UNC Level III - Unit B

Space Management in Preadolescent Children

1. Discuss the indications and contraindications for the selection of space maintaining appliances.
2. Discuss the indications and contraindications for the selection of various space regaining appliances.
3. Discuss the construction of different appliances.
4. Describe the timing and sequence of treatment.
5. Identify the possible causes of midline diastemas and spacing.
6. Discuss the relationship between spacing and protrusion

Space Management in Preadolescent Children

1. Discuss the indications and contraindications for the selection of space maintaining appliances.
   - Fixed
     - Band and loop
     - Lingual arch
     - Nance holding arch
     - Distal shoe
   - Removable

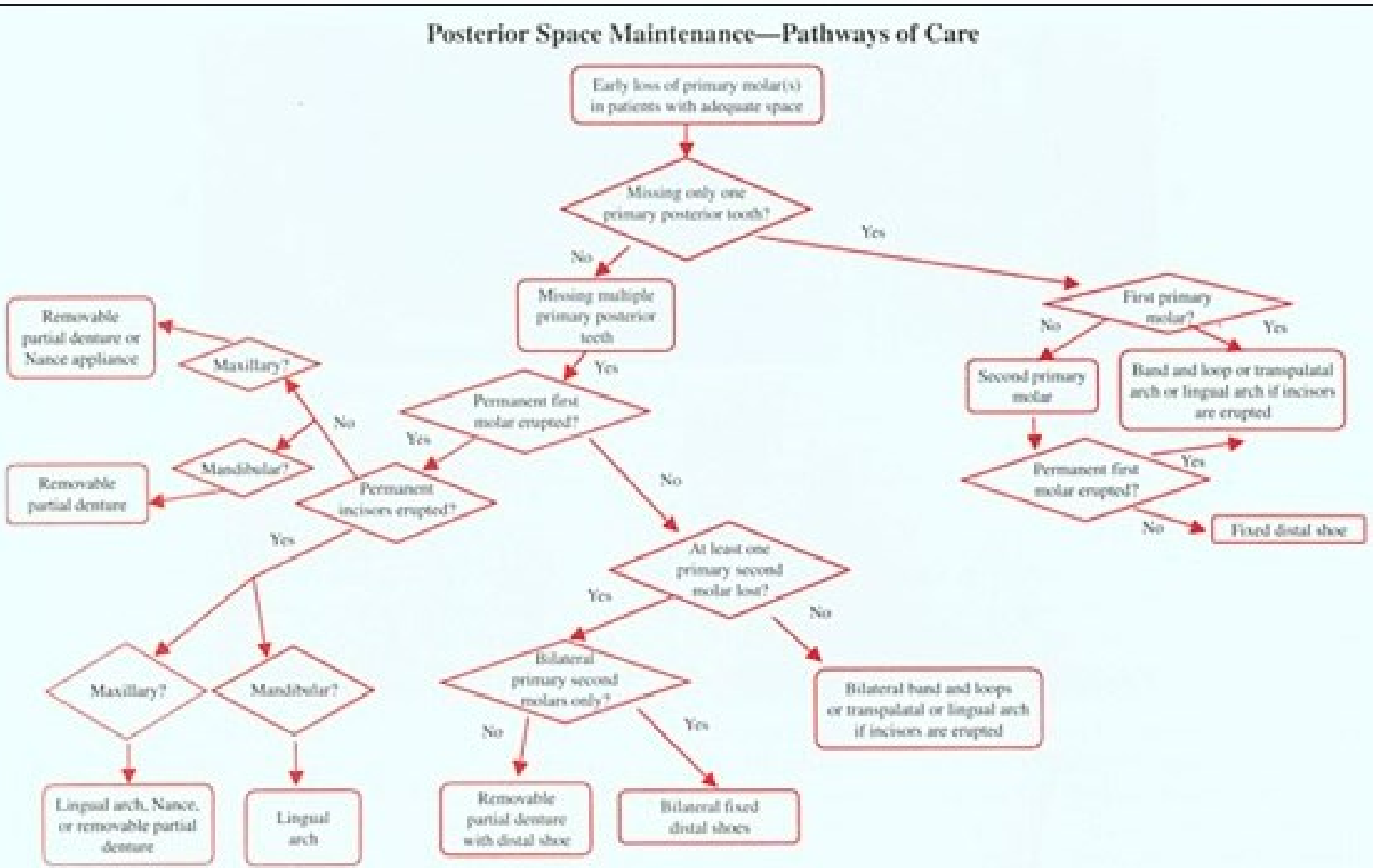
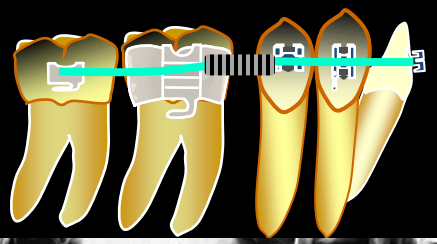


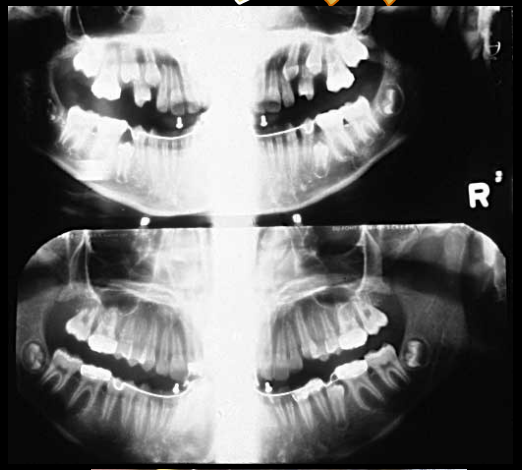
FIGURE 13-5 This flowchart can be used to aid decision making regarding possible options for space maintenance in the primary and mixed dentitions. Answers to the questions posed in the chart should lead to successful treatment pathways.

Space Management in Preadolescent Children

2 Discuss the indications and contraindications for the selection of various space regaining appliances.

- Up to 3mm
- Fixed
  - Spring appliances with braces
  - Active lingual arches
  - Fixed distalising appliances
- Removable
  - URA with spring
  - URA with screw
  - Lip bumper





