

# *Diagnosis and management of Deep bite malocclusion*

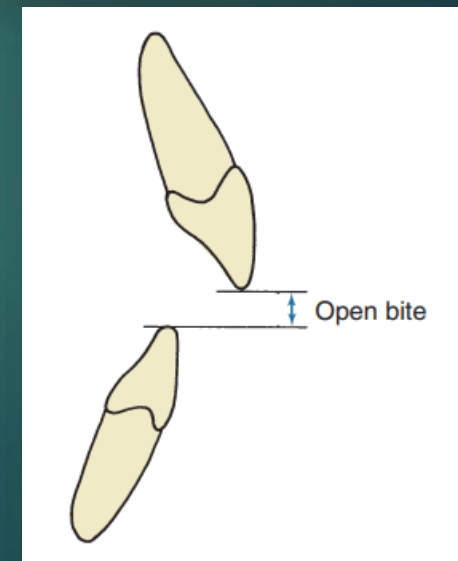
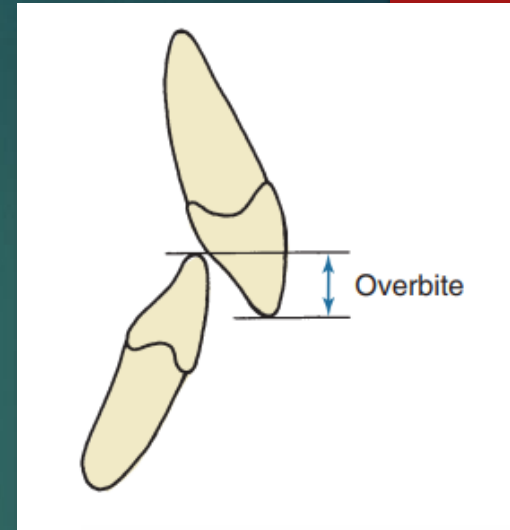
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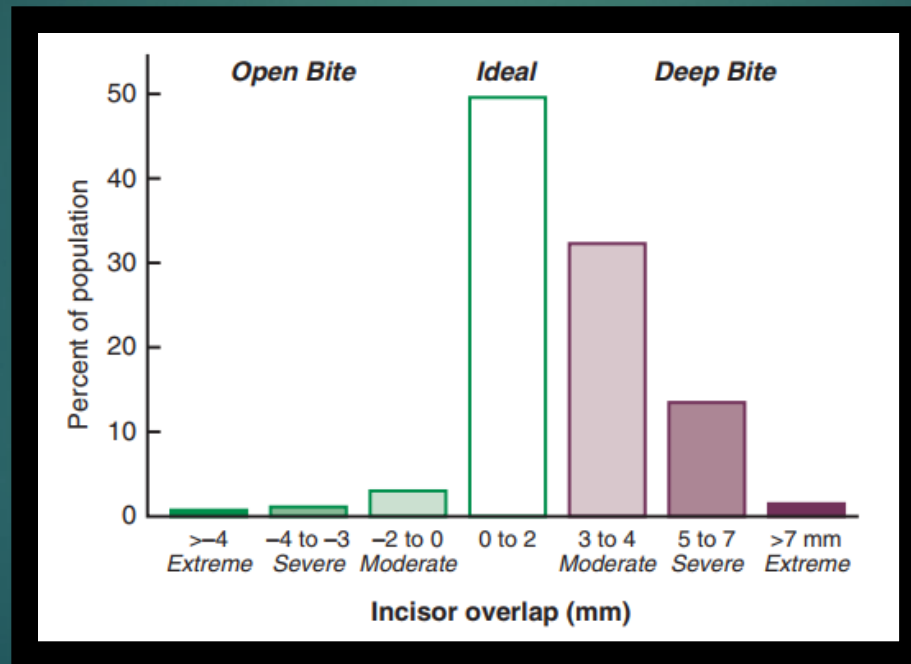


# Definition of overbite by Proffit

- Vertical overlap of the incisors.
- Normally , lower incisal edges contact
  - ▶ the lingual surface of upper incisors
  - ▶ at or above the cingulum.

