

✓ [Fact Checked](#)

9 Benefits of Human Growth Hormone, Including More Muscle & Less Fat

By [Joe Boland](#)

June 13, 2017



If you're a sports fan, you've probably heard of human growth hormone — more commonly known as HGH — and associate it with cheating and steroid use. However, did you know that HGH is a **natural testosterone booster** that's produced on its own and provides many important benefits? It's true.

Human growth hormone is naturally produced in the pituitary gland and plays a vital role in cell regeneration, growth and maintaining healthy human tissue, including that of the brain and various vital organs. Once secreted, HGH remains active in the bloodstream for a few minutes, allowing just enough time for the liver to convert it into growth factors, the most crucial being insulin-like growth factor (IGF-1), which has growth-promoting properties on every cell in the body.

The study of human growth hormone is a little more than 100 years old, and synthetic human growth hormone was first developed in the 1980s and approved by the FDA for specific uses in adults and children. (1) Let's find out why.

9 Robust Benefits of Human Growth Hormone

Human growth hormone can be injected in larger doses to promote weight loss and increase muscle size while a small doses can be used for general recovery, health and ignite the anti-aging process. Presently, there is a growing list of benefits of HGH treatment in children, adolescents and adults, such as:

1. Increased Muscle Strength

Human growth hormone has been known to improve physical capacity of individuals through stimulating **collagen** synthesis in the skeletal muscle and tendons, **increasing muscle strength** and improving exercise performance as a result.

In the *International Journal of Endocrinology*, a study with 14 healthy men at the ages of 50 to 70 were randomized into two groups. Seven subjects were administered HGH therapy with seven placebo subjects, and they were re-evaluated after six months. After six months, there was a significant increase in the leg press responsiveness muscles in the growth hormone group.

Overall, the study concluded an increased muscle strength in the lower body after human growth hormone was administered in healthy men. In HGH-deficient adults, participants who were administered long-term HGH therapy experienced normalization of muscle strength, increased exercise capacity, and improved thermoregulation and body composition. (2)

2. Better Fracture Healing

Numerous of local growth factors and hormones are responsible for regulating mineral and bone metabolism, along with fracture healing. Administration of human growth hormone has been shown to speed up the regeneration of bone, making it a key part of **bone healing**. Applying growth factors like IGF-1 is known to stimulate the metabolism of bone.

In a study published in the journal *BONE*, growth hormone was systemically applied to recombinant species-specific rats by subcutaneous injections and was compared to the placebo group. As a result, the local growth factor application revealed a stronger effect on fracture healing than the systemic human growth hormone injection. These observations suggest that the local application of growth hormone speeds up fracture healing significantly without systemic adverse effects. (3)

Human growth hormone plays a crucial role in the repair of wear and tear and expedites healing. Researchers have reported the beneficial effects of HGH in enhancing the healing of injuries and wounds significantly. A randomized, controlled, double-blinded study for six months of HGH therapy or placebo in 28 healthy older men with low baseline plasma IGF-1 was conducted at the University of California's Department of Medicine. As a result, healthy older men who were administered growth hormone had enhanced collagen deposition during the wound-healing process, helping the healing process. (4)

3. Enhanced Weight Loss

Obese individuals have limited response to growth hormone stimuli release, and after successful reduction of weight, growth hormone responsiveness can be partial or complete. Growth hormone accelerates lipolysis, the breakdown of lipids and involves hydrolysis of triglycerides into glycerol and free fatty acids, and impaired secretion of human growth hormone leads to loss of lipolytic effect.

Dietary restrictions and growth hormone treatment effects on anabolic and lipolytic actions as well as the changes in growth hormone secretions and insulin were investigated in a study published in *Hormone Research*. Twenty-four obese participants were on a hypocaloric diet and treated with recombinant human growth hormone or a placebo in a double-blinded, 12-week randomized study. As a result, growth hormone treatment caused a 1.6-fold increase in weight loss, with the greatest loss being **visceral fat** compared to the placebo.

