

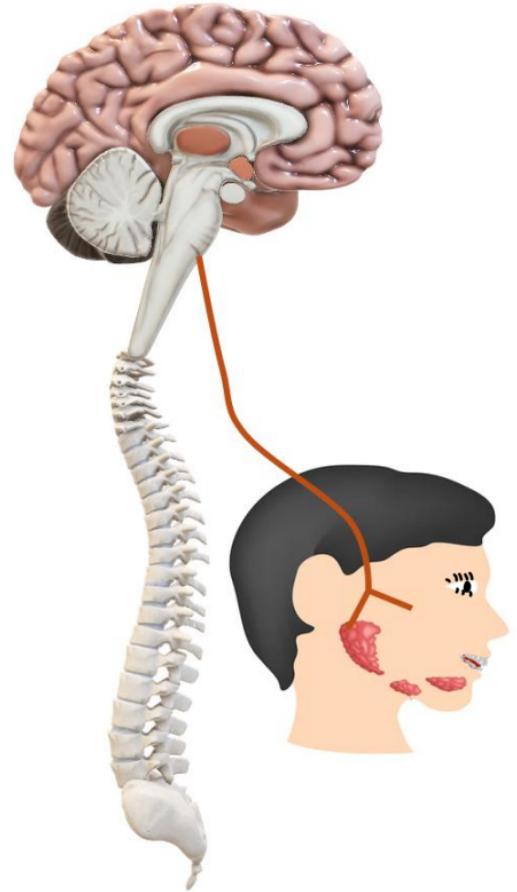
## Lecture 5

# Physiology of saliva

Editor →

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2025



# Functions of saliva

Secretion of mucous saliva → Mucigen

≈ ≈ Serum Saliva → Zymogen

## 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.

عزل حراري جزئي في الفم يفتت تأثير الحرارة على الجسم

C. Washing action of saliva push away the debris from the teeth.

إزالة البقايا من على اللسان والعضلات بين الأسنان

D. Saliva dilute the sugar which limits action of acidogenic bacteria.

تخفيف السكريات بمتابعة في الفم

تقلل من نشاط بكتيريا مولدة للأحماض

E. Repeated swallowing of saliva carries millions of bacteria from the mouth to the stomach, where they are cleansed by stomach acids.

بلع

تفتين لبني للمعدة  
جر البقايا



ها هي البكتيريا  
تفتح اذعان لسبب  
فتر الأسنان

amylase enzyme ← يستعمله في إبقاء  
 ناع العدة ← لأنه ما يستعمل في المعدة  
 \* فتحة المعدة جذاً →  
 lipase → تفتت فضولة في المعدة  
 دهون بترك نشاطه في  
 acid

# Functions of saliva

\* حر هناك اختانات في  
 Secretion of Digestive enzyme according to the age  
 of the human?

Baby → Lipase  
 children → lipase  
 البالغين →  
 كالكثير لبيبي  
 كبار السن  
 يفتت في المعدة  
 قليل

## II- Digestion:

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

العاب يساعدين تسييل  
 الطعام لكتله تاليه للبلع وسهل لفتح الالب

starch (polysaccharide) → salivary amylase enzyme → maltose & dextrin

انزيم يفتت عذوبه

\* حل تفتت الطعام ولا digestion  
 \* protection → انما تفتت في المرأض سي  
 بيده عن كفي دياركت



# Functions of saliva



مضادات ميكروبية

## III- Antimicrobial: ⇒ { I<sub>g</sub>A, I<sub>g</sub>G, I<sub>g</sub>M }

a) **Lysozyme enzyme:** موت البكتيريا Bactericidal } Bacteriostatic → تثبيط البكتيريا  
• Breaks down the peptidoglycan layer in Gr +ve bacterial cell walls.

b) **Peroxidase enzyme:** → H<sub>2</sub>O<sub>2</sub> يستعمل عن طريق Hydrogen peroxide  
• 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:** { هستاتين } Histidine ⇒ Bacteria cell wall يكسر لا ⇒ يعوقها  
• **Bactericidal action:** Damages bacterial cell walls and interfere with bacterial metabolism.

e) **Saliva flow:** يغسل  
• Physically flushes away bacteria, reducing bacterial number in the mouth.

المنفعة «أبو»

# Functions of saliva

## IV- Maintenance of tooth integrity:



a) Clearance of the oral cavity from food debris.