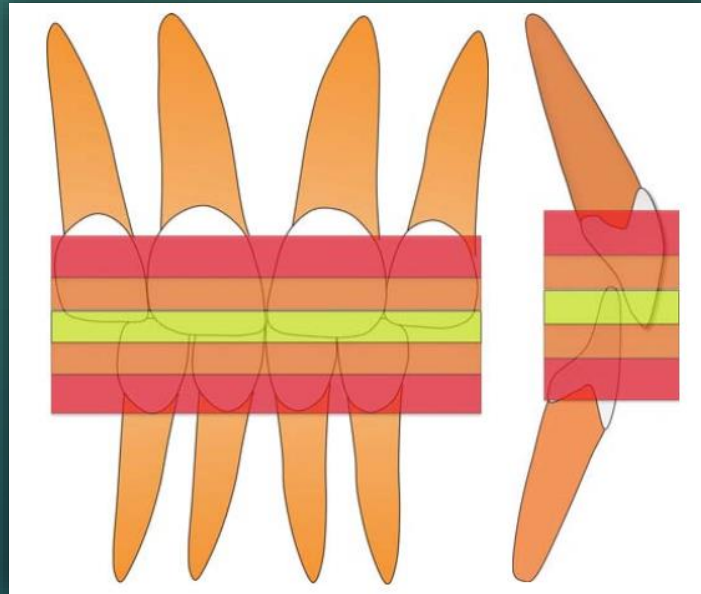


- Normal overbite : 1 - to 2 - mm
- Ideal overbite : 0 - to 2 - mm
- In open bite ( **negative overbite** ), there is no vertical overlap .



# Definition of overbite by Nanda

- Amount & percentage of overlap of lower incisors by upper incisors :
  - Ideal ( Normal ) overbite : 5 - 25 % ( 2 - 4 mm )
  - Increased overbite : 25 - 40 %
  - Excessive overbite ( Deep bite ) : > 40 %









# Cover bite

- One of the most severe forms of excessive overbite
- Class II, Division 2 malocclusion
- Complete covering of mand. Incisors' crowns
- Retroclination of max. incisors



# *Closed bite*


- A severe form of deep bite
- Mostly seen in adults
- Very rarely in young children
- Loss of posterior teeth





# Epidemiology

- Vertical deviation from ideal overbite (0 – 2 mm) are less frequent in adults than children.
- ▶ severe deep bite ( $ob \geq 5\text{mm}$ ) } children % 20 – adults % 13  
% 95.2 of vertical problems
- Occur in half the adult population .
- In adults , excessive overbite is much more than open bite.
- ▶ severe open bite (  $n. ob \geq - 2 \text{ mm}$  ) : less than % 1

- 
- Great differences between racial / ethnic groups :
    - severe deep bite ( ob  $\geq 5$ mm) : twice more in whites
    - open bite  $> 2$  mm : five times more in blacks
    - vertical problems are less prevalent in Mexican- American than blacks or whites

## • **BOX 6.5** Patient F.P.: Analysis of Diagnostic Records<sup>a</sup>

### **1. Facial Proportions and Esthetics**

- Deficient chin projection, mandibular deficiency
- Mildly short lower third of face
- Maxillary incisors tipped lingually, short crowns

### **2. Dental Alignment and Symmetry**

- Moderate maxillary incisor crowding
- Dental midline off, maxillary incisor displaced

### **3. Transverse Relationships**

- Normal arch widths, no crossbite

### **4. Anteroposterior Relationships**

- Moderate mandibular deficiency
- Class II buccal segments, minimal overjet

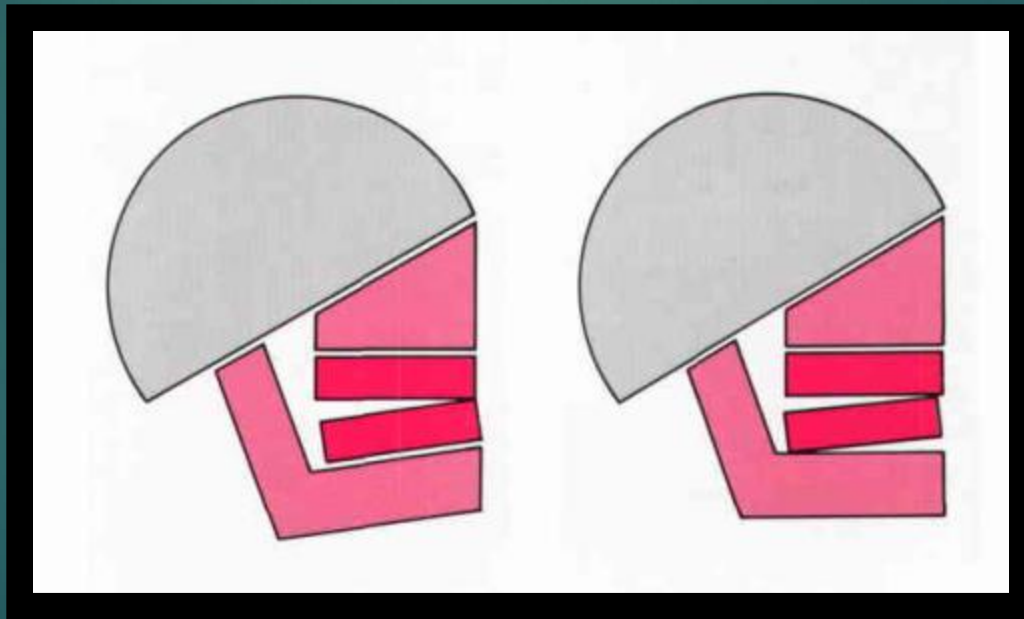
### **5. Vertical Relationships**

- Deep bite, excessive eruption of lower incisors
- Mildly short face

<sup>a</sup>Using the Ackerman-Proffit classification to generate the initial problem list.