In the placebo group, lean body mass was lost, whereas lean body mass was gained in the growth hormone group. This study suggests that in obese participants who eat a caloric-restriction diet, growth hormone accelerates the loss of body fat and improves growth hormone secretion. Thus, human growth hormone can serve a therapeutic role to help obese people **lose weight**. (5)

4. Stronger Bones

The pituitary gland stimulates the release of growth hormone and is essential for regulating bone growth, especially during puberty. Growth hormone stimulates the production of IGF-1, which is produced in the liver and released in the blood. With age, human growth hormone decreases and may be the cause of older individuals not being able to form or replace bone rapidly. The IGF-1/growth hormone duo stimulates bone-forming and bone-resorbing cells, leading to increased bone mass. (6)

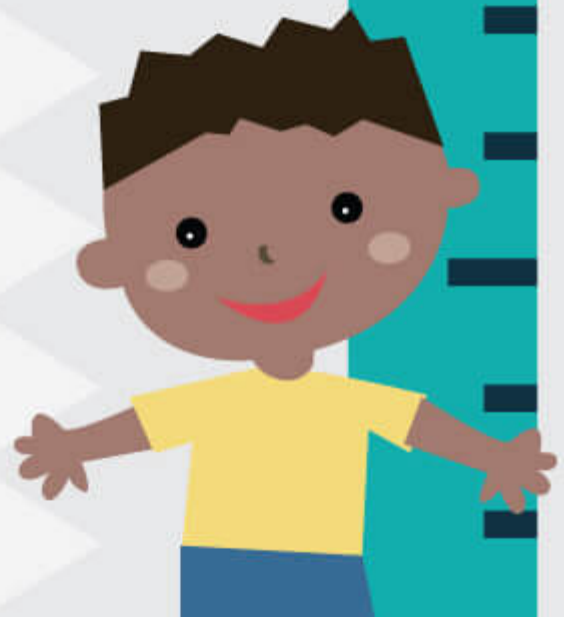
5. Reduced Cardiovascular Disease Risk

Adults who are growth hormone-deficient have an increased risk for cardiovascular disease, leading to decreased life expectancy. In Sweden, 104 patients who are growth hormone-deficient were studied for cardiovascular disease risk. These patients had higher body mass and triglyceride concentrations compared to controls. These results suggest lipoprotein metabolism is altered by growth hormone deficiency, increasing the risk for **cardiovascular disease**. (7)

SIGNS OF HGH DEFICIENCY

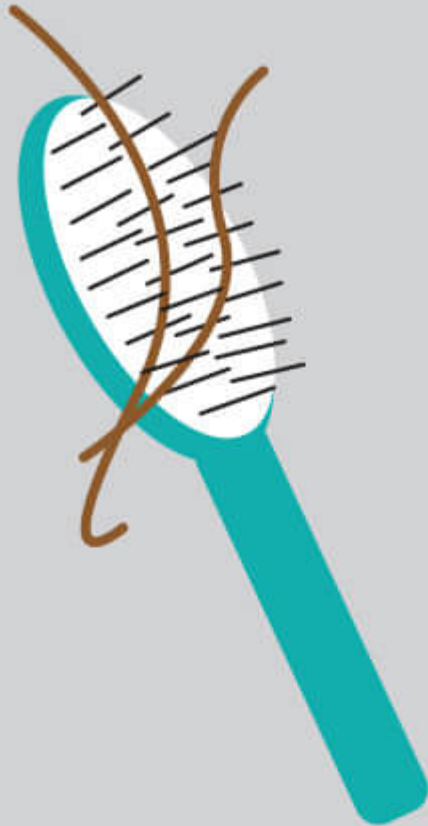
IN CHILDREN

- 01** Being significantly shorter than children their age
- 02** Grow less than 2 inches per year
- 03** Facial features that appear younger than children who are the same age
- 04** Delayed puberty, sometimes will not go through puberty
- 05** Slow development in teeth
- 06** Increased fat around the stomach and face
- 07** Underdeveloped bridge of the nose
- 08** Prominent forehead





