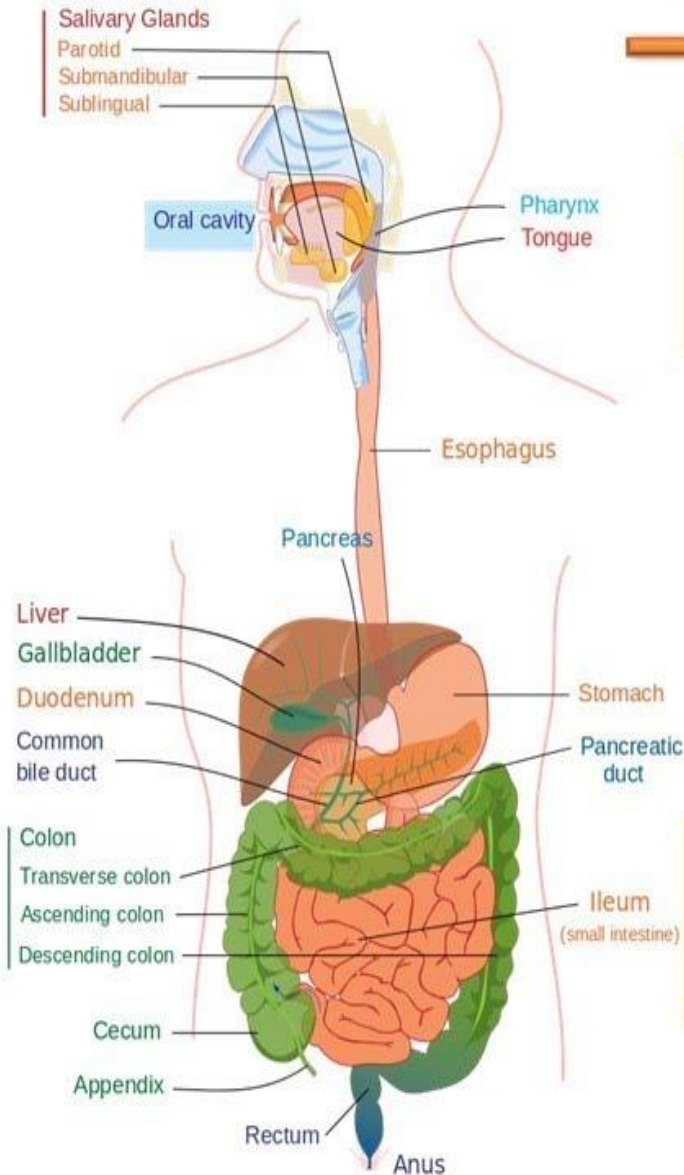


2<sup>ed</sup> lecture  
In  
Anatomy  
For  
1<sup>st</sup> Class  
dr.Ibtisam Khalaf

# GIT

## UPPER GIT

## LOWER GIT



- Consist mainly two parts:

## 1. Tube or tract consist:

- a). Oral cavity
- b). Pharynx
- c). Oesophagus

**Upper GIT**

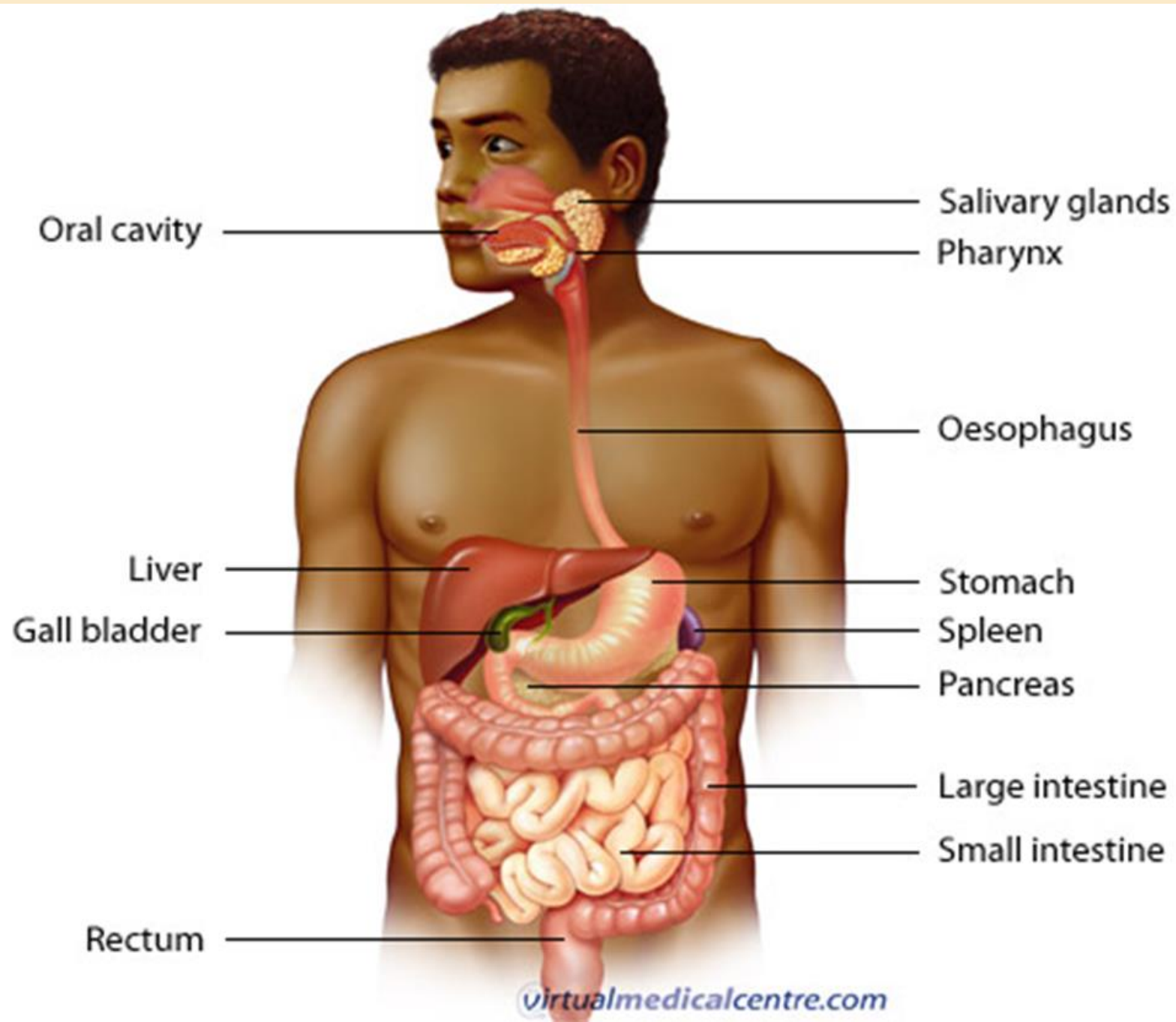
- d). Stomach
- e). Small intestine
- f). Large intestine

**Lower GIT**

- g). Anus

## 2. Accessory organs

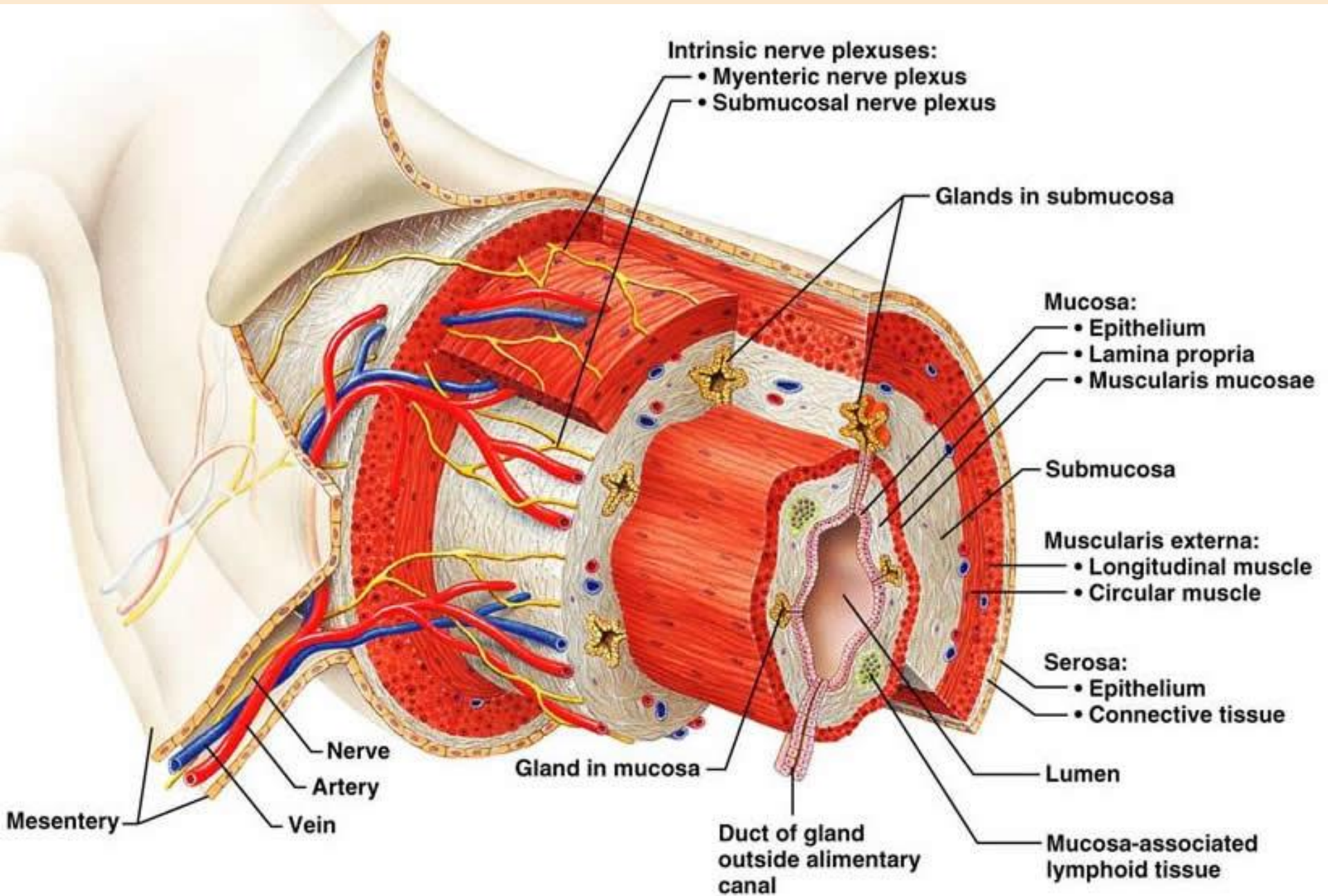
- a). Salivary glands
- b). Liver and gall bladder
- c). pancreas

