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Skin Senses: Touch

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Touch is a skin sensation that results from an active or passive contact between a person's skin and an object. Pressure applied on to the skin is the primary stimulus for the sense of touch. Another stimulus, vibration, emerges when there is a rapid and regular change in pressure.

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Anatomy

Touch or tactile perception is processed through the somatosensory system. This system is comprised of sensory receptors, peripheral sensory neurons and brain cells. When there is pressure on the skin, the peripeheral touch receptors send information to the brain via the somatosensory pathway, which is usually comprised of three long neurons. The touch receptors [1] in the periphery are known as mechanoreceptors. The afferent neurons send the information to the central nervous system of the brain for processing and interpretation.

Meanwhile, the somatosensory system in the spinal cord has ascending pathways that send the information about the stimulus applied on the body's trunk towards the brain. In the brain, touch sensation is processed in the primary somatic sensory cortex or SI, situated in the parietal lobe's postcentral gyrus.

Sensitivity

Pressure, the physical stimulus for touch, can be measured by means of detecting the amount of indentation on the skin. Modern research about pressure sensitivity reveals that humans are least sensitive to pressure applied on the feet, and most sensitive to pressure applied on the face. Another measurement for touch/pressure sensitivity is the two-point threshold. In this case, two physical stimuli of fine pressure are gently applied on the skin at the same time. Then, the person is asked to feel for the physical stimuli and report whether they are two points, or he/she can only feel one stimulus.

Fine VS Crude Touch

There are two kinds of sensory modalities when it comes to touch sensation. These are fine or discriminative touch, and crude or non-discriminative touch. Fine touch enables a person to not only sense touch, but also localize it. The localization of touch through fine touch modality is made possible by the posterior column-medial lemniscus pathway, which carries the information to the cerebral cortex. On the other hand, crude touch is a sensory modality that lets a person sense touch without having the ability to localize where the stimulus was applied. The spinothalamic tract is responsible in housing the fibers that relay information on crude touch. The disruption of fine touch fibers may cause a person to be able to localize touch at first, but become unable to do so later.

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Links

[1] <http://www.faqs.org/health/topics/3/Touch.html>