IN ADULTS



01 Depression and or/anxiety

02 Hair loss

03 Decrease in interest & sexual function

04 Decreased muscle strength & mass

05 Lack of memory & difficulty concentrating

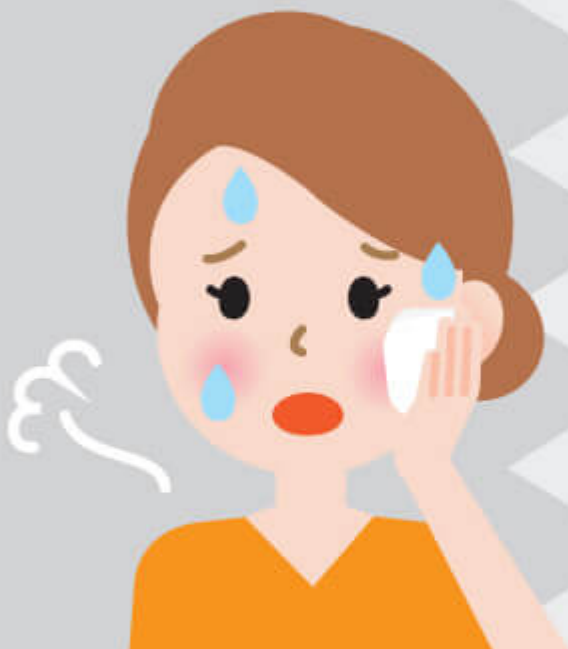
06 Thin, dry skin

07 High levels of triglycerides

08 Fatigue

09 Increased risk of cardiovascular disease

10 High levels of LDL ("bad") cholesterol





6. Improvement in Erectile Dysfunction

It's been suggested in recent studies that human growth hormone is responsible for male reproductive function and sexual maturation while deficiency is associated with loss of sexual erection and desire. Thirty-five healthy adult men and 45 participants with **erectile dysfunction** were exposed to tactile and visual stimuli in order to elicit penile tumescence in a German study. The increase in growth hormone was greater than 90 percent as determined during developing penile tumescence, followed by a transient decrease afterward.

This study suggests that penile erection may be induced by growth hormone through its stimulating activity on human corpus cavernosum smooth muscle, making it a potential **natural remedy for impotence**. (8)

7. Decreased Obesity

Insulin resistance and visceral/abdominal obesity are common in adults with hormone growth deficiency. Abdominal obesity is prevalent in individuals who show low growth hormone and insulin-like growth hormone serum concentrations as well. Human growth hormone treatment has demonstrated positive results in adults who are growth hormone-deficient in **treating obesity naturally**.

Thirty men ages 48–66 with abdominal/visceral obesity were treated with recombinant human growth hormone in a nine-month, randomized, double-blind study published in the *Journal of Clinical Endocrinology & Metabolism*. Abdominal and visceral adipose tissue decreased along with diastolic blood pressure, and improved insulin sensitivity was one of the favorable benefits of human growth hormone found. (9)

8. Better Mood and Cognitive Function

Quality of life and psychological well-being are restored when growth hormone therapy in growth hormone-deficient adults is administered. A Lithuanian study investigated the changes in cognitive function, mood and concentration from baseline after six months of treatment with human recombinant growth hormone. Eighteen adult patients with HGH deficiency participated in the study, and growth hormone was administered in 12 IU per week.

As a result, cognitive function and mood significantly increased after six months of therapy, according to mood scales. This study suggests that administering growth hormone can be a possible treatment option to improve cognitive function and mood in adults who are growth hormone-deficient. (10)

9. Better Sleep

The majority of the growth hormone pulsatile secretion happens just after the onset of sleep and continues to rise when the first hours of sleep are reached. Individuals who are going through sleep deprivation, such as

people who work the night shift or late studiers, can be affected negatively throughout the day. **Lack of sleep** alters pituitary and hypothalamus function, further altering growth hormone release time.

When sleep was deprived for 24 to 36 hours in a study conducted by the University of Chicago's Department of Medicine, human growth hormone release was drastically decreased and noticeably decreased in growth hormone peak values at night. The 24-hour pulse rate of growth hormone became random and more frequent throughout these waking hours. This study suggests that sleep deprivation can reduce growth hormone release the morning after and can severely disturb and alter the sleep-wake cycle. (11)

Human Growth Hormone Deficiency

Signs and symptoms of growth hormone deficiency vary with age, and children can have different symptoms than an adult. Children being significantly shorter than children their age and grow less than two inches per year are common symptoms of growth hormone deficiency. Children with normal levels grow about 2.5 inches a year from age 1 until they hit puberty, when they can grow up to four inches a year. However, a decline in human growth hormone does not have any impact on a child's intelligence.

