

# Growth Hormone

## Information for Patients

### Conditions Associated with Low GH

Growth hormone (GH) levels decrease with age, and many of the physical changes associated with aging may be signs of low or sub-optimal growth hormone. It is important to understand that age-related GH decline is not the same as growth hormone deficiency, which is an uncommon medical condition. A number of health conditions may be associated with low or sub-optimal growth hormone:

#### Increased Belly Fat

Research shows that low levels of growth hormone contribute to increased belly fat, and that restoring growth hormone levels help

#### Heart Disease

Low or sub-optimal growth hormone increases risk for blood clots and arterial plaque, thus increasing risk for heart disease.

#### Bone and Muscle Loss

Growth hormone helps maintain muscle and bone. The decline in GH that accompanies aging may contribute to muscle wasting and bone loss.

#### Mood and Energy

Low levels of growth hormone have been associated with depression, low energy and fatigue.

#### Fibromyalgia

Research suggests there is a link between low growth hormone and symptoms of fibromyalgia.

### Risk Factors for Low GH

**Concussion or Traumatic Brain Injury:** Growth hormone is produced in the brain by the pituitary gland. Research has shown that brain injuries can reduce levels of hormones produced by the pituitary gland.

**Obesity:** Growth hormone levels decrease as waist circumference increases.

**Sleep Apnea:** Since most growth hormone is produced overnight, sleep disturbances can have a significant impact on growth hormone levels. With sleep apnea, breathing stops and starts repeatedly, snoring is common, and individuals do not feel rested when they wake up.

**Aging:** Growth hormone levels decline with age, which is why exercise, sleep, and a healthy diet are important as they help maintain healthy GH levels.

**Hormone Imbalance:** For women, having adequate estradiol is essential for maintaining growth hormone levels. For men, adequate testosterone is key.

**Lack of Exercise:** A sedentary lifestyle can contribute to low growth hormone levels.

### Growth Hormone Effects

- *In children, growth hormone is essential for normal growth and development.*
- *In adults, growth hormone helps burn fat, build muscle and bone and aids metabolism.*

#### Thyroid

- *Growth hormone is required for proper thyroid function. It promotes the conversion of T4 to the more active T3 thyroid hormone, which in turn helps promote release of GH from the brain.*

#### Stress

- *Growth hormone promotes the conversion of the stress hormone cortisol into its inactive cortisone form. Excess cortisol contributes to bone and muscle loss and increased abdominal fat.*

#### Muscle

- *Growth hormone promotes synthesis of proteins, the building blocks of muscle and also helps prevent breakdown of muscle.*

#### Fat Burning

- *Growth hormone stimulates fat burning, and can help reduce belly fat.*

### GH Effects

Information is for educational purposes only. It is not meant as medical advice and any treatment decisions should be made with the knowledge or consent of your healthcare professional.

## Results

Rocky Mountain Analytical reports the amount of growth hormone in urine as either a percentile, which shows how your result compares to a group of normal, healthy individuals, or as the amount of GH per volume of urine (for a 24-hour urine collection). The 'normals' are higher for women than for men, because women make more growth hormone in a day.

**Normal:** Results in this range are considered normal for gender, but may not necessarily be optimal for a specific individual. Your healthcare professional will interpret your results with your whole health history and is best qualified to determine the meaning of your results.

**High:** >84th percentile. This means you have GH levels higher than at least 84% of normal healthy people. Higher than expected growth hormone may be a result of recent exercise, acute stress, or hormone therapy. Your healthcare professional is best qualified to determine the meaning of your results.

**Low:** < 16th percentile means that less than 16% of our normal healthy reference population had GH this low. If you are low and also have some of the symptoms associated with low growth hormone, your healthcare professional may recommend some lifestyle changes or supplements to improve your growth hormone levels. In rare cases, additional testing may be required to assess for growth hormone deficiency.

**Note:** Supplementing directly with growth hormone is only appropriate for individuals diagnosed with growth hormone deficiency. The urine growth hormone test is not diagnostic for growth hormone deficiency and cannot be used to initiate treatment with growth hormone.



## Why Measure GH in Urine?

- Over the course of a single day, most growth hormone is released overnight and the remainder in a series of short bursts during the day. This makes blood measurement of GH almost impossible.
- Urine GH levels represent what is present in blood, although there is much less GH in urine than in blood.
- An overnight urine collection captures the major growth hormone release that occurs during sleep.
- A 24 hour urine collection captures all the growth hormone released throughout the day and night.

## Why Test?

*Good health has a lot to do with maintaining balance: the right balance of work and play, the right balance of nutrients in the diet, and the right balance of hormones.*

*Hormone imbalance may be a result of illness, or may produce symptoms and biochemical changes that contribute to illness.*

*Rocky Mountain Analytical is committed to offering laboratory tests that identify hormone imbalances and other conditions - so they can be corrected before disease develops!*

## About Us

*Rocky Mountain Analytical was founded in 2002 with a mission to offer tests that focus on early identification and prevention of disease.*

*Rocky Mountain Analytical is an accredited medical laboratory located in Calgary, Alberta. Accreditation means tests performed by Rocky Mountain Analytical are regularly reviewed for quality, accuracy and reproducibility by the College of Physicians & Surgeons of Alberta.*

*Ask your healthcare professional whether a test is right for you.*



**Rocky Mountain Analytical®**  
*Changing lives, one test at a time*  
an accredited medical laboratory