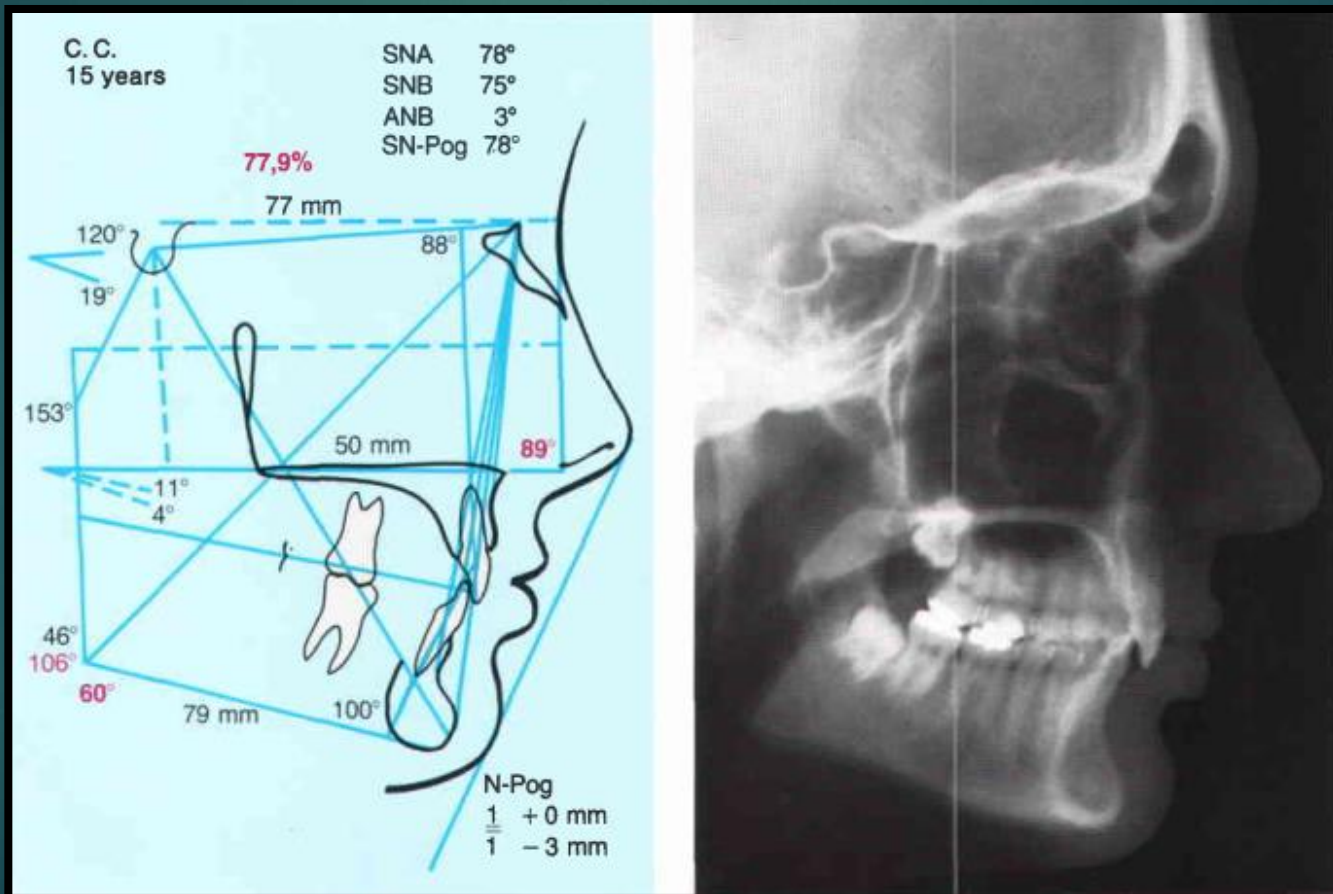
## *Types of deep bite*

1. Skeletal deep bite
2. Dentoalveolar deep bite



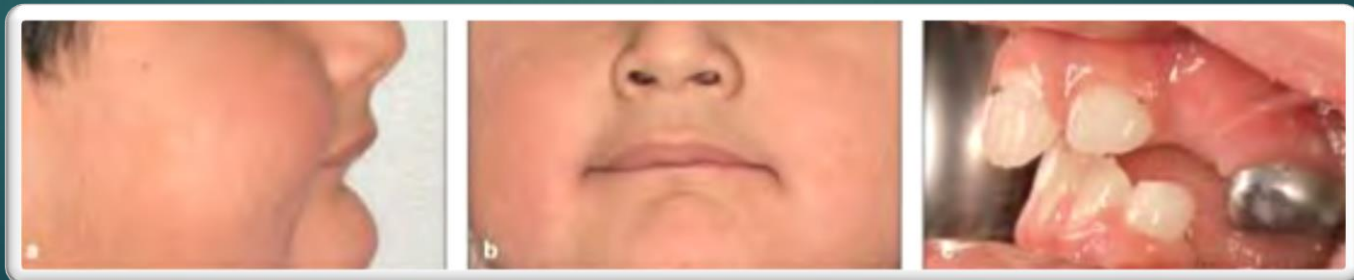
# 1. Skeletal deep bite :

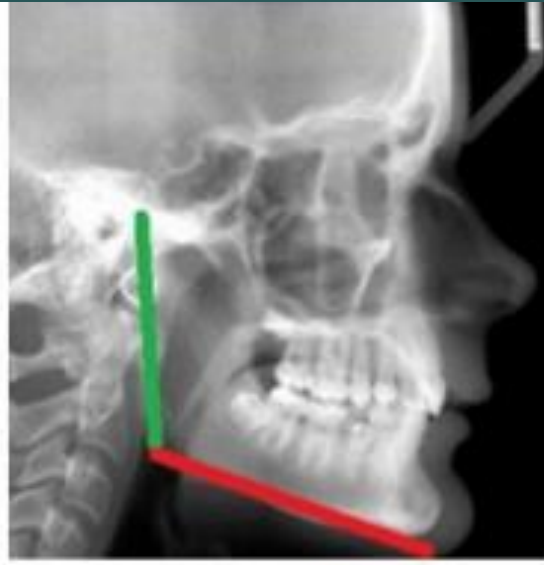
- horizontal growth direction
- retroinclination of maxillary base





