

# Preventive and Interceptive Orthodontics Treatment

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## Abstract

Preventive orthodontics is that part of orthodontic practice which is concerned with patients and parents education, supervision of the growth and development of the dentition and cranio-facial structures. The diagnostic procedures undertaken to predict the appearance of malocclusion and the treatment procedures instituted to prevent the onset of malocclusion. Interceptive orthodontics has been defined as that phase of science that can recognize and eliminate potential irregularities and malpositions of the developing dento-facial complex. Many of procedures are common in preventive and interceptive orthodontics, but the timings are different. Preventive procedures are undertaken in anticipation of development of a problem, whereas interceptive procedures are taken when the problem has already manifested. Orthodontic problems in children can be divided conveniently into non skeletal and skeletal problems, which are treated by tooth movement and by growth modification. Such treatment may take place in deciduous or transitional dentition and may include redirection of ectopically erupting teeth, slicing or extraction of deciduous teeth, correction of isolated dental crossbites of recovery of minor space loss.

**Keywords:** preventive orthodontics, dentition, malocclusion, malpositions, deciduous teeth

## Introduction

Many of the procedures are common in preventive and interceptive orthodontics but the timings are different. Preventive procedures are undertaken in anticipation of development of a problem. Whereas interceptive procedures are taken when the problem has already manifested. Purpose of early orthodontic treatment: To intercept developing problem. To prevent obvious problems from becoming worse. To correct obvious problems. To remove the etiologic factors and restore normal growth. To reduce the severity of skeletal problems, making possible easier and more precise tooth positioning in adolescence.

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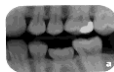
## 2. Methodology

Preventive orthodontics include treatment of: Natal teeth, Occlusal relationship, Eruption Problems, Space maintenance. Natal teeth: Present at birth or erupt shortly after birth. Most frequent in lower incisor region. Only 10% are supernumerary therefore removed only when interfere with feeding or causing tongue ulceration.

Cross bites of Dental Origin: Correction of dental crossbites in the mixed dentition is recommended, because it eliminates functional shifts. The most common etiologic factor for non skeletal anterior Crossbites is lack of space for the permanent incisors. It is important to focus the treatment plan on management of the total space situation, no just the crossbite. If the developing crossbite that is discovered before eruption is complete and overbite has not been established the adjacent primary teeth can be extracted to provide the necessary space.

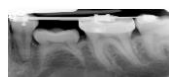
Prevention and timely restoration of carious teeth. The deciduous teeth are natural space maintainers. Simple preventive procedures like: Application of topical fluorides & fissure sealants.

Management of ankylosed tooth: Ankylosis is a condition characterized by absence of the periodontal ligament in small area or whole of the root surface.



**Fig 1** Ankylosis of teeth **Fig 2**

This radiograph demonstrates both anterior and posterior teeth tipping over adjacent ankylosed primary molars. The ankylosed teeth should be removed if significant tipping and space loss are occurring.



**Fig 3**

Supernumerary & supplemental teeth can interfere with eruption of nearby normal teeth. They deflect adjacent teeth and erupted teeth in abnormal positions. They should be identified and extracted before they cause displacement of other teeth.



**Fig 4** Supernumerary teeth Supplemental teeth

Space maintenance: Premature loss of deciduous teeth can cause drifting of the adjacent teeth into the space. Space maintainers must be inserted in appropriate cases after the loss of deciduous teeth. Space maintainer appliance is different intra oral removal of fixed appliance.



**Fig 5** Space maintenance



**Fig 5** Over-Retained Primary Teeth

Over-Retained Primary Teeth: A permanent tooth should replace its primary predecessor when approximately three fourths of the root of the permanent tooth has formed. Once the primary tooth is out, if space is adequate, moderately abnormal facial or lingual positioning will usually be corrected by the equilibrium forces of the lip, cheeks and tongue. A primary tooth that is retained beyond this point should be removed because it leads to: Gingival inflammation, Hyperplasia that causes pain and bleeding.

Ugly duckling stage: The spaces between the incisors, including the midline diastema, decrease and often completely disappear when the canines erupt. While their crowns diverge distally, this condition of flared and spaced incisors is called the "ugly duckling" stage of development. These spaces tend to close spontaneously, when the canines erupt and the incisor root and crown positions change.



**Fig 6** Ugly duckling stage

Procedures undertaken in interceptive orthodontics: Serial extraction, Correction of developing crossbite, Control of abnormal habits, Space regaining, Muscle exercises, Interception of skeletal malrelation, Removal of soft tissue or bony barrier to enable eruption of teeth.

Serial extraction: Planned and timely removal of certain deciduous teeth followed by certain permanent ones, to allow normal alignment of permanent teeth.

*Advantages of serial extraction:* Reduces the severity of malocclusion, Reduces the extent of mechanotherapy, Reduces the duration of treatment.

*Disadvantages of serial extraction:* Chances of increasing overbite, Canines may fail to migrate distally, anterior teeth may tip lingually.

Correction of developing crossbite. Anterior cross bite is a condition characterized by reverse overjet, where in one or more maxillary anterior teeth are in lingual relation to the mandibular teeth.



**Fig7** Dento-alveolar                      Skeletal                      Functional

The crossbite should be intercepted and treated at an early stage to prevent a minor orthodontic problem from progressing into a major dento-facial anomaly. The best time to treat a crossbite is the first time it is seen" Or else it may grow into skeletal malocclusion" Correction of developing crossbite.

Methods of correction of developing anterior crossbite:



**Fig 8** Tongue blade

**Disadvantages** :It is effective only during phase that clinical crown has not erupted totally in oral cavity. It is used only when we have adequate space for correction. **Indications:** It is used only in cases when crossbite is due to palatal movement of maxillary incisive. It is putted in an angle of 45 degree in lower anterior and is made of acrylic or metal.



**Fig9**

Control of abnormal Oral habits. Habit's refers to certain actions involving the teeth and other oral or perioral structures, which are repeated often enough by some patients to have a profound effect on the positions of teeth and occlusion. Oral habits should be recognized early and patient should be helped to give up by motivation or by fitting a suitable habit breaking appliance.

Some common habits: Thumb / digit sucking, Tongue thrusting, Mouth breathing, Lip sucking / biting.

Functional appliance are used. These appliances are equipped with accessories that train tongue to the new position. Correct the position of teeth (close anterior open bite).

Mouth breathing as habitual respiration through the mouth instead of the nose.

Usually seen in people with nasal obstruction may also occur as a habit. If persists, Vestibular Screen / Oral Screen can be used.

Lip bumper. It is positioned in the vestibule of the mandibular arch & serve to prohibit the lip from exerting excessive force on the mandibular incisors.

The myobrace interceptive appliance system is designed specifically to correct poor oral habits. It is more effective before a child permanent teeth are coming through ages 5 to 8.



**Fig10** Lip bumper



Myobrace interceptive appliance

Space regainers in the form of removable appliances or fixed appliances are used to regain the space by moving the drifted teeth back to their original position. Premature loss of deciduous teeth causes migration of the adjacent teeth into the edentulous space. This cause inadequate space for the eruption of the permanent teeth.



**Fig 11** Space regainers

## Conclusion

The mal occlusion may be accepted or be treated in a variety of ways. The natural growth change which follows the completion of the treatment may spoil fine results. Interceptive procedures can to some extent prevent or reduce the severity of malocclusion. In the treatment at early ages the orthodontist can reasonably become “Re director” of growth pattern rather than solely concerned about tooth position.

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