

MODERN PEDIATRIC DENTISTRY

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Foreword **Anil Kohli**

JAYPEE

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CHAPTER

18

Age Specific Plaque Control

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INTRODUCTION

Good oral hygiene is a foundation step in the development of disease free oral cavity of infants through adolescents. Many parents would not be aware of the facts that oral hygiene practices can be essential at early childhood. Specific home oral hygiene instructions are different at different age group. The cleaning of gum pad can be started as early as within the 1st week of birth with the help of moist gauze.

For infants (0 to 1 year): Plaque control activity should be started on eruption of 1st primary teeth. Infant's oral cleaning must be done by the parent. It can be accomplished by wrapping moist gauze or chlorhexidine wet gauze around the parent's forefinger and gently massaging the teeth and clean the gingival tissues (Fig. 18.1).



Fig. 18.1: Dental surgeon was demonstrating tooth cleaning in 8 months child. It can be accomplished by wrapping moist gauze or chlorhexidine wet gauze around her forefinger and gently massaging the teeth and clean the gingival tissues

Procedure: The oral hygiene procedure can be accomplished in numerous ways, but cradling the child in one arm while massaging the teeth with the hands of the other may be the simplest method to provide the infant with a strong sense of security.

- Hygiene procedure should be done once daily.
- The use of dentifrices is not advisable at this stage.
- Moistened soft bristle can be used, if parent feels comfortable.

For toddler (1 to 3 years): Soft tooth brush can be introduced at this age, if it was not accomplished previously. At around the age of two year the dentifrices can be introduced. Only a pea sized amount of tooth paste should be used because at this group, there is inability to expectorate and the chances for fluoride ingestion is more.

- Most children enjoy modeling after their parents practice their toothbrushing.
- Complete plaque removal by child alone is not accomplished although, the child should be encouraged to begin rudimentary brushing. The parent remains the primary caregiver in these hygiene procedures.
- The use of flossing aid can be introduced at this group, if any interproximal contacts are closed.

Positioning

Although, most children enjoy brushing their own teeth; many are resistance to allowing anyone else to do the brushing. Lap to Lap position allows one person to control the child's body movement and other person brushes the teeth (Fig. 18.2.)



Fig. 18.2: Lap to Lap position is used for brushing as well as oral examination of a child

- The child's arm and legs are controlled with the hands and elbow of the adults responsible for the body movements. In single parent house holds, one adult position become necessary, in this situation parent sit on the floor with his/her legs stretched out in front and the child is positioned between the legs. The child's head is placed between the thighs of the parent with the child's arm and legs carefully controlled by the legs of the parent.

For preschool (3 to 6 years): Although, the children in this age begin to demonstrate significant improvement in their ability to manipulate the tooth brush adequately but the parents remain the primary provider of oral hygiene procedure. Fluoride ingestion remains a concern for this age group; during this time, most children develop the skill to expectorate toothpaste adequately. Until this occurs, it is important for parent to continue only pea sized amount of toothpaste.

- In addition, flossing should begin at this age. The posterior contact may be the only areas where flossing is needed.
- Position: The most common method advocated is where the parent stands behind the child and their face are in the same direction. The child rests his/her head back into the parent's one arm and other hand is used to brush. This position is also appropriate for flossing (Fig. 18.3).

Methods of brushing at this age group: The most commonly advised technique at this stage is the Fones technique (Fig. 18.4). The tooth brush bristles are positioned perpendicular to the tooth crown. The procedure is as follows:



Fig. 18.3: The child rests his/her head back into the parent's one arm and other hand is used to brush. This position is also appropriate for flossing

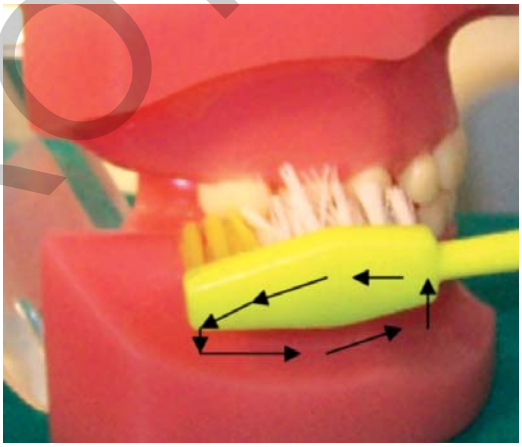

Fig. 18.4: Fone's technique of brushing

- On the buccal or labial surface of the tooth, wide circular strokes are given to include gingiva and tooth surface.
- On the lingual surface of tooth, horizontal back and forth motion is given.

