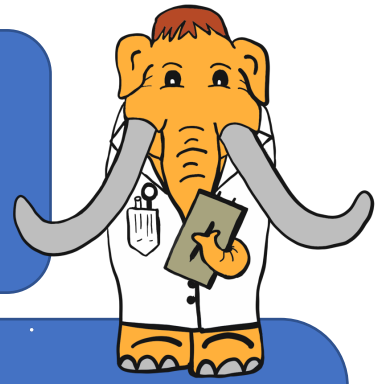


# Science Saturday @ Home

## Your Center of Balance



### Gathering Supplies:

Chair  
Wall

Family Member or Friend

### How To Steps:

Try these balancing acts to find your center of gravity!

The center of gravity is an imaginary point around which the body's weight is evenly distributed. The point varies from person to person depending on height, width, and distribution of body weight. For most people this point is located in the lower torso, slightly below the waist. Center of gravity is important for stability and balance and is very important in everyday movements. Play a sport? Your center of gravity lets you reach for a ball or bend over without falling.

- Stand on your right foot while lifting your left leg. You can probably balance for a bit without any problem. Now stand against the wall with your right hip and foot touching the wall. Try to lift your left leg.

Why is this so hard? The wall prevents your center of gravity from moving over your right foot so it stops you from balancing!

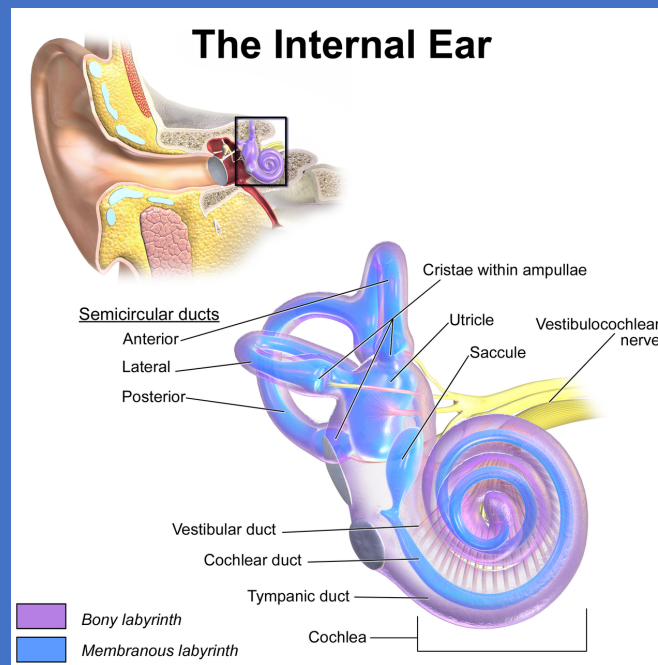
- Next try sitting in a chair with your back straight and arms at your sides. Stand up from the chair without using your hands to push up. Do you notice how your upper body leans forward to adjust your sense of balance? Sit back down and have a friend or family member place their pinky finger in the middle of your forehead so that you can't move forward. Now try to stand up again. What happens? Does that finger stop you from standing. One little finger can stop your center of gravity from shifting and letting you stand up!

# Did You Know?

Have you ever spun quickly around in a circle and then had your balance feel off. That is because of your inner ear.

Fluids located in the passages of the inner ear help the body to detect motion along with hearing sounds! The semi-circular canals within the ear are filled with liquid and thousands of microscopic hairs (cilia). When you move your head, the liquid in the semi-circular canals move the cilia cells which send a nerve message to the brain. These messages tell the brain about the position of your head and also if there are any muscles that need to adjust so that you keep your balance. All of this takes less than a second!

When you spin around quickly or go for a roller coaster ride, the fluid in the ear will still be moving after you stop. The fluid in the ear is still telling your brain that you are moving, but your eyes are looking straight ahead and telling your brain that you are still. The mixed messages sent from the ear and the eyes to the brain are what makes you feel dizzy!



Graphic source from <https://en.wikipedia.org>