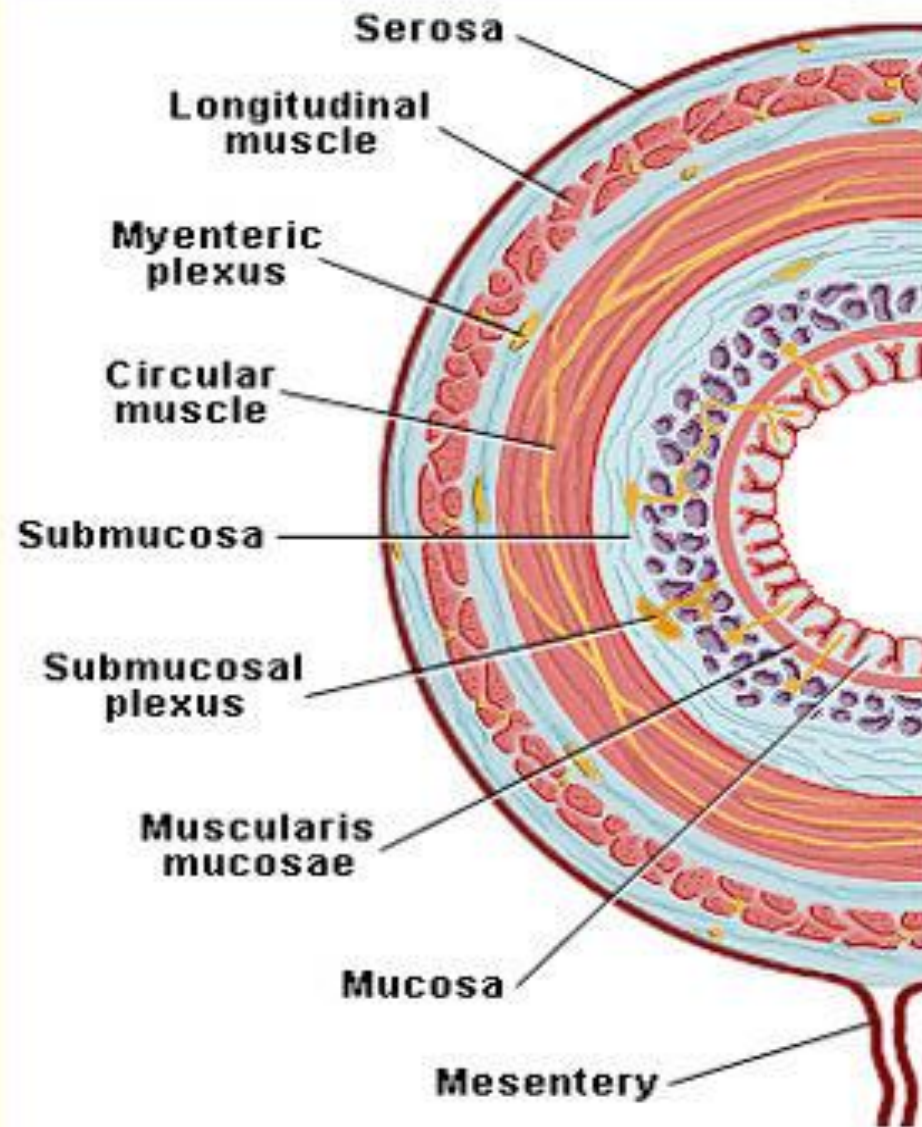


# General Structure of the Digestive Tract

The wall of GIT is made up 4 principal layers:

1. Mucosa
2. Submucosa
3. Muscularis
4. Serosa or Adventitia





# 1. Mucosa (Mucous Membrane)

It consists of:

1. Epithelial lining
2. Lamina propria (loose connective tissue rich in blood and lymph vessels, and sometimes containing glands smooth muscles).
3. Muscularis mucosae thin muscular layers separate the mucosa from submucosa.



## 2. Submucosa

- It is composed of dense connective tissue with many **blood** and **lymph** vessels and also **nerve plexus** which called “**Meissner’s plexus**”.

# 3. Muscularis

- It is composed
- Inner circular smooth muscular layer
- **Myenteric nerve plexus** (*Auerbach's nerve plexus*).
- Outer longitudinal smooth muscular layer.

# 4. Serosa

It is composed

- A thin layer of loose connective, rich in blood and lymph vessels and adipose tissue
- Layer of simple squamous epithelium.

# Anatomy of oral cavity

- Oral cavity is divided into two parts:

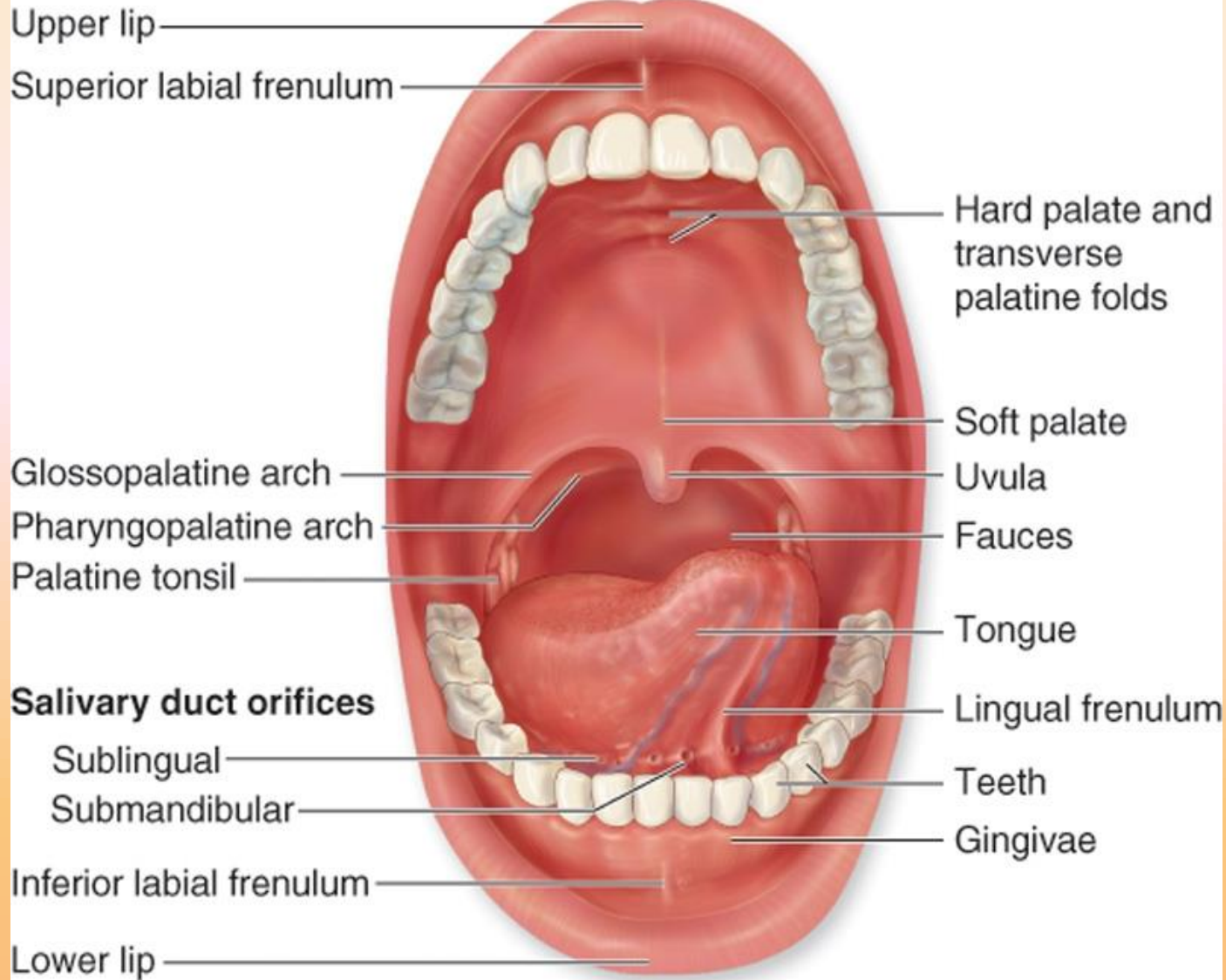
## 1. Vestibule

- a). Lateral: cheeks and lips
- b). Medial: upper and lower row of teeth.
- c). Posterior: reto-molar area.

