

# IN THE NAME OF GOD

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## DIAGNOSIS AND TREATMENT OF OPEN BITE

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# Definition

Incisal edges or occlusal surfaces of one or more teeth are not in contact in centric occlusion

Classification based on appearance:

Anterior Open bite



Posterior Open bite

Bilateral




Unilateral(Usually Mixed)



# ORTHODONTIC TRIAGE: CHILD

## STEP 5

(Treatment in **red** should be accomplished early)

Severe Problems	Other Tooth Displacements	Moderate Problems
	<div>  Evaluate in light of facial form/space analysis results </div>	
Widen midpalatal suture? Expand surgically?	<div>                     Posterior crossbite: skeletal Adolescent                      Preadolescent </div>	Palatal expansion
	Posterior crossbite: dental	Expand by tipping teeth (if no vertical or other complications)
(Include in comprehensive plan if situation complex)	Anterior crossbite	<b>Tip teeth with removable appliances</b>
	Excess overjet	Retract (tip) with removable appliance only if vertical clearance present
Growth modification? Jaw surgery?	Anterior open bite, simple also Complex	Primary dentition: no treatment Mixed dentition: finger-sucking therapy
Level curve of Spee? Intrusion?	Deep overbite	
Vertical <b>Spontaneous reeruption with open apex</b> <b>Orthodontic traction?</b> <b>Surgical repositioning?</b>	Traumatic displacement of teeth	
Horizontal <b>Immediately reposition</b> <b>If consolidated in new position, then orthodontics</b>		

Anterior open bite in a young child with good facial proportions usually needs **no treatment** because there is a good chance of spontaneous correction with additional incisor eruption, especially if the open bite is related to an oral habit such as finger-sucking.

A complex open bite (one with skeletal involvement or posterior dental manifestations) or any open bite in an older patient whose teeth have erupted is a **severe problem**.

