

What is Saliva?

- Mixed solution (90% from parotid); 99.5% water, 0.5% solids
- pH 6-7
- Inorganic (Ca^{2+} , Na^{++} , K^{++} , F^{-}); Organic (Urea, Uric acid, amino acids, glucose); Macromolecules (proteins, lipids, fatty acids)
- Functions- Protective, Digestive, Control of water balance, Other (denture retention, lubrication)
- Salivary flow rates- Un-stimulated = 0.3mls/min

Where does Saliva come from?

Major Glands- Parotid, Sub mandibular and Sub lingual

Minor Glands- Almost every part of the oral cavity except anterior hard palate and gingiva.

What do patients complain of?

Patients will often complain of a dry feeling of the mouth. There may be difficulty with speech (dysarthria), swallowing (dysphagia), eating or taste (dysgeusia)

It must be noted that the term Xerostomia refers to the symptom of dry mouth and may be caused by hypo salivation or a feeling of dryness through a changed sensation (dysaesthesia).

Functions- Saliva is associated with

Caries prevention

Digestion

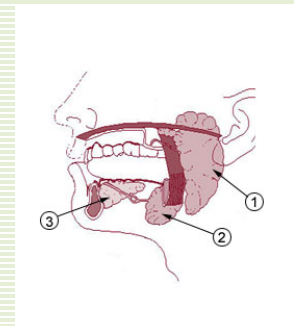
Water Balance

Speech

Taste

Denture retention

Major Glands



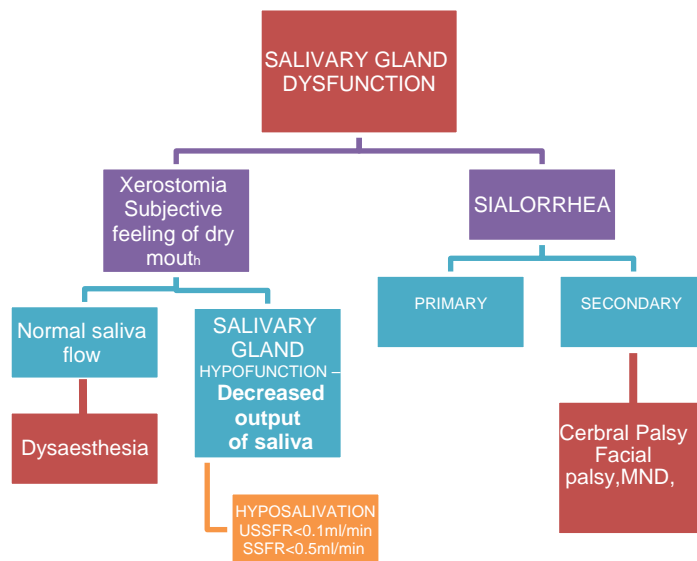
1= Parotid; 2= Sub Mandibular;
3= Sub lingual

Symptoms

- Dry feeling
- Burning feeling
- Taste disturbance
- Drooling
- Speech difficulties

Salivary Gland Dysfunction

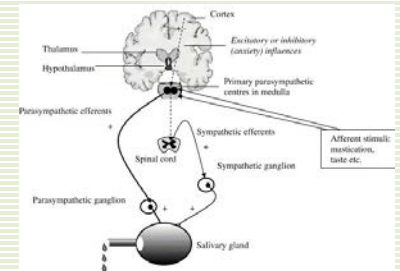
Dysfunction (Dry feeling or excess) can be due to physiological, immune related or Medication induced. It is important to determine at the outset, the clinical saliva flow. Un-stimulated saliva flow rates range greater than 0.3mls per minute are normal.



Neural control

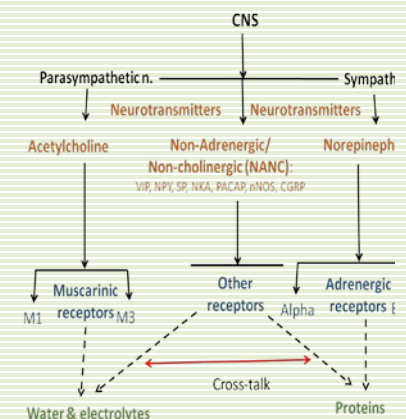
Reflex salivary secretion is dependent upon simultaneous activation of the parasympathetic and sympathetic pathways resulting in an enhanced secretion of protein and fluid.

Normally, there is no peripheral sympathetic inhibition



Proctor G & Carpenter. *Auton Neurosci* 2007

(Wolff et al 2014)



Saliva and Saliva dysfunction

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Salivary Gland dysfunction (SGD)

Aetiology	Hypo salivation	Hyper salivation	Dysaesthesia
Disease	Diabetes, Immune (Sjorgrens, Sarcoid)	Rabies, GI reflux, Oral infections	BMS, Mucosal disease,
Medication	Xerogenic medications	Clozapine, Pilocarpine, Ketamine, Respiradone	
Other	Radiotherapy	Mercury, Copper, Arsenic	Surgical

Management:

Symptomatic management may involve Dry Mouth products such as Biotene gel, moisturiser, GC products, non sugar chewing gum.

Flouride, Chlorhexidine Mouth washes

Patient should be reviewed by own dentist for control and management of dental problems

Refer Patient to Oral Medicine for general work up and diagnosis of underlying cause and management

Oral Medicine Management: this may include blood tests, Saliva Flow, minor salivary gland biopsy.

Use of medication and review

Medications related to Hyposalivation:

Analgesics

Appetite suppressants

Anti-acne

Anti-arthritic

Anti cholinergics

Anti Diarrhoea

Anti-emetics

Anti-histamines

Anti-hypertensive

Anti-Parkinson's

Diuretics

Psychotropic

Anti-psychotics

References

1. **Percival, R.S., Challacombe, S.J., Marsh, P.D.**- Flow rates of resting whole and stimulated parotid saliva in relation to age and gender. J Dent Research 1994, Vol 73(8): 1416-20.
2. **Thomson WM, Chalmers JM, Spencer AJ, Slade GD.** Medication and dry mouth: findings from a cohort study of older people.J Public Health Dent. 2000;60:12-20.