

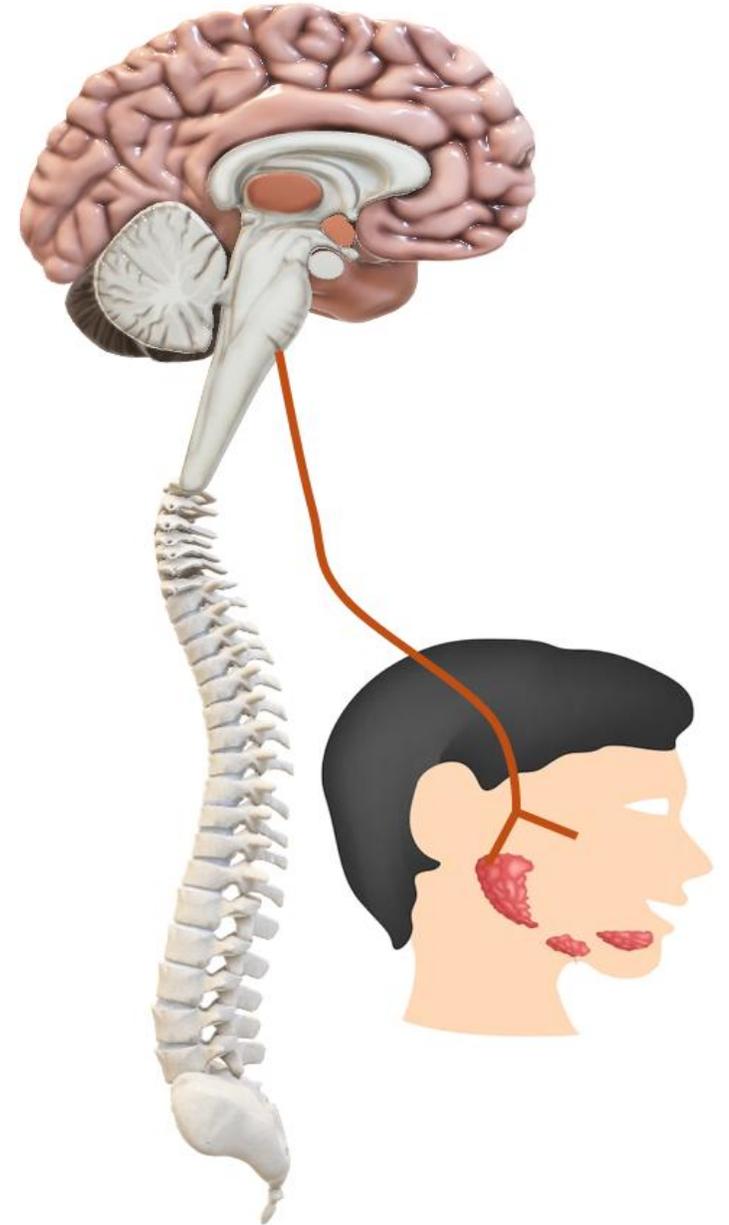
Lecture 5

Physiology of saliva

Editor →

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Functions of saliva

I- Protection:

- A. The lubricant saliva form a barrier that protect the oral mucosa against mechanical trauma and microbial toxins.
- B. Saliva decreases the thermal shock of foods or fluids.
- C. Washing action of saliva push away the debris from the teeth.
- D. Saliva dilute the sugar which limits action of acidogenic bacteria.
- E. Repeated swallowing of saliva carries millions of bacteria from the mouth to the stomach, where they are cleansed by stomach acids.



Functions of saliva

II- Digestion:

- 1. Lubrication and moistening of food:** Mucus saliva moistens dry food, making it easier to chew, form into a bolus, and swallow.
- 2. Initiation of starch digestion:** Salivary amylase enzyme (ptyalin) begins the breakdown of starch (polysaccharides) into maltose and dextrin.
- 3. Initiation of lipid digestion:** Lingual lipase begins the breakdown of triglycerides into fatty acids and monoglycerides.
- 4. Facilitation of taste:** Saliva dissolves food substances, allowing taste buds on the tongue to detect flavors.
- 5. Buffering action:** Bicarbonate ions in saliva help maintain the pH around 6.8–7.0, which is optimal for amylase activity.



