

# ORAL HEALTH MANUAL FOR HEALTH WORKERS



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# 1. ORAL HEALTH

## 1.1 HEALTH AND ORAL HEALTH

The mouth and the teeth are very important parts of our body. Having healthy teeth and mouth means having good health. Oral health is a part of total body health.

To have good oral health we need to brush our teeth with fluoridated toothpaste, eat healthy foods and protect them from accidents. Healthy teeth are important for social and physical health. Dental disease often causes pain, discomfort and costs money for treatment. Dental disease may lead to disease in other parts of the body. e.g., an abscess of the tooth can spread to infect and damage the facial muscles and poor periodontal health is linked to heart problems.

Fig. 1. Healthy foods makes your teeth strong and healthy



## 1.2 THE VALUE OF TEETH

Healthy teeth help us to chew our foods, talk, smile and look good. Our teeth are important for eating. The teeth are vital for the digestion of food, since the teeth are necessary for biting as well as chewing. The quality of life can be affected by oral diseases and conditions. Children often cannot study, play or sleep due to dental problems and they also miss school.

## 2. ORAL AND DENTAL ANATOMY

Understanding the structure of the mouth is important to assist in teaching oral health. The lips, cheeks, gums and tongue surround the teeth. These structures are not only important for general appearance but also aid in the chewing of food by directing the food to the teeth.

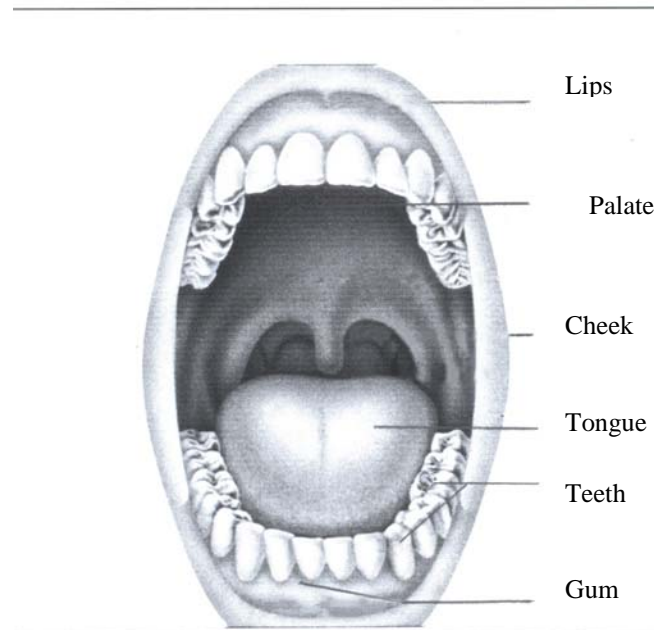


Fig 2.1 Oral Cavity

### 2.1 THE TEETH

A tooth consists of a crown and a root. The crown is seen in the mouth while the root is hidden by the gums and by the bone.

There are 4 different types of teeth:

- (1) **Incisors**- These are the eight front teeth, four upper and four lower. They are used to cut and bite off food.
- (2) **Canines**- These are four pointed teeth at the corners of the mouth; two upper and two lower (one on each side). Their function is to tear food.
- (3) **Premolars**- These are eight in number, four upper and four lower (two on either side). They are situated just behind the canines. Their function is to tear and partly grind food.

(4) **Molars**- These are twelve in number, six upper and six lower (three on each side). The molars are termed as 'first molar', 'second molar' and 'third molar' based on their order of eruption. The third molar is also called the 'wisdom tooth'. Their function is to grind food.