Advantages

1. Easy to learn especially by children
2. It provides gingival stimulation.

Disadvantages

1. Possible trauma to the gingiva
2. Interdental areas are not properly cleaned.

For school age (6 to 12 years): The parental involvement is still required at this stage. Instead of performing oral hygiene they can switch to active

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Fig. 18.5: Horizontal scrub technique of brushing

supervision. Parents provide assistance only when child feels difficulties in flossing or brushing in certain area. One useful adjunct for the parents to inspect the child's teeth is the use of disclosing agents.

- At this age, the children can expectorate well, thus the use of fluoridated dentifrices is essential, however, fluoridated gels and rinses can be reserved for those children at risk for caries.
- *Methods of brushing:* In this age group, the most commonly used technique is horizontal scrub technique (Fig. 18.5). The bristles of the tooth brush are placed perpendicular to the crown of the tooth. The brush is moved back and forth in horizontal movements on all the surfaces of teeth.

Advantage

1. Most convenient and effective for small children with primary teeth.

Disadvantages

1. Interdental spaces of permanent teeth of adults are not properly cleaned.
2. Cervical abrasion on lingual and buccal surfaces takes place in aged patients.

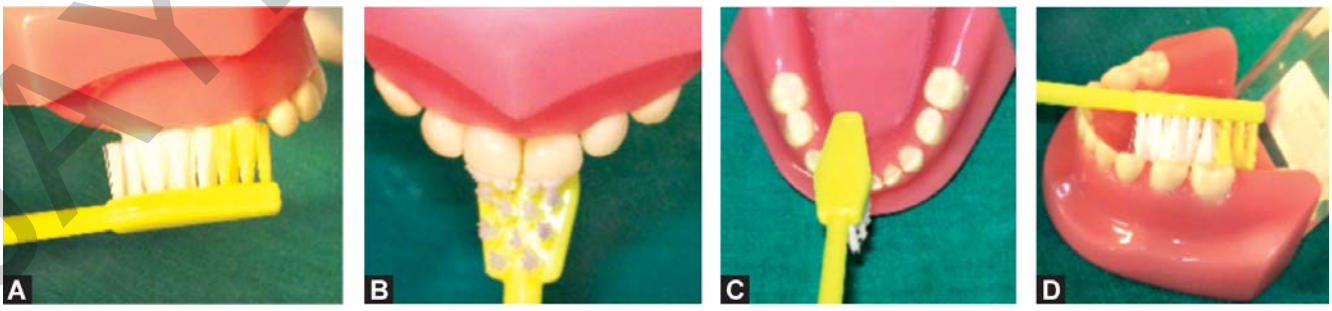
For Adolescents (12 to 19 years): Although the adolescent patient usually has developed the skills for adequate oral hygiene procedure, compliance is a major problem during this age group. At this stage, parents should be mentally prepared to adopt their child's changing personality and continue to reinforce the need for oral health care and hygiene. Therefore, it is important for the dentist and parent to continually help and guide the adolescent as they progress through this difficult stage.

Method of brushing: The most commonly used technique is Bass method. The bristles of the tooth brush which are soft in nature are positioned in the gingival sulcus at 45° to the long axis of tooth. The bristles are then gently pressed, so few bristles to enter inside the sulcus.

A vibratory motion, short back and forth horizontal with bristle ends remain inside the sulcus. This position of bristle and motion enables the sulcus clean along with interdental and buccal surfaces of teeth. Ten such strokes are advocated for each area including the interdental area. (Figs 18.6A to D).

Advantages

- Effective method for plaque removal adjacent to and directly beneath the gingival margin, cervical areas and sulcus.
- Provides gingival stimulation
- Easy to learn.



Figs 18.6A to D: Bass methods of toothbrushing at different quadrant of maxillary and mandibular teeth

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Disadvantages

- Only small area are covered at one time, hence more time consuming
- Special quality of tooth brush is required.

