

# ORAL CAVITY

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# Morphological structure of the digestive system

## 1. Mucosa

- Epithelium
- Lamina propria
- Muscularis mucosae

## 2. Submucosa

## 3. Tunica muscularis externa

## 4. Adventitia /Serosa

# Lips

## The cutaneous part

### Mucosa

Epithelium-stratified squamos keratinized

Lamina propria- LCT

Sweat and sebaceous glands are present

## The transitional part

### Mucosa

Epithelium-stratified squamos keratinized

Lamina propria- LCT

Numerous blood vessels in the connective tissue give red color

## The mucous part

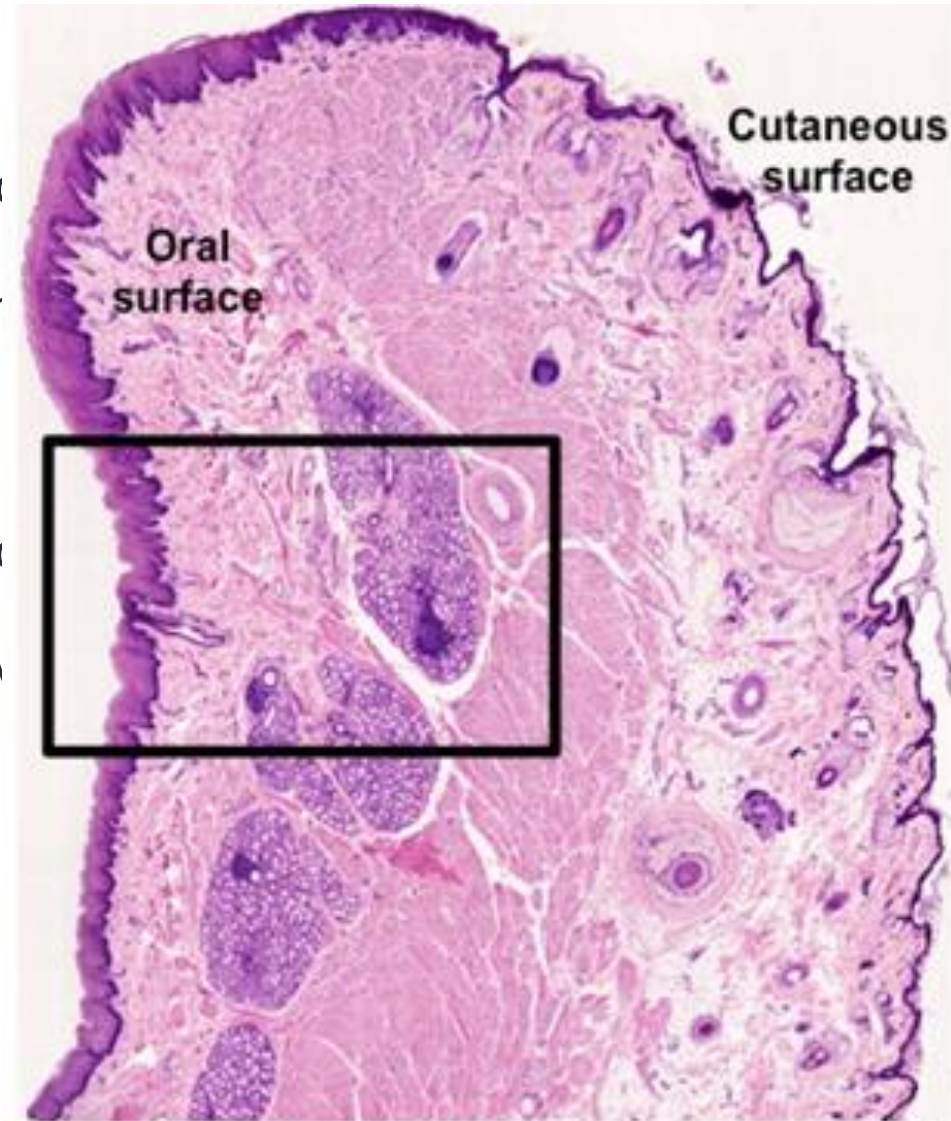
### Mucosa

Epithelium-stratified squamos non-keratinized

Lamina propria- LCT

Submucosa- LCT

Minor salivary glands- compound tubulo-alveolar



# The cheek (bucca)

## Maxillary part

### 1. Mucosa

Epithelium-stratified squamos non-keratinized epithelium

Lamina propria-LCT

### 2. Submucosa - LCT+buccal salivary glands

**Mandibular part** - the same structure as maxillary part

## Intermediate part

### 1. Mucosa

Epithelium-stratified squamos non-keratinized epithelium

Lamina propria-LCT

### 2. Submucosa – LCT

# The gum

## Mucosa

Epithelium-stratified squamos non-keratinized epithelium