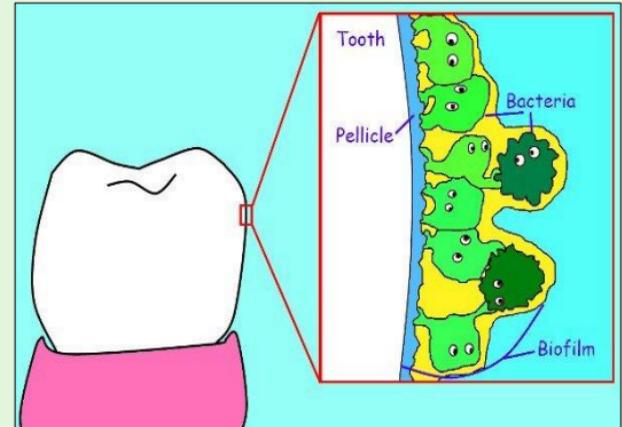
b) Dilution of acids entering the oral cavity.

كـم يفتـن سـائـر المـأكـلـات المـحـمـلة بـمـركـبـات مـن مـاء مـن مـنـا مـن

c) The buffering action of saliva neutralizes the acidic environment favorable for bacterial growth, thereby reducing the risk of dental caries.

PH تـزـيـد

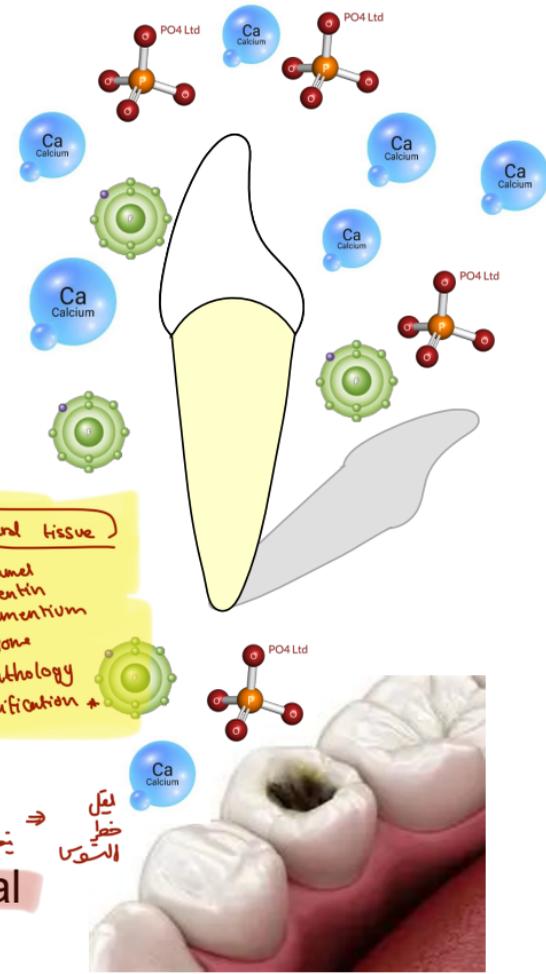
d) The mucins and glycoproteins in saliva form a protective pellicle layer on the tooth surface that protect against acids and mechanical wear.



## e) Maintenance of enamel calcification.

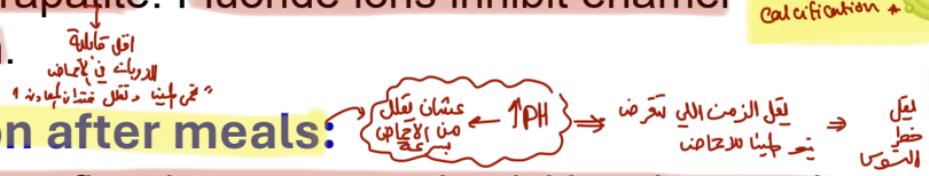
- $Ca + P$
- i. Calcium and phosphate ions in saliva are redeposited into enamel crystals, restoring its hardness and integrity.
 

من الزئافات الناتجة عن فقدان العظام  
↳ Remineralization
  - 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.

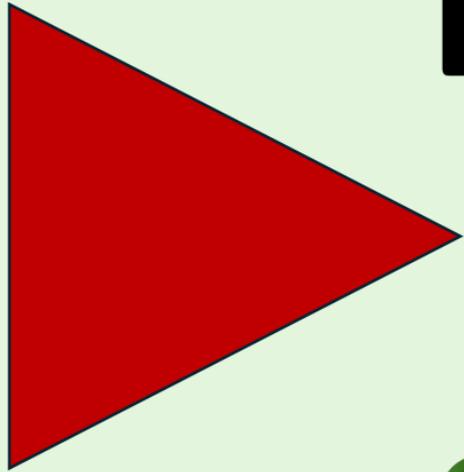


## f) PH stabilization after meals:

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



اقل قابلية  
للارتباط في الاحماض  
نجر لدينا ارتقل فتتزاك بعدا 1



**Thank you,**  
**my dear**  
**students**