



AL-Mustaqbal University College

Pharmacy Department

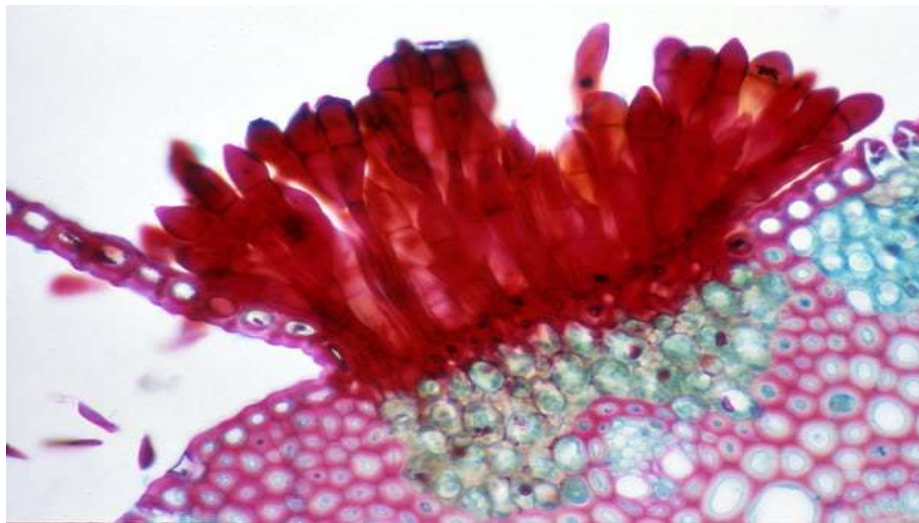
First stage

Practical Histology

(Digestive system)

Tongue, Esophagus and Stomach

Lab 5

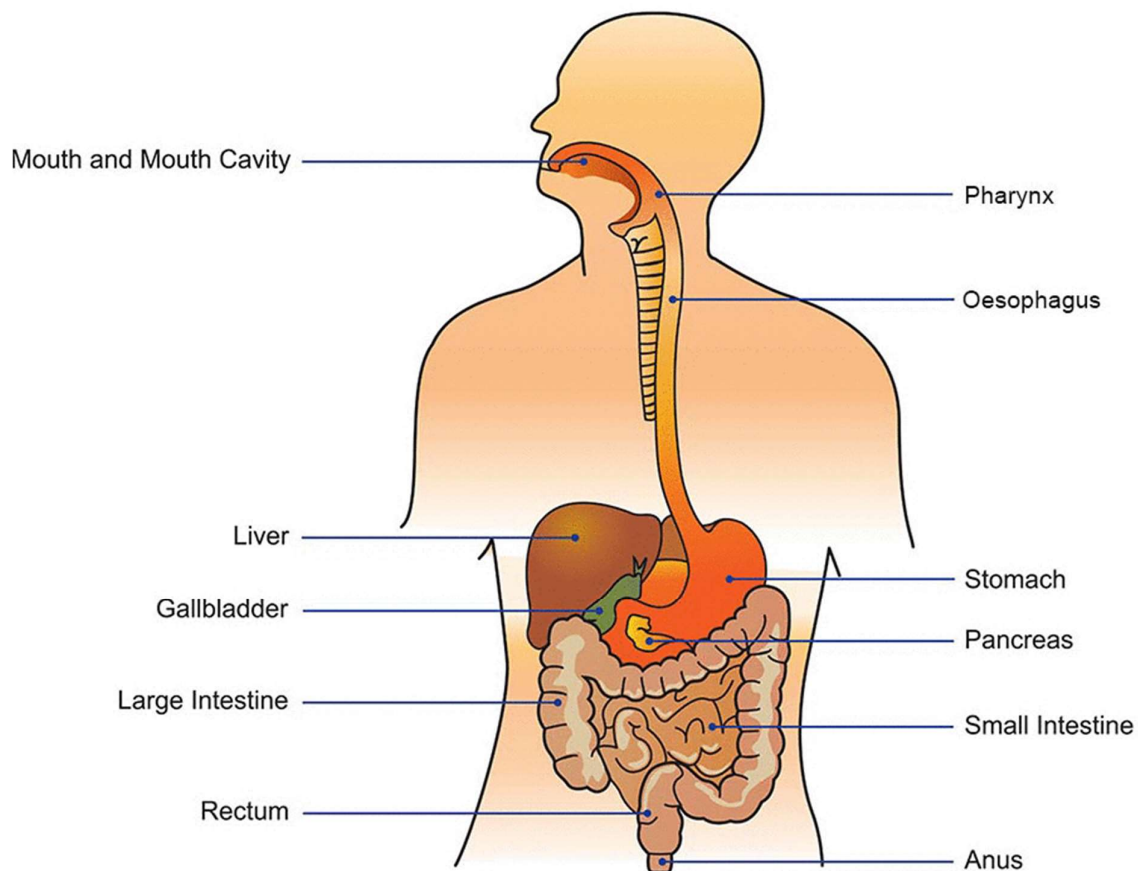


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Digestive system

The digestive tract, also called the alimentary canal or gastrointestinal tract (GIT), consists of a long continuous tube that extends from the mouth to the anus. It includes the mouth, pharynx, esophagus, stomach, small intestine, and large intestine.

