

---

## Vestibular service (balance)

The vestibular service at Addenbrooke's Hospital works closely with the Ear Nose and Throat (ENT), Neurology consultants and physiotherapists to help manage patients with dizziness/balance problems. The clinic performs a wide range of specialist vestibular (balance) assessment and rehabilitation including:

- Tests of eye movements with video recording (Videonystagmography), including caloric testing
- Tests of balance
- Tests for Positional Vertigo
- Treatment manoeuvres for Positional Vertigo
- Vestibular Rehabilitation exercises
- Breathing control exercises / relaxation
- Other specialist tests to include:
  - Auditory Brainstem Response
  - Cervical Vestibular Evoked Myogenic Potentials
  - Electrocochleography

### **How the vestibular system works, what causes balance problems and what treatment is available**

In order to balance we use information from three main senses:

1. The vestibular (balance) organ in each inner ear
2. Vision
3. Proprioception or somatosensory inputs (sensors in your feet, muscles and joints)

Information from these senses regarding the orientation of your head and body is sent via the balance nerve to be integrated together in your brain. Of particular importance to balance are the brainstem and the cerebellum, both in the lower, back parts of the brain. Dysfunction of any part of the balance system can lead to problems with dizziness and/or imbalance.

Vertigo is the medical name for the sensation that you or the environment around you is moving, and is often felt as a 'spinning' sensation. The term vertigo is often incorrectly used to describe a fear of heights. Acrophobia is the medical name for the dizzy feeling often experienced when looking down from a high place.

For some people their dizziness/balance problem is barely noticeable but in others it can prevent them from performing everyday tasks. Depending on the cause, an episode of vertigo may last several seconds, minutes, hours or days.

### **Some possible causes of vertigo include:**

- Benign Paroxysmal Positional Vertigo (BPPV)
- Meniere's Disease
- Migraine
- Vestibular Neuronitis
- Labyrinthitis

There are also a number of other potential causes for dizziness/balance problems that are not related to the ear or the vestibular system, for example cardiac conditions, that may also need to be considered.

The treatment given will depend on the cause and severity of the dizziness/imbalance; often problems with dizziness/balance get better over time without any intervention; but some people require formal rehabilitation exercises, medication or surgery.

For more information please read the following leaflets or visit the NHS Choices website.

## **What to expect at your appointment**

### **Vestibular Assessment**

A vestibular assessment takes up to 1 hour 45 minutes. The tests performed will depend on the problems you are having, what the ENT or Neurology consultant has requested, and what the audiologist decides is most appropriate for you. The tests are designed to look at the way your brain combines information from your balance organ, vision and proprioception inputs.

The audiologist will first take a detailed history from you; recording your balance problems, general health and lifestyle.

They will then look in your ears (otoscopy) and carry out a simple test of middle ear function (tympanometry) where a soft tip is placed in the ear and you feel a slight feeling of pressure similar to the feeling you sometimes may experience when going through a tunnel, for example.

Many of the tests will involve looking at your eye movements as your balance organs in the ears are linked via a reflex. The audiologist will look at your general eye movements by asking you to follow their finger or pen.

To assess your balance you may be asked to stand with your eyes open and then with your eyes closed on a foam pad such as in the picture. This test challenges the balance system to see how much your balance system relies on the information from each of the 3 main senses.

To look for positioning or positional vertigo the audiologist may look for any eye movements or dizziness that occur when you move your body into different positions on the couch (commonly the audiologist will carry out what is called a Hallpike Manoeuvre, which you may have already had carried out by the doctor).

Several tests simply involve following a light with your eyes while we record your eye movements using a pair of goggles that contain a small camera. Alternatively, a set of recording leads can be placed around the eye if the goggles are not suitable for you.

Another test which we may perform involves putting a small amount of either water or air into each ear. This directly stimulates the balance organ in the ear allowing the balance function of each ear to be assessed independently, and helps the audiologist to determine whether your balance problem is the result of a mismatch between the ears.

### **Vestibular rehabilitation**

Some patients who have balance problems might benefit from a specific type of exercise therapy known as vestibular rehabilitation. This treatment is not suitable for all types of dizziness or balance problem. Those patients who can be helped by this treatment are usually seen initially by both an audiologist and a physiotherapist who will look at the patient's balance problem in detail. Most patients will be given simple exercises to do at home and will then be followed up by the physiotherapist who will change these exercises as necessary.

Vestibular rehabilitation requires an initial 1 hour appointment with follow up appointments, usually on a monthly basis, lasting 45 minutes. You may require several visits to complete your program of rehabilitation.

### **How to get an appointment/ referral criteria**

- We currently accept referrals from Addenbrooke's ENT and Neurology clinics. Your ENT or Neurology consultant will refer you for vestibular assessment and/or rehabilitation if appropriate.
- If you feel you have balance problems please speak to your GP.
- Other activities of the Vestibular (Balance) Service
- The vestibular service audiologists also participate in the following activities:
- Working alongside the Ear, Nose and Throat (ENT) doctors on the ENT Vertigo Clinic
- Running a specialist clinic for patients with Benign Paroxysmal Positional Vertigo (BPPV)
- Contributing to a regular vertigo multidisciplinary team meeting (Vertigo MDT) alongside the ENT doctors and specialist physiotherapist to discuss individual cases
- Running regular vestibular team meetings for educational and service development purposes with regular presentations from team members and external speakers on all aspects of dizziness/balance problems
- Ongoing research activities, particularly those related to improvement of clinical

services

- Involvement in special interest groups for dizziness/balance problems at a national level, including the development of national protocols for dizziness/balance assessment and rehabilitation
- Participation in national projects designed to promote the ongoing development of vestibular (balance) services