Modified Bass Technique: Is similar in all ways to the simple Bass technique, except that when using this method to brush we additionally sweep the tooth brush occlusally along with sulcular brushing.

Oral hygiene program in dental office: It is the responsibility of dentist to make oral hygiene and preventive program, the core of their practice. Preventive practices will be successful if we provide facility of:

1. Adopting and motivating our patients and parents
2. Active listening and solving problem ability
3. Proper preventive education home program.

Oral Hygiene Aids in Children with Disabilities

Children with disabilities may have a mental, physical, medical or social condition that interferes with normal functioning. Effective oral hygiene is important for a child with disabilities because of the predisposing factor that makes dental care difficult when it is required.

- Home dental care in disabilities child should begin in infancy; the Pedodontist should instruct the parents to gently clean the incisors daily with soft cloth or gauze.
- Instruct the parents about dental fluoride regime properly.
- Older children with disabilities who are unwilling or physically unable to cooperate, the Pedodontist should teach the parent about brushing technique and methods that safely restrain the child when necessary.
- Wrapped tongue blade may be of benefit in helping to keep a child's mouth open while plaque is being removed.
- During brushing of disabled child, the parent should stabilize the child's head to prevent trauma from sudden movements.
- The brushing technique for patients with disabilities who have fine or gross motor deficiencies, limiting their ability to brush should be effective and yet simple for the person performing the brushing.
- The technique often recommended for disabled child is horizontal scrub method because it is easy and can yield good results. This technique consists of gentle horizontal strokes on cheeks, tongue, and biting surfaces of all teeth and gums.
- Some modification can be made to the tooth brush to help person with poor fine motor skills to improve their brushing technique. Although, many types of grips are available, using the patients head to custom-design an acrylic handle has often had good results.
- Powered tooth brushes have also been used very effectively by children with disabilities.
- Disclosing agents and other oral hygiene aids like antiplaque chemical, floss are used along with above mentioned methods.

Powered toothbrush (Fig. 18.7): Electrically powered toothbrush were invented in 1939 and intended to make plaque control easier. The brushing movement in this brush is powered by battery or electricity.

- All powered tooth brushes dependants on mechanical contact between the bristle and the tooth to remove plaque.
- The addition of low frequency acoustic energy generates dynamic fluid movements and provides cleansing slightly away from the bristle tip.
- The vibrations have also been shown to interfere with bactericidal adherence to oral surfaces.



Fig. 18.7: Design of powered tooth brush (Oral B Co.)

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- Patient acceptance of powered tooth brushes is good. These brushes generate stroke motion automatically and required less operator effort. They are therefore widely recommended for children with disability.
- Few powered tooth brushes having additional feature like, sonic technology along with timer to remind the patient for adequate brushing time.
- The cleansing efficiency of the tooth brushes depends upon direction of the movement of bristle and the hardness, stiffness and firmness of the bristle and tufts.

Classification of oral hygiene aids: From the pre historic era, people have been using something drawn from the nature like small Neem stick to clean the oral cavity and teeth. Oral hygiene practices comprise of thorough daily removal of plaque and other debris by tooth brushing, flossing, mouth washing and rinsing etc. There are several oral hygiene aids available. They are basically of two types:

Oral Hygiene Aids (Fig. 18.8)

Mechanical aids	Chemotherapeutic
• Manual tooth brush	Dentifrices
• Powered tooth brush	Disclosing agents
• Floss	Chlorhexidine(antiplaque agents)
• Interdental brush	

Mechanical aids: Tooth brushing and flossing are the essential elements of these mechanical aids.



Fig. 18.8: Different oral hygiene aids including, interdental brush, tooth pick, floss, floss holding device, etc.



Fig. 18.9: Different shape and size of toothbrush

- *Manual toothbrush (Fig. 18.9):* Toothbrush is the most common method for plaque removal from the oral cavity. A manual toothbrush has got the following four part:
  1. Handle is the part by which the brush is held in hand.
  2. Head is the part of the brush to which the bristles are attached. It is further divided into **Toe** and **heel.** The Toe part is away from shank and heel presents towards shank.
  3. Bristles are made up of fine nylon and directly clean the teeth. The bristles bunches are called as tufts. The normal length of bristle is 11 mm.

