach should not contain amino acids that compete with **arginine**. Athletes that take their protein shakes with their **arginine** supplements are wasting their time and money. The **arginine** formulas should be taken before the workout, and the protein shake or meal replacement taken after the workout. As for taking 50 grams of protein at one time, that is also a waste of time, and is not healthy. The body cannot absorb more than 30 grams of protein at one time, and that is the case whether you are a powerlifter who weighs 300 pounds or a runner who weighs 150 pounds.

There are arginine formulas on the market that contain lysine. Is this a good formula?

No! Lysine is a direct antagonist of **arginine** and serves as a competitor to **arginine** for entry into the brain. In recent years, the antagonism of lysine to **arginine** has been well established in the medical and scientific community. Dr. Robert Ronzio, Ph.D. in biochemistry, University of California at Berkley, post-doctoral fellow at Tufts University Medical College, states that "lysine supplements antagonize arginine."

Arginine formulas typically contain lysine because of the:

- Misinformation on lysine-GH release. Even after the Journal of Gerontology report (a) stated that "Oral **arginine**-lysine does not increase growth hormone or insulin-like growth factor-1," lysine advocates kept promoting its use as a valid GH releaser. Additionally, lysine has the highly undesirable side-effect of insulin release (b), and should be considered an unacceptable co-factor in any **arginine** formula.
- **Arginine**-lysine-herpes connection. The problem regarding ingestion of arginine formulas is that of the reactivation of herpes and herpes-like symptoms, both oral and genital, **which would render a formula impractical for human use. Arginine** cannot cause herpes

outbreaks, but can exacerbate virus-replication during an outbreak. The only prior-known remedy to this problem was the addition of lysine to arginine formulas, an obvious chemical contradiction.

• *Corpas E, Blackman MR, Robertson D, Harman SM. J Gerontol. 1993;48:M128-M133*

• *Sener A, Blachier F, Rasschaert J, Mourtada A, Malaisse-Lagae F, Malaisse WJ. Stimulus-secretion coupling of arginine-induced insulin release: comparison with lysine-induced insulin secretion. Endocrinology 1989; 124:2558-2567 ?*

When should arginine be taken?

Arginine can be taken safely at any of the following times:

- Take first thing in the morning on an empty stomach
- Take on an empty stomach at bedtime 30 minutes prior to sleep lasting at least 4 hours
- Take 45 minutes prior to strenuous exercise.

An empty stomach is defined as: no food consumed two hours prior to taking **arginine**, and no food consumed for at least one hour after taking **arginine**. Water is acceptable. If you are taking **arginine** at bedtime you won't have to be concerned with food consumption after you take **arginine**. If you take **arginine** prior to workout or athlete event, food may be consumed one hour after the workout or event. During the workout or athletic event, water may be consumed freely. During your workout/athletic event, do not consume high glycemic sports drinks or protein drinks.

Selecting Appropriate Serving Size:

Start out by taking 5 grams and over a period of a few days gradually increase dosage to target amount (see Selected Serving Options). Consume selected servings (see Selected Serving Options) on an empty stomach at bedtime (prior to sleep lasting at least 4 hours).

Daily selected serving options by weight

Healthy Male Adults

100 to 149 pounds, 5 to 10 grams

150 to 199 pounds, 5 to 15 grams

200+ pounds, 10 to 25 servings

Healthy Non-Pregnant, Non-Lactating Adult Females

Under 125 pounds, 5 grams

125 to 185 pounds, 5 to 15 grams

186 to 220 pounds, 10 to 20 grams

Important Note: Do not take **arginine** within two hours of eating food or high glycemic drinks because it will not work if there are other amino acids in the digestive tract.

Optional instructions for athletes

Athletes may elect to take **arginine** at bedtime on an empty stomach and again 30-45 minutes prior to exercise. On non-exercise days, athletes should take **arginine** only at bedtime. **Arginine** should not be cycled. Most sports drinks interfere with HGH release, so only drink water near desired HGH release times.

Cautions and Contraindications

Arginine is a nutritional supplement and is not to be used in the treatment of disease.

Maximum Athletic Performance

This power beverage contains the ultimate growth-hormone release formulation, **arginine** to help support muscle growth, fat metabolism and non-stop energy!*

Some of the most famous athletes in the world took part in the testing phase of **arginine** supplements, including Mr. Universe; Mr. Olympia, World Lifting Federation; and Olympic athletes.

Arginine is Not Just for Athletes

Athletes derive tremendous biochemical advantages from **arginine**, but its benefits are not limited to the athletes.

Arginine provides specific health benefits for the non-athletes, too!

Arginine is used by professional athletes to help improve muscle tone, increase ratios of muscle-to-fat, improve muscle coordination and bone density, speed wound healing, and as an alternative to steroids.

Arginine's health benefits are dose-dependent, meaning the benefit received depends on the amount (dose) of arginine used. **Arginine**, taken orally, is a natural, non-drug alternative with proven clinical benefits.

*“**Arginine** is a safe, effective, and inexpensive means of self-care that boosts immunity, sexual potency, and general well-being.”* Harold Bloomfield, M.D.