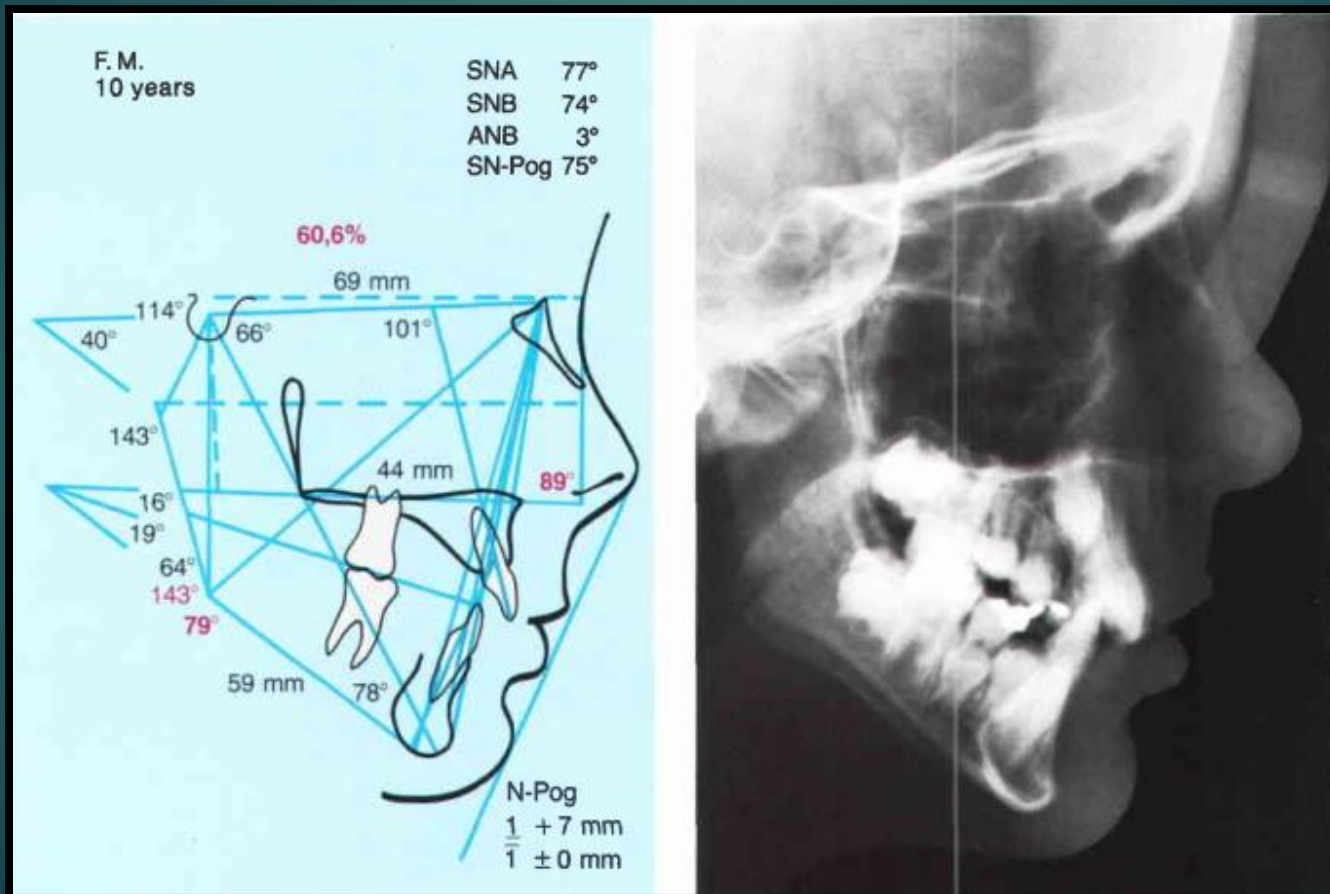
- Reduced lower facial height
- Excessive free way space
- Increased ramus height and width
- Large coronoid process
- Strong temporalis and masseter muscles
- Small gonial angle
- Counterclockwise rotation of mandible
- Competent lips
- Curled appearance of lips
- Deep mentolabial sulcus