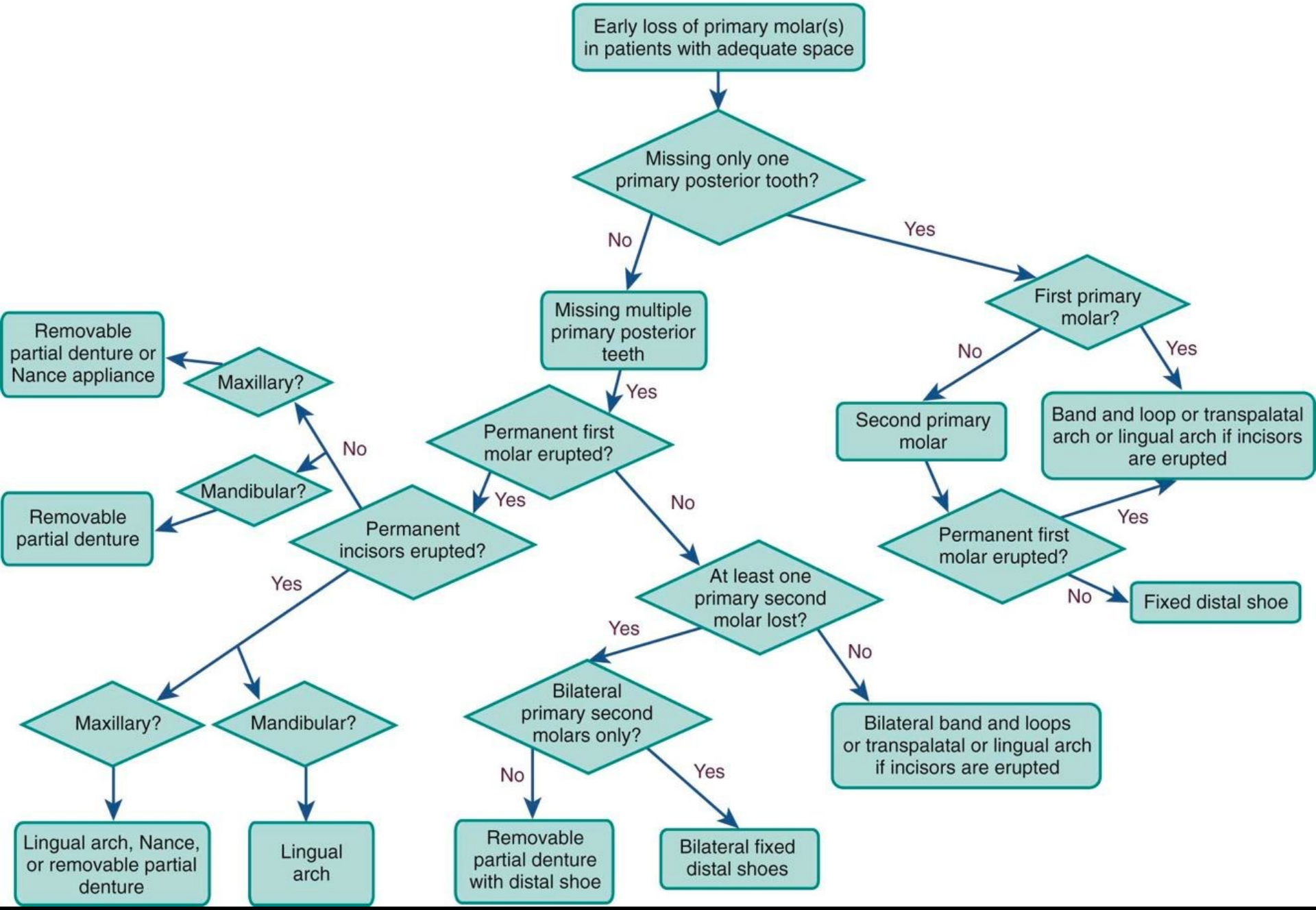








Posterior Space Maintenance—Pathways of Care



Space Management in Preadolescent Children

3 Discuss the construction of different appliances.

Removable-Impression → Insertion

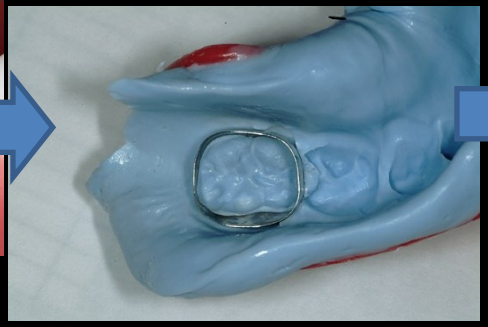


Fixed

Separators Fit bands placed in impression wire bent and soldered









Cemented in Mouth

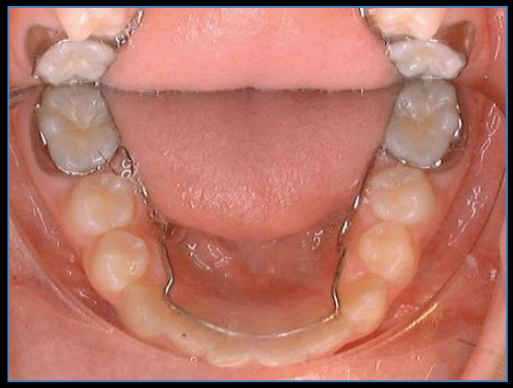
Space Management in Preadolescent Children

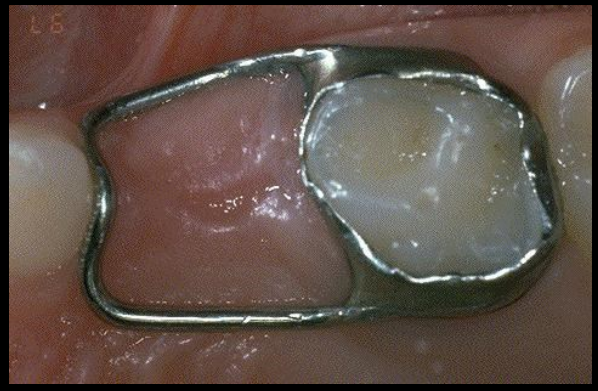
4 Describe the timing and sequence of treatment.

URA

Fixed space maintainer









Space Management in Preadolescent Children

5. Identify the possible causes of midline diastemas and spacing.

Normal development (ugly duckling)
Frenum
Proclined teeth
Small teeth (laterals)
missing laterals
mesiodens or pathology





Space Management in Preadolescent Children

6. Discuss the relationship between spacing and protrusion



Potential Crowding & Space Maintenance

1. Describe diagnostic information necessary to make decisions concerning space maintenance or management.
2. Identify and discuss alternative space analysis procedures.
3. Discuss the importance of determining the etiology of tooth loss.
4. Discuss the phenomenon of space loss.
5. List factors that weigh in the decision whether to maintain or regain space.
6. Discuss the relevancy of the above factors to space management.

Potential Crowding & Space Maintenance

1. Describe diagnostic information necessary to make decisions concerning space maintenance or management.

- If deciduous tooth lost early- When?
- How much space loss?
- Dental age and future eruption/growth changes
- Agenesis?
- Facial form- lip competence and fullness

Potential Crowding & Space Maintenance

2 Identify and discuss alternative space analysis procedures.

Measuring radiographs and teeth

Using tables

Correlation tables, measuring incisors and predicting 345

Moyers

Tanaka and Johnston

Potential Crowding & Space Maintenance

3 Discuss the importance of determining the etiology of tooth loss.

Big Teeth/Small Jaws

- Expansion
- Space maintenance- Leeway space
- Extraction

Early loss (crowding/Pathology)

- Space regaining (Drift)
- Space maintenance
- Extraction



Potential Crowding & Space Maintenance

4 Discuss the phenomenon of space loss.

- Crowding- early loss
  - Dental age- when do new teeth emerge
  - E's lose more, E's>D>C
  - Rate of loss Uppers> lowers
- Lose space within 3 mos
  - Faster in first 6 months then slows

Potential Crowding & Space Maintenance

5 List factors that weigh in the decision whether to maintain or regain space.

When lost?

- Why?
- crowding?
- pathology
- When will future teeth emerge? Agenesis?
- How much crowding- lips/face

