Electrodiagnostic Eye Tests

Introduction

Electrodiagnostic tests are special eye tests which may help your doctor decide what is causing your (or your child’s) eye problems. These tests give information about the way the retina at the back of the eye and about the optic nerves (see diagram below) are working. The tests do not cause discomfort, there are no injections and they are very simple to carry out.

There are four broad groups of test which are described below, but usually we need to carry out only one test on each patient. For each test we place small recording discs on the skin of the forehead, against the lower eyelid or at the back of the head. If your child is having these tests they can sit on your lap during testing. The recording discs measure the small electrical responses that the retina, optic nerve and brain generate to light. Please feel free to ask questions about the test at any time.

A report will be sent to your eye doctor, who will explain the results of the test at your next clinic visit.

If you wear glasses please bring them with you.
Test of the retina (ERG test)

- This test takes 40 minutes and gives us important information about how well the retina can respond to lights of different brightness and colour.

- Sometimes we put drops into your (or your child’s) eyes before the test to enlarge the pupils, similar to the ones used in eye clinic. The drops will blur your eyesight for a short time so you should not drive immediately after the test.

- The room lights will be turned down for a short time to allow the eyes to adjust to a low light level.

- When we are ready to begin the test a small recording lead will be placed against the lower eyelid. This does not cause discomfort and you (or your child) will be able to see normally during and after the test.

- During the test procedure all you or your child will need to look carefully at a series of lights that flash on a TV screen. When testing children who are too young to look at the TV consistently, we hold a flashing lamp in front of them. We measure the reaction of the eye to the light by means of the recording disc or lead.

- In a second test, which we carry out less often, you will sit in front of a computer screen and we measure the response of the eye to some simple patterns.

Test of eye movements (EOG test)

- This test takes 30 minutes. It is very simple and does not cause discomfort.

- During the test you will be asked to make a series of careful eye movements in which you focus alternately on two small red lights.

- A series of measurements are made, first of all in the dark and then in the light.
Test of the optic nerves (VEP test)

- This takes about 20 minutes. The test helps us determine whether the optic nerves are working normally.

- All you have to do is look carefully at patterns presented on a computer screen in front of you. You do not have to make a response of any kind – we simply use our recording discs to measure the response of the optic nerves to these patterns.

- We do not need to give you drops for this test and you will be able to see normally during and after the test.

Tests of young children and babies

Some young children and babies do not appear to see normally or they do not move their eyes normally. It may be important at an early stage to check that the retina at the back of the eye is normal. This can be done by a procedure specially developed for the very young.

- We will place small recording discs on the skin below each eye and on the forehead.

- These allow us to measure the response of the eye to brief flashes of light from a small hand held lamp.

- The test can be done quite quickly, we do not need to use eye drops and it does not cause discomfort.

In other situations it may be important to try and estimate how much fine detail a child is able to see. We may need to do this when the child is too young to tell us what he/she can see, or is otherwise not able to co-operate fully.

- We will need to place three small recording discs on the skin, two on the forehead and one at the back of the head.

- The child will be positioned facing a computer screen and we measure the response of the eyes to patterns presented on the screen.

- The patterns become progressively smaller and we try to determine the smallest pattern that the eye responds to.
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