## 2. Buccal cavity:

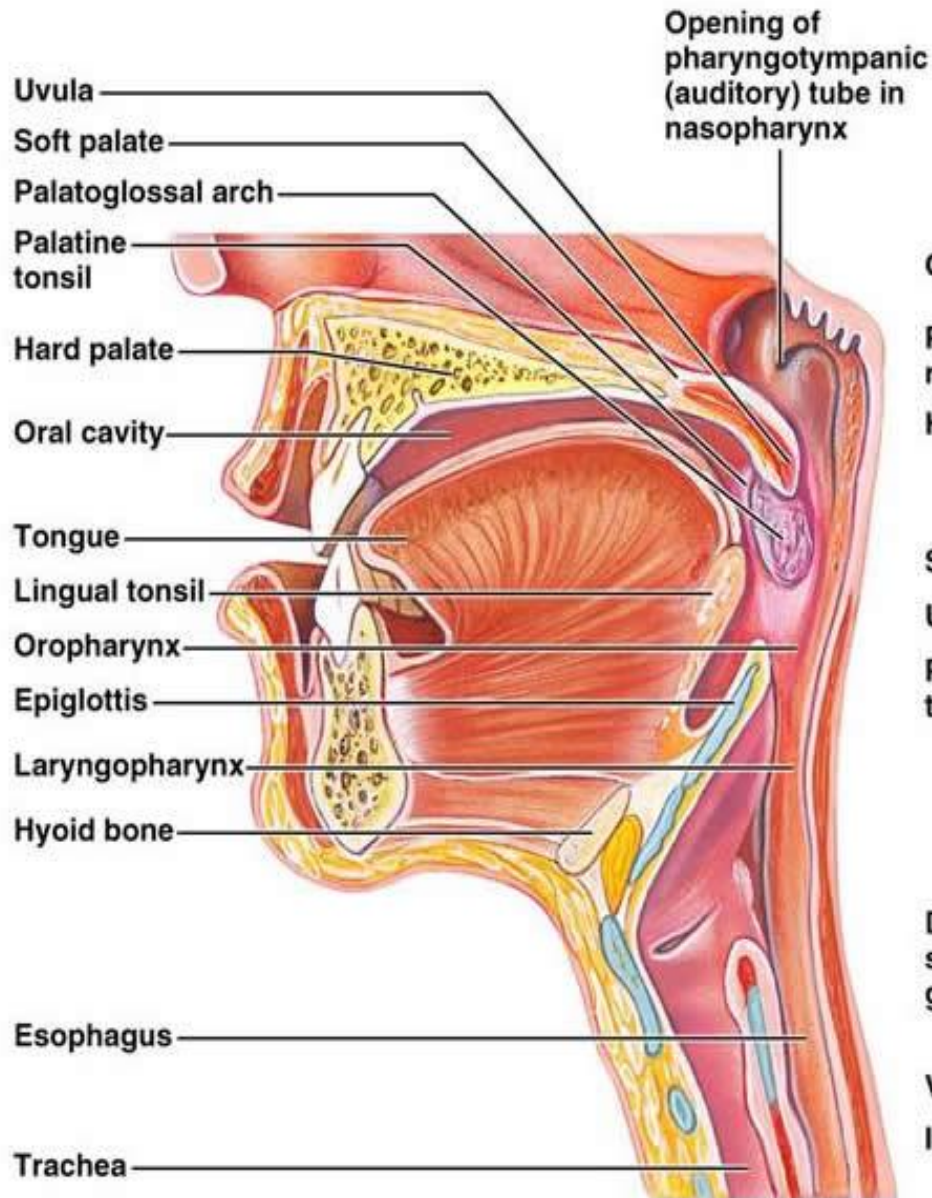
Roof: Hard palate (palatine) and Soft palate which ended with uvula.

Floor: tongue.

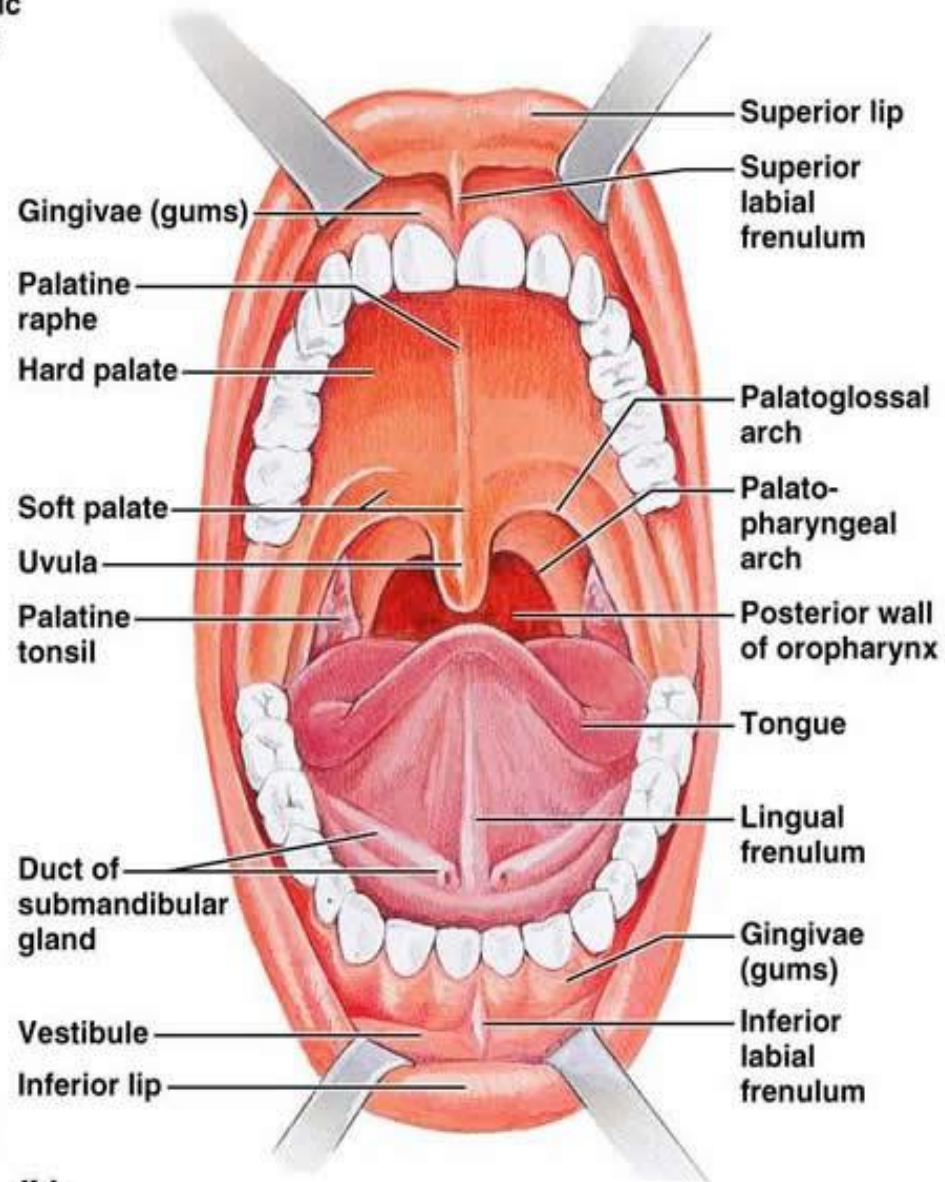


(a)

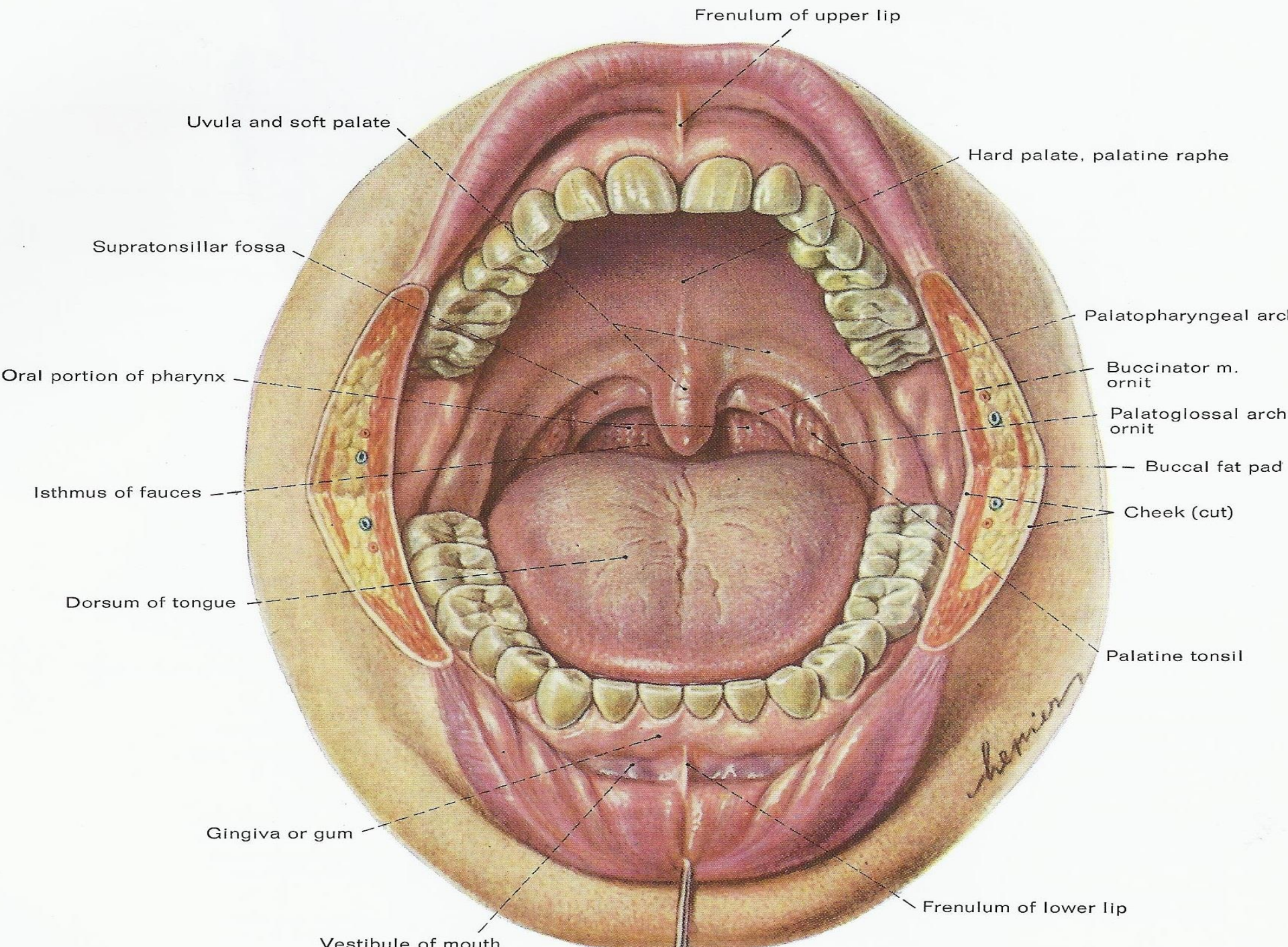
# Oral cavity



(a)



