



# Definitions of certain orthodontic terms

## Lec. 2

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# Classification of malocclusion

## Permanent Dentition

malpositions of individual tooth

Angle described seven malpositions of individual teeth: (1) buccal or labial, (2) lingual, (3) mesial, (4) distal, (5) torso (rotated), (6) infra (not erupted sufficiently to reach the occlusal plane), and (7) supra (erupted through and beyond the occlusal plane). These individual tooth malpositions can be used to describe a malocclusion more fully.

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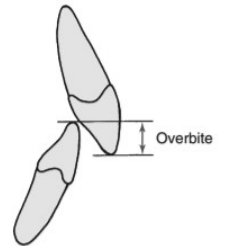
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# Definitions of certain orthodontic terms

## Malocclusion of individual tooth

# Overbite

Overbite is the amount of vertical overlap between the maxillary and mandibular central incisors.



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# Overbite

This relationship can be described either in millimeters or more often as a percentage of how much the upper central incisors overlap the crowns of the lower incisors.

Measured in

- mm
- Percentage
- third

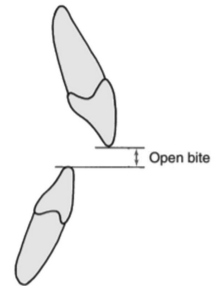


ideal overbite of 0 to 2 mm

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# Open bite

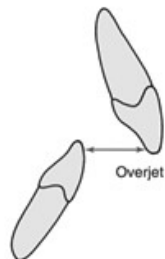
In open bite (negative overbite), there is no vertical overlap, and the vertical separation of the incisors is measured to quantify its severity.



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# Overjet

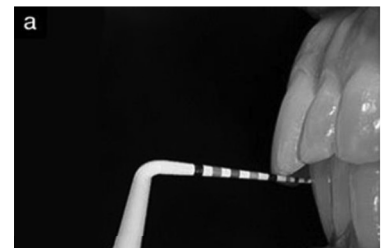
Overjet is the horizontal relationship or the distance between the most protruded maxillary central incisor and the opposing mandibular central incisor.



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# Overjet

This relationship is expressed in millimeters. The normal range of overjet in the primary dentition varies between 0 and 3-4 mm



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# Overjet

If the maxillary incisors are lingual to the mandibular incisors, the relationship is described as an reverse overjet OR anterior crossbite (underjet).

reverse overjet (Class III)



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# Overjet

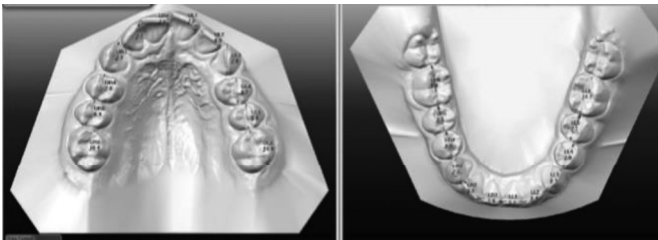
Class II  
Molar and jaw relationship



Overjet of 5 mm or more, suggesting Angle's Class II malocclusion, increased Overjet (Class II)

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## A tooth size-arch length discrepancy (TSALD)



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## A tooth size discrepancy

A tooth size discrepancy of less than 1.5 mm is rarely significant, but larger discrepancies create treatment problems in achieving ideal interdigitation, overjet and overbite

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## A tooth size-arch length discrepancy (TSALD)

Spacing



crowding



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## Spacing

localized



generalized



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## Crowding

Mild  
< 4 mm

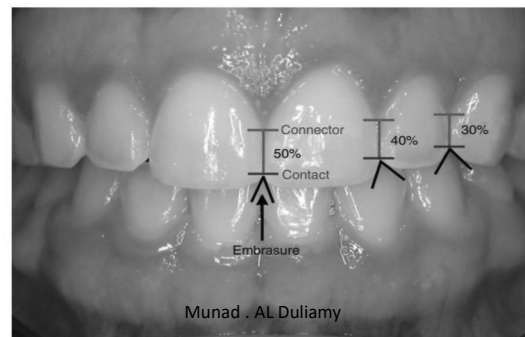
Moderate  
4-8mm

Sever  
>8 mm

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وَكُلُّ شَيْءٍ عِنْدَهُ بِمِقْدَارٍ  
(8 الرعد)

