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Salivary Gland

Wednesday, January 09, 2008

11:00 AM

1. States the major components present in salivary secretions.
 - a. H₂O - moisten mouth and wash away dissolved food (necessary for taste)
 - b. Ions (HCO₃⁻ - neutralizes acids in food and regurgitated stomach acid, K⁺)
 - c. Amylase - partial digestion of polysaccharides
 - d. Antibacterial compounds
 - i. Lysozyme
 - ii. Lactoferrin
 - iii. IGA
 - e. Mucus - lubrication of food
 - f. Ca²⁺, fluoride maintain teeth
2. States the substances and digestion products of salivary amylase.
 - a. Cleaves alpha1,4 bonds in starch
 - b. Can break down up to 50% of starch before being inactivated by stomach acid
 - c. Normally makes up about 10% of amylase
3. Describes the contribution of salivary amylase to the digestion of carbohydrates in the stomach: begins breakdown of starch
4. Describes the function of salivary mucus: lubricates food.
5. States the types of stimuli that increase salivary secretion
 - a. Taste
 - b. Smell
 - c. Chewing
 - d. Inhibited by sleep, fatigue, fear
6. States the effects of parasympathetic and sympathetic stimulation on salivary secretion.
 - a. Oral mechano and chemo receptors (chewing and acids)
 - b. Intestinal and central chemoreceptors (vomiting)
 - c. Send signal to CNS
 - d. Parasympathetic begins in salivatory nuclei and carried along V, VII, IX cranial nerves
 - e. Ach is major transmitter, anticholinergics result in dry mouth
 - f. Sympathetic innervation acts on glandular beta-adrenergic receptors to decrease salivation
 - g. Aldosterone modifies ionic composition by decreasing Na⁺ (increases K⁺)
7. States the components of the saliva important in oral hygiene.
 - a. Antibacterial compounds keep bacteria free and prevent bad breath
 - b. Ca²⁺, fluoride strengthen teeth
8. Describe the major ionic components of saliva and the role of acinar and duct cells in the production of saliva.
 - a. High resting blood flow
 - i. Increased by parasympathetic innervation
 - ii. Release of local mediator Kallikrein --> bradykinin (vasodilator)
 - b. Glands are acinar-ductular in structure
 - i. Parotid - serous - 25%
 - ii. Sub-mandibular - mixed - 70%
 - iii. Sub-lingual - mucous - 5%
 - iv. Basal rate: 0.25 ml/min; up to 5-10 ml/min
 - v. Hypotonic, alkaline
 - c. Acinar cells
 - i. Serous - secrete watery fluid containing proteins (amylase)
 - 1) Plasma like in composition of major ions
 - ii. Mucous

- d. Ductal cells
 - i. Na^+ , Cl^- reabsorbed
 - ii. Na^+/K^+ ATPase
 - iii. $\text{Cl}^-/\text{HCO}_3^-$ exchanger
 - iv. As saliva travels it becomes hypotonic
- e. Myoepithelial cells - contractile - cause saliva to spray out of ducts
- f. Xerostomia - dry mouth
 - i. Caused by drugs, head and neck radiation, Sjogrens syndrome
 - ii. Absence of saliva leads to infections, tooth decay, severe discomfort