Other symptoms of growth hormone deficiency in children include: (12)

- Facial features may appear younger than children who are the same age
- Delayed puberty, sometimes will not go through puberty
- Increased fat around the stomach and face
- Prominent forehead
- Slow hair growth

Adults may experience a combination of symptoms from human growth hormone deficiency, including: (13)

- Depression
 - Hair loss
 - Sexual dysfunction
 - Decreased muscle strength and mass
 - Memory loss
 - Lack of concentration
 - Dry skin
 - Increased triglycerides
 - Fatigue
 - Cardiovascular disease risk
 - Increase LDL (“bad”) cholesterol
 - Insulin resistance
 - Reduced bone density
 - Temperature sensitivities
 - Increased weight, especially around the waist
-

Impact of Human Growth Hormone of Men and Women

More women are now using HGH for its anti-aging and weight-loss properties. Deficiency in human growth hormone in women is due to pituitary gland not producing enough HGH.

In women, human growth hormone levels start to decline in their early 20s, and signs of HGH deficiency include dry skin, thinning hair, greater belly fat and the development of wrinkles.

It's been reported in studies that women secrete greater amounts of growth hormone than men, despite having similar reference ranges of serum IGF-1. Recently, there are significant clinical differences in the responses of HGH treatment in adults with HGH deficiency and a need to adjust the dose of recombinant human growth hormone. Adequate HGH levels help women improve an appropriate body-fat ratio and elasticity in skin. Risk of **osteoporosis** is reduced when HGH levels in women are balanced. Intramuscular HGH injections can help normalize sleep patterns, improved skin elasticity, help lose excess fat and **enhance the immune system**.

Men are likely to feel the first signs of aging after 35 old, such as loss of libido, weakness, baldness and memory loss. Human growth hormone has a positive impact on men, giving them the physical ability to perform in sports, which is why men often go through HGH treatment during intense training. Men who are treated with HGH experience reduction of fat, skin tightening, hair becomes healthier and thicker, and erectile dysfunction is corrected. (14)

Best Ways to Increase HGH Naturally

1. High-Intensity Exercise

It's well-documented in various studies that exercise-induced growth hormone response increases HGH secretion. Research suggests that the exercise-induced growth hormone plus endurance exercise associated with load, intensity, duration and frequency are the determining factors in the regulation of HGH secretion.

An exercise intensity above lactate threshold and for a minimum of 10 minutes elicits the greatest stimulus to the secretion of HGH. **HIIT workouts** are effective in promoting beneficial well-being, health and

positive training outcomes, while stimulating HGH. (15)

2. L-glutamine

Supplementing with **L-glutamine** is known for enhancing exercise performance, maintaining acid-base balance and increasing the storage of glycogen in muscle. In an Iranian study, 30 healthy non-athlete males were randomly divided into placebo and glutamine supplementation groups and put through an eight-week resistance training program. Both groups performed the same **weight training** program three days a week for eight weeks. Both groups increased in performance, but the glutamine groups showed greater increases in lower- and upper-body strength, explosive muscle power, blood testosterone, IGF-1, and HGH compared to the placebo group. (16)

3. L-arginine

Most studies have shown when administering oral **L-arginine** to participants, arginine alone increases the resting growth hormone levels at least 100 percent, while exercise can increase growth hormone levels by 300 percent to 500 percent. (17)

NATURAL WAYS

— TO INCREASE —

HGH



01 HIIT WORKOUTS

An exercise intensity above lactate threshold and for a minimum of 10 minutes elicits the greatest stimulus to the secretion of HGH.

02 L-GLUTAMINE

Supplementing with glutamine can not only help an athlete prevent catabolism of muscle tissue and illness, but it can enhance glycogen storage, boost growth hormone levels and hydrate muscle cells.

03 L-ARGININE

Studies show arginine alone increases the resting growth hormone levels at least 100%, while exercise can increase growth hormone levels by 300%–500%.



04

A-GPC

Research observed that participants taking 600 mg of A-GPC 2 hours before resistance exercise had increased HGH levels post-exercise compared with those who consumed a placebo

05

LAUGHTER

In 1 study, HGH and endorphins were increased by 27% and 87%, respectively, when participants anticipated watching a humorous video.

