# Treatment Planning for the Periodontal Patient

The treatment plane for patients with periodontal disease include the following phases :

1. **Phase I therapy** ( initial, cause related therapy , non-surgical therapy )
2. **Phase II therapy** ( surgical therapy )
3. **Phase III therapy** ( restorative therapy)
4. **Phase IV therapy** ( maintenance therapy, periodic rechecking, supportive periodontal therapy)

After the diagnosis and prognosis have been established, the treatment is planned. The plan should include **immediate, intermediate, and long-term goals**.

The **immediate goals** are the elimination of all infectious and inflammatory processes that cause periodontal and other oral problems. Basically, the immediate goals are to bring the oral cavity to a state of health. **This may require** patient education on infectious oral diseases and disease prevention, periodontal procedures, caries control, oral surgery, and treatment of oral mucous membrane pathologies. Referral to other dental and medical specialties may be necessary.

The **intermediate goals** are the reconstruction of a healthy dentition that not only fulfills all functional and aesthetic requirements but lasts many years. Restoration of health, function, aesthetics, and longevity involves endodontic, orthodontic, periodontal, and prosthodontics considerations. The intermediate goals may be quickly achieved or require treatments over months or even years, depending on the complexity of the case, the therapy involved, and the financial status of the patient.

**The long-term goal** is **maintenance** of health through prevention and professional supportive therapy. The long-term goal is set, and both the patient and the clinician work toward it from the very first visit. Once active disease has been controlled, all infectious and inflammatory processes have been eliminated, and health has been attained, health should be maintainable for the rest of the patient's life. **Maintenance of health** requires **patient education**, **daily home care by the patient**, and **patient adherence to professional recall maintenance**.

**The treatment plan is the blueprint for case management**. It includes all procedures required for the establishment and maintenance of oral health and involves decisions regarding the following:

- **Emergency treatment (pain, acute infections)**
- **Removal of nonfunctional and diseased teeth**
- **Treatment of periodontal diseases**
- **Endodontic therapy**
- **Caries removal**
- **Occlusal adjustment and orthodontic therapy**
- **Replacement of missing teeth**
- **Aesthetic demands**
- **Sequence of therapy**

**Treatment decisions** are made with the **diagnosis and prognosis** of the individual teeth and the overall dentition in mind. The **prognosis** is usually established based on the **diagnosis**. Treatment decisions are made **based on** the **prognosis** and to **improve the prognosis**. As such, diagnosis and prognosis will change with treatment.

## Extracting or Preserving a Tooth

Removal, retention, or temporary(interim)retention of one or more teeth is an important part of the overall treatment plan.

A tooth should be extracted under the following conditions:

- ☒ **It is so mobile that function becomes painful.**
- ☒ **It can cause acute abscesses during therapy.**
- ☒ **There is no use for it in the overall treatment plan.**

In some cases, a tooth can be retained temporarily, postponing the decision to extract until the treatment is completed.

**A tooth in this category can be retained under the following conditions**:

1- **It maintains posterior stops :-**The tooth can be **removed** after treatment, when it can be replaced by an implant or another type of prosthesis **Or preserved** and be functional after implant placement in adjacent areas.

2- **In the anterior aesthetic zone**:- Tooth can be retained during periodontal therapy and removed when treatment is completed and a permanent restorative procedure can be performed. **This approach** avoids the need for temporary appliances during therapy.

3- **Extraction of hopeless teeth:-** can also be performed during periodontal surgery of the adjacent teeth. **This approach** reduces the number of appointments needed for surgery in the same area.

## Sequence of therapy

The periodontal treatment sequence is presented **in the following figures**. **Immediately** after completion of phase I therapy, the patient **should be placed** on the **maintenance phase IV** to preserve the results obtained and prevent recurrence of disease. While on the maintenance phase, with its periodic evaluation, the patient enters into the surgical phase II and the restorative phase III of treatment.

