

Insulin Stress Test

An information guide



Insulin Stress Test

Your doctor or nurse has recommended that you have an insulin stress test.

Why is the test performed?

The test is performed to check the function of the pituitary gland, in particular, two hormones, growth hormone and cortisol.

Cortisol is produced by the adrenal glands which sit above the kidneys. Cortisol production is controlled by the pituitary gland which produces adrenocorticotrophic hormone (ACTH). This hormone is transported via the bloodstream to the adrenal glands and stimulates them to make cortisol. Low cortisol levels may indicate problems with either the pituitary gland or the adrenal glands. Cortisol is a vital hormone which is responsible for helping your body to respond to stress and illness. Cortisol is also responsible for the regulation of your immune system, blood pressure and blood sugar levels.

Growth hormone is produced by the pituitary gland. This hormone is responsible for controlling growth and metabolism in childhood. Growth hormone is also produced by adults and is important for maintaining muscle and bone mass and affects the levels of body fat. It also helps control energy levels, memory and your general feeling of well-being.

What is the pituitary gland?

It is a small gland in the base of the brain, a few inches behind the bridge of the nose which has a major role in the control of your body's hormone production.

How do I prepare for the test?

You will have an electrocardiograph (ECG) or heart trace before the test.

This is performed because as the name suggests, your body is put into a state of hypoglycaemia (low blood glucose) to create a stress so that we can identify your body's normal hormonal response.

We leave you in this stressed state for only a very brief period, which in a healthy person causes no difficulties. However for someone with a heart condition this could potentially lead to difficulties and we therefore check the heart rate with an ECG.

The test is also not performed on patients who have epilepsy so please tell us if you have ever suffered fits.

On the day of the test you are requested to not eat, or drink anything other than water, from 12 midnight.

If you are on medication, withhold taking hormone replacement therapy, steroid tablets and thyroxine tablets until the test is complete.

If you are taking hydrocortisone tablets, the last dose should be at midday the day before the test (i.e do not take the evening dose on the preceding day, or the dose on the morning of the test).

How is the procedure carried out?

This test will be carried out in one of the Trust's programmed investigation units (PIU's) and will be carried out by a doctor and senior nurse. A small needle/cannula will be inserted into a vein in your arm, which allows your nurse to obtain repeat blood samples without causing too much discomfort. We will take a baseline value of cortisol and growth hormone. We will also check your blood sugar level.

We will give you a calculated amount of insulin which will reduce your blood sugar so as to stress the body, which will in turn stimulate your pituitary gland to produce hormones. Unfortunately you may feel briefly unwell, possibly with some of the following symptoms; dizziness, fatigue, hunger, shakiness, sweating and sleepiness. This happens because your body is not used to such low levels of blood sugar. Some people find this quite uncomfortable while others are less affected by it.

Fortunately, as soon as the required low blood sugar level is reached, which is below 2.2 mmol/L, we can give you some sugary drinks and some toast. This will quickly bring your blood sugar back to a normal level, and get you feeling better again.

We will keep a close eye on you throughout the test, by repeating checks on your blood sugar levels until it has become normal. Blood samples will be taken from the cannula in your arm at 30 minute intervals for 2 hours after the injection of insulin to measure the growth hormone and cortisol response to the insulin-induced stress of low blood sugar levels.

Are there any risks with this test?

Overall the test is considered safe in patients who have no history of seizures or cardiovascular or cerebrovascular disease.

Very rarely the test may cause a faint or a fit. The doctor and nurse have all the necessary treatments available in the unlikely event of this occurring.

YOU SHOULD NOT HAVE THIS TEST IF YOU HAVE EPILEPSY OR CARDIOVASCULAR PROBLEMS OR ARE PREGNANT.

What happens after the test?

Once it has started the test lasts for 2 to 3 hours.

On completion, the cannula will be removed. You will have to ensure you eat a high carbohydrate diet for the rest of the day to ensure that you replace all of the lost reserves of sugar which are normally stored in your liver.

Tiredness and hunger are signs to watch out for. You may feel unusually tired after this test and you **may feel more comfortable in having somebody to drive you home afterwards.**

We do advise you to have a restful day to give your body a chance to recover. You will be informed of the result by letter or in the clinic. It does take approximately one month to get the result of the growth hormone levels.

If you have any further questions, please do not hesitate to contact your endocrinology doctor or nurse.

Contact Information

Normal working hours (Monday to Friday): the endocrine team (all telephone numbers are direct to consultant's secretaries). At other times (5pm to 9pm) or in case of emergency or urgent advice being required, you should contact your own GP or go to your local Accident and Emergency department.

Fairfield General Hospital

Dr S Rowles, Dr H Smithhurst, Dr L Pichaipillai and Dr S Kouta

Telephone: 0161 778 2676

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The Royal Oldham Hospital

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North Manchester General Hospital

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Telephone: 0161 720 2086

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Endocrine Specialist Nurse:

Cristina Edward – 0161 918 4069

Karen Hallett - 0161 627 8388

Patient self help group and further information:

The Pituitary Foundation Group

86 Colston Street

Bristol

BS1 5BB

Information and Support Helpline:

0117 370 1320

(Monday - Friday 08.00:16.00)

www.pituitary.org.uk

If English is not your first language and you need help, please contact the Interpretation and Translation Service

Jeśli angielski nie jest twoim pierwszym językiem i potrzebujesz pomocy, skontaktuj się z działem tłumaczeń ustnych i pisemnych

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For advice on stopping smoking contact the Specialist Stop Smoking Service on 01706 517 522

For general enquiries please contact the Patient Advice and Liaison Service (PALS) on 0161 604 5897

For enquiries regarding clinic appointments, clinical care and treatment please contact 0161 624 0420 and the Switchboard Operator will put you through to the correct department / service

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