

Tooth Brush and Brushing Technique

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ABSTRACT

During the last century or so ,tooth brushes were crafted with bone, wood or ivory handles that held the stiff bristles of hogs, boars or other animals. The nylon-bristled tooth-brush, as we know it today, was invented in 1938. A healthy mouth is important for many aspects of life, including eating well, absence of dental pain, personal relationships and feeling good about your health. Tooth brushing , the most widespread means of cleaning teeth and maintaining gingival health, is greatly affected by technique and brushing time, both factors that are difficult to influence. Proper toothbrush care is important to our oral health. Because a worn tooth brush is less effective in cleaning, the American Dental Association recommends replacing your tooth brushes every three to four month or sooner if the bristles become frayed.

Keywords: Tooth Brushes,Dental Association,gingival,nylon bristled.

INTRODUCTION

Oral hygiene practices involve the thorough daily removal of dental plaque and debris by the tooth brush, The present concept of tooth brushing evolved around the beginning of the 19th century .Prior to the time ,wooden chew sticks or a form of tooth picks were used after meals. The purpose of tooth brushing is to remove the bacterial plaque from the tooth surfaces without injuring the soft tissue. Tooth brushes are the most widely used oral hygiene aids. It is the principal instrument in general use for accomplishing the goal of plaque control. The tooth brush has been described as “The classic and principal method employed in oral hygiene. According to ADA’s Council on Dental Therapeutics “The tooth brush is designed primarily to promote cleanliness of teeth and oral cavity.

HISTORY OF TOOTH BRUSH

They were first introduced in China as early as 1600 B.C. and were introduced into

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the western world in 1640. William Addis in 1780, England discovered manual toothbrush. By the early 19th century craftsmen in various European countries constructed handles of gold, ivory, or ebony in which replaceable brushes heads could be fitted. Nylon came into use in tooth brushing construction in 1938. Weinberger in 1948 and Kinnery et al in 1968 trace the development of the first tooth brushes (hog bristles set in oxbone) in 1498 AD in china Chinese used ivory brush handles and bristles made from a horse mane as early as 1000AD. A

OBJECTIVES OF TOOTH BRUSHING

The tooth brush is the most effective weapon in the removal of plaque and food debris.

- To clean teeth and interdental spaces of food remnants, debris and stain etc.
- To prevent plaque formation.
- To disturb and remove plaque.
- To stimulate and massage gingival tissue
- To clean the tongue.

Types of toothbrush

- Manual toothbrushes
- Powered toothbrushes
- Sonic & ultrasonic toothbrushes
- Ionic toothbrushes

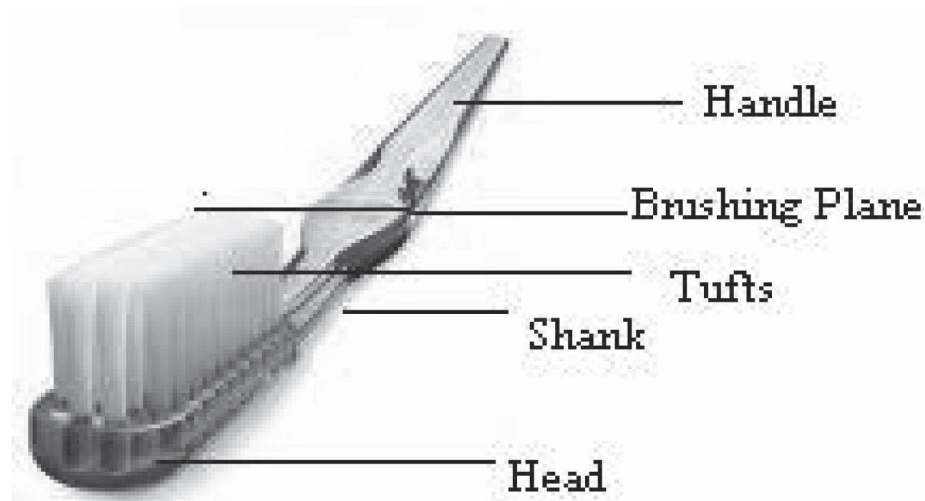
Manual tooth brush

The ideal characteristics of a tooth brush can be listed as follows:

- It should conform to individual patient requirement in size, shape and texture
- It should be easily and effectively manipulated.
- It should be readily cleaned and aerated , impervious to moisture
- It should be durable and inexpensive
- Designed for utility efficiency and cleanliness.

Parts of tooth brush

- Handle- The part grasped in the handle during tooth brushing.
- Head- The working end of a tooth brush that holds the bristles or filament.
- Tufts- Clusters of bristles or filaments secured into the head.



- Brushing plane-The surface formed by the free ends of the bristles or filament.
- Shank-The section that connects head and handle.

Toothbrush head modifications

- Concave Surface
- Deep Grooved Design
- Conventional Flat Multitufted
- Special Indicator Bands

Natural bristles

- Obtained from hair of Hog or Wild boar
- Tubular in form
- More susceptible to fraying, breaking, contamination with microbial debris, softening and loss of elasticity

Synthetic bristles

- Made from nylon
- uniform in size and elasticity, resistant to fracture

The stiffness of bristles vary based on the following factors:

- Diameter of bristles: soft (.007"), medium (.012") and hard (.014") for adults
- Children - .005"
- Length of bristles : .406" (adult), .344" (children)

- Number of filaments in a tuft : 80 to 86 bristles per tuft
- Curvature of filaments

ADA specification of a toothbrush

Brushing surface:

- 1-1.25 inches in length
- 5/16 to 3/8 inches in width
- 2 to 4 rows of bristles
- 5-12 tufts/row

Powered toothbrushes

- In 1885, Fredrick Tornberg, a Swedish Watchmaker designed the first mechanical toothbrush
- First powered toothbrush in 1939
- Heads - oscillate in a side-to-side motion or in a rotary motion



Indications for use

- Handicapped individuals
- Hospitalized patients
- Patients undergoing orthodontic treatment
- Individuals with limited manual dexterity

- Patients with prosthodontic or endosseous implants
- Patients on supportive periodontal therapy

Advantages

- Increases patient motivation resulting in better patient compliance
- Increased accessibility in interproximal and lingual tooth surfaces
- No specific brushing technique required
- Uses less brushing force than manual toothbrushes
- Brushing timer is incorporated in some brushes.

