

## Balance Testing In the Elderly

Dizziness is a leading cause of falling. It is reported that between 20 and 40 percent of adults over age 65 fall each year.<sup>1</sup> One of the key reasons for elderly people falling is loss of balance.<sup>2</sup>

Balance problems frequently are the result of visual problems caused by glasses, reactions to drugs, arthritis, changes in blood pressure, infections, and delayed time periods between standing and walking. Interestingly, few clinical tests have been found to effectively predict falls in older adults.<sup>3</sup>

To determine the cause of a balance problem, in an elderly patient a health professional will first ask the patient to describe his or her symptoms, and will then conduct a physical examination.<sup>4</sup>

### Types of Tests

Based on the examination results, the practitioner may order one or more tests designed to help pinpoint a diagnosis. Here are a few types of tests that could be ordered by a health care professional:

**Tests for voluntary eye movement.** These tests look for the ability of the patient to coordinate voluntary movements of the eyes and head, because eye and head movements are important for walking, running, driving a car, and a variety of other activities. To test eye movement, the patient may be asked to look at different objects under different conditions.

**Tests for brain functioning:** These tests assess the cerebellum, a part of the brain that helps to



ILLUSTRATION: JANICE WALCK

control balance and physical movements.

A health care professional may ask the patient to walk or use a finger to touch their nose as initial ways to test how well the patient's cerebellum is working.

**Tests for the ear systems:** These tests help the practitioner determine if the hearing and balance systems are working properly. The ear is divided into external, middle and inner ear sections. One key structure promoting balance is located in the inner ear, along with structures that facilitate hearing. Since the hearing and balance structures are physically connected, it helps to test both systems.

**Special inner ear tests using involuntary eye movements:** The eyes of people who have balance problems frequently move differently from those of people who do not have balance problems. Because of this, patients suspected of having balance problems may receive an electronystagmography (ENG) test.

An ENG test is an electronic way of measuring nystagmus, or involuntary (neurological reactions) eye movements, while the patient is experiencing balance problems. To help find the source of the problem, the test results of the patient are compared to results of people who do not have balance problems.<sup>5</sup>

### Alleviating Balance Problems

Solutions to balance problems may include rest to give the body time to heal the problem, drugs to alleviate the symptoms, drugs believed to help remedy the problem, or therapy to help desensitize the patient to the feelings of dizziness.

### References

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3. Boulgarides, L.K., McGinty, S.M., Willett, J.A., et al. (2003). Use of clinical and impairment-based tests to predict falls by community-dwelling older adults [Electronic version]. *Physical Therapy*, 83, 328-340.
4. Balance and Mobility. Accessed via [www.balanceandmobility.com/testing.html](http://www.balanceandmobility.com/testing.html)
5. Hajioff, D., Barr-Hamilton, R.M., Colledge, N.R., et al. (2002). Is electronystagmography of diagnostic value in the elderly? [Electronic version]. *Clinical Otolaryngology & Allied Sciences*, 27, 27-32.

### For More Information

Balance and Mobility.com  
[www.balanceandmobility.com/testing.html](http://www.balanceandmobility.com/testing.html)

Vestibular Disorders Association (VEDA)  
[www.vestibular.org/elderly.html](http://www.vestibular.org/elderly.html)

National Institute on Deafness and Other  
Communication Disorders  
[www.nidcd.nih.gov/health/balance/balance\\_disorders.asp](http://www.nidcd.nih.gov/health/balance/balance_disorders.asp)