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 the skin is the primary stimulus for the sense of touch. Another type of stimulus is vibration, which occurs when there is a rapid and regular change in pressure. These stimuli are processed by the somatosensory system, which involves sensory receptors, peripheral sensory neurons, and brain cells.

Anatomy

Touch or tactile perception is processed through the somatosensory system, which is comprised of sensory receptors, peripheral sensory neurons, and brain cells. When there is pressure on the skin, the peripheral touch receptors send information to the brain via the somatosensory pathway, which is usually comprised of three long neurons. The touch receptors in the periphery are known as mechanoreceptors. The afferent neurons carry 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 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 (SI), situated in the parietal lobe's postcentral gyrus.

Sensitivity

Pressure, the physical stimulus for touch, can be measured by detecting the amount of indentation on the skin. Modern research 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 if they can only feel one stimulus.

Fine VS Crude Touch

There are two kinds of sensory modalities when it comes to touch sensation: 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 the 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 for 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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