



ORAL HEALTH IN COMPREHENSIVE CLEFT CARE

An educational manual for oral health professionals

DAY 1



Supported by



WELCOME



PURPOSE AND GOAL

The purpose of this three-day course is to improve the oral health and long-term wellbeing of children who undergo cleft surgery. It is designed to ensure all members of the cleft care team are aware of the importance of oral health and can take an active role in preventing oral diseases.

LEARNING OUTCOMES

At the end of this course, you will:

- be aware of the importance of oral health;
- know how to prevent and identify oral diseases;
- know when to refer onwards;
- be prepared to disseminate what they have learned in their workplace.

INTERPROFESSIONAL COLLABORATION AND CLEFT CARE

Learning objective:

Understand the importance of interprofessional collaboration in the care of people with cleft.

WHY IS INTERPROFESSIONAL COLLABORATION IMPORTANT?

Interprofessional collaboration is defined as two or more healthcare professions working together with patient involvement to ensure informed and empowered choices. Shared decision making improves patient and professional relationships and also improves health outcomes.

Babies born with cleft have significant needs from a wide range of healthcare specialties, and the care they receive depends on many factors, including distance from the clinic, cost of treatment and parental knowledge and beliefs.

There may be an adverse effect on children's quality of life if they are not able to access the full range of services, especially speech therapy and oral healthcare.

EXERCISE

- How many people are involved in the care of a child born with cleft?
- How could you improve communication between teams at your facility?



THE DEFINITION AND CAUSES OF OROFACIAL CLEFTS

Learning objective:

Understand the definition and causes of cleft.

WHAT IS A CLEFT?

Cleft conditions occur when parts of the lip and/or palate and nose do not fuse together during embryonic development.

They can be divided into three general categories:

1. cleft palate alone;
2. unilateral or bilateral cleft lip, with or without cleft alveolus;
3. unilateral or bilateral cleft lip and cleft palate.



