

## Growth Hormone Secretagogue Supplements: Do They Reverse Aging in Patients Over Age 40?

James P. Meschino, DC, MS

Growth hormone is a protein hormone (not a steroid hormone) produced and secreted by the pituitary gland in the brain. After age 30, growth hormone secretion declines by approximately 14 percent per decade. By age 60, the average person secretes 75 percent less growth hormone than a 20-year-old. The dramatic decline in growth hormone secretion as we age is directly associated with many aspects of aging. Growth hormone is primarily released in pulses that occur during the beginning phases of sleep, which in turn stimulates the release of IGF-1 from the liver. As growth hormone secretions decline with aging, so do blood levels of IGF-1.

The decline in IGF-1 blood levels as we age has been shown to contribute to many aspects of aging, including thinning of our skin, more rapid wrinkling, brittle hair, and nails, grayed or dulled hair color, reduced energy, loss of muscle and bone mass, decreased libido and sexual performance ability, increased body fat, and other common signs and symptoms of aging. Conversely, growth hormone injections and/or supplementation with natural agents that stimulate the release of growth hormone have been shown to boost IGF-1 blood levels back to more youthful levels and reverse many age-related changes in the body. Studies have shown that boosting IGF-1 blood levels back to more youthful levels leads to a multitude of anti-aging benefits, including:

- improved immune function;
- increased sexual potency and function;
- increased muscle strength, muscle mass and energy;
- decreased body fat;
- elevated mood;
- improved sleep patterns;
- improved memory;
- improved skin thickness, texture, and reduced wrinkle lines;
- restoration of hair color; and
- improved vision.

The most pronounced anti-aging effects have been seen in patients whose IGF-1 blood levels were returned to a level at or greater than 350ng/ml, which certain anti-aging doctors claim can single-handedly reverse aging by up to 20 years in older subjects. To achieve blood levels in this range, regular injections of growth hormone are required by a physician trained in anti-aging medicine.

However, growth hormone injections have been shown to cause side-effects, especially in subjects whose IGF-1 returned to levels approaching 400ng/ml. The most common side-effects include swelling of the feet, fluid retention, joint pains, carpal tunnel syndrome, and more rarely, allergic responses.

I am concerned about boosting IGF-1 blood levels above 290-300ng/ml, as a number of research papers have correlated higher IGF-1 levels with an increased risk for breast and prostate cancer. This doesn't necessarily mean that IGF-1 causes cancer, but it does imply that more research is required before we can state with certainty that growth hormone injections are a completely safe

anti-aging intervention.

### Growth Hormone Secretagogue Supplements: A Safer, Natural Alternative

A number of studies have revealed that a combination of certain amino acids, ingested orally as a supplement at specific dosages, can stimulate the pituitary gland to release greater quantities of growth hormone after the age of 40, elevating our IGF-1 blood levels to match those we experienced up to our mid-30s. Studies show that supplementation with these amino acid combinations, collectively known as growth-hormone secretagogues, can raise IGF-1 blood levels up to 275ng/ml, which may be a safer level than 350-400ng/ml.

In a three-month study involving a proven growth hormone secretagogue supplement, blood levels of IGF-1 increased by 30% on average by the end of the 12<sup>th</sup> week, and patient self-assessment scores indicated that, of the 36 participants, 58% noted improvement in muscular strength; 42% reported an increase in muscle size; 68% reported body fat reduction; 74% noted an increase in energy; 47% reported improvements in skin texture; 32% reported improved skin thickness; 37% reported reduction in wrinkles (disappearance or reversal); 21% reported improvement in general healing capacity; 37% reported improvement in joint and back flexibility; 47% felt their immune system was stronger; 32% reported improved sexual potency; 44% of men reported better sexual stamina (penile erection); 66% of men reported less frequent nighttime urination; 53% reported improved mental energy and clarity; 37% reported improved attitude and mood elevation; and 47% reported improvement in memory. In male subjects, there was a reduction in PSA blood levels (prostate-specific antigen), signifying that this intervention did not trigger prostate malignancy or enlargement. As well, blood sugar levels in diabetic subjects were shown to improve, and there was also improvement in both cardiac (heart) and pulmonary (lungs) tests during the course of the three-month trial.

The author of the study, D.M. Ladley, MD, also noted that blood pressure was better controlled and improvement in menopausal symptoms was reported among affected women in this age group. Dr. Ladley, an authority on the use of growth hormone secretagogues, elaborated that improved energy, endurance, muscle mass and strength, and reduced body fat, were among the most frequently reported benefits in the first four weeks of supplementation. New hair growth, restoration of hair color, thickening of the skin, and disappearance of skin discoloration generally occurred between the eighth and 12th weeks, with continued improvement beyond the 12-week term. There were no side-effects reported from the use of the growth hormone secretagogue by any of the participants in this study. (Growth hormone secretagogues are generally well-tolerated and no consistent reports of adverse side-effects have been reported.)

In the study, initial blood levels of IGF-1 ranged from 21-276ng/ml. Subjects with lower values appeared to have experienced the largest increases in IGF-1 blood levels with secretagogue supplementation. As a rule, growth hormone secretagogue supplementation cannot elevate blood levels of IGF-1 beyond 275ng/ml. Thus, before beginning a supplementation program with a growth hormone secretagogue, you should first have your blood levels of IGF-1 evaluated.

### What Supplements Qualify?

Unfortunately, the growth hormone secretagogue industry is filled with unproven, ineffective and/or scam products that are not worth spending your money on. Individuals can assemble their own growth hormone secretagogue by stacking several amino acids together and taking them at once, one hour before bedtime. Growth-hormone and anti-aging specialist Vincent Giampapa, MD (medical director of the Longevity Institute International in Montclair, N.J.), suggests a starter amino-acid stack program consisting of:

- Arginine - 2 grams
- Ornithine - 2 grams
- Lysine - 1 gram
- Glutamine - 1 gram

After an initial course of one month, increase all of the amino acids in the stack by 2 grams each. Growth hormone secretagogue supplements are usually taken for five consecutive days, followed by two days with no supplementation, and then five days on again, repeating this sequence.

It is advisable to have your IGF-1 levels checked after three months of growth hormone secretagogue supplementation, in order to see how much of an increase has occurred in this hormone, and to gauge the extent of its anabolic and other anti-aging effects.

### Resources

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*James Meschino, DC, MS*  
*Toronto, Ontario Canada*  
[www.renaissance.com](http://www.renaissance.com)

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