

Sensitive Skin

We hardly think about our **sense of touch** until something goes wrong—trying to find a small object with gloves on, waiting for dental anesthetic to wear off so our faces don't feel "dead." What a relief when things are back to normal! Just how does the skin let the brain know what it is touching?

You've noticed that when you want to find out whether something is smooth or rough, you run your fingertips over it, rather than the palm of your hand or your elbow. And you may have noticed that you can feel a tiny fragment of a bone in your mouth, but you wouldn't have noticed it at all if you had stepped on it with your bare foot. What does it mean when part of your body is "better" at getting touch information?

Your touch sensory system includes special **receptors** in the skin, **nerve cells or neurons and their extensions called axons** that form **pathways** where the messages travel, and areas of the **brain** that receive messages and interpret them.

Materials:

Toothpicks

Ruler

Procedure:

1. This experiment requires 2 people. Find a partner. One person will be the subject (the person being experimented on) and the other person will be the tester (the person running the experiment)
2. The subject has to look away or close his/her eyes.
3. The tester will hold a toothpick in each hand and place them on the subject's arm. Place the toothpicks about 5 cm apart (use a ruler). The toothpicks must touch the subject's skin **at the same time**.
4. How many points does the subject feel?
5. If the subject feels two points, place the toothpicks closer together on the subject's arm. Check how many points the subject feels.
6. Continue the procedure until you find the smallest distance the points can be separated for the person to feel two points instead of one.
7. Record the final distance in the chart below.
8. Switch tester and subject roles and repeat steps 1-7

9. If you have time, you can do the same thing only placing the toothpicks on the different areas listed below.

Location:	Smallest Two-point distance:
Arm	
Back of the hand	
Fingertips	
Cheek	
Back of leg	

Questions:

1. Are the two-point distances on different areas of the skin the same? Compare the measurement on fingertips and the measurement on the back of the leg.

2. Which parts of your body is best at telling two points apart?

3. Which skin areas do you think have more receptors, areas that have small two-point distances or large two-point distances? Why do you think so?