RIGHT COMPLETE CLEFT LIP



LEFT CLEFT LIP

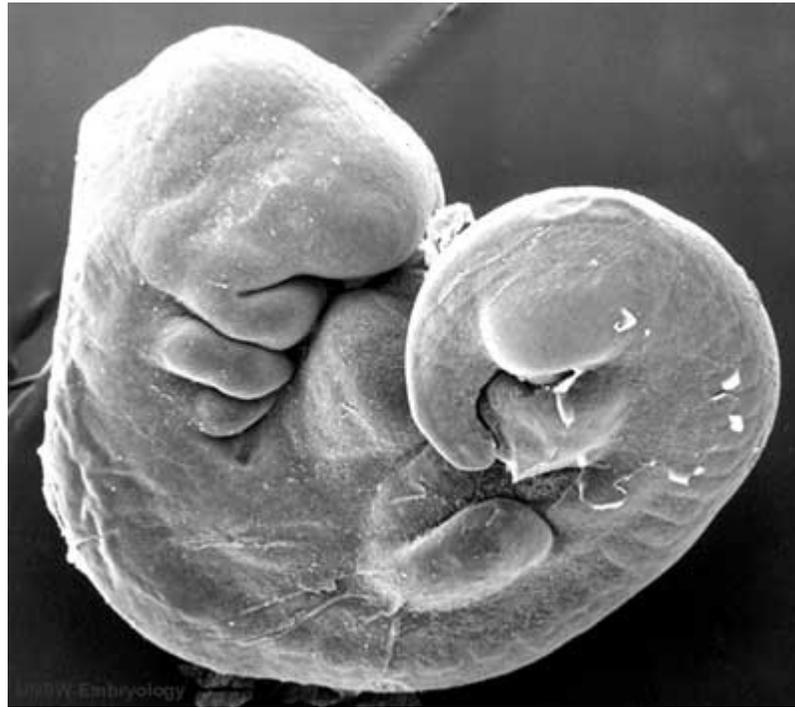


BILATERAL CLEFT LIP

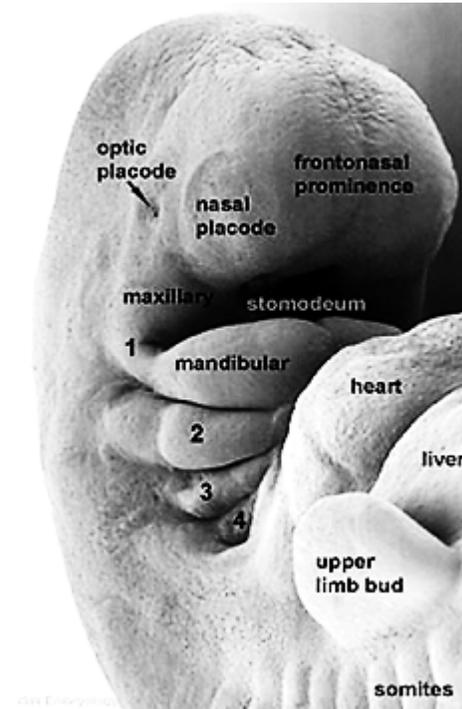


WITH OR WITHOUT ALVEOLUS

HOW DO CLEFTS DEVELOP?



EMBRYO AT 28 DAYS



EMBRYO AT 32 DAYS



EMBRYO AT 49 DAYS



EMBRYONIC DEVELOPMENT OF THE FACE

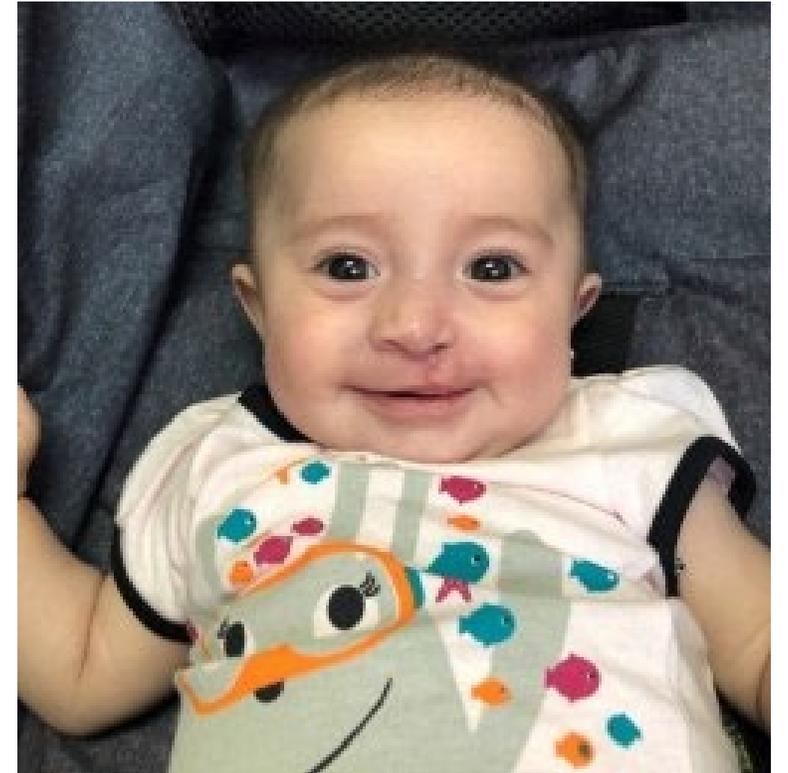
GENETICS AND EPIDEMIOLOGY OF CLEFT LIP AND PALATE

Genetics of cleft lip and palate

- Between 30%-50% of clefts are related to genetic factors. Cleft conditions can be categorized as syndromic or non-syndromic.