(b)

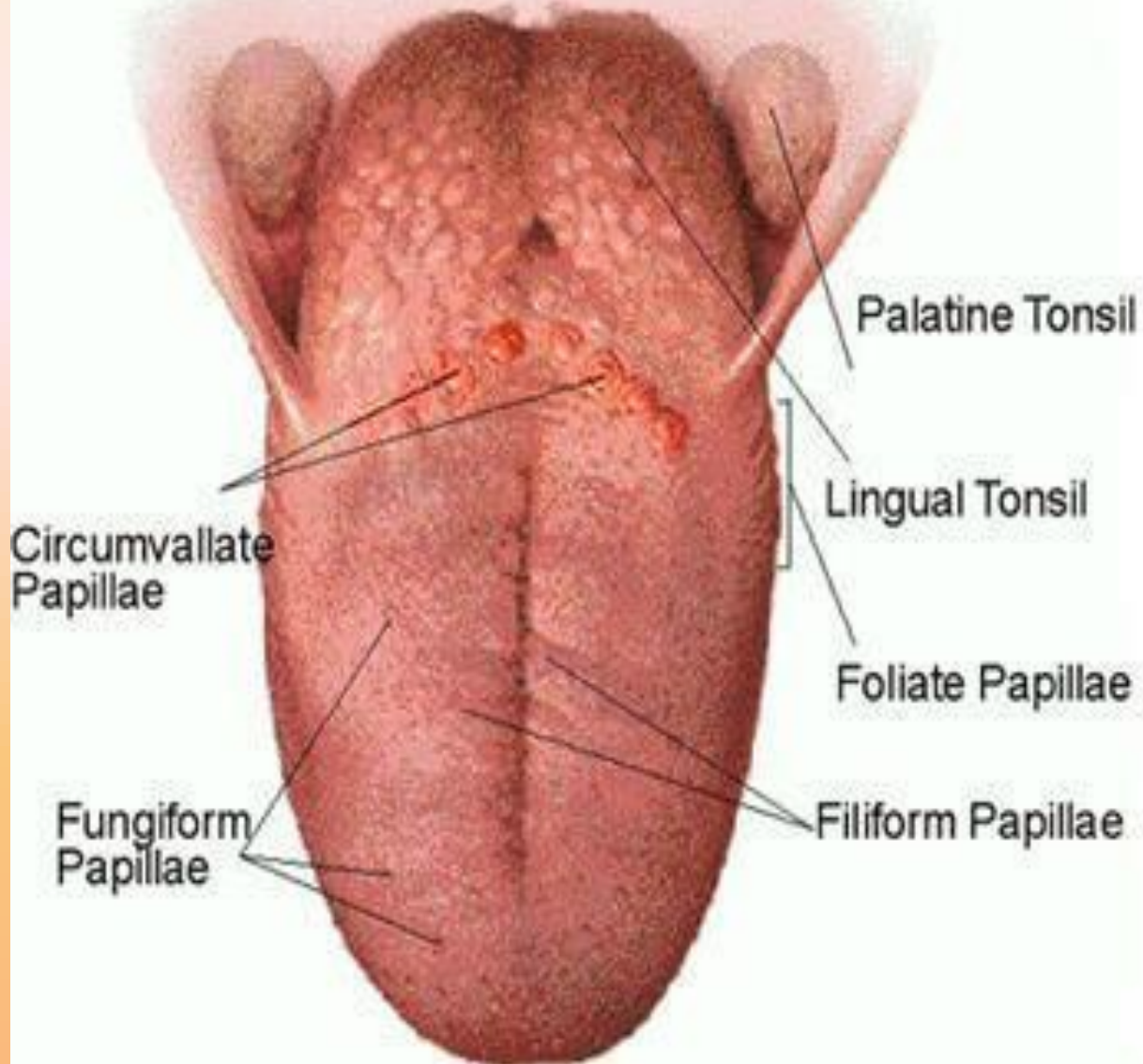


# Structures of the oral cavity

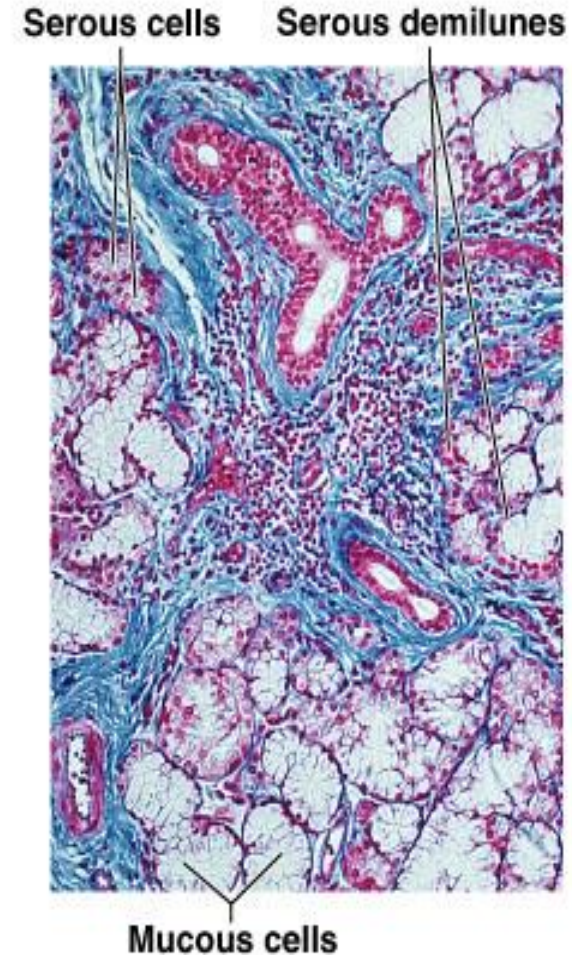
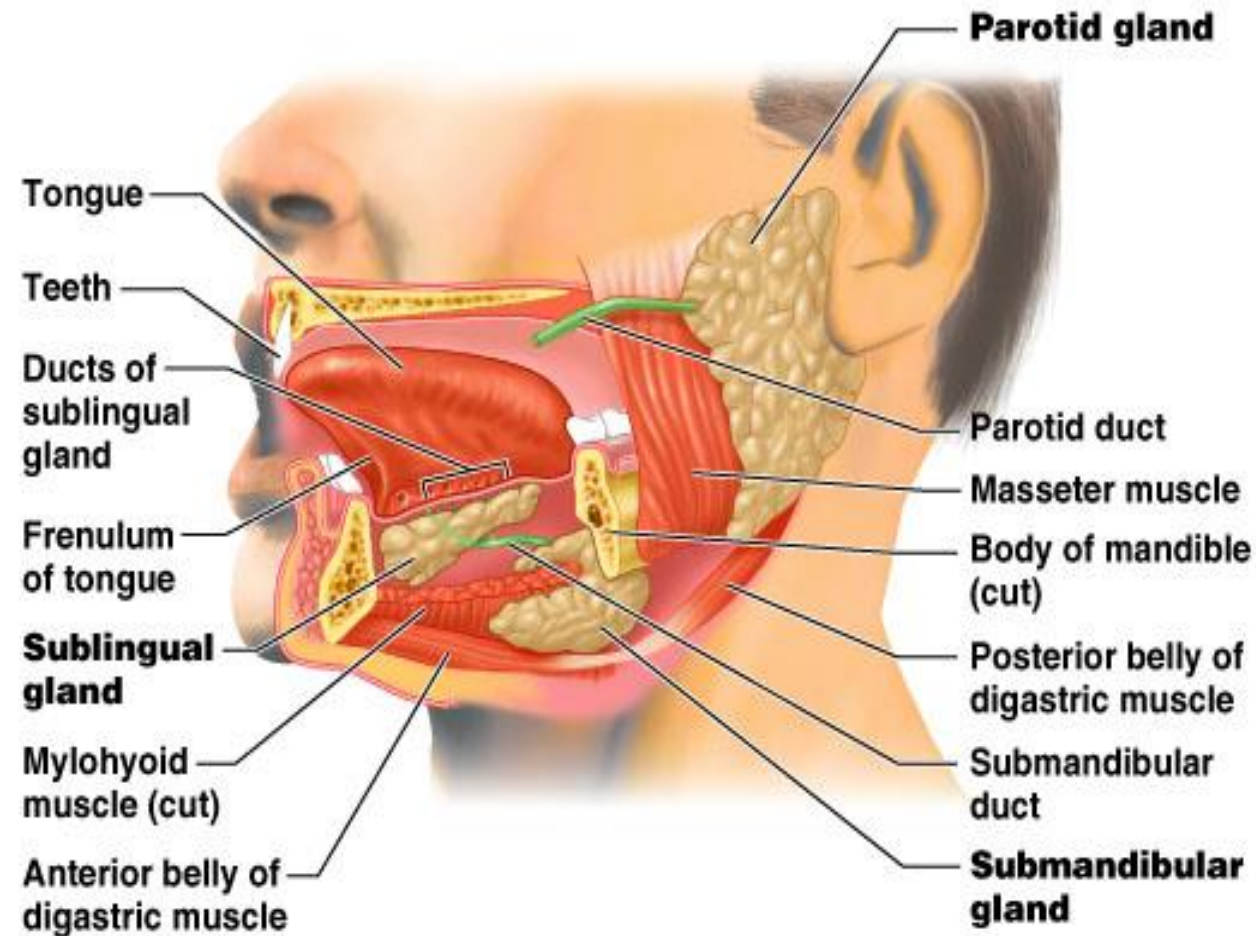
1. Tongue: Muscular organ has different types of papillae. These papillae are important for taste.
2. Gum and teeth
3. Salivary glands consist three major glands a). Parotid glands (pairs), b). Sub-mandibular glands (pair) and c). Sublingual gland.
4. Lymphoid tissues: Tonsils ( lingual tonsils, Palatine tonsils).



