# Treatment planning

Treatment planning is the second step in the treatment of any patient; the first step being diagnosis of the problem. Treatment planning can commence once a diagnosis has been arrived at, Putting it simply, it involves producing a road map of each step to be executed sequentially for a particular case so as to achieve the desired results.

## It entails the following:

### 1-FORMULATION OF A PROBLEM LIST

Formulation of a problem list is an important step and should be done in consultation with the parents and patients. For most patients, esthetics may be the most potent factor for demanding orthodontic treatment.
But on examination, the orthodontist has to take into consideration the general health of the patient, especially the oral health.
The problem list should include comments on the
A-periodontal condition of the patient,
B-His/her status of caries/restorations and vitality of teeth. Only then should the clinician formulate the orthodontic problem list.

### 2-SETTING PRIORITIES FOR THE ORTHODONTIC PROBLEM LIST

Setting priorities for orthodontic problems is important, as the space requirements are limited in most cases. If the case requires a lot of space for the retraction of teeth and there is some amount of crowding also present, then a compromise might need to be arrived at, decrowding along with limited retraction or retraction to desired limit and limited decrowding.
Similarly, priorities will have to be made regarding correction of molar relations, derotations and uprightenting of certain teeth.

### 3-PLANNING SPACE REQUIREMENTS

Space creation and utilization is important because of the overall size of the oral cavity. Extraction of a premolar may create as less as 6 mm of space or as much as 7.5 mm of space

Space required as part of treatment for the following:

1- RETRACTION OF PROTRUDED TEETH
2- CORRECTION OF CROWDING
3- ALIGNMENT OF ROTATED ANTERIOR TEETH

4- ALIGNMENT OF ROTATED POSTERIOR TEETH
5- CORRECTION OF MOLAR RELATIONSHIP
6- ANCHORAGE

All appliances generate tooth moving forces from certain other intraoral anchor teeth. In trying to move the maligned teeth, certain amount of undesired movement has been noticed in the anchor teeth.

**TREATMENT POSSIBILITIES**

Correction of a particular malocclusion can be achieved in various different ways , it is not always essential to treat a case; however, it is the clinicians duty to enlighten the patient regarding the consequences of not undertaking orthodontic correction.

Each treatment possibility has an advantage and a corresponding disadvantage. Compromises might have to be made regarding extraction of teeth, skeletal vs dental corrections, or amongst various dental corrections required.

Treatment possibilities should be listed and the possibility, which best serves, the particular patient at that particular age with maximum improvement in esthetics and function should be chosen.

**CHOICE OF MECHANOTHERAPY**

The appliance should be chosen so as to attain all the possible treatment results within the least possible time with as little tissue irritation/damage as possible.

It is at times a compromise between the patient's desires and the ability of the clinician.

## Factors affecting the choice of a specific treatment plan

The final treatment plan is the result of a discussion between the patient and the orthodontist. It is designed keeping in mind the priorities given to the various problems in the problem list. The choice of a specific treatment plan is based upon:

**1-THE TYPE OF TOOTH MOVEMENTS REQUIRED**

Simple tipping movements can be achieved using removable appliances. If multiple, complex tooth movements are desired, it is advisable to use one of the available fixed orthodontic appliances.

**2-PATIENT'S EXPECTATIONS**

Patients who have high expectations are expecting ideal finishes which might not be possible using removable appliances. Such patients are concerned about their esthetics to such an extent that the labial appliances might not be an option, they might desire the use of lingual appliances or ceramic appliances.

A compromise might need to be arrived at regarding treatment results and the patient's expectations, it is advised to inform the patient exactly what is achievable with which appliance, to the best of the clinician's ability before commencing the treatment.

**3-GROWTH POTENTIAL OF THE PATIENT**

Growing patients can be a boon as well as bane. Results achieved during growth are more stable yet sometimes the return of un-favorable growth pattern following completion of treatment can result in relapse of the treatment results. This is especially true for Class III skeletal pattern cases. Sufficient planning and follow up is advised in growing patients.

**4-PATIENT'S ABILITY TO MAINTAIN ORAL HYGIENE**

Certain age groups or patients might not be able to maintain adequate oral hygiene with fixed appliance therapy.

Such patients can be treated using removable appliances with compromised treatment results.

**5-THE COST OF THE TREATMENT**

Fixed orthodontic treatment is more costly as compared to removable appliance therapy. Sometimes the patient might not be able to afford costly yet ideal treatment plans. The financial implications of the treatment should be considered and explained to the patient at the time of deciding upon a particular treatment plan.

**6-THE SKILLS OF THE TREATING CLINICIAN**

a- It is always better to work within your means and to present treatment plans that can be achieved. It is not possible for every clinician to be good at everything he/she does. Being truthful to the patient before treatment is better than being sorry for him/her following treatment.

b- It is the duty of the clinician to choose an appliance that is appropriate for the particular case and not just appropriate for the clinician. If one has to continue to treat cases, the clinicians need to upgrade their knowledge and skills with the change in developing

technology.