## dental midline



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## midline deviation (shifting) or off midline



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## Instanding tooth

Growing inward or with an inward tendency



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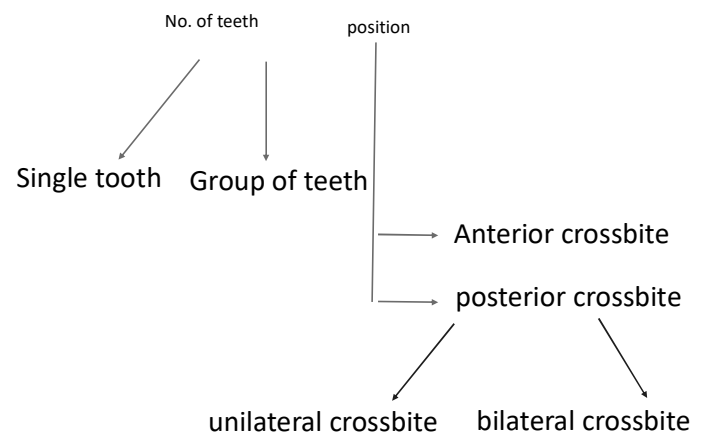
## cross bite

occlusal irregularity where a tooth (or teeth) has a more buccal or lingual position than its corresponding antagonist tooth in the upper or lower



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## Crossbite



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# Crossbite

Number of teeth

Single tooth

Group of teeth



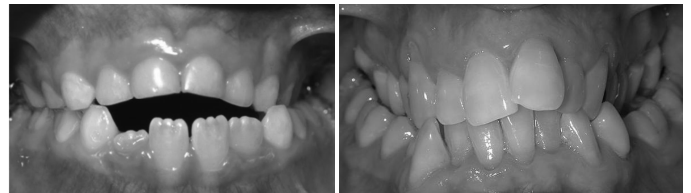
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# Crossbite

posterior crossbite

unilateral crossbite

bilateral crossbite



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# Crossbite

position



Anterior crossbite

posterior crossbite

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**PLEASE  
NOTE:**

## Clinical consideration

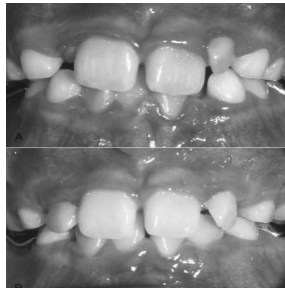
Crossbite should be treated once it diagnosed, why???

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**PLEASE  
NOTE:**

## Clinical consideration

Crossbite should be treated once it diagnosed because ???



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## Tipping or Inclination

Buccal inclination or proclination  
(when the crown of the tooth is tipping outside the line of occlusion)

Angle's Class II div. 1 With proclination of all the upper incisors

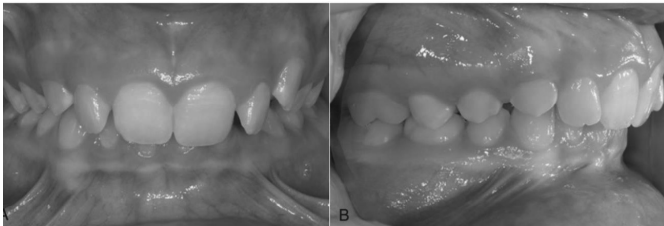


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## Tipping or Inclination

Lingual inclination or—retroclination  
(when the crown of the tooth is tipping inside the line of occlusion)

Angle's Class II div. 2 With retroclination of the upper central incisors



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## Mesial inclination or tipping

