

Northern medical physics and clinical engineering

Visual electrodiagnostic tests

Information for patients, parents and carers

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Introduction

We have written this information sheet for patients or for the parents or carers of patients referred for visual electrodiagnostic tests. Our aim is to inform you and involve you in your own or your child's care. The sheet explains what happens before and after your test and answers questions you may have.

The tests should not be painful and do not need sedation. However, certain tests may use recording electrodes that make contact to the front of your eye, which will require the use of numbing eye-drops and we may also use dilating drops. So, you must not drive yourself from your hospital appointment, as these eye-drops will blur your vision, (this will wear off after three to five hours). You may also want to bring sunglasses as dilation can sometimes make individuals light sensitive. We will ensure it is safe for you to have the eye-drops before we give them to you.

Why do I have an appointment for visual electrodiagnostic testing?

You have an appointment for visual electrodiagnostic testing as you have attended a clinic appointment at the hospital about symptoms relating to your eyes. This could include symptoms such as visual loss or reduction in vision or a test result which needs further clarification. Your consultant has asked for visual electrodiagnostic tests to help find the cause of your symptoms. This may help them decide on the most appropriate care pathway. Visual electrodiagnostic tests can

also monitor the progression of your symptoms or the effects of some medicines.

What are visual electrodiagnostic tests?

Visual electrodiagnostic tests measure the function of your visual system. Your visual system is made up of:

- The front of your eye, where light passes through;
- The retina, where the cells that convert light rays into electrical signals are found;
- The optic nerve, which sends the electrical signals from the retina to the brain;
- The brain itself, which is the final part of the visual system, where the electrical signals are read and understood.

All of this allows you to see.

Visual electrodiagnostic tests assess how well each aspect of this system is working by measuring how your eyes or brain react to on-screen patterns and flashing lights. For the tests with patterns, you will wear any glasses that you need for distance vision. To record these signals, we will use recording electrodes. For tests measuring signals from the brain, (called the visual evoked potential test), we will put electrodes on the back of your head, lightly stuck with paste. For tests measuring signals from the retina, (called the electroretinogram), we will stick sticky-pad electrodes around the eye, on your forehead and corneal electrodes will contact the front of your eye, the cornea. For younger children, we

will usually do this with sticky-pad electrodes on their cheek, below the lower eyelid. There are different types of tests described below. You may not have all the tests listed; the tests we do depend on your symptoms.



Assessing the visual response to a flash of light. The electrodes we use testing are either stuck on or placed gently under the lower eyelid

What is a visual evoked potential?

A visual evoked potential is a test that measures how well the nerves that send the information from the eye to the brain are working. We will ask you to watch a television screen that has a checkerboard pattern on it or to gaze at some flashing lights while we record the signals. We may use an eye patch to test each eye individually.

What is a pattern electroretinogram?

A pattern electroretinogram measures how well the very central part of the retina at the back of the eye works. (This is called the macula). We will ask you to watch a checkerboard pattern on the television while we record the signals.

What is a full-field electroretinogram?

A full-field electroretinogram measures the response from the retina at the back of the eye. We measure this response in the light and the dark to test how well the different cells in the retina are working.

To perform this test, we will ask you to look forward at some different flashing lights, first in the light and then in the dark. Before we flash the lights in the dark, we will ask you to sit in the dark for 20 minutes while your eyes adjust to the darkness. It is important that you do not use your mobile phone or light-up devices as this can affect how well your eye adapts and alter the results we record. For young children, the 20 minute dark adaptation stage may be shortened to ten minutes, and you should stay with them in the dark.

What is a multifocal electroretinogram?

A multifocal electroretinogram is a specialist test that creates a map of the responses at the very centre of the back of your eye, the macula. We will ask you to place your chin on a chin rest and look at the centre of the screen, while a pattern of black and white hexagons flash on screen.

What is an electro-oculogram?

An electro-oculogram measures how well the retina (the outer layers of cells at the back of the eye), are working. To perform this test, we will stick electrodes to the skin on either side of your eye. We will then ask you to stare at the back of a dome and follow a red light that moves from side to side. This will be performed in the dark for 15 minutes and in the light for 15 minutes. This assesses how well the eye transitions from darkness to lightness.

What are the risks of visual electrodiagnostic tests?

As with all medical procedures, there are some small risks. There is a small risk that the checkerboard pattern and flashing lights can make some feel slightly sick; this is extremely rare.

There is also a small risk that the corneal electrodes that on the lower lid could cause a corneal abrasion or a scratch; however, this is very simply avoided by not scrunching, touching or rubbing the eyes while these are in place.

The eye-drops we use may cause a slight stinging discomfort when they are first administered but this should last only a few seconds.

What are the benefits of visual electrodiagnostic tests?

These tests may help provide a reason for the problems with your or your child's vision or provide an insight into any concerns around a family history of eye disease. These results could help your consultant develop treatment, diagnosis or management plans that could result in improving or understanding visual symptoms.

What do I need to do before the tests?

Before your appointment it is important that you wash your hair and avoid applying hair products so that we can stick the electrodes to your scalp. We cannot apply the electrodes onto a weave or a wig.

As we are applying electrodes and drops to your eyes, we advise you not to wear heavy eye make-up or false lashes as they can affect our ability to apply the electrodes.

