

Significant role of human growth hormone therapy in an individual.

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Introduction

One of the most essential variables in stimulating growth in children and adolescents is growth hormone. When we sleep, the pituitary gland releases growth hormone, a strong growth-promoting hormone. During adolescence, when the human body is expanding at its quickest rate, the most growth hormone is secreted. Growth hormone activates a variety of cells and tissues throughout the body, although it is most active in increasing the length of long bones and the thickness of many soft tissues, such as the skin. Abnormal growth hormone production can have a significant impact on a person's development.

Growth hormone production during childhood and adolescence can be abnormal, resulting in excessively long bone development and a person who is literally a giant [1]. Acromegaly is a condition in which the overproduction of growth hormone continues after the long bones have fused in adolescence. Acromegaly causes deformities of the limbs, face, and extremities as the fused bones enlarge. On the other side, a shortage of growth hormone during a person's growing years can result in delayed development, below-average height, and, in severe cases, dwarfism.

In the 1950s, growth hormone generated from human cadaver pituitary glands was successfully utilised to treat children with growth hormone deficiency, demonstrating that exogenous growth hormone might be used to treat children who do not produce enough of their own.

Only children with a "marked shortage of growth hormone" were eligible for growth hormone therapy due to the difficulty and cost of obtaining human growth hormone. Furthermore, Creutzfeldt-Jacob disease was an unanticipated result of early growth hormone treatment in a small fraction of those who got cadaveric hGH. In these people, a virus that infected the growth hormone preparation caused slow nerve tissue deterioration.

Recombinant DNA technology was utilised in the 1980s to insert genes for hormones like growth hormone and insulin into non-harmful *E. coli* bacteria [2]. These bacteria then served as micro factories, creating massive volumes of pure hormone. As a result of biotechnology, we now have the ability to produce an almost infinite supply of pure and safe human hormones that can be used to cure disease. Because of the increased availability of safe hGH, its therapeutic use

in children can now be expanded to include a broader range of growth-related disorders, such as Turner's syndrome (a chromosomal defect), growth hormone deficiency, and renal failure.

Several scientific and clinical studies have led to a widespread consensus among physicians that growth hormone treatment is both helpful and safe in the treatment of certain growth disorders. Treatment of children with Turner's illness with growth hormone results in a significant increase in growth velocity, according to studies from Sweden, Europe, and the United States. Growth hormone therapy enhances the rate of growth in growth hormone-deficient children (from 4 to 10 cm per year) and, more critically, resulting in considerable increases in final adult height as compared to anticipated height without growth hormone or the height of untreated patients.

Growth hormone therapy has been extended to include diseases where its efficacy is still questionable, such as familial and idiopathic short stature, thanks to increased availability of the hormone. Even though two major Swedish and Dutch studies of growth hormone therapy in children with short stature indicated considerable gains in growth velocity after the first year of treatment, many patients required greater growth hormone doses in later years to maintain these growth velocities. Despite the greater growth rates discovered in these studies, the changes in expected adult heights were small.

Growth hormone and aging

The function of the organ systems deteriorates as people age, and the body's composition begins to shift. When lean bodily tissues such as muscles are gradually replaced by fat, skin and bones thin out and become less flexible. Surprisingly, these unfavourable changes in body composition may be linked to the body's decreased synthesis of growth hormone as one age. According to logic, replacing declining growth hormone levels with growth hormone injections could potentially minimise or prevent these age-related changes.

Many large-scale clinical trials exploring the effects of growth hormone in older people are currently being funded by the National Institutes of Health, and the pharmaceutical industry is also conducting similar research. The effectiveness of using growth hormone in healthy older persons, on the other hand, is now unknown at best [3]. Because there are so many unanswered questions about the use of growth hormone in the

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elderly and adults with growth hormone deficiency, a recent editorial concluded that widespread use is not warranted now or in the near future, and that scientific and financial resources would be better spent evaluating the effectiveness of hGH in patients with severe catabolic illness.

Growth hormone abuses

An increasing concern is that athletes and sports teams may be overusing growth hormone. Some young sportsmen who are driven by a desire to win are increasingly turning to anabolic steroids to boost strength and performance. Growth hormone has similar body-building effects to steroids, but it's harder to detect because it lasts a shorter time in the body. Furthermore, growth hormone testing is not used as regularly as drug testing by sports commissions. Growth hormone appears to have less negative side effects than anabolic steroids, according to athletes.

In the use of growth hormone for athletic enhancement or age reversal, the idea that if a little is good, more must be better is engrained. Increasing the amount or frequency of growth hormone injections in the hopes of speeding up or boosting its apparently beneficial effects could be harmful. The danger of serious side effects rises considerably as the amount of growth hormone eaten rises.

While accurate assessments of the repercussions of growth hormone usage may take years, one need only look at the condition of acromegaly, in which growth hormone levels have been elevated for many years, to see how destructive persistent excess growth hormone may be to the body. These individuals have major cardiac, skeletal, and neurological abnormalities, as well as a higher risk of heart disease and cancer [4]. People who overuse or abuse growth hormone can develop such abnormalities over time.

References

1. Rudman D. Growth hormone, body composition, and aging. *J Am Geriatr Soc.* 1985.
2. Finkelstein JW, Roffwarg hP, Boyar, et al. Age-related change in the twenty-four hour spontaneous secretion of growth hormone. *J Clin Endocrinol Metab.* 1972;35(5):665-70.
3. Rudman D, Kutner MH, Rogers CM, et al. Impaired growth hormone secretion in the adult population: relation to age and adiposity. *J Clin Invest.* 1981;67:1361-9.
4. Clemmons DR, Van Wyk JJ. 6 Factors controlling blood concentration of somatomedin C. *Clin in Endocrinol Metab.* 1984;13(1):113-43.