# Tongue



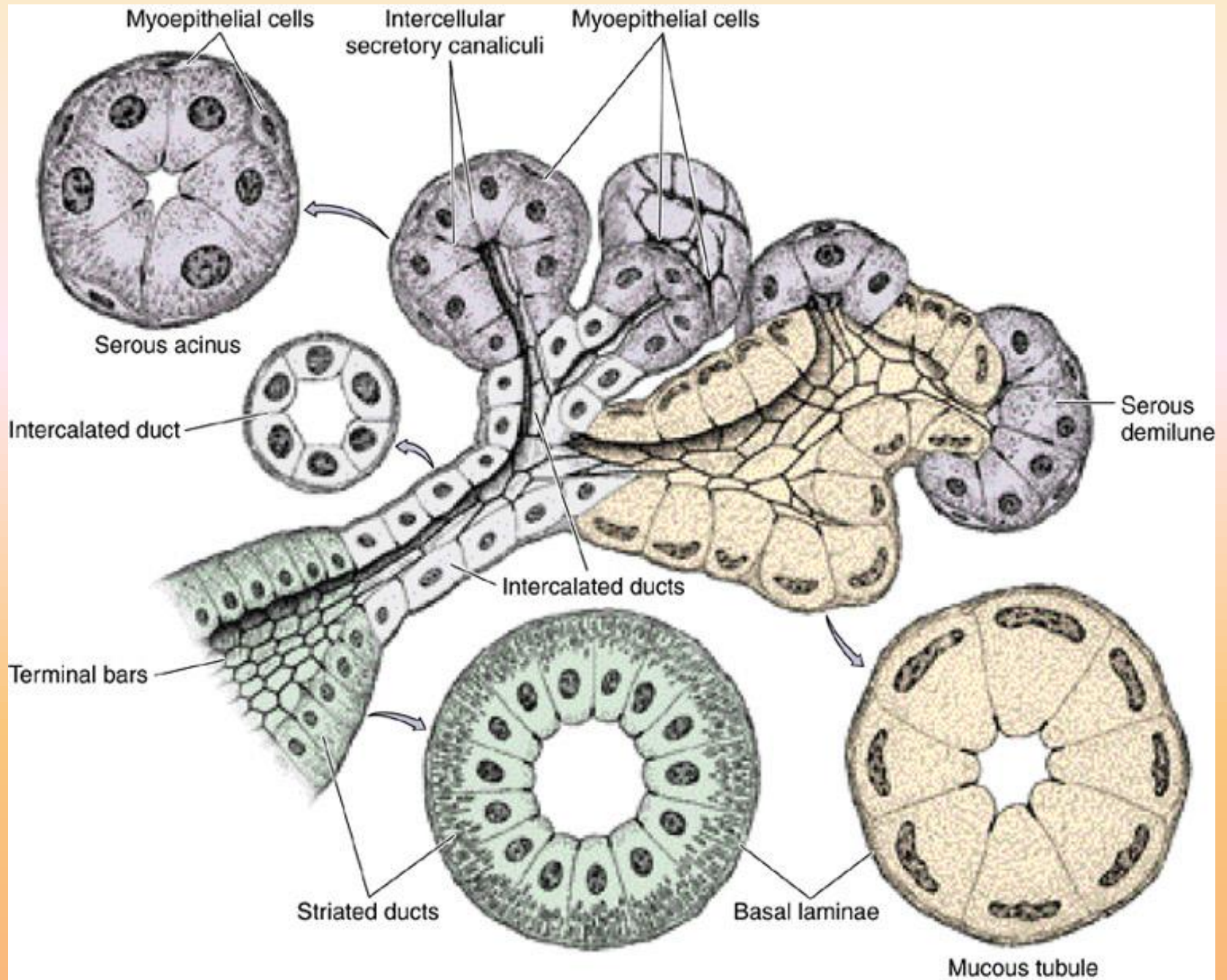
# Position of the salivary glands



(a)

# Salivary Glands

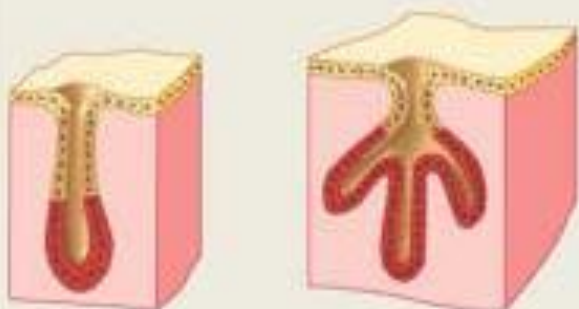
- **Glands** are organized arrangement of secretory cells.
- **Exocrine glands** are organized as acini or tubule, exocrine gland has ducts therefore its **secretion reaches by ducts to the affected part.**
- **All salivary glands are exocrine glands.**
- Secretion of salivary glands may be serous, or mucous or mixed.
- Saliva in the mouth has digestive , lubricating, protective functions.
- Each salivary gland receives **parasympathatic** and **sympathatic** innervation.
- *Parasympathatic increases the secretion of saliva by all salivary glands.*
- *Sympathatic innervation remains uncertain.*



**Tubular secretory structure**

**Alveolar secretory structure**

**Simple duct structure**  
(duct does not branch)



**(a) Simple tubular**  
Example:  
intestinal glands

**(b) Simple branched tubular**  
Example: stomach  
(gastric) glands



**(c) Simple alveolar**  
Example: No important  
example in humans



**(d) Simple branched alveolar**  
Example: sebaceous  
(oil) glands

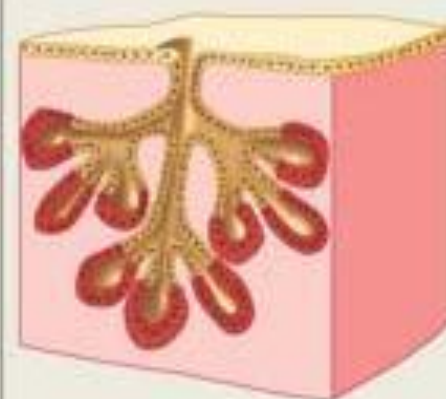
**Compound duct structure**  
(duct branches)



**(e) Compound tubular**  
Example: duodenal glands of  
small intestine



**(f) Compound alveolar**  
Example: mammary glands



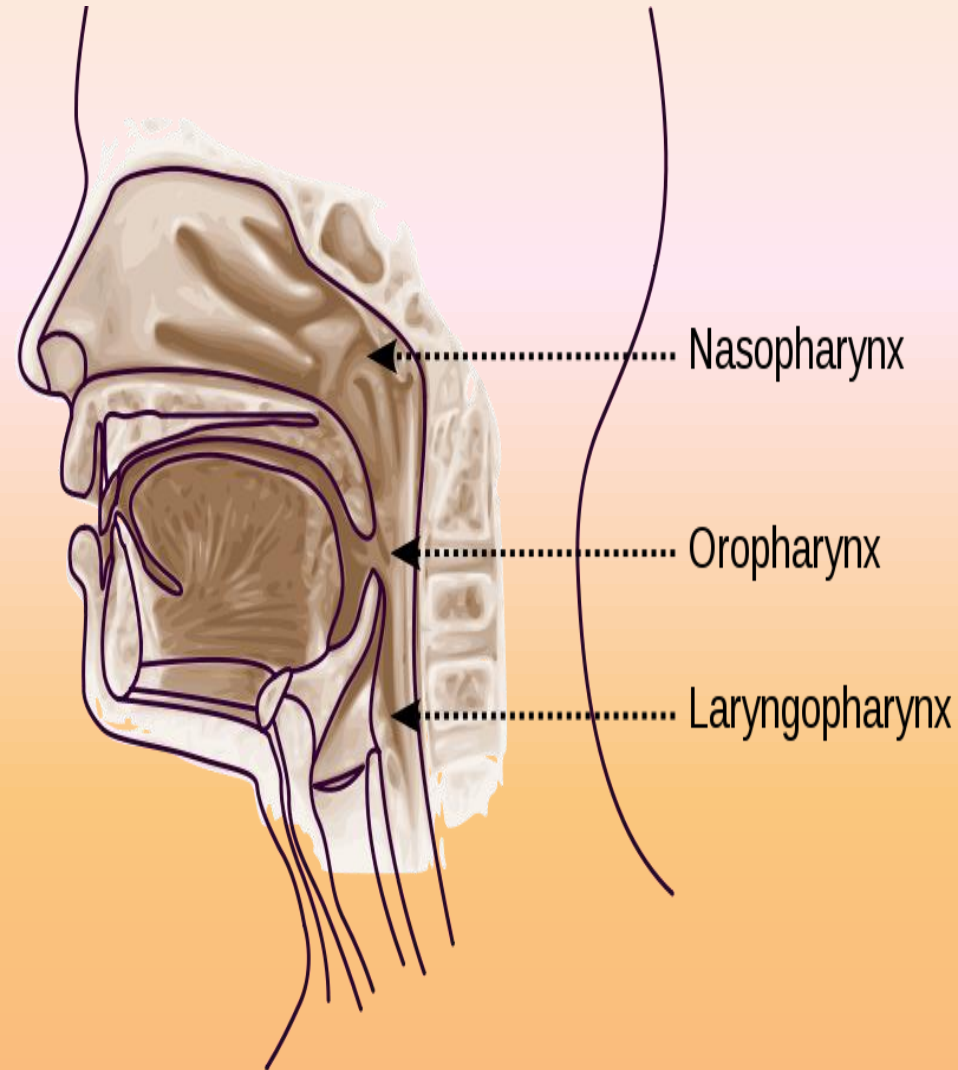
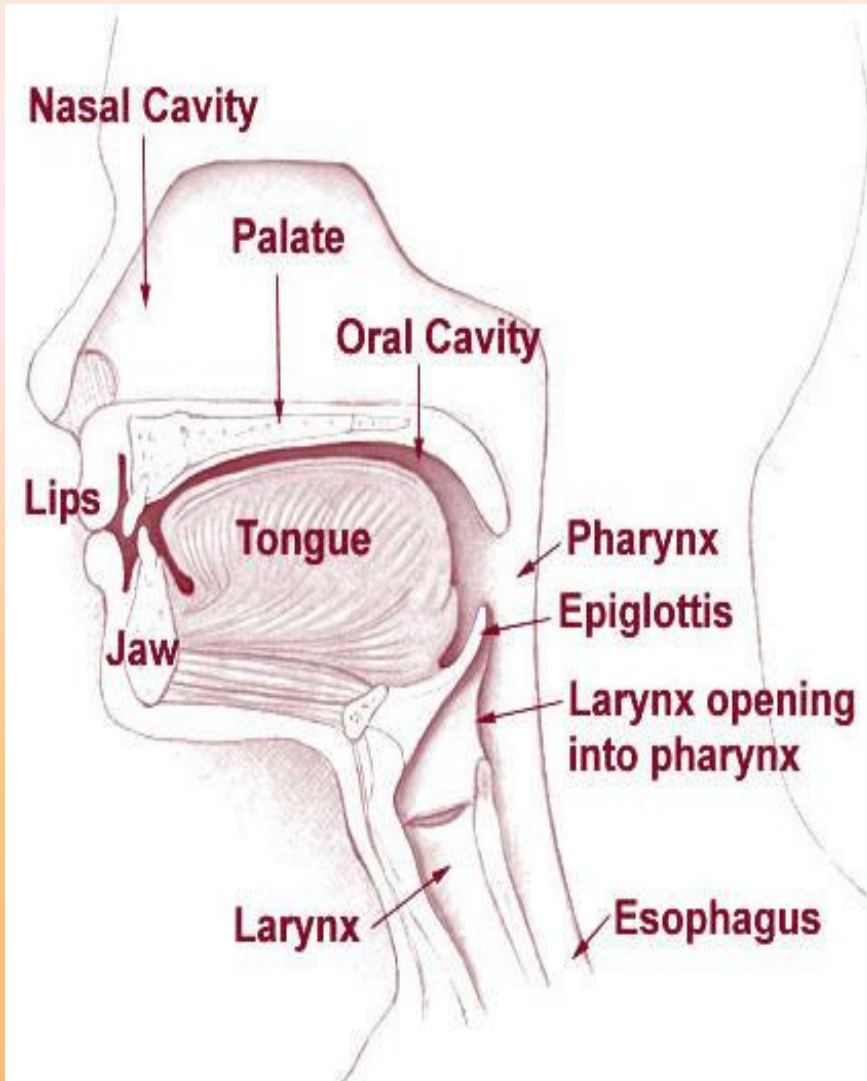
**(g) Compound tubuloalveolar**  
Example: salivary glands