**7-DISCUSSION WITH THE PATIENT AND PATIENT CONSENT**

Patient today act as co-decision makers. Hence, it is the orthodontist legal and moral duty to discuss the risk/benefit of the treatment and alternatives as well as the risks of no treatment at all.

## Informed consent

Informed consent: means the patient is given information to help them to understand the:

- Malocclusion
- Proposed treatment and alternatives
- Commitment required
- Duration of treatment
- Cost implications

Treatment alternatives, which must always include no treatment as an option, must be clearly explained, with the risks and benefits of each approach carefully discussed.

Patients who are 16 years or older are presumed to have competence to give consent for themselves. Many orthodontic patients are younger than this, but provided that they fully understand the process, they can give consent. If a competent child consents to treatment, a parent cannot override this decision – this is known as 'Gillick competence'.

However, it is preferable to have full parental support for the treatment if possible. If the converse occurs – the parent wants the treatment, but the child does not – then it is best not to proceed. Orthodontic treatment requires a great deal of compliance, and unless the patient is totally committed, it is best to delay until such time as they are.

It is advisable to obtain a written consent for the treatment. A copy should be given to the patient with clear details of the:

1- Aims of the treatment,
2- Risks and benefits,
3- Types of appliances to be used,
4- Details of any teeth to be extracted,
5- Commitment required,

6- Likely duration of treatment

Note: When estimating treatment time, it is always better to slightly overestimate the likely treatment duration. If the treatment is completed quicker than first promised, the patient will be pleased. However, if the treatment takes longer, the patient may lose interest, resulting in compliance problems.

7- Any financial implications,
8- As well as long-term retention requirements.

As well as providing a written record of the aims of the treatment and the treatment plan, it is useful to give the patient a summary of exactly what is expected from them,this involves information about:

1- Maintenance of good oral hygiene
2- Appropriate diet and regular attendance.
3- Also any specific requirements relevant to their case, such as headgear wear, turning expansion screws and elastic wear.

A fully prepared and committed patient is more likely to result in more successful orthodontic treatment.

## Orthodontic treatment plan phases:

1-Preventive Orthodontics

2- Interceptive Orthodontics

3-Corrective Orthodontics

**Preventive Orthodontics**: Includes all those procedures undertaken to preserve the integrity of normally developing occlusion by protecting current conditions or preventing situations that would interfere with growth by the following measures:

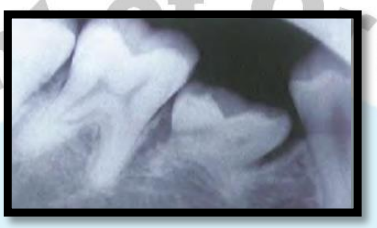
**1-Parent education:**

A- Should ideally begin much before the birth of the child. The expecting mother should be educated on matters such as nutrition to provide an ideal environment for the developing fetus.

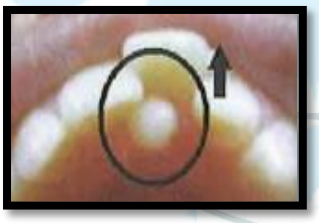
B- Soon after the birth, the mother should be educated on proper nursing and care of the child. In case the child is being bottle fed, the other is advised on the use of physiologic nipple (designed to permit suckling of

milk, which more or less resembles normal functional activity as in breastfeeding) and not the conventional nipple.
C- The parents should also be educated on the need for maintaining good oral hygiene of the child's oral cavity (avoid nursing during all the night)

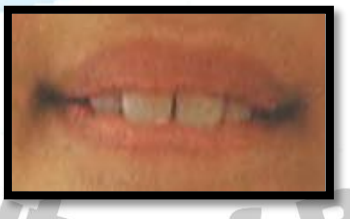
**2- Maintenance of shedding and eruption timetable:**
**3 -Management of premature loss of deciduous teeth:**
**4- Management of ankylosis of deciduous teeth:**



**5- Prolonged retention of deciduous teeth:**
**6-Extraction of Supernumerary Teeth:**



**7- Management of Oral Habits:**



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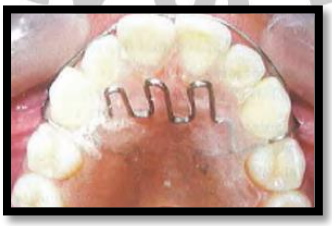


**8-Management of deeply locked first permanent molars:**

Occasionally, the first permanent molar may get deeply locked under the crest of contour of the distal surface of deciduous second molar due to distal inclination of the latter tooth.

***To Prevent that:*** Re approximation /proximal stripping to a certain extent on mesial and distal surface of second deciduous molar will guide the eruption of deeply locked first permanent molar.