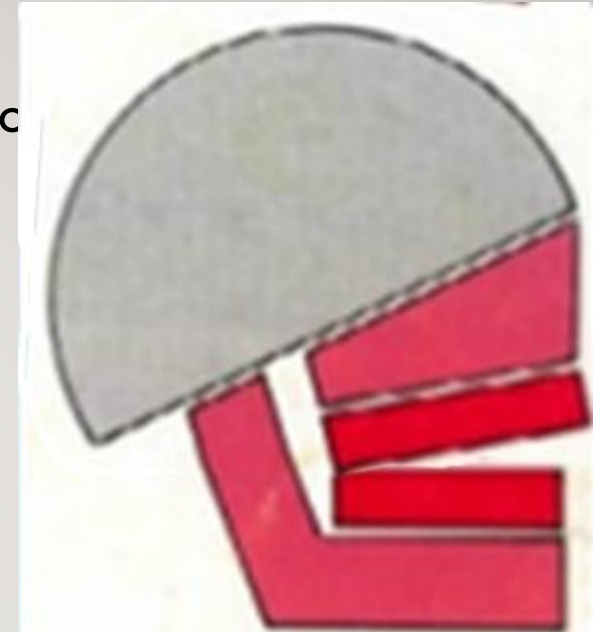




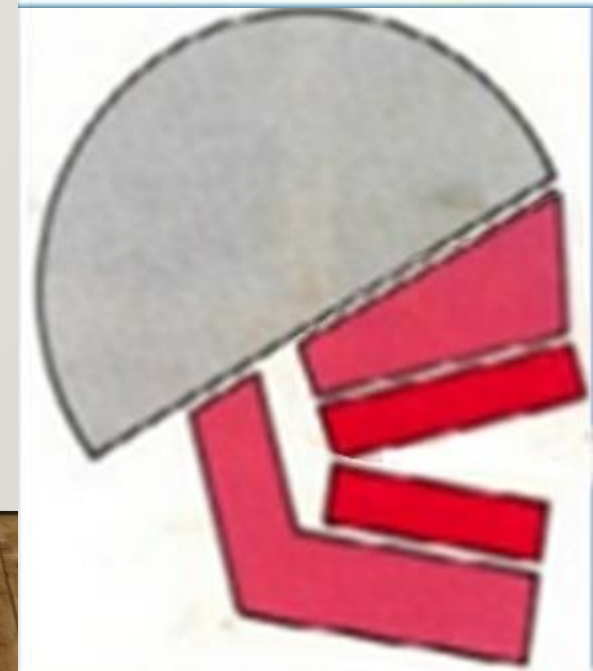
## Two main categories of open bite

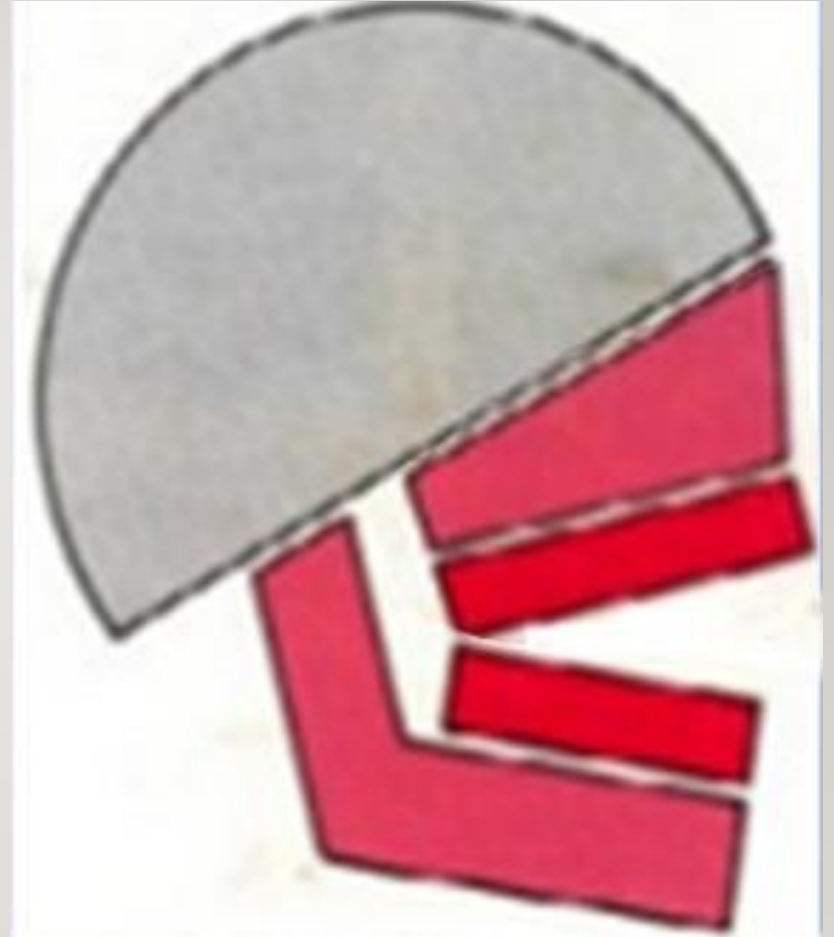
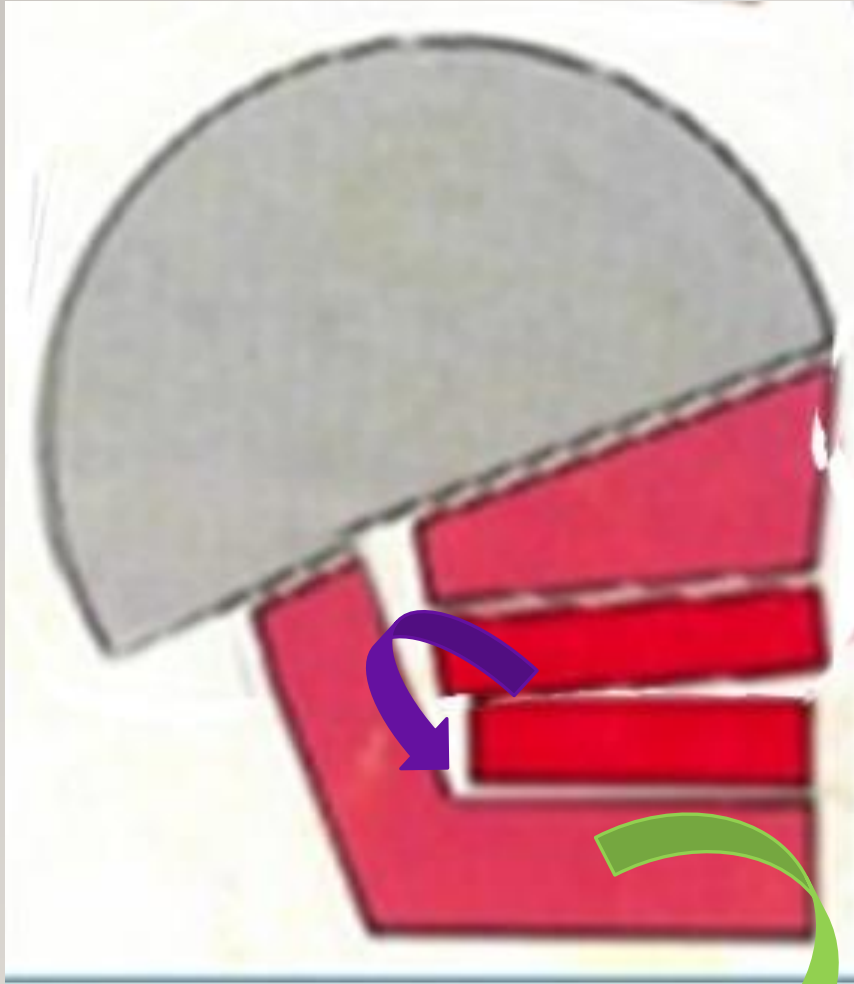
Dentoalveolar : Due to malposition of teeth or alveolar process

Vs



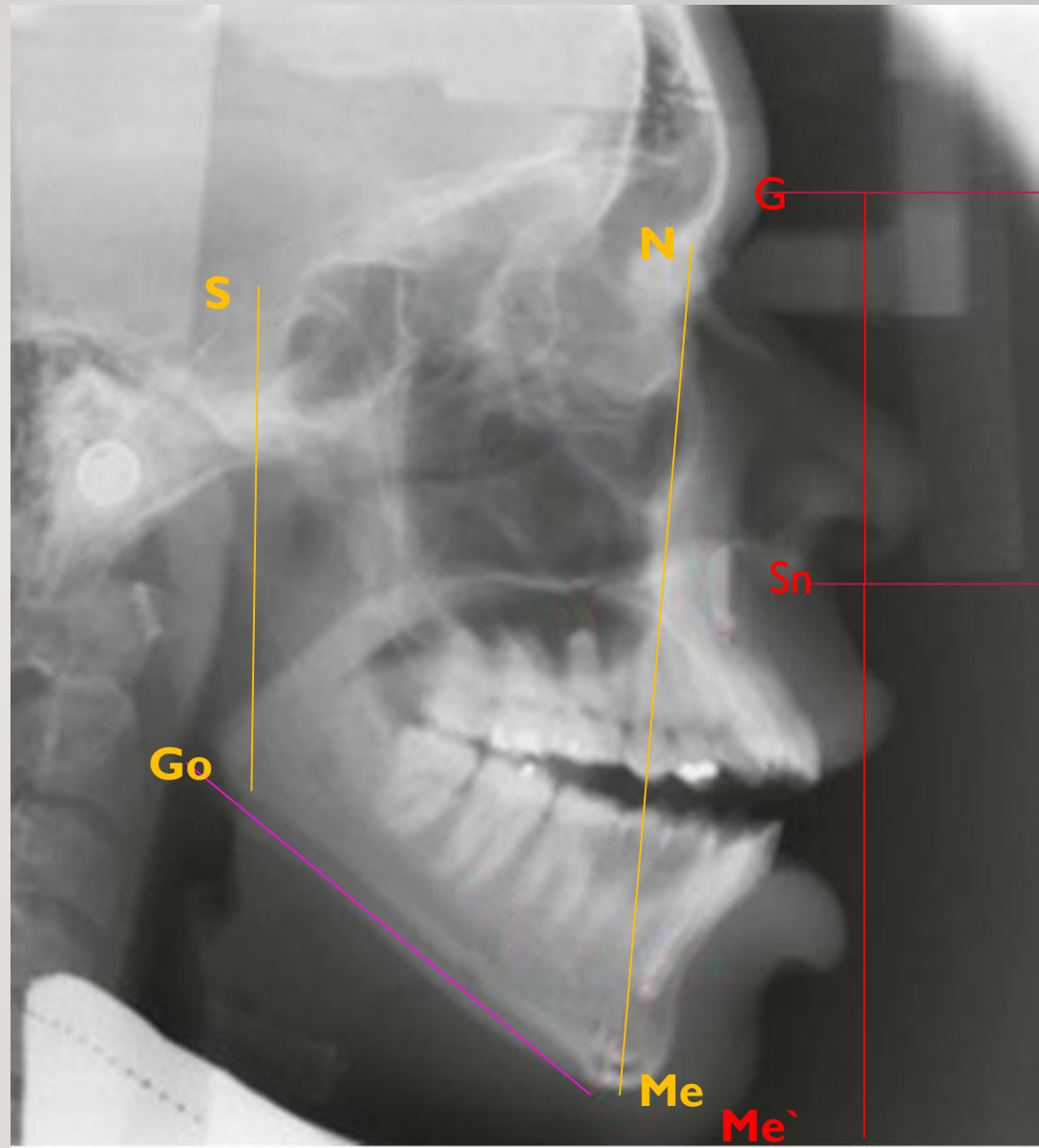
Skeletal: Due to rotation of underlying skeletal planes