The tongue and teeth are accessory structures located in the mouth. The salivary glands, liver, gallbladder, and pancreas are major accessory organs that have a role in digestion. These organs secrete fluids into the digestive tract.

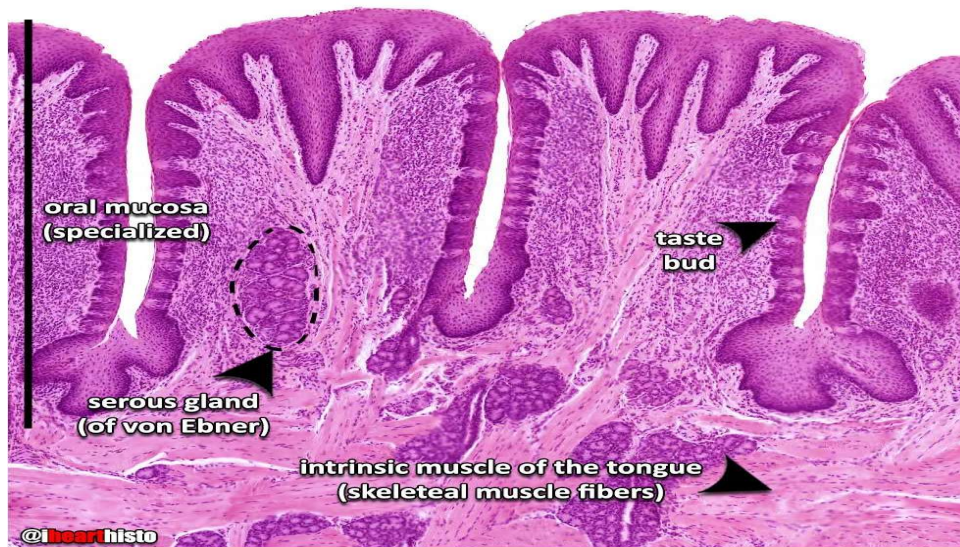


Tongue

The **tongue**, a muscular organ located on the floor of the mouth, is an extremely mobile structure and is an important accessory organ in such motor functions as speech, chewing, and swallowing. In conjunction with the cheeks, it is able to guide and maintain food between the upper and lower teeth until mastication is complete.

The tongue contains groups of specialized epithelial cells, known as **taste buds**, that carry stimuli from the oral cavity to the central nervous system. Furthermore, the **tongue's glands** produce some of the saliva necessary for swallowing.

FOLIATE



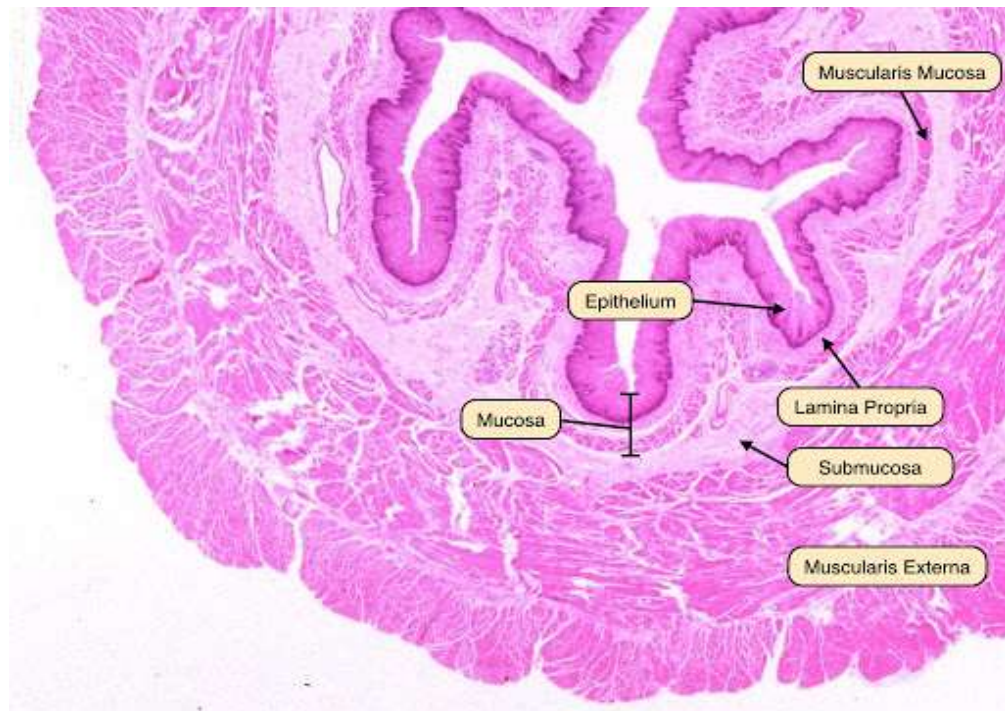
The **tongue** consists of a mass of interwoven striated (striped) muscles interspersed with fat. The mucous membrane that covers the tongue varies in different regions. The tongue is attached to the lower jaw, the hyoid bone (a U-shaped bone between the lower jaw and the larynx), the skull, the soft palate, and the pharynx by its extrinsic muscles. It is bound to the floor of the mouth and to the epiglottis (a plate of cartilage that serves as a lid for the larynx) by folds of mucous membrane.

