

## Vanderbilt Balance Disorders Laboratory

The Balance Disorders Laboratory is a diagnostic clinic where specially-trained audiologists conduct tests, the results of which help physicians determine the cause of dizziness, disequilibrium and vertigo. Together with physical therapists, the Balance Disorders Laboratory also conducts assessments of patients who may be at risk for falling. Through this assessment, these specialists can determine what factors place a patient most at risk for falls and make recommendations to the referring physician for reducing that risk. Our goal is to help keep independent seniors independent.

## Symptoms of Balance Disorders

- dizziness that is motion-provoked
- vertigo
- tinnitus (ringing in the ears)
- spinning sensation
- headaches
- blurred vision
- falls
- unsteadiness when walking

## World-class Care

With more than 50 years combined work experience, our staff at the Vanderbilt Balance Disorders Laboratory are experts in balance and dizziness-related problems. We specialize in unique treatment options, and assess conditions using the most current testing techniques and technologies. Our patients receive quality care from specially-trained audiologists who listen, encourage questions and understand your concerns.

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### Vanderbilt Balance Disorders Laboratory

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# Vanderbilt Balance Disorders Laboratory

For balance or dizziness-related problems



Department of Hearing & Speech Sciences  
Division of Audiology  
Vanderbilt Bill Wilkerson Center for  
Otolaryngology & Communication Sciences

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## Normal and Abnormal Function of the Balance System

Most balance disorders are caused by inner ear abnormalities. The normal inner ear of hearing converts sound into a pattern of electricity that the hearing part of the brain understands as meaningful sound. In that way the inner ear of hearing acts exactly like a microphone. The inner ears of balance change movement of the head into patterns of electricity and make it possible for your brain to accurately sense motion in all directions.

Our evaluation is designed to answer these questions:

- Do you have a weak inner ear on one side or both sides?
- Is it the left or right side that is weak?
- How weak is it (20%? 50%? 100%)?
- If you have lost some function on one side, has your brain successfully re-adjusted itself to accommodate the loss of function?

## Balance Assessments

There are many tests that can help find the cause of your balance problem. We answer many of these questions by measuring the movements of your eyes with special computerized eyeglasses.

### Electronystagmography/ Videonystagmography:

An Electronystagmography test determines how much weaker or stronger the left inner

ear of balance is compared to the right. We will record the movements of your eyes as you follow light patterns. We will pretend you are lying down in order to identify vertigo that is caused by changing position. This problem can often be fixed by a simple exercise. With water, we will try to fool your brain, for a very short period of time, into thinking your head is moving when it is not moving at all.

### Rotary Chair Test:

If you have had your hearing tested you know that we are interested in knowing how sensitive your hearing system is to sounds of different pitches. We have the same interest in the inner ears of balance. For this test we will record your eye movements as you sit in a chair that swivels from side to side (in much the same way that you would turn an office chair with your feet). *Only available at our Vanderbilt Medical Center East location.*

### Vestibular Evoked Myogenic Potential (VEMP) Test:

A VEMP test evaluates the part of the inner ear of balance that reacts to up and down movements of the body. We record muscle tension in your neck following the presentation of brief, moderately loud tones.

### Electrocochleography (ECochG):

We will place a silver thread in your outer ear and then a tiny earphone after it. The earphone will make moderately loud clicking sounds. We will record from your outer ear electrical signals the inner ear produces when it creates the electrical code destined for your brain.

## Risk of Falls Assessment

Falls are frightening events that can result in hip injuries, hospitalizations and loss of independence. Our falls risk assessments look at factors and warning signs known to cause future falls. Aside from assessing function of the inner ears of balance, the falls risk assessment includes measures of ten factors including blood-pressure, reaction time, and sensation in the feet, ankles and knees.

