ECOG (Electrocochleography)

What is ECOG (electrocochleography)?

ECOG is a test to help detect inner ear disease. The inner ear contains the organs for balance and hearing. These organs are part of a single chamber filled with fluid.

What does ECOG do?

Meniere’s disease

This test can help find Meniere's disease, which is caused by too much fluid in the inner ear. When there's too much fluid, pressure develops in the ear.

Symptoms include:

- A dizzy feeling
- Ringing in the ear (tinnitus)
- Fullness in the ear
- Hearing loss

Bone thinning in semicircular canals

ECOG can also help find a condition caused by thinning or lack of bone around the semicircular canals. (See the image for location.) Changes in the semicircular canals can make people more sensitive to pressure changes and loud sounds.

Symptoms include:

- Hearing loss
- A dizzy feeling due to loud noises
- Self-made noises sound extra loud
- Fullness in the ear
- Ringing in the ear (tinnitus)
How is the test done?

The test records electrical signals made by the inner ear and auditory nerve.

- First, we clean the skin before placing sticky patches (electrodes) in several places on the forehead and behind each ear.
- One more electrode is placed in the ear canal. This electrode is a flexible tube of soft silicone.
- The examiner looks through a microscope to place the electrode on the eardrum. Most patients feel a tickle or slight pressure when this is done. A few patients feel mild discomfort.
- After the electrode is in place, most patients don’t feel it at all. A foam plug, placed in the ear canal, holds the electrode in place.
- The plug also acts as an earphone for sounds you’ll hear as part of the test. You’ll hear very rapid clicks that are loud but usually not uncomfortable.
- You’ll be lying down and should try to relax. Relaxing your muscles helps the test go faster. Many people even sleep during the test. If you think you’ll have trouble relaxing, you can take medicines you’ve already been prescribed to help you relax. Please don’t take these medicines if you have balance testing on the same day.

ABR (auditory brainstem response) test

The ABR test is usually done at the same time as ECOG. This test records electrical signals made by the brain when it hears sounds. The electrodes can also record brain signals, so that both tests can be done at the same time. The 2 tests together can help find out where your symptoms come from.

The 2 tests usually take about 1.5 hours. It takes another hour to read the results and write a report. The report is sent to the referring doctor, who will choose a treatment.