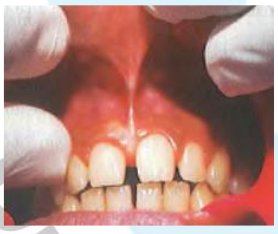
**9-Treatment of Occlusal Prematurities:** Occlusal prematurities due to over or underfilled restoration or uneven attrition of teeth causes a tendency of forward placement of mandible. This may lead to pseudo class III malocclusion.

***To Prevent that:***

a-Correcting the improper restoration.

b-Treatment of attrition by composite restoration.

**10-Management of Abnormal Frenum Attachment:**



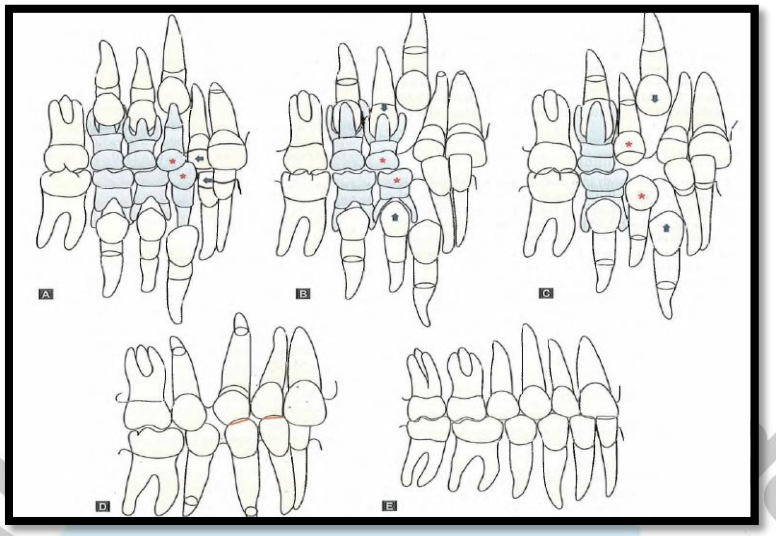
**11- Space maintainers:**

## Interceptive Orthodontics:

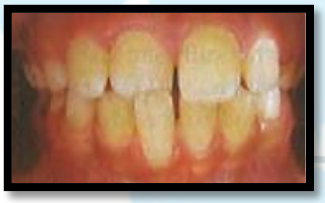
Interceptive orthodontics is undertaken at a time when malocclusion has already developed or developing. The difference between preventive and interceptive orthodontics lies in the timing of the services rendered. Preventive orthodontic procedures are undertaken when the dentition and occlusion are perfectly normal, while the interceptive procedures are carried out when signs and symptoms of a developing malocclusion are evident.

**Interceptive orthodontic procedures may include:**

**1-Serial extraction/guidance of occlusion**:



**2-Correction of developing cross-bites**



**3-Control of abnormal oral habits**: Correction of deleterious oral habits, such as:

a-Thumb sucking

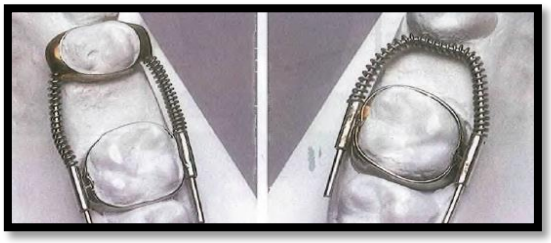
b- tongue thrusting

c- Mouth breathing

**4-Proximal stripping of deciduous teeth to facilitate the eruption of adjacent permanent teeth:**

**6-Interception of skeletal malrelations:**

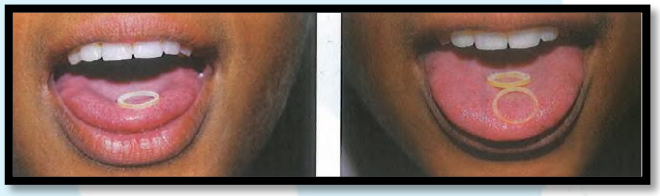
**7- Space regaining:**



**9-Muscle exercises:**

Dentoalveolar structures are surrounded on sides by the soft tissue envelop made of orofacal musculature.

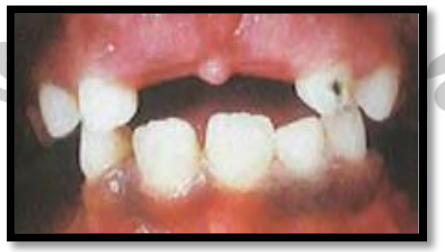
Development and maintenance of normal occlusion depends on presence of normal oro-facial muscular balance. Muscle exercises help in improving aberrant muscle activity.



**10-Removal of soft tissue and bony barriers:** Removal of soft tissue and bony barrier is a surgical interceptive orthodontic procedure, which involves excision of the soft tissue and removal of bone,

covering the crown of the unerupted .tooth, to create the space so that the tooth can erupt without any hindrance.

The extent of soft tissue and bone removal should be such that the greatest diameter of the crown of the tooth should be able to easily emerge. The surgical wound is given a cement dressing for a period of two weeks.



**Corrective Orthodontics:** Will be discussed later in details