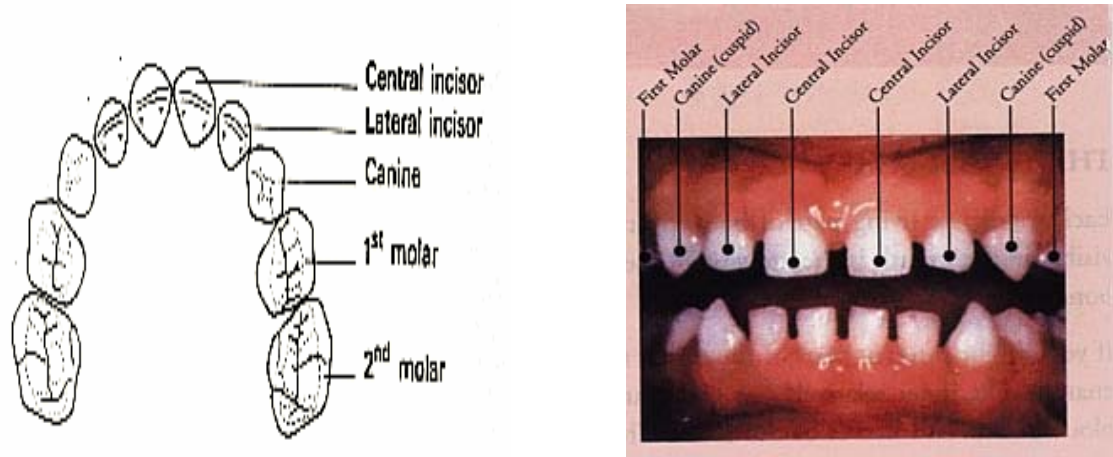


Fig 3 Types of Deciduous Teeth

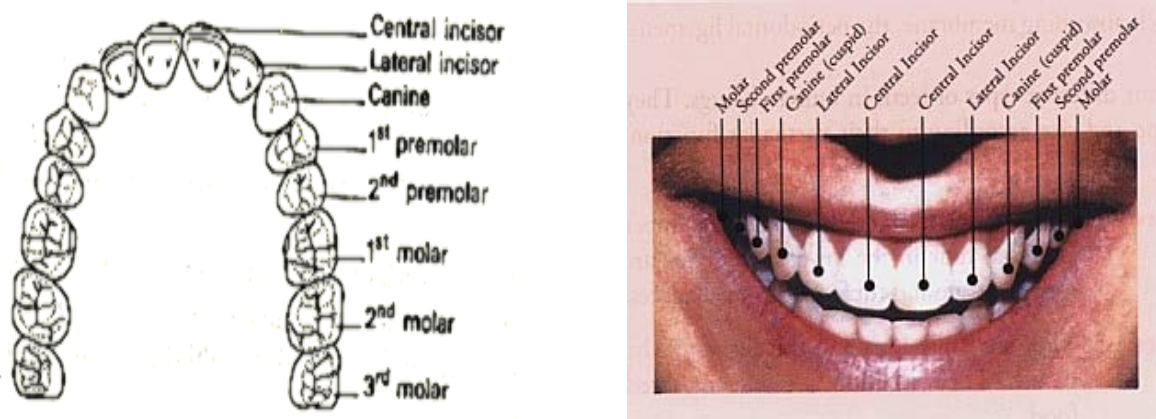


Fig 4 Types of Permanent Teeth

## 2.2 PARTS OF THE TEETH

**Enamel**- is the outer covering of the teeth and is the hardest substance in the body.

**Dentine**- is a layer under the enamel. It forms the bulk of the teeth and is less hard than the enamel.

**Pulp**- contains nerve and blood supply to the tooth.

**Cementum**- covers the root and is hard. The cementum is however not as hard as the enamel.

The teeth are held in place by:

- Gums
- Bone
- Fibres which join the root of the teeth to the bone.

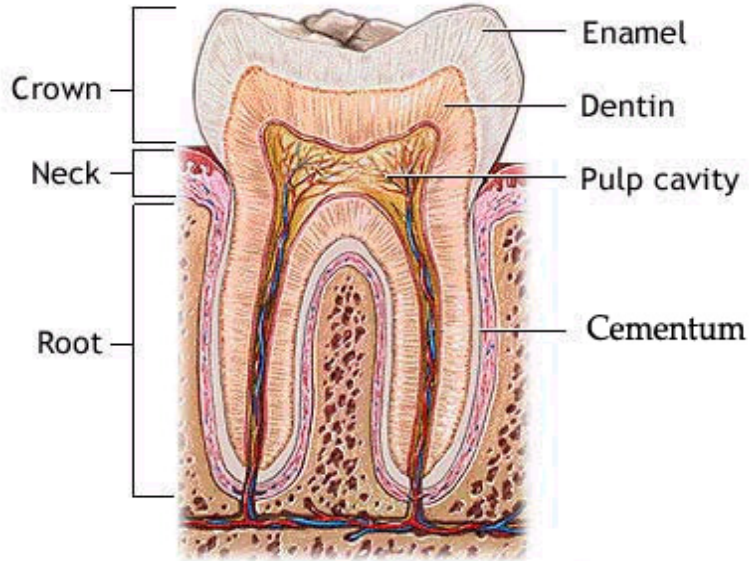


Fig. 5 Parts of a tooth

## 2.3 NUMBER AND ERUPTION OF TEETH

There are 20 milk/baby teeth

There are 32 adult teeth.