Potential Crowding & Space Maintenance

6 Discuss the relevancy of the above factors to space management.

Minimal space loss and teeth soon to emerge- leave and observe

> 3mm crowding-refer

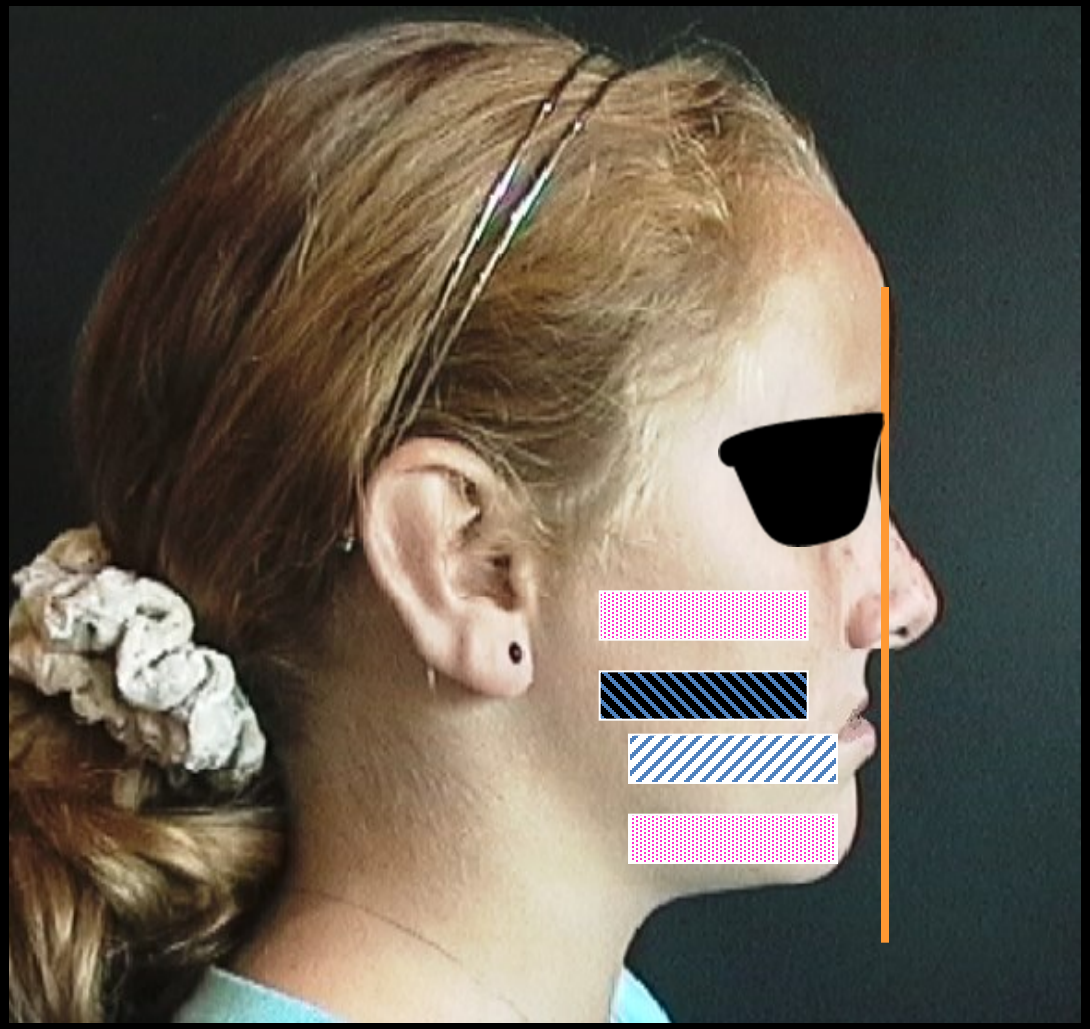
extraction/expansion- significant rx

Crossbites and Vertical Problems in Children

1. Identify skeletal contributions to anterior crossbites.
2. Identify dental contributions to anterior crossbites.
3. Identify the significance of functional shifts in anterior crossbites.
4. Evaluate space, tooth orientation and position, intermaxillary relationships, and eruption timing and sequence regarding the teeth involved in the anterior crossbites as etiologic and treatment factors.
5. State rationale for correcting anterior crossbites.
6. Recommend appropriate treatment for anterior crossbites including timing and appliance design.
7. Explain the relevance of facial form to posterior crossbite diagnosis.
8. List the etiologic factors of posterior crossbite.
9. Describe the clinical findings consistent with a bilateral maxillary constriction, a bilateral constriction accompanied by a mandibular shift, and a true unilateral maxillary constriction.
10. Describe the rationale for correcting posterior crossbites.
11. Describe the appropriate timing and appliance design for posterior crossbite treatment.

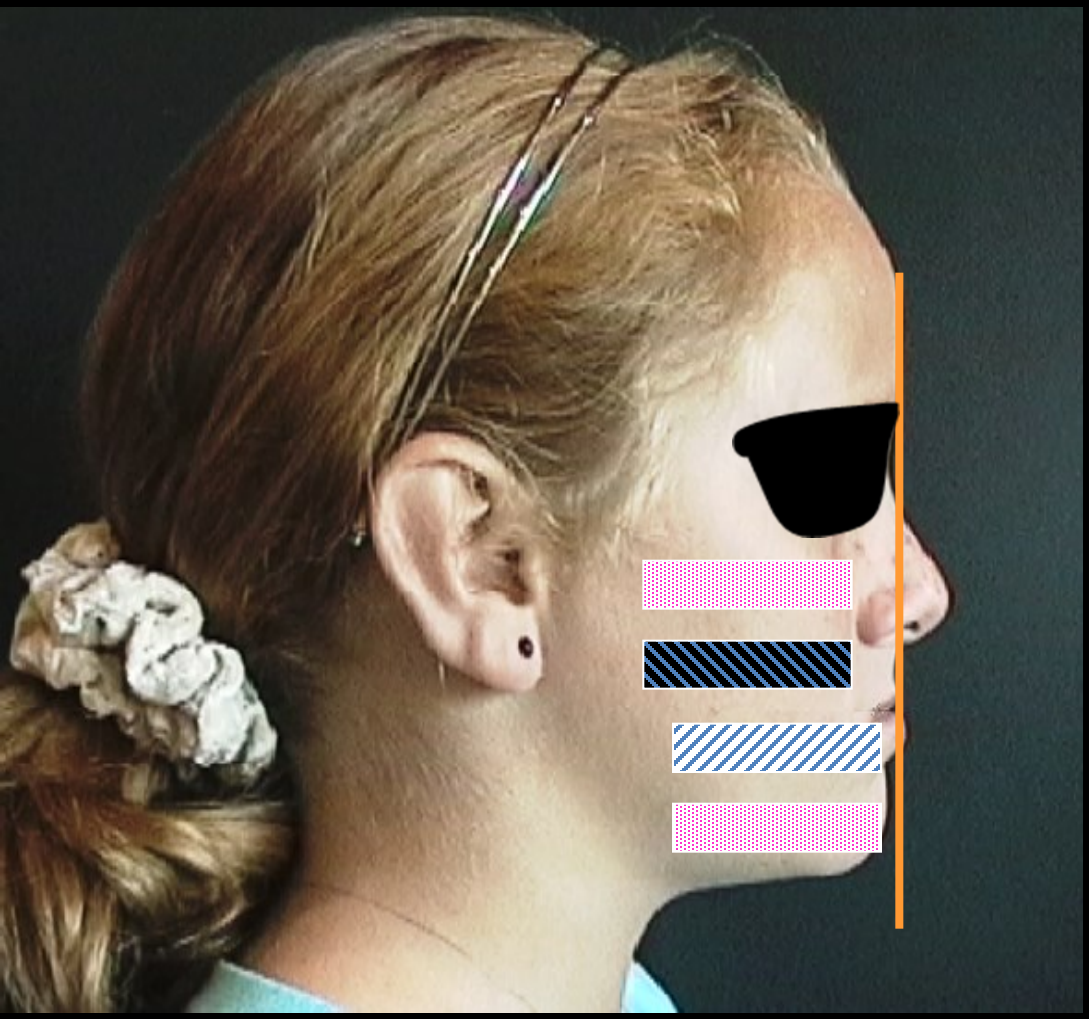
Crossbites and Vertical Problems in Children

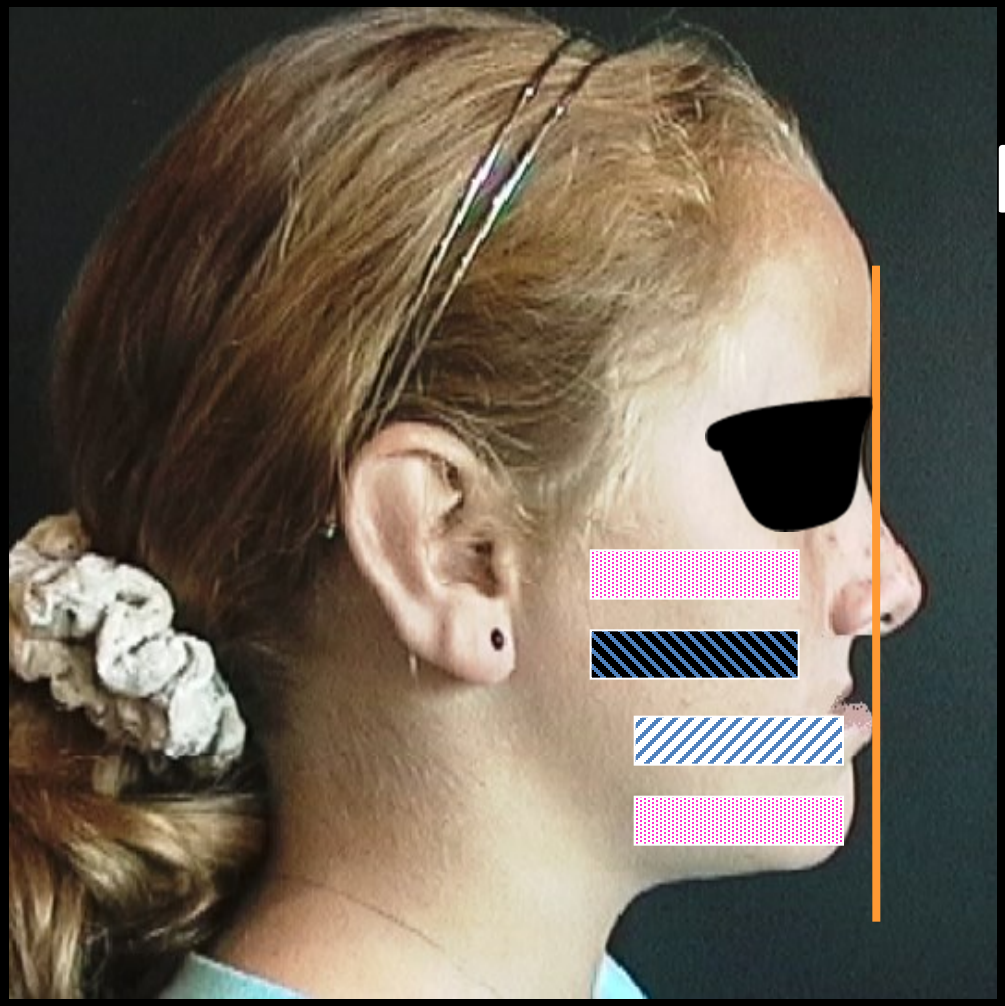
1. Identify skeletal contributions to anterior crossbites.



