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Structure of Sensory Organs: Sensory Receptors

Soatova Xolnisa Raxmat qizi, Umbarov Javohir Halil o‘g‘li,
Safarov Nursulton Mamarajab o‘g‘li, Toshniyozov Hasan Berdiyor o‘g‘li,
Rashidova Farangiz Musulmon qizi
Student of the Termiz branch of the Tashkent Medical Academy

Abstract: *At present, we receive all sensations between our sense organs and draw conclusions. Mainly through our sense organs, we feel that food is sweet, bitter, salty, sour. The purpose of our study of cognitive analyzers is to study the etiology and pathogenesis of various diseases that occur in the language today. Key words: Sensory receptors (leaf-like, fungal-like, horn-like), sensory receptors, sensory bulbs.*

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Introduction: The main purpose of our coverage of this article is to pay special attention to their structure in order to study and treat diseases that are common nowadays. In order to become a qualified doctor in the future, everyone needs to know the anatomical and histological structure of internal organs, because these sciences are among the fundamental sciences of medicine.

Main part: The organ of taste consists of a collection of taste buds located in the epithelium of the walls of most of the leafy, fungoid and horn-like papillae of the tongue. Taste buds are especially numerous in the horn-shaped teats, their number reaches 40-250 in each teat. In children, and sometimes in adults, taste buds can be located on the lips, on the back wall of the pharynx, on the palate, on the outer and inner surfaces of the tongue. The total number of taste buds in a person reaches 2000. Each taste bud is elliptical and occupies the entire thickness of the multi-layered epithelium of the teat. It is composed of 40-60 cells that are densely connected to each other. The taste bud is separated from the underlying connective tissue by the basement membrane. The tip of the taste buds connects to the surface of the tongue through the gustatory hole (porus gustatorius). The gustatory pore leads to the gustatory pit, a small cavity between the surfaces of the epithelial cells, where taste substances fall. At the tip of the cells there is a ―bundle‖ of microvilli with special protein receptors in their membrane. Among the microvilli in the gustatory cavity is an electron-dense substance with a high activity of phosphatases and containing a large number of receptor proteins and glycoproteins. It acts as an adsorbent for taste-giving substances on the surface of the tongue. Receptor proteins in microvilli are able to perceive a certain taste. At the same time, the taste buds often have only one receptor for a particular taste. For example, a receptor protein has been identified in the taste buds in the front part of the tongue that senses sweet, and in the back part that senses bitterness. A single taste cell itself has several types can sense tastes. Excitation of taste receptors in microvilli changes the cell potential. Binding of taste substances to membrane receptors changes the activity of a number of adjacent membrane proteins with enzymatic activity. As a result, the concentration of certain intracellular mediators (such as tsAMF) in the cell changes. This, in turn, affects the state of ion channels in the plasmolemma and changes the cell potential. The impulse is then transmitted through synapses to the afferent nerve endings.

Nonspecific sensory (tactile, pain, temperature) nerve endings located in the mucous membrane of the oral cavity and pharynx are involved in the formation of taste sensations. Their stimulation gives an additional color to taste sensations (sharp pencil taste, etc.). Supporting epitheliocytes (epitheliocytus sustentans) are distinguished by an oval-shaped nucleus rich in heterochromatin located in the basal part of the cell. In the cytoplasm of these cells, there are many mitochondria, granular endoplasmic reticulum membranes and free ribosomes. Granules containing glycosaminoglycans are found around the Golgi apparatus. At the tip of the cells are microvilli. Peripheral (perigemmal) cells are sickle-shaped, contain few organelles, but contain many microtubules and nerve endings. The axons of the neurons of the face, tongue, and vagus nerve ganglia enter the nucleus of the olfactory (single) pathway in the brain stem, where the second neuron of the taste pathway is located. Here, the impulses can be transferred to the effector paths leading to facial muscles, salivary glands, and tongue muscles. Most of the axons of the neurons of the nucleus of the solitary tract reach the thalamus, where the third neuron of the taste pathway is located. The axons of the third neuron terminate in the fourth neuron in the lower part of the postcentral fold (the central part of the taste analyzer) in the cortex of the large hemispheres. Taste sensations are formed here.

Summary: In conclusion, our sense organs are considered as the second helper of a person, if we say that the first one is hands and feet. We feel something through our senses, sweet and bitter, the pleasant glow of a flower and its beauty through our eyes.

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