06

LIVER DETOX

The liver plays an important role in HGH, so a healthy, clean liver is vital to obtain the benefits of HGH.

07

VITAMIN C

There's a correlation of reduced vitamin C concentration in decreased growth hormone secretion, obese patients, increased waist-hip ratio and increased heart disease risk.



4. A-GPC

According to a study in the 2008 issue of the *Journal of the International Society of Sports Nutrition*, alpha-glycerylphosphorylcholine (A-GPC) might increase human growth hormone levels. Participants who consumed 600 milligrams of A-GPC two hours before resistance exercise had increased HGH levels post-exercise compared to those given a placebo. (18)

5. Laughter

Researchers Stanley Tan and Lee Berk at Loma Linda University in Loma Linda, Calif., observed that two hormones, human growth hormone and endorphins, were increased by 27 percent and 87 percent, respectively, when participants anticipated watching a humorous video. (19)

6. Liver Detox

HGH stimulates the liver into producing IGF-1, which is released into the body to stimulate the production of cells that are responsible for cell proliferation, increased muscle mass and increased energy. An individual

would never experience the full benefits HGH has to offer if experiencing poor liver function, cirrhosis, fatty liver and non-alcoholic fatty **liver disease**. (20) Thus, if you naturally want to increase HGH, you should go on a **liver cleanse**.

7. Vitamin C

Studies have observed the correlation of reduced vitamin C concentration in decreased growth hormone secretion, obese patients, increased waist-hip ratio and increased heart disease risk, which is why consuming more **vitamin C foods** may help increase HGH. (21)

Human Growth Hormone Precautions

Unfortunately, HGH has side effects. Major side effects include enlargement of the fingers and toes, skeletal changes, growth of the orbit, and lengthening of the jaw. The internal organs also can enlarge, and **cardiomegaly** is often one of the causes of death associated with HGH abuse.

Since skeletal muscle increases in size, there are often complaints of muscle weakness and occasional feeling of “pins and needles” sensation, known as **carpal tunnel syndrome**, which are particularly observed by individuals who take daily doses of four IU of HGH or higher. Individuals also notice fingers feeling swollen or face feeling fuller at doses of four IU and above. This side effect is temporary and has been shown to go away when the dose is lowered within two weeks after the cycle is discontinued. (22)

Another consequence of increased protein synthesis during HGH abuse includes changes to the skin, such as thickening and coarsening, known as “elephant epidermis.” The combination of side effects, particularly cardiomegaly, **hyperlipidemia**, hyperglycemia, usually contributes to a shortened life span in those suffering from overproduction of HGH. (23)

Final Thoughts on Human Growth Hormone

- The use of human growth hormone and the research confirming its anti-aging and performance-enhancing properties has increased throughout the years.
- Symptoms of human growth hormone deficiency include depression, fatigue, decreased muscle strength and mass, insulin resistance, hair loss, cardiovascular disease risk, memory loss, and delayed puberty in children.
- Increased energy levels, exercise performance, lean muscle mass, hair growth and stronger bones are few of the many benefits of human growth hormone.
- Natural ways to boost human growth hormone levels include laughter, sleep, liver detox, L-arginine, L-glutamine and exercise.

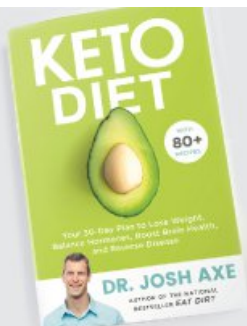
Read Next: [9 Natural Testosterone Boosters for More Energy, Better Sleep + More](#)

From the sound of it, you might think leaky gut only affects the digestive system, but in reality it can affect more. Because Leaky Gut is so common, and such an enigma, I'm offering a free webinar on all things leaky gut.

[Click here to learn more about the webinar.](#)

Sponsored

JOIN THE
Keto Diet Book
Street Team



- ▶ Early access to content from *Keto Diet*, a definitive guide by Dr. Josh Axe
- ▶ Exclusive Bonus Content
- ▶ Group Q&As with Dr. Josh Axe

[Learn More](#)