Bristles Ends

Coarse | Cuts | Enlarge bulbus | Round ends

  4. Shank is the constriction between the handle and the head.

Sizes of Toothbrush

Adult size | Medium size | Small size | Baby size

- Adult size tooth brush is the largest size of the tooth brush. It is used by the person after the age of 18 years.
- Medium size is little smaller than adult size tooth brush. it is used by children of 12 to 18 years.

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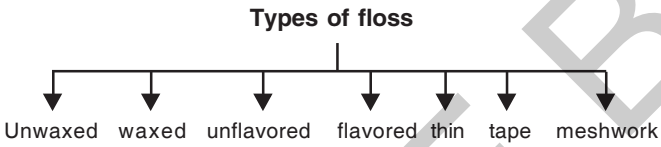
- Small size is smaller than the medium size. It is used by the children during their mixed dentition period(6 to 12 years).
- Baby size is the smallest tooth brush. It is used by the parents for her/his child or children up to the age of 6 years.
- Tooth brushes can also be classified as soft, medium or hard based on the width of these bristle. The diameter of these bristles are as follows
  1. Soft; 0.16 mm to 0.22mm
  2. Medium; 0.23 mm to 0.29mm
  3. Hard; 0.30 mm or greater

Floss is made up of Nylon thread, used for the cleaning of interdental and proximal surfaces of teeth by frictional forces. It is most widely recommended method for cleaning the proximal surfaces of teeth.

Method to hold the floss: Take about 18 inch long floss. About 4 inch of each end side is tied around the middle finger of each hand (Figs 18.10A and B). In this method the last three fingers are folded and both the hands are moved apart. In this way about 2 inch long floss is held between the index fingers of both hands.

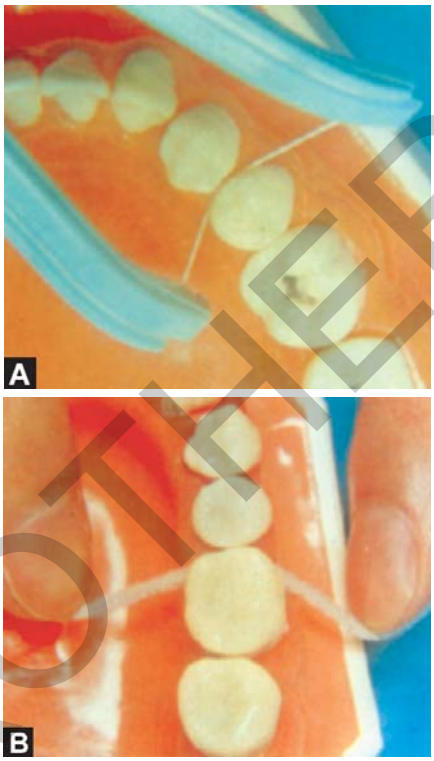


Flossing Procedure

- Firmly hold the floss in the hands supported by both the index fingers, moving back and forth, the floss is gently slide between the teeth at contact areas of two adjacent teeth, avoiding trauma to the gingiva.
- After passing the contact areas, the floss is moved facially and lingually wrapping it around the complete proximal surfaces of a tooth. The floss is again moved apical into the free gingival sulcus and back to the contact area, repeats this procedure, till whole of the sulcular area and proximal area is cleaned.
- Flavored waxed floss with floss holding device is suitable for children.

Interdental brush: These are specially designed, cone shaped, thin and pointed brush used for cleaning the interdental spaces and interproximal surfaces of teeth. It is basically of two types:

1. Miniature bottle or spiral brush
2. Unitufted brush.



Figs 18.10A and B: Methods of holding floss in fingers as well as in floss holder

Dentifrices (see Chapter Dentifrices)

Disclosing agents: These are the chemical agents mainly used for visualization of the dental plaque and helps in patient motivation for plaque removal. These are as follows:

- Iodine
- Erythrosine
- Gention violet
- Basic fuschin
- Fort green
- Food dye
- Fluorescein.

These agents are especially helpful for children in toothbrushing technique, educating and motivating them regarding oral hygiene.

Chlorhexidine mouthwash is a positively charged organic antiseptic agent, has considerable antiplaque ability. It binds with anionic glycoprotein and phosphoproteins on the buccal, palatal and labial mucosa and dental pellicle. It also binds with the bacterial cell membrane, resulting in increase permeability of cell membrane and lysis of bacteria.

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