## 2. Dentoalveolar deep bite :

- supra position of anterior teeth
- infraposition of posterior teeth



# *Etiology*



1. Reduced lower facial height (skeletal problem)
2. Undereruption (infraocclusion) of posterior teeth ( dental problem )
3. Overeruption (supraocclusion) of anterior teeth ( dental problem )

# Etiology

Developmental standpoint :

- 1) **genetic**
- 2) **environmental ( aquired ) :**
  - *lateral tongue thrust or abnormal tongue posture*
  - *wearing away of occlusal surface or tooth abrasion*
  - *ant . tipping of post . teeth into extraction sites*
- 3) **combination of both**





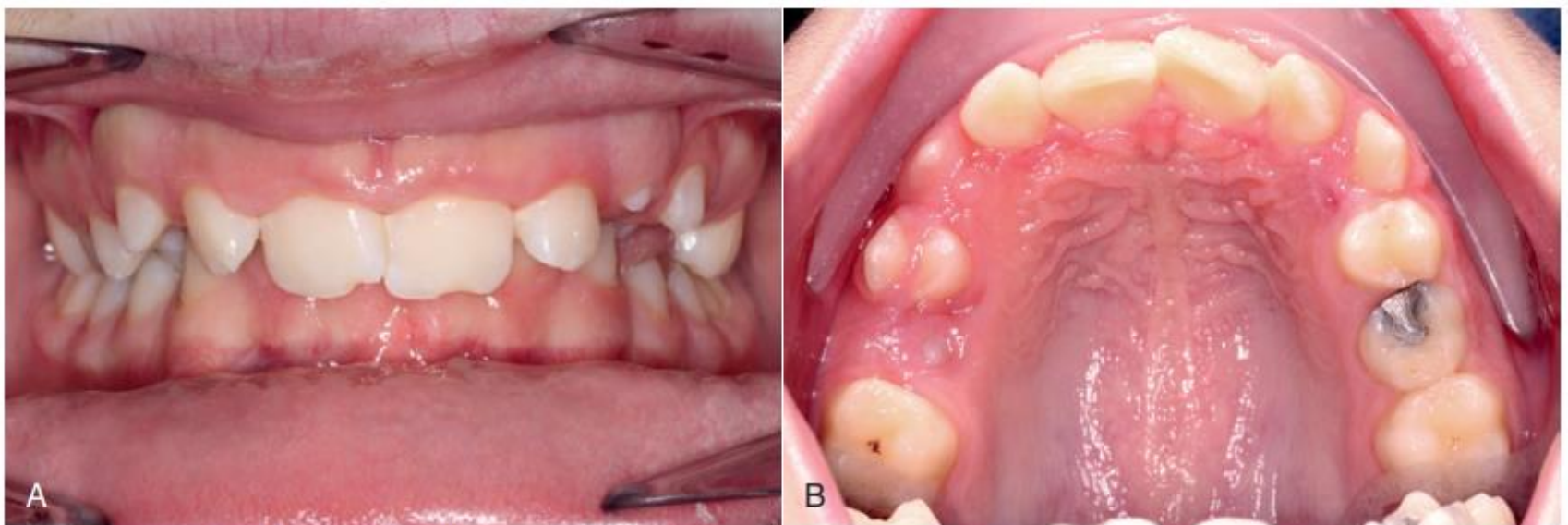
# *Treatment*

- Etiology of deep bite
- Amount of growth anticipated
- Vertical dimension
- Relationship of teeth to adjoining soft tissue
- Desired position of occlusal plan

