

What is Touch?

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Space+Materiality: Assignment #1 – Phase One

The senses that are combined to respond to touch, pressure, pain, and temperature all rely on the nerves in the body. The function of touch is to inform you about what is happening on the surface of one's body. There are several stages that the touch information is traveled around the body which includes the receptors, spinal cord, and the brain.

There are millions of sensory receptors on your skin and in the inner tissues of your body. Without this function, we are unable to sense and respond to the environment. When a person touches an object, the connection between the person and the object is a feeling that is personal. The nerves in your body will send signals to your brain and spinal cords, therefore the brain will process the "feeling" of the object. Referring to the research on BBC where it was stated that there are more complex receptors such as the Meissner's corpuscles are enclosed in a capsule of connective tissue. They react to "light touch" and they are located in the skins of your palms, lips, eyelids, soles, external genitals and nipples. These areas of your body are particularly sensitive because it is because of the Meissner's corpuscles. The skin of a person does not only respond to touch but also to pain as well as both warmth and cold.

An organized system is beneficial to many activities. The nervous system is very well mapped and because of its organized system, your body is able to tell where the exact location is when you touch something or if you are being touched. But if information about touch is not organized, for example, if someone was to tap you on the shoulder, the receptors in your body would not be able to recognize where the tap was located. When something touches the skin, the receptors under the surface of that area will become more active. The receptors send a signal to all the other receptors that are around the touched area of skin.

Receptors that sense touch are located around the body meaning that there are different number of receptors in each location, some parts of the body will have more than others. The contrast in receptor number affects the ability to sense touch. The sensitive areas on our body will have a larger receptor number, for instance, if a staple was to touch a sensitive part of your

body, the receptors under that skin will be able to sense two small objects rather than thinking they were only a single object. Scientists determine this as the two-point discrimination test. In addition to that, the receptors will not identify the “touch” if the nerves do not send information to neurons in the central nervous system. Indicating that most of the signals from touch will travel to the brain and then be processed and understood. As stated earlier, information about touch will travel through the spinal cord, a spinal cord is the bundle of nerve fibers and correlated tissue that is enclosed in the spine and attaches to a majority of parts of the body to the brain, which it all forms in the central nervous system. It is rare in some cases the spinal cord will process sensory information meaning that not all touch has to be processed by the brain. For example, if you touch something that is hot (e.g. a lit-up candle), your nerves and muscles rejects it or pull away instantly because you want to avoid injury. For instances like this, it is unnecessary for the information to be processed in the spinal cord because the body is aware of its effects. From personal experiences, when my fingertips accidentally touch the tip of the lit candle, I felt like a small delay of burn and pain after pulling away from the candle. After researching on neurology, it finally came to my understanding that the receptors in certain areas of your body will have instant and delayed reactions.

In conclusion, I understand that the brain is organized to keep track of the sensory information. It is clear to me that when the organization serves a similar purpose to the receptors underneath the skin, it is beneficial to the nervous system identifying where it is touched. After the touch information arrives to the brain, it is all sorted by the sensory cortex. An area of the brain that processes information about its touch sense is called the *sensory cortex*. Overall, in my understanding of the science in “touch” I learned that there are certain steps in processing information from a receptor to the spinal cord and finally the brain. Before the depth of this research, my interpretation of touch connects with a feeling and intimacy — the way your nerves perceive the way it feels.

Citation:

“Human Body and Mind - Nervous System Layer.” *BBC Science & Nature*, BBC, 24 Sept. 2014, www.bbc.co.uk/science/humanbody/body/factfiles/touch/touch.shtml.

Patrick McGurrin. "How Do We Sense Touch?." ASU - Ask A Biologist. 31 Mar 2016. ASU - Ask A Biologist, Web. 12 Jan 2018. <http://askabiologist.asu.edu/making-sense-touch>

