

# Terapijski postupci: preporuke prehrane

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- ▶ Dental caries is a complex disease caused by an imbalance in the physiologic equilibrium between tooth mineral and biofilm fluid.
- ▶ It results from an ecological shift in dental plaque, from a healthy to a pathogenic flora.

# DENTAL CARIES

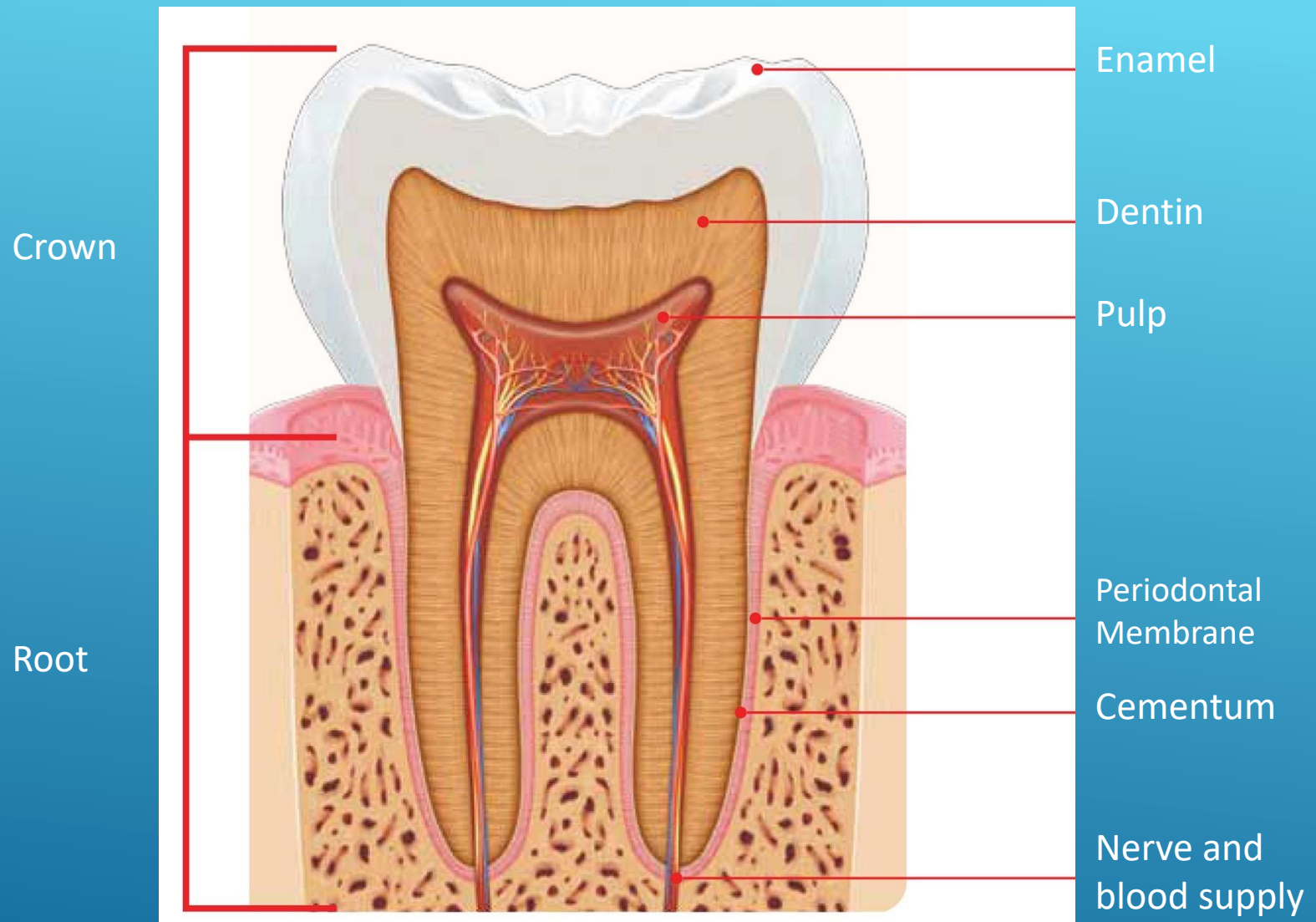
- ▶ Bacteria metabolize fermentable carbohydrates to form acid
- ▶ Acid causes demineralization
- ▶ Appearance of an early lesion
- ▶ Through time, the lesion develops into a cavity
  
- ▶ Caries is a dynamic process, not an end point. Before cavitation appears, this process may be arrested or reversed.