Lamina propria-LCT

# The hard palate

## Mucosa

- Epithelium-stratified squamos non-keratinized epithelium
- Lamina propria-LCT

## Zones of the hard palate:

1. Glandular zone contains compound tubulo alveolar glands
2. Fatty zone
3. Raphe zone
4. Marginal zone

# The soft palate and uvula

## **Oropharengeal surface**

### Mucosa

Epithelium-stratified squamos non-keratinized epithelium

Lamina propria-LCT

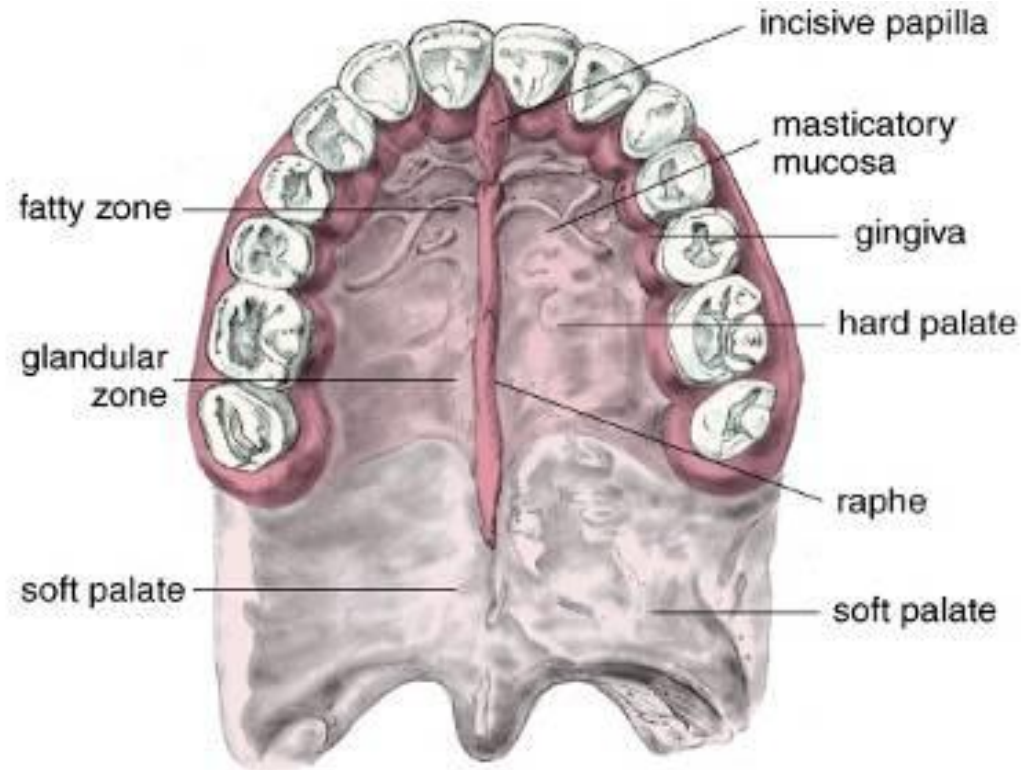
Submucosa-LCT+salivary glands

## **Nasopharyngeal surface**

### Mucosa

Epithelium - pseudostratified ciliated epithelium

Lamina propria-LCT



# The tongue

## ***Inferior surface***

### Mucosa

Epithelium-stratified squamos non-keratinized epithelium  
Lamina propria-LCT  
Submucosa-LCT+salivary glands

## ***Lateral and dorsal surfaces***

### ***Lingual papillae***

#### **1.Filiform papillae are the most numerous**

Epithelium-stratified squamos highly- keratinized epithelium  
Lamina propria-LCT  
Don't have taste buds. Serve only mechanical function

#### **2.Fungiform papillae- mushroom-shaped**

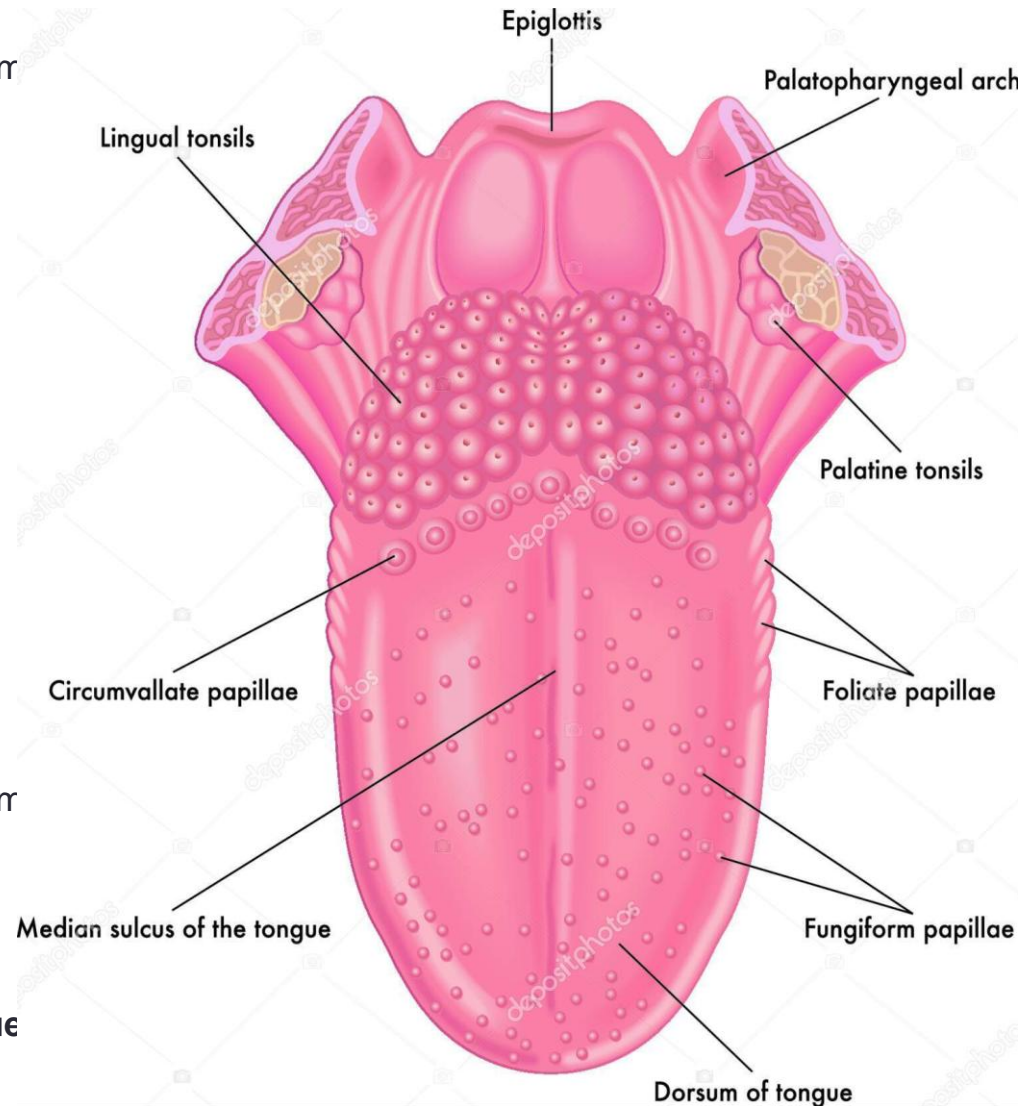
Epithelium-stratified squamos non- keratinized epithelium  
Have taste buds

