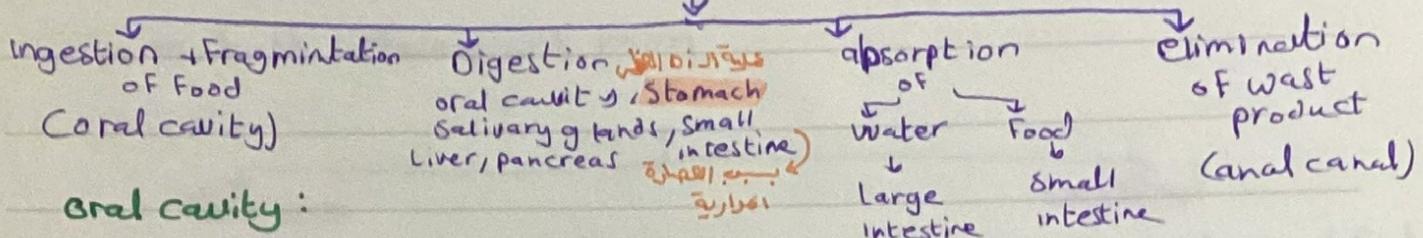


Histo "1"

①

Function :



oral cavity :

- oral cavity is lined by mucous membrane

Formed by 2 layers

epith  
Stratified squamous  
It cells rich in glycogen  
Keratinized (جذور)  
non-keratinized (وجدر)

Lamina propria  
Loose CT under the Epi  
contains: minor salivary glands + nerves, vessels, lymphatics

- Gums → \* E.m. is firmly attached to the bone under.

\* Covered with keratinized stratified squamous epithelium (periosteum of the alveolar bone of the teeth)

• The Lip

\* has External Surface covered by skin + Internal Surface covered by m.m.

+ inside (أعور) the Lip contains bundle of skeletal ms. (orbicularis oris)

→ and fibro elastic CT → BV...

c- red margin of lip : covered with

modified skin (less keratinized)

No hair follicle, No sebaceous or sweat gland

transperant red due to the reflection of the underlying BV

\* Lip margin (vermillion)

Less (less highly) keratinized

keratin

∴ it is the change of epidermis from high keratin to less keratin

(face skin)

(lip skin)

\* richly supplied of free nerve endings so it's highly sensitive.

IT'S m.m. has

epith

non-keratinized

Lamina propria

loose CT

contains BV,

lymphatics, nerves

labbial glands.

(minor salivary)

(2)

## The tongue

Made of skeletal voluntary Ms. (4 intrinsic + 4 extrinsic) covered on both surfaces with m.m.

**dorsum**

- \* Covered by para keratinized Stratified squamous Epi

- \* Firmly attached to underlying C.T. 

- \*  $\frac{2}{3}$  ant  $\frac{2}{3}$  contains papillae (oral part)  
while  $\frac{1}{3}$  post  $\frac{1}{3}$  doesn't but it contains Lingual tonsils (pharyngeal part)

- \* non keratinized stratified Squamous Epi loose attach to underlying C.T.

- \* no papillae / has Lingual tonsils  
Embedded in C.T. of ventral

Contain minor salivary gland

Lingual salivary gland

### Lingual papillae

- \* Little projection of m.m. of dorsum

- \* each is formed of central core of CT covered with stratified squamous Epi

Conical shape  
**Filiform**

أعلى

Ant  $\frac{2}{3}$

(اللسان)

اللسان  
keratin (keratinized stratified)  
squamous Epith

have no test buds

It's function is mechanical  
digestion

وهي لغز

Mushroom shape  
**Fungiform**

very vascular

تحوي على مروحة دموية

\* contain test buds of superior surface

\* their covering Epith is non-keratinized  
St + Squ

Circular shape  
**Circumvallate**

اللسان

طحالب

مارح نحرف

دلة توردة

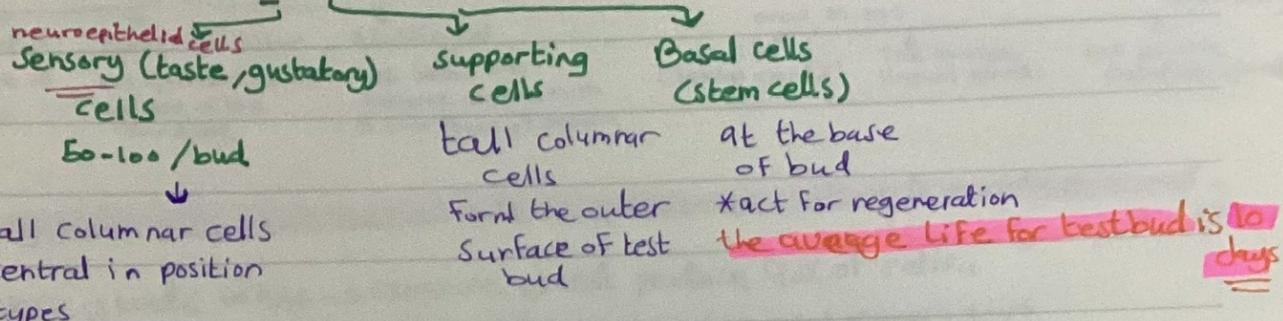
Short vertical fold (كشكش)  
Found on sides of tongue  
Each papilla is separated by groove  
risk of oral cancer covered by non ker.