Sonic and ultrasonic toothbrushes

Produces high frequency vibrations(1.6 MHz) cavitation and acoustic micro streaming stain removal and disruption of the bacterial cell wall (bactericidal)

Ionic toothbrushes

Change the surface charge of a tooth by an influx of positively charged ions

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- To prevent plaque formation.
- To remove plaque.
- To stimulate & massage gingival tissue.
- To clean the tongue

TOOTH BRUSHING TECHNIQUES

1. *Modified Bass method or sulcus cleaning method (1948):*

- Most widely accepted and most effective method.

Technique

- Place the head of the soft brush parallel with occlusal plane, with brush head covering the 3 to 4 teeth beginning at most distal tooth in arch.
- Place the bristle at gingival margin, establishing an angle of 45 to long axis of the teeth.
- Exert gentle vibratory pressure using short back & forth motion dislodging the tips of bristles. This motion forces the bristles end into gingival sulcus area as well as in interproximal embrasures.

- Complete several strokes in same position. The repetitive motion cleans tooth surface concentrating on apical 1/3 of clinical crowns, gingival sulci & as far onto proximal surfaces as bristles can reach.
- Continue around the arch brushing about 3 teeth at a time.
- Use the same method for “lingual surfaces”
- After completing maxillary(upper arch) arch repeat the same for mandibular(lower arch) arch.

Indications

- For all patients for dental plaque removal adjacent to and directly, beneath the gingival margins
- For open interproximal areas, cervical areas beneath the height of contour of the enamel and exposed root surfaces

Advantages

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

Effect of improper tooth brushing

Toothbrush trauma: Gingival Alterations

A. Acute alterations (lacerations)

- Scuffed epithelial surface with denuded underlying connective tissue
- Punctate lesions that appear as red pinpoint spots
- Diffuse redness and denuded attached gingiva

Precipitating factors

- Horizontal or vertical scrubbing tooth brushing method with Pressure (either manual or powered)
- Over vigorous placement and application of toothbrush
- Penetration of gingiva by filament ends
- Use of toothbrush with frayed, broken bristles or filaments
- Application of filaments beyond attached gingiva

B. Chronic alterations

- Recession
- Changes in gingival contour
- Rolled, Bulbous, hard firm marginal gingiva in 'piled up' or festoon shape
- Gingival cleft

Precipitating factors

- Repeated use of vigorous rotary, vertical or horizontal tooth brushing techniques over a long period of time
- Habitual prolonged brushing in one area
- Excessive pressure applied with worn out non-resilient brush

Abrasion of the teeth

- Hard toothbrush
- Horizontal brushing
- Excessive pressure during brushing
- Abrasive agent in the dentifrice
- Prominence of the tooth surface labially, or buccally

Appearance

- Saucer shaped or wedge shaped indentations with smooth shiny surfaces

Maintenance and Replacement of tooth brush

The tooth brush may act as a vehicle in breeding and transmitting various organisms in the oral cavity. Rinse your tooth brush with tap water after brushing to remove any remaining tooth paste and debris.

Store the brush in an upright position if possible and allow it to air dry until using it again. If more than one tooth brush is stored in the same holder or area, keep the brushes separated. Do not routinely cover the toothbrushes or store them in closed containers. A moist environment, such as closed container, is more conducive to the growth of microorganisms than is the open air.

Replace toothbrushes every three to four months. The bristle become frayed and worn with use and will be less effective at cleaning teeth.

Check toothbrushes often for worn bristles and replace them more frequently if needed. Children's toothbrushes may need to be replaced more frequently than adults' toothbrushes

REFERENCES

- Peter S, Essentials of Preventive & Community Dentistry; 2nd edition, 2003, Arya publishing house, New Delhi
- Harris N, Christen A. Primary Preventive Dentistry 4th edition 1993, Appleton & Lange publication, Connecticut
- Claydon N, Addy M, Scratcher C, Ley F, Newcombe R, 2002. Comparative professional plaque removal study using 8 branded toothbrushes. *J Clin Periodontol* **29**(4): 310-316
- Tan E, Daly C, 2002. Comparison of new and 3-month-old toothbrushes in plaque removal. *J Clin Periodontol.* 2002 **29**(7):645-50.
- Davies RM, 2003. Ellwood RP. Toothbrushing : what advice should be given to patients? *Bri Dent J* **195**: 14-20
- Carranza FA, 2003. Newman MG. Clinical Periodontology 9th edition, W.B. Saunders company, Philadelphia USA
- Niedermaier R, 2003. Manual versus powered toothbrushes : The cochrane review. *JADA* **134**:1240-1244.
- Asadoorian J . Toothbrushing . *CJDH* 2006;**40**(5):1-14
- Toothbrush care, cleaning and replacement .2006. *JADA* **137**:415.
- A look at tooth brush, 2007. *JADA* **138**: 1288.