Maxilla back

Mandible forward





Maxilla back
Mandible forward



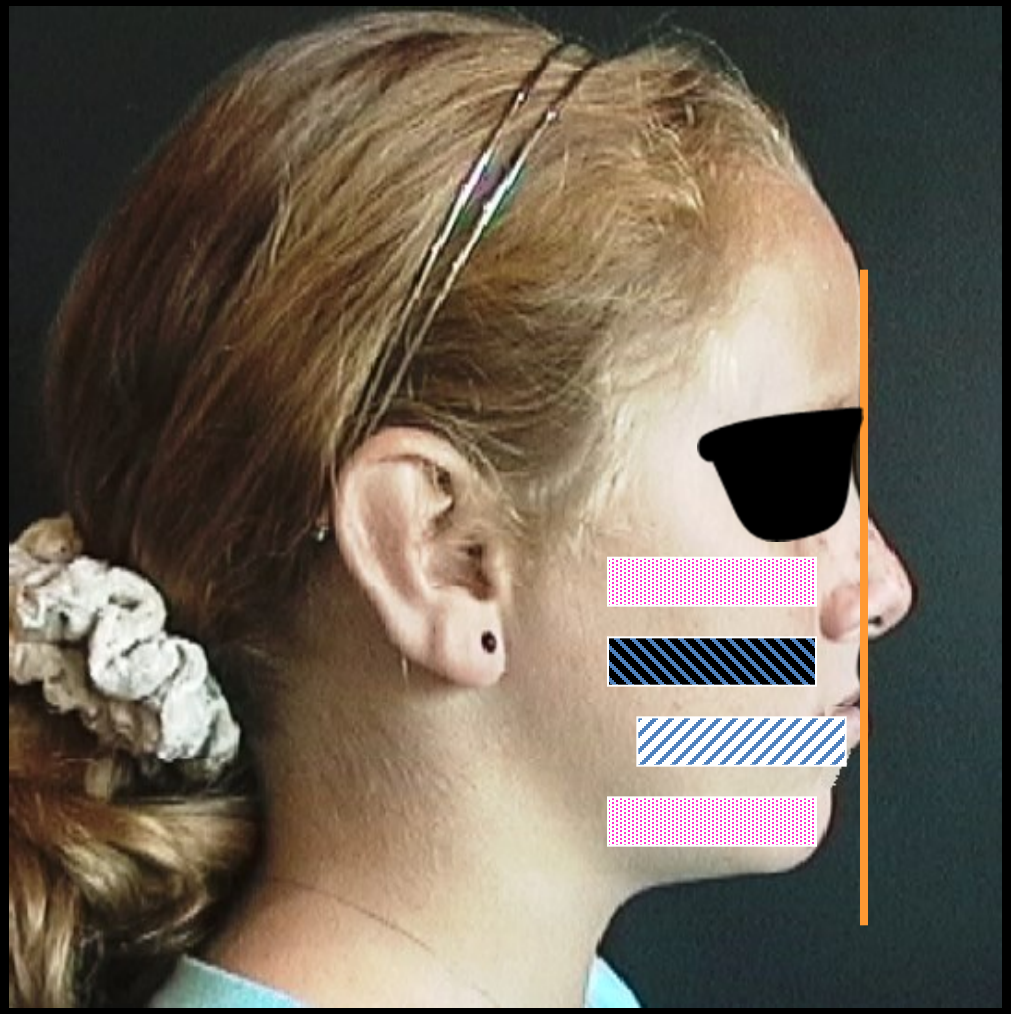
Maxilla vertically deficient
Mandible rotated up and forward

Crossbites and Vertical Problems in Children

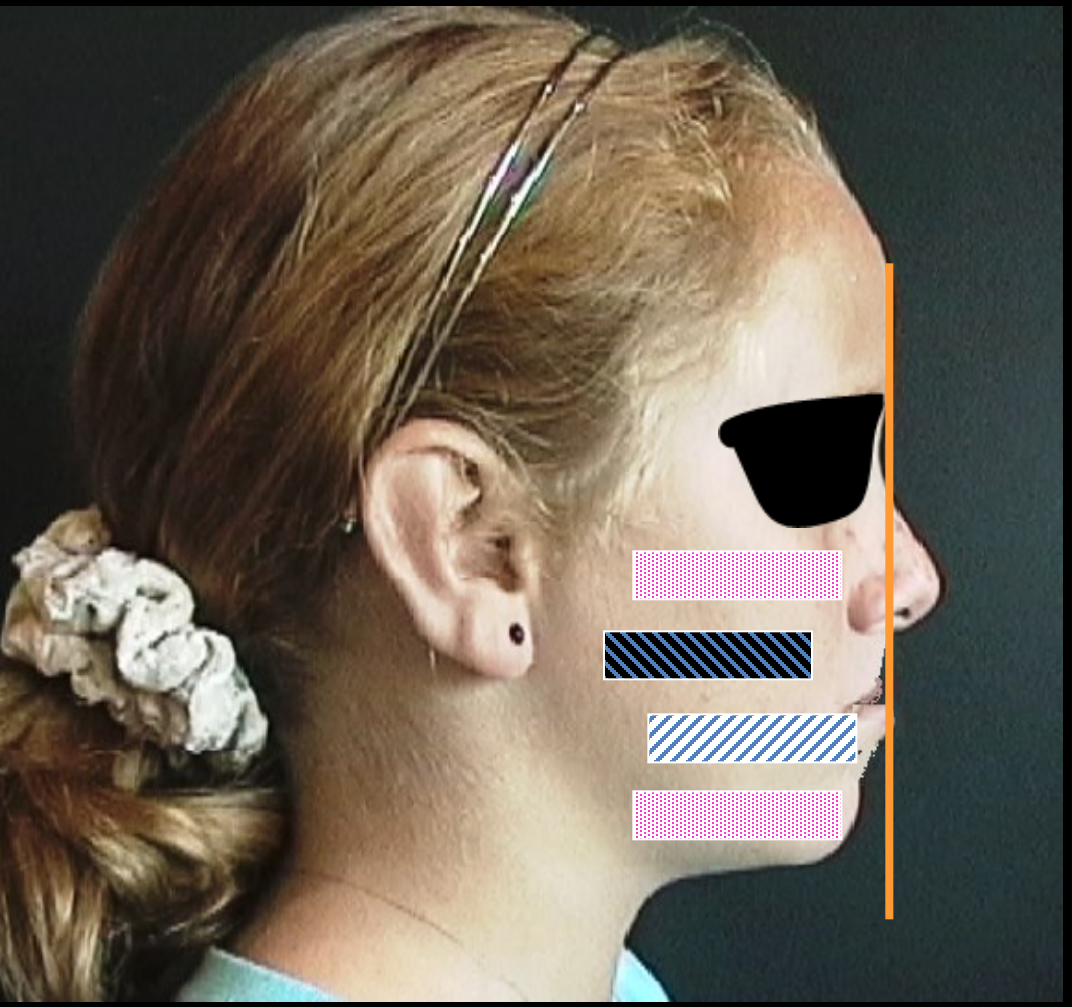
2 Identify dental contributions to anterior crossbites.