Esophagus

The **esophagus**, which passes food from the pharynx to the stomach, is about 25 cm in length; the width varies from 1.5 to 2 cm . The esophagus lies behind the trachea and heart; it passes through the diaphragm before entering the stomach.

The esophagus contains four layers:

- ✚ the mucosa, submucosa, muscularis, and tunica adventitia.
- **The mucosa** is made up of stratified squamous epithelium containing numerous mucous glands.
- **The submucosa** is a thick, loose fibrous layer connecting the mucosa to the muscularis. Together the mucosa and submucosa form long longitudinal folds, so that a cross section of the esophagus opening would be star-shaped.



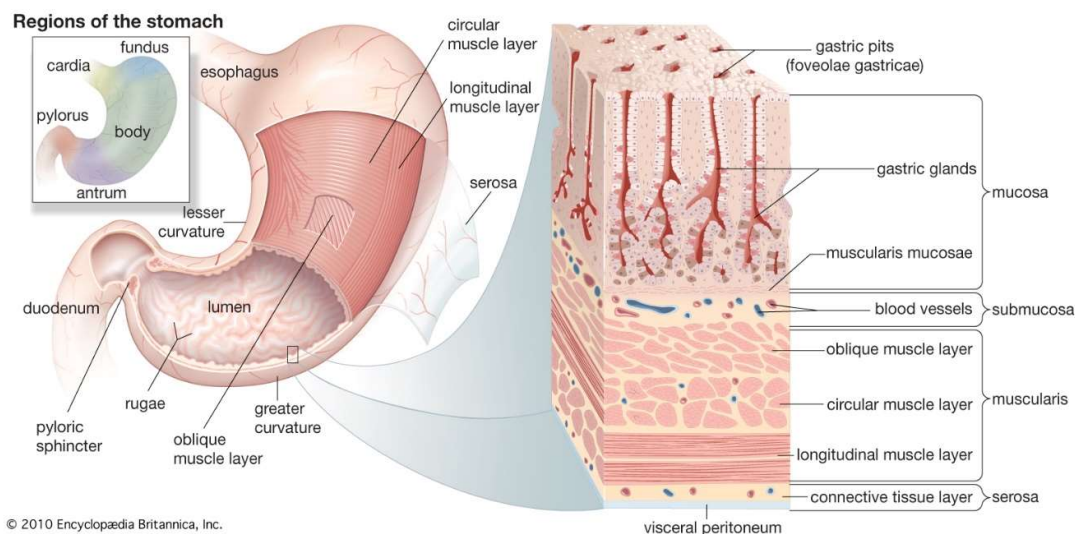
- **The muscularis** is composed of an inner layer, in which the fibers are circular, and an outer layer of longitudinal fibers.
- The outer layer of the esophagus, the **Tunica adventitia**, is composed of loose fibrous tissue that connects the esophagus with neighboring structures.

The upper third of the esophagus is composed of striated (voluntary) muscle. The middle third is a mixture of striated and smooth (involuntary) muscle, and the lower third consists only of smooth muscle..

Stomach

The **stomach** is located in the left upper part of the abdomen immediately below the diaphragm. In front of the stomach are the liver, part of the diaphragm, and the anterior abdominal wall. Behind it are the pancreas, the left kidney, the left adrenal gland, the spleen, and the colon

The stomach receives ingested food and liquids from the esophagus and retains them for grinding and mixing with gastric juice. When the stomach is empty, its mucosal lining is thrown into numerous longitudinal folds, known as rugae; these tend to disappear when the stomach is distended.



Structures of the human stomach

The **stomach** has three layers of muscle: an outer longitudinal layer, a middle circular layer, and an inner oblique layer.

The inner lining consists of **four** layers:

The mucosa, the submucosa, the muscularis, and the serosa.

The **mucosa** is densely packed with gastric glands, which contain cells that produce digestive enzymes, hydrochloric acid, and mucus.

✚ The **cardia** is the opening from the esophagus into the stomach. The uppermost part of the stomach, located above the entrance of the esophagus, is the **fundus**.

✚ The **fundus** adapts to the varying volume of ingested food by relaxing its muscular wall. The largest part of the stomach is known simply as the body; it serves primarily as a reservoir for ingested food and liquids.

✚ The **pylorus**, the narrowest portion of the stomach, is the outlet from the stomach into the duodenum. It is approximately 2 cm in diameter and is surrounded by thick loops of smooth muscle.

The muscles of the stomach wall are arranged in three layers, or coats. The external coat, called the **longitudinal muscle layer**, is continuous with the longitudinal muscle coat of the esophagus.

The middle, or **circular muscular layer**, the strongest of the three muscular layers, completely covers the stomach.

The innermost layer of smooth muscle, called the **oblique muscular layer**, is strongest in the region of the fundus and progressively weaker as it approaches the pylorus.