Baby teeth:

- 8 incisors
- 4 canines
- 8 molars

- Adult teeth:
- 8 incisors
  - 4 canines
  - 8 premolars
  - 12 molars

Tooth	Eruption	Shedding
	Maxilla and Mandible (months)	Mandible and Maxilla (years)
Central incisor	6-7	6-7
Lateral incisor	7-9	7-8
Canine	18-20	9-12
First primary molar	12-15	9-11
Second primary molar	24-36	10-12

Table 1 Emergence and shedding of primary teeth

Tooth	Maxilla and Mandible (years)
Central incisor	6-8
Lateral incisor	7-9
Canine	9-12
First premolar	
Second premolar	
First molar	6-7
Second molar	12-13
Third molar	18 and above

Table 2 Eruption of Permanent teeth

The teeth start to form in the jaw of the child while the baby is still in the womb of the mother. The baby teeth start erupting at about 6 months of age. All the baby teeth will have erupted by the age of 3. The baby teeth are replaced by the adult teeth between 6-13 years as a natural process of human development. The roots of the baby teeth are slowly dissolved by the pressure of corresponding permanent teeth erupting under the baby teeth. The wisdom teeth erupt between the ages of 18-25 years.

## 2.4 IMPORTANCE OF BABY TEETH

Baby teeth help the child to chew food, speak clearly and have a pleasing appearance. They also provide space for the adult teeth. If the baby teeth are taken out ahead of time, before it is time for them to fall out, then the space for the new permanent tooth is

narrowed. Hence, there may not be enough room for the permanent tooth to come through properly. Also the infection spreading from the root of a decayed baby tooth may affect the development of the permanent tooth below it.

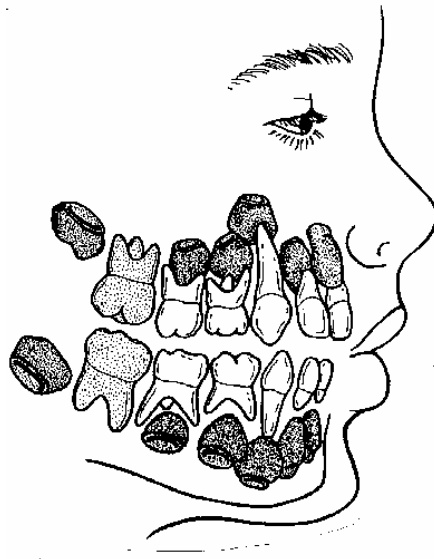


Fig. 6 Baby teeth and permanent teeth

### 3. ORAL DISEASES AND CONDITIONS

There are different types of oral diseases and conditions:

- (1) Tooth Decay
- (2) Gum disease
- (3) Oral Cancer
- (4) Dental Trauma
- (5) Oral Developmental Defects

#### 3.1 TOOTH DECAY

When we eat, the food stick to our teeth. If the food is not removed, bacteria eat the food to produce acid. Over time the acid dissolves our teeth and causes a hole, which is called 'tooth decay'. Bacteria are naturally present in the mouth cannot be seen with the naked eye. The bacteria not only cause tooth decay, but also bleeding gums and smelly breath.

If you don't clean your teeth to remove the food and bacteria, tooth decay starts from the enamel and will slowly reach the dentine and the pulp. Once it reaches the pulp, treatment becomes more expensive and the tooth might even have to be taken out. Tooth decay may cause pain, swelling of the face, and problems with sleeping, speaking, eating and playing. Eating sugar-rich foods cause more teeth decay because bacteria like sugar. Use of fluoridated toothpaste makes the tooth more resistant to acid attack.

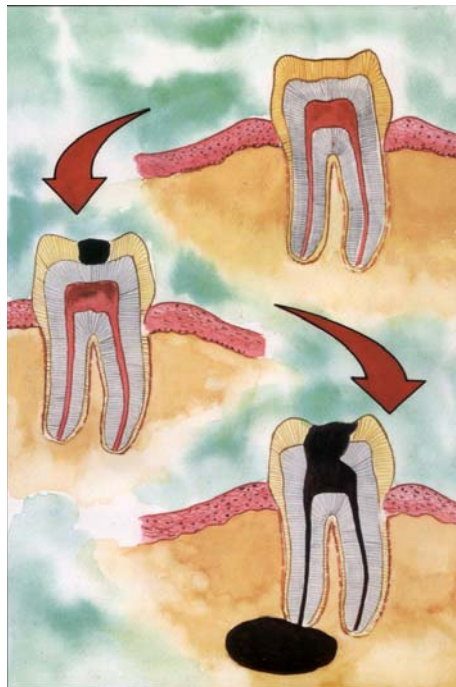


Fig. 6 Progression of tooth decay leading to an abscess of the tooth.