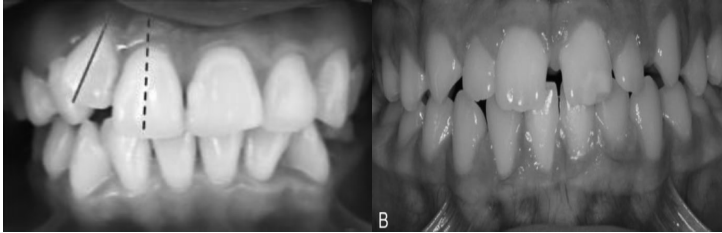
crown tilted mesially or farther forward than normal



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## Distal inclination or tipping

crown tilted distally or backwards than normal



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## Procination (dental)

common

if the incisors are positioned facially (proclined)



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## Retroclination (dental)

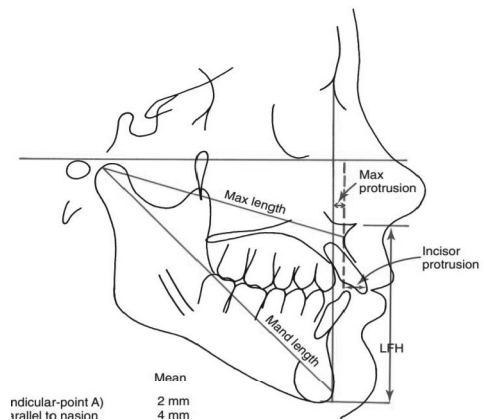
Rare

if the incisors are positioned lingually (retroclined)



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## Protrusion (dental & skeletal)



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## Skeletal protrusion

Now we are talking about the dentoalveolar (skeletal problem)



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## Skeletal retrusion

Now we are talking about the dentoalveolar (skeletal problem)



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**PLEASE  
NOTE:**

### Clinical consideration

Severe dental protrusion or retrusion, which also are complex treatment problems, should be recognized during the facial profile analysis.

The urgency for treating these problems usually depends on the esthetic impact or, in the case of protrusion, the potential for traumatic injury. Otherwise, they should be treated as noted earlier.

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## tooth displacement



There is moderate maxillary incisor crowding, with the midline off due to displacement of the maxillary incisors. The maxillary incisors are tipped lingually, there is minimal overjet despite Class II buccal segments, and overbite is excessive

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## Displacement

Buccal displacement—tooth that is bodily moved in labial/buccal direction



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## Displacement

Lingual or palatal displacement—tooth that is bodily moved in lingual or palatal direction = Instanding tooth



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## Displacement

Mesial displacement—tooth that is bodily moved in mesial direction



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## Displacement

Distal displacement—tooth that is bodily moved in distal direction



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## Infraversion or infraocclusion

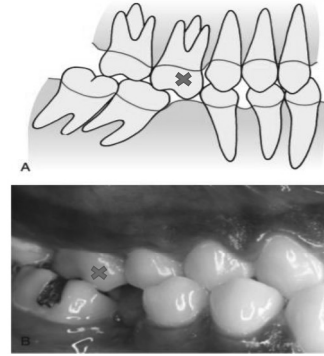
this is a tooth that has not erupted enough as compared to other teeth in the arch



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## Supraversion or supraocclusion

this is a tooth that has overerupted as compared to other teeth in the arch.