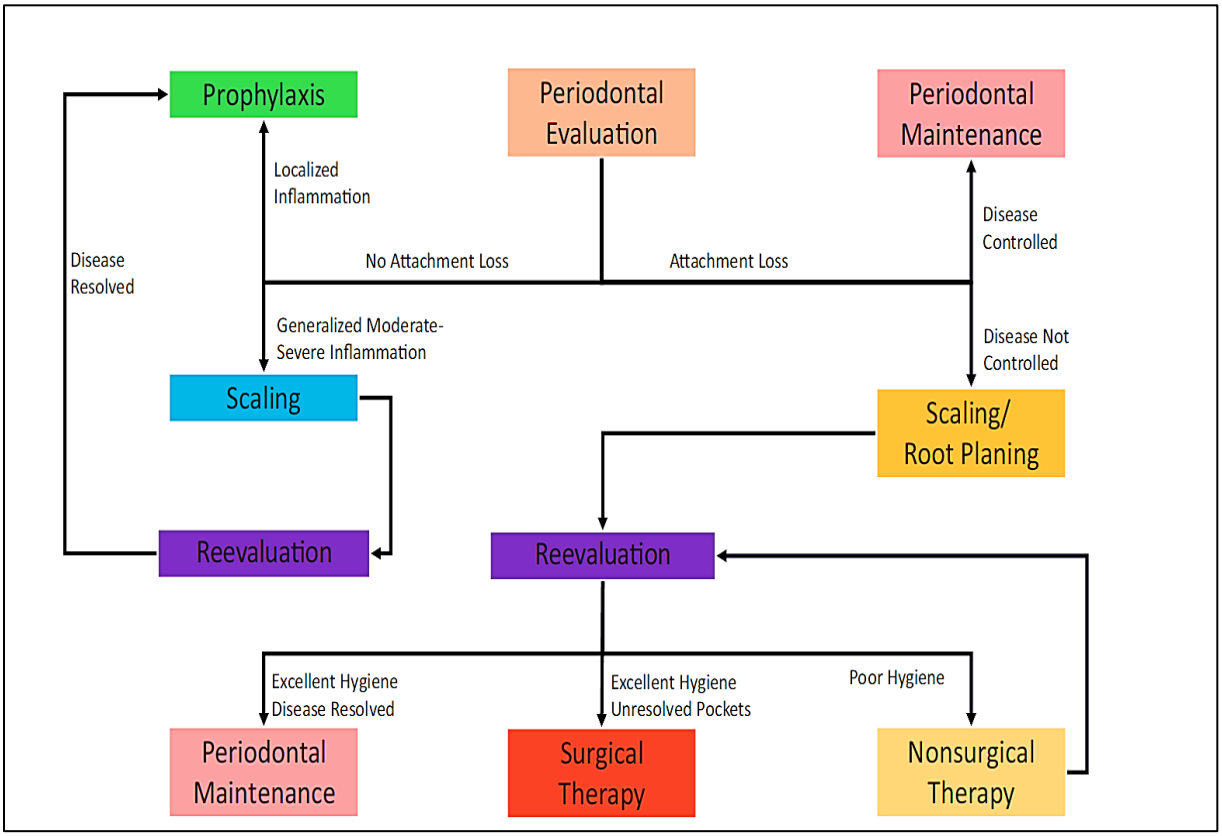



**Fig.:- Periodontal treatment decision tree.**

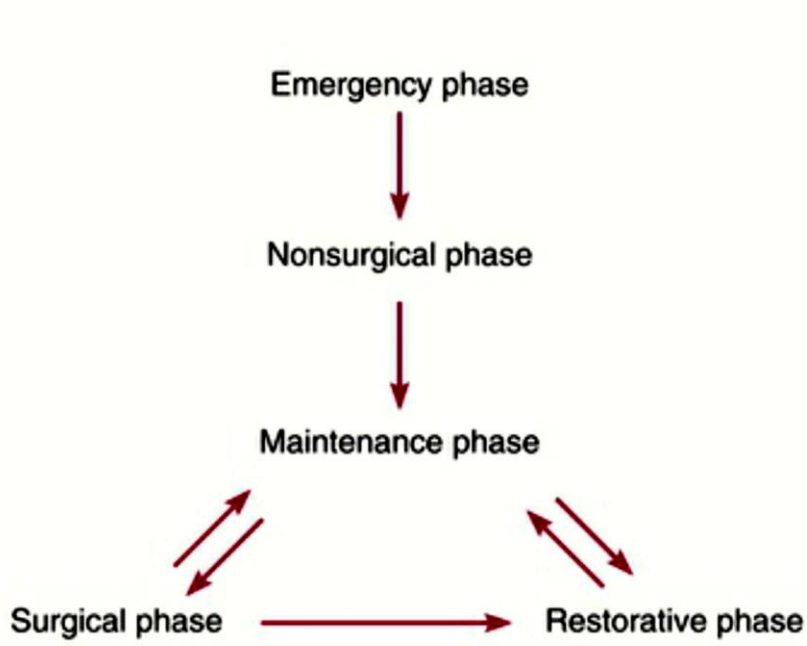



**Fig.:- Preferred sequence of therapy.**

## Sequence for the treatment of periodontitis stages I, II and III

**1. The first step in therapy (behavioral and risk factor modification**) is aimed at guiding behavior change by motivating the patient to undertake successful removal of supragingival dental biofilm and risk factor control and may **include the following interventions**:

- ✓ **Supragingival dental biofilm control.**
- ✓ **Interventions to improve the effectiveness of oral hygiene** [motivation, instructions (oral hygiene instructions).
- ✓ **Professional mechanical plaque removal**, which includes professional interventions aimed at removing supragingival plaque and calculus, as well as possible plaqueretentive factors that impair oral hygiene practices.
- ✓ **Risk factor control**, which includes all the health behavioral change interventions eliminating/modifying the recognized risk factors for periodontitis onset and progression **(smoking cessation, improved metabolic control of diabetes).**

This first step of therapy should be **implemented in all periodontitis patients**, irrespective of the stage of their disease, and should be re-evaluated **frequently to:**

- ☒ Continue to build motivation and adherence, or explore other alternatives to overcome the barriers
- ☒ Develop skills in dental biofilm removal and modify as required
- ☒ Allow for the appropriate response to the subsequent steps of therapy

**2. The second step of therapy (cause-related therapy)** is aimed at controlling (reducing/eliminating) the subgingival biofilm and calculus by:- **Performing subgingival instrumentation.**

**In addition to this, the following interventions may be included:**

- ➢ Use of adjunctive antiseptic agents
- ➢ Use of adjunctive host-modulating agents (local or systemic)
- ➢ Use of adjunctive locally or systemic delivered antimicrobials
- ➢ Periodontal re-evaluation.

This second step of therapy should be **used for all periodontitis patients**, irrespective of their disease stage, and for teeth with loss of periodontal support and/or periodontal pocket formation. such as for preventing periodontal abscess development.

The individual **response to the second step** of therapy should be assessed once the periodontal tissues have healed (periodontal re-evaluation).

- ❖ If the endpoints of therapy **(no periodontal pockets >4 mm with BOP or no deep periodontal pockets [≥6 mm])** have **not** been achieved, the third step of therapy should be **considered after 3 month**.
- ❖ If the treatment has been successful in achieving the endpoints of therapy, patients **should be placed in a supportive periodontal care** (**4th step**) program.

**3. The third step of therapy (surgical phase)** is aimed at treating those areas of the dentition non-responding adequately to the second step of therapy **(presence of pockets ≥4 mm with BOP or presence of deep periodontal pockets [≥6 mm])**, to gain further access to subgingival

instrumentation, or aim at regenerating or resecting those lesions that add complexity in the management of periodontitis (intrabony and furcation lesions).

**It may include the following interventions:**

- Repeated subgingival instrumentation with or without adjunctive therapies
- Access flap periodontal surgery
- Resective periodontal surgery
- Regenerative periodontal surgery

**4. Supportive periodontal care (maintenance phase)** is aimed at maintaining periodontal stability in all treated periodontitis patients combining preventive and therapeutic interventions defined in the first and second steps of therapy, depending on the gingival and periodontal status of the patient's dentition.

**This step should include**

- Reinforcement of proper biofilm control through oral hygiene and modification if necessary.
- Assessment and modification of risk factors for periodontitis (smoking cessation, evaluation of glycemic control for diabetes).
- Professional supragingival and subgingival biofilm and calculus control.

# Phase I therapy or cause-related therapy

The **objective** of phase I therapy is to alter or eliminate the microbial etiology and factors that contribute to gingival and periodontal diseases, thereby halting the progression of disease and returning the dentition to a state of health and comfort. **Phase I therapy** is **referred by many names**, including initial therapy, nonsurgical periodontal therapy, and cause-related therapy.

**Rationale**

Cause-related phase I periodontal therapy has been briefly stated as the approach aimed at removal of pathogenic biofilms, toxins, and calculus and the reestablishment of a biologically acceptable root surface. In addition, phase I therapy provides an opportunity for the dentist to evaluate tissue response and provide reinforcement about home care, both of which are crucial to the overall success of treatment.

**Management of all contributing local factors is required in phase I therapy. The following list of elements makes up phase I therapy:**

1. Patient education and oral hygiene instruction
2. Complete removal of supragingival calculus
3. Correction or replacement of poorly fitting restorations
4. Restoration or temporization of carious lesions
5. Orthodontic tooth movement
6. Treatment of food impaction areas
7. Treatment of occlusal trauma
8. Extraction of hopeless teeth
9. Possible use of antimicrobial agents

**Treatment Sessions**

In most cases, patients require several treatment sessions for complete debridement of the tooth surfaces. All the following conditions must be considered when determining the phase I treatment plan:

- General health and tolerance of treatment
- Number of teeth present
- Amount of subgingival calculus
- Probing pocket depths and Attachment loss

- Furcation involvement
- Alignment of teeth
- Margins of restorations
- Developmental anomalies
- Physical barriers to access to the dentition (i.e., limited opening or tendency to gag)
- Patient cooperation and sensitivity to therapy (requiring use of anesthesia or analgesia)

## Sequence of procedures

### Step 1: Plaque or Biofilm Control

### Motivation & Instruction

Plaque or biofilm control is an essential component of successful periodontal therapy, and motivation and instruction should **begin at the first** treatment appointment. **Before oral hygiene instruction**.

