

CHAPTER SEVEN

**HUMAN GROWTH
HORMONE (hGH)**



*“Old age must be resisted and
its deficiencies restored.”*

Leroy “Stachel” Paige



Dr Ronald Klatz, world-renowned anti-aging expert, founder and president of the American Academy of Anti-Aging Medicine, states:

By replenishing your supply of growth hormone, you can recover your vigor, health, looks and sexuality. For the first time in human history, we can intervene in the aging process, restore many aspects of youth, resist disease, substantially improve the quality of life, and perhaps extend the life span itself.

The American Academy of Anti-Aging Medicine, with over 10,000 health professional-members from more than 70 countries worldwide states that the **decreased production of human growth hormone in the body is a primary cause of aging.**

Work done in the area of growth hormone and the human genome is becoming well known and has been on the front page of virtually every major newspaper in the world. Can hormone replacement therapy extend the average life span? The answer is a decided **YES**. The reason we know this to be true is due to the successful experiments done by those involved with hormone replacement therapies. For instance, estrogen replacement therapy in post-menopausal women has reduced the rate of heart attack and stroke significantly and prolonged their life span. Research with human growth hormone (hGH) has been very encouraging because human growth hormone is pervasive in the body. Because of the exciting research and prospects relating to human growth hormone and aging, we are learning more about how this can help deter the aging process. Over a hundred articles

published over the last 20 years and in the *New England Journal of Medicine* and other leading medical, scientific and research journals show that increasing human growth hormone may reverse human biological aging and make you look and feel younger.

HISTORY OF hGH

Human Growth Hormone was first discovered in 1912 by Dr Harvey Cushing. It was first isolated from human and monkey cadavers through glandular extraction in 1956. Two years later, it was being used to treat dwarfism in children by injection. In 1989, the landmark double blind study by Dr Daniel Rudman showed that with the use of hGH, **age reversal is possible**. This study included adult men who were tested for deficiency in growth hormone. These men were all between the ages of 61 and 73. They were injected with hGH made from recombinant DNA synthesis. In 1990, Dr Rudman's research results were reported in the prestigious *New England Journal of Medicine*.

Results of Dr Rudman's Landmark Double-Blind Study on hGH:

- | | |
|---------------------------------------|---------------|
| 1. Lean Body Mass | + 8.8% |
| 2. Bone Density | + 1.6% |
| 3. Adipose Tissue (Fat) Mass | -14.4% |
| 4. Skin Thickness from 4 sites | + 7.1% |

Summary: skin thicker, muscle mass increased, age-related stomach fat was disappearing, bone lost from the spine was restored.

FREQUENT ANTI-AGING QUESTION

Q: Is it true that you should not take hormone replacement on a regular and long term basis?

Our body has a built-in “negative-feedback” loop to signal the brain to turn off production of hormones when the amount circulating in the blood is too high. When you take external supplementation to boost your hormone level, the blood level rises and this feedback loop is activated. For this reason, most professionals recommend a resting period of a few weeks between cycles of hormonal replacement, including growth hormone and others. Interestingly enough, DHEA is not regulated by a negative feedback loop in the body. In other words, taking supplements of DHEA will not suppress your body’s production of these hormones or cause the adrenal gland to rest, resulting in atrophy from the disuse. Theoretically, no “resting period” is required, although it may be a good practice to have a resting cycle of a few weeks for every few months of therapy, as with all hormone replacements.

The effects of just six months of human growth hormone therapy on lean body mass and adipose tissue mass were equivalent to **10 to 20 years of reversed aging**. Dr Robert Klatz's book *Stopping the Clock* says:

... it (human growth hormone) helps ... the way our muscle-fat ratio tends to change as we age. 80% of a young adult's body is lean body mass: muscles, organs and bones. Only 20% are fatty (adipose) tissue. For most people, after age 30, muscles atrophy, partly from genetic programming, partly from under use. Every decade thereafter an average of 5% of lean body mass is replaced by fatty tissue, so that by the time most of us reach age 70, we've gone from an 80-20 lean-fat ratio to a ratio that is closer to 50-50.