Maxillary teeth back



Mandibular teeth forward

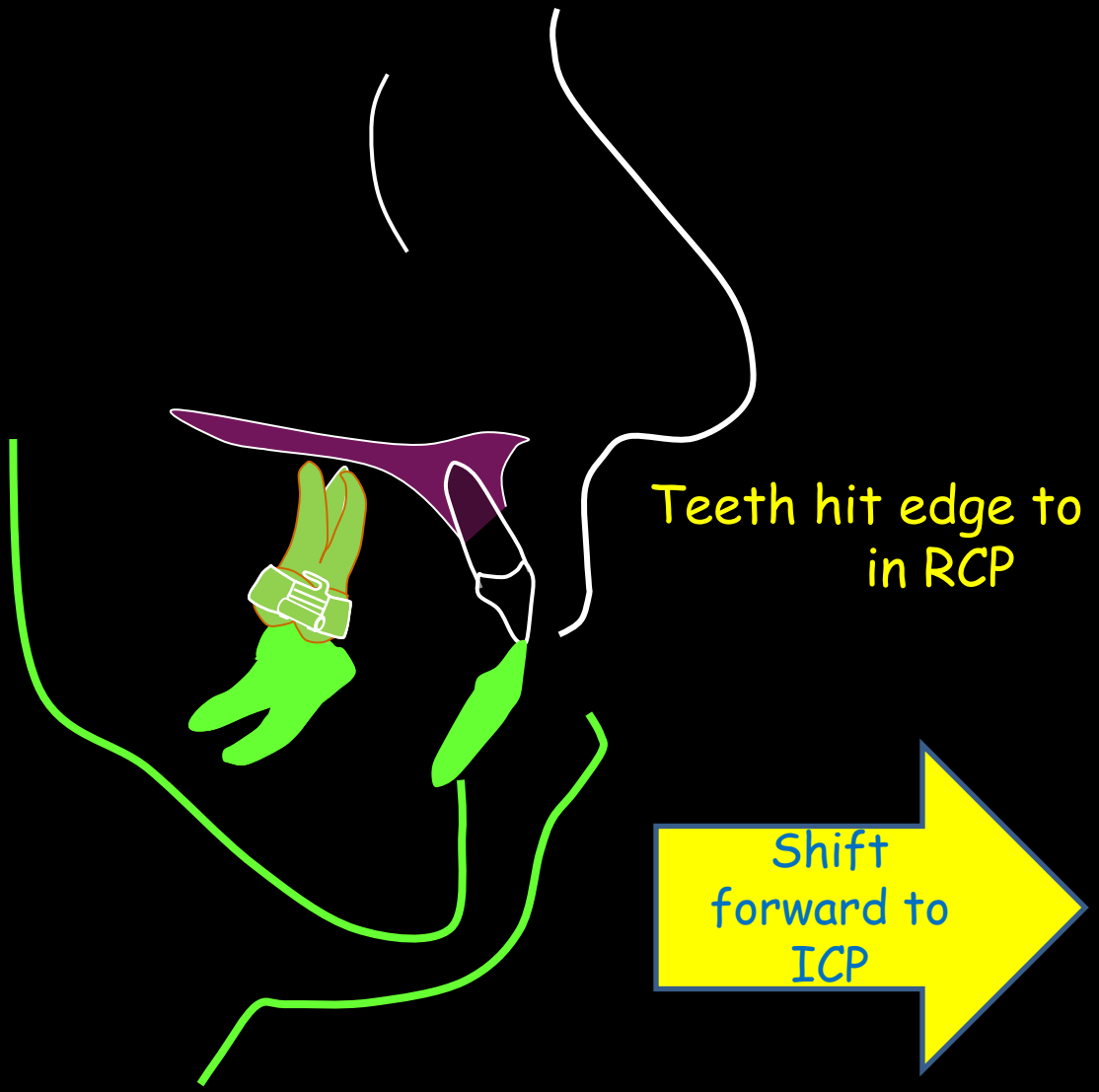


Maxillary teeth back
Mandibular teeth forward

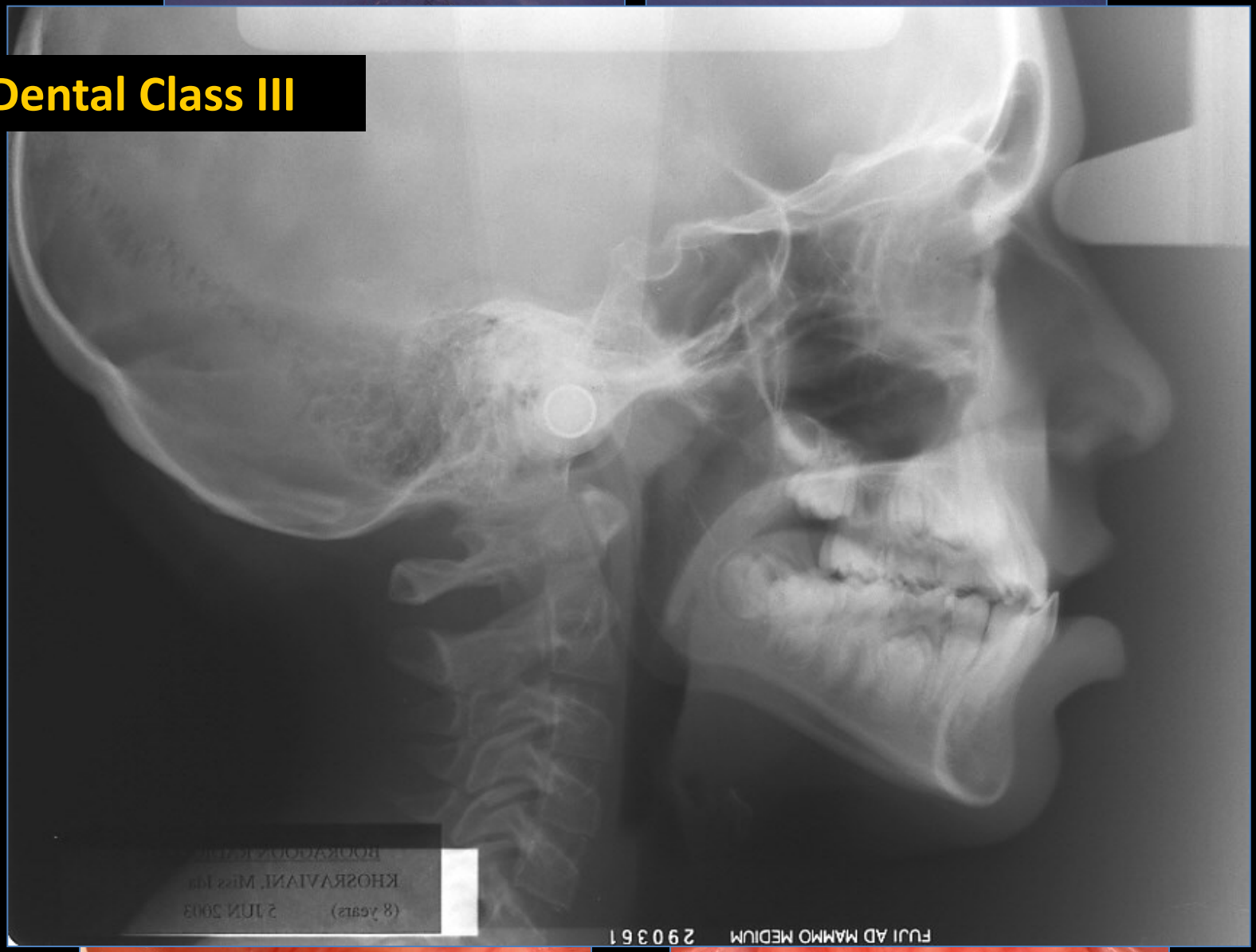
Crossbites and Vertical Problems in Children

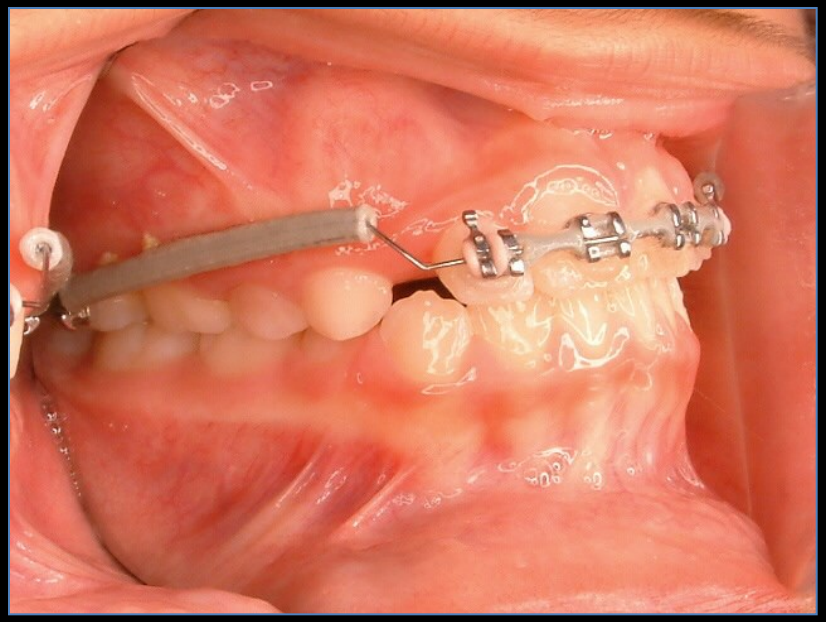
3 Identify the significance of functional shifts in anterior crossbites.