**Steps of Motivation:**

1-The patients must understand that they have a problem.

2-The problem has serious effect for the patient.

3-There is a solution to the problem.

4-The patient must participate in the solution.

5-Treatment will bring benefits for the patient.

Once the patient understands the nature of periodontal disease and the etiology, it **will be easier** to teach the hygiene that patient must practice.

The patient must be instructed on the correct technique to remove the plaque or biofilm; by applying the bristles at the gingival third of the clinical crowns, where the tooth meets the gingival margin. This technique is sometimes referred to as **targeted oral hygiene** and is synonymous with the **Bass technique**. Instructions are also initiated for interdental cleaning with dental floss and interdental brushes.

**Disclosing agent**

Is a chemical compound (**tablets or solution**) that stains dental plaque **such as erythrosine, fuchsin or a fluorescein, fast green**. These agents should be used to demonstrate the presence and location of plaque in addition to the evaluation of the efficacy of the patient's homecare technique thus they should be applied after tooth brushing and interdental cleaning.

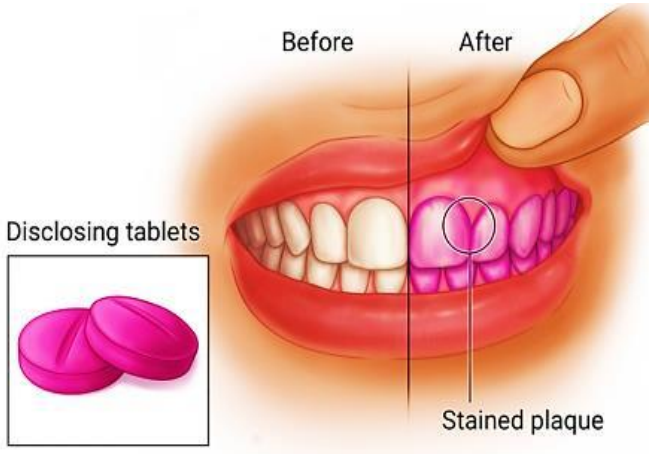



**Fig. :- Disclosing agent.**

**Step 2: Removal of Supragingival and Subgingival Plaque or Biofilm and Calculus**

Removal of calculus is accomplished using **scalers, curettes, ultrasonic instrumentation, or combinations** of these devices during one or more appointments. In addition to calculus and plaque or biofilm removal, cementum exposed to the pocket environment should be removed.

**Step 3: Recontouring Defective (Restorations and Crowns)**

Corrections of restorative defects, which are plaque or biofilm retentive areas, may be accomplished by smoothing the rough surfaces and removing overhangs from the faulty restorations with burs or hand instruments, or complete replacement of the failing restorations may be necessary.

**Step 4: Management of Carious Lesions**

Removal of the carious lesions and placement of either temporary or permanent restorations are indicated in phase I therapy because of the infectious nature of the carious process.

**Step 5: Tissue Reevaluation**

After scaling, root planing, and other phase I procedures, the periodontal tissues require approximately **4 weeks** to heal. This time **allows the connective tissues to heal**, and **accurate probe depths can be measured**. Patients will also have the opportunity **to improve their home care skills** to reduce gingival inflammation and adopt new habits that will ensure the success of

treatment. At the reevaluation appointment, periodontal tissues are probed, and all related anatomic conditions are carefully evaluated to determine whether further treatment, including periodontal surgery, is indicated.

**Decision to refer for specialist treatment**

It is critical to be skilled in determining which patients would benefit from specialist care and deciding when a patient should be referred. The concept of the **critical probing depth** of **5.4 mm** has been advanced to assist in making the determination to proceed to surgical intervention. This determination was made based on statistical analysis of surgical outcomes data. A similar **5-mm standard** has been commonly used as a guideline for identifying candidates for surgical referral based on the understanding that the **typical root length** is about **13 mm** and **the crest of the alveolar bone** is at a level approximately **2 mm apical** to the bottom of the pocket. When there is 5 mm of clinical attachment loss, the crest of bone is about 7 mm apical to the cementoenamel junction, and therefore only about half of the bony support for the tooth remains. Periodontal surgery can help improve support for teeth in these cases through pocket reduction, bone augmentation, and regeneration procedures.

