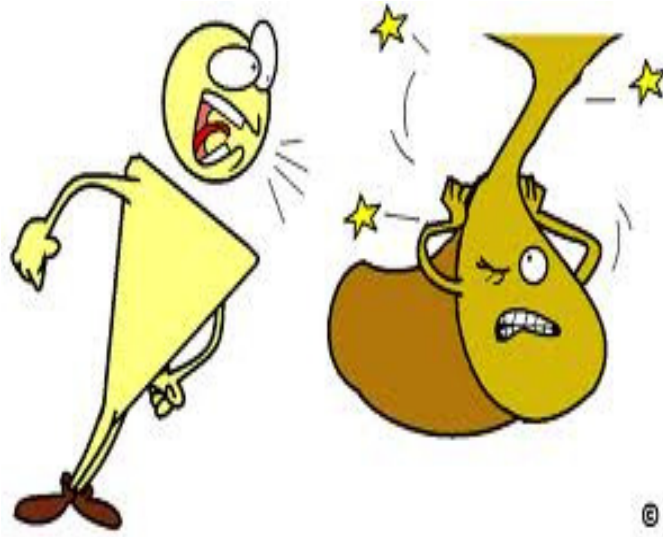
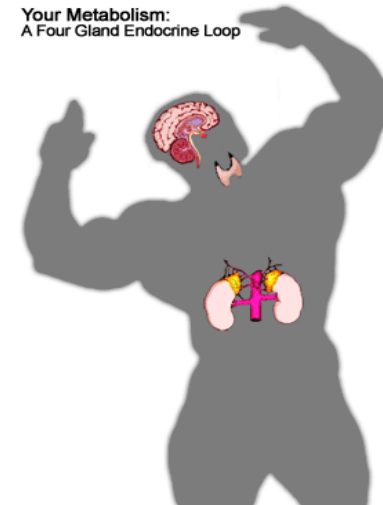


Vancouver Neuroendocrine Program



Your Metabolism:
A Four Gland Endocrine Loop



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EMD Serono

Prepared by:

Crystal Gagnon, RN BScN,
Pituitary Nurse at St. Paul's Hospital and
Vancouver General Hospital, June 2012.

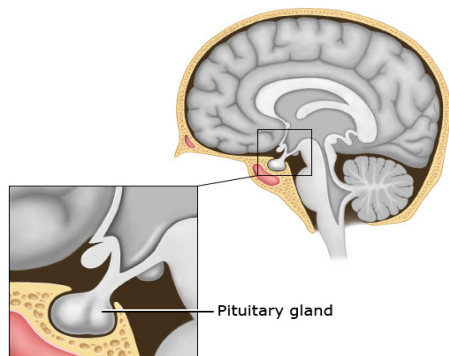
Diagnostic Lab Tests: Acromegaly

What is Acromegaly?

Acromegaly is a rare but serious condition caused by too much growth hormone (GH) in the blood. The pituitary gland in the brain is responsible for releasing GH into the bloodstream. GH is important for stimulating growth and development in children and affects energy levels, muscle strength, bone health, and a sense of well-being in adults.

Pituitary Adenoma

A non-cancerous tumour in the pituitary gland is called a pituitary adenoma. This tumour produces too much GH which raises the level of GH in the blood. Excessive GH causes the level of insulin-like growth factor-1 (IGF-1), a hormone produced in the liver that affects growth, to also rise.



Contact Us: Neuropituitary Clinics

Room 467, Comox Bldg, St. Paul's Hospital,
Vancouver, BC
PH: (604) 806-9156
Fax: (604) 806-8594

Vancouver General Hospital (VGH)
Gordon and Leslie Diamond Health Care
Centre
2775 Laurel Street, Vancouver, B.C
PH: 604.875.5929
Fax: 604.875.5925
Pituitary Nurse: Crystal Gagnon
Ph: 604-682-2344 ext. 62413
Pager: 604-252-4832
cgagnon2@providencehealth.bc.ca

Also ask us for these materials:

- The Acromegaly DVD
- Acromegaly Record Book
- Medication Guidelines & coverage
- Adrenal insufficiency book
- Transsphenoidal Surgery
- Endocrine links & support groups
- Travel letter

Follow-up: Other Tests

Sometimes after treatments for acromegaly such as surgery and/or radiation treatment, the body becomes deficient in hormones other than GH such as thyroid, prolactin, cortisol, testosterone and/or estradiol. These hormones must be monitored regularly.

Other Pituitary Function Tests:

Assesses thyroid (TSH, T4), prolactin, cortisol, testosterone, estradiol, FSH, LH, and glucose levels in the blood.

Imaging of pituitary: MRI or CT to monitor any changes to the pituitary gland.

How is acromegaly diagnosed?

IGF-1 Test

A blood test to check your level of IGF-1 is done if acromegaly is suspected. Acromegaly is confirmed if the IGF-1 is well above the normal range. This is because the level of IGF-1 in the blood directly reflects GH activity. This test may be performed at regular intervals after surgery for acromegaly and after a medication and/or dosage change to monitor your health.

Oral Glucose Tolerance Test (OGTT)

In this test your levels of GH in the blood are measured after you take a dose of 75-100g of sugar at 0, 1, and 2 hours post dose. Normally, the pituitary gland stops producing GH in the presence of sugar. If there is a GH-producing pituitary tumour however, the pituitary will not stop making GH, and the levels of GH in the blood will not change. This test is often repeated again after treatments for acromegaly such as surgery or radiation and after a medication and/or dosage change.

Insulin Tolerance Test

Your doctor may request a special test of your pituitary and adrenal gland function known as an insulin tolerance test (ITT for short).

The aim of the test is to measure the hormone response to the stress of a low blood sugar level.

The medication insulin is used in people with diabetes to control high blood sugar levels. When given to non-diabetic people it may reduce blood sugar levels to lower than normal. The body recognizes that the sugar level is lower than it should be and responds by increasing the production of a number of hormones which act to increase the sugar level. Two of these are cortisol (produced by the adrenal gland, under control of a hormone called ACTH which is made by the pituitary gland) and growth hormone (made by the pituitary gland).

It has been well established how much cortisol and growth hormone should be made in response to a low blood sugar. Therefore this test will see if your pituitary and adrenal glands are working normally.

How is the test performed?

A fixed dose of insulin will be administered by injection into a vein after having nothing to eat or drink from midnight the previous night. Your blood sugar will soon begin to fall and should reach its lowest point 20 to 40 minutes after the injection. You may feel sweaty, drowsy, shaky, hungry and have trouble concentrating while your blood sugar is low.

These are expected effects. The blood sugar has to fall to less than 2.2 mmol/L for the hormone production to be stimulated. The symptoms are usually short lived and people start to feel better about an hour after the insulin, as the blood sugar starts to rise again.

Blood samples for glucose (sugar) and the hormones are taken every 15 minutes for the first hour and every 30 minutes for the second hour. You will be fed prior to leaving the Endocrine Test Center.

After the test:

It is a good idea to have an extra something to eat later in the day after completion of the test. There are groups of patients who should not have an ITT - people with epilepsy, people who have had strokes and people with known heart disease (heart attacks, angina, irregular heart rhythms). If you have any of these, please inform your doctor and/or the endocrine test nurses.

Your doctor may order other tests depending on your situation and reaction to treatment.

If the cause of the excess GH is due to a pituitary tumour and you and your health-care provider decide that surgery is the best treatment: