



Videonystagmography (VNG) and oculomotor testing

This leaflet is for patients with symptoms of dizziness and balance problems. It explains what you can expect during some of the tests. The tests we choose will depend on your individual symptoms. Please read the leaflet carefully along with any other information we have sent you.

Why do I need VNG and oculomotor testing?

Some types of dizziness and balance problems can come from motion-sensing organs in the inner ear or the structures (the nerves) attached to the ear, called the 'vestibular system'. Each of our tests explores this system in a different way.

VNG and oculomotor testing

As part of your assessment, we may use a type of investigation called oculomotor testing. This will help us understand if your symptoms most likely come from the inner ear or the structures attached to it. While the symptoms of dizziness can be unpleasant, it is unusual for them to be caused by any significant health condition. These tests along with an assessment of your symptoms can help us rule out anything serious.

What to expect during oculomotor and VNG testing

- **PLEASE DO NOT WEAR MAKE UP – particularly eye make-up:** this can interfere with the test recording and its accuracy. In some cases, it may even prevent us undertaking the testing.
- You will be required to wear video goggles. These will measure your eye movements. Our ears play an important role in how we move our eyes and we use this information to work out where your symptoms are coming from.
- While the goggles may be a little heavy, the testing is only for a short period and **you should not touch the goggles.**
- You will be asked to sit upright on a couch, facing a piece of equipment called a 'light bar'.
- Your clinician will ask you to follow a dot backwards and forwards on the light bar with your eyes, while keeping your head still. This is firstly to ensure that the equipment is working correctly and secondly to undertake the required measurement.
- We will then perform *Pursuit testing*. You will be asked to follow a dot moving backwards and forwards again. You should try to follow the moving dot as smoothly as possible and avoid jumping ahead as this will reduce the time it takes to carry out the test.
- You will then be asked to follow a dot that will jump to and fro to random positions. This is called *Saccades testing*. You should attempt to do this as quickly and as accurately as possible and try not to anticipate where the dot will go. This will reduce the time it takes to undertake the test and reduce the need for repeated testing.



- We will also perform a test called *Gaze testing*. You will be asked to stare at a dot ahead of you. After a short time (around 15 seconds, although possibly longer) the visor of the goggles will be put down so that you are in the dark, and you should continue to look in the direction that the dot was. This will also only be for a short period.
- You will then be asked to repeat the testing with your head looking forwards but your eyes looking to a spot to the right. Again the visor will be closed and you should continue looking to the right.
- The test will then be repeated to the left.
- Sometimes, we may undertake a test called *VOR suppression* testing. This involves sitting in a swivel chair with your arms stretched in front of you and your hands clasped in a 'thumbs up' position. Your clinician will rotate you backwards and forwards, while you stare at your thumbs and we record your eye movement.
- This is the end of the oculomotor testing.

What you may experience

There are no known significant side effects of the testing. Some people who have certain visual sensitivities may find the testing visually unsettling, but this is rare.

Vibration Induced Nystagmus (VIN) testing

Where vestibular (balance) system function is reduced in one ear and is sufficiently different between each ear, the VIN test can be used to note a change in function to one side. It can help confirm the presence of a balance upset and, together with your symptoms and other tests, can help us build up a picture of what is causing your symptoms.

What to expect during VIN testing

- The VIN test will also require you to wear video goggles to measure your eye movements. Our ears play an important role in how we move our eyes and your eye movements are what we use to measure the response.
- While the goggles may be a little heavy, the testing is only for a short period and **you should not touch the goggles**.
- During the testing, you will be asked to sit upright on a couch. The visor of the goggles will be put down. The whole test only takes 5-10 minutes to perform, but you will be in the dark for this time. This is a necessary part of the testing and ensures it is reliable.

- We will place a vibrator behind one of your ears. We will then apply a vigorous vibration to the area for 5-10 seconds, measuring for a short period before and after each vibration, before repeating the measurement for a second time. You may blink from time to time but you should keep your eyes open as it will not be possible to undertake accurate measurements otherwise. We will then do the same test on the other ear.
- When this has been completed, we will repeat the process one more time on each ear using the vibrator set at a different speed.
- This will be the end of your VNG test.



What you may experience

The testing is usually very well tolerated, in cases where other tests may not be possible. Some people can get spinning, dizziness or feelings of movement during the test but typically these only last as long as each vibration (5-10 seconds at a time). Occasionally, people can find the sensation of the vibration uncomfortable or loud, but this is typically mild and short lasting. Rarely, some patients feel that they are unable to tolerate this and do not complete the testing, but this is not a common experience.

Is it safe?

It is a very safe test and few serious side effects have ever been reported. Tinnitus (sounds in the head) or the worsening of tinnitus has been reported as a possible but rare side effect. As a precaution, we typically avoid performing the test in cases of recent skull or ear surgery (particularly where there has been reconstruction of the middle ear bones), some previous ear operations, recent skull fractures, some skull malformations, poorly controlled blood thinning medications, recent bleeds to the brain (called a cerebral hematoma), recent detachment to the retina of the eyes, and a condition called wide vestibular aqueduct syndrome. We will exercise caution in patients who are very sensitive to sound or report their tinnitus is worse with sound.

If you have any queries or concerns about any aspect of this testing, you should contact your clinician to discuss **before you attend the clinic**, as this may otherwise limit the time your clinician has to complete testing.

Contacting us

Audiology Department, Tel: 0118 322 7238

Email: audiology.royalberkshire@nhs.net

Visit: <http://www.royalberkshire.nhs.uk/wards-and-services/audiology.htm>

To find out more about our Trust visit www.royalberkshire.nhs.uk

Please ask if you need this information in another language or format.

Audiology Department, October 2024.

Next review due: October 2026