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# Dry Mouth and Associated Conditions

**Description:** Dry mouth or xerostomia can be defined as a symptom due to less saliva production or not enough saliva in the mouth. Patients can complain that they feel like having sand in the mouth. This is an oral problem that affects populations worldwide. Saliva maintains the oral cavity ph and buffering capacity. This prevents the formation of an acidic environment that would favor tooth demineralization. In addition, saliva provides a supply of calcium and phosphate, two key substrates for dental remineralization. Saliva contains proteins such as antibodies that enhance local defenses against infection. One of the most important functions of saliva is to provide moistening of the oral mucosa and to promote and facilitate food digestion. Therefore, less or no saliva in the mouth can severely affect oral functions and decrease quality of life.

There are two main reasons for the development of dry mouth. Patients can have a decrease in saliva secretion or develop pathological dysfunctions of the salivary glands.

**Decrease in saliva secretion:** this can be a physiological effect of sleep and aging. However, more severe factors include the use of medication, diabetes and other hormonal changes, and radiation therapy involving the salivary glands (**this will be specifically discussed in Chapter 11**).

**Pathological dysfunctions of the salivary glands:** infections, tumors and autoimmune diseases such as Sjogren’s syndrome are the main conditions affecting saliva secretion.

**How to diagnosis dry mouth?** The diagnosis of dry mouth can be suspected when taking patient history. Patients commonly complain that there is a sensation of having sand in the mouth, mouth burning, lack of taste, difficulty in chewing and swallowing, difficulty in sleeping, and having to drink water all day long. Table 1 shows examples of questions that can be asked during patient interview.

Do you sip liquids to aid in the swallowing of foods?

Does your mouth feel dry when eating a meal?

Do you have difficulty swallowing any foods?

Does the amount of saliva in your mouth seem too little?

**Table 1.** Specific questions regarding the presence of dry mouth.

In addition to the history, clinical examination can also help in finding signs that would indicate dry mouth:

Ropey saliva
Dry tissues, pale or red, and atrophic
Tongue may be devoid of papillae, fissured, inflamed
Multiple cervical caries

The quantity and quality of the saliva can also be helpful. One can determine salivary gland output and observe the characteristics of the salivary secretion, looking for color, consistency (serous or mucous), and turbidity. Normal salivary secretion is clear and mostly fluid. Changes in consistency and turbidity could indicate the presence of infection.

Whole Saliva Flow Rates (ml/min)		
	Normal Flow Rates	Abnormal Flow Rates
Unstimulated (resting) Whole Saliva*	0.3-0.4	<0.1
Stimulated Whole Saliva*	1-2	<0.5
*Whole saliva is the total output of saliva from the major (parotid + submandibular + sublingual) and minor salivary glands plus the gingival crevicular fluid		

Excessive buccal caries in a patient taking xerostomic medication and with poor oral hygiene and cariogenic diet



Tongue depapillation in a patient with undiagnosed diabetes and dry mouth. There was also presence of candidiasis



Sjogren's patient. Notice swelling of the right parotid gland and severe dryness of the oral tissues with evidence of excessive decay



## Additional Reading

Sreebny LM & Vissink A. Dry mouth. A malevolent symptom: A clinical guide. Blackwell Publishing first edition 2010, Iowa 50014-8300, USA.