

Insulin Tolerance Test

This leaflet explains more about what an insulin tolerance test is, including the benefits, risks and what you can expect when you come to hospital. If you have any further questions, please speak to a doctor or nurse caring for you.

What is an insulin tolerance test?

This is a test that measures growth hormone secretion and cortisol production. In childhood, growth hormone is essential for normal growth. It is a “chemical signal” which stimulates normal body growth and development. The pituitary gland, at the base of the brain, produces growth hormone. Cortisol is an essential hormone or “chemical signal” produced by the adrenal gland. It has several important functions, including maintaining blood pressure, controlling blood sugar levels and helping the body cope in times of stress, e.g. illness, surgery or trauma.

How can I prepare for this test?

Sometimes your child will need some tablets or an injection before the test to prepare the pituitary gland for the test. The doctor will have given you instructions about this.

Please follow the instructions on the admission letter for time of arrival at the hospital. Your child should be free to go home by mid-afternoon.

To ensure reliable and accurate results, it is very important that your child has nothing to eat or drink from midnight before the test.

This means that he/she should not have breakfast or a drink on the morning of the test, except for plain water if necessary. Once the test has been completed, usually by lunchtime, your child will be able to eat and drink normally. Lunch will be provided but if your child has particular food choices or requires a special diet then please bring something with you that you know he/she will eat. It is essential that he/she eats something before he/she can go home.

Although toys and games are available on the ward you may wish to bring a few suitable toys, games or books to keep your child occupied for the morning. Please also ensure that your child wears loose comfortable clothing such as a T-shirt with light-weight trousers or shorts. A change of clothing may be required depending on your child's response to low blood sugar (hypoglycaemia). Sometimes a lot of sweating occurs.

What happens during the test?

A local anaesthetic cream or spray may be used to numb the area of skin where a small needle/plastic tube (cannula) is inserted into a vein in your child's hand /arm and left in place for the duration of the test. If used, the cream needs to be applied 45 minutes before the cannula is inserted.

The insulin tolerance test involves a series of eight blood tests taken from the cannula over two hours. After the second blood sample is taken, a small amount of insulin is given into the vein. This may make your child feel dizzy, sweaty, sleepy and hungry as his/ her blood sugar levels drop in response to the insulin. This usually occurs about twenty minutes after the insulin is given. This natural response to insulin triggers growth hormone and cortisol production in the body and by measuring these hormones it is possible to determine if your child is able to produce naturally sufficient amounts of these hormones.

What are the risks?

There is a very small risk that during the test your child's blood sugar level could drop to a dangerously low point (hypoglycaemia).

Your child's blood sugar is closely monitored throughout the test and if at any time the blood sugar appears to be too low, a sugary drink and some food can be given according to how your child is reacting to the hypoglycaemia. If necessary glucose can be given directly into a vein in order to bring the blood sugar back to normal.

Your child will feel tired and miserable during the test, due to the effects of the insulin and because he/she will not be allowed to eat as usual. Please note that your child will need to stay on their bed for the duration of the test. Your child should therefore go to the toilet before the test begins as once the test starts he/she will not be allowed to get off their bed to use the toilet. A commode or bottle will be provided if necessary. Once the nurse has taken the final blood sample, your child will be able to eat and drink as usual. Your child will need to stay on the ward for an hour after eating so that the nurses can observe them. Once the nurse is happy that the child is completely recovered she will remove the cannula and you will be able to take your child home.

There is a small risk that your child's blood sugar level could fall when you get home, especially if they are refusing food and/or vomiting. This is called 'rebound hypoglycaemia'. These are the symptoms of mild hypoglycaemia:

- nausea
- irritability / change of mood or behaviour
- sweating and pallor
- tiredness / floppiness
- generally not being well.

You can prevent rebound hypoglycaemia by giving your child regular carbohydrate snacks and sugary drinks to refill his or her energy stores. It is important to give a high carbohydrate meal for tea-time, such as pasta, rice, bread, potatoes or pizza, as well as a milky, sugary drink with a biscuit before bedtime.

Severe hypoglycaemia can lead to loss of consciousness and convulsions. In the event of hypoglycaemia, if your child does not improve after feeding or is unable to take or keep food down, you should call St Georges hospital switchboard on 020 8672 1255 and ask to speak to a member of the paediatric endocrine team or seek urgent

medical attention at your local accident and emergency department. You will need to tell them that your child has undergone an insulin tolerance test.

It can take one to two weeks for the laboratory to analyse your child's blood samples as there are so many chemicals including the hormones to check. If your child's test results are normal you will be informed and your child will be reviewed at his/her next routine outpatient appointment at the hospital. If a second growth hormone stimulation test is needed the clinical nurse specialist will contact you to arrange a further date for admission.

Contact us

Please contact the paediatric endocrine clinical nurse specialist on either 0787 659 7062 or 0778 685 6764 (Monday to Friday 8.30am to 4.30pm) if you have any questions about this.

For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit www.stgeorges.nhs.uk

Additional services

Patient Advice and Liaison Service (PALS)

PALS can offer you on-the-spot advice and information when you have comments or concerns about our services or the care you have received. You can visit the PALS office between 9.30am and 4.30pm, Monday to Friday in the main corridor between Grosvenor and Lanesborough wings (near the lift foyer).

Tel: 020 8725 2453 **Email:** pals@stgeorges.nhs.uk

NHS Choices

NHS Choices provides online information and guidance on all aspects of health and healthcare, to help you make decisions about your health.

Web: www.nhs.uk

NHS 111

You can call 111 when you need medical help fast but it's not a 999 emergency. NHS 111 is available 24 hours a day, 365 days a year. Calls are free from landlines and mobile phones.

Tel: 111

AccessAble

You can download accessibility guides for all of our services by searching 'St George's Hospital' on the AccessAble website (www.accessable.co.uk). The guides are designed to ensure everyone – including those with accessibility needs – can access our hospital and community sites with confidence.



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