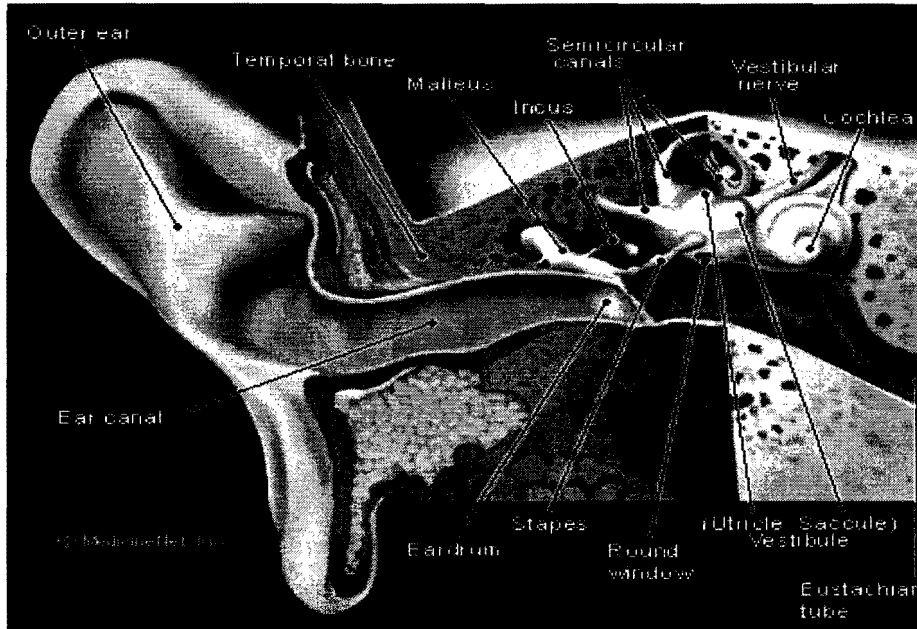


## Manhattan Otolaryngology Head and Neck Surgery

1421 3<sup>rd</sup> Avenue (4<sup>th</sup> Floor)  
New York, New York 10028  
(212) 452-1500

210 East 64<sup>th</sup> Street (3<sup>rd</sup> Floor)  
New York, New York 10021  
(212) 605-3789

### SPECIALTY TESTING



Appointment Date: \_\_\_\_\_

Time: \_\_\_\_\_

Patient: \_\_\_\_\_

Ordering Physician: \_\_\_ Dr. Edelstein \_\_\_ Dr. Papageorge \_\_\_ Dr. Seidman \_\_\_ Dr. Zimm \_\_\_ Dr. Komisar  
\_\_\_ Dr. Chandrasekhar

Auditory Brainstem Response (ABR) \_\_\_\_\_

Electrocochleography (EcochG) \_\_\_\_\_

Videonystagmography (VNG) \_\_\_\_\_

VEMP \_\_\_\_\_

Please refer to test procedures and instructions below. Should you have any questions regarding your test procedure(s), please contact our office and ask to speak with one of the audiologists. If you are unable to keep your appointment, please call the office to reschedule.