The increase in fatty tissue is related to a variety of cardiovascular problems, whereas the loss of lean body mass is part of what causes the elderly to lose energy, strength, and mobility. Anything that can slow or reverse the trend towards more fatty tissue in effect slows or reverses the aging processes itself.

Although drugs and therapies that claimed to reverse aging are nothing new, only Dr Rudman's study passes the gold standard of drug testing: controlled, randomized, double-blind clinical study with reproducible results. **Dr Daniel Rudman's study in the *New England Journal of Medicine* at that time** represented the biggest breakthrough in anti-aging medicine and proved that certain parameters in aging could be reversed by 10 to 20 years!

Some of the most exciting and phenomenal studies in medicine today involve hormones and hormone replacement. For centuries, on all continents, humans have been practising medicine in a way which would prolong life. However, the scientific discoveries and development in hGH in this century has increased the possibilities of longevity to a qualitatively different level than ever before in human history. Clinical research in hGH expands with the passing of each year. Dr Rudman's studies in hGH defined a new era in anti-aging medicine. This is because **researchers can scientifically document that a substance can be administered to human beings that could produce age reversal**. Even before this study existed, the research into human hormones had been growing by leaps and bounds. Along with DNA research, hormone enhancement holds bright possibilities for extending life.

WHAT IS GROWTH HORMONE (hGH)?

Growth hormone is a small protein molecule containing 191 amino acids in a single polypeptide chain. It is the most abundant hormone secreted by the body in the pituitary gland. Its rate of production peaks during adolescence when rapid growth takes place. Release rate decreases 14% every decade. Generally, it remains in abundant supply in the pituitary gland waiting to be secreted into the body. For some cause yet to be identified, this all-important gland ceases to release the hormone into the body as we age and therefore fails to tell the body to repair the cells. By receiving decreased amounts of growth hormone over time, the body begins to age.

TOP 10 ANTI-AGING DO'S

1. Do **take your supplements** every day.
2. Do put yourself on a **good antioxidant program**.
3. Do consider **herbal therapies** to treat your ailments.
4. Do eat at least five servings of **fresh fruits and vegetables** a day.
5. Do incorporate **high fiber** into your diet.
6. Do eat lots of **fish**.
7. Do **exercise** regularly.
8. Do **relaxation** to reduce stress.
9. Do maintain a **positive attitude**.
10. Do visit your **doctor** for medical problems.

Daily secretion from the pituitary gland diminishes with age to the extent that from the age of 20 to 70, growth hormone level in your body falls by more than 75%. You look and feel older. Practically EVERYONE over the age of 40 has growth hormone deficiency.

Actually, secretion decreases due to lack of instructions from the hypothalamus to release growth hormones; receptor sites for hGH also become desensitized after a certain age. This causes less growth hormone to be released.

hGH is actually released in pulses that take place during the day, but are especially prominent during the beginning phases of sleep. The hGH is rapidly converted in the liver (within 20 minutes) to insulin-like Growth Factor Type I (IGF-1). More importantly, IGF-1 elicits most of the effects associated with growth hormone. It is measured in the blood and this is significant because it enables us to measure the amount of growth hormone being released. Many factors affect the body's ability to release hGH and form IGF-1. These factors include excessive physical and emotional stress, chronic liver dysfunction, poor diet, genetic predisposition and, of course, aging. Other factors leading to the decrease of hGH release include obesity, zinc and magnesium deficiency, an increase in blood sugar and/or insulin levels. On the other hand, factors leading to the increase release of hGH include calorie restriction, increased testosterone or estrogen levels, high doses of amino acids (L-Arginine, Glutamine, Lysine), increase in calcium and intense exercise.

SIGNS OF DECLINING HORMONAL HEALTH

The following are 15 common signs of declining hormonal health.