**Key:** = Surface epithelium = Duct = Secretory epithelium

# Pharynx and esophagus

- The pharynx is divided into three parts:
  1. Nasopharynx
  2. Oropharynx
  3. Laryngopharynx

# Parts of pharynx



# Esophagus

- It is a muscular tube whose function to transport foodstuff from the mouth to the stomach.
- It descends toward thoracic cavity , posterior to the trachea, and enters the abdominal cavity through the oesophageal hiatus (an opening in the diaphragm, to empty to the stomach.



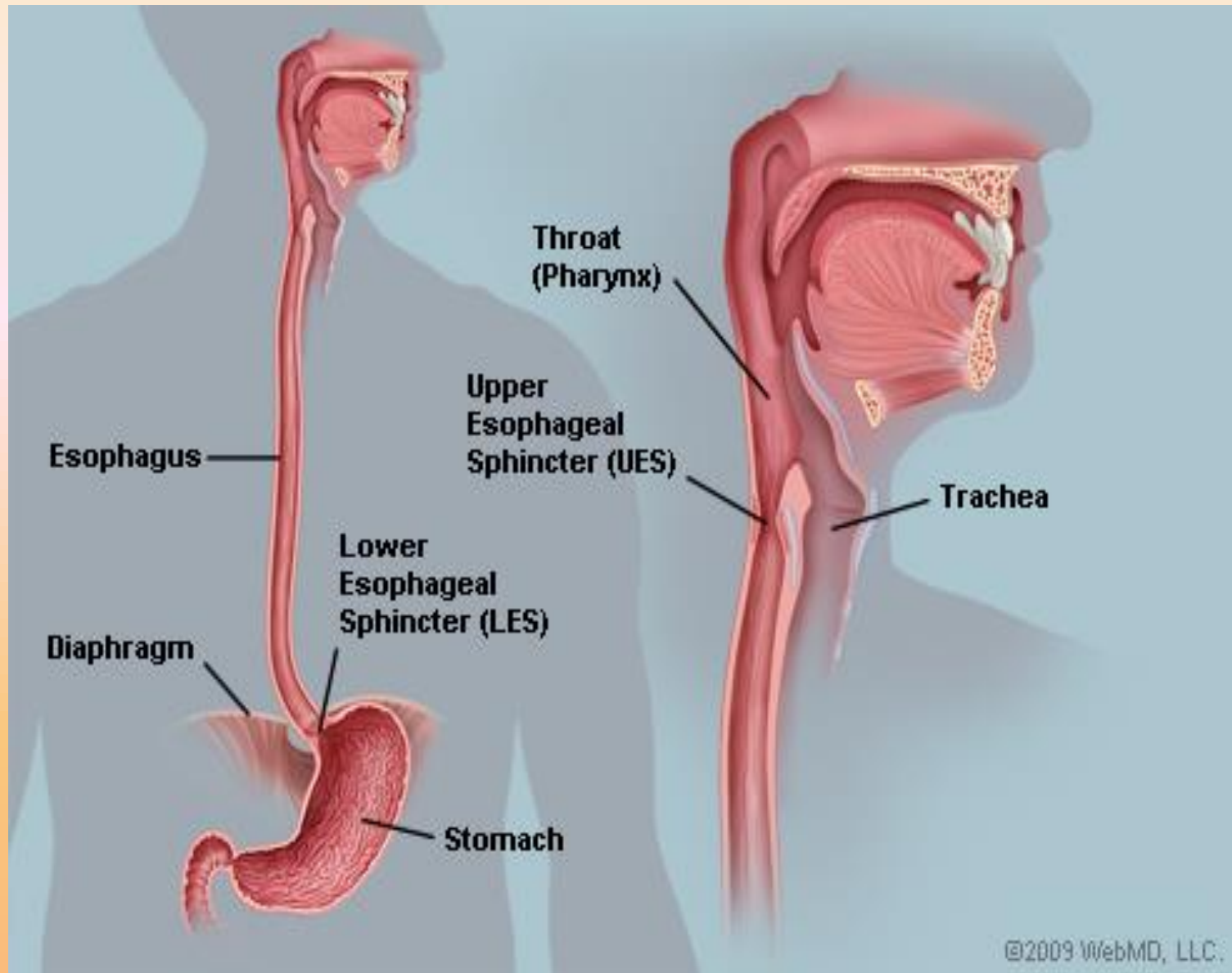
# Histological Structure of Esophagus

- Mucosa and submucosa project into large folds
- Submucosa contains small mucous secreting glands (**esophageal glands**) their secretion facilitates the transport the foodstuff and protects mucosa).
- Superior third of esophagus muscular layers contains skeletal muscle fiber.
- Middle third of esophagus muscular layers compose from mixture of both skeletal and smooth muscle fiber
- Inferior third of esophageal muscular layers composes only from smooth muscle fibers.
- Serosa covers only the end part of oesophageal wall