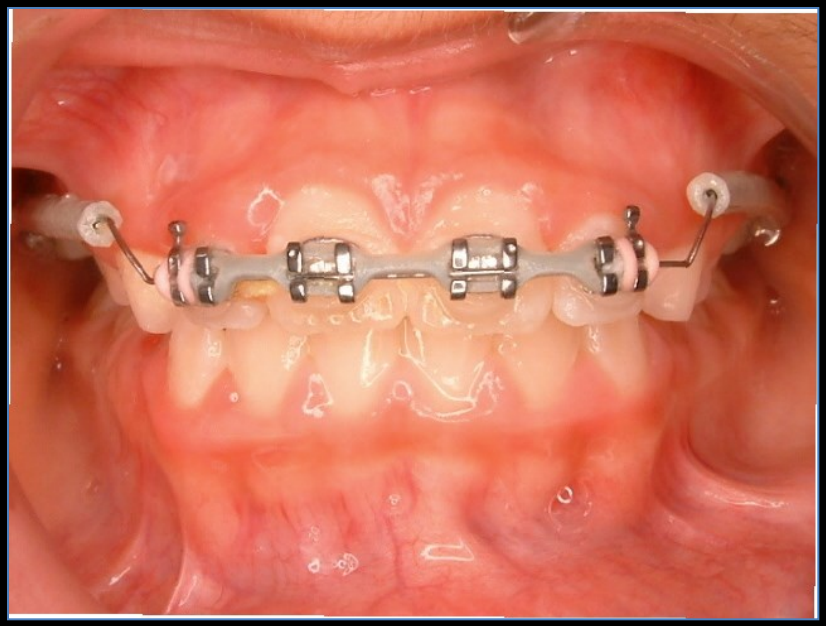
Pseudo Class III's are special



Dental Class III





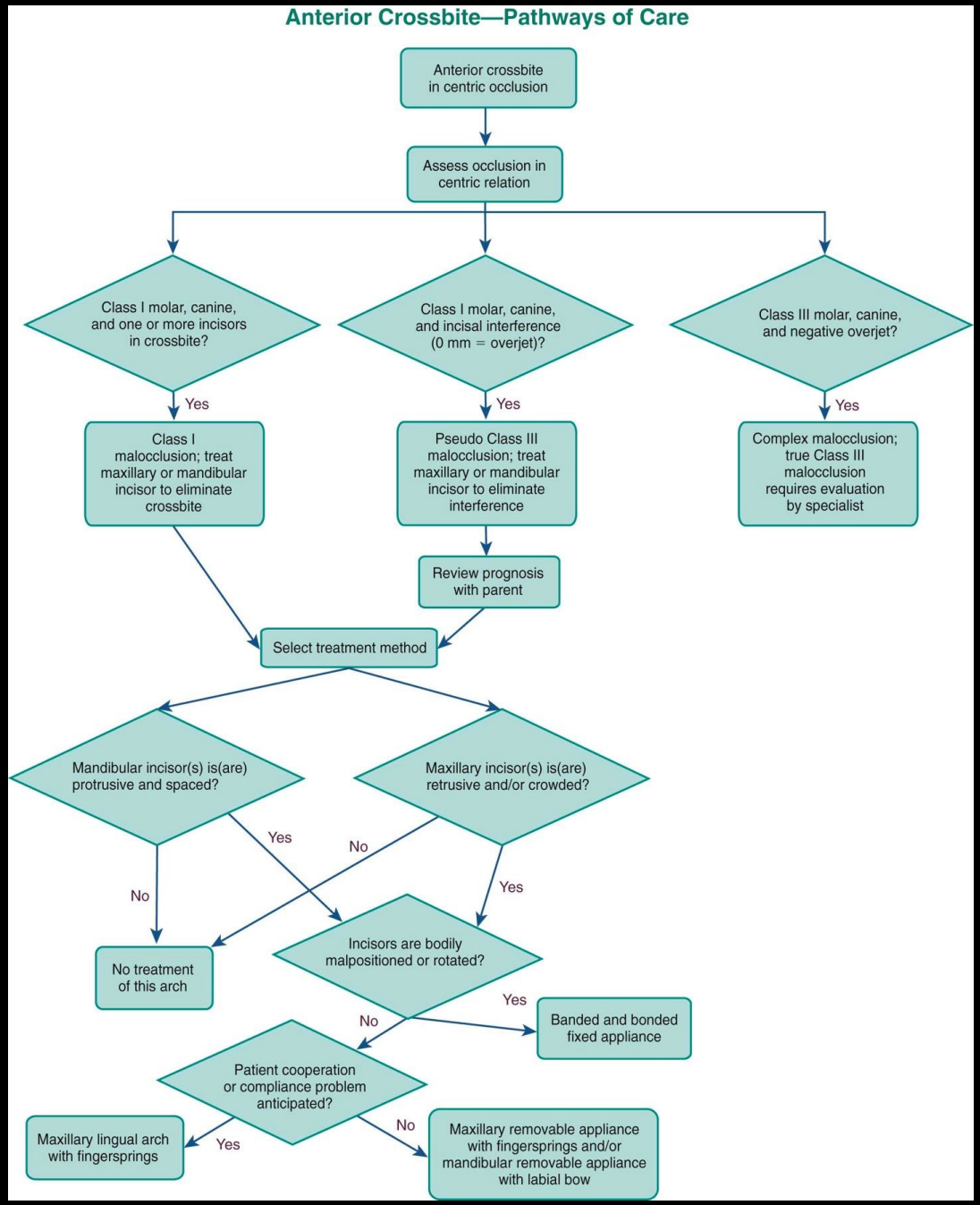






Crossbites and Vertical Problems in Children

4 Evaluate space, tooth orientation and position, intermaxillary relationships, and eruption timing and sequence regarding the teeth involved in the anterior crossbites as etiologic and treatment factors.


Anterior Crossbite—Pathways of Care
Anterior crossbite in centric occlusion
Assess occlusion in centric relation
Class I molar, canine, and one or more incisors in crossbite?
Class I molar, canine, and incisal interference (0 mm = overjet)?
Class III molar, canine, and negative overjet?
Yes
Yes
Yes
Class I malocclusion; treat maxillary or mandibular incisor to eliminate crossbite
Pseudo Class III malocclusion; treat maxillary or mandibular incisor to eliminate interference
Complex malocclusion; true Class III malocclusion requires evaluation by specialist
Review prognosis with parent
Select treatment method
Mandibular incisor(s) is(are) protrusive and spaced?
Maxillary incisor(s) is(are) retrusive and/or crowded?
Yes
No
No
Yes
No treatment of this arch
Incisors are bodily malpositioned or rotated?
Yes
No
Banded and bonded fixed appliance
Patient cooperation or compliance problem anticipated?
Maxillary lingual arch with fingersprings
Yes
No
Maxillary removable appliance with fingersprings and/or mandibular removable appliance with labial bow

Crossbites and Vertical Problems in Children

5 State rationale for correcting anterior crossbites.

- Prevent displacement and aberrant movement patters/wear
- Prevent perio problems
- Function RCP/MI problems
- Create space for alignment- expand anteriorly



Crossbites and Vertical Problems in Children

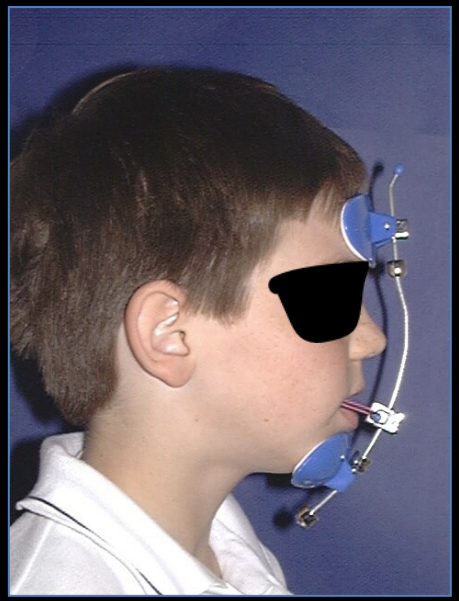
6 Recommend appropriate treatment for anterior crossbites including timing and appliance design.