# CARIES OCCURANCE

- ▶ Bacterial metabolism activity causes demineralization of hard tissue but saliva offers periods of remineralization
- ▶ Continuous cycle that is dependent on:
  - ▶ Biofilm
  - ▶ Sugar - Ingestion and Frequency
  - ▶ Acid from Bacteria - Demineralization
  - ▶ Salivary Response - Remineralization
  - ▶ Oral hygiene and preventive control

# CARIES PROCESS





# HEALTHY TOOTH

- ▶ An individual's caries risk depends on factors such as:
  - ▶ Caries Experience (DMF-S – DMF-T)
  - ▶ Age (dentition)
  - ▶ Oral hygiene
  - ▶ Diet and eating habits
  - ▶ Salivary factors (buffer ability, flow, dry mouth)
  - ▶ Fluoride
  - ▶ Medication
  - ▶ Other oral health problems
  - ▶ Social attitude and economic situation
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- ▶ Consequently patients show widely different risk levels for caries

# CARIES RISK FACTORS

- ▶ No new caries lesions in last 3 years
- ▶ May have inactive white spots (smooth, shiny)
- ▶ Fluoride exposure
- ▶ Cariogenic bacteria levels low – *S. mutans*
- ▶ Normal diet - Low frequency sugar intake
- ▶ Normal saliva levels
- ▶ Caries experience DMF-T with  $D=O \leq$  country mean for age group\*
- ▶ Good oral self care

## CARIES LOW RISK FACTORS

- ▶ Past caries experience – 1 new caries lesion in last 3 yrs
- ▶ Moderate exposure to fluoride
- ▶ Cariogenic bacterial levels – Medium elevated
- ▶ Moderate sugar intake frequency
- ▶ Saliva flow - Normal or reduced (xerostomia)
- ▶ DMFS > 0 (or  $\geq$  country mean for age group\*)
- ▶ Fair oral self-care

## CARIES MODERATE RISK FACTORS



- ▶ Past caries experience (DMF-S  $\geq$  country mean for age group or 1 active lesion)
- ▶ Presence of susceptible tooth surfaces (white spot active lesions, exposed root surfaces, deep pits and fissures)
- ▶ Low or no exposure to fluoride
- ▶ Acid-producing bacteria (High *S. mutans* level  $\geq 1.000.000$  UFC/ml in saliva)
- ▶ Frequent sugar intake
- ▶ Impaired salivary function (low flow and poor buffering capacity)
- ▶ Poor oral hygiene (infrequent or inadequate tooth brushing)
- ▶ Limited access to dental care
- ▶ Low socio-economic status

## CARIES HIGH RISK FACTORS



# MAIN CAUSES OF CARIES DEVELOPMENT:

Cariogenic bacteria such as *S. mutans* metabolize sugar to make organic acids and extracellular polysaccharide

Organic acids cause pH drop

Extracellular polysaccharide allows for:

- increased adhesion of bacteria
- nutrient reserves
- increased porosity of matrix so fermentable substrates can diffuse to inner part of biofilm and be converted to acid at tooth surface

Plaque is a biofilm that forms naturally on the tooth surface

- Consists of a community of microbes embedded in an extracellular matrix of bacterial and salivary polymers

# NUTRITION INFLUENCE:

Cariogenic food poses a potential risk of caries  
contains digestible carbohydrates that plaque bacteria can  
utilize in their metabolism

eg: sugar and chocolate products, cakes and biscuits,  
pastries, fruit pies, puddings, sugar flakes, jam, jam, honey, ice  
cream, sugary fruits, compote, carbonated drinks, sugary milk  
based drinks, snacks, pretzels and chips, carbonated juices....

- ▶ Karyostatic food
- ▶ - does not contribute to the onset of caries
- ▶ - plaque bacteria do not metabolize
- ▶ - does not cause a drop in the pH of the mouth
- ▶ - creates a protective layer
- ▶ - proteins, dairy products, fats, vegetables