Please bring any distance glasses you wear and your prescription (if known) to your appointment. You may find it helpful to bring sunglasses as dilating eyedrops can make your eyes sensitive to bright light.

You can take your regular medication as usual before your appointment.

What can I expect when I arrive at the department?

When you arrive for your appointment you will be taken into a private clinical room. Newcastle Hospitals are teaching hospitals so there may be a trainee with relevant experience performing the test or a trainee or assessor observing your test. We will tell you and ask for your permission if a student is present. It is your right to decline. This will not affect your care.

A member of our team will talk you through the tests. We may ask questions about your visual symptoms and your current level of vision. Once we have explained the tests and the risks and benefits, we will then ask for your consent to proceed. If you are unsure or have any hesitation, then please ask further questions. You can stop any test at any point.

Who will do the tests?

An appropriately qualified technologist or healthcare scientist will perform the tests.

How long do the tests take?

Your appointment letter says how long we expect your tests to take. However, testing does not normally last longer than two and a half hours.

What happens after the tests and when do I get my results?

After the tests you may return to your normal day. However, if you have had dilating drops you may struggle to read and must not drive for approximately three to five hours.

Unfortunately, we are not able to provide you with results on the day. Instead, we will put together your results and send them to your consultant within four weeks. They will discuss the results with you at your next clinic appointment or write to you.

When and where do I need to go for my appointment?

The time and location of your appointment is indicated on your appointment letter. Please arrive on time. If you are late we may not have time to complete your tests and you may be turned away. The directions section of this leaflet contains links to maps and postcodes for the Royal Victoria Infirmary and Sunderland Eye Infirmary.

How can I rearrange or cancel my appointment?

If you are unwell, please do not visit if you have an infection, such as a cough, cold, diarrhoea and/or vomiting. You must be symptom free for 48 hours before visiting.

If you need to rearrange or cancel the appointment, please call our team on (0191) 28 23692.

What do I do if I need an interpreter?

We cannot use friends or family to interpret for you. This is our Trust's policy. We will book an interpreter for you using the information supplied by your doctor.

Please contact us if you need to rearrange your appointment so we can reschedule the interpreter or please let us know if you do not require an interpreter.

What do I do if I have particular requirements?

If you have any specific requirements for your appointment, including a chaperone, please get in touch with the department, in advance of your appointment to avoid delay. We will try to meet all reasonable requests.

What do I do if I need to arrange hospital transport?

Ambulance transport is available to those who have a medical need. The North East Ambulance Service (NEAS) www.neas.nhs.uk can help you find out if you are eligible.

Please tell the transport service the location of your appointment stated on your appointment letter.

If your circumstances or appointment change, please rearrange your transport by contacting NEAS. If you need to cancel a booking for the next working day, please ring 0300 111 0247 as soon as possible at any time.

Patients in Northumberland, Newcastle, Sunderland, Washington, Gateshead and North and South Tyneside can request ambulance transport from NEAS:

0191 215 1515 8.00am to 6.00pm

Patients in Teesside and Darlington can contact the Transport Information Service:

01642 263 122.

Patients in County Durham can contact the Travel Response Centre on:

03000 269 999.

Who do I contact if I need further information or have questions about my appointment?

You can contact our visual electrodiagnostics team by telephone or email and they will be happy to help. Our service is open Monday to Friday 8.30am to 4.00pm.

Direct line: (0191) 28 23692

Email: nuth.NMPCE.VisualFunction@nhs.net

What if I have any comments, suggestions or complaints?

If you have any feedback, suggestions or concerns, please make these known to the person doing your test or a member of our reception team.

You may write to us via email (address above) or by letter to:
Northern medical physics and clinical engineering,
Visual electrodiagnostics service,
Royal Victoria Infirmary,
Newcastle upon Tyne,
NE1 4LP.

You may also provide feedback by scanning this QR code which takes you to the Trust's website.



You can provide feedback through Newcastle Hospitals' switchboard: (0191) 233 6161

For Royal Victoria Infirmary

The Patient Advice and Liaison Service (PALS) can offer on-the-spot advice and information about the NHS. You can contact them on freephone 0800 032 02 02 or e-mail northoftynepals@nhct.nhs.uk .

For Sunderland Eye Infirmary

The Advice and Complaints Service (ACS) can offer on-the-spot advice and information about the NHS. You can contact

them on 0191 0569 9588 or freephone 0800 587 6513 or e-mail: stsft.adviceandcomplaints@nhs.net

Directions

Royal Victoria Infirmary

The QR code points to the most up-to-date directions to the RVI on the Trust's website. The post-code for the RVI is NE1 4LP.



Web site: www.newcastle-hospitals.nhs.uk/hospitals/royal-victoria-infirmary/

Sunderland Eye Infirmary

The QR code directs you to a map to Sunderland Eye Infirmary. The post-code for the SEI is SR2 9HP.



Useful websites

If you would like further information about health conditions and treatment options, you may wish to have a look at the NHS website at www.nhs.uk

If you would like to find accessibility information for our hospitals, please visit <https://www.accessable.co.uk>

Produced by: Clinical scientist
Date: June 2026

Review: June 2027

Version: 2.06