

IGF-1 (blood spot)

The insulin-like growth factor-1 (IGF-1) test is an indirect measure of the average amount of growth hormone (GH) being produced by the body. Insulin-like growth factor 1 (IGF-1), also called somatomedin C.

IGF-1 is produced primarily by the liver as an endocrine hormone as well as in target tissues. Production is stimulated by growth hormone (GH) and can be retarded by undernutrition, growth hormone insensitivity, lack of growth hormone receptors.

IGF-1 is produced throughout life. The highest rates of IGF-1 production occur during the pubertal growth spurt. The lowest levels occur in infancy and old age

Growth Hormone

Growth hormone 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 12-1:00am in healthy adults. Although it has a very short half-life, it stimulates insulin-like growth factor 1 (IGF-1) 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 (IGF-BP). IGF-BP3 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. This has in fact been shown. 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.

IGF-1 (insulin-like growth factor 1)

The insulin-like growth factor-1 (IGF-1) test is an indirect measure of the average amount of growth hormone (GH) being produced by the body. IGF-1 and GH are peptide hormones, small proteins that are vital for normal bone and tissue growth and development. GH is produced by the pituitary gland. GH is secreted into the bloodstream in pulses throughout the day and night with peaks that occur mostly during the night. IGF-1 is produced by the liver and to a lesser degree by skeletal muscles, primarily in response to GH stimulation. It mediates many of the actions of GH, stimulating the growth of bones and other tissues and promoting the production of lean muscle mass. IGF-1 mirrors GH excesses and deficiencies, but its level is stable throughout the day, making it a useful indicator of average GH levels.

Protein intake increases IGF-1 levels in humans. Other factors that are known to cause variation in the levels of growth hormone (GH) and IGF-1 in the circulation include: insulin levels, genetic make-up, the time of day, age, sex, exercise status, stress levels, nutrition level and body mass index (BMI), disease state, race and estrogen status.

IGF-1 (serum) [Test Code: 1412]

❖ IGF-1 (insulin-like growth factor 1)

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