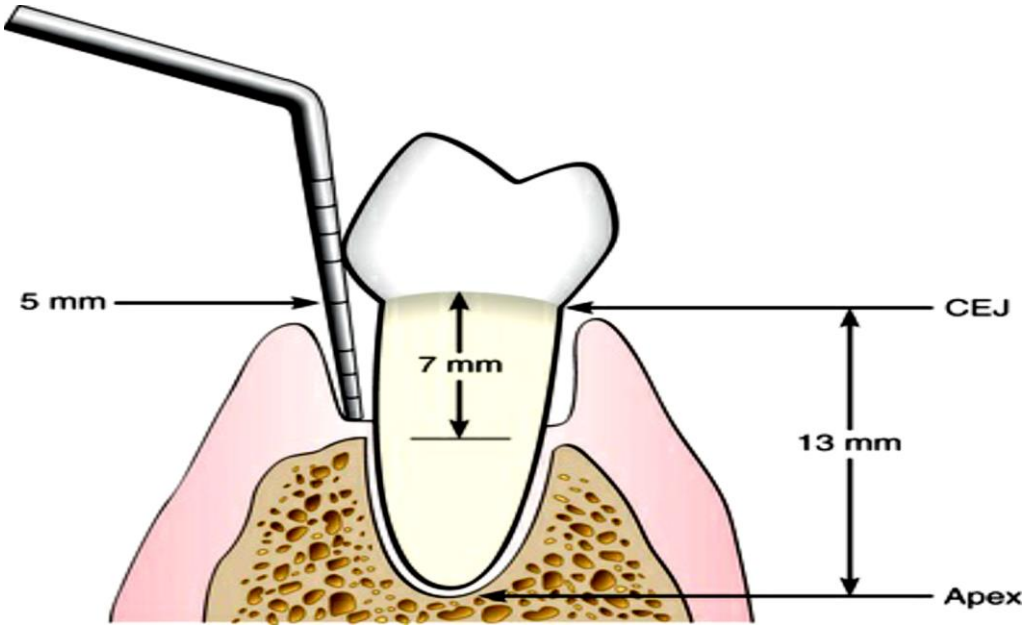



**Fig.:- The 5-mm standard for referral to a periodontist is based on root length, probing depth, and clinical attachment loss. The standard serves as a reasonable guideline to analyze the case for referral for specialist care.**

**Self-Performed Plaque Control**

The regular use of personal oral hygiene measures (refer to the efforts of the patient to remove supra-gingival plaque) is essential to the dental and periodontal health because plaque is the major etiological factor in periodontal disease.

**Plaque biofilm control has two important purposes in periodontal therapy:**

1. **To minimize gingival inflammation**
2. **To prevent the recurrence or progression of periodontal diseases**

