

Sensory abilities and the cells ability to communicate

For an organism to be able to perceive or be aware of its environment it depends upon processes that allow it to detect stimuli and then convert said stimuli into a form that is understandable and able to be processed by the nervous system.

Sensory events involve light, heat, chemical or other energies in the environment, but it has been suggested that our nervous system does not directly identify those events. Each sensory event must be converted into electrochemical nerve impulses in order to be processed; another name for this conversion of energy is *transduction* which is done by each sensory modality¹ by dedicated sensory cells. These cells produce electrochemical impulses that the neurons can decode. Sensory cells involved in detection of stimuli can be found on the skin: Pacinian, Ruffini's and Meissner's corpuscles, Merkel's disks and free nerve endings which provide various forms of information about pain, pressure, vibration and tension while free nerve endings deliver the sensation of cold and heat. The taste buds on our tongue have sensory cells called chemoreceptors and then there are different chemoreceptors involved in the sensation of smelling which are found on nerve endings that descend from the brain's olfactory bulb into the sinus mucosa. If sensory cells are not activated by a sensory event in any of these cases, there will be no perception or sensation of an event.

¹13 hearing, touch, vision, olfaction(smell) and gustation (taste)