#### **3.Circumvallate papillae**

Epithelium-stratified squamos non-keratinized epithelium  
Each papillae is surrounded by moatlike invagination where present taste buds. Serous secretion is excreted into the base of the moats . It helps to wash out the soluble elements of the food.

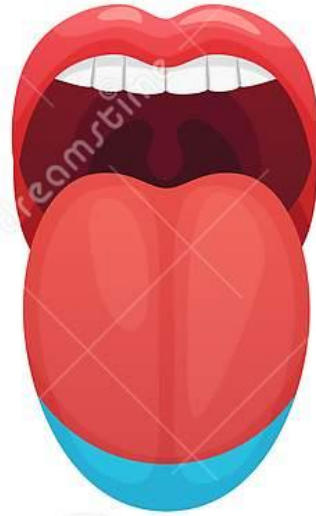
#### **4.Foliate papillae on the lateral surface of the tongue**

Epithelium-stratified squamos non- keratinized epithelium  
Have taste buds.  
Well-developed in childhood





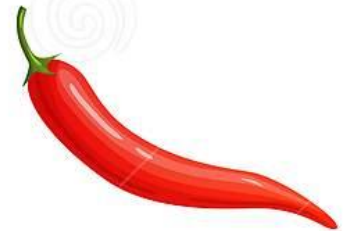
**SWEET**



**SALTY**

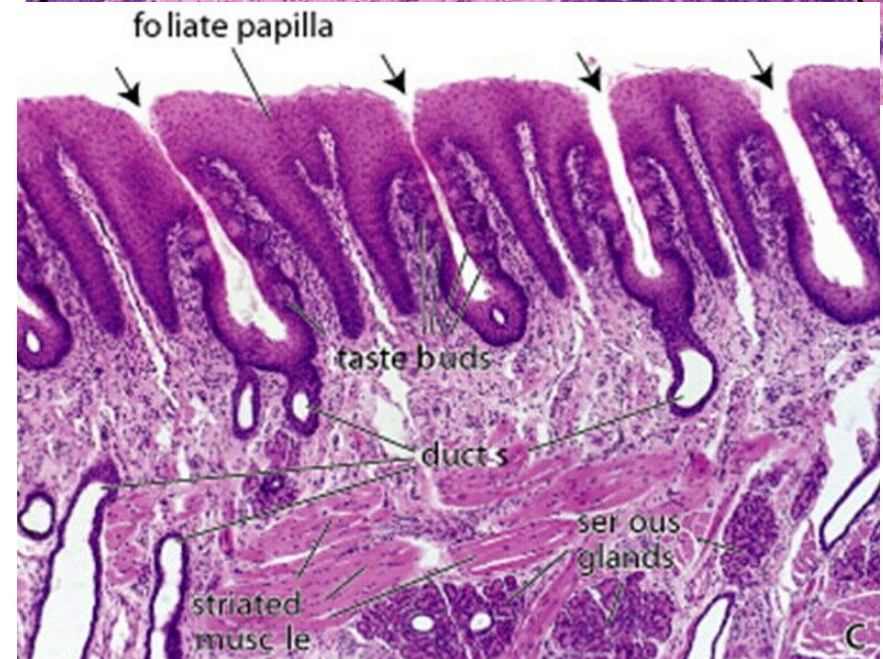
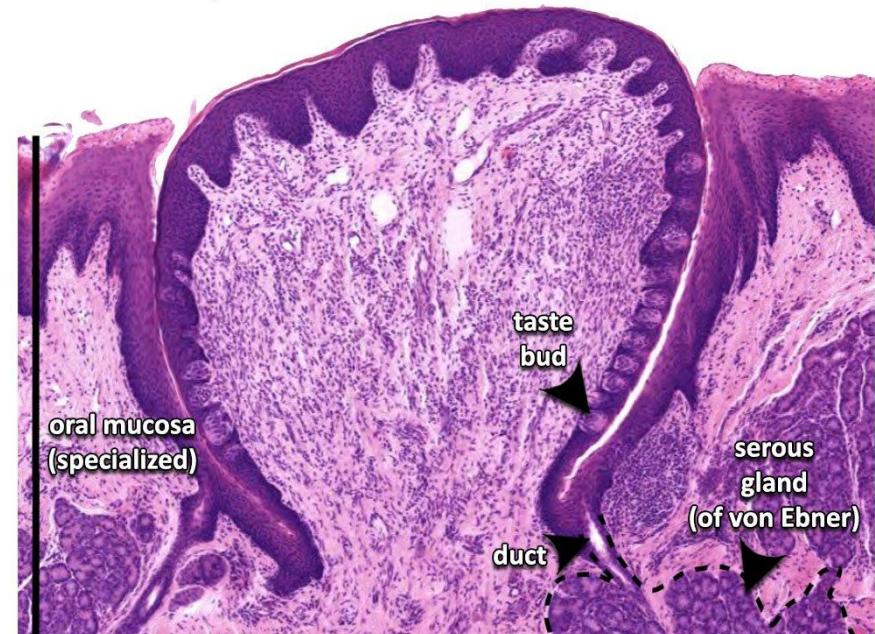
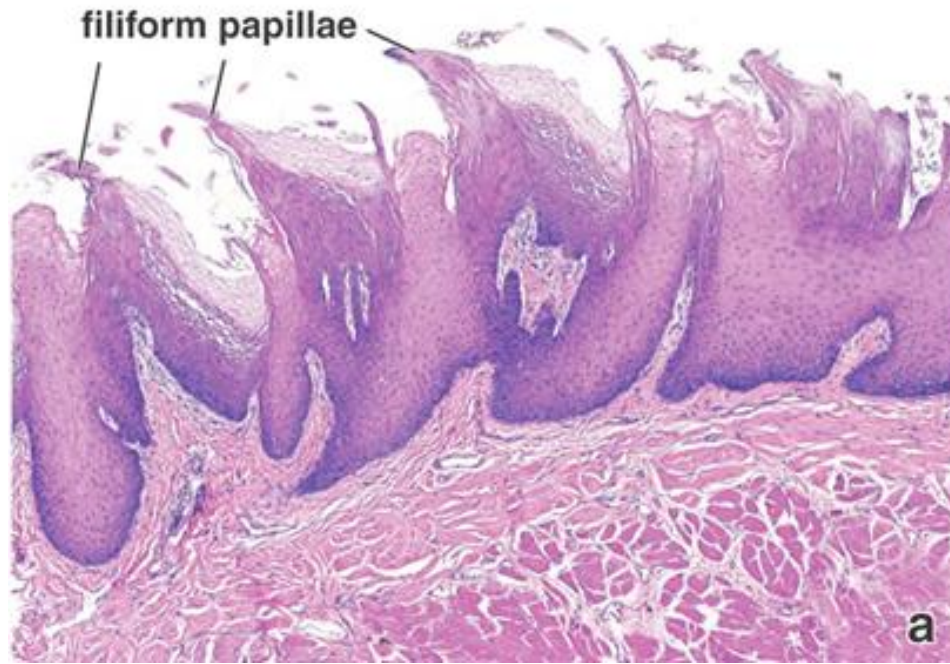