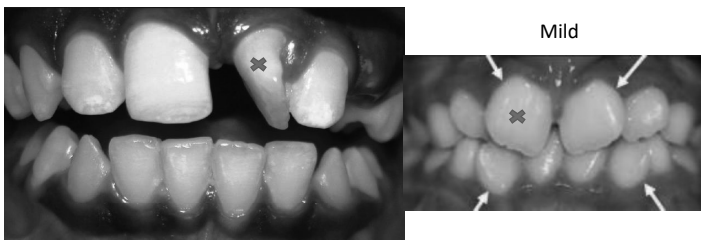


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## Rotation

tooth movement around its long axis  
degree of rotation

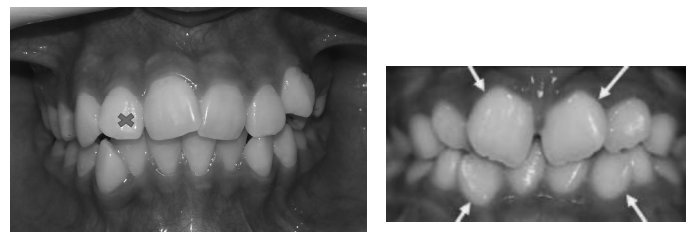
Sever > 90°



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## Rotation

Mesiolingual or distobuccal rotation—tooth that has mesial aspect more lingually placed



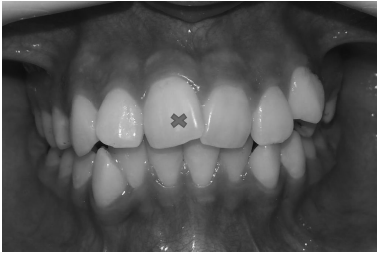
Mesiolingual

distobuccal

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## Rotation

Distolingual or mesiobuccal rotation—tooth that has moved around its long axis so that distal aspect is more lingually placed.



mesiobuccal

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## Transposition

where the teeth have exchanged/interchanged their positions



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## Imbrication

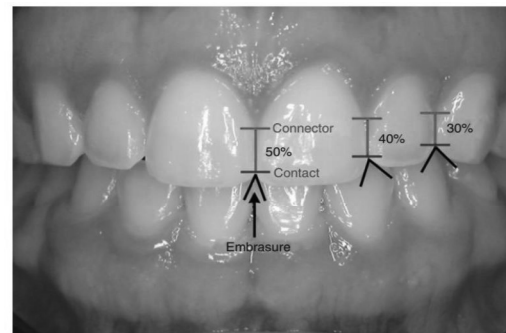
Imbrication denotes especially lower incisors arranged in an irregular manner within the arch due to lack of space.



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## overlap

Overlap: In a normally occluding dentition, the maxillary teeth are labial/buccal to the mandibular teeth.



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## Overlap



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## impaction

Impacted teeth those teeth that fails to erupt into the dental arch within the expected time



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## Malposed tooth or teeth

Example: Buccaly malposed canine



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## Orthodontic treatment

Who Needs Treatment?

Why we need orthodontic treatment?

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Protruding, irregular, or maloccluded teeth can cause three types of problems for the patient:

1. social discrimination because of facial appearance (esthetic problem)
2. problems with oral function, including difficulties in jaw movement (muscle incoordination or pain), temporomandibular dysfunction (TMD), and problems with mastication, swallowing, or speech (functional problem)
3. greater susceptibility to trauma, periodontal disease, or tooth decay (oral hygiene and soft & hard tissue problem).

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(esthetic problem)

Social discrimination (Psychosocial Problems)

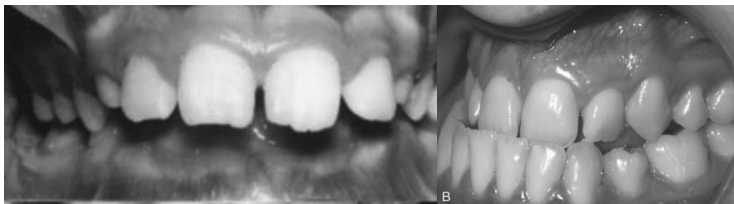


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Problems with Oral Function,

- TMD dysfunction
- problems with mastication
- swallowing
- speech

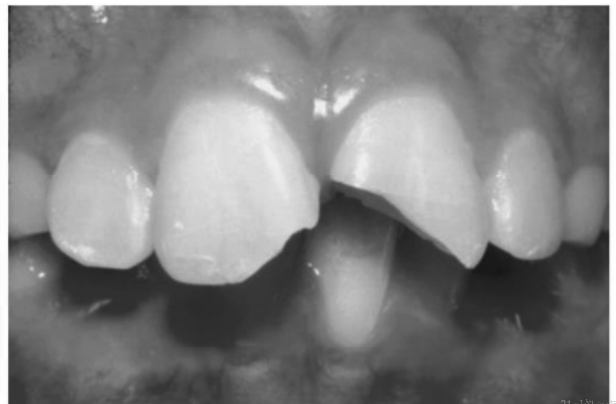


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greater susceptibility to trauma