1. Do you go through mood swings easily?
2. Do you anger easily?
3. Do you have trouble falling or staying asleep?
4. Is your sex life declining?
5. Do you have problem concentrating?
6. Do you often get cold or feel sick?
7. Is your total blood cholesterol over 240?
8. Is your HDL cholesterol under 50?

9. Do you have high blood pressure?
10. Does the skin on your face and neck appear to hang?
11. Is it getting harder to exercise?
12. Is your grip strength weakening?
13. Is your endurance level less?
14. Is your breathing more labored when you exercise hard?
15. Are you age 45 and above?

If you answered “yes” to many of the questions, you should consider hGH enhancement.

EFFECTS OF hGH ENHANCEMENT

Reported effects with hGH enhancement are numerous. The loss of fat and reduction of wrinkles are reported as well as the growth of hair, better sleep, and increase in muscle. Improvement in sex drive, brain function, vision, immune function and cholesterol profile have been widely documented as well.

Three distinctive methods have emerged which either enable growth hormone to be replaced or stimulated.

The three methods are:

1. direct human growth hormone injections;
2. secretagogues; and
3. hGH boosting hormone replacement.

The following is a brief summary on each of these categories:

Human Growth Hormone — Injections

For years after Dr Rudman's study, growth hormone was given by injection. Many inconveniences, however, sprung up as a result of using this method. Fortunately, these difficulties were not safety related but became, as we said, matters of inconvenience. For one, the injections were expensive and had to be supervised by a physician. Many people complained about having to poke themselves daily with needles. Besides the pain and inconvenience, people often had vascular problems associated with finding veins and new sites to inject. No major side effects were reported, with the exception of some minor joint aches and pains and fluid retention. This tends to disappear in the first or second month.

Although injections of human growth hormone may not be the program of choice for many people, statistics had shown the overwhelming impressive effectiveness.

A few years after Dr Rudman's death, a study was conducted at the same institution at which Dr Rudman had completed his original work. The following information was taken from this study at the Medical College of Wisconsin between 1994 to 1996.

Recipients of hGH were given low dose/high frequency dosages. The information was compiled from 308 randomly selected self-assessment questionnaires that were completed by 202 patients.

- **88% reported improvement in Muscle Strength**
- **81% reported improvement in Muscle Size**
- **71% reported improvement in Body Fat Loss**

- **81% reported improvement in Exercise Tolerance**
- **83% reported improvement in Exercise Endurance**
- **71% reported improvement in Skin Texture**
- **68% reported improvement in Skin Thickness**
- **71% reported improvement in Skin Elasticity**
- **51% reported improvement in Wrinkle Disappearance**
- **38% reported improvement in New Hair Growth**
- **55% reported improvement in Healing of Old Injury**
- **53% reported improvement in Back Flexibility**
- **53% reported improvement in Sexual Potency/
Frequency**
- **73% reported improvement to Common Illness**
- **62% reported improvement in Duration of Penile
Erection**
- **57% reported improvement in Frequency of Nighttime
Urination**
- **57% reported improvement in Hot Flashes**
- **84% reported improvement in Energy Level**
- **62% reported improvement in Memory**

Findings such as these, which became nearly commonplace, began causing quite a stir in the medical communities, which resulted in a huge demand for human growth hormone for those who could afford and tolerate the daily injections. However, interest in being injected daily was not appealing to the mass public.

Most recently, researchers have therefore focused on methods that stimulate the pituitary to release the growth hormone, which is in storage but is not being released for some reason.

FREQUENT ANTI-AGING QUESTION

Q: *What kind of diet is best for hormonal health?*

A diet high in fruits and vegetables (complex carbohydrates) is best. Simple carbohydrates (such as cookies, rice, potatoes, and other sweets) increase blood sugar and insulin levels, which in turn decreases the formation of eicosanoids such as PGE1. PGE1 is a precursor to cyclic AMP, which is required for the production of melatonin, progesterone, testosterone, T4, and estrogen. Also required for the proper function of the growth hormone are ACTH, follicle stimulating hormone, luteinizing hormone, and TSH.