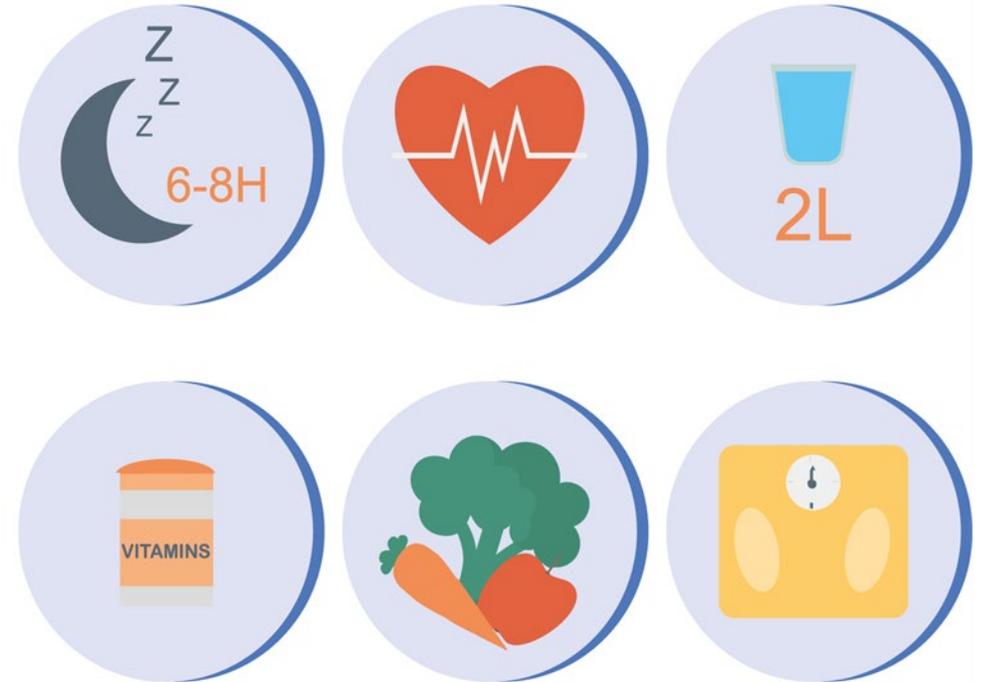
Epidemiology of cleft lip and palate

- At a global level, cleft conditions affect approximately 1 in 700 live births.



PREVENTION OF CLEFT

- Prenatal examination and genetic counselling
- Healthy and varied maternal diet
- Folic acid supplementation
- Carefully monitored medication use during early pregnancy
- Avoid of alcohol and tobacco during early stages of pregnancy
- Prevention of gestational diabetes mellitus and maternal obesity
- Stress control during early stages of pregnancy



ORAL HEALTH CONDITIONS COMMONLY ASSOCIATED WITH CLEFT

Learning objective:

Understand the conditions commonly associated with cleft, such as caries, periodontal disease and malocclusion.

ORAL HEALTH CONDITIONS COMMONLY ASSOCIATED WITH CLEFT

Children with clefts rarely escape dental complications.

This can be attributed to:

- dry mouth caused by mouth-breathing habits;
- less natural cleaning of the teeth due to the morphology;
- variable diet or feeding habits;
- dental anomalies;
- increased consumption of sweetened medications;
- delayed oral clearance time for foods.

WHY ARE PRIMARY TEETH IMPORTANT?

Taking care of primary teeth is important to:

- allow children to chew and eat properly;
- help children to speak more clearly;
- maintain space for the eruption of adult teeth;
- guide adult teeth into place;
- help to shape the infant's face;
- prevent early childhood caries;
- keep future dental costs to a minimum;
- offset the need for orthodontic treatment later;
- reduce the risk of caries in permanent teeth.



EARLY CHILDHOOD CARIES

Early childhood caries (ECC) is defined as the presence of one or more decayed, missing (due to caries) or filled tooth surfaces in any primary tooth.



Pedo Planet - Children Dental Centers, (Chennai, New Delhi), India. Centre for Early Childhood Caries Research (CECCRe), Sri Ramachandra Institute of Higher Education and Research, Chennai, India

GINGIVITIS

- The early stage of periodontal diseases is gingivitis.
- Gingivitis occurs when the gums around the teeth become red, swollen and bleed when brushed; it is reversible when treated quickly.
- The first sign can be blood on the toothbrush or after spitting out.
- In many cases, people will suffer from halitosis (bad breath).



