

Eye Movement (Oculomotor) Testing

About your child's visit to the Oculomotor lab

What are the oculomotor tests?

Oculomotor means eye movement. We test and measure how and when your child's eyes move in response to images, light, moving objects and head motion. We compare your child's eye movement with that of other children of the same age to see if your child shows the usual response.

What happens during the tests?

The testing is done in dim light or complete darkness. You will be able to sit in the test room with your child. We will ask your child to play video games or watch video images. We may ask you or a clinic staff person to hold your child's head so that it does not move. For some tests your child's head is free to move. To measure eye movement, we may use one of three devices:

- EOG (electro-oculograph) uses small sensors that are placed on your child's face around the eyes and forehead.
- Soft contact lenses are placed on your child's eyes after putting in anesthetic eye drops to numb them.
- Goggles (like swim or ski goggles) that contain mirrors and video cameras are given to older children.

How long does it take?

Testing takes about 1 hour. We record all of your child's eye and head movements and analyze the results on a computer. Our clinic staff reviews the results and gives your child's doctor a report. If you would like a copy of this report, ask your child's doctor or technician.

What are the tests?

We test for these six types of eye movements in the lab:

Gaze holding – The ability of your child's eyes to hold still when looking at a still object. We test to see if your child's eyes remain stable in the dark and when looking at objects in different places. We also may test gaze holding while your child is sitting or lying down.

VOR (Vestibulo-ocular reflex) – The ability of the eyes to remain steady and see clearly while the head turns. Without this eye motion in the head, your child's vision would be blurry. This eye movement is controlled by the same part of the brain that helps your child's balance when walking, standing or sitting. We test how the VOR works by gently rocking your child in complete darkness and watching the motion of the eyes. We also test VOR by turning your child's head rapidly while they read letters or look at objects.

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OKR (Optokinetic reflex) – The ability of the eyes to look at and follow a moving object while the head remains still. The OKR works with the VOR to help steady your child’s eyes and allow their vision to be clear. We test this by showing your child a large moving image on a screen.

Smooth pursuit – The ability of the eyes to smoothly follow small objects as they move. We test smooth pursuit by slowly moving spots of light in front of your child.

Saccades (sounds like suh-cods) – A series of small and quick eye movements. When reading a book, the eyes jump around to aim at different places on the page. We test how well your child makes saccades and scans objects by showing patterns and jumping spots.

Vergence – The movement of the eyes toward one another as objects get closer. It aligns your child’s eyes when they look at objects that are close and far away. We test vergence by asking your child to look at a target as it moves toward and away from the eyes.

TO LEARN MORE

- Ophthalmology Clinic (206) 987-2177
- Your Child’s Health-Care Provider

Children’s will make this information available in alternate formats upon request. Please call Marketing Communications at (206) 987-2201.

This handout has been reviewed by clinical staff at Children’s Hospital. However, your child’s needs are unique. Before you act or rely upon this information, please talk with your child’s health-care provider.