Major diagnostic factors of a skeletal long face open bite person:

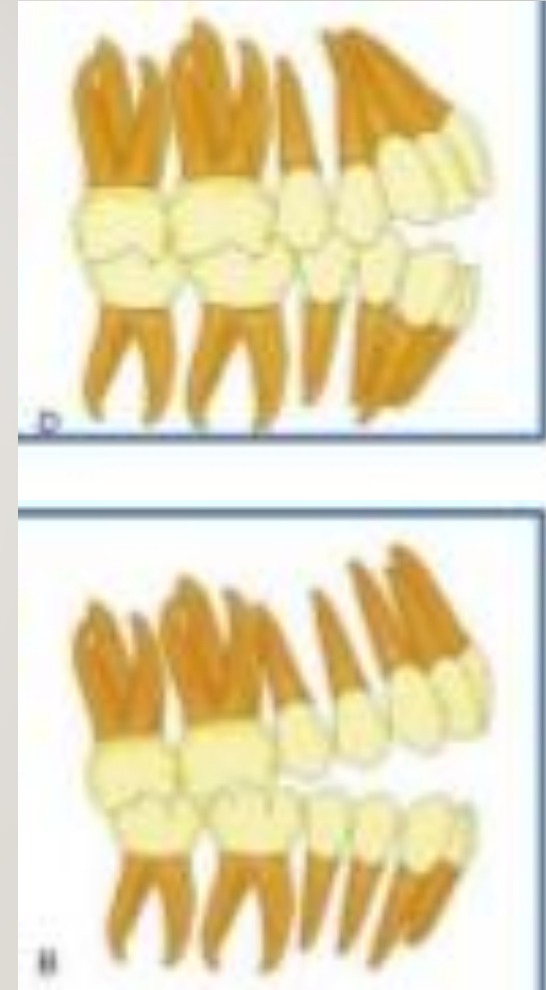
1. Increased lower anterior to upper anterior facial height ratio (UAFH/LAFH  $\ll$  50%)
2. Decreased posterior facial height to anterior facial height (Jarabak Index) ratio (PFH/AFH  $\ll$  62%)
3. Increased mandibular plan angle (FMA  $\gg$  25)





# Miscellaneous diagnostic factors

Open bite starts from posterior teeth





# Fifth Stage of Triage:

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moderate	severe
Child+dental+anterior	Adult/skeletal/severe/posterior

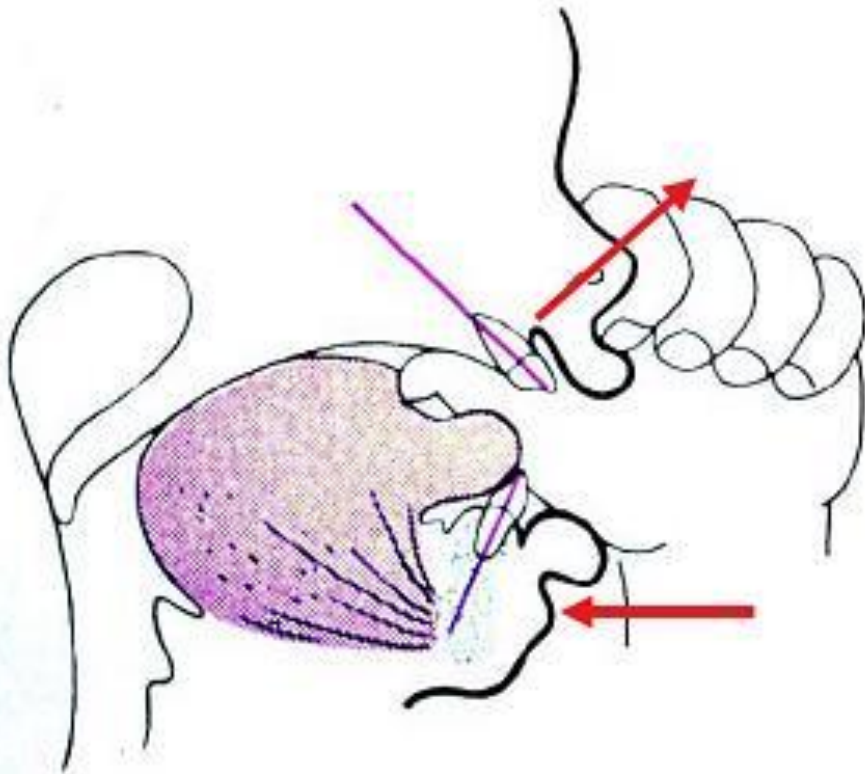
# Etiology of **dentoalveolar** open bite

## Ethiology:

- Thumb Sucking (the most frequent cause of dentoalveolar open bite, especially children)
- Large or anteriorly positioned tongue
- Ankylosis (Due to Trauma)
- Primary Failure of Eruption

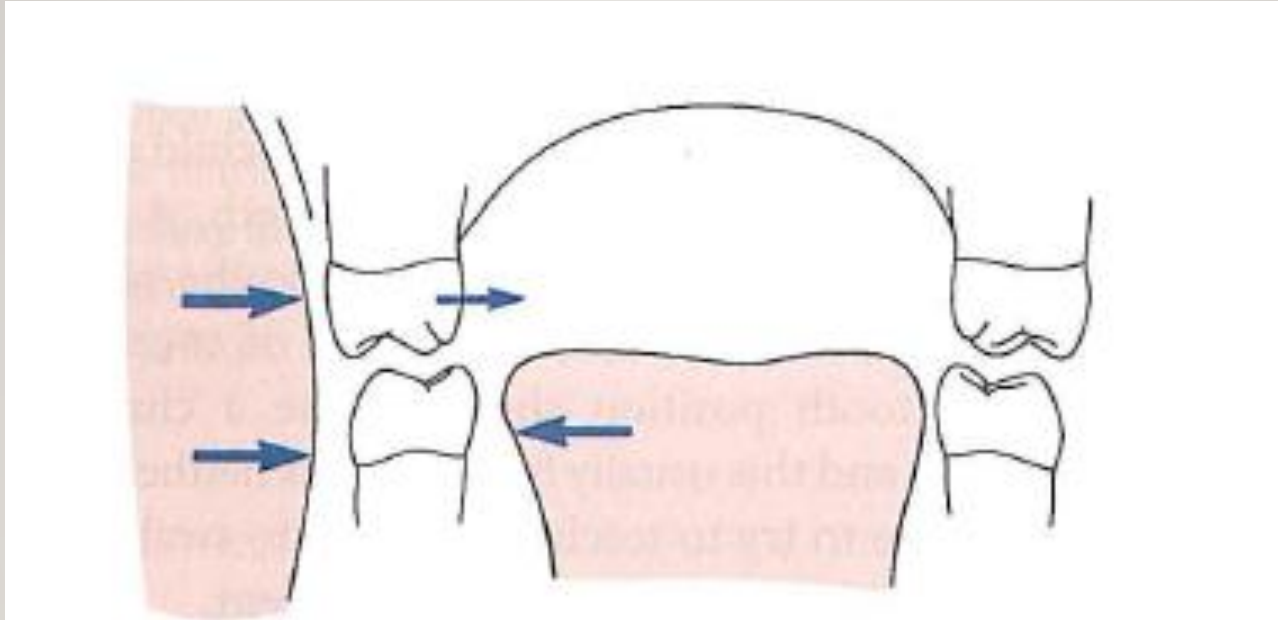


# Effects of prolonged thumb sucking on dentoalveolar development



Upper incisor protrusion  
Lower incisor retrusion  
Downward backward rotation of mandible  
Anterior open bite  
Maxillary arch constriction especially in canine area and posterior cross bite