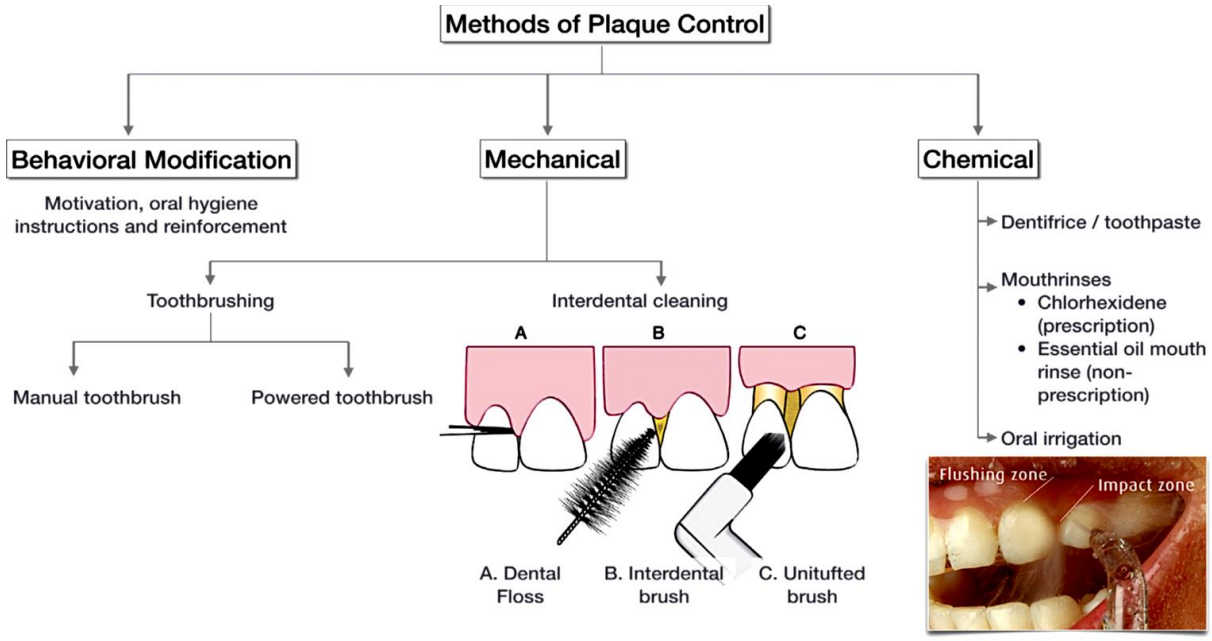



**Fig.:- Methods of plaque control.**

**The Toothbrush**

Toothbrushes vary in **size** and **design,** as well as in **length, hardness, and arrangement of the bristles** . When recommending a particular toothbrush, ease of use by the patient and the perception that the brush is effective are the important considerations.

**The efficacy of brushing with regard to plaque removal is dependent on:**

A. **The design of the brush.**
B. **The skill of the individual using the brush.**
C. **Frequency & duration of brushing.**

It has been shown that several factors contribute to the problem of abrasion associated with brushing :

1. **The use of hard toothbrushes**
2. **Vigorous horizontal brushing**
3. **The use of extremely abrasive dentifrices**

All these factors may contribute to and **lead to** cervical abrasions of teeth and recession of the gingiva.

**Toothbrush Design**

Toothbrush bristles are grouped in tufts that are usually arranged in three or four rows. Rounded bristle ends cause fewer scratches on the gingiva than flat-cut bristles with sharp ends. Two types of bristle material are used in toothbrushes: **natural bristles** from hogs and **artificial filaments** made of nylon. Both remove microbial plaque biofilm, but nylon bristle brushes predominate in the market. Bristle hardness is proportional to the square of the diameter and inversely proportional to the square of the bristle length. Diameters of common bristles **range from** 0.007 inch (0.2 mm) for **soft brushes** to 0.012 inch (0.3 mm) for **medium brushes** and 0.014 inch (0.4 mm) for **hard brushes**. Soft-bristle brushes have gained wide acceptance . Handle design characteristics are entirely a matter of personal preference. The **amount of force** used to brush is **not critical** for effective plaque biofilm removal. **Vigorous brushing** is **not** necessary and can **lead to gingival recession**, **wedge-shaped defects** in the cervical area of root surfaces, and **painful ulceration** of the gingiva. Most clinicians recommend that toothbrushes be replaced every **2-3 months** because a worn toothbrush with frayed filaments is less effective in removing plaque than a new brush.

**Toothbrushes requirements:**

The **shape and texture of the brush** should be chosen for the individual patient, taking into consideration:

- ☒ The size of teeth and oral cavity.
- ☒ The ease of accessibility.
- ☒ The quality and anatomy of the gingivae.
- ☒ Any sensitive places.

The features of a manual toothbrush in periodontics must be **Nylon**, **Soft-medium strength** (sensitive areas or where surgery has just been completed may need a very soft brush), **rounded ends filaments** to clean without damaging gingiva. A smaller head is easier to reach all areas of the oral cavity so, moves freely & smoothly inside the mouth and should be trimmed flat and multi-tufted with all tufts being of the same length. The **3 brush heads** clean the vestibular, occlusal & oral tooth surfaces thus this design was superior to other brushes.

**Frequency and duration:** The American Dental Association (ADA) recommends that individuals should **brush twice per day** and use floss or other interdental cleaners **once per day** to effectively remove microbial plaque biofilms and prevent gingivitis. Brush for a minimum of **2 minutes**, covering all areas of the oral cavity. It is recommended that the toothbrush is to be replaced **every 2-3 months** because a worn toothbrush with frayed filaments is less effective in removing plaque than a new brush.

**Electric toothbrushes:** Studies have shown that efficiency in plaque removal with electric toothbrushes is at least as good as correctly used manual toothbrushes, but indicated for those with:

1. limited manual dexterity, including the elderly
2. those with arthritis in their hands and wrists
3. Children
4. hospitalized individuals
5. physically or mentally handicapped
6. patients with neurological disorders.
7. Electric brushes have 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 to facilitate plaque removal and apply 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:**

**a. Triclosan: antibacterial agent**.

**b. Stannous fluoride.**

**c. Chlorhexidine: plaque inhibiting agent.**

❖ **Anti- Calculus agent:** reduces the formation of supragingival calculus.

