

Endocrinology

Insulin tolerance test

Your doctor has recommended that you have an insulin tolerance test to check if your body is producing enough cortisol and growth hormone.

Cortisol is an essential steroid hormone which is required to keep you healthy and to enable your body to respond to stress and illness. Cortisol also has effects on your immune system, blood pressure and blood sugar levels. Cortisol is produced by the adrenal glands and this is controlled by the pituitary gland. The pituitary gland produces a hormone called adrenocorticotrophic hormone (ACTH) that stimulates the adrenal glands to make cortisol. Low cortisol levels can indicate a problem with either the pituitary gland or the adrenal glands.

Growth hormone is one of the hormones produced by the pituitary gland. Growth hormone is responsible for controlling growth and metabolism in childhood. It is also produced in adulthood and has a role in maintaining muscle and bone mass, and body fat composition. It can also have effects on energy levels, memory and general feeling of well-being.

Preparation for the test

- If you are taking **steroid medications orally** (e.g. hydrocortisone, prednisolone, plenadren or dexamethasone), you may need to stop these medications for at least 24 hours prior to the test but please contact the Endocrine unit to discuss this before doing so.
- If you are taking **oestrogen containing medications** (e.g. contraceptive pill or HRT), you will need to stop these medications for at least 6 weeks prior to the test as they can affect the results. If you are taking the oestrogen pill for contraception, it is essential that you consider alternative forms of contraception. If you are using oestrogen patch, this can be continued as it will not affect the results of your test. Please contact the Endocrine unit to discuss further if you have any queries.
- If you are using steroid creams or inhalers, please contact the Endocrine unit for further instructions as you may need to stop using these medications for a short period of time prior to the test.
- You can take your other regular medications. Please bring all of your medications with you when you attend for your test.
- You need to **fast from midnight** the night before your test but water is allowed.
- The test will take at least 4 hours. If you are intending to travel by car, we recommend that you ask someone to drive you as it is not advisable for you to drive for at least 2 hours after your test.



What will happen during the test?

- You will be introduced to the doctor or nurse performing the test, who will explain what to expect during the test and obtain your informed consent.
- You will need to lie down on a bed for the duration of your test.
- You will have an electrocardiogram (ECG) prior to the test. This is a heart tracing test which tells us about the rate and rhythm of your heart.
- A cannula, which is a small tube used to take blood samples, will be inserted into a vein in your arm, and an initial blood sample will be taken to measure the baseline level of growth hormone, cortisol and glucose.
- You will then be given insulin through the cannula into your vein. Insulin lowers blood glucose and induce stress, which should then stimulate cortisol and growth hormone production.
- Your blood glucose levels will be monitored closely throughout the test. Blood samples will be taken from the cannula every half an hour for 2 hours to measure growth hormone, cortisol and glucose.
- You may require a second dose of insulin if your blood glucose is not low enough. Once your blood glucose drops to a low enough level you will be given something to eat and drink to bring your glucose levels back up.

What will happen after your test?

- Once the test is completed, the cannula will be removed.
- You will need to be observed on the Endocrine unit for 1 to 2 hours after the test. You will then be able to go home provided your blood glucose is normal.
- Your results will be reviewed by the endocrinology doctor.
- You do not have to contact the department for your test result. We will inform you and your GP of your results and any changes to treatment or medication by letter.
- If necessary, you will be called back to clinic to discuss the result, especially if you need to start on any treatment.
- Sometimes it is also necessary for us to contact you by telephone, please provide us with your home and mobile telephone numbers when you come in for your test.

Are there any risks or complications?

- During the test, you may experience symptoms such as sweating, shakiness, palpitations, hunger, lightheadedness or sleepiness when your blood glucose levels are low. These symptoms will resolve when you eat or drink.
- Very rarely, this test can cause fainting or a seizure (fit) if your blood glucose level drops too low. It is important that you tell your endocrine doctor before you come for your appointment if you have ever had a fit or blackout or if you have a history of heart problems.
- There will be a doctor present to monitor you throughout the test, and the test will be stopped if your doctor has any concerns. In the unlikely event of a complication, the doctor and nurse will be able to administer the appropriate treatment. The risk however of a serious complication with this test is extremely low. Your doctor or endocrine nurse specialist will be happy to answer any questions you may have about side effects.

Is there an alternative test?

- The insulin tolerance test is the preferred test for assessing your growth hormone and cortisol response. However, if you are unable to have this test because you have a history of seizures or heart problems, your endocrine doctor will ask for an alternative test to be performed.
- It is often necessary for two different stimulation tests to be performed to diagnose growth hormone deficiency. Therefore, once your results have been reviewed by the endocrine team you might be asked to come in for a second test.

Please remember that the timing of endocrine tests is important so please attend at the time specified on your appointment letter. If you are unable to keep your appointment please contact the department and we will rearrange it for you.

Contacts

If you have any queries please contact:

Endocrine nursing team on **0161 446 3479**

Email: the-christie.endocrinology.nhs.net

If you need information in a different format, such as easy read, large print, BSL, braille, email, SMS text or other communication support, please tell your ward or clinic nurse.

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For information and advice visit the cancer information centres at Withington, Oldham or Salford. Opening times can vary, please check before making a special journey.



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urgent support and specialist advice
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