

The amino acid L-arginine is most familiar today as the main active ingredient in popular food supplements designed to boost nitric oxide (NO) levels.

NO is a potent dilator of blood vessels, and dilation can produce a greater and more long-lasting muscular pump during training. Wider blood vessels also carry more blood to muscles and tissues, delivering increased amounts of protein, carbohydrate and the various anabolic hormones (such as growth hormone and testosterone) needed for muscle growth.

But before arginine became linked to nitric oxide boosting supplements, it was very popular with natural bodybuilders as a way to boost growth hormone (GH) levels. In fact, an infusion of 12-40 grams of arginine is often used to determine a GH deficiency, especially in children. An arginine infusion usually promotes a release of GH in about 20 minutes, except in people deficient in the hormone.

Arginine primes the pituitary gland to induce the hypothalamus to release GH.

It also suppresses the brain hormone somatostatin, which suppresses release of GH. Some scientists suggest that somatostatin release increases with age, explaining the drop in GH secretion that occurs in many older people.

Scientists used to think that GH was secreted only during childhood years of growth, and then ceased with adulthood. Today, we know that production peaks around puberty, and gradually declines with age

Growth hormone is released in "pulses, which means levels rise and fall like the tides. They surge at certain times and drop at others. Growth hormone production also varies throughout the day, with your body releasing the greatest amount of growth hormone shortly after the onset of deep sleep.

What does growth hormone have to do with fat loss and muscle growth?

Firstly, growth hormone accelerates the rate at which stored fat is used for energy. A single surge in growth hormone increases both the number of fat calories your body burns for energy and your metabolic rate.

As the name suggests, growth hormone also plays a role in muscle growth. Adults with a growth hormone deficiency tend to have a harder time building muscle, even though they do get stronger after several months of resistance exercise.

Although a few recent studies concluded that oral arginine was ineffective for GH release, they did suffer from a number of important flaws. One, for example took only a single blood sample after an oral arginine dose, concluding that arginine showed no apparent GH release. Another was flawed because the researchers used a dose of arginine that was too small

A new study, however, overcame most of the flaws of previous research and found some results that should be of interest to anyone wanting to lose fat and build muscle.

Eight healthy men, aged 18 to 33, took different doses of arginine (5, 9 or 13 grams) or a placebo. Six drops of lemon juice disguised the taste of the arginine. The placebo had just the water and lemon juice.

The 5- and 9-gram doses resulted in greater GH release than the placebo, but the 13-gram dose didn't increase the release beyond that. In fact, the larger dose led to gastrointestinal distress. The GH rise occurred 30 minutes after the subjects took the arginine, and reached a peak after one hour.

Source: Collier SR, Casey DP, Kanaley JA. (2005). Growth hormone responses to varying doses of oral arginine. *Growth Hormone & IGF Research*, 15, 136-139

Ed. Note: Although arginine is a very effective way to stimulate the natural release of growth hormone in your body, it's been known for over 20 years that the combination of arginine pyroglutamate (a special type of arginine Arginine) and L-lysine promotes GH release five times

greater than when either amino acid is used alone (Current Medical Research and Opinion, volume 7, pages 475-481). Although most health food shops will sell L-arginine, very few sell arginine pyroglutamate. You can find it on the Internet, but make sure to use a reliable supplier, as many will just send you plain old bog standard L-arginine but make you pay for arginine pyroglutamate! Alternatively, we found that GH Kick (by Maximuscle) contains both arginine pyroglutamate and L-lysine in the correct amounts needed for maximum GH release.