❖ **Bicarbonate:** reduces 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 lauryl sulfate has antimicrobial & plaque-inhibitory properties

Dentifrices aid in cleaning and polishing tooth surfaces. They are used mostly in the form of pastes, although powders and gels are also available. The **contents** of dentifrices are **abrasives** (e.g., silicon oxides), **water, humectants**, **soap** or **detergent**, **flavoring** and **sweetening agents**, **therapeutic agents** (e.g., fluoride, pyrophosphates), **coloring agents**, and **preservatives**.

Tooth powders are much more abrasive than pastes and contain about 95% abrasive materials. The abrasive quality of dentifrices affects enamel slightly and is a much greater concern for patients with exposed root surfaces. Dentin is abraded **25 times** faster and cementum even faster, **35 times** the rate of enamel. Therefore root surfaces with exposed dentin and cementum are easily abraded, leading to notching and tooth sensitivity. **"Calculus control"** toothpastes, also referred to as "tartar control" toothpastes, contain **pyrophosphates** and have been shown to reduce the deposition of new calculus on teeth as it forms.

**Tooth brushing methods**

These methods can be categorized primarily according to the pattern of motion when brushing as follows:

1- **Horizontal: Scrub technique** 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.

2- **Circular (Fones Technique):** 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

3- **Vertical (Leonard technique):** It is similar to the horizontal brushing technique, but the movement is applied in a vertical direction using up & down motion.

4- **Vibratory: Charters, Stillman, and Bass (sulcular brushing ) techniques**

**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.

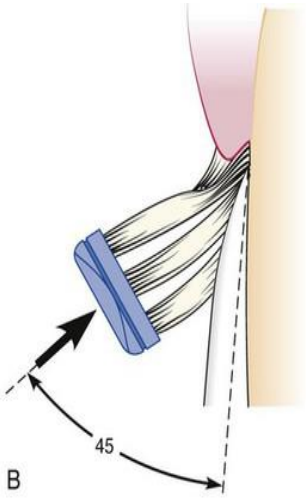
**Sulcular technique (Bass technique):** The head of the brush is positioned in an oblique direction towards the apex and bristles are directed into the sulcus **at 45° to the long axis** of the tooth. The brush is moved in a back & forth direction using short strokes. On the lingual surfaces in the 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. It is important for patients to understand that plaque biofilm removal at the dentogingival junction is **necessary** to prevent caries as well as periodontal disease. This emphasis to clean the area of the dentogingival junction is referred to as **target hygiene**. The method **most often recommended** is the Bass technique because it emphasizes the placement of the bristles at this most important area.

**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.

5- **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.

**Bass Technique**

**1.**Place the head of a soft brush parallel to the occlusal plane, with the brush head covering three to four teeth. This hygiene procedure begins at the most distal tooth in the arch and systematically proceeds mesially.


**2.** Place the bristles at the gingival margin, pointing at a 45° degree angle to the long axis of the teeth.

**3.** Exert gentle vibratory pressure using short, back-and-forth motions without dislodging the tips of the bristles. This motion forces the bristle ends into the gingival sulcus area , as well as partly into the interproximal embrasures. The pressure should be firm enough to blanch the gingiva.

**In** powered toothbrushes , the patient should place the brush head similar to the position with the manual brush. This is **the target hygiene area**.

**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.

**Interdental Cleaning Aids**

Any toothbrush, regardless of the brushing method used, does not completely remove interdental plaque biofilms. Daily interdental plaque biofilm removal is crucial because most dental and periodontal diseases originate in interproximal areas.

**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.

**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.

**Common aids for interdental hygiene are** dental floss, interdental brushes, rubber tips, and wooden or plastic tips.

**Dental floss & tape:**

Flossing is the most universally applicable method, 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 fills the embrasure space in healthy patients. However flossing is difficult for most people to learn, the patient should understand that floss is positioned gently in the gingival crevice and takes up a C-shape around the mesial and distal surfaces of the teeth and then withdrawn in a coronal direction. Floss is made from nylon filaments or plastic monofilaments, and it comes in waxed, unwaxed, thick, thin, and flavored varieties. Factors influencing the choice of dental floss include the tightness of tooth contacts, the roughness of proximal surfaces, the patient's manual dexterity, ease of use and personal preference.

**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 from precipitating on teeth.

**Floss holder** to facilitate flossing might be used. Flossing can be facilitated by using a floss holder which makes flossing more easy. The disadvantage of these floss holders is that using them tends to be time-consuming because they must be rethreaded frequently when the floss shreds. Disposable single-use floss holders with pre threaded floss are also available. Powered flossing devices are also available . These devices have been shown to be safe and effective, but they are no better at plaque biofilm removal than holding the floss with the fingers.