## KARYOSTATIC FOOD

# Anti-cariogenic food

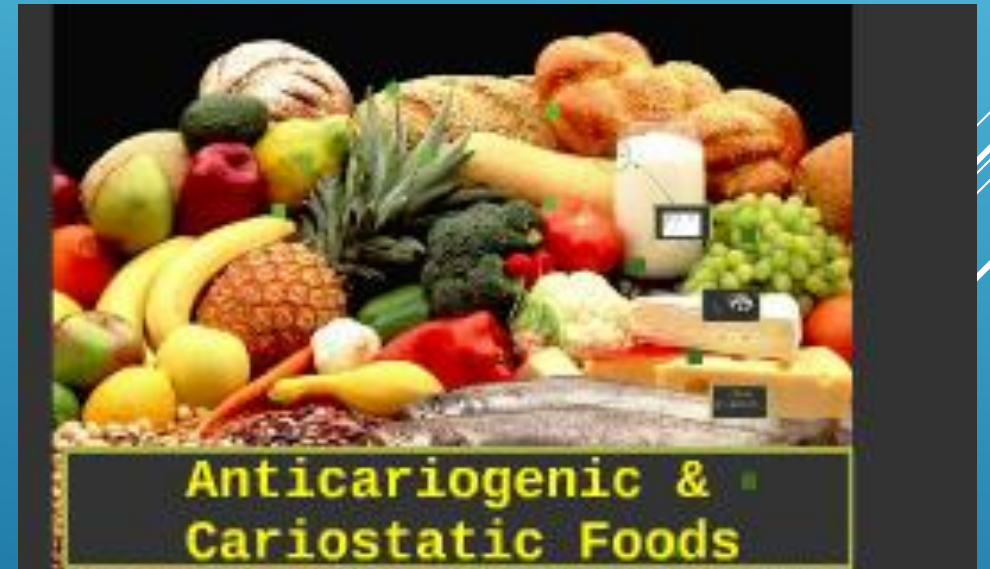
reduces the risk of caries in a child is the right choice of food type and its consumption

## *CARIOGENIC FOODS*

Fermentable carbohydrates, those that can be broken down by salivary amylase



Crackers, Carbonated drinks chips, pretzels, cereals, breads, fruits, sugars, sweets, desserts



- ▶ -carbohydrates (sugars, starch)
- ▶ -Fats
- ▶ -proteins
- ▶ -Vitamin
- ▶ -Minerals

MAIN GROUPS OF NUTRIENTS:


- ▶ -in sucrose, lactose, glucose; starch and fiber
- ▶ -fermentable carbohydrates = sugars, starch that nourishes bacteria
- ▶ - sugars in drinks and sweets increase energy and are stored as triglycerides → if they dominate the diet, caries risk increases

# CARBOHYDRATES

- ▶ Food consistency (mushy)
- ▶ Duration of exposure
- ▶ Frequency of food consumption
- ▶ Saliva runoff
- ▶ The existence of a buffer
- ▶ Oral hygiene

# CARIESOGENIC FACTORS



- ▶ 1. The time period during which food or drink is in contact with the teeth (smaller sips in the longer term are more dangerous)
  - ▶ 2. Daily amount of food (bigger quantity is more dangerous)
  - ▶ 3. Intermediates (acids are harder to neutralize and remove)
  - ▶ 4. The part of the day in which food is consumed (consuming at night when salivation is reduced increases the predisposition to caries)
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- ▶ lots of fruits and vegetables
- ▶ cheese to serve as a meal or snack
- ▶ drink milk or water instead of juice
- ▶ drink rather than sip on sweetened and sour drinks
- ▶ Avoid sweets that remain on the tongue
- ▶ avoid sticky foods
- ▶ take a sweet meal as part of a big meal, not as a snack

## FOOD RECOMMENDATIONS:

# TOOTH SNACK GUIDE



## LOW CARB FOODS:

- Raw veggies
- Cheese
- Nuts
- 100% Nut Butters
- All Meats
- All Fats
- Water (alkaline preferred)



## USUALLY WON'T CAUSE CAVITIES

- Whole/ Raw Milk
- Crunchy Fresh Fruit
- Whole Grain Bread
- Popcorn
- Dark Chocolate (>70%)
- Plain Yogurt
- Oatmeal
- Ice Cream (in moderation)



## EASILY CAUSES CAVITIES

- Candy- especially gummy
- Soda
- Juice
- Chocolate Milk
- Cookies
- Dried Fruit
- Crackers
- Oranges & Bananas  
(sticky fruit)
- Sports Drinks



THE BRUSH STOP  
Pediatric Dentistry & Orthodontics

- ▶ 1. Parent and patient education
- ▶ 2. Control of dental plaque
- ▶ 3. Use of fluoride
- ▶ 4. Fissure sealing
- ▶ 5. Consumption control -sugar

# INTENSIVE PREVENTIVE THERAPY

- ▶ consulting with a doctor of dental medicine - education on:
- ▶ proper baby teeth brushing techniques
- ▶ baby toothpaste
- ▶ fluoride preparations for coating teeth
- ▶ healthy nutrition of the child for the prevention of caries.

# ORAL HYGIENE

▶ [dnegovetic@sfzg.hr](mailto:dnegovetic@sfzg.hr)

THANK YOU!