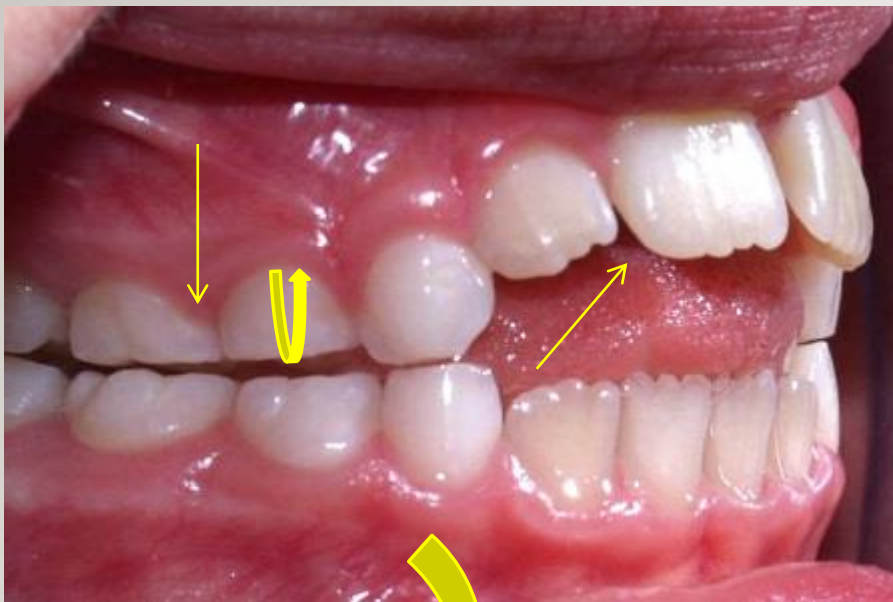
# Effects of prolonged thumb sucking on dentoalveolar development



Maxillary arch constriction especially in canine area and posterior cross bite



## Effects of prolonged thumb sucking on dentoalveolar development





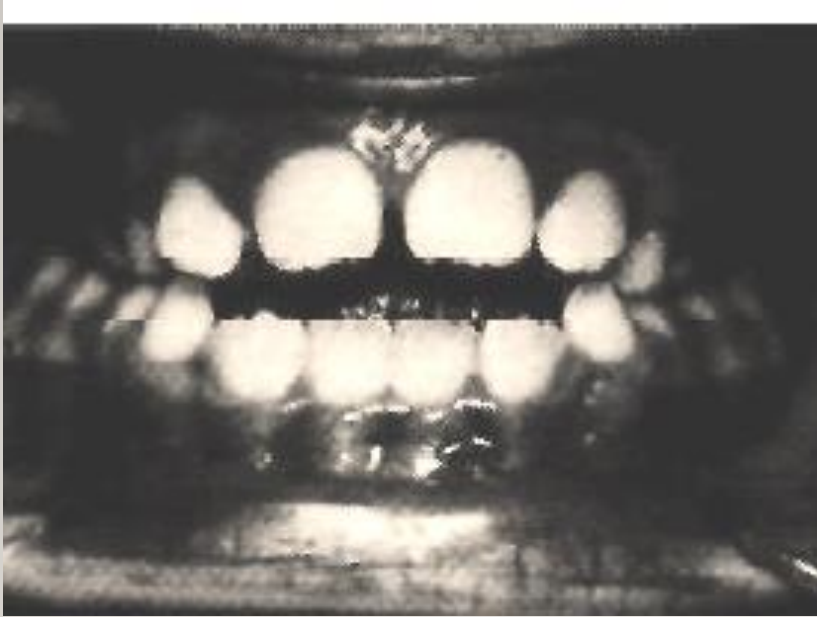
# Treatment planning for **dentoalveolar** open bite caused by thumb sucking in **children**

Displacement of the primary incisors is noted in a 3- or 4-year-old thumb sucker

There is no point in beginning orthodontic therapy, until the habit has stopped.







## A) non-dental Intervention

1. Adult approach
2. Reminder therapy
3. reward system
4. Elastic bandage

## B) Appliance therapy

Fixed appliance is recommended  
LHA with crib

Open bite would close automatically





**The quad helix** is a more flexible version of the W-arch. The helices in the anterior palate are bulky, which can effectively serve as a **reminder** to aid in stopping a finger habit. The combination of a posterior crossbite and a finger-sucking habit is the best indication for this appliance.. With both types of expansion lingual arches, some opening of the midpalatal suture can be expected in a child with primary or mixed dentition, so the expansion is not solely dental.



## treatment planning for **dentoalveolar** open bite caused by thumb suking in **children**

if sucking stops before eruption of permanent Incisors , normal lip and cheek pressures soon bring the teeth back to correct positions.

The constricted maxillary arch (Cross bite) least likely to correct spontaneously.