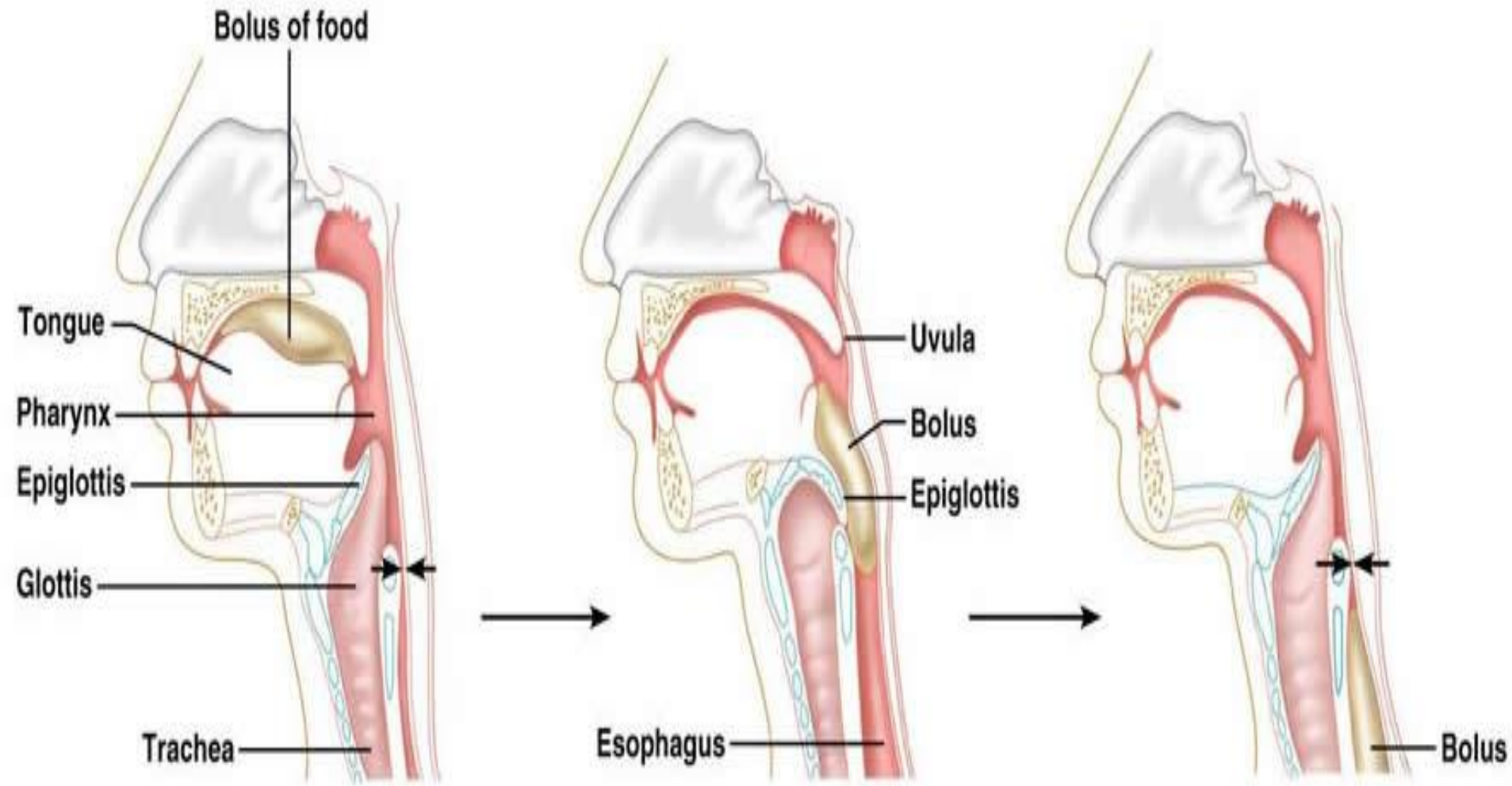
# Sphincters of esophagus

- 1. Upper esophageal sphincter** composed from skeletal muscle and located in the upper part of esophagus just below pharynx. Prevent air to enter esophagus.
- 2. Lower esophageal sphincter** (cardiac sphincter) composed of smooth muscle, which normally remain in state of active contraction to prevent backflow of materials from the stomach into esophagus.

# The esophagus and its sphincters



# Function of the upper esophagus sphincter

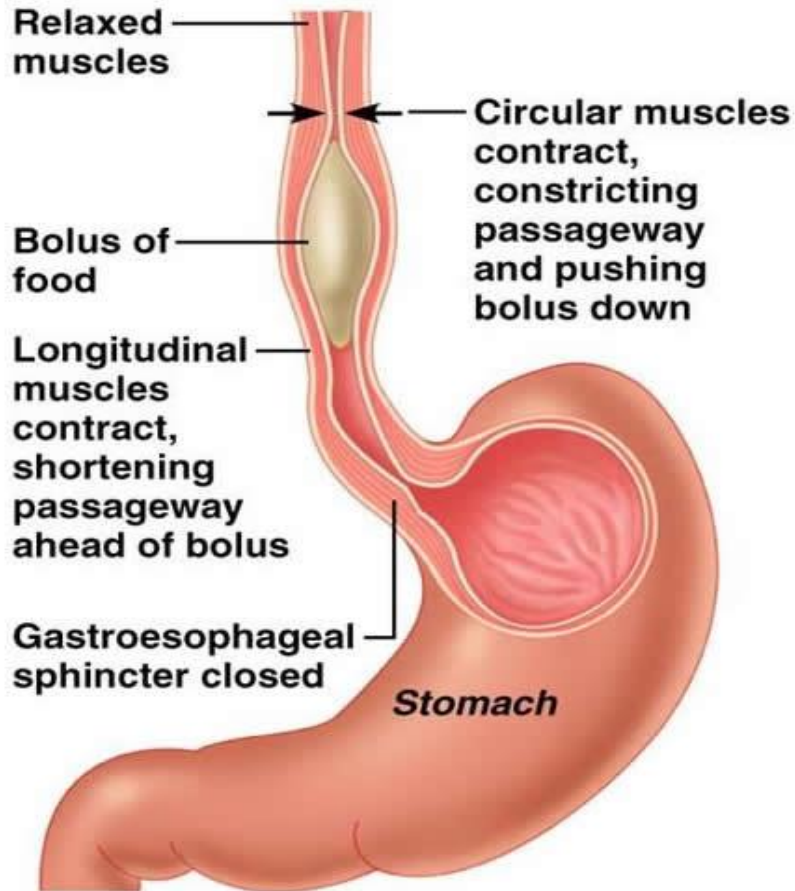


**(a) Upper esophageal sphincter contracted**

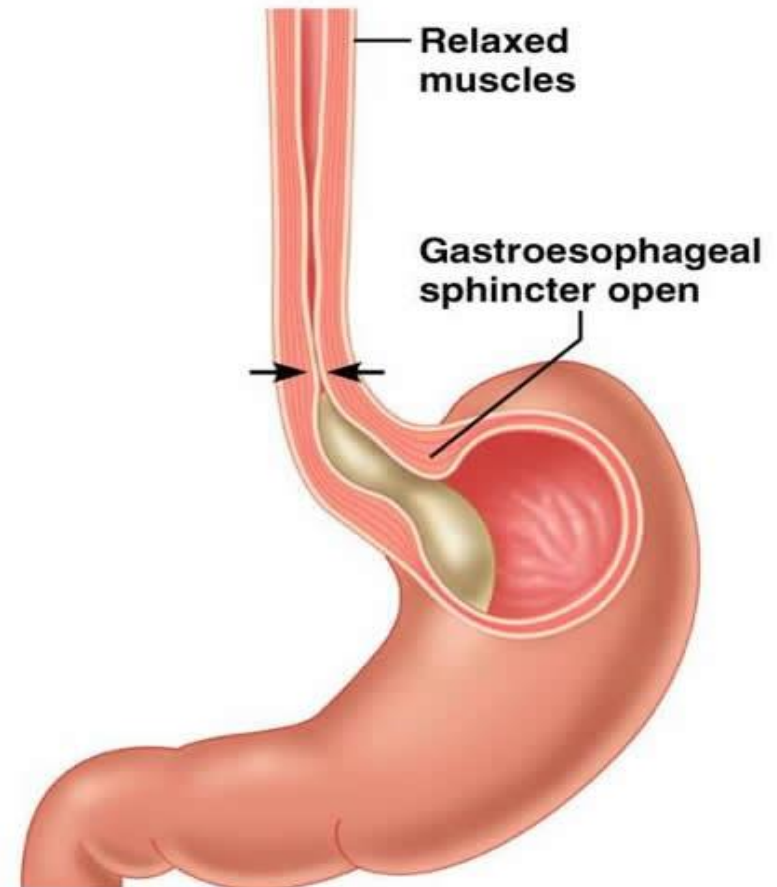
**(b) Upper esophageal sphincter relaxed**