### 3.2 GUM DISEASE

A tooth can be compared to a tree. Both need strong foundations. Trees need earth and teeth need bones and gums to support them.

Gum disease occurs due to neglect of simple mouth cleanliness. When bacteria are not cleaned away from the gums, the gums can become inflamed (red, swollen and bleed easily). Food particles left around the necks of the teeth will eventually get hard if they are not removed; will trap more bacteria and will lead to a smelly mouth. The bacteria can attack the fibres which connect the gums to the teeth and slowly lead to destruction of the supporting bone. If a tree has no earth to support its roots it will fall. In the same way if the bone and gums around the tooth are destroyed the tooth will become loose and fall out.

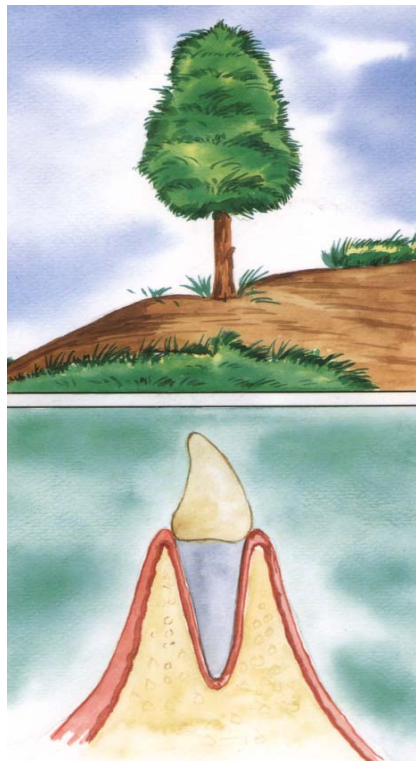


Fig. 7 Healthy gums and bone

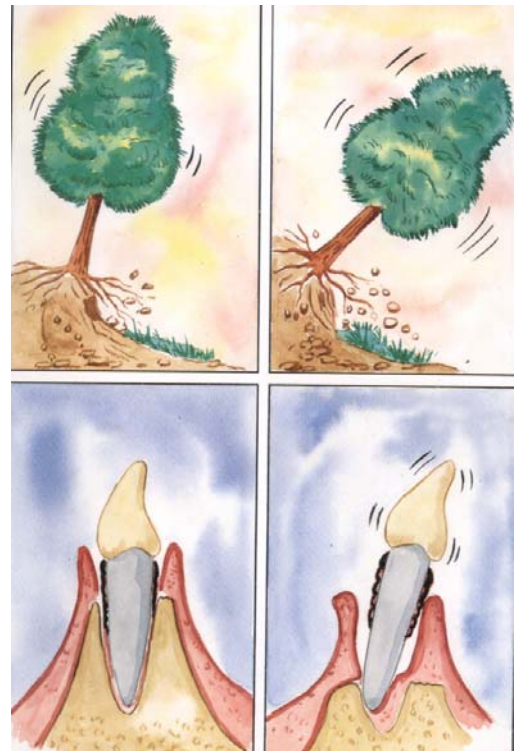


Fig. 8 Unhealthy gums and bone

#### Acute Necrotising Ulcerative Gingivitis (ANUG)

It is the severe form of gingivitis, which can cause damage to the periodontal tissue but hardly leads to chronic periodontal disease. It usually affects young adult with a poor oral hygiene plus other factors such as stress.

Clinical features:

In the beginning there is formation of well-defined ulcer at interdental papilla. Ulcers are covered by greyish or yellowish debris. Removal of debris causes bleeding. Lesion remains at the gingiva and supporting tissue and spreads along the marginal gingiva and deeply, destroying supporting tissues.

Management

Good oral hygiene should be maintained. Debris should be cleaned thereafter

Metronidazole should be prescribed.

