

# How Does the Balance System Work?

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## Fact Sheet

Many systems work together to help you keep your balance. The goal is to keep your body and vision stable

### *Peripheral Sensory Systems:*

- 1) Vision: Your vision helps you see where your head and body are in relation to the world around you.
- 2) Somatosensory/Proprioception: We use the feeling from our feet against the ground as well as special sensors in our joints to know where our feet and legs are positioned. It also tells how your head is oriented to your neck and shoulders.
- 3) Vestibular system: Balance organs in the inner ear tell the brain about the movements and position of your head. There are 3 canals in each ear that sense when you move your head and help keep your vision clear.

### *Central Processing:*

Information from these 3 systems is sent to the brain for processing. The brain stem also gets information from other parts of the brain called the cerebellum and cerebral cortex, mostly about past experiences that have affected your sense of balance. Your brain can control balance by using the information that is most important for a certain situation. For example, in the dark, when you can't use your vision, your brain will use more information from your legs and feet and your inner ear. If you are walking on a sandy beach during the day, you can't trust your feet on the ground and your brain will use your eyes and inner ear more.

### *Motor output:*

Once your brain sorts out this information, it sends messages to your muscles to move in a way that will help you keep your balance and your eyes to see clearly while you are moving. If you feel off balance or dizzy, one of these systems may be damaged. Also, the systems may not be working well together which could cause falls.

A physical therapist can help you determine which systems may be affected and can instruct you on exercises that can improve how your body uses all these systems together.

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