**(c) Upper esophageal sphincter contracted**

# Esophageal movement



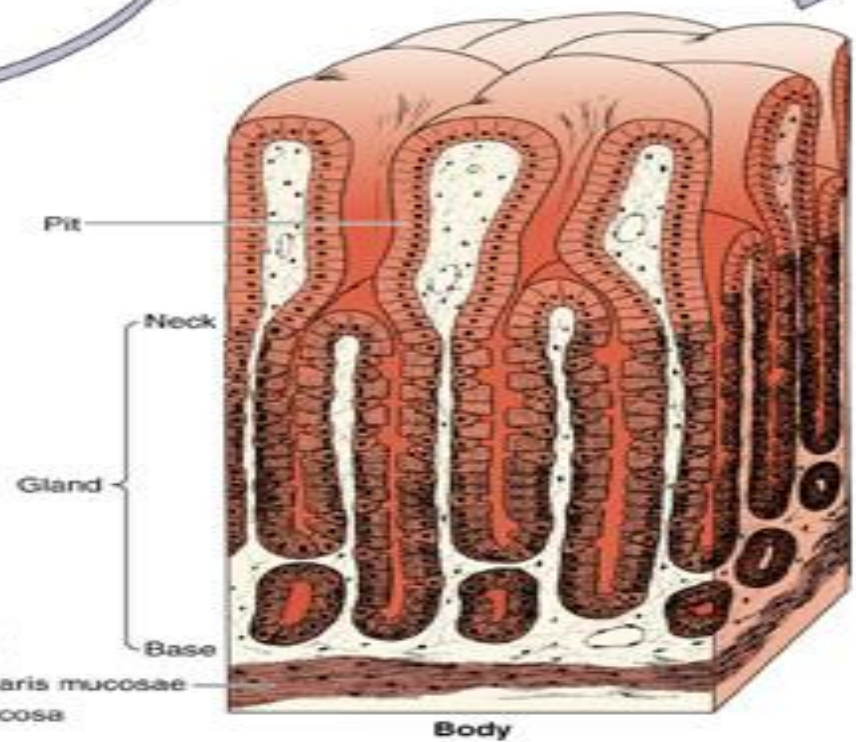
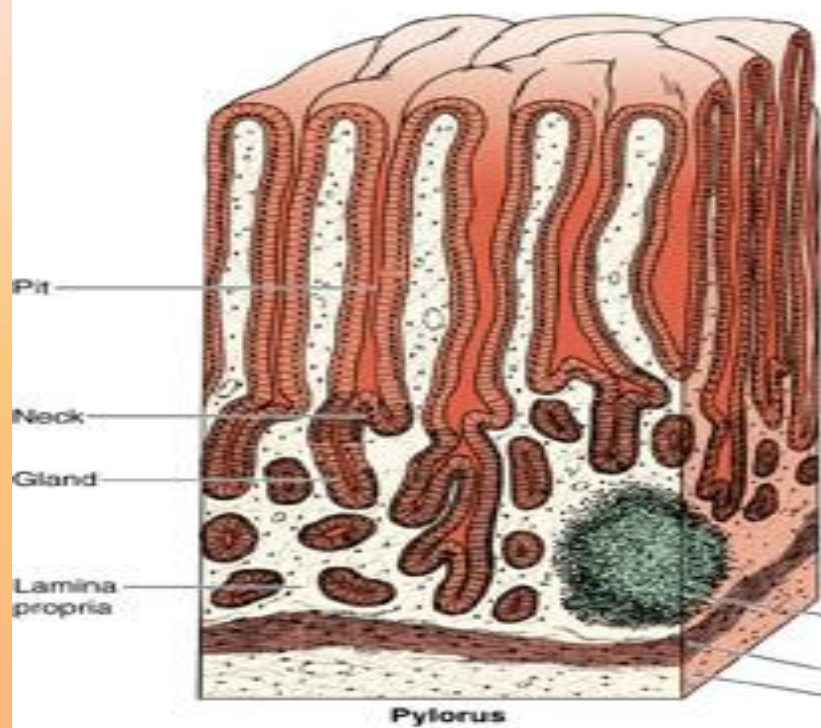
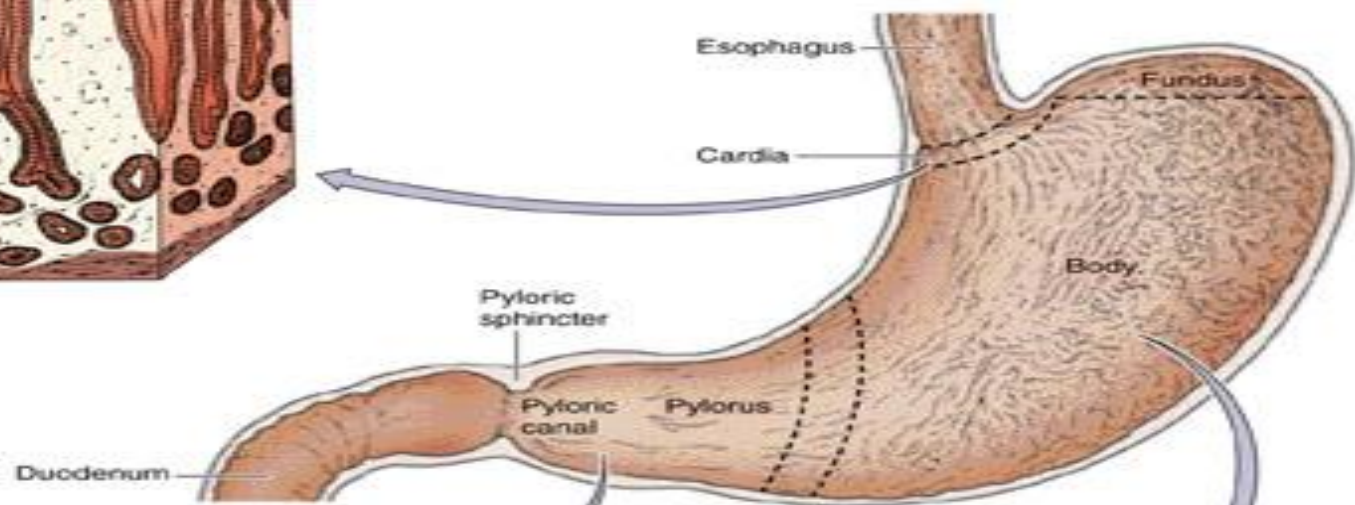
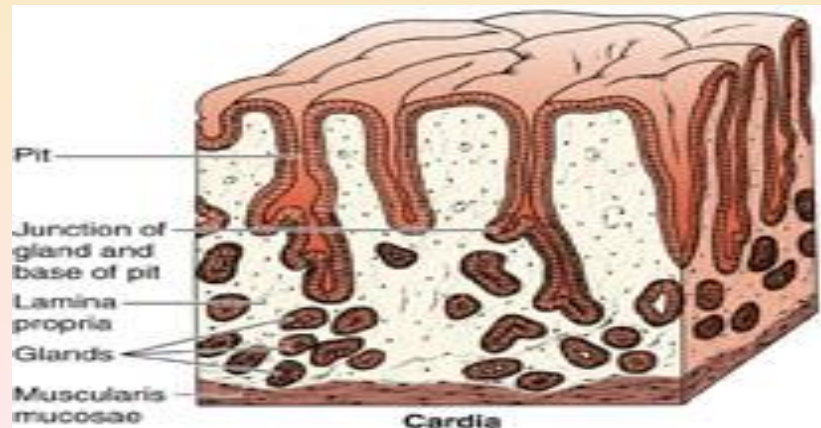
(d)



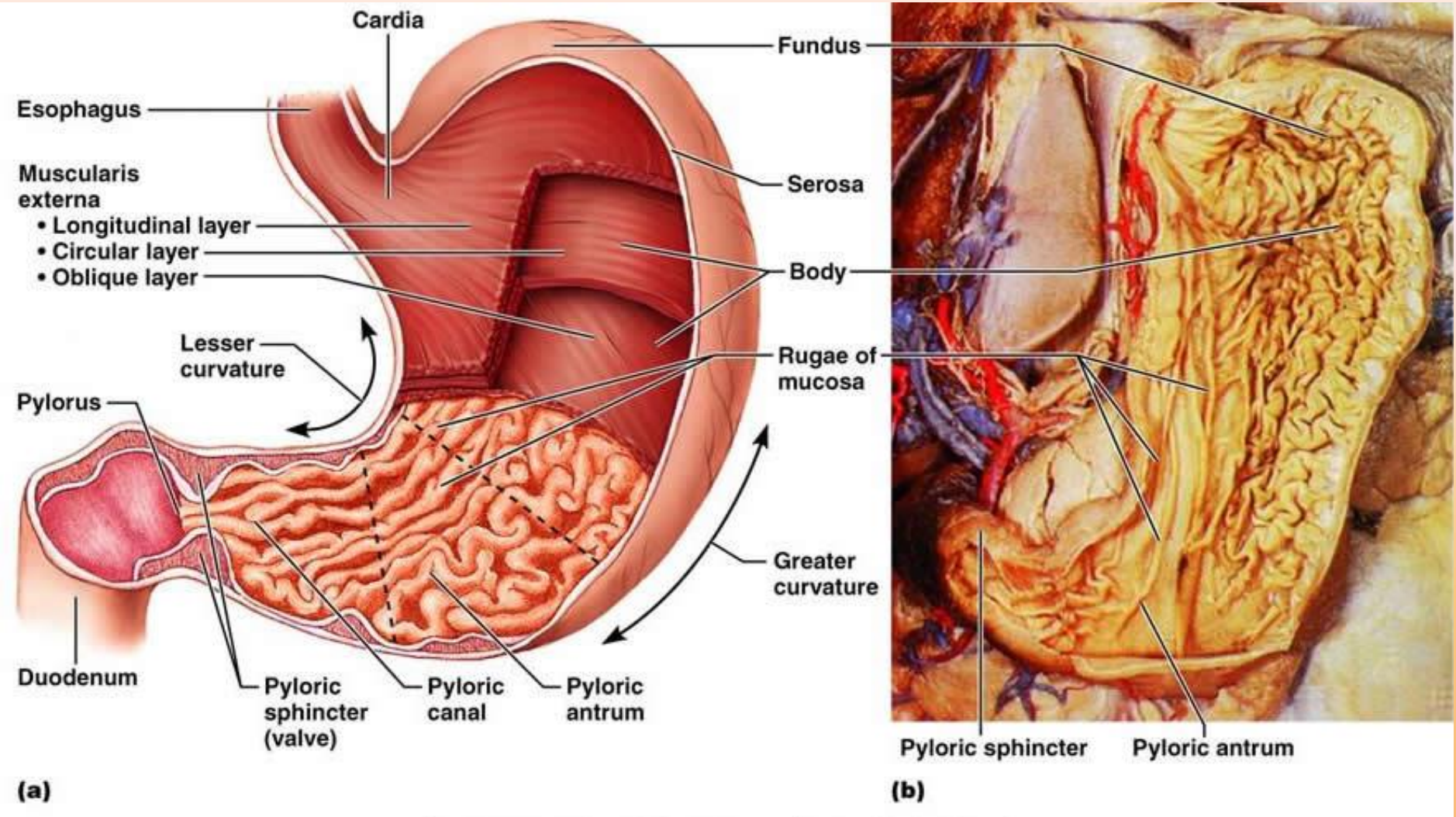
(e)

# Stomach

- It is a muscular organ has ability to digest foods and convert them to chyme.
- The major regions of the stomach include: **cardia, fundus, body, and pylorus regions.**
- There are two curvature in the stomach: greater curvature (lateral surface) and lesser curvature (medial surface).
- Extending from curvatures are the lesser omentum and greater omentum which help to tie the stomach to other digestive organs.



# Anatomy of the Stomach





- The mucosa and submucosa of empty stomach make longitudinal folds known as (**rugae**).
- Invagination of epithelial lining formed gastric pits.
- Lining epithelia and gastric pit cells secrete an alkaline mucus to protect them from stomach acidity.
- The muscular layer contains an extra layer in addition to the circular and longitudinal layers.

- Stomach has exocrine and endocrine secretions.
- The main secretory cells in the stomach are:
  1. **parietal cells** (oxyntic): secret
    - **HCL** (actually  $H^+$  and  $CL^-$ )
    - potassium chloride**
    - traces of electrolytes**
    - intrinsic factor** is essential for absorption of vitamin B12
  2. **Chief cells** (zymogenic cells) secret Pepsinogen (inactive form of pepsin enzyme). **Pepsin** is an enzyme digests proteins.
  3. Mucous cells secret mucus
  4. **Enteroendocrine cells** like
    - G- cells secret **gastrin**.(enhance of acid by parietal cells)
    - D- cells secret **somatostatin** (acts by inhibit release other hormones like gastrin).

# **Innervations of the stomach**

**By sympathetic and parasympathatic**

## **The Blood Supply to the Stomch**

**The greater curvature is supplied by the right gastroepiploic artery inferiorly and the left gastroepiploic artery superiorly. The fundus of the stomach, and also the upper portion of the greater curvature, is supplied by the short gastric artery which arises from the splenic artery**