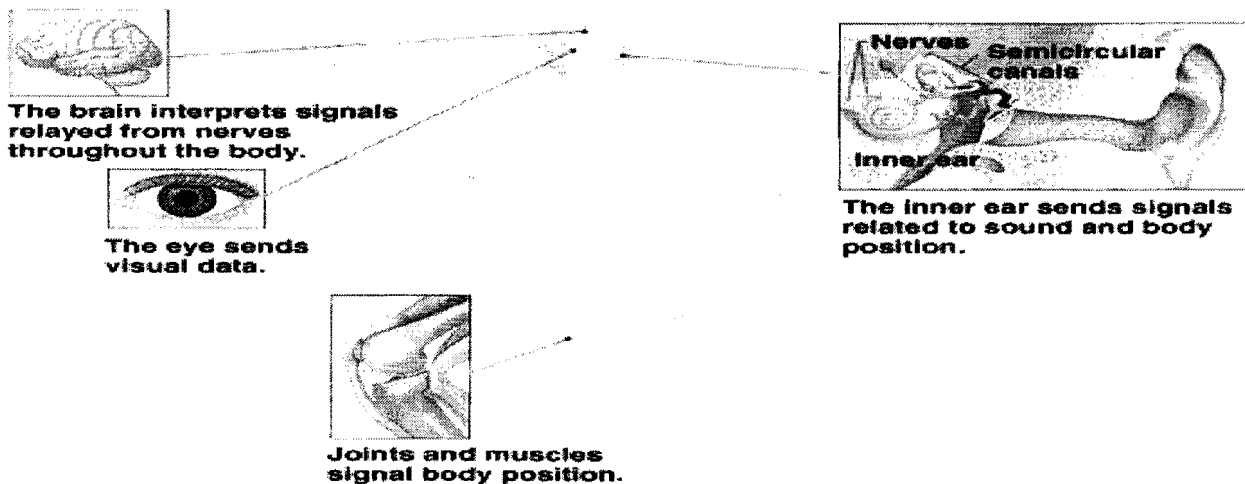
## **OVERVIEW**

Our audiologists are also specialized in diagnosis of dizziness and balance disorders that affect millions of people. Dizziness can occur suddenly or gradually over a period of time. Working with patients who complain of dizziness is both challenging and rewarding because there are many causes for dizziness and balance problems. Patients can describe their symptoms in a hundred different ways. Because dizziness can be caused by several systems of the body, often a full test battery is necessary for an accurate diagnosis of the problem. Our facility offers a number of these tests. Below are some brief descriptions and pre-test instructions for each of them.

A comprehensive battery of tests will be performed during our appointment allocated for you. Prior to each test an explanation will be given so that you will have a better understanding of what is being tested and why. We make every attempt to make your visit comfortable as well as educational. Once your evaluation is completed, each part is carefully evaluated and reviewed. This process is as important as your test, so please understand that your test results will not be discussed in detail at the time of your evaluation. Once the interpretation has been made, a detailed report will be forwarded to you and/or your referring physician. You should schedule a follow up appointment to obtain these and any other test results from your doctor.

Dizziness, vertigo and unsteadiness are symptoms associated with the human equilibrium system and cannot be physically examined. Your physician will request any and/or all of the following studies to assist in the proper diagnosis. Balance disorders are often accompanied by changes in hearing or the ears function. A thorough evaluation begins with computer testing of the outer, middle and inner ears. Additional sophisticated computer generated tests evaluate the inner ear fluids, nerve conduction pathways, the central nervous system, and the connections between the inner ear, eye movement and the brain.

The vestibular system and the auditory system are both part of the same organ-the fluid filled inner ear. The inner ear is connected to the air-filled middle ear by a plate, which vibrates in response to eardrum vibrations. The hearing transducers are in the cochlea of the inner ear and on the other side is the vestibular/balance system. The role of the vestibular system is to keep our eyes still in space when our head moves. The close interrelationship between the vestibular system and the ears and eyes is the reason why it is possible to retrain this system by influencing it through the auditory and visual senses, using light.



## **AUDITORY BRAINSTEM RESPONSE EVALUATION (ABR)**

Your physician has referred you for an Auditory Brainstem Response (ABR) test because you are presenting with one or more of the following symptoms in one or both ears: difficulty hearing conversational speech, hearing noises in your ears (tinnitus), experiencing a sensation of fullness, or having balance problems. The audiologist has already completed a variety of tests to assess your hearing and results suggest further assessment is warranted. A Diagnostic Auditory Brainstem Response (ABR) is a computerized "hearing test" which is used to measure the "brain waves" your ear produces when it hears sounds. During the ABR, we analyze the electrical activity in the inner ear (cochlea), auditory nerve and as it travels to the brainstem area. Specifically the test helps to determine whether or not there is a blockage in the transmission of electrical signals to the brain. Different auditory disorders (inner, middle or retrocochlear disorders) alter the ability of the inner ear to transmit sound waves into neural information or to allow the electrical pulse to travel to the brain. Sometimes an ABR is called BAER (brainstem auditory evoked response). An ABR test is ordered when complete results cannot be obtained with a routine hearing test (audiogram) or when a comprehensive hearing test shows a certain type of hearing loss pattern. The ABR can be used to identify the presence or absence of hearing loss and a possible cause. In addition, careful analysis of the ABR wave patterns can help identify the presence of certain medical conditions that affect hearing.