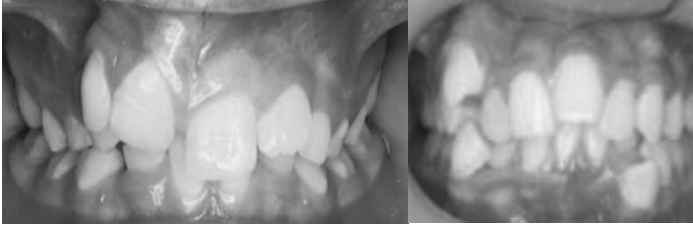
Proclined incisors with increased overjet more susceptible to trauma



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Overlaped, crowded, malposed teeth,...etc. have greater susceptibility to periodontal disease, or tooth decay



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Number 1 is the most attractive and number 10 the least attractive arrangement. Where would you put your teeth on this scale?" Grades 8 to 10 indicate definite need for orthodontic treatment; 5 to 7, moderate or borderline need; 1 to 4, no or slight need.

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## Types of Orthodontic treatment

- Preventive Orthodontic Treatment
- interceptive Orthodontic Treatment
- Corrective Orthodontic Treatment (comprehensive orthodontic and orthognathic)

One of the major goals of modern orthodontics is to prevent or intercept developing malocclusion caused by aberrations in the developmental process. Thus interceptive orthodontics plays an important role in reducing the development of future complex malocclusions.

Koshy Philip

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Graber defined preventive orthodontics as 'the action taken to preserve the integrity of what appears to be a normal occlusion at a specific time'.

preventive orthodontic procedures are aimed at elimination of factors that may lead to malocclusion,

## preventive orthodontics

Procedures undertaken in preventive orthodontics are as follows

- A. Preventive procedures without use of appliances
1. Predental procedures and parental education
  2. Maintenance of good oral hygiene in deciduous dentition.
  3. Caries control and restoration of decayed deciduous teeth
  4. Extraction of supernumerary teeth or retained deciduous tooth
  5. Maintenance of quadrant-wise tooth shedding timetable
  6. Stop bad oral habits
  7. Prevention of damage to occlusion or occlusal equilibration

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### A. Preventive procedures without use of appliances

1. Predental procedures and parental education

All these preventive procedures ideally should begin before the birth of the child and are instituted before the eruption of teeth. The mothers should be educated on matters like:

- breastfeeding ○ Nutrition ○ Proper nursing and care of the child
- Use of physiologic nipples ○ harmful effect of prolonged use of pacifiers on dentition ○ Correct method of brushing child's teeth.

Overall, the parents should be educated on need for maintaining good oral hygiene of the child.

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### A. Preventive procedures without use of appliances

2. Oral hygiene

Parents and children should be taught appropriate oral hygiene measures applicable to the children.



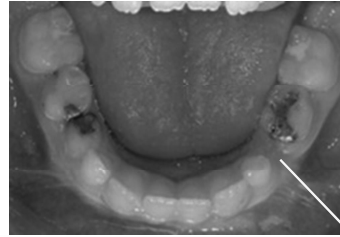
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## B. Preventive procedures with the use of appliances

1. Space maintenance by appliances (space maintainers).
2. Habit breakers

## Space Maintaining

Whenever spaces for successors were lost due to caries or early extraction, a dental problem will occur.



Space loss

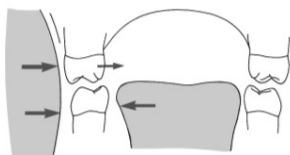
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## habit break



Diagrammatic representation of soft tissue pressures in the molar region in a child with a sucking habit. As the tongue is lowered and the cheeks contract during sucking, the pressure balance against the upper teeth is altered, and the upper but not the lower molars are displaced lingually.

