



Curiosity Guide #404

Central Nervous System

Accompanies Curious Crew, Season 4, Episode 4 (#404)

Wild Foot

Investigation #2

Description

Dare your friend to do two easy things at the same time, and see what happens!

Materials

- A friend
- Chair
- Table
- Paper
- Clipboard
- Pencil

Procedure

1. Have your friend sit on the chair. This investigation can also be done standing up.
2. Give your friend a piece of paper on a clipboard and a pencil.
3. Say to your friend, "You are going to draw the number 6 while rotating your foot in small circles."
4. Have your friend lift his or her left leg so that the foot is above the floor. Your friend should rotate the foot from the ankle in clockwise circles.
5. While your friend is rotating his or her foot, have your friend draw the number 6 on the piece of paper.

6. Repeat the investigation with your friend's left foot going counterclockwise.
7. Now try the right foot circling clockwise while drawing the number 6.
8. Could your friend make circles with the foot and draw a six at the same time?
9. How about when your friend circled the foot counterclockwise?
Could your friend do the task?
10. What is going on here?

My Results

Explanation

The cerebellum part of the brain manages body movements, like the circling of the foot or the drawing of the number 6. However, the nerve fibers from the right side of the body cross the brain stem and connect with the left side of the brain, just as the fibers on the left side of the body connect with the right side of the brain. When you try to draw the number 6 with your right hand, those signals are coming from the left side of the brain. Even though circling your foot is easy to do in either direction, you cannot rotate your foot in the opposite motion of the drawn six at the same moment. The left side of the brain cannot manage two opposite movements in the same moment, so the brain combines the movement to a similar motion. When you switch to the left foot, there is no problem because the right side of the brain controls your foot movement, while the left side can focus on drawing the number 6.

Now think about this: One of our body systems is the Central Nervous System, which includes our brain, our spinal cord, and peripheral nerves that travel throughout our bodies. Our nerve system can be compared to an information highway, where signals are quickly transmitted and carried. This nerve system makes us able to react to things rapidly, like when we touch a hot stove, learn a new dance, or catch a Frisbee. Those signals travel so fast that we can make many decisions in under a second. Amazing!!

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