Nutrient supplements known to stimulate the production of hGH are called Secretagogues. In other words, these nutrients help the body to secrete existing hGH that are stored in the pituitary glands.

Secretagogues (hGH Releasers)

An unusual name: secretagogue (pronounced *se-cre'-ta-gog*). It is generally a natural peptide chain of amino acid that causes the pituitary gland to release the growth hormone, which has already been produced by the body and is stored in the pituitary gland. It is a food supplement and has no side effects. They are the

precursor to hGH. While hGH injection cause the body to act as if the pituitary has released the growth hormone, a secretagogue actually causes the release of the body's human growth hormone. **Secretagogues do not act as growth hormones at all; rather, most of them stimulate the pituitary gland to secrete its own growth hormone.** Some advance secretagogue formulations stimulate the hypothalamus to release growth hormone releasing factor (GHRF) which in turn will stimulate the pituitary gland and release growth hormones.

Probably more than anything else, the inconvenience and unnaturalness of injecting hGH led to the discovery of secretagogues. For years, it was believed that the pituitary gland, where the growth hormone is produced, dries up as a natural effect of aging. Scientists had recently discovered that plenty of growth hormone resides in the pituitary, but that the pituitary merely stops secreting it as age progresses. The trick was to discover an agent, which could stimulate the pituitary to start secreting hGH again. Scientists discovered that certain combination of amino acids encouraged the pituitary gland to release the growth hormone. Experimentation had led to perfecting the right combinations.

How Does It Work?

A Growth Hormone Rejuvenator (secretagogue) will increase the growth hormone level. Research has proven that the human growth hormone declines with age. As it declines, we see the onset symptoms of aging. As the growth hormone level increases, many of these symptoms reverse and disappear. The growth hormone reaches far beyond the scope of many hormones to not only prevent biological aging, but to significantly reverse many

signs and symptoms associated with aging. Reported effects of the increase in the growth hormone level are numerous. The overall feeling of vitality was reported along with a loss of fat and reduction of wrinkles with tighter and smoother skin, as well as the growth of hair, better sleep and reduced pain in joints. Improvement in sex drive, brain function, vision, immune function and cholesterol profile has been widely determined as well. There are a variety of secretagogues available. Unfortunately, many are not clinically tested. Our experience with selected oral effervescent and sublingual forms have been positive in increasing the IGF-1 level by up to 50 to 60%.

hGH Boosting Hormone Replacement

Certain hormones have a synergistic effect in boosting the body's secretion of hGH. Certain hormones, together with the growth hormone, decline with age as well. It is necessary to replace them to ensure your youth and health. Also, different hormones do different things in the body and raising the level of other hormones will decrease the amount of hGH needed. Some of these hormones are estrogen, progesterone, testosterone, DHEA and melatonin.

HOW NUTRITIONAL SUPPLEMENTATION AND hGH WORK TOGETHER

Following a good nutritional supplementation program, precision anti-aging exercise program, a healthy diet and the right mental health are vital because they work synergistically with hGH to promote hGH secretion.

FREQUENT ANTI-AGING QUESTION

Q: Other than getting injections, which is too expensive for me, are there any natural alternatives for me to increase my growth hormone level?

Many physicians practicing anti-aging medicine believe in using natural nutrients. It is done not by replacing the hormone, but by stimulating your very own pituitary gland to naturally increase the release of hGH. Substances, which stimulate the pituitary gland in this manner are called secretagogues. Secretagogues are all natural and side effects are rare. The results, while not as dramatic as injections, had been very encouraging.

In addition, **hGH can be enhanced with supplements such as Chromium Polynicotinate, which helps to lower circulating insulin and blood sugar. Finally, a natural hormonal enhancement program such as estrogen, progesterone, DHEA, testosterone, and melatonin can give an added boost to the secretion of hGH.**

Those over the age of 45 should consider hormone enhancement program. Secretagogues can increase your growth hormone level and the results could be dramatic, including losing fat, smoothing wrinkles, increased energy, less pain and overall feeling and looking younger.

