

Acromegaly

Symptoms and treatments

This handout explains a health condition called acromegaly. It describes tests that are used to diagnose the condition and gives basic instructions on how to prepare if your doctor advises surgery.

What is acromegaly?

Acromegaly is a health condition that occurs when the pituitary gland produces too much growth hormone. It is often caused by a tumor in the gland. Acromegaly is called *gigantism* if it occurs in a child.

What are the symptoms?

Usual symptoms of acromegaly include:

- Hands and feet getting larger
- Jaw and forehead getting larger, changes in facial features
- Large tongue and lips
- Voice changes
- Painful, swollen joints
- Problems with breathing during sleep (*apnea*)
- High blood pressure (*hypertension*)
- High blood sugar (*diabetes*)
- Enlarged heart

If a tumor is pressing on nerves, you may also have vision problems and headaches.

How is it diagnosed?

Your doctor will order some tests to find the cause of your symptoms. These tests include:

- A blood test called *insulin-like growth factor-1*
- X-rays to measure your bone health



Your doctor will ask you to have blood drawn to help diagnose the cause of your symptoms.

- Thyroid tests to rule out thyroid problems
- Other blood tests to check levels of growth hormone in your blood

Children may also have blood tests to check levels of clonidine, arginine, or glucagon.

Insulin-Like Growth Factor-1 Test

This test measures the amount of a hormone called *insulin-like growth factor-1* (IGF-1) in your blood. This hormone controls how growth hormone (GH) works in your body. Knowing your IGF-1 levels also tells us about your GH levels.

Some disorders and diseases, such as pituitary tumors, can cause your body to make too much GH. This test is used to diagnose many problems caused by too much or too little GH.

How is the IGF-1 test done?

The test uses a blood sample, which is drawn through a needle from a vein in your arm.

Are there any risks with the IGF-1 test?

- Taking a blood sample with a needle can cause bleeding, infection, bruising, or feeling dizzy.
- When the needle pricks your arm, you may feel a slight stinging sensation or pain.
- The puncture site may be a little sore after the test.

What can affect my IGF-1 test results?

Poor nutrition or fasting (not eating) will affect your results. Age also affects your results, since both IGF-1 and GH decline with age.

How do I get ready for the IGF-1 test?

You do not need to do anything special to get ready for this test.

What do my IGF-1 test results mean?

IGF-1 results are adjusted for age because levels tend to decrease as you get older. The results are given in nanograms per milliliter (ng/mL).

Normal ranges by age are:

- *For ages 16 to 24:* 182 to 780 ng/mL
- *For ages 25 to 39:* 114 to 492 ng/mL
- *For ages 40 to 54:* 90 to 360 ng/mL
- *For ages 55 and older:* 71 to 290 ng/mL

If your IGF-1 results are:

- Normal, but your GH is less than 0.3 g/L, you likely do not have acromegaly.
- Higher and your GH is above 0.3 g/L, you likely have acromegaly.

Levels of IGF-1 that are higher or lower than normal may also be caused by:

- *Hypothyroidism* (low levels of thyroid hormone)
- Liver disease
- Diabetes mellitus

Even if your test results are different from the normal value, you may not have a problem. To learn what the results mean for you, talk with your healthcare provider.

Growth Hormone with Suppression Test

This test measures the level of growth hormone (GH) in your blood. The results will tell your doctor if you have a tumor in your pituitary gland.

GH is made in your pituitary gland. It affects height, bone, and muscle growth in children. It affects how adults look and feel, as well as their bone and muscle health.

Most GH is made while you sleep. When you are awake, very little or no GH can be found in your blood. This makes it hard to test your GH level. But, specialists have developed ways to find out if you make too much GH.

How is the GH test done?

- You will be given glucose, which makes your pituitary stop making GH.
- After that, your blood is drawn every 30 minutes for 2 hours. The tumor will keep on making GH, so the amount of GH in your blood will stay the same if you have a tumor.

What other tests might I have to check my hormone levels?

Your doctor may also order other tests such as an *oral glucose tolerance* test to see if your GH is higher than normal.

Your doctor may also check the levels of other hormones including:

- Growth-hormone-releasing hormone (GHRH)
- Prolactin
- Testosterone
- Estradiol

- Luteinizing hormone (LH)
- Follicle-stimulating hormone (FSH)
- Thyroid-stimulating hormone (TSH)
- Cortisol
- Corticotropin (ACTH)

Your doctor may also order a *magnetic resonance imaging* (MRI) exam to check for a tumor.

What do GH test results mean?

Results are given in nanograms per milliliter (ng/mL). Normal GH levels should drop to less than 1 or 2 ng/mL after you are given glucose.

If you have higher levels of growth hormone, it means you may have:

- Acromegaly (adults) or gigantism (children)
- A benign pituitary tumor
- A tumor somewhere else in your body (rarely)

Higher levels of GH may also be caused by poor nutrition, *cirrhosis* (a liver disease), and stress from surgery or a serious infection.

How is the GH test done?

The test requires a blood sample, which is drawn through a needle from a vein in your arm.

Does the GH test have any risks?

- Taking a blood sample with a needle can cause bleeding, infection, bruising, or feeling dizzy.
- When the needle pricks your arm, you may feel a slight stinging sensation or pain.
- The puncture site may be a little sore after the test.

What might affect my GH test results?

Your test results can be affected by:

- Some foods and drinks, especially ones that are high in protein
- Some medicines, including oral contraceptives containing estrogen
- Great physical or emotional stress
- Lack of sleep

How do I get ready for the GH test?

- Your doctor may ask you to stop taking oral estrogens for a time before this test. You also may be told to not eat or drink anything but water for a certain amount of time before the test.
- Tell your doctor about all the medicines, herbs, vitamins, and supplements you are taking. This includes medicines that don't need a prescription and any drugs you may use.

How is acromegaly treated?

Acromegaly is most often treated with surgery to remove the tumor. This can stop the acromegaly and even reverse it.

If part of the tumor remains after surgery, it may be treated with drugs or radiation therapy.

What can I expect if I have surgery?

If you decide to have surgery, you will meet with a member of the neurosurgical and anesthesia team. They will give you a complete health exam and help you prepare for surgery. Please see the handout “Pituitary Gland Surgery.”

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

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