

## ***HGH SUPPLEMENTATION MAY HELP AGE-RELATED DECLINE***

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**SUMMARY:** Human Growth Hormone (HGH ) is critical to many processes in the human body, including tissue repair, healing, muscle growth, physical and mental health, brain function, energy and metabolism. HGH secretion is highest during adolescence and gradually declines with age. According to a study by Rudman et al (1), men between the ages of 61 and 81 who received HGH injections for six months showed an 8.8% increase in lean body mass, a 14.4% decrease in body fat, and a 1.6% increase in average lumbar vertebral bone density, compared to no significant change in the control group. HGH is available in a variety of forms and most commonly by injection.

**ABOUT GROWTH HORMONE:** HGH is a complex hormone made up of 191 amino acids and produced by the pituitary gland. Although HGH secretion peaks during adolescence, it continues to be produced during deep sleep throughout our lives. Among the critical functions of HGH are conversion of body fat to muscle mass, tissue growth and repair, energy, healing, cell replacement, bone strength, brain and sexual function, organ health, enzyme production and healthy hair, nails, and skin. Levels of HGH secretion drop from about 500 mcg per day at age 20 to about 25 mcg per day at age 80.

HGH acts on the liver to produce insulin-like growth factor 1 (IGF-1) or somatomedin-C), which does the growth-promoting work of HGH. Because IGF-1 remains in the bloodstream longer than HGH, its production is used as a measure of HGH secretion. Growth hormone levels decline with age and are approximately one-third lower in healthy men and women over 55 years old compared to adults 18-33 years old, with IGF-1 concentrations lower as well (2). However, there is significant individual variability in the amount of HGH decline. The percentages of men and women with IGF-1 levels below those of 20-29 year olds has been reported as 11% among adults in their 40's, 20% among those in their 50's, 22% among 60's, 54% in the 70's and 55% in the 80's and 90's. Among all ages, IGF-1 levels were lower in those with higher body fat (3).

**HGH AND AGING:** After the age of 20, less HGH is secreted with each passing year. By age 40, only about 200 mcg daily are secreted, declining further to 25 mcg by age 80. It is not certain why this occurs. Among possible explanations are that the pituitary gland somehow does not receive the signal to produce more HGH as people age or that somatostatin, a natural growth hormone inhibitor, increases. The most striking result is increased fat and decreased muscle mass in the elderly.

**STUDIES:** Several studies have set out to determine whether the administration of HGH could help prevent or reverse some symptoms of aging. The most notable of these is the study mentioned earlier by Rudman et al., which concluded that diminished HGH secretion is partially responsible for reduced lean body mass, increased fat-tissue mass, and the thinning of the skin that occurs in old age. As noted by Dr. Mary Lee Vance of the University of Virginia (4), other studies have demonstrated similar benefits. Men and women deficient in growth hormone who were supplemented with HGH for four months had a 5% increase in muscle volume in the thigh and a 7% decrease in adipose-tissue volume in the thigh (5). Participants also showed a 1.6% increase in vertebral-bone density (1) and 6.6 and 7% increases in skin-fold thickness (1,5). A study by Papadakis et al (6), and later research by Blackman et al (7) also supported the beneficial effects of HGH administration on body composition in women and men 65 years and older.

**CONCLUSION:** Given the many benefits of HGH supplementation have been reported, including decreased fat, increased lean muscle mass, improved skin texture, fewer wrinkles, greater bone density, improved immunity, higher libido, greater energy, better sleep, and increased cardiac output, the use of HGH should be evaluated on an individual basis in partnership with one's health care provider. Patients should inform their practitioner about all current medications and health concerns, including diabetes, thyroid problems, back problems, allergies, pregnancy, or breastfeeding. Use of HGH is not recommended for cancer patients.

#### References:

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