If the habit exists after the permanent incisors erupt, orthodontic treatment is necessary

In many children with a history of thumb sucking, if the maxillary arch is expanded transversely, both the incisor protrusion and anterior open bite will improve spontaneously

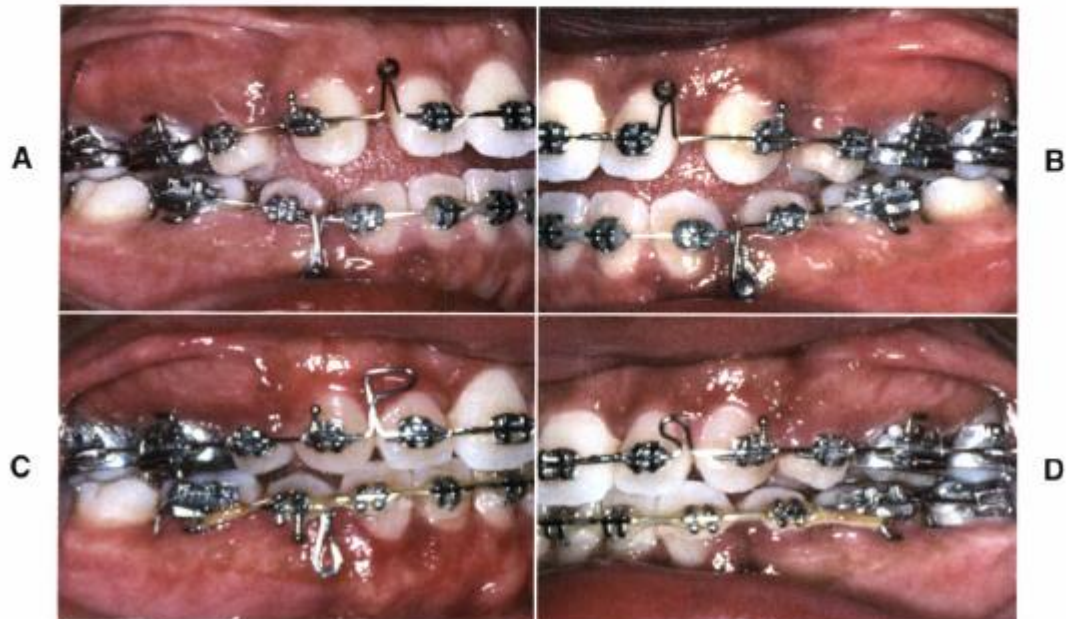


# Treatment planning for **dentoalveolar** open bite caused by thumb sucking in **adults**

Needs fixed orthodontic treatment



E



## Ethiology:

- Thumb Sucking (the most frequent cause of dentoalveolar open bite, especially children)
- Large or anteriorly positioned tongue
- Ankylosis (Due to Trauma)
- Primary Failure of Eruption





# Open bite induced by macroglossia



Not common  
Partial glossectomy might be recommended



## Ethiology:

- Thumb Sucking (the most frequent cause of dentoalveolar open bite, especially children)
- Large or anteriorly positioned tongue
- Ankylosis (Due to Trauma)
- Primary Failure of Eruption



## Ankylosis (Due to Trauma)

### Treatment:

- Periodontal procedures (Bone and gingival graft)
- Do





DO in alveolar bone





## Ethiology:

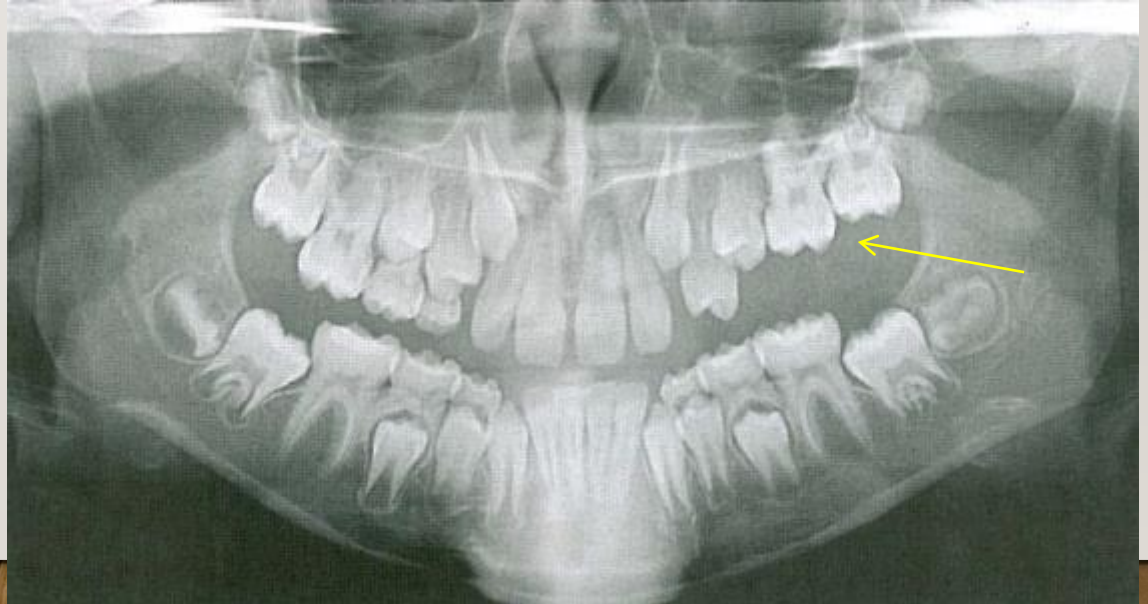
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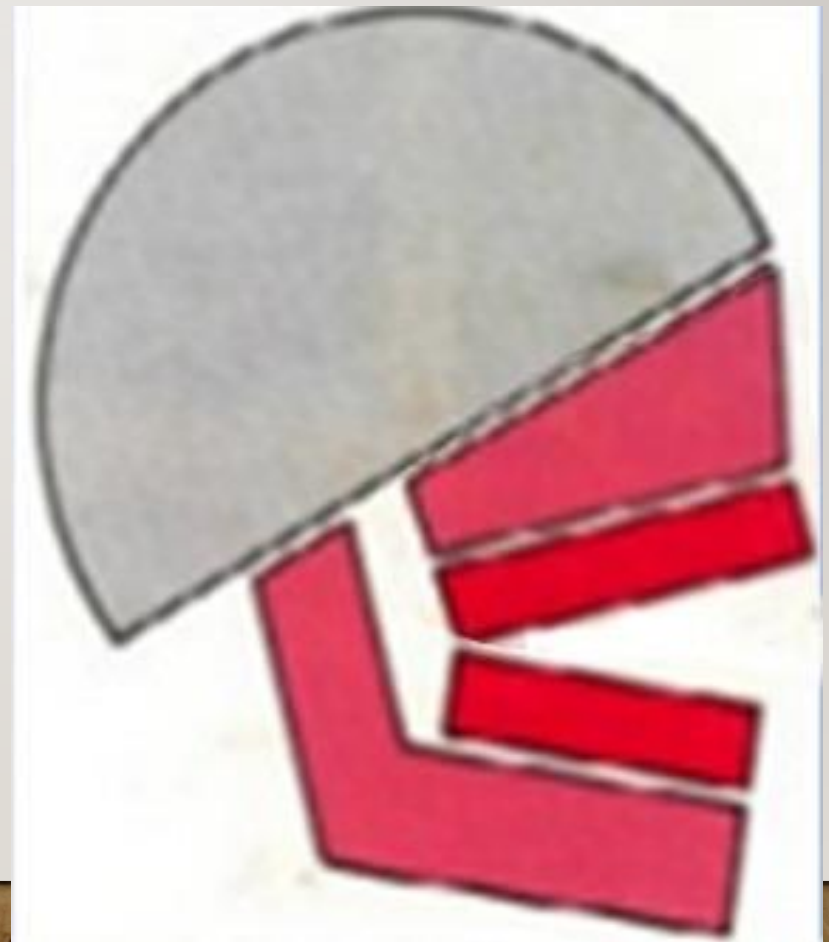
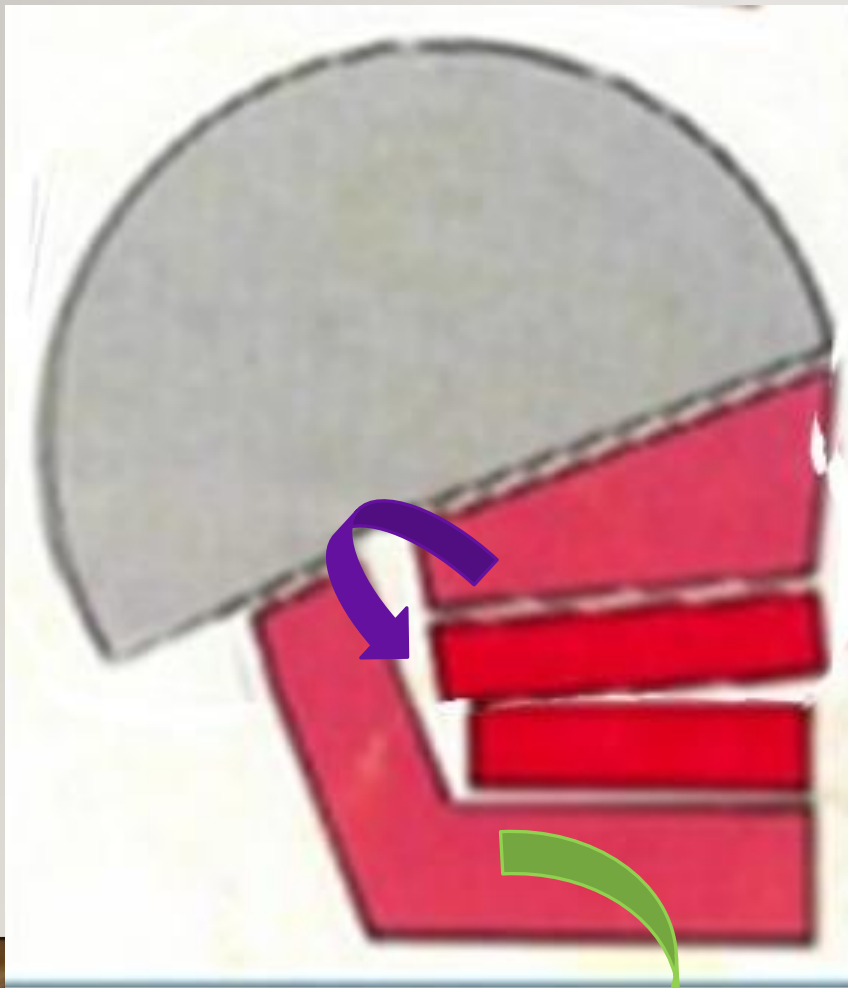
## Primary Failure of Eruption: posterior open bite



