

## Sense of Touch

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The largest organ in your body is your skin. It weighs from six to ten pounds. It is made of two layers, the epidermis or the top layer, and the dermis or the bottom layer. The top part of the epidermis is a layer of dead skin cells. These flake off and are replaced all the time. The skin contains hair follicles, nerve endings, sweat glands, and blood vessels. The skin is the main organ of the sense of touch.

The nerve endings in the skin can detect pressure, pain, and temperature. If you put your hand in a box to search around for something, you can tell when you've found it by feeling the pressure of the object. The ability to sense pain is a warning mechanism. It warns us to quickly pull our hand away from a hot stove or not to grab hold of the wrong end of a pair of scissors. The ability to sense temperature is a safety feature too. It reminds us to bundle up when we go out in winter weather and to stop and cool off after exercising.

Your sense of touch allows you to tell the difference between rough and smooth, soft and hard, and wet and dry. Some parts of your skin have more nerve endings than other parts, so some parts are more sensitive to touch than others are. Your fingertips, tongue, and lips have the most nerve endings. It is interesting to see just how well your sense of touch works. Maybe you would like to try some of these tests to find out.

**Sensitivity Test** For this test you will need small pieces of sandpaper in different grades of roughness. Mix up the pieces of sandpaper, and then see if you can put them in order from smoothest to roughest just by their feel. You can check on the back of the sandpaper to see if you are right, since sandpaper grades are usually labeled on the back of the paper.

**Two-Point Discrimination Test** You will need a paperclip and a partner. Bend the paperclip into a "U" shape. Touch the two points of the paperclip to the back of your partner's hand. See if he can feel two separate points or just one. Try again on other areas of the skin to see which area has the best two-point discrimination. You can also try changing the distance between the two points of the paperclip.

**Detection Threshold** You will need small pieces, about one to two inches long, of various thicknesses of fishing line, some Popsicle sticks, and a partner. Attach each piece of fishing line to a Popsicle stick so that you can use the Popsicle stick as a handle. Then, holding the handle, touch each piece of fishing line to your partner's skin just until the fishing line bends a little. What is the thinnest fishing line that your partner can detect?

**Reduced Tactile Information** You will need a glove, an assortment of "mystery objects," and a box. Try identifying the mystery objects in the box by touching them with the glove on and with the glove off. How does the glove make a difference in the way the objects feel?

The sense of touch is important to all of us, but it can be especially important to someone who has limited use of one or more of their other senses. For instance, people who cannot see well enough to read, often read using

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the Braille alphabet. In the Braille alphabet, each letter of the alphabet is represented by a pattern of raised dots that can be read by touch. It takes practice to become good at reading this way, just like it takes practice to be a good sight reader. You can try Braille for yourself by making cards with one, fairly large, Braille letter on each card. First draw the dots with a marker, then add a drop of glue to each dot to make them raised. After the glue dries, mix up the cards and see if you can put them back in alphabetical order by touch.

The sense of touch is just one of the five senses that we use to learn about our environment. Along with sight, hearing, taste, and smell, our sense of touch is constantly giving us information about the world around us.

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### Questions

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- \_\_\_\_\_ 1. This article is mainly about:
  - A. the five senses
  - B. Braille
  - C. skin
  - D. the sense of touch
  
- \_\_\_\_\_ 2. The \_\_\_\_\_ is the largest organ in your body.
  - A. lungs
  - B. liver
  - C. skin
  - D. heart
  
- \_\_\_\_\_ 3. Nerve endings are spread out evenly over all of your skin.
  - A. true
  - B. false
  
- \_\_\_\_\_ 4. People read Braille by looking at a pattern of dots.
  - A. false
  - B. true
  
- \_\_\_\_\_ 5. \_\_\_\_\_ give us information about the world around us.
  - A. the sense of touch
  - B. the senses of hearing and sight
  - C. the senses of taste and smell
  - D. all of the above
  
- \_\_\_\_\_ 6. Which test is to discover which area of the skin can best tell whether it is being touched in one point or two points?
  - A. two-point discrimination test
  - B. sensitivity test
  - C. reduced tactile stimulation
  - D. detection threshold

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- \_\_\_\_\_ 7. Which test is to discover how wearing a glove affects our sense of touch?
- A. detection threshold
  - B. reduced tactile stimulation
  - C. sensitivity test
  - D. two-point discrimination test
- \_\_\_\_\_ 8. Your sense of touch might help you to decide not to jump into a swimming pool on a chilly morning, because your skin is sensitive to \_\_\_\_\_.
- A. textures
  - B. pressure
  - C. temperature
  - D. pain