

GROWTH HORMONE

Growth hormone stimulates nearly every tissue in the body and can be generally described as having an anabolic function. An adult-onset growth hormone deficiency is common, with 50% of 80 year olds having no detectable quantities of this molecule in their blood. A deficiency of GH presents as central obesity, diminished memory, impaired sleep, low libido, osteoporosis and cardiovascular disease. By diagnosing and treating the decline of GH age-related these changes in body composition, mood and overall quality of life can be ameliorated. Numerous studies using GH therapy in the aging population has shown improvements in lean muscle mass, total body fat, bone and cardiovascular parameters. Furthermore recent data confirms that restoring youthful levels of GH improve sleep, cognitive functions and mood.

Growth hormone and its critical mediator, IGF-1 have important effects on protein, fat and carbohydrate metabolism.

Growth hormone:

- Stimulates protein anabolism, reflecting increased protein synthesis and decreased oxidation of proteins.
- Enhances the utilization of fat by stimulating triglyceride breakdown and oxidation in adipocytes.
- Maintains blood glucose by suppressing the ability of insulin to stimulate uptake of glucose in peripheral tissues and enhance glucose synthesis in the liver.

SYMPTOMS AND CONDITIONS ASSOCIATED WITH ADULT-ONSET GROWTH HORMONE DEFICIENCY	
Central obesity	Low libido
Decreased muscle mass	Lower bone mineral density
Decreased self-esteem	Mental fatigue
Deep forehead lines	Irritability
Diminished memory	Insulin resistance
Emotional lability	Poor concentration
Fatigue	Reduced exercise capacity & increased recovery time
Impaired cardiac function	Sagging cheeks
Impaired sleep	Thinning hair, lips and skin
Inability to lose weight with diet and exercise	Worsening cholesterol

Growth Hormone

Growth hormone (GH) is a peptide hormone secreted from the anterior pituitary gland. Its secretion is regulated by two hypothalamic hormones; somatostatin, which inhibits GH secretion, and growth hormone releasing hormone (GHRH), which stimulates it. Growth hormone's secretion occurs in a pulsatile fashion, with the main peak occurring at 12-1am in healthy adults. Although it has a very short half-life, it stimulates insulin-like growth factor 1 (IGF1) production by the liver, which is much more stable and produces many of GH's physiological effects. The majority of IGF1 (98%) is bound to one of 6 binding proteins (IGFBP). IGFBP3 is the most abundant and important binding protein.

Growth Hormone Deficiency Symptoms

The symptoms of a growth hormone deficiency depend on the age of onset of this hormone imbalance. Whilst children typically present with short stature, adults have alterations in muscle, fat, bone and psychological parameters. Adult-onset growth hormone deficiency is common. At the age of 60, most individuals have only 25% of the GH they did at age 20. Furthermore, about 50% of 80 year olds have no detectable growth hormone. Therefore it is not surprising that the aging population experience the symptoms associated with a growth hormone deficiency such as central obesity, diminished memory, impaired sleep, low libido, osteoporosis and cardiovascular disease. This data therefore suggests that treating this hormonal imbalance will prevent or counteract the age-related changes in body composition, mood and overall quality of life. Numerous studies using GH therapy in the aging population has shown improvements in lean muscle mass, total body fat, bone and cardiovascular parameters. Furthermore recent data confirms that restoring youthful levels of GH improve sleep, cognitive functions and mood.

Growth Hormone (blood) [Test code: 1118]

- ❖ Human growth hormone (HGH)

Other growth hormone tests available

- **IGF1 & IGF-BP3 (blood) [1107]:** Insulin-like Growth Factor 1 (IGF1), Insulin-like Growth Factor Binding Protein 3 (IGF-BP3)
- **IGF-1 Blood Spot [1412]:** Insulin-like Growth Factor 1 (IGF-1)

How to order a test kit:

To order a test kit simply request the test name and/or test code on a NutriPATH request form test code and have the patient phone NutriPATH Customer Service on 1300 688 522.



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