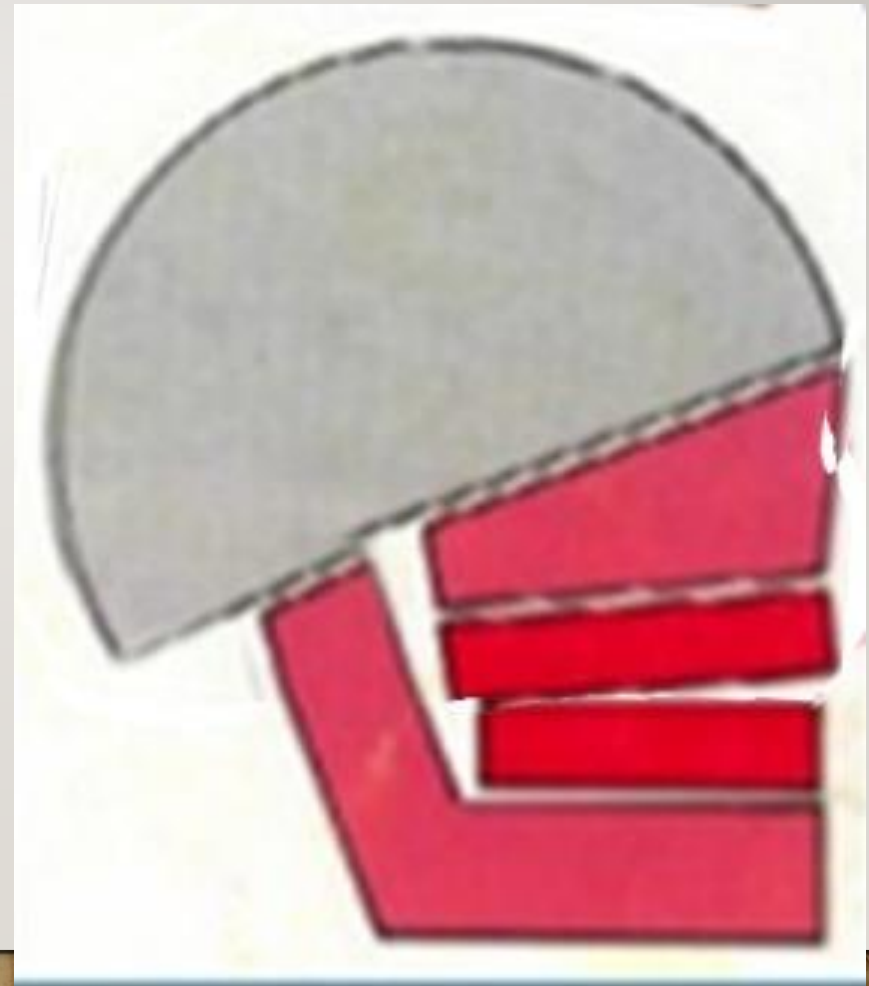
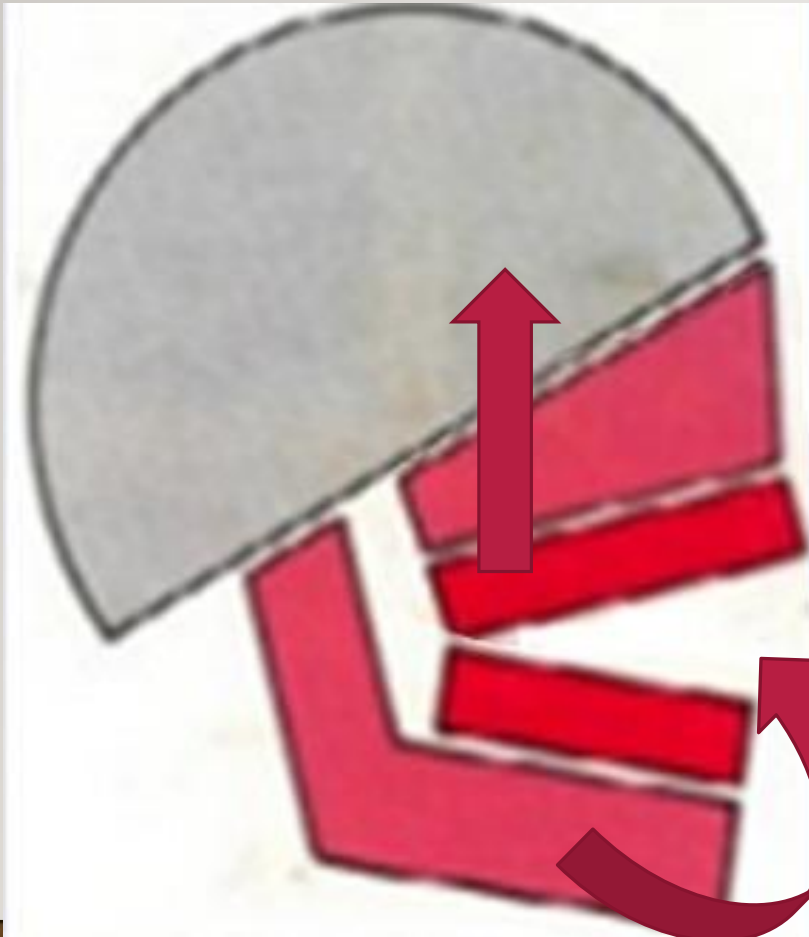
Treatment  
Segmental surgery  
DO