PERIODONTAL DISEASE

The advanced stage of periodontal disease is periodontitis.

- Periodontitis is mostly seen in adults.
- As periodontal disease advances, the plaque biofilm moves below the gingival margin and destroys the periodontal fibres and bone supporting the teeth, making the teeth loose.



HOW CAN PERIODONTAL DISEASES BE PREVENTED?

- Good oral hygiene, especially with mechanical biofilm removal such as tooth brushing and interdental cleaning;
- Regular dental check-up and professional cleaning and scaling;
- Empowering people to take care of their general health and oral health;
- Promotion of the behavioral changes needed to prevent these conditions.



MALOCCLUSION

Malocclusion affects people with cleft at all ages.

Patients with cleft find it challenging to maintain good oral hygiene due to malocclusion.

After cleft lip and palate repair, the prevalence of malocclusion is 97%!



MALOCCLUSION IN DENTITION PHASES

Primary and mixed dentition phase:

Due to the impact of cleft lip and palate repair surgery, the maxillary bone development of patients is often insufficient. With the growth and development of the teeth, they gradually show obvious malocclusion, such as:

- anterior cross-bite;
- posterior cross-bite;
- maxillary anterior hypodontia or supernumerary teeth;
- upper front teeth misaligned or rotated;
- abnormal molar relationship.

Permanent dentition phase:

After cleft lip and palate repair, the prevalence of malocclusion is 97%. All patients with complete cleft lip and palate have malocclusion of the permanent dentition.

- In cleft lip, the most common are cross-bite and crowding of the upper teeth.
- In cleft lip and palate, the teeth near the fissure appear deformed and missing.
- In unilateral cleft lip and palate, maxillary midline deviation is common.

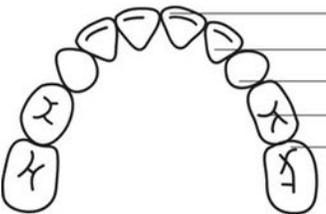
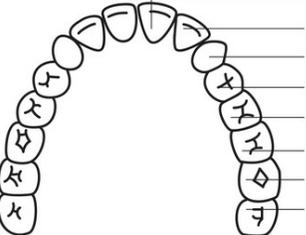
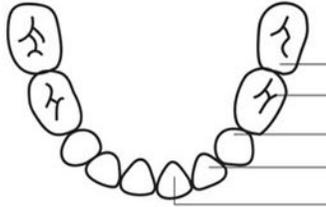
ABNORMALITY OF TOOTH ERUPTION AND TOOTH NUMBER

Abnormal tooth size and position are often present in patients with cleft.



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NORMAL DENTAL ERUPTION SEQUENCE

Baby teeth	Name of tooth	Time of toothing	Time of fall of the teeth	Looks so	Second teeth	Name of tooth	Time of toothing	Looks so
	Overhead teeth					Overhead teeth		
	Central incisor	8-12 months	6-7 years			Central incisor	7-8 years	
	Lateral incisor	9-13 months	7-8 years			Lateral incisor	8-9 years	
	Canine (cuspid)	16-22 months	10-12 years			Canine (cuspid)	11-12 years	
	First molar	13-19 months	10-11 years			First premolar	10-11 years	
Second molar	25-33 months	10-12 years	Second premolar		10-12 years			
	Lower teeth				First molar	6-7 years		
	Second molar	23-31 months	10-12 years		Second molar	12-13 years		
	First molar	14-18 months	9-11 years		Third molar	17-21 years		
	Canine (cuspid)	17-23 months	9-12 years		Lower teeth			
	Lateral incisor	10-16 months	7-8 years	Third molar	17-21 years			
Central incisor	6-10 months	6-7 years	Second molar	11-13 years				
			First molar	6-7 years				
			Second premolar	11-12 years				
			First premolar	10-12 years				
			Canine (cuspid)	9-10 years				
			Lateral incisor	7-8 years				
			Central incisor	6-7 years				

LAHSAL CLASSIFICATION

Learning objective:

Participants will understand the LAHSAL classification and how to apply it.

