**Periodontics**

**Lec.2**

**Brushing**: Although different cleaning devices have been   
used in different cultures (toothbrushes, chewing sticks,

chewing sponges … etc.), the most widespread means of   
actively removing plaque at home is tooth brushing, The   
efficacy of brushing with regard to plaque removal is dependent on:

1. The design of the brush.
2. The skill of the individual using the brush.
3. Frequency & duration of brushing.

Therefore, oral hygiene instructions should include   
components such as self-assessment, self-examination, self-   
monitoring and self-instruction. For this purpose, plaque   
disclosing solution is applied before brushing, and with the aid   
of a mirror, the patient can identify the amount of plaque   
formed after the last brushing episode thus receiving   
information about his/her cleaning performance. Later on, the   
disclosing agent should be applied after brushing, which allows   
the patient to identify areas needing additional cleaning efforts.

**Methods of tooth brushing:**

Tooth brushing instruction should involve a description of   
specific brushing methods, the grasp of the brush, the   
sequence & amount of brushing, the area of limited access, and supplementary brushing of the occlusal surfaces and the   
tongue.   
 However, the design of brushes or a specific brushing method   
are of secondary importance to the skills of the individual in   
using the brush. Thus the simplest, least time consuming   
procedures that will effectively remove plaque without causing

any damage to the tissues and use of the technique   
on a regular basis should be recommended.

If a patient prefers a specific method the clinician can   
evaluate & modify the technique to maximize the effectiveness   
rather than changing it. However, there is no single method   
that is correct for all patients. The morphology of the dentition   
(crowding, spacing, gingiva phonotype… etc.), the type and   
severity of the periodontal tissue destruction, the patient's own   
manual dexterity (= skill), as well as morphologic situation   
(longer teeth, Open interdental spaces, exposed dentin) during   
the course of periodontitis therapy determine what kind of   
hygiene aids and methods are to be used. Different tooth   
brushing methods have been recommended. Such methods can   
be classified based on the position & motion of the brush.

* **Horizontal brushing (scrub):** Most individuals use such   
  method since it is simple. The head of the brush is   
  positioned at a 90° angle to the tooth surface and then a   
  horizontal movement is applied. The occlusal, lingual &   
  palatal surfaces of the teeth are brushed with open mouth and the vestibular surfaces are cleaned with the mouth closed.
* **Vertical brushing (Leonard technique):** lt is similar to the   
  horizontal brushing technique, but the movement is applied in a vertical direction using up & down motion.
* **Circular brushing (Fones Technique):** with the teeth closed, a circular motion is applied that extends from the maxillary gingiva to the mandibular gingiva. Horizontal movements are used on the lingual and palatal tooth surfaces.
* **Vibratory technique (Stillman technique)**:The head of the brush is positioned in an oblique direction toward the apex, with the bristles placed partly on the gingival margin and partly on the tooth surface. Light pressure with a vibratory movement is then applied to the handle without moving the brush from its original position.
* **Roll technique (Modified Stillman technique):** The brush is positioned in a similar manner to the vibratory technique, but after applying a small vibratory pressure, the head of the brush is rolled in an occlusal direction.
* **Charters Technique:** The head of the brush is positioned in an oblique direction with the bristles directed towards the occlusal surface. A vibratory (rotary) movement is then applied without moving the brush from its position. This method is effective in cases with receded interdental papilla because the bristles can penetrate the interdental space.
* **Sulcular technique(Bass technique)** The head of the brush is positioned in an oblique direction towards the apex and bristles are directed into the sulcus at 45° to the long axis of the tooth. The brush is moved in a back & forth direction using short strokes. On the lingual surfaces in the anterior regions the brush head is kept in the vertical direction. This method is effective in removing plaque not only at the gingival margin, but also could reach a depth of about 1mm **subgingivally**.
* **Modified Bass technique:** The brush is positioned similarly to the Bass/Stillman technique, but after applying a back and forth movement, the head of the brush is rolled in an occlusal direction. It is a combination of the Bass & the modified Stillman techniques.

**Periodontics**

Tooth brushes requirements:

The features of a manual toothbrush in periodontics must be   
Nylon, Soft-medium strength, rounded ends filaments. A   
smaller head is easier to reach all areas of the oral cavity and   
should be trimmed flat and be multi-tufted with all tufts being   
of the same length.

The 3 brush heads clean vestibular, occlusal & oral tooth   
surfaces thus this design was superior to other brushes.

**Frequency**: Brushing twice a day is recommended, especially   
at night, just before going to bed.

Duration: Brush for a minimum of 2 minutes, covering all   
areas of the oral cavity.

\* lt is recommended that the toothbrush is to be replaced   
every 2-3 months, because a worn toothbrush with frayed   
filaments loses resilience and is less effective in removing   
plaque than a new brush.

Electric toothbrushes: Studies have shown that efficiency   
in plaque removal with the electric toothbrushes is at least as   
good as correctly used manual toothbrush, but there are added   
benefits for those with limited manual dexterity, that includes   
the elderly, those with arthritis in their hands and wrists,

children, hospitalized individuals, physically or mentally   
handicapped & patients with neurological disorders. Electric   
brushes has also been recommended to non-compliant patients as they are easier and faster than manual.