**3-Tape:** a type of broaded dental floss used for cleaning bridge pontics.

**4-Super floss:** used for patients with crowns, bridges & orthodontic appliances.

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. do not remove plaques as effectively as dental floss or interdental brush. They are made from wood and have a triangular cross-section, mimicking the shape of the space between the teeth. Base toward the gingiva and apex toward the occlusal surface.

**Interdental brushes:**

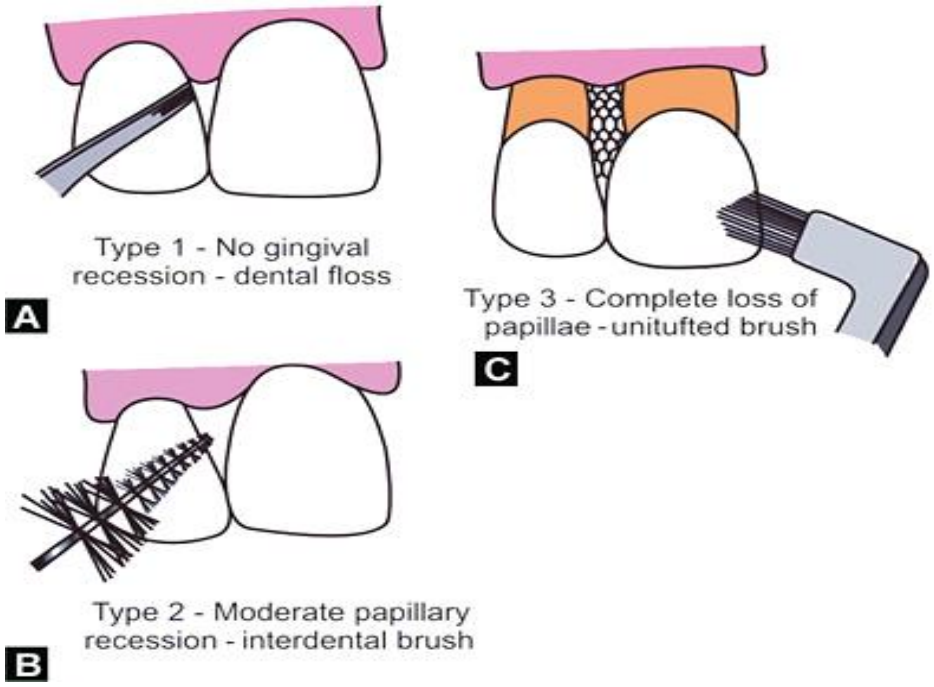
**These are the aids of choice for**: 1. Widely open interdental spaces. 2. When root surfaces with concavities or grooves have been exposed. 3. In through-and-through furcation defects in periodontitis patients.

It is believed that the most efficient cleaning results are achieved if the brush selected is 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, should be used without dentifrices because most paste is abrasive except for therapeutic purposes.

**Single tufted brushes:**

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.




**Tongue cleaner**

Tongue bacteria can serve as a source of bacterial dissemination to other parts of the oral cavity, and can contribute to dental plaque formation and halitosis. Patients should be informed that it is most important to clean the posterior portion of the tongue dorsum, but, likely, many patients do not reach far enough to contact the posterior dorsum during tongue cleaning because extended reaching causes the gag reflex. Tongue cleaning is a simple and fast procedure. Some studies have shown that tongue brushing, in combination with other methods of oral hygiene, is an effective method for reducing the formation of dental plaque. Regular mechanical tongue cleaning can play a role in controlling bacterial numbers and removing tongue coating. Individuals with coated tongues showed significantly higher malodor scores than individuals

with non - coated tongues so, mechanical approaches, such as tongue brushing or tongue scraping to clean the dorsum of the tongue, have the potential to reduce tongue coating and oral malodor.

**Dental water jet (oral irrigators):** The daily home use of oral irrigation has been shown to reduce gingivitis & bleeding. They may be used with water or with chlorhexidine which lead to improved plaque inhibition and had an anti-inflammatory effect.

**Effects of the incorrect use of mechanical plaque removal devices:**

Tooth brushing can cause damage both to soft & hard tissues. Trauma to the soft tissues results in gingival erosion & gingival recession. Trauma to hard tissues leads to cervical abrasion of the tooth surface which is mainly caused by the abrasives in the dentifrice. These lesions have been associated with toothbrush stiffness, the method of brushing, brushing frequency/time, excessive brushing force, and improper use of both manual and powered tooth brushing. The use of dental floss, interproximal brushes & wood sticks may also induce soft tissue damage; however, in most cases this damage is limited to acute lesions, such as lacerations and gingival erosions.

**Fig.:- Dental abrasion.**