LAHSAL CLASSIFICATION

LAHSAL is an accurate, anatomical method of cleft classification. It has been widely adopted because it is:

- simple, so as to be accepted;
- concise to be accurately recorded;
- flexible, to account for rare presentations;
- exact, to facilitate statistical analysis;
- morphological, to enable visual assessment;
- graphic, to represent the cleft in a clear manner.

WHAT DO THE LETTERS STAND FOR?

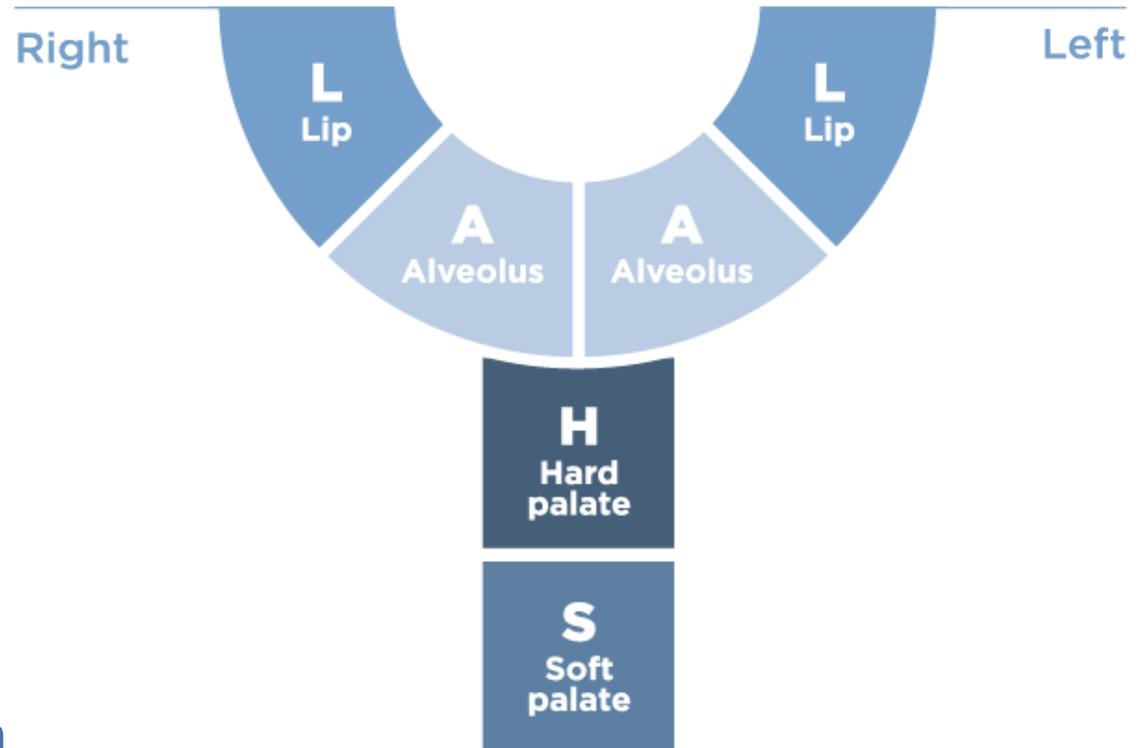
The letters represent the:

- lip (L);
- alveolus (A);
- hard palate (H);
- soft palate (S).

The patient's left side is recorded first, followed by the right.

Exercise:

Practice applying the LAHSAL classification on different patients.