**SOUR**



**BITTER**

# Papillae





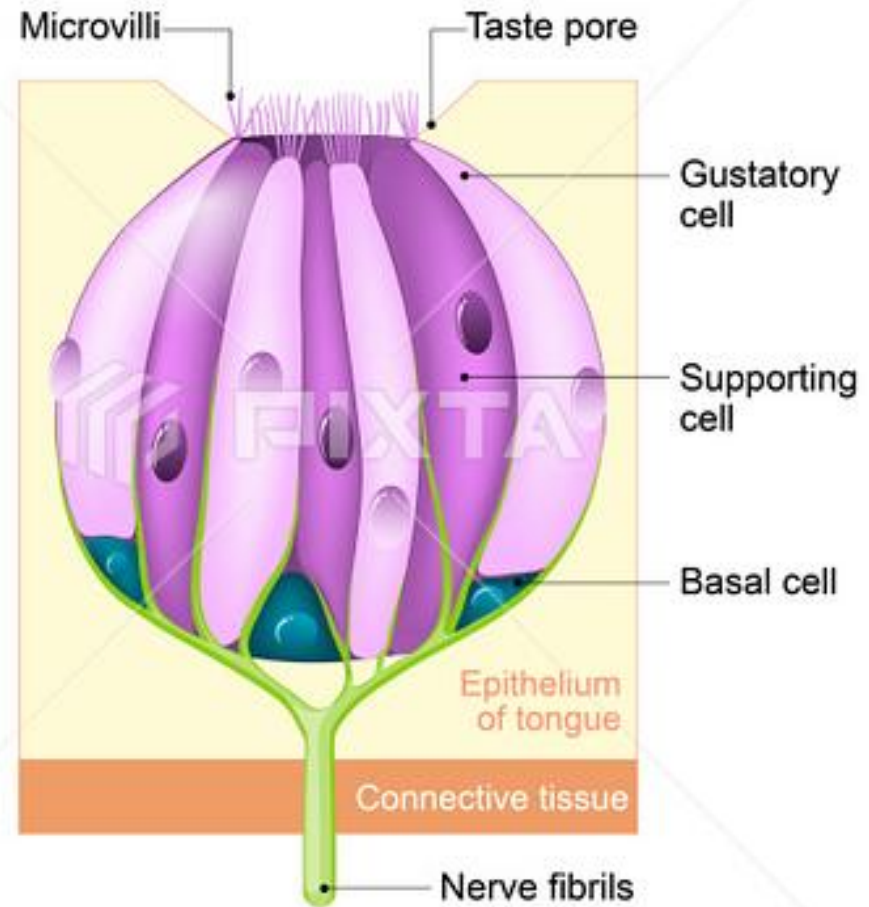
# Organ of taste is represented by taste buds

## Types of cells

1. Neuroepithelial cells (sensory cells) The microvilli perceive the stimuli. The basal portion of the cell form synapses with afferent nerve fiber of facial, glossopharyngeal and vagus. The stimuli goes to the sensory neuron.