- Single tooth- URA ASAP- Space? Strip, extract
- Multiple teeth ? Class III ? Shift
- URA or Facemask protraction
- Part bands- comprehensive treatment

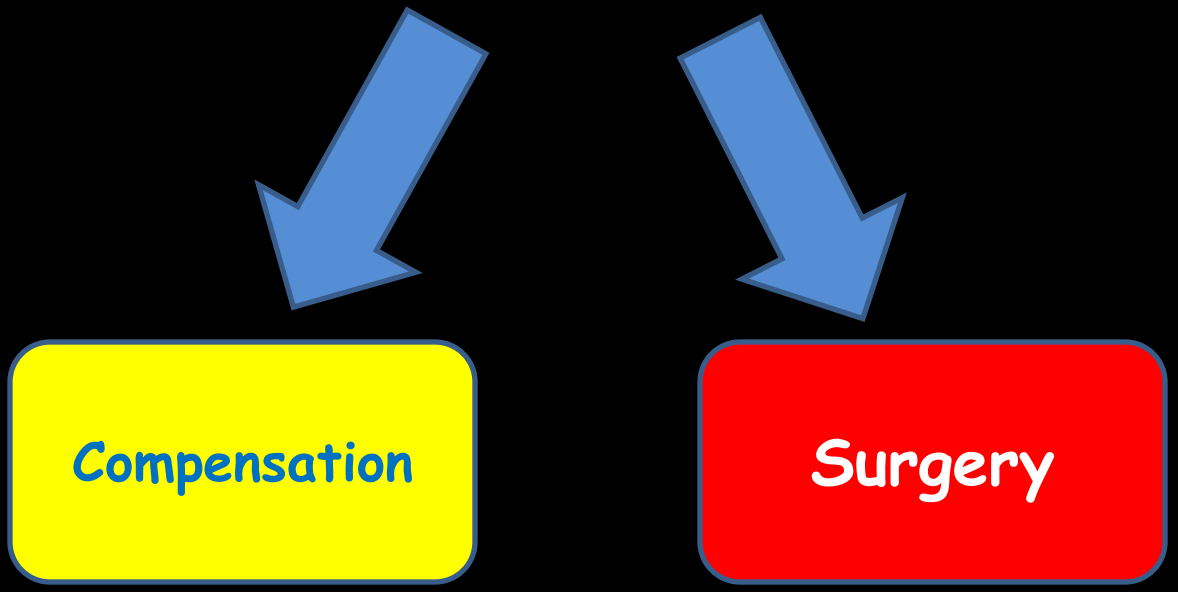


Springs seen from palatal side of acrylic

Adam's clasps, labial bow with finger spring.



