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Human Physiology

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Sensory system

The ability to sense stimuli is vital to man's survival.

If pain could not be sensed, burns would be common. Internal problems such as an inflamed appendix or a stomach ulcer could be unnoticed without pain. Without sight there is a greater risk of injury from obstacles.

Harmful gas could be inhaled if there were no sense of smell. Loss of a sense of hearing would keep us from recognizing hazards such as automobile horns. And if there were no taste, toxic substances could be ingested. If we could not "sense" our environment and make the necessary adjustments, we probably could not survive on our own.

The Sensory Pathway

1- Sensations.

The body is continuously bombarded by types of information called stimuli (stimulus, singular). Those few stimuli which are consciously perceived (in the cerebral hemispheres) are called sensations. Structures that detect changes in man's external and internal environment produce sensations on the senses.

2- Senses and Receptions. The senses and the location of their receptors are as follows:

(1) Vision--receptors in the eyes.

(2) Smell--receptors in the nose.

(3) Hearing--receptors in the ears.

(4) Taste--receptors in the tongue.

(5) Touch, heat, cold, pain --receptors in the skin.

(6) Position--receptors in the muscles, joints, inner ear.

(7) Hunger, thirst--receptors in the tongue, pharynx, mouth.

3- **Two Types of Senses.** They are differentiated by the type of sensation they cause. Special senses are produced by receptors limited to small areas such as the tongue, nose, balance, hearing, vision, smell, and taste. General senses are produced by receptors scattered throughout the body such as pressure, temperature, pain, position, and touch. d. Sensation and Perception. In its broadest meaning, sensation refers to man's state of being aware of external or internal conditions of the body.

The state of being aware of something through the senses is perception.

Four conditions must take place for a sensation to occur.

(1) A stimulus--a change in the environment which causes a response by the nervous system. (2) A receptor or sense organ-- picks up a stimulus and converts it to a nerve impulse.

(3) Conduction--the impulse must be conducted from the receptor or sense organ along a pathway to the brain.

(4) Translation--the impulse must be translated into a sensation when the impulse is in a region of the brain.