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THE COMPOSITION OF SALIVA IN THE ORAL CAVITY AND ITS ROLE IN THE HARD TISSUES OF THE TEETH

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Abstract: In and around the oral cavity are exocrine salivary glands, which are anatomically independent organs, which produce salivary fluid for the oral cavity. The largest of these glands are: parotid glands, submandibular glands, and sublingual glands. In addition, countless small glands are scattered throughout the mucous membrane of the oral cavity. The liquid secreted by these glands is called saliva. After saliva is secreted into the oral cavity, it mixes with the free waste products present in it and is called mixed saliva or "oral fluid".
KeyWords: Saliva, protection, hygiene, lysozyme, mucin, calcium, magnesium, carbohydrates.

Saliva is a secretion of the salivary glands. Mixed saliva includes secretions of the 3rd pair and minor salivary glands. Mixed saliva contains fragments of salivary gland cells and proteins formed from epithelial cells of the mucous membrane. The amount of saliva secreted per day is 1-2 l. Saliva secretion can occur by conditioned reflex and unconditioned reflex.
The main functions of saliva are:
-digesting carbohydrates;
-protective function;
-participating in speech;
-barrier function;
-carried out with the participation of some special proteins. These include lysozyme, IgA, and some blood clotting factors.
-A source of minerals for the enamel layer. Saliva has a unique physicochemical composition, is a colorless liquid, has a high viscosity due to the presence of glycoproteins, and has a density of 1.001-1.017. The pH of saliva is 6.4-7.0, which is related to the hygienic condition of the oral cavity, the nature of food, and the rate of secretion. A decrease in the rate of secretion reduces the pH of saliva. A decrease in the pH of saliva accelerates the development of caries. Saliva is 99.5% water in chemical composition, the rest is mineral substances and organic compounds dissolved in this water. The organic substances of saliva are proteins synthesized in the salivary glands and outside them. The concentration of proteins in saliva ranges from 1 to 4 g/l. When examining saliva from the parotid gland, it was found that the composition of saliva varies depending on age. In children under 14 years old, it varies from 2.5 to 3 g/l, in people from 14 to 20 years old - up to 6-7 g/l, and in adults up to 3 g/l. This is explained by the intensity of protein processing in the salivary glands. Glycoproteins-mucins and IgA are secreted from the salivary glands. Some blood proteins, enzymes, IgG, IgM, transferrin, ceruloplasmin, salivary lysozymes-up to 50 carbohydrate-containing glycoproteins, carbohydrate components-N-acetylgalactosamine, fructose, galactose, sialic acids are found in saliva. The function of salivaparotin (molecular weight-15 kDa) is to bind calcium in saliva. Phosphoprotein-calcium binding protein is similar in origin to hydroxyapatite. It participates in the formation of tartar and caries. At the same time, saliva contains urea, uric acid, free amino acids, nucleotides, non-protein nitrogen compounds. Saliva

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contains free monosaccharides from carbohydrates, steroids in mixed saliva, free fatty acids, phospholipids and some vitamins B1, B2, B3, PP, B6, folic acid. According to the mineral composition, saliva stores 20 mEq/l Na+, 20-4 mEq/l Cl-. An increase in the concentration of calcium in saliva causes salivary stone diseases and can lead to the development of stones in the ducts of the salivary glands. The amount of phosphorus in saliva is usually 5-10 times higher than in the blood, and is mainly found in the form of hydrophosphates and dihydrophosphates. Along with this, saliva also contains magnesium, zinc and copper. The concentration of other minerals varies depending on the diet.

Blood		Saliva	
Ca,Mg	P,Mg	Ca,Mg	P,Mg
10,9+- 0,6	3,3 +- 0,5	8,2+-0,2	15,2+-1,2

An increase in the amount of Ca and P in saliva causes the following: - Prevents enamel dissolution. - Provides the passage of Ca and P ions to the enamel. - Provides the pH of saliva. The change in pH to the alkaline side is associated with an increase in the amount of Ca and P in saliva. If the pH of saliva decreases, then this is due to a deficiency of Ca and P. In addition to ligases, saliva contains about 30 enzymes. All of them are synthesized by the salivary glands and enter the saliva through broken cells or blood. Alpha amylase is synthesized in the saliva of humans, dogs, and cats, but alpha amylase is not stored in horse saliva. The activity of alpha amylase changes in various pathological conditions. For example, in mixed saliva, its amount increases by 20-30 times during inflammation of the pancreas. Normally, pancreatic alpha amylase is stored in saliva. The amount of alpha amylase also increases in patients with diabetes. Lysozyme, which is found in saliva, has a bactericidal effect and catalyzes the hydrolysis of 1,4-glycosidic bonds in glycosaminoglycans and N-acetylmuramic acid. It is processed by the salivary glands. The molecular weight of lysozyme is 15-17 kDa and has an optimal effect at a pH of 5-7. It is synthesized by the parotid gland at a concentration of 0.5 mg/l.

The bactericidal properties of saliva in the oral cavity are due to the presence of leucines, lysozyme, opsonins and bacteriolysins in its composition. In addition to enzymes produced by bacteria, enzymes secreted by the salivary glands, mixed saliva also contains enzymes formed from the breakdown of leukocytes. It is worth noting that poor oral hygiene has led to the production of large amounts of organic acids by some strains of microorganisms. Organic acids, in turn, destroy the activity of the amylase enzyme and other enzymes contained in saliva. In addition, in addition to the important fibrinolytic and blood plasma-thinning properties of mixed saliva, its humoral, barrier, immune-supporting properties, and mechanical, chemical, and biological cleansing of the oral cavity are of great importance.

Conclusion: The process involving enzymes in the oral cavity largely depends on the amount, type, and microorganisms of food debris in the oral cavity, and the activity of this process is higher in cases of poor oral hygiene.

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