2. Supporting cells- surround and isolate sensory cells.

3. Basal (cambial ) cells



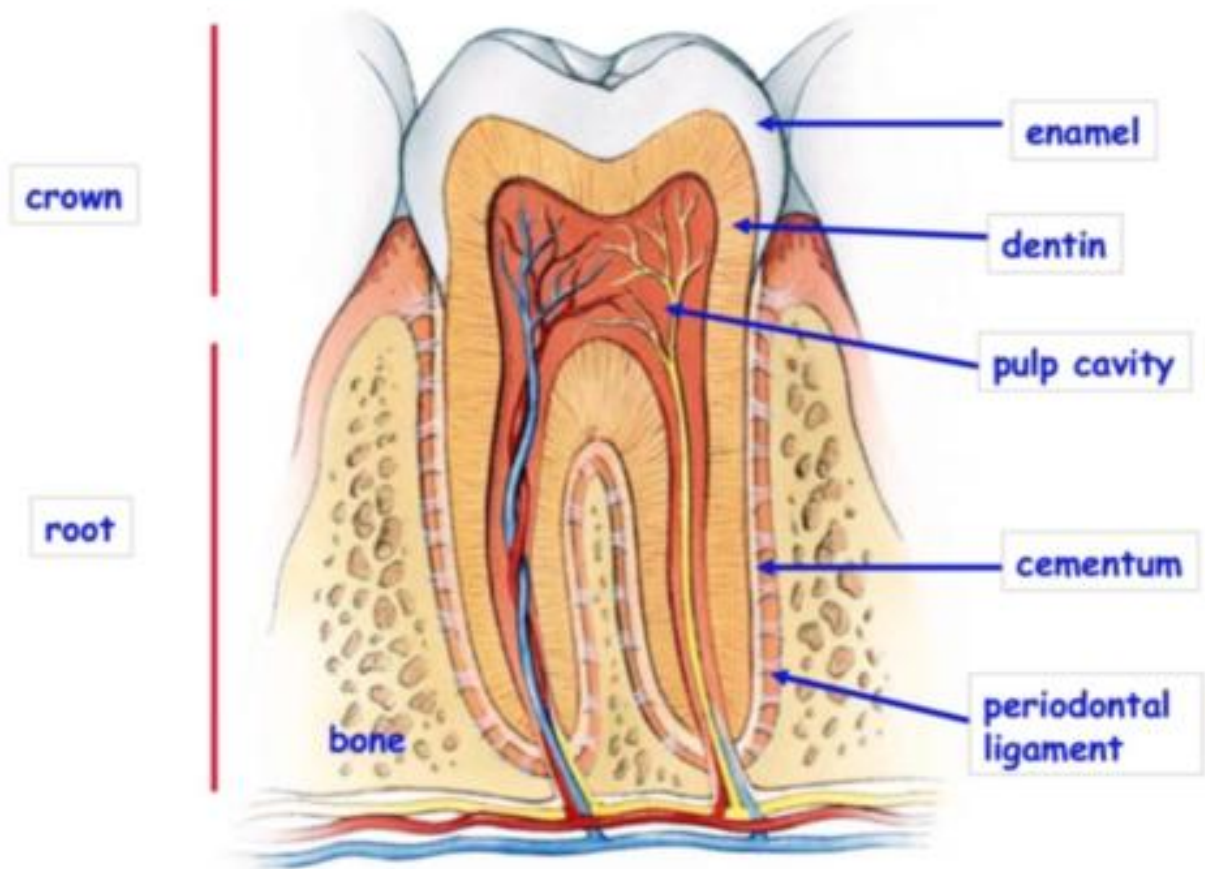
# The teeth

## The hard tissue:

- enamel
- dentin
- cementum

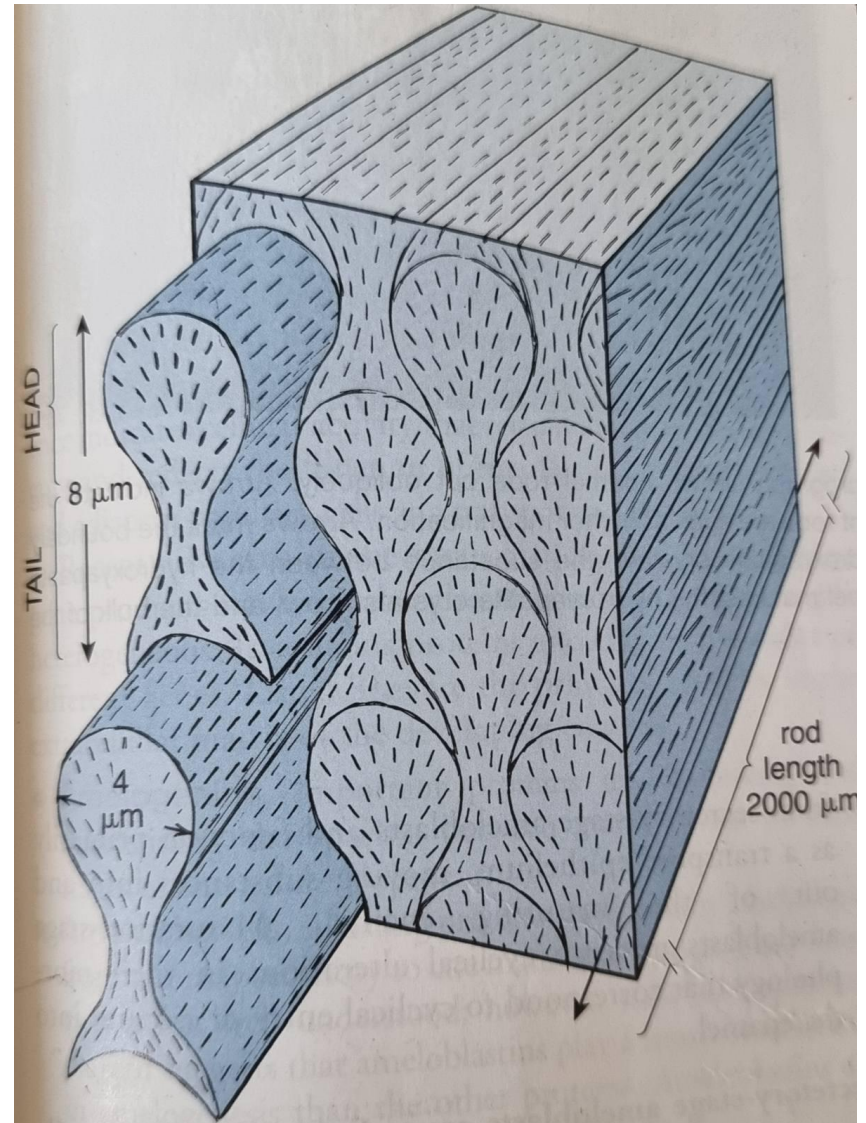
## The soft tissue:

- pulp
- periodontium



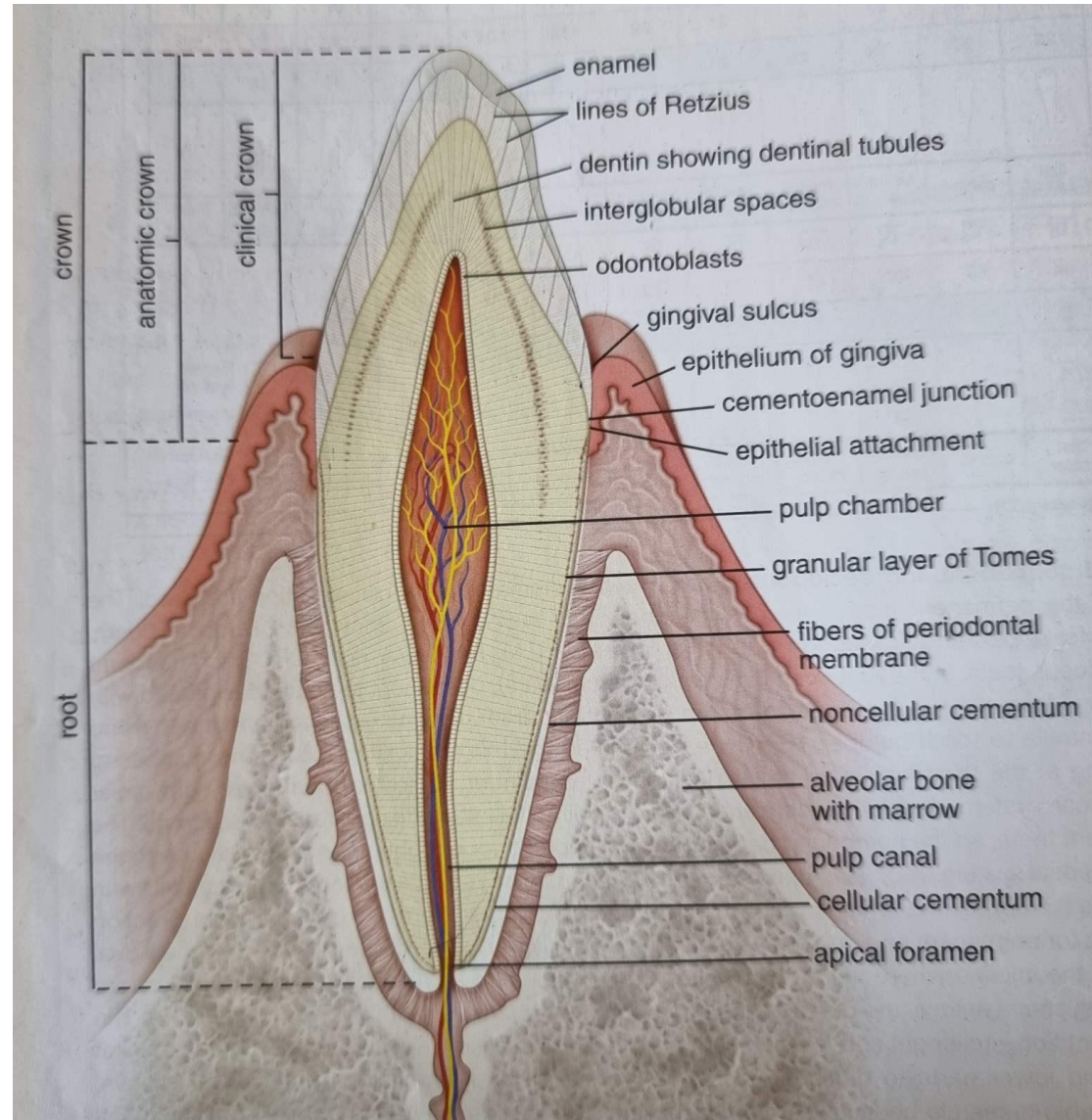
# Enamel

- Covers the crown of the tooth
- Consists of 96-98% calcium hydroxyapatite and small amount of organic substances
- Secreted by ameloblasts
- Structural unit is **enamel rod**. On the cross section revealed as keyhole with head and tail.
- Striations on the enamel rod show the growth of enamel in the developing tooth (lines of Retzius)