## Treatment planning for Skeletal open bite in children



Treatment planning for Skeletal open bite in children:  
Needs Intrusion of maxillary molars/posterior maxilla.





# Treatment planning for Skeletal open bite in children: Needs Intrusion of maxillary molars/posterior maxilla.c

**Thick posterior bite  
plate**



# Treatment planning for Skeletal open bite in children: Needs Intrusion of maxillary molars/posterior maxilla

In patients with class II tendency,  
**High pull Head gear** is added to the thick **posterior bite plate**



# Treatment planning for Skeletal open bite in children: Needs Intrusion of maxillary molars/posterior maxilla

In patients with class III tendency,  
**Vertical Chin Cap** is added to the **thick posterior bite plate**



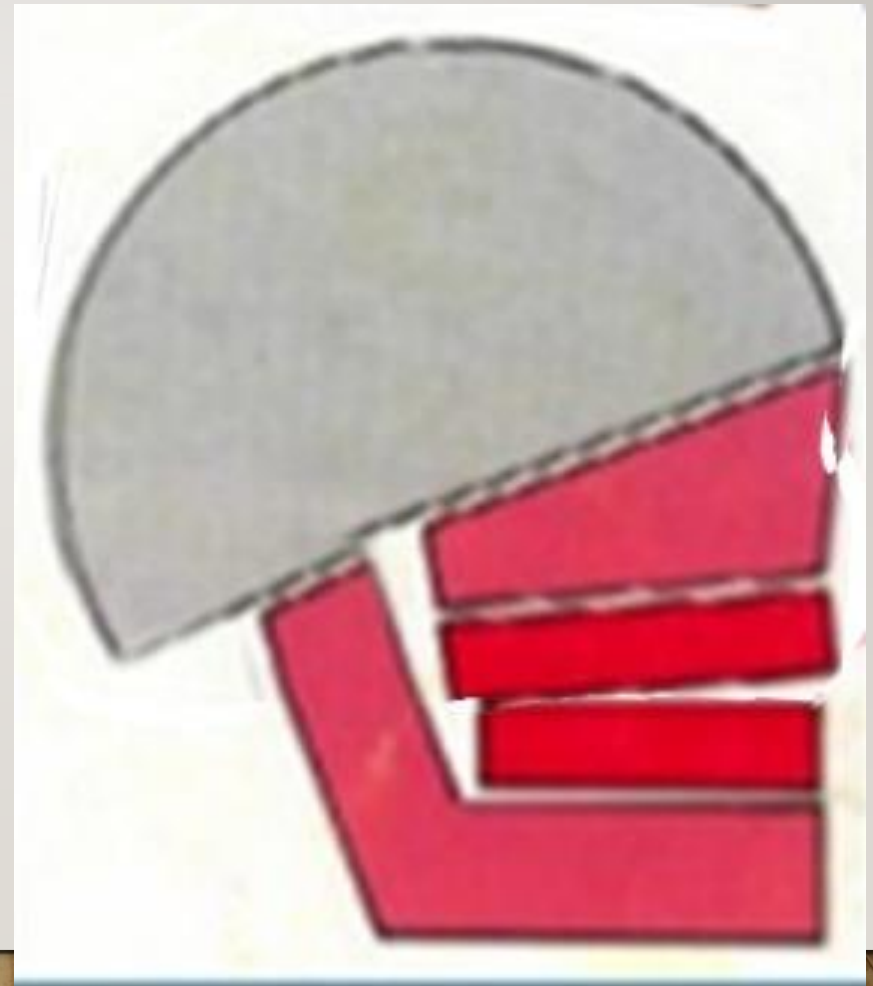
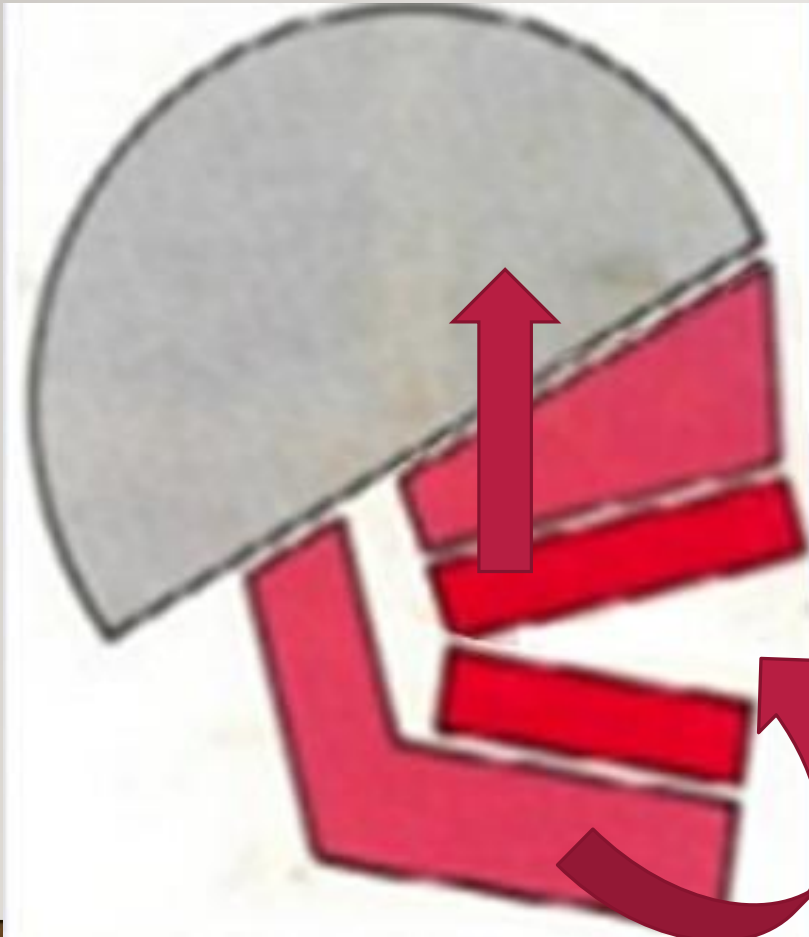
# Treatment planning for Skeletal open bite in **adults**