*“Taken regularly, **arginine** supplements promise to enhance blood-flow patterns to the female sex organs, restoring what might one day soon be commonly known as female potency.”* Dr.'s Woodson Merrell, M.D. and Robert Fried, PhD., Columbia Univ. NY

The clinician and researcher will appreciate the myriad of well-executed studies that have been done which verify **arginine's** efficacy as an anti-aging agent. The layperson will appreciate the natural health benefits provided by oral ingestion of **arginine**.

*“In the field of medicine and health it is one of the revolutions of our time: the discovery that the amino acid **arginine** may be a ‘magic bullet’ for the cardiovascular system. A virtual arterial cleanser, arginine helps eliminate blockage and maintains blood flow.”*

*“Oral **arginine** taken regularly has time and time again proven its ability to lower cholesterol, prevent LDL oxidation by free radicals, restore endothelial function, normalize blood-vessel dilation, reduce*

platelet stickiness, and generally tune up your cardiovascular system.”

**Woodson Merrell, M.D., Columbia University Medical School
Dr. Robert Fried, PhD., Senior Professor of Biopsychology at
Hunter College, Columbia Univ. NY**

Nobel Prize Winners Discover Arginine Benefits

*“ The scientists who discovered how the natural chemical that comes from **arginine** keeps the body strong were recently awarded the Noble prize.”* Melvyn Werbach, M.D.

Over 69,000 medically published clinical research studies have validated the health benefits of **arginine**, including reactivation of the youth hormone, Growth Hormone, improvements in male and female sexual performance, improved immune system, reduced risk of heart disease, lowered blood pressure, lowered LDL cholesterol, improved kidney function, reversed atherosclerosis, reduced blood clots and strokes, improving diabetes, improving memory and improved wound healing.

- 7 grams of **arginine** per day improved blood flow in men, aged 55 to 77, with elevated serum cholesterol and early coronary artery disease. **Circulation**
- **Arginine** supplementation reduced pathological increases in the thickness of plaque - lined vessel walls in people with elevated cholesterol and arteriosclerosis. **Circulation**
- **Arginine** lowered plasma cholesterol levels in patients with advanced hypertension. **New England Journal of Medicine**
- **Arginine** infusion has the same effect in cardiovascular patients as cholesterol-lowering drugs. **The Lancet**
- 17 grams of **arginine** per day given orally to elderly patients for 2 weeks resulted in a significant improvement in their lipid profile, with no adverse side effects. **Journal of Parenteral & Enternal Nutrition.**

- 8.4 grams of **arginine** given 3 times a day significantly enhanced coronary artery blood flow in heart patients. ***Journal of the American College of Cardiology***
- In humans and animals, at 17 grams per day, **arginine** increases protein synthesis and improves wound healing. Kirk et al. **Arginine** stimulates wound healing and immune function in elderly human beings. ***Surgery 1993;114:155-60 / Barbul et al. Am J Clin Nutr 1983;37:786-94***
- 7 grams of **arginine** improved blood-vessel relaxation in young men with elevated serum cholesterol and coronary artery disease (in as few as 3 days). ***Circulation***

Arginine Cautions and Contraindications

Arginine is a natural amino acid found in meat, poultry, dairy foods, peanut butter, chocolate and nuts. It is also found in nutritional supplements.

Arginine is the safest amino acid in the entire amino food chain, but certain persons should avoid using any **arginine** supplements without express authorization from their physician.

DO NOT attempt to self-treat any medical condition. As with any medical condition, consult your physician before taking any supplements.

Contraindications

Persons with active herpes simplex or brain and ocular herpes should avoid:

- Eating foods that contain high levels of **arginine**, such as chocolate, beer, meats, nuts, sesame and other seeds, onions, garlic, grapes, peanut butter, coconut grape juice, orange juice, grain cereals, and beans
- Using any **arginine** supplements.

The herpes virus (herpes virus hominis) typically lays dormant in humans until activated by stress, colds, lack of sleep, and nutritional factors. Low-grade **arginine** formulas can increase replication of the virus. Lysine-rich foods that help combat herpes viruses include whole boiled eggs, yogurt, cheese, fish, and turkey.

DO NOT take **arginine** with lysine. These two aminos compete with each other to cross the blood-brain barrier.

DO NOT use **arginine** if you have been diagnosed with cancer. Though arginine has been shown to help successfully combat many cancers, very high doses (30-50 grams of arginine) per day stimulates growth hormone, which primarily stimulates growth of muscle mass. Certain tumor cells may thrive on human growth hormone, which may stimulate growth of breast cancer cells. As far back as 1981, the National Cancer Institute reported that arginine-derived nitric oxide inhibits [blocks] breast-cancer-cell replication in a test tube, and arginine has never been shown to cause breast or any other type of cancer. The research shows the pros and cons of using arginine at high doses. Doses of 6 grams a day or less of arginine is not considered a potential problem for cancer patients, but, as a precautionary decision, use of arginine in the presence of any cancer is contraindicated without a doctor's specific permission.

DO NOT take **arginine** with *Viagra*[™].

Arginine is NOT for use by pregnant or lactating women, males with prostate disorders or high PSA values.

Persons under the age of 23 and/or persons who have not completed their long-bone growth phase should NOT take **arginine**.

At this time (January-2005) there are no well-known drug interactions with **arginine**.