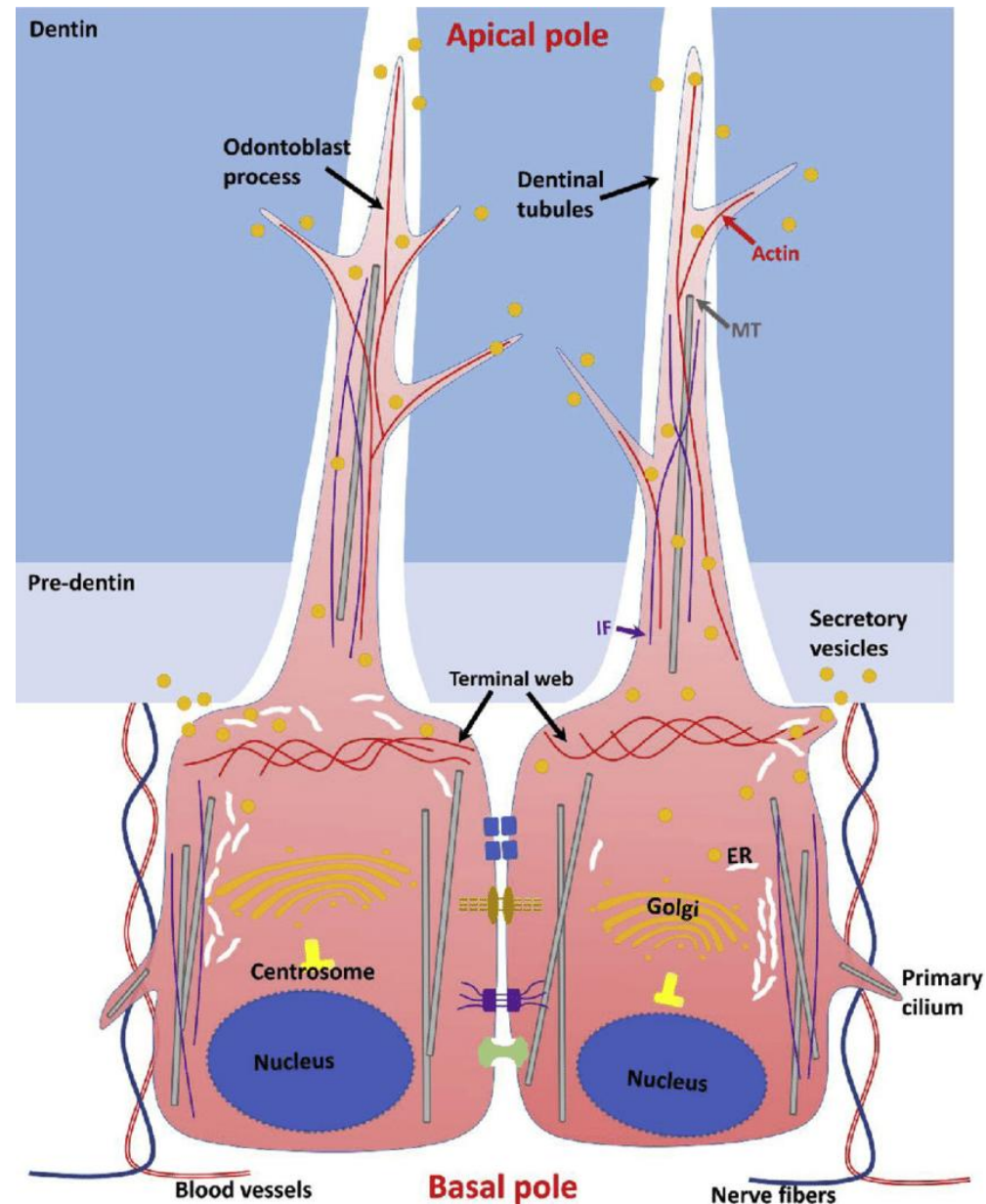
# Dentin

- Is found deep to the enamel and cementum.
- Consists of 70% calcium hydroxyapatite and organic substances (collagen fibers).
- Secreted by **odontoblasts**.
- Types of dentin based on the arrangement of collagen fibers: **Mantle (Korff's fibers)** radial direction of collagen fibers, **circumpulpal (Ebner's fibers)** tangential direction of fibers.
- Areas of newly secreted dentin is called **predentin**
- Areas that are hypomineralized in the dentin called **interglobular spaces**