### **3.3 ORAL CANCER**

Oral cancer is a life threatening disease of the mouth. It can occur due to the use of tobacco products such as cigarette smoking; chewing pan parag, khaini, surtti, gutkha, supari (betel nuts); alcohol. These products can cause harmful changes to the tissues of the mouth. Any red or white changes in the mouth or swellings in which the early stage is painless and stays for a long time, may be signs or symptoms of oral cancer. Any suspicious lesion should be shown to a dentist. To prevent oral cancer do not adopt harmful habits like smoking, alcohol, tobacco and pan chewing. Keep the mouth clean and eat plenty of green vegetables and fresh fruits which protect against oral cancer.

### **3.4 DENTAL TRAUMA**

Dental trauma occurs while playing games such as football or cricket without the use of a mouth guard. Trauma to the teeth may often occur due to road traffic accidents and falls. Dental trauma leads to broken teeth, fractured jaws, injury to gums and lips as well as the face, skull and other parts of the body. Using mouth guards while playing sports like football and the use of a helmet and mouth guard while playing cricket; and following traffic rules reduces the chances of dental trauma. A dentist can make the mouth guard.

Always walk on the side belt of the road. Look both right and left before crossing the road. Playing in the streets and jumping in the roads lead to accidents. Cross the street when a green man appears on the display. Do not cross when there is a red man. Cycling should be done at the lanes closest to the pedestrian belt. Both the motorcycle driver and the passenger should wear helmets to be safe. Also seat belts should be worn while driving a car. When a red light appears on the traffic light, it indicates the vehicles to stop. A green light is a signal for the vehicles to pass. Do not walk across the street when a green light is on. Use a zebra crossing to be safe. The school playground should be safe for children to play. The playground should be free of hazardous materials like broken glass. The play grounds should have high walls or should be away from the road. By following simple traffic rules, you can prevent dental trauma.

## 3.5 ORAL DEVELOPMENTAL DEFECTS

### 3.5.1 Cleft lip and Cleft palate



Fig. 9 Cleft lip



Fig. 10 Cleft lip and palate

One in every 500-700 children in Nepal may be born with a cleft lip or palate. Such conditions lead to feeding and swallowing difficulties, speech and hearing impairment. Dental problems like absence of teeth in the region of cleft lip, or delayed eruption of teeth can be seen. Sometimes these problems are seen in schoolchildren since parents may not be aware that something can be done for this problem. These problems need timely repair and therefore need to be referred to a dentist. Primary cleft of the lip is repaired between 4-5 months, the soft palate is closed before 18 months and the hard palate is closed between 5-6 years of age. Clefts of the lip and palate are not due to sin in the lives of the parents. Pregnant mothers should eat nutritious food rich in vitamins and minerals.

### 3.5.2 Teething

Teething is the period when babies and children first get their teeth.

#### Signs and symptoms

- dribbling
- irritability
- diarrhoea
- decreased appetite
- swollen gums
- child chews on everything

#### Management

- The child may need a teething ring, dummy or toothbrush.
- Sometimes paracetamol helps to relief irritation.
- Rubbing ice or the back of a small cool spoon or lemon juice on the gums may also be relieving.

### 3.5.3 Pericoronitis

Pericoronitis is infection around partially erupted third molars. It usually affects people between the ages of 18 and 25, when the wisdom teeth are erupting.

#### Signs and symptoms

- Pressure from the erupting tooth
- Flap of skin over the new tooth can be sore
- Toothache at the back of the jaw
- If infected, bad taste at the back of the mouth
- Sore throat

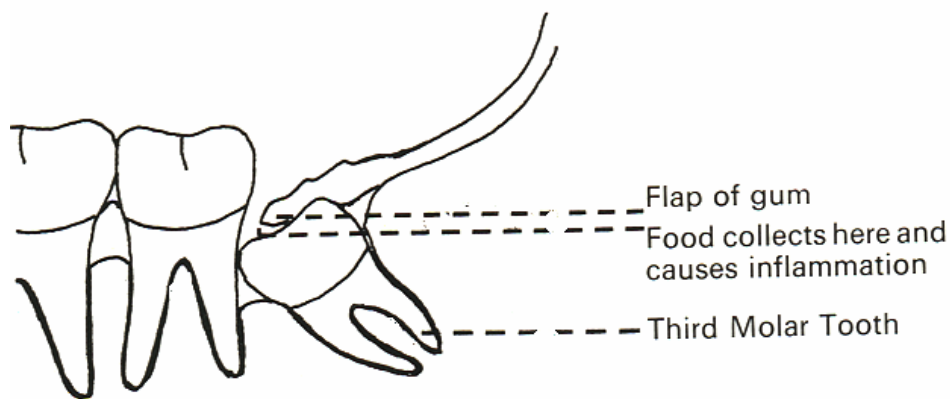


Fig. 11 Pericoronitis

#### Management

- Rinse the area with warm salt water after every meal. Continue rinsing until the tooth erupts completely.
- Take a pain killer like paracetamol or ibuprofen
- Remove the opposing molar, if causing trauma