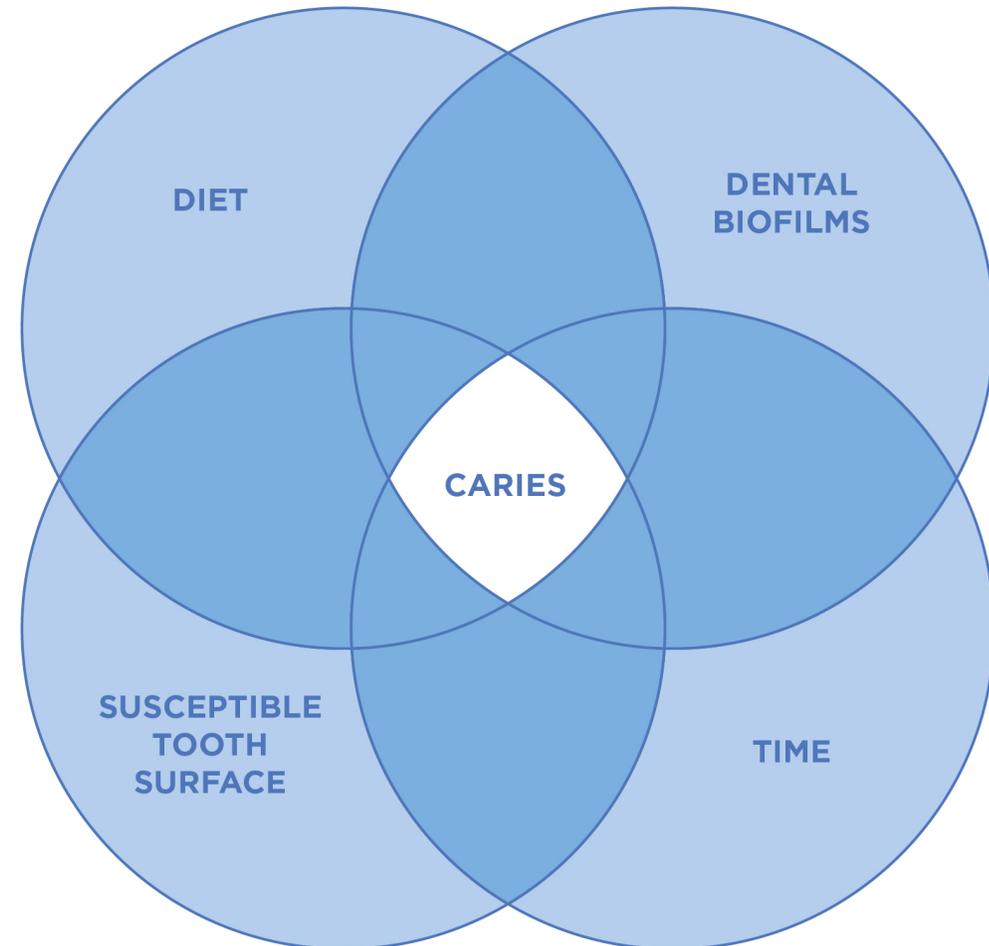
IDENTIFICATION OF WHITE SPOTS, BROWN SPOTS AND CARIES

Learning objective:

Participants will understand how to identify early carious lesions.

KNOWLEDGE OF DENTAL CARIES

For dental caries to occur,
four things need to be present:



WHAT IS DENTAL BIOFILM (PLAQUE)?

Dental plaque, also known as biofilm, is a soft, sticky layer that adheres to the tooth surface.

Biofilm is predominantly composed of oral microorganisms along with proteins present in saliva.

A thin layer of salivary proteins gets deposited on the tooth surface to form the 'acquired enamel pellicle'.

Once this layer is formed, bacteria, oral microorganisms, adhere to this pellicle, forming the biofilm.