# Treatment

Treatment of both long- and short-face problems usually can be deferred until adolescence because:

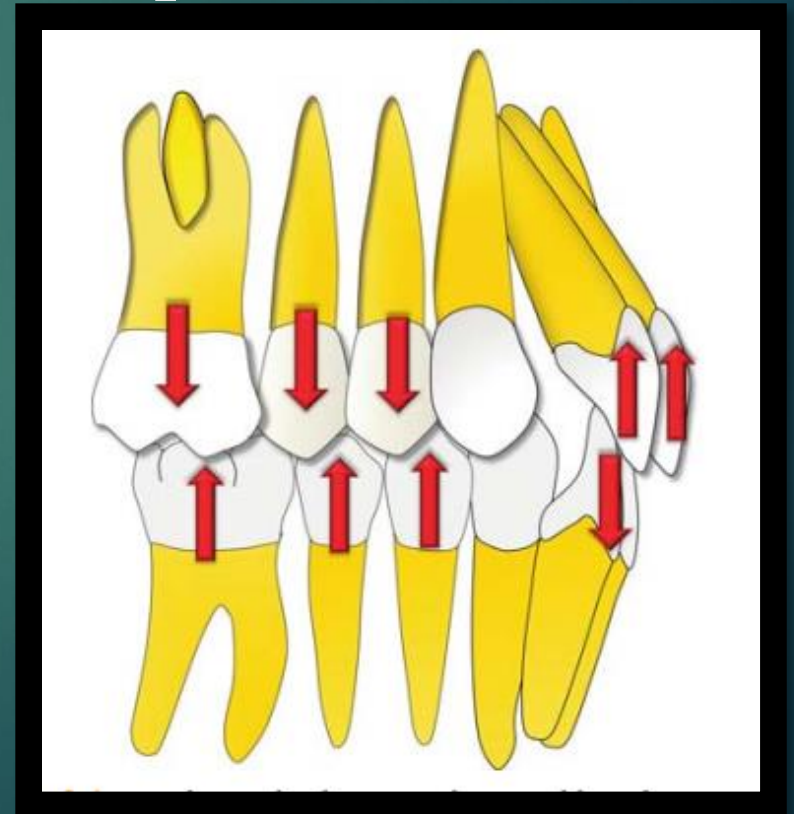
- Long-face or open bite problems can improve during pre-adolescent growth but can be aggravated by growth that persists until the late teens and can outstrip early focused intervention.
- Short-face problems usually can be managed well with comprehensive treatment during adolescence, unless there is maxillary palatal gingival damage due to a deep bite.



• **Fig. 11.10** This patient has an obvious deep bite, with (A) severe overbite and (B), resulting damage to the palatal tissue adjacent to the maxillary incisors.