### 3.5.4 Wasting Disease (Tooth Wear)

Causes of tooth wear can be:

#### 3.5.4.1 Erosion

This is loss of tooth substance from non-bacterial chemical attack. This can be caused by gastric reflux, vomiting (bulimia or pregnancy) and frequent intake of fizzy drinks and acidic food, including pickles. It results in loss of enamel, which leads to sensitive teeth (Fig. 12a). Patients should be advised the following:

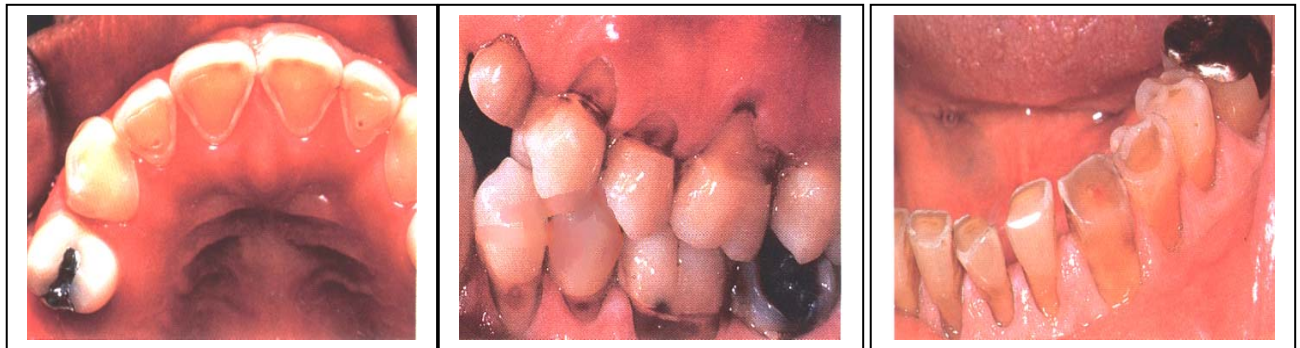
1. Reduce frequency of intake of fizzy drinks and sour foods. **After having such foods, do not brush your teeth for at least 30 minutes.** Instead, rinse your mouth with plain water.
2. Rinse your mouth with plain water after every episode of vomiting.

#### 3.5.4.2 Abrasion

It is wear of tooth caused by an external agent like a tooth-brush with hard bristles or even crushed coal or ash, as is a common habit among some Nepali villagers (Fig. 12b). People, therefore, should be advised to use soft toothbrushes.

#### 3.5.4.3 Attrition

It is wear of tooth caused by movement of one tooth against the other (Fig. 12c). The interproximal and occlusal surfaces are affected.



a) Erosion

b) Abrasion

c) Attrition

Fig. 12 Tooth wear

#### 3.5.5 Recurrent Aphthae

It is the most common and painful oral ulcer recurring at the interval of 3-4 weeks. The exact cause of Aphthae is yet unknown but it might be associated with:

- Genetic factors
- Exaggerated response to trauma (usually by tooth brush)
- Infections
- Immunological abnormalities
- Gastrointestinal diseases
- Deficiencies or vitamin B12, Folate or Iron
- Hormonal Factors
- Stress

## **4. PREVENTION OF ORAL PROBLEMS**

### **4.1 ORAL HEALTH CARE**

Since the oral structures are important for physical, social and psychological health, it is important to take simple measures to prevent problems from occurring, such as:

- (1) Eating healthy foods like milk, green vegetables, eggs, cheese, apples etc. which are healthy for our teeth and the rest of the body.
- (2) Eating foods containing less sugar and decreasing the frequency of sugar containing foods between meals.
- (3) Removing bacteria and strengthening the teeth through the use of a toothbrush or "daatiwan" and fluoridated toothpaste.
- (4) Never taking up habits which may increase the risk of oral cancer such as the use of cigarettes, khaini, surtti, pan parag, gutkha, supari and alcohol.
- (5) Playing safely and observing traffic rules and regulations.

