



VEP and ERG

Sometimes it can be difficult to find out how much babies, young infants and children can see. The VEP and ERG are two tests which can give us clues about the working of the visual pathway from the eye along the optic nerve to the brain. This information sheet explains about the VEP and ERG tests and what to expect when your child comes to the Eye Department at Great Ormond Street Hospital (GOSH).

What is VEP and ERG?

When a light flashes or a pattern moves or suddenly appears, an electrical response can be detected from the vision part of the brain. This is the VEP or Visual Evoked Potential. The retina, which is the lining at the back of the eye, also produces an electrical signal following a flash of light.

This is the ERG or electroretinogram.

Both the VEP and ERG are picked up by electrodes. These are placed on the back of the head for the VEP and on the cheek just under each eye for the ERG.

How do these tests relate to seeing?

The tests can identify if a part of the visual pathway is not working properly – for example, the retina, optic nerve or brain. They can also give an estimate about the quality of pattern vision.

The tests do not tell us about the interpretation of the visual information after it arrives in the brain.



Why are the tests necessary?

The VEP and ERG are especially useful in young infants or children who are unable to tell us or show us how much they can see. They are also very helpful if the doctor cannot find an obvious reason why a child sees poorly.

Are there any risks?

The tests are carried out routinely in the clinic and there are no known associated risks.

Will the test hurt?

No. Occasionally a child may find the test irritating but no more so than having their hair brushed or wearing a hat. We will do our best to distract your child with a DVD, music and toys. Do bring any favourite DVD with you. A parent's support and cooperation is very important and can help us to carry out these tests quickly and with the minimum of fuss. Your child can eat and drink during the test.



What will happen to my child?

Before putting on the electrodes, we wipe small areas of the scalp and cheek with a cotton bud covered with a slightly gritty gel. This improves electrode contact with the skin and helps us to detect good quality signals. Six electrodes are placed on the scalp with a cream (four at the back and two at the front) and two sticker electrodes are placed on the upper cheek, just under each eye. A stretchy headband is placed around the head to keep them in place. Everything is removed easily at the end of the test.

What happens next?

The TV test

Young children sit on their parent's lap in front of the TV. Older children can sit on their own and parents can stay in the room. The room lights are dimmed. Black and white checks move from side to side on the TV and we encourage infants to look at the TV by rattling toys and playing nursery rhymes or DVD cartoons between presentations of checks of different sizes. First of all both eyes are tested together then, if possible, each is tested in turn by covering one eye with a patch. We ask the parent to cuddle the child and gently hold their arms to prevent the electrodes being pulled off. We will stay in the room with you throughout the tests. The recorded VEP and ERG, which look like wiggly lines, are saved on a computer.

The Flash test

After the TV test, a lamp is held in front of the child's eyes. This flashes three times every second. This test can work even if a baby is asleep. Sometimes if a very young baby is asleep or if a child's cooperation is very limited, we will only perform this part of the test.

How do the electrodes come off?

We gently remove the electrodes and clean the area with warm water and cotton wool to remove any residual cream. If any is left, it will come off completely after a hair wash. The whole test procedure usually takes 20 to 30 minutes, depending on the child's cooperation and the extent of testing needed.

When do we get the results?

We will make sure that the results are ready in time for your next eye doctor consultation, even if this is the same day as the test. Sometimes we will need to do further tests. If this is the case, we will organise a second appointment.

Getting ready for your visit

We suggest that you prepare your child for the visit by explaining why they are coming to see us and some of the experiences they may have. If you, or your child, have any anxieties, please let us



know when you arrive and we can discuss any issues of concern and agree the best way to proceed for your child.

We recommend that you make arrangements for your other children to be cared for while you participate in this appointment. If you do come with other children with you, please bring someone to watch them for you during the appointment.

Notes

Compiled by the Eye Department in collaboration with the Child and Family Information Group
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www.gosh.nhs.uk



How do I find GOSH?



GOSH	Great Ormond Street Hospital	ICH	UCL Institute of Child Health	IW	Italian Wing
RLHIM	Royal London Hospital for Integrated Medicine	WH	Weston House	P	Car park
				PA	Children's play area