# *Treatment*

1. Intrusion of upper & lower incisors
2. Extrusion of upper & lower posterior teeth
3. Combination of both



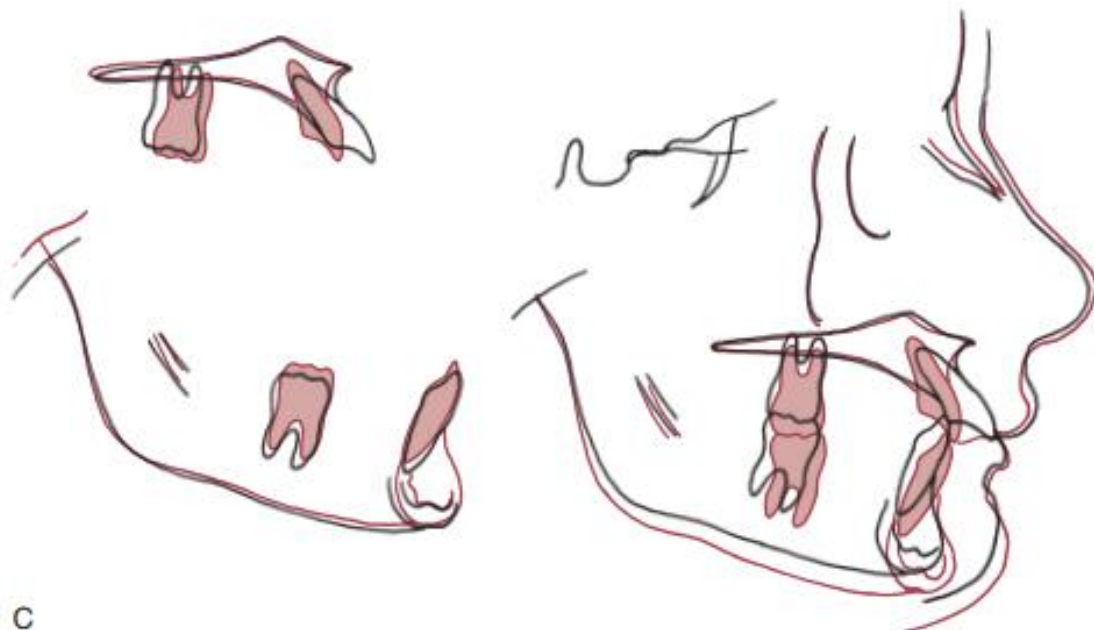
# Treatment

## *Mixed dentition :*

1. Cervical headgear
  - extrusive tendency of extraoral force directed below the center of resistance of teeth & maxilla → elongation the upper molars



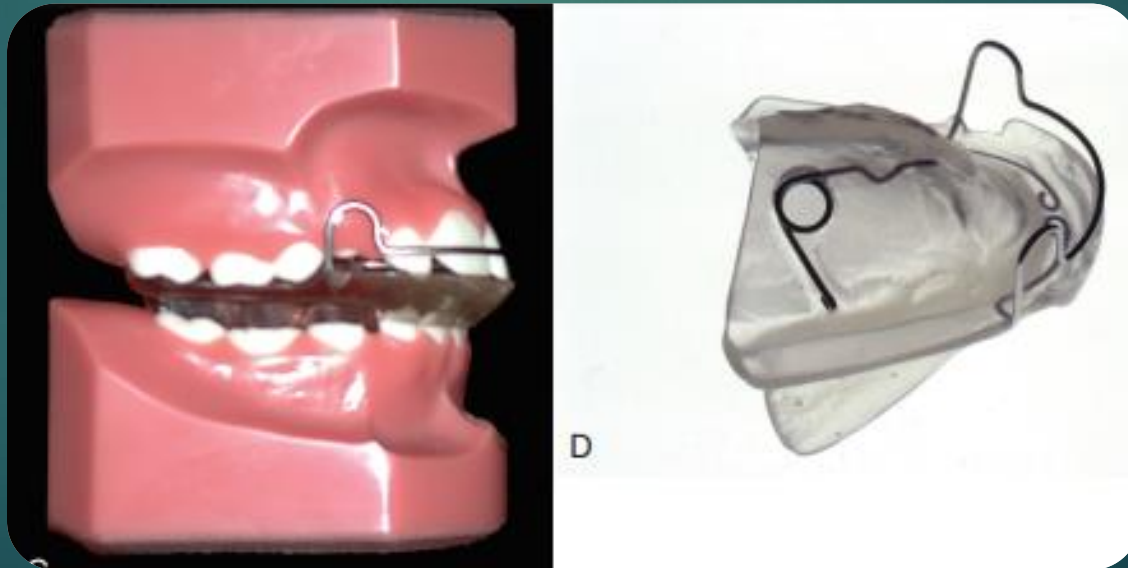




# Treatment

## 2. Functional appliances

- inhibits eruption of maxillary post. teeth
  - free eruption of mandibular post. teeth
- \* fixed functional appliances are not good choices  
in treatment of short face problems \*





A



B



C



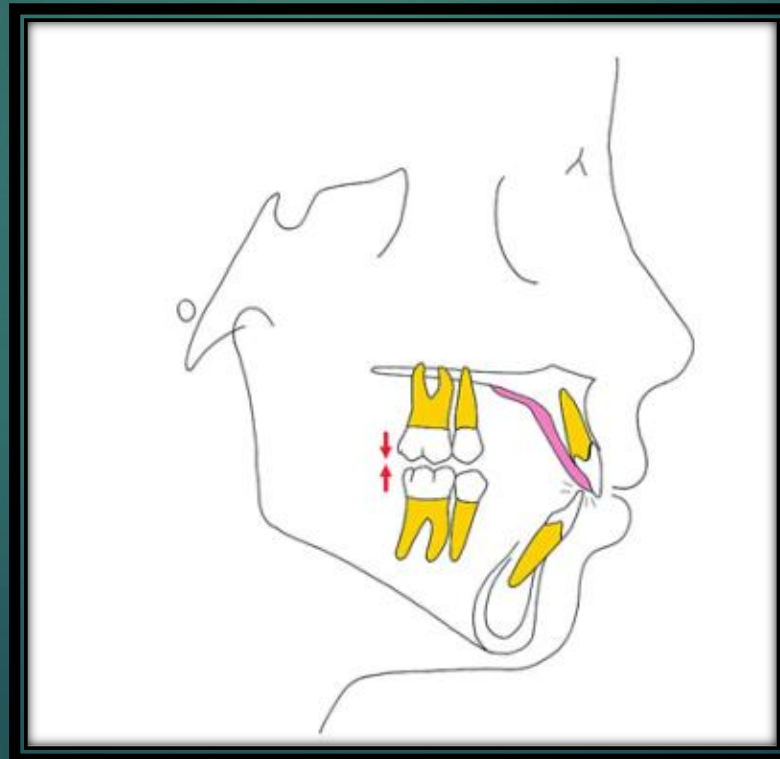
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# Treatment

