

Welcome to Module 1

What is saliva?



Please review the course materials and complete the end of module questions to test your knowledge and gain CPD

WHAT IS SALIVA?

Definition: Watery substance in the mouth secreted by salivary glands

- 93% by volume is secreted by the major salivary glands and the remaining 7% by minor glands¹
- 99% of saliva is water and 1% is composed of organic and inorganic chemicals²
- While quantity of saliva is important so is quality as each of the components performs specific functions¹

Functions	Components
Lubrication	Mucin, proline-rich glycoproteins, water
Antimicrobial action	Lysozyme, lactoferrin, lactoperoxidase, mucins, cystins, histatins, immunoglobulins, proline-rich glycoproteins, IgA
Maintaining mucosa integrity	Mucins, electrolytes, water
Cleansing	Water
Buffer capacity and remineralisation	Bicarbonate, phosphate, calcium, staterin, proline-rich anionic proteins, fluoride
Digestion	Amylase, lipase, ribonucleases, proteases, water, mucins
Preparing food for swallowing	Water, mucins
Taste	Water, gustin
Phonation	Water, mucin

Saliva plays an important role in **maintaining the integrity of oral structures**, in personal relationships, in digestion and controlling oral infection.¹

One of the most important functions of saliva is to **remove microorganisms and dietary components from the mouth**.¹ Saliva acts as the **first defence against mechanical, chemical and infectious attacks** by protecting against numerous oral bacteria and fungus.²

Another key role of saliva in the oral cavity is the **formation of the salivary pellicle**, a tissue coat or blanket that covers the mucosal surfaces and teeth.³ This provides a **physical barrier for the underlying structures**. When saliva is reduced the oral mucosa becomes vulnerable to physical, chemical and microbial insult. Lack of salivary pellicle can subject patients to mucosal allergies to some foods, drinks, dental hygiene products and dental materials.

When salivary pellicle is lacking it reduces tissue lubrication, subjecting the mucosa to traumatic ulcers, especially of the tongue and cheeks.

Salivary glycoproteins, particularly mucins, **maintain the coating and lubrication of the oral mucosa and facilitating speech maintain the coating**. Several salivary proteins possess antimicrobial functions. Salivary enzymes such as lysozymes and lactoperoxidase help to control oral infections and help to reduce gingival inflammation.^{3,4}

THE ROLE OF SALIVA IN PROTECTING AGAINST CARIES

- Diluting and eliminating sugars and other substances
- Buffering capacity – resulting from bicarbonate, phosphate and some protein systems
- Balancing demineralisation/remineralisation – at a pH greater than 6 saliva is supersaturated with phosphate (which forms hydroxyapatite). When pH falls below the critical level 5.5 the HA begins to dissolve, freeing phosphates that attempt to restore the pH balance
- Antimicrobial action

Dawes established a sugar clearance model based on the knowledge of unstimulated salivary flow and volume of saliva before and after swallowing food. A high volume of saliva at rest increases the speed of sugar removal, explaining the increased risk of caries in patients with a low unstimulated salivary flow rate.¹

It was also found that sugar clearance does not occur equally in all areas of the mouth. It is faster in the areas closest to where salivary ducts drain into the mouth as it circulates faster there than where it forms a pool. Clearance from the mucosa and the teeth also varies. On the teeth clearance will be slower from surfaces that are more retentive and more difficult for saliva to reach.

References

1. Puy CL. The role of saliva in maintaining oral health and as an aid to diagnosis. *Med Oral Patol Oral Cir Bucal* 2006;11: E449-55
2. Cassolato S and Turnbull R. Xerostomia: clinical aspects and treatment.
3. Al-Hashimi I. The management of Sjögren's Syndrome in dental practice. *JADA* Vol 132, October 2001.
4. Singh M and Tonks RS. Management of salivary hypofunction. *Pharm Anal Acta* 2015; 6(2).

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Module 1!

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