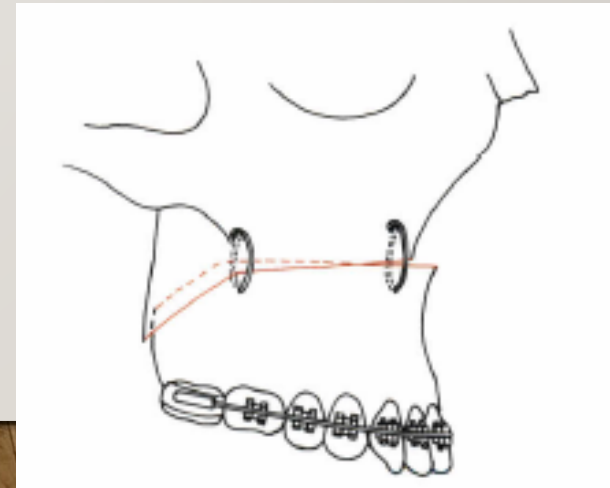
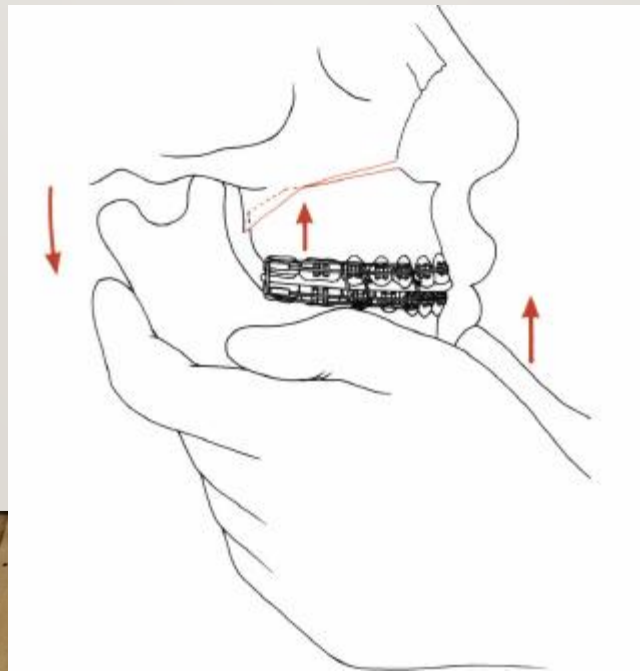
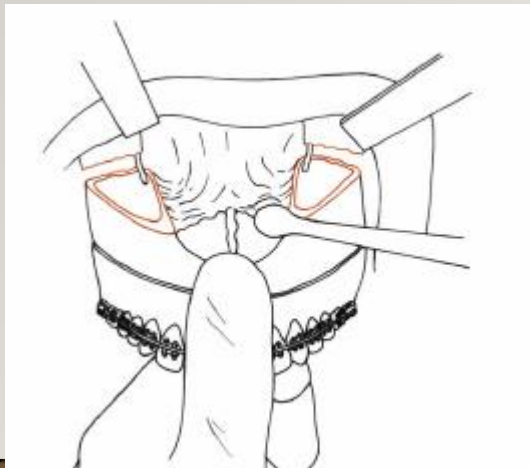
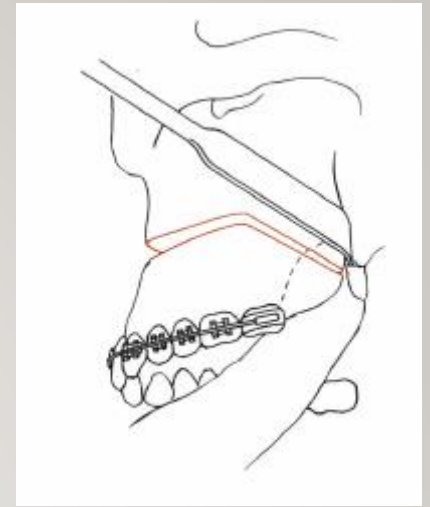
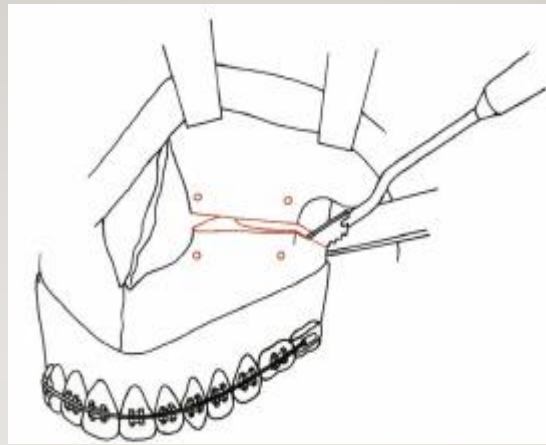
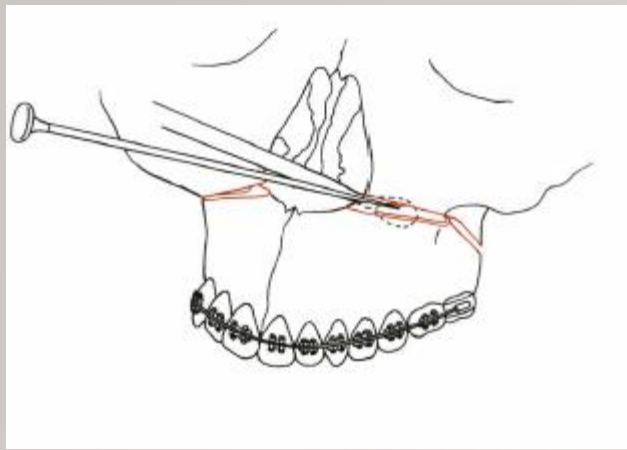
Needs camouflage or combined orthodontic and surgical treatment





## Orthognathic surgery in open bite patients





A



B



C, D



E





A



B



D



E





**Thank you**