## 3. Anterior Bite plates

- leveling the curve of Spee by post. Extrusion
- minimum intrusive effect on incisors
- not to disocclude post. teeth more than 2 mm





# Treatment

## *Permanent dentition :*

Intrusion of max. or mand. incisors or both ;

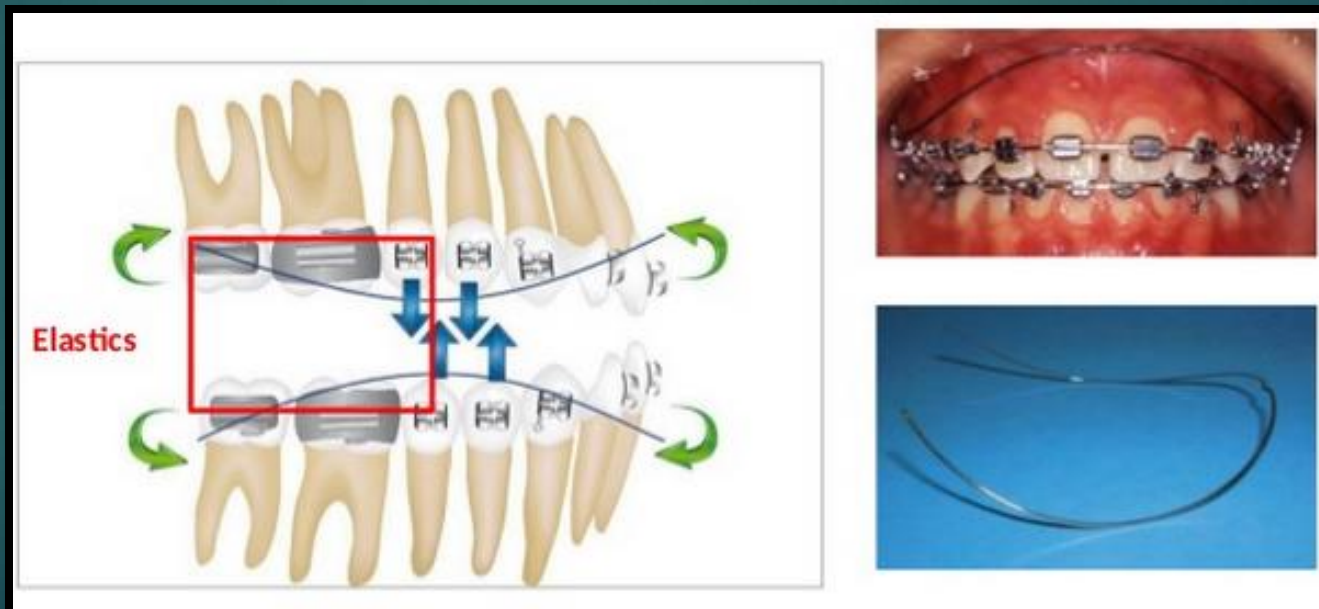
- intrusion arches
- utility arches
- segmental arch mechanics
- miniscrews





# Treatment

2. Extrusion of max. or mand. posterior teeth or both;
- archwires with a reverse curve of Spee
  - maxillomandibular vertical elastics ( box elastics )
  - combination of ant. bite plate and vertical elastics
  - miniscrews



# Consequences of delayed treatment

1. Interference with normal closure pattern of mandible
2. Periodontal disease
3. Malfunction of temporomandibular joint
4. Labial migration of maxillary incisors



# *Advantages of early treatment*

1. Dentoalveolar growth and anterior facial height increase
2. Long – term stability
3. Better skeletal relationships
4. More positive muscular adaptation
5. Less need to comprehensive mechanics

# Retention

Most patients require control of vertical overlap of incisors during retention .

Post-treatment growth in a short face pattern →  
recurrence of excessive overbite more likely

Using a removable upper retainer :

- lower incisors encounter the baseplate
- does not separate posterior teeth
- several years ( late teens )
- only at night



*Thank you for your attention*