Functions of saliva

III- Antimicrobial:

a) Lysozyme enzyme:

- Breaks down the peptidoglycan layer in Gr +ve bacterial cell walls.

b) Peroxidase enzyme:

- Oxidize bacterial enzymes and cell membrane, leading to bacterial death.

c) Lactoferrin:

- **Bacteriostatic:** Binds with salivary **iron** needed for bacterial growth.
- **Bactericidal:** Damages bacterial membranes directly.

d) Histatins:

- **Bactericidal action:** Damages bacterial cell walls and interfere with bacterial metabolism.

e) Saliva flow:

- Physically flushes away bacteria, reducing bacterial number in the mouth.

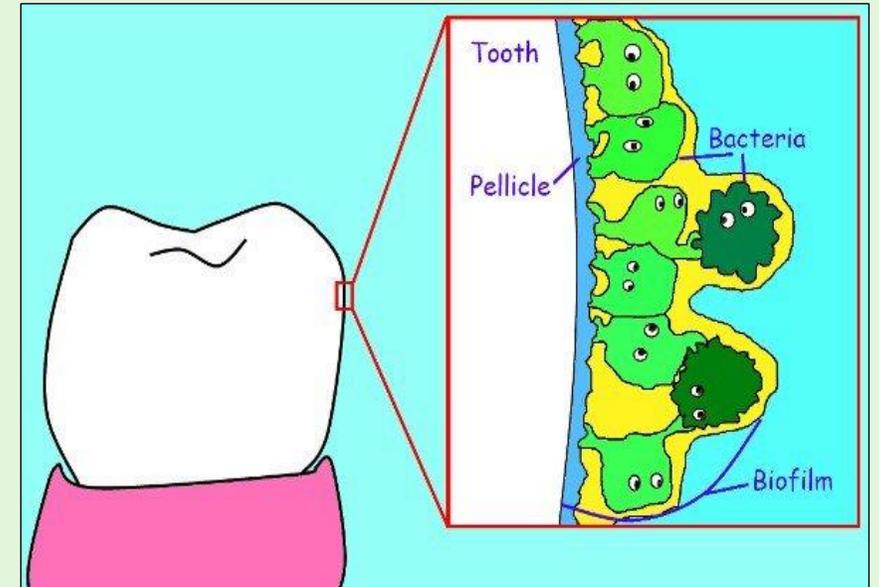


Functions of saliva

IV- Maintenance of tooth integrity:

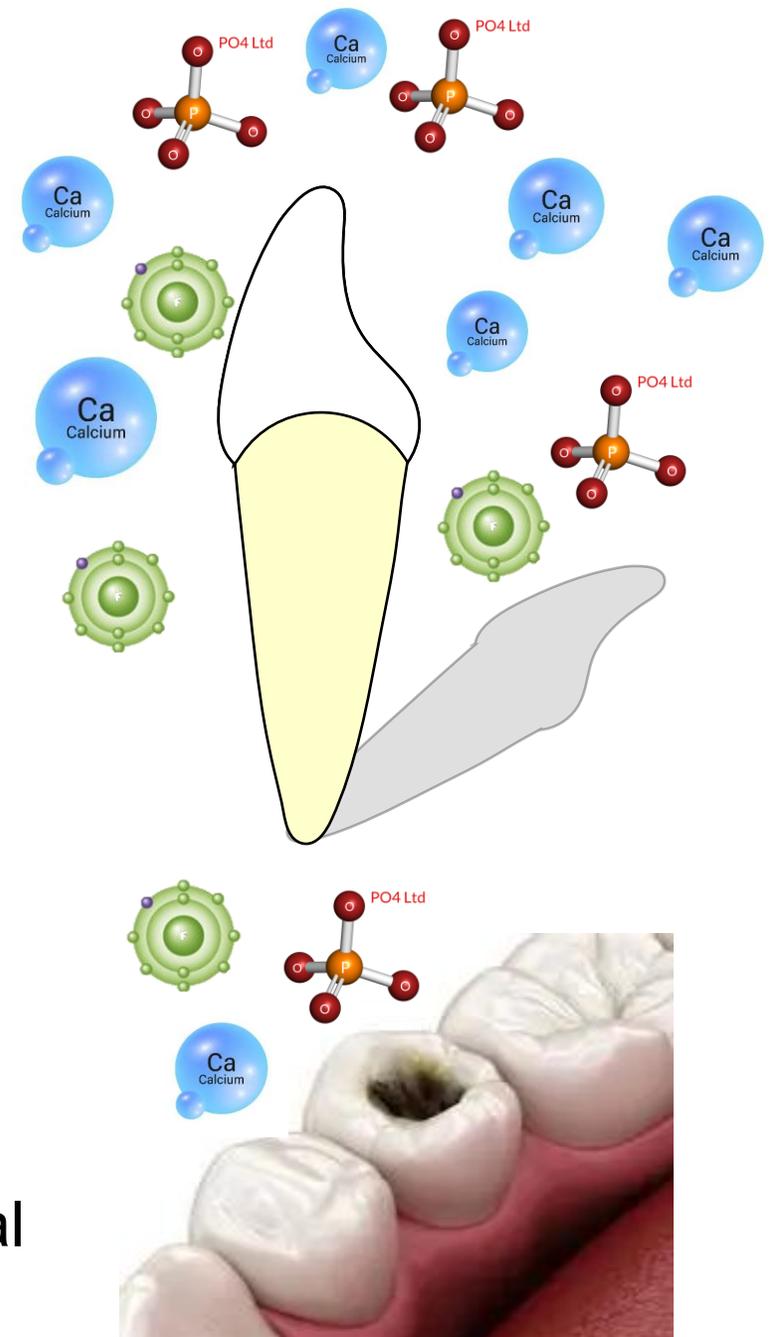


- a) Clearance of the oral cavity from food debris.
- b) Dilution of acids entering the oral cavity.
- c) The buffering action of saliva neutralizes the acidic environment favorable for bacterial growth, thereby reducing the risk of dental caries.
- d) The mucins and glycoproteins in saliva form a **protective pellicle layer** on the tooth surface that protect against acids and mechanical wear.



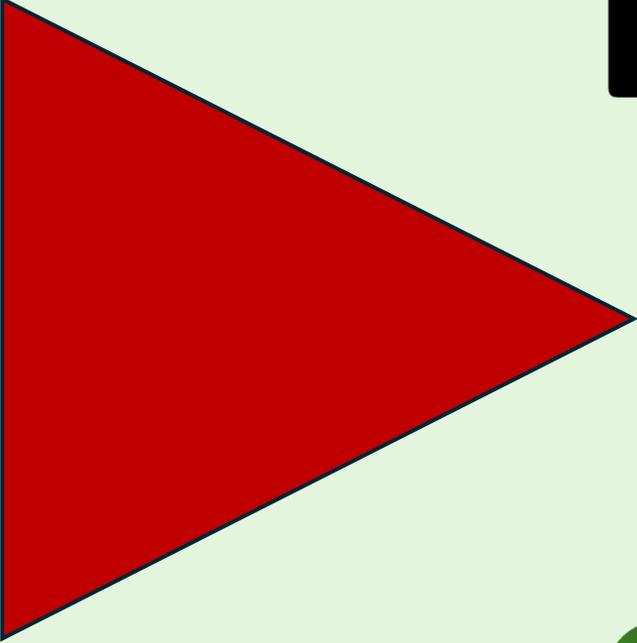
e) Maintenance of enamel calcification.

- i. Calcium and phosphate ions in saliva are redeposited into enamel crystals, restoring its hardness and integrity.
- ii. Saliva provides calcium and phosphate ions promote remineralization of **early enamel caries** and enhance tooth strength.
- iii. Fluoride ions enhance enamel remineralization by formation of fluorapatite. Fluoride ions inhibit enamel demineralization.



f) PH stabilization after meals:

After eating, salivary flow increases and quickly raises oral pH, protecting enamel from prolonged acid exposure.



Thank you,

my dear

students