The ABR test is administered by placing sensors called electrodes on your forehead area and ears which are connected to a computer. A series of loud sounds called acoustic clicks are presented to each ear individually through insert earphones. These electrodes will measure the response to sound from the ears and brain. The electrical activity from the inner ear and auditory nerve is picked up by electrodes and later analyzed by the audiologist and will be discussed with your physician. When analyzing the response, we look for specific patterns that indicate normal transduction of sounds into electrical activity. You will not need to respond. There is no discomfort. The best results are obtained if you are relaxed. You may even take a nap or sleep during the test. Reading is not permitted. It requires that you lie very still so the computer will not pick up any muscle movement. The test takes about 15-30 minutes to apply the electrodes and complete the test. The test is similar to a brain wave test (EEG) except that you hear the acoustic clicks during the examination.

Please note, that in order to obtain a good connection with the electrodes on the skin, your skin will be prepped and scrubbed (i.e. forehead area and ear canals). Therefore if you have recently undergone any cosmetic/facial procedures you must consult with your physician and obtain medical clearance regarding the scrubbing of these surface areas.

On the day of the ABR test, you must arrive without any base makeup or excess lotion around the forehead area. You may take your typical medications and follow your normal routine. However, please note if you are scheduled for multiple tests you must follow all preparatory instructions including those for medications for each test scheduled to ensure you arrive prepared for all testing your physician has ordered. Upon completion of the test, you are free to return to your daily activities.

The ABR is reliable, however, you should realize no single test is every 100% accurate, and this is true for ABR as well. All available patient information and test results contribute to an accurate evaluation and subsequent treatment plans.

## Electrocochleography (Ecochg)

An Electrocochleography (Ecochg) is a test that helps determine whether or not there is an abnormal increase in fluid pressure in the inner ear. The test helps to rule out various conditions of the inner ear. It is an objective measure of the electrical potentials generated in the inner ear as a result of sound stimulation. This test is most often used to determine if the inner ear (cochlea) has an excessive amount of fluid pressure. Excessive fluid pressure in the cochlea can cause symptoms such as hearing loss, aural fullness, dizziness, and/or tinnitus. These symptoms are sometimes indicative of certain ear pathologies.

The Ecochg examination is administered by placing surface electrodes on your forehead. Insert earphones are additionally placed in your ear canals. Sounds called acoustic clicks are presented to each ear individually. The ear generates electrical activity in response to the acoustic clicks which are picked up by the electrodes and analyzed by the computer. We evaluate these recordings to determine how the inner ear and hearing nerve (VIII cranial nerve) are functioning.

Please note, that in order to obtain a good connection with the electrodes on the skin, your skin will be prepped and scrubbed (i.e. forehead area and ear canals). Therefore if you have recently undergone any cosmetic/facial procedures you must consult with your physician and obtain medical clearance regarding the scrubbing of these surface areas. On the day of the Ecochg test, you must arrive without any base makeup around the forehead area. Please follow all applicable preparatory directions for other tests that you will undergo on this same test day.

You will be instructed to relax while listening to a clicking sound. It is very important that you are relaxed for this test, since any tension or muscle movement can slow down the averaging process. No response from you is required for this test. While you are listening to the clicking, the audiologist will measure the Ecochg response with a computer that uses signal filtering and averaging to isolate neural activity from the cochlea. The examination generally takes about 15-30 minutes to complete. This test requires you lie very still, so muscle movement is not picked up by the computer.