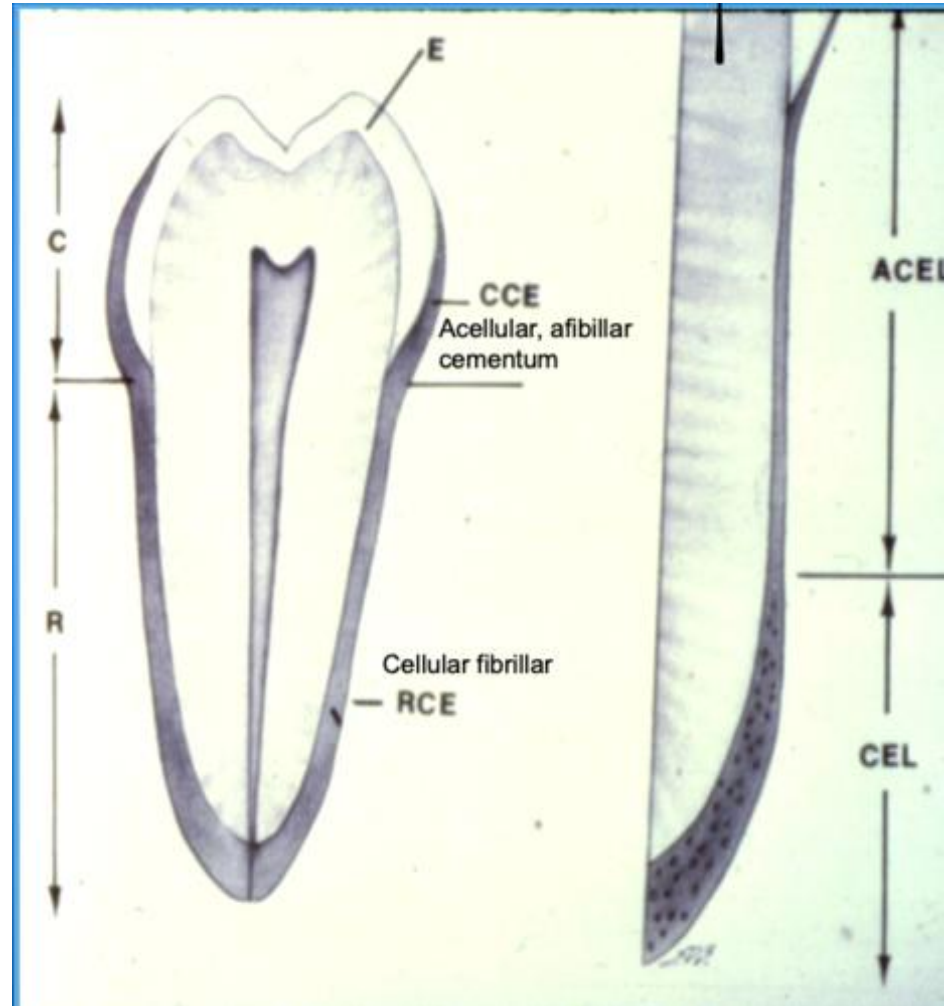
# Odontoblast

- **Localization:** The cell body of the odontoblast is located in the peripheral layer of the pulp, when the processes are found in the narrow channels (dentinal tubules)
- **Structure:** nucleus at the basal portion of the cell, basophilic cytoplasm, well-developed RER, mitochondria and Golgi apparatus.
- Extend from the pulp to the enamel.
- **Function:** provide the nutrition to the enamel, produce collagen fibers, participate in the mineralization of the dentin due to production alkaline phosphatase



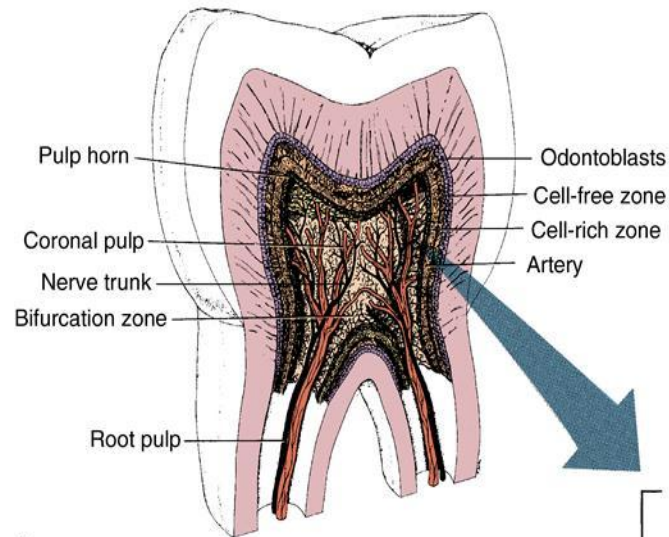
# Cementum

- Covers the root of the tooth
- Consists of 68% calcium salts and organic substances
- Types of cementum:
  1. Cellular (secondary) is represented by cementocytes and covers only the root apexes and bifurcations of the tooth
  2. Acellular (primary) is represented by collagen embedded in the ground substance and covers the whole surface of the root

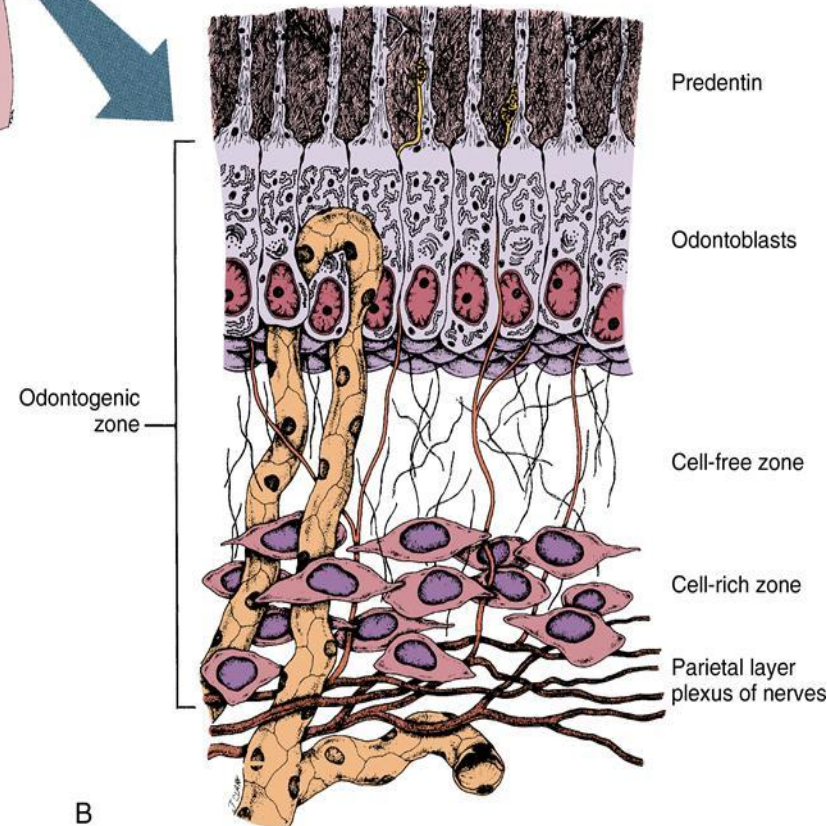


# Dental pulp

- Soft tissue of the tooth, consist of LCT
- Contains 3 zones:
  - Peripheral (immature collagen fibers, odontoblasts)
  - Intermediate (low-differentiated CT cells, pre-collagen fibers, argyrophilic fibers)
  - Central (blood vessels, nerve plexus, LCT cells)



A



B

# Supporting tissue of the tooth

- Alveolar bone of the alveolar processes of the maxilla and mandible is represented by compact bone tissue
- Periodontal ligaments- FCT
- Gingival mucosa



# Questions

- V-1
- General characteristics of the structure of the teeth. The structure of enamel and cementum of the tooth.
- V-2
- General characteristics of the structure of the teeth. The structure of dentin and dental pulp of the tooth.