**Dentifrices:** A dentifrice is usually used in combination with   
tooth-brushing with the purpose of facilitating plaque removal   
and applying agents to the tooth surfaces for therapeutic or   
preventive reasons. The most important active ingredient in   
toothpaste:

* **Fluoride:** prevent caries,
* Desensitizing agent: alleviate sensitivity of exposed dentin.
* Anti-plaque agents:

1. **Triclosan:** antibacterial agent.
2. **Stannous** fluoride.
3. **Chlorhexidine:** plaque inhibiting agent.

* **Anti- Calculus agent:** reduces the formation of supragingival calculus.
* **Bicarbonate:** reduce the acidity of dental plaque.
* **Cleaning + Polishing agents:** these abrasive agents should   
  have particle size and shape which facilitate plaque & stain removal without producing hard & soft tissue damage
* **Whitening agents:** whiten stained teeth.
* **Detergents:** sodium Iauryl sulfate has antimicrobial & plaque inhibitory properties

**Interdental Cleaning**

Since interproximal areas are

1) The worst for food & plaque stagnation

2) Earliest areas to be affected.

3) The tooth brush does not reach the interproximal spaces efficiently as they are difficult to access.

Thus, gingivitis & periodontitis are usually more pronounced   
in these areas. Caries also occur more frequently in the   
interdental region; therefore, interdental plaque removal,   
which cannot be achieved with toothbrush, is of critical   
importance for most patients. A number of interdental cleaning   
methods have been used for this purpose however, all these   
devices are effective but not all of them suit all patients or all   
types of dentitions.

Factors we need to consider when selecting the appropriate   
interdental cleaning method are:

* The contour & consistency of the gingival tissues.
* The size & shape of the interproximal space.
* The morphology of the proximal tooth surface.
* Tooth position & alignment.
* The manual dexterity & motivation of the patient.
* Fixed dentures & orthodontic appliances.
* Restorations.

**Dental floss & tape:**

Flossing is the most universally applicable method. Clinical   
studies show that when tooth brushing is used together with   
flossing more plaque is removed from the proximal surfaces   
than by brushing alone. Flossing removes up to 80% of proximal   
plaque. Even subgingival plaque can be removed since dental   
floss can be introduced 2-3.5 mm below the tip of the papilla.   
Dental floss is most useful where the interdental papilla   
completely fill the embrasure space in healthy patients. Several   
types of floss are available:

1. Unwaxed is used in normal tooth contacts because it slides   
   easily.
2. Waxed is used in tight proximal tooth contacts & after   
   brushing because the wax deposits prevent fluoride from   
   the toothpaste to precipitate on teeth. However, no   
    difference in the effectiveness between both types was   
   demonstrated.
3. A floss holder to facilitate flossing might be used.
4. Tape: a type of broaded dental floss used for cleaning   
   bridge pontics.
5. Super floss used for patients with crowns, bridges &   
   orthodontic appliances.

Recently, powered flossing devices have been introduced.   
Floss is used in a vertical direction. If it is used in a horizontal   
motion, the teeth can develop a grooved surface. Finally,   
flossing is a difficult & time consuming method.

**Wood sticks:**

They are indicated for plaque removal, if the interdental   
spaces are slightly open (recession) and even in cases of poor   
manual dexterity since they are easy to use. Wood sticks are   
usually made of soft wood & have a triangular shape. Recently,   
brush sticks have been introduced they are elastic with tiny   
hair-like bristles and fine plastic files. Concavities can be   
cleaned very well with these devices.

**Interdental brushes**:

These are the aid of choice for:

* Widely open interdental spaces.
* When root surfaces with concavities or grooves have   
  been exposed.
* In through-and-through furcation defects in   
  periodontitis patients.

They are manufactured in different sizes & forms. The most   
common forms are cylindrical or conical shaped head. It is   
believed that the most efficient cleaning results are achieved if   
the brush selected slightly larger than the interdental space.   
They are easy to use & can also be used as a carrier to apply   
fluoride or chlorhexidine gel into the interdental space. When   
brushes are not properly used, they may cause dentin   
hypersensitivity, thus interdental brushes should be used   
without dentifrices except in special cases and for short term.

**Single tufted brushes:**

They are ideal for cleansing areas which cannot be reached   
with other devices. They are designed to improve access to   
distal surfaces of posterior molars, tipped & rotated teeth, to   
clean around & under fixed appliances, pontic, orthodontic   
appliances and teeth affected by gingival recession & furcation   
involvement.

**Adjunctive aids:**

**Dental water jet:** The daily use of oral irrigation has been   
shown to **reduce gingivitis** & **bleeding**. The pulsating   
hydrodynamic forces produced by irrigators can rinse away   
food debris from interdental spaces & plaque retentive areas.   
Irrigation is not however, a monotherapy but used as an   
adjunct to brushing & flossing. They may be used with water or   
with chlorhexidine that lead to improved plaque inhibition and   
had an anti-inflammatory effect. With specially designed tips   
the fluid may penetrate deeply into the pocket.

**Tongue cleaners:** The dorsum of the tongue harbors a great   
number of microorganisms. These bacteria may serve as a   
source of bacterial dissemination to other parts of the oral   
cavity (e.g. Tooth surfaces) and may contribute to dental plaque   
formation & halitosis. Therefore, tongue brushing or scraping   
has been advocated as part of daily home oral hygiene,   
together with tooth brushing & flossing to remove   
microorganisms & debris from the tongue.

Patients should be informed t0 clean particularly the posterior portion of the dorsum.