Foliate

### Taste buds (Cnoroepithelium)

Oral structure on dorsal surface of tongue in lingual papillae (2000-8000)

each form of 3 types of cells and taste pore for passage of saliva



**Sensation of taste:** bitter, umami, sour, sweat, salt

**Spicy taste** → is not a taste

it's a combination of hot and pain sensation

Capsaicin is the active gradient in chili papers bind to Rec on the tongue called vanilloid Rec → the brain sends signals to numb the tongue

\* spicy food doesn't damage taste buds

\* eating spicy food read by the body as pain sensation your pituitary gland to release endorphin which make us enjoy eating spicy food

**Coated tongue** (white tongue) happen when debris builds upon this will lead to delay of shedding of and continual renewal of keratinized area which cause accumulation of bacteria + inf

causes: bad hygiene / dehydration / tobacco smoking, drink alcohol, oral candidiasis

### Lingual tonsils

assist immune system production of Ab	mucous Gland drains into crypts to wash off any debris	Formed of group of lymphoid follicles	covered with non-ker, st.sq. that invigilate & post 3 inward forming crypts of tongue
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**Pharynx** Divided into 3 parts → nasopharynx: Lined by pseudo stratified columnar ciliated epithelium  
 → oropharynx: Lined by non ker. st. squ epith  
 → laryngopharynx: as oropharynx

**The palate** The Roof of the oral cavity composed of → ant part → formed of bone (hard plate) lined by ker. st. squ. epi  
 → post part → covered by non-ker. st. squ. epi (soft plate)

## Salivary gland

4

the Main (large, extrinsic)

- 2 parotid
- 2 submandibular
- 2 sublingual

Lies in front of both ears      lies against the inner surface of the mandible      lies below the tongue on the m.m. of the floor of mouth

The accessory (small, intrinsic)  
Scattered microscopic, scattered in CT of oral m.m.

- The lips (labial glands)
- The tongue (lingual glands)
- The palate (palatine glands)

\* they secret saliva 90% constant rate. \* their secretion is mainly mucous  
accessory glands

Salivary glands consist → exocrine gland produce 90% of saliva  
(pH 6.5-7.5)

Functions of salivary gland :

- ① Lubricate + clean oral mucosa + lips
- ② assist in swallowing
- ③ initiate digestion of CH<sub>2</sub>O, lipids (amylase + lipase)
- ④ Contains antimicrobial agent C1G A, lysozyme, lactoferrin that control normal flora of oral cavity
- ⑤ act as solvant substance that stimulate taste buds

### Structure of Salivary gland

Stroma

Parenchyma  
Includes:

\* CT framework support the gland and transmit BV, nerves, lymphatics, ducts.

\* consist of: capsule: covers the gland from outside.  
duct, septa: divide the gland into lobes and lobules.  
BV, nerves: present in the background of the gland (stained by Ag)

Secretory units  
(salivary acini)

Duct system

secrete saliva

conduct saliva to oral cavity

(Secretory acini) → groups of cells encircling a lumen  
2 types

Secretory cells (serous or mucous)

non secretory cells (Myoepithelial)

lipid droplets, myosin, actin filaments

\* Star-shaped

\* Present between the base of secretory cells and the basement membrane.

\* They're branched cells

\* Their cytoplasm contains myosin and actin

\* When contract → release secretion

myofibrils → immunohistochemical staining

the acini divide according to the type of secretion to : ① serous

② mucous

③ mixed (mucous-serous)

essentially a mucous acinus which is capped by a group of serous cells

Crescent of Gianuzzi (serous demilune)

\* it is a group of serous cells form crescent at one side of a mucous acinus.

\* the serous secretion of these cells reach the lumen by of the acinus by passing through intercellular clefts

(→ Serous → Serous → Serous)

Mucous cells (cells with no cilia)

duct → collecting lumen

\* Demilune cells secret the proteins that contain the lysozyme + Enzymes → so add antimicrobial activity to mucus

## Serous Vs Mucous acinus

## Serous (parotid)

\* Small diameter, narrow lumen, lines short  
Nuclei are rounded and central paramyloid cells

\* Basal cytoplasm is basophilic ( $\uparrow$ RER)

\* Basket cells (myoepithelial cells) less

\* Secret fluid serous

\*  $\approx$  amylase aid in digestion of starch

## mucous (sublingual)

larger in diameter, wide lumen  
lines with tall cells, Nuclei are flat and peripheral

\* cytoplasm is pale

$\rightarrow$  Foamy, vaculated (dissolved mucous)

\* Basket cells (more)

\* Secret viscous mucus

$\approx$  mucous for lubrication

## B- the duct system (branching system)

## intercalated ducts

thin duct, drains the secretory units  
Lined with flat or cuboidal cells

\* deep invaginations of basal cells  $\rightarrow$  ZO-1 membrane

\* Zonula occludens

proximal tubules in: (kidney)  
kidney

## striated (secretory) ducts

\* ① present inside the lobule  
② take part in the secretion of saliva  
acini  $\rightarrow$  salivary lipoprotein secretion  
③ lined with low columnar cells  
④ their apical and basolateral membranes contain ion channels for transports as  $\text{Na}^+$ ,  $\text{K}^+$  (ion transporting cells)  
(saliva is  $\text{K}^+$  alkaline)

\* hypotonic (lower  $\text{Na}^+$  than blood)

\* has acidophilic cytoplasm by basal acidophilic striations

\* infolded basal lamina +  $\uparrow$  mitochondria

## glands

## parotid gland

100% Serous (pury)

opens by parotid duct  
in oral cavity

sublingual (mixed)  
(mainly mucous)

95%  $\rightarrow$  mucous

5%  $\rightarrow$  serous

the smallest and the only  
unencapsulated

\* opens by 10-12 mini ducts

## submandibular (mixed)

80%  $\rightarrow$  mucous

20%  $\rightarrow$  serous

opens by Wharton's duct