

Salivary glands: Their role in maintaining normal saliva production

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Description

Salivary glands play a pivotal role in maintaining oral health and overall well-being by producing saliva, which is essential for various physiological functions. These glands ensure that saliva is produced and secreted at appropriate levels, supporting processes such as digestion, oral hygiene, and taste. The human salivary system comprises three major pairs of glands: The parotid, submandibular, and sublingual glands. Each gland contributes uniquely to saliva production and secretion. The parotid glands, located near the ear, primarily secrete serous, enzyme-rich saliva that begins the digestion of carbohydrates. The submandibular glands, situated beneath the jaw, produce a mixed secretion of serous and mucous saliva, which aids in both digestion and lubrication. The sublingual glands, found under the tongue, primarily secrete mucous saliva, which provides lubrication and contributes to the formation of the food bolus.

Saliva production is regulated by both autonomic nervous systems, with parasympathetic stimulation increasing salivary flow and sympathetic stimulation decreasing it. The parasympathetic nervous system, activated by stimuli such as the sight or smell of food, promotes saliva secretion to prepare the mouth for digestion. This system triggers the release of neurotransmitters that stimulate the salivary glands to produce and release saliva. Conversely, the sympathetic nervous system can reduce saliva production during stress or dehydration, prioritizing other physiological needs. Saliva performs several vital functions. It initiates the digestion of carbohydrates through the action of salivary amylase, an enzyme secreted by the parotid glands. Saliva also aids in the lubrication and binding of food particles, facilitating the formation of a cohesive food bolus that can be easily swallowed. Additionally, saliva acts as a buffer, neutralizing acids in the mouth and helping to maintain oral pH balance, which is essential for preventing dental erosion and supporting the health of the oral mucosa.

Another significant role of saliva is its contribution to oral hygiene. Saliva contains antimicrobial agents, such as lysozyme and immunoglobulins, which help control microbial growth and reduce the risk of infections in the mouth. By washing away food particles and microorganisms, saliva helps prevent the accumulation of plaque and the development of dental caries and gum disease. The regulation of saliva production involves

complex feedback mechanisms. When the mouth is dry, as in conditions of dehydration or during sleep, the salivary glands respond by increasing saliva production to restore moisture levels. Conversely, excessive saliva production can occur due to factors such as certain medications, gastrointestinal issues, or neurological conditions. The balance between saliva production and its consumption is essential for maintaining oral health and comfort.

Disorders of the salivary glands can significantly impact saliva production and overall health. Conditions such as xerostomia, or dry mouth, occur when the salivary glands do not produce enough saliva. This condition can result from various factors, including medications, autoimmune diseases, or radiation therapy for cancer. Xerostomia can lead to difficulties in chewing, swallowing, and speaking, as well as an increased risk of dental problems. Treatments for dry mouth may include saliva substitutes, medications that stimulate saliva production, and changes in lifestyle or diet. On the other hand, conditions such as sialorrhea, characterized by excessive saliva production, can also pose challenges. Sialorrhea can result from neurological disorders, infections, or side effects of medications. Managing excessive saliva production may involve addressing the underlying condition, using medications to reduce salivation, or employing techniques to improve swallowing and oral control.

Conclusion

In conclusion, salivary glands play an essential role in maintaining normal saliva production, which is vital for digestion, oral hygiene, and overall oral health. The coordination between the major salivary glands and the autonomic nervous system ensures that saliva is produced in appropriate quantities and compositions to support various physiological functions. Disorders affecting saliva production can impact oral health and comfort, highlighting the importance of maintaining salivary gland function and addressing any issues that arise.

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