### **4.2 FLUORIDE**

Fluoride is a naturally occurring chemical in the soil that is essential for growth of the body. It also helps to prevent tooth decay. Fluoride is available from foods and also from the drinking water. The fluoride in drinking water is so low in Nepal that it does not protect the teeth. Therefore, brushing the teeth after meals with a toothpaste containing fluoride helps prevent tooth decay and makes the teeth strong. When buying a toothpaste always read the label. Use a toothpaste that contains at least a 1000 parts per million (ppm) of fluoride. Also check the packaging for the expiry date.

### **4.3 NUTRITION**

Calcium and phosphorous are necessary to make the tooth strong during the years teeth are being formed. A diet rich in calcium, phosphorous, vitamins is essential to make strong teeth. Foods like eggs, milk, fresh green vegetables and fruits are good for your teeth. Eating sugar rich foods causes more teeth decay as bacteria like sugar. Chewing pan, supari, khaini, tobacco smoking and alcohol are harmful and may cause oral cancer.

### **4.4 TOOTHBRUSHING**

Oral hygiene is a part of body hygiene. Oral hygiene should not be separated from body hygiene. Brushing the teeth, washing the face, hands, hair and trimming the fingernails is a normal part of body cleanliness. Toothbrushing is important to remove bacteria and food particles, and for the application of fluoride. Brushing should be done at least twice a day, in the morning after breakfast and at night before going to bed.

Brushing after breakfast removes food particles from your teeth. Brushing in the night is very important as there is less saliva flow at night to wash away the food and bacteria.

Brushing is done by rubbing the brush in small circular movements. The head of the brush is at an angle of 45 degree to the teeth. Use a small soft or medium bristled brush. For young children use a pea size amount of fluoridated toothpaste and for older children apply a thin film of the fluoridated toothpaste along the bristles.

Develop a habit of brushing the teeth in a systematic way. Take about three teeth at a time and start from the upper right corner. Brush the outer surfaces first and then go to the left side of the mouth. Once this is completed, start brushing on the inside of the upper teeth in the same way as outside and then the chewing surfaces. Repeat the same on your lower teeth. After all the teeth are brushed spit out the remaining toothpaste without rinsing with water or use only a handful of water to rinse lightly only once. Fluoridated toothpaste remaining on the teeth will help to protect the teeth longer after brushing. Forming a systematic method of brushing the teeth ensures that all of teeth and all the surfaces are thoroughly cleaned.

Mothers can assist young children to brush their teeth. Newborn babies do not have harmful bacteria in their mouths. However, as the teeth erupt, bacteria are passed to the babies by their mothers, through kissing and the passing of food from the mother's mouth to the babies. As soon as the first teeth erupt, clean the baby's teeth with a soft cloth. A small soft toothbrush can be introduced at any time and should be used by the time all front teeth have erupted. Stand behind the child and tilt their head upwards so that the teeth can be reached. When the child is old enough to spit, start using a small amount of fluoridated toothpaste on the brush to brush the teeth. Until the time that children can brush their teeth properly, mothers and fathers can assist the child or supervise their brushing. If the parents are too busy to help, an older child of the family can help the younger children.



Fig. 13 Meena says, “Brush your teeth twice a day with fluoridated toothpaste.”

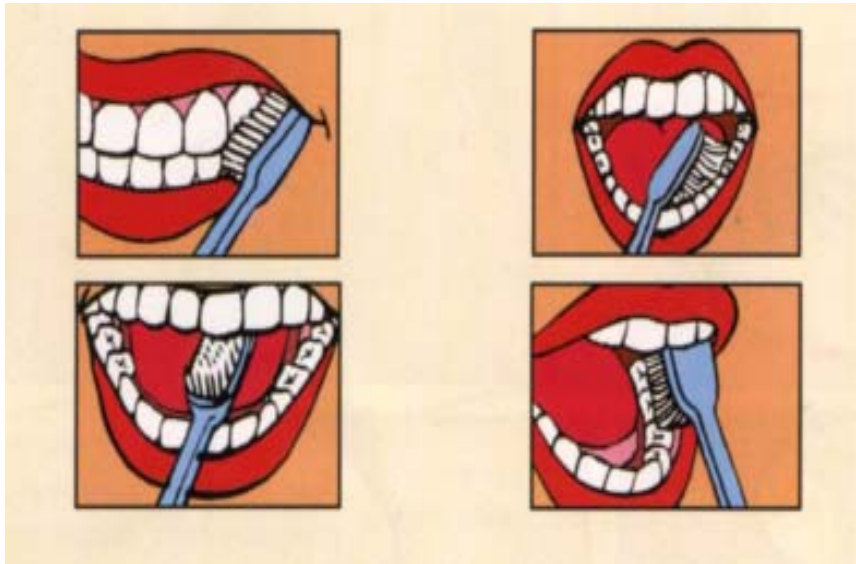


Fig. 14 Brush the outside, inside and chewing surfaces of your teeth.

