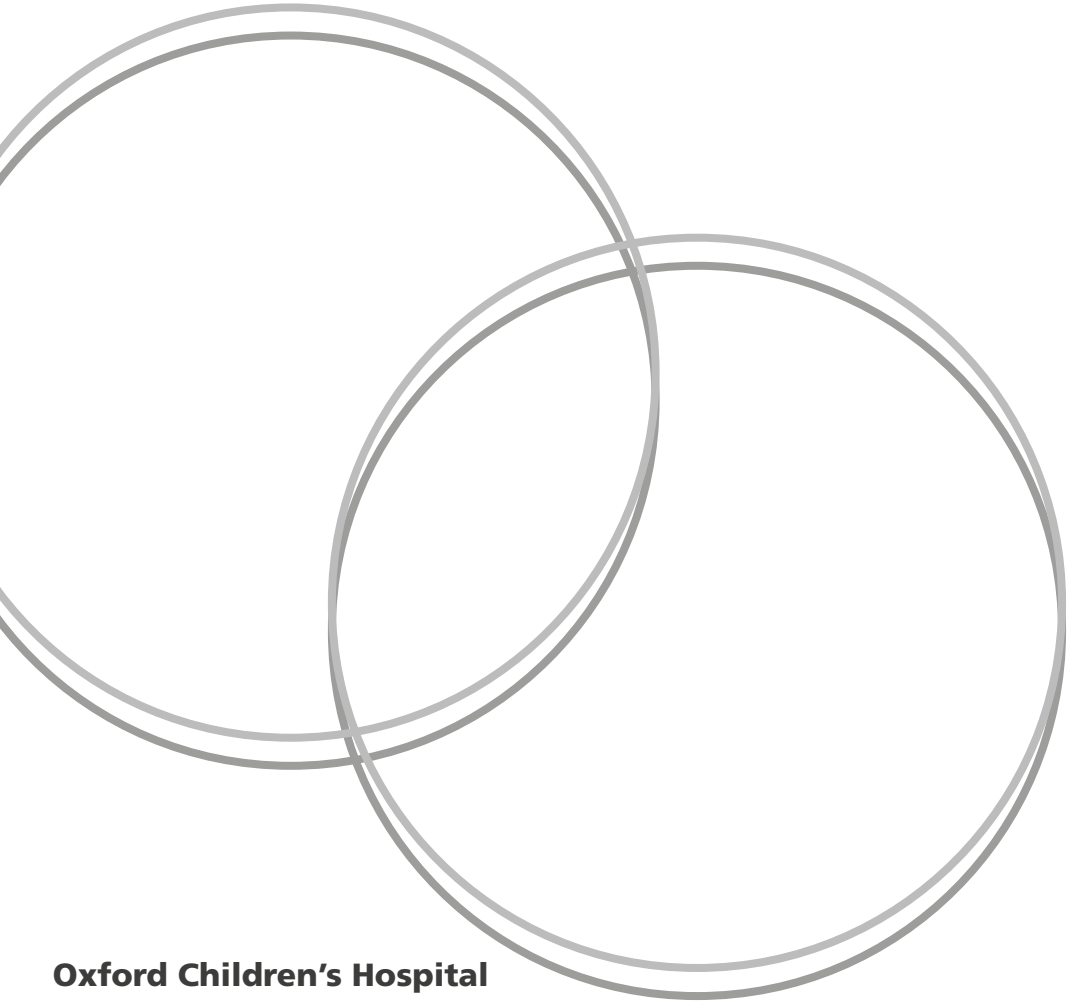
Oxford University Hospitals
NHS Foundation Trust

Glucagon Stimulation Test

Information for children, young people and their families



Oxford Children's Hospital

Background

The pituitary gland lies at the base of the brain. It makes several hormones (chemical messengers) which act on other parts of the body. One of these hormones is called growth hormone, which as the name suggests, is needed for normal growth during childhood. Another hormone (called ACTH) helps us to make cortisol. Cortisol is needed for energy and to help us cope with stress or illness

In children and adults, growth hormone levels vary a lot throughout the day and night, during exercise, stress, sleep and other hormonal changes. Most of the time during the day, levels of growth hormone in the blood are very low. This means it is necessary to stimulate the release of growth hormone, to accurately assess how much your child is able to produce.

Oestrogen tablets may affect the results of the test, so if your child is on oestrogen tablets or the oral contraceptive pill these need to be stopped for 6 weeks prior to the test. Oestrogen patches and the oestrogen tablets we sometimes advise for priming are ok and do not affect the results.

About the test

Your child will be given a small injection of Glucagon which, by altering blood sugar, stimulates their body to release growth hormone. The amount of growth hormone your child produces can then be measured by taking regular small blood samples throughout the test. We also measure blood cortisol levels, as these too are stimulated by the changes in blood sugar levels.

Procedure

Your child should have nothing to eat after midnight on the night before their test and will not be able to eat during the test (approximately 3 hours). Your child can drink water if thirsty but no other fluids as these will interfere with the test. They will be able to eat and drink again normally as soon as the test is finished.

After arrival in the ward, we will insert a very small plastic tube (called a cannula) into your child's hand, or the inside of their elbow. The local anaesthetic cream which you will have applied will help to numb the area. The cannula will be used to take small blood samples throughout the test.

Soon after this, the Glucagon is given by injection into the muscle in their thigh. We will take blood samples from the cannula regularly for the next 3 hours. The cannula is removed shortly before your child is ready to go home.

Side effects

Glucagon affects the blood sugar levels: they rise during the first hour and then fall. The most common effects of a low blood sugar are drowsiness, hunger and sweatiness. Your child may look pale and be grumpy or confused. We can give them a sugary drink (we keep a special fruit flavoured glucose drink on the ward) if necessary to reverse these effects. Glucagon also sometimes causes nausea, and some children may be sick.

Very rarely, a child can experience unconsciousness and fits. If needed, we will give glucose solution (sugar) through the cannula. Your child will be closely monitored throughout the test, and we very much value your opinion about how your child seems compared to normal.

After the test

We will continue to observe your child closely. He/she should be encouraged to sit up and then have something fairly substantial to eat and drink. We can order something from the kitchen, or you can bring in a packed lunch or buy your child something from the shop or café. When your child has eaten their meal, they will be assessed by a senior nurse and the cannula removed. Most children have recovered within 2 hours of the test finishing. Occasionally this takes longer and rarely a child may need to stay in hospital overnight.

When you get home

There should not be any long-lasting effects from the test. Your child should be encouraged to eat well at teatime to prevent their blood sugar becoming too low. By the following day they should be back to normal.

Results

These are usually available in a few weeks, and we will let you know them as soon as possible. This may be by letter or a telephone call.

Contacts

Please do ask the doctor any questions you may have or contact the Specialist Endocrine Nurse on:

Tel **01865 234990**

Further information

If you would like an interpreter, please speak to the department where you are being seen.

Please also tell them if you would like this information in another format, such as:

- Easy Read
- large print
- braille
- audio
- electronic
- another language.

We have tried to make the information in this leaflet meet your needs. If it does not meet your individual needs or situation, please speak to your healthcare team. They are happy to help.

Author: Oxford Paediatric Endocrine Team
April 2026
Review: April 2029
Oxford University Hospitals NHS Foundation Trust
www.ouh.nhs.uk/information

Leaflet reference number: OMI 116409