ROLE OF PLAQUE IN DENTAL CARIES

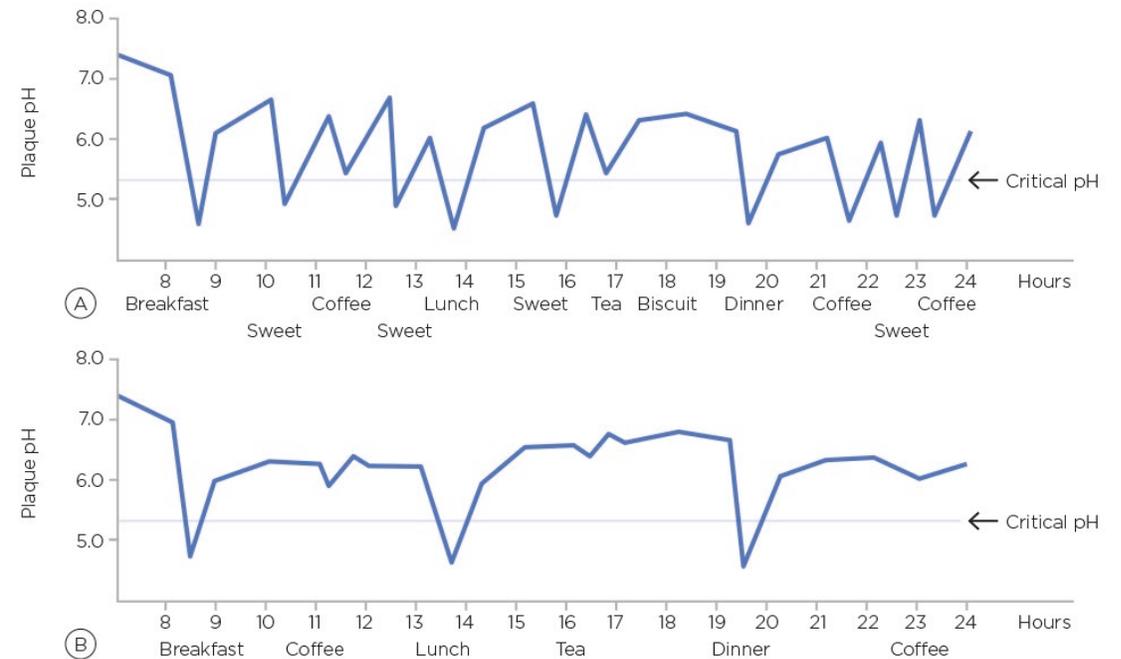
Plaque biofilm is characterized by acidogenic bacteria, such as *Streptococcus Mutans*.

When the child consumes free sugars, the bacteria metabolize the carbohydrates into acidic waste products, causing the pH of the mouth to drop.

Essential minerals are leached out of the tooth structure, leading to demineralization.

In a healthy oral environment, saliva production removes this acidic environment over a time period of approximately 30–40 minutes, and remineralization occurs.

However, if the child has suboptimal oral hygiene and is frequently consuming free sugars or fermentable carbohydrates, the mouth remains in an acidic pH, leading to dental caries.



ROLE OF DIET IN DENTAL CARIES

Exercise

Name 10 foods or drinks which can contribute to dental caries



WHITE SPOTS/HYPOMINERALIZATION

White spots are demineralized areas on the tooth surface where a significant amount of minerals, such as calcium, have been lost, usually due to plaque bacteria and suboptimal oral hygiene. These can be the first stage of dental caries.

White spots can also be caused by:

- fluoride;
- trauma;
- hypomineralization;
- decalcification.



BROWN SPOTS

- Discoloration on the tooth surface can be extrinsic—on the outer tooth structure—or intrinsic—within the tooth structure.
- Extrinsic discoloration can be caused by chromogenic bacteria and dietary factors, such as tea, coffee, berries, smoking or even iron supplements.
- Certain mouthwashes can cause discoloration.



DENTAL CARIES

Brown spots on the surface can also be carious. It is important to assess and correctly diagnose these.



INTRINSIC DISCOLORATION CAN BE CAUSED BY:



DENTAL FLUOROSIS



AMELOGENESIS IMPERFECTA



TETRACYCLINE STAINING



PULP NECROSIS

RECAP AND CLOSE

1. Why is interprofessional collaboration important?
2. What are the factors that affect the care a child with cleft receives?
3. How do clefts develop?
4. How can clefts be prevented?
5. Why are primary teeth important?
6. What is Early Childhood Caries?
7. What four things are needed for dental caries to occur?
8. How does plaque contribute to dental caries?
9. How does diet contribute to dental caries?
10. What can white spots on tooth enamel be caused by?

THANK YOU

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