To ensure the accuracy of the test, you are asked to discontinue the use of certain medications 48 hours prior to testing. These medications include any medicines taken to prevent or control dizziness (i.e. Meclizine, etc), and any diuretics. Consult with your physician before discontinuing these medications. All other medications may be taken as usual. You may resume your normal activities immediately following the examination. Please remember that this is one of the only tests that can verify an abnormal build-up of fluid in your inner ear. Proper identification of the cause of your symptoms is important for your physician to determine the best form of medical treatment.

**\*\*DO NOT DISCONTINUE THE USE OF ANY PRESCRIBED MEDICATION WITHOUT FIRST CONSULTING YOUR PHYSICIAN\*\***



## VIDEONYSTAMOGRAPHY (VNG)

The videonystagmography (VNG) test is the electronic recording of nystagmus (eye jerks). During this test, your eye movements will be recorded and the different patterns of movement will be evaluated. There are neural connections that stretch from the balance mechanism in the inner ear to the muscles of the eye. A disorder of the balance mechanism results in small eye jerks that can only be detected by a sophisticated computer. You will wear a pair of goggles, outfitted with a camera which is used to record these eye jerks during a series of tasks. The balance mechanism is monitored during tasks that consist of looking back and forth between designated points and lying in different positions. You will need to inform the audiologist of any head, neck, or back injuries prior to the testing so that the appropriate modifications can be made. The final portion of the test requires putting cool and warm air in the ear canal for almost a minute under each test condition, in order to determine if the balance mechanism of each ear can increase and decrease normally in response to stimulation. Some individuals become dizzy for 2-3 minutes, but most are able to drive home after the test without difficulty. If you are concerned about not being able to drive afterwards, please make arrangements for someone to transport you.

Please dress comfortably. Do not use mascara or excessive makeup around the eyes. Additionally do not use base makeup or excess lotion around the eye and forehead area. The test will take about 1 hour.

Certain substances can influence the body's response to this test, giving a useless or even false result.

**Continue to take heart, high blood pressure, and anticonvulsant medications.** Questions regarding other medications should be discussed with your doctor. **Do not** drink coffee, tea, cola or any other beverage containing caffeine or alcohol within **24 hours** before the test. **Do not** eat or smoke for **3-4 hours** before the test. Certain medications suppress responses from the inner ears or the brain and can affect the test results with false positive findings. The following medications **must not** be taken for at least **2 days (48 hours)** before the test:

- **ASPIRIN**
  - **QUININE**
  - **ANTI-NAUSEA MEDICINE:** Dramamine, Compazine, Bonine, Marezine, Phenergan, Thorazine, etc.
  - **ANTI- VERTIGO MEDICINE:** Antivert, Meclizine, Scopolamine, Flunarizine etc.
  - **TRANQUILIZERS/ANTI-ANXIETY:** Valium, Librium, Atarax, Vistaril, Equanil, Miltown, Triavil, Serax, Etrafon, etc.
  - **SEDATIVES:** Nembutal, Seconal, Dalmane, Doriden, Placidyl, Qualude, Butisol, or any other sleeping pills.
  - **NARCOTICS & BARBITUATES:** Marijuana, Amphetamines, Phenobarbital, Codeine, Demerol, Benadryl, Actifed, Teldrin, Triaminic, any over-the-counter cold remedies, etc.
  - **ANTIHISTAMINES:** Chlortrimeton, Dimetane, Disophrol, Benadryl, Actifed, Teldrin, Triaminic, any over-the-counter cold remedies, etc.
  - **ALCOHOL IN ANY QUANTITY:** Including beer, wine, and cough medicines containing alcohol.
- MUSCLE RELAXANTS**

.\*\*DO NOT DISCONTINUE THE USE OF ANY PRESCRIBED MEDICATION WITHOUT FIRST CONSULTING YOUR PHYSICIAN\*\*

