

Acuador 2015

Anatomy of a primary or permanent tooth

gingiva

Periodontal ligament



- Enamel Dentin Dental pulp (nerves and blood vessels)

Alveolar bone

To facilitate normal functioning of the masticatory system
Cutting
Tearing
Grinding

•To facilitate the child growth



To prevent tooth ache because of caries
To prevent complications of the dental caries and expensive dental treatments



To prevent development of infections in the head and neck region \rightarrow hospitalization



To prevent damage to the permanent developing tooth bud





To maintain space for the eruption of the permanent teeth that are located underneath the primary teeth Premature extraction of primary tooth may leads to loss of space







To prevent contagious of the disease to the adjucent young permanent erupting teeth







To enable normal speech developmentTo enable esthetic and beauty



Dental diseases

Periodontal disease



Dental caries





Prevalence of caries during childhood

The most prevalent chronic disease in children all over the world (5-55%) According to the CDC caries in children is the most prevalent infectious disease in USA About 40% of the children in kindergarten suffering from dental caries Caries is 5 times more prevalent than asthma and 7 times more prevalent than hay fever

American Academy of Pediatrics Policy Statement. Pediatrics 111:1113, 2003

Early Carious Lesions







Caries lesions in advanced stages

















Advanced caries lesions in radiographs









Types of treatments for dental caries (fissure sealants, restoration, crowns and extraction)









Factors needed for caries development



Main factors for caries development

Bacteria



Some facts about the oral bacteria that cause caries

There are 60-70 spices of oral bacteria These bacteria secrete sticky material for attachment to the tooth surface The bacteria with the sticky secretion is called dental plaque





Some facts about the oral bacteria that cause caries

Germ free rats do not develop caries even when they eat carbohydrates Rats with germs in the oral cavity develop caries when they eat frequently carbohydrates





Facts about oral bacteria that cause caries

The oral bacteria are transmitted between people like other infectious diseases





The children have half the amount of antibodies compared to adults. Therefore the children become infected more easily than their parents In order to decrease the level of transferred bacteria from the parents to their children, the parents have to treat and brush their teeth





Nannies with untreated caries lesions can transfer the infection to their babies
Chewing gum that contains xylitol 3 times a day decrease the transfer of bacteria from the mother to her child



The oral bacteria that cause dental caries consume the same carbohydrate

as we are







Carbohydrate Energy source





Carbohydrates Polysaccharides Chains of glucose and are found in bread, potatoes, rice and cereals





Carbohydrates digestion

Starts in the oral cavity – Amylase (present in the saliva's enzyme)

The amylase breaks the carbohydrate to disaccharide and release glucose to the oral cavity The sugars are digested almost immediately by the oral bacteria that convert them to acid that dissolve the enamel The rest of the carbohydrates are digested in the intestine

There is almost no food that does not contain carbohydrates or sugars

Bread, rice, potatoes, fruits, vegetables, milk, sweets



Therefore, we can not recommend not to eat carbohydrates or sugars to prevent caries





Studies' Results

White bread, cooked rice, carrot, apples- all increase the amount of the secreted acid The amount of secreted acid was similar after eating waffles, white bread and apples Chips , cornflex and raisins induces secretion of significant amount of acid Chocolate is one of the food that induces the least amount of acid secretion

Nevertheless, healthy food is more healthy to the body than sweets

Conclusion

Healthy food can induce caries sometimes as sweets





If we understand how cavity is developing

Development of a caries lesion



After each meal, the oral bacteria consume the carbohydrates/sugar that we eat and secret acid. Since the bacteria are attached to the enamel, the secreted acid dissolve the enamel and the calcium and phosphate get out of the enamel In electronic microscopy, the enamel looks like a sieve with very small holes



During the meal there is secretion of saliva (which is a buffer and super saturated with calcium) The saliva neutralize the acid and rematerialize the dematerialized enamel





If there is demineralization and re-mineralization- what the _____ problem??

The duration of time that takes to demineralization is minutes

The duration of time that takes the saliva to re-mineralize the enamel is minimum 2 hours (in young plaque), but it can takes even 8 hours- when there is old plaque and bad oral hygiene





The older the plaque, the more acid the bacteria secret and the more demineralization they cause





High frequency of eating/ drinking sugared drinks during the day , is one of the main risk factors for developing caries lesion







Number of caries lesions in relation to number of meals/day

Number of meals with carbohydrates/day	Number of caries lesions
12	0.7
18	2.2
24	4.0
30	4.7