



Glucagon Stimulation Test to Assess Growth Hormone Secretion

What is the glucagon stimulation test?

The glucagon stimulation test determines how well your child's pituitary gland is working. The pituitary gland, also known as the "master gland" sits at the base of the brain and produces hormones, including growth hormone (GH), which stimulates normal growth and development.

Growth hormone is released when blood sugar levels drop or in response to certain stimuli. During this test, glucagon is used as a stimulant to trigger the release of growth hormone.

Why does my child need this test?

This test helps assess whether your child's pituitary gland is producing enough GH. The results can help determine if your child has adequate GH levels and guides the doctor's next steps in care.

What are the risks?

- **Low blood sugar (hypoglycaemia)**
Glucagon may cause blood sugar levels to drop, which can make your child feel unwell or drowsy. The test is performed in the **outpatient Paediatric Day Therapy**, where nurses will monitor your child closely. Prompt treatment will be provided if needed. The test will be stopped immediately if there are any safety concerns.
- **Fasting discomfort**
Your child may feel tired, irritable, or uncomfortable as they will need to fast. During the test, they should not consume anything except water, as eating or drinking may affect the results and require the test to be repeated.
- **Rebound low blood sugar after going home**
There is a small chance your child's blood sugar may drop again after leaving the hospital, especially if they refuse to eat. Symptoms may include vomiting, irritability, sweating, paleness, tiredness, or feeling unwell. This risk is low as we will ensure your child has eaten before discharge. You can further reduce the risk by offering carbohydrate-rich snacks or sugary drinks after the test.

Are there any alternatives?

There are other tests that can assess GH levels. However, the glucagon stimulation test is widely used and considered one of the safest options.

How should my child prepare for the test?

Your child will need to **fast from midnight** (as per instructions provided by doctor/nurse) the night before the test. This means **no food or drink except water**. Following these instructions is important for your child's safety and accuracy of the test. If fasting instructions are not followed, the test may need to be postponed.

On the morning of the test, a routine health check will be done, including:

- Blood pressure
- Breathing rate
- Temperature
- Weight

An **intravenous (IV) cannula** (a thin plastic tube) will also be inserted into a vein to allow blood samples to be taken during the test.

What happens during the test?

The test begins with the first blood sample taken through the IV cannula. Your child will then receive an injection of glucagon into the thigh or buttock.

Blood samples will be taken every 30 minutes over 3 hours to monitor blood sugar and GH levels. Your child will remain in the **outpatient Paediatric Day Therapy** throughout the test for close observation.

How long does the test take?

The test takes about 3 hours, followed by an observation period to ensure your child is well before going home. You will usually be asked to arrive at 8:30am. If you arrive after 9am, the test may need to be rescheduled.

What happens after the test?

After the final blood sample, your child may eat and drink as normal. Please bring food and drinks to replenish their blood sugar levels. Your child will remain in the **outpatient Paediatric Day Therapy** for about 30 minutes while nurses monitor their blood sugar. Once stable, the cannula will be removed, and your child can go home.

When will I receive the test results?

You will be given an outpatient appointment about 2 weeks after the test, where the doctor will discuss the results with you.

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