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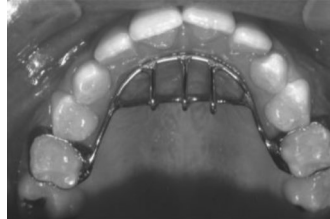
(A) to (D) Photos at 1-year intervals of a child who stopped sucking his thumb at the time of the first photo. Gradual closure of the open bite, without a need for further intervention, usually occurs in patients with normal facial proportions after habits stop.

## preventive orthodontics



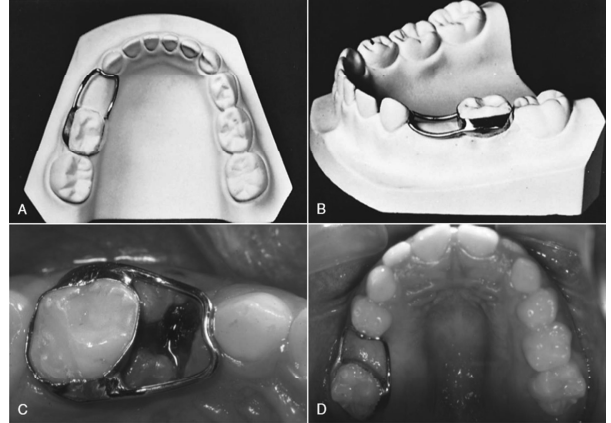
An adhesive bandage can be applied over the end of the finger to remind the child not to suck and to reduce the enjoyment

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A cemented habit crib made

## Preventive orthodontics space maintainers



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## Interceptive orthodontics

Interceptive orthodontics is defined as 'the phase of the science and art of orthodontics employed to recognize and eliminate potential irregularities and malpositions of the developing dentofacial complex'.

Interceptive orthodontics basically refers to measures undertaken to prevent a potential malocclusion from progressing into a more severe one.

## Interceptive orthodontics

interceptive orthodontics is undertaken at a time when the malocclusion has already developed or is developing.



Space has been lost

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## Interceptive orthodontics

The procedures undertaken in interceptive orthodontics include:

- Serial extractions
- 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
- Many of the interceptive orthodontic procedures are nothing but extension of preventive orthodontic procedures; only the difference is timing of treatment.

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## Space regaining (interceptive)



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## Interceptive orthodontics

interceptive orthodontics plays an important role in reducing the development of future complex malocclusions.

## Interceptive and preventive orthodontics

Interceptive and preventive orthodontic procedures are relatively simple and inexpensive treatment approaches that target developing malocclusions during the mixed dentition

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## Corrective orthodontics

Corrective orthodontics recognizes the existence of a malocclusion and the need for employing certain technical procedures to reduce or eliminate the problem and the attendant sequelae.

## Now we can define orthodontics as:

Orthodontics and Dentofacial Orthopedics is a specialty area of dentistry concerned with the supervision, guidance and correction of the growing or mature dentofacial structures, including those conditions that require movement of teeth or correction of malrelationships and malformations of their related structures and the adjustment of relationships between and among teeth and facial bones by the application of forces and/or the stimulation and redirection of functional forces within the craniofacial complex.

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## Types of corrective orthodontic treatment

Orthodontic

orthognathic

**Orthodontic treatment:** is a complex, professionally guided process which alters the structure of the dentofacial complex. Regardless of the specific intervention, treatment design process or mechanotherapy, orthodontic treatment begins and ends. Between these two time points lies the bulk of orthodontic therapy. It is critical that the orthodontist supervise the applied therapy using appropriate means consistent with orthodontic educational standards, ethical guidelines and legal requirements.

Due to the protracted nature of orthodontic therapy and since each patient will respond to treatment in a unique manner, orthodontic treatment requires supervision, dynamic reassessment, and case management to achieve the treatment goal.

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