

Nervous System Activity – Reach Out and Touch Someone

Introduction: Nervous systems are formed from specialized cells that conduct signals rapidly through long cell extensions that make up nerves. The nerve cells communicate with each other by secreting specific excitatory and inhibitory molecules. The specialized cells in our sense organs allow us to detect light, sound, smell, and other environmental stimuli. Having the ability to detect changes in the immediate environment is a major contributor to an organism's survival.

Over many generations, we have evolved a delicate sense of touch. We use touch receptors in our skin to monitor temperature, pressure, pain, and even pleasure. Today, we are going to simply explore our body's ability to measure touch.

What you'll need:

2 paper clips partially opened
A millimeter ruler

Procedure:

With a partner, take turns shutting your eyes, then gently placing the two paper clips on the ruler down on the back of your partner's hand, starting at 5mm. Be sure to ask, can you feel two points or one?

Next find the minimum distance that a student can distinguish two points instead of one. Move the points to 4mm, 3mm, 2mm, and 1mm. Record the subject's response on the data table below. Repeat the process for the other body parts listed, then choose one more of your own.

Area of Body	Back of Hand	Bottom of Hand	Bottom of Forearm	Cheek	
Distance Between Points:					
5mm					
4mm					
3mm					
2mm					
1mm					

Questions:

1. In which area of the skin are touch receptors the closest?
2. What is the survival value of touch receptors?
3. Is there any part of the body where touch receptors would be a disadvantage?