#### 4.5 USE OF A DATIWAN

If a toothbrush is not available, a 'datiwan' can be used instead. Cut a small branch from a tree which has soft branches such as a sajiwan, coconut or eucalyptus tree. The small soft branch should be approximately 18 to 20 cm. (7-8 inches) in length and 1 cm. (0.4 of an inch) in width (more narrow for small children). Remove 2-3 cm (1 inch) of the bark from one end of the stick. Chew this end until it is suitably soft and frayed. You can put fluoride toothpaste on the datiwan and brush your teeth as mentioned above.

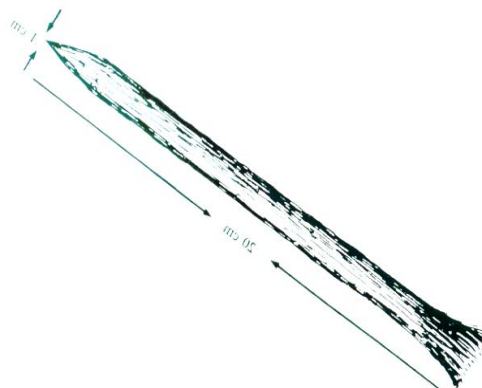


Fig. 15 Datiwan made from a soft branch of a sajiwan tree

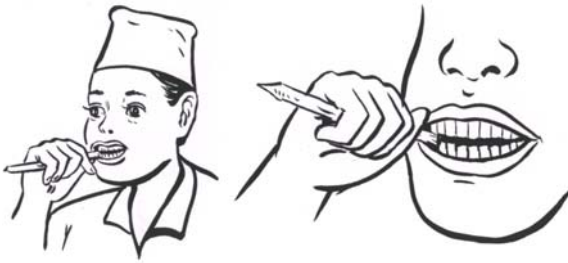


Fig.16 Cleaning the outside surfaces



Fig.17 Cleaning the chewing surfaces



Fig.18 Cleaning the inside surfaces



Fig.19 Cleaning the inside surfaces of front teeth

#### 4.6 TREATMENT OF CARIES

At the earliest stage of tooth decay, the enamel is slightly damaged. The tooth can be treated by cleaning and the use of fluoride.

If tooth decay has reached the dentine, the diseased portion has to be removed and replaced with a filling material. A white filling material is usually used in the front teeth and in the back teeth if the hole is not too large. A silvery grey tooth filling material is often used to fill large holes in the back teeth.

If the decay has reached the pulp it can often be saved from extraction by using a root filling material. The infected pulp is removed and the root filling material is placed into the tooth.

## **4.7 DENTAL VISITS**

Regular dental examinations help to identify any unnoticed problems. If a hole in the teeth is noticed or if there are any oral problems, a dentist should be consulted. Do not wait for problems to become bigger or painful.

When a dental visit is made, a receptionist or an assistant shows the visitor to the dental room where the dentist does the work. The dentist usually wears a white coat. The visitor sits in a dental chair. The large light helps the dentist to see the mouth better. With the help of dental instruments the dentist examines the mouth. The dentist explains what treatment needed before treatment is carried out.

The dentist will inform the visitor of the date for the next visit. This will help to identify oral problems early and prevent more expensive treatment.

If there is no dentist available in your area, then the health post or the primary health care center in your area can be visited. The health posts and primary health care centers provide basic treatment and emergency care. If advanced treatment is required, you will be referred to the District or the Zonal Hospital.

## **4.8 POINTS TO REMEMBER**

- Healthy foods make your teeth strong and healthy
- Eating sugar rich food causes tooth decay.
- Brushing your teeth twice daily, after breakfast and after dinner with a toothpaste containing fluoride helps to prevent tooth decay and gum problems.
- Smoking, chewing pan, supari, khaini, surttis and alcohol can lead to oral cancer.
- Play safely and obey traffic rules and regulations.
- Visit a dentist regularly.