

# Understanding Electronystagmography (ENG)



Electronystagmography (ENG) is a test that measures the movements of your eyes and the muscles that control them. It's used to test for disorders of the vestibular system. These are also known as balance disorders. The vestibular system includes parts of the inner ear, muscles of the eyes, and nerves that send signals to the brain. This system helps your brain interpret balance and movement of your body. Problems with this system can cause dizziness and other symptoms, such as nausea and vomiting.

## How to say it

ehl-EHK-troh-nihs-stag-MAH-gruh-fee

## Why an ENG is done

An ENG is one way to diagnose balance (vestibular) disorders. These are problems that cause dizziness, loss of balance, nausea, and a constant feeling of movement. Balance disorders include:

- Benign paroxysmal positional vertigo (BPPV)
- Acoustic neuroma
- Labyrinthitis
- Ménière's disease
- Perilymph fistula
- Vestibular neuronitis

An ENG may be done if your symptoms make it hard for you to function, last for more than 2 weeks, and medicine doesn't help reduce them.

The ENG may include 1 or more of the following measurements:

- Gaze nystagmus test. This involves staring at a fixed light placed either to the center or side as you are seated or lying down. This test measures how well you can fix your gaze at an object without your eyes moving involuntarily.
- Optokinetics test. This measures how well you can track a light as it moves quickly across and out of your field of vision and back again while you keep your head still.
- Calibration test. This involves following a light about 6 to 10 feet away with your eyes. This test measures ocular dysmetria. This is a condition in which movements of the pupil of the eye overshoot their target.
- Pendulum-tracking test. This test measures how well you can follow a light with your eyes as it moves like the pendulum of clock.
- Positional test. This involves moving your head and perhaps your whole body instead of just your eyes. For example, you may be told to turn your head quickly to one side. Or you may be asked to sit up quickly after you have been lying down. The amount of eye motion that results from this activity is recorded.
- Caloric test. This involves putting warm or cool water into the ear canal with a syringe so that it touches the tympanic membrane. If no problem exists, your eyes will move involuntarily to this stimulus. Air may be used as the stimulus for this test instead of water, especially if you have a damaged eardrum (tympanic membrane) or tubes in your ears.

## Before the test

- Before your test, you'll be told to stop taking medicines such as sedatives, antivertigo medicine, antinausea medicine, and some cold and allergy medicines.
- Don't have caffeine or alcohol for at least 48 hours before the test.
- Don't eat for the amount of time as directed before the test.
- If you wear eyeglasses, contact lenses, or a hearing aid, bring these to the test.

## How an ENG is done

The test may be done in a hospital or medical office. During the procedure:

- The skin on your forehead and around your eyes is cleaned. A few small sticky pads called electrodes are placed on your forehead and the skin around your eyes. You may be given a pair of special eyeglasses to wear during the test (frenzel glasses).
- The healthcare provider will look in your ears. They may remove excess earwax.
- During different parts of the test, you'll be either sitting up or lying down. You'll be asked to look up, down, or to the side. You'll watch a moving image or lights. You may be asked to move your head or your whole body. Warm or cold air or water may be put into one of your ears. You may have symptoms of dizziness or nausea during the test.
- The information from your eye movements goes to a computer, where the information is analyzed.
- When the test is over, the healthcare provider will remove the electrodes. In most cases, you can go home shortly after the test. You may need help getting home, because you may not be able to drive safely after the test.
- A healthcare provider called an audiologist will look at the information and talk with your healthcare provider. Your healthcare provider will then talk with you about the results.

## Risks of an ENG

These include:

- Dizziness
- Nausea and vomiting

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