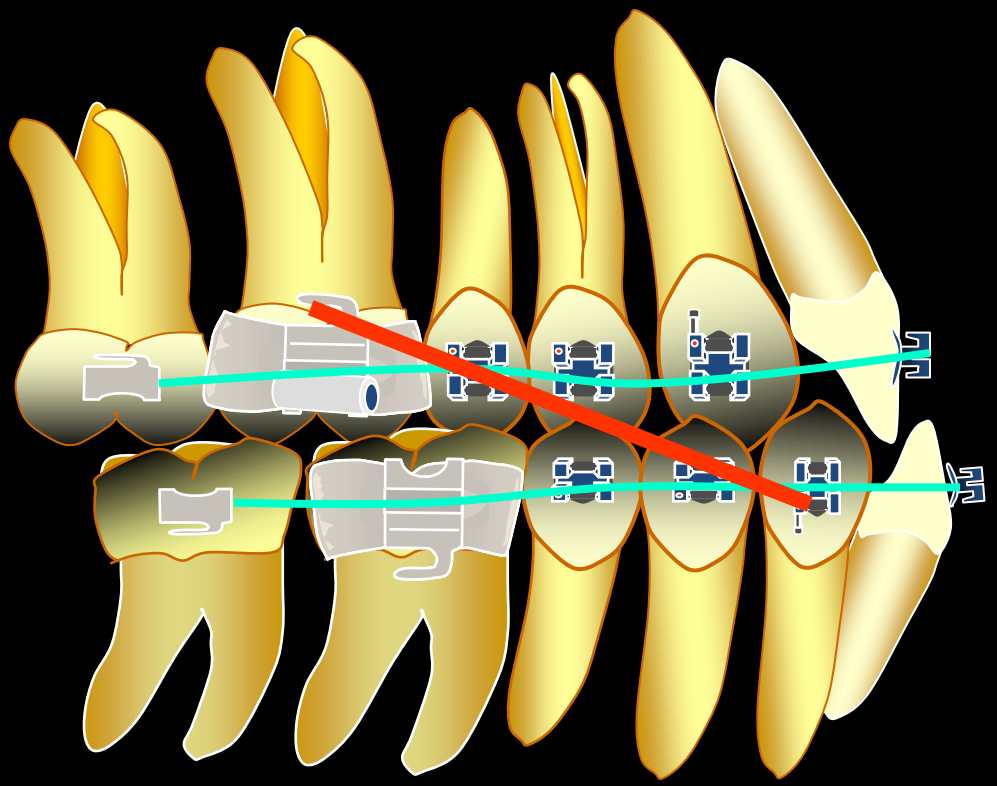
Adult Class III



- Elastics
- Extractions
- TADS

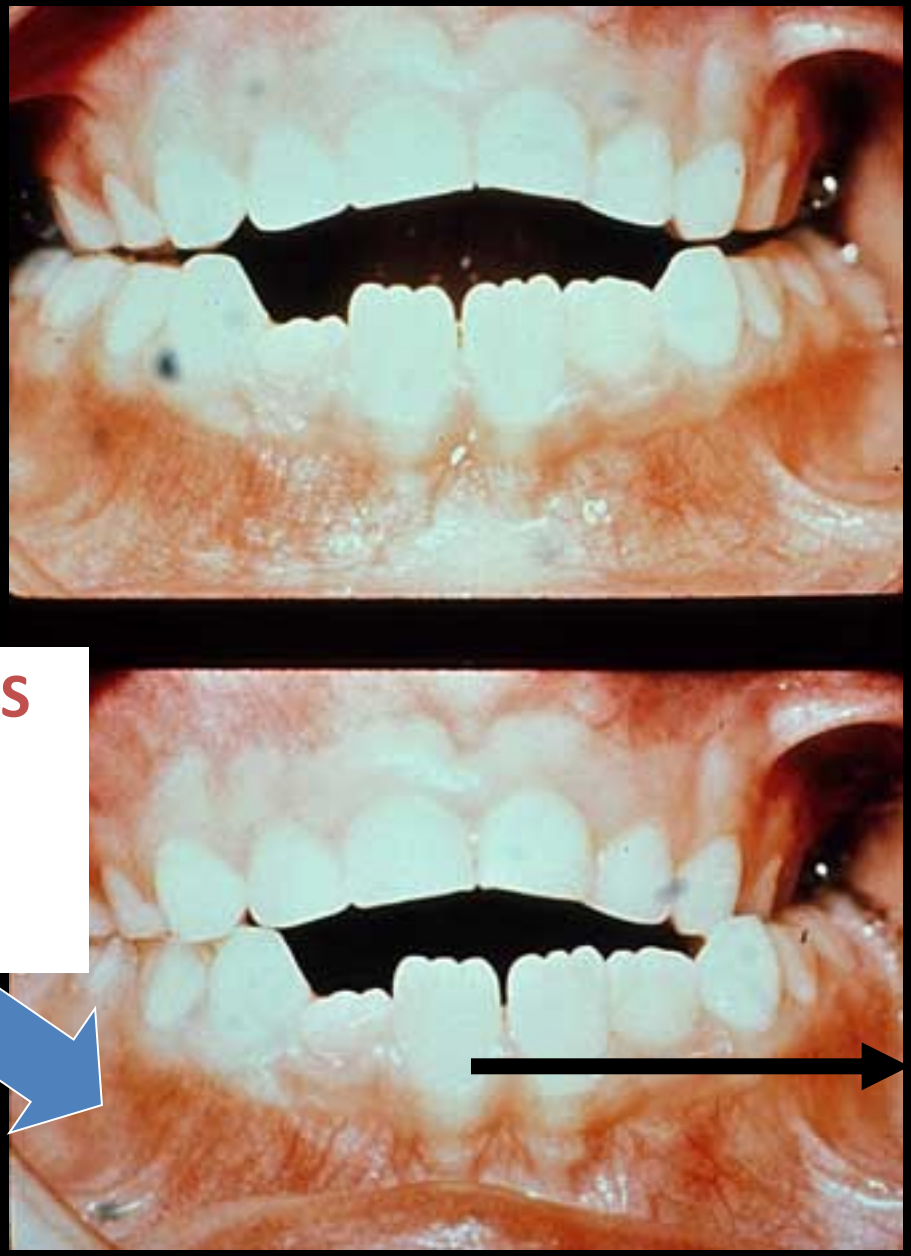
- Orthognathics
- Distraction

Elastics



Crossbites and Vertical Problems in Children

7 Explain the relevance of facial form to posterior crossbite diagnosis.

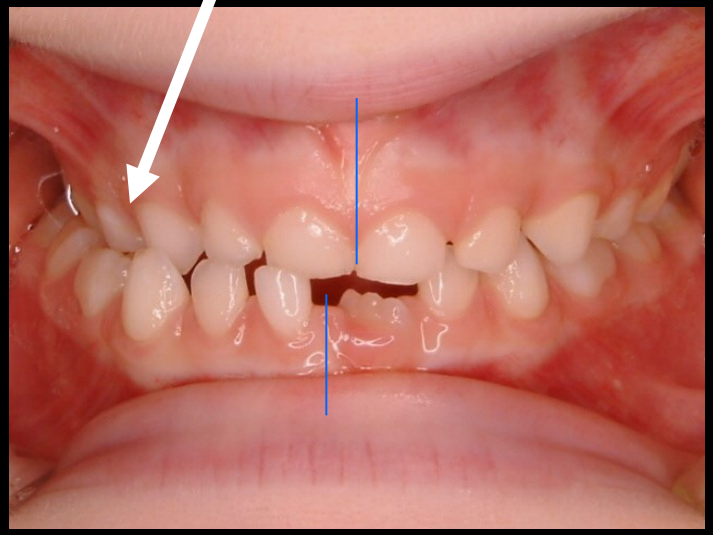


End to end occlusion
RCP

MANDIBLE HAS MOVED FORWARDS ON RIGHT

Shift to right
ICP

CROSSBITE





Crossbites and Vertical Problems in Children

8 List the etiologic factors of posterior crossbite.

Habits

Breathing? Nasorespiratory function

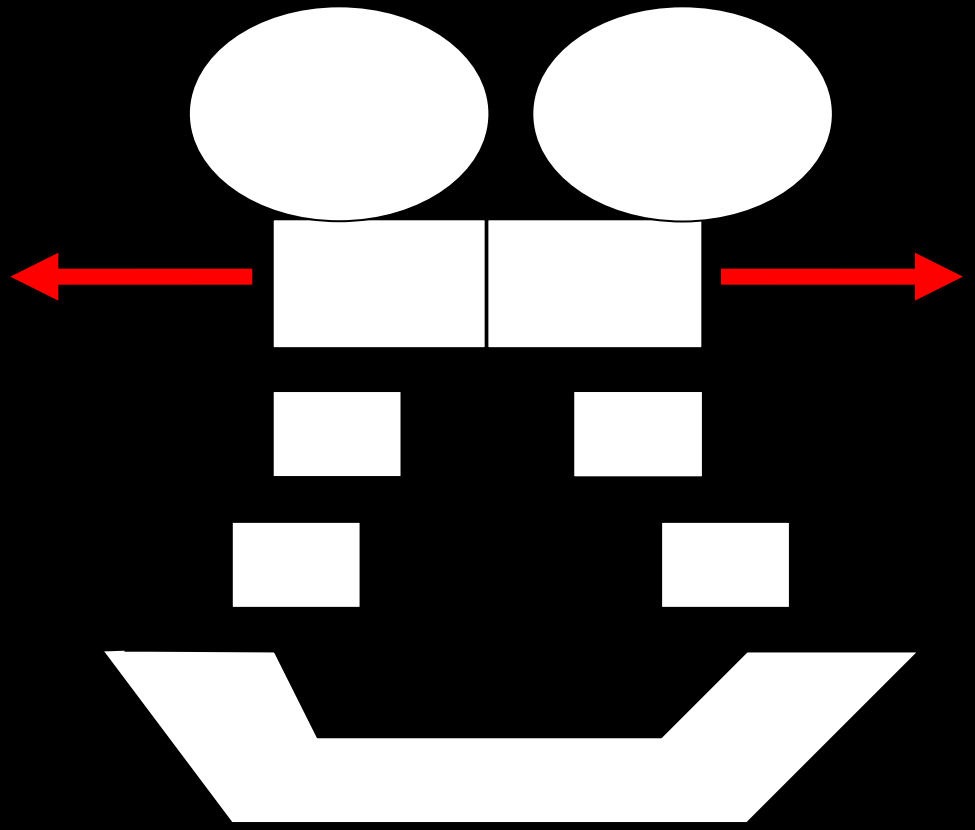
Genetics

- Class III
- Narrow maxilla/Broad mandible

Differential diagnosis

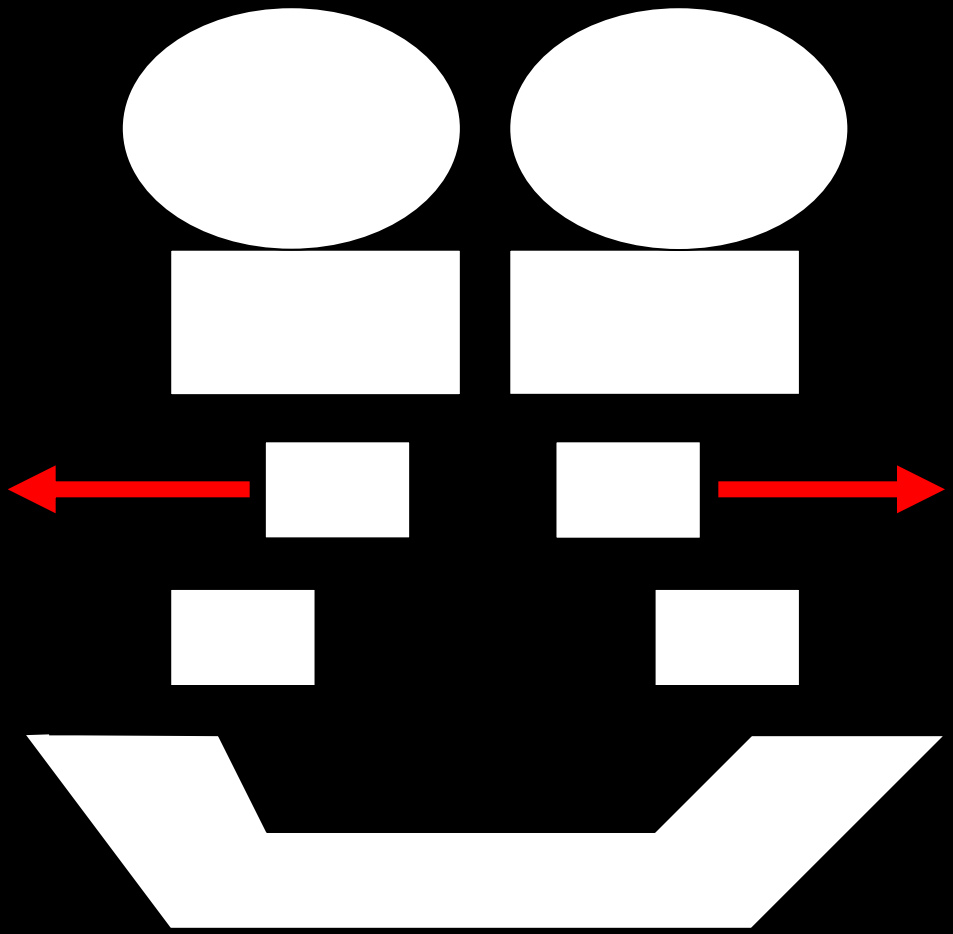
- Skeletal crossbite
- Dental crossbite (slide from Ackerman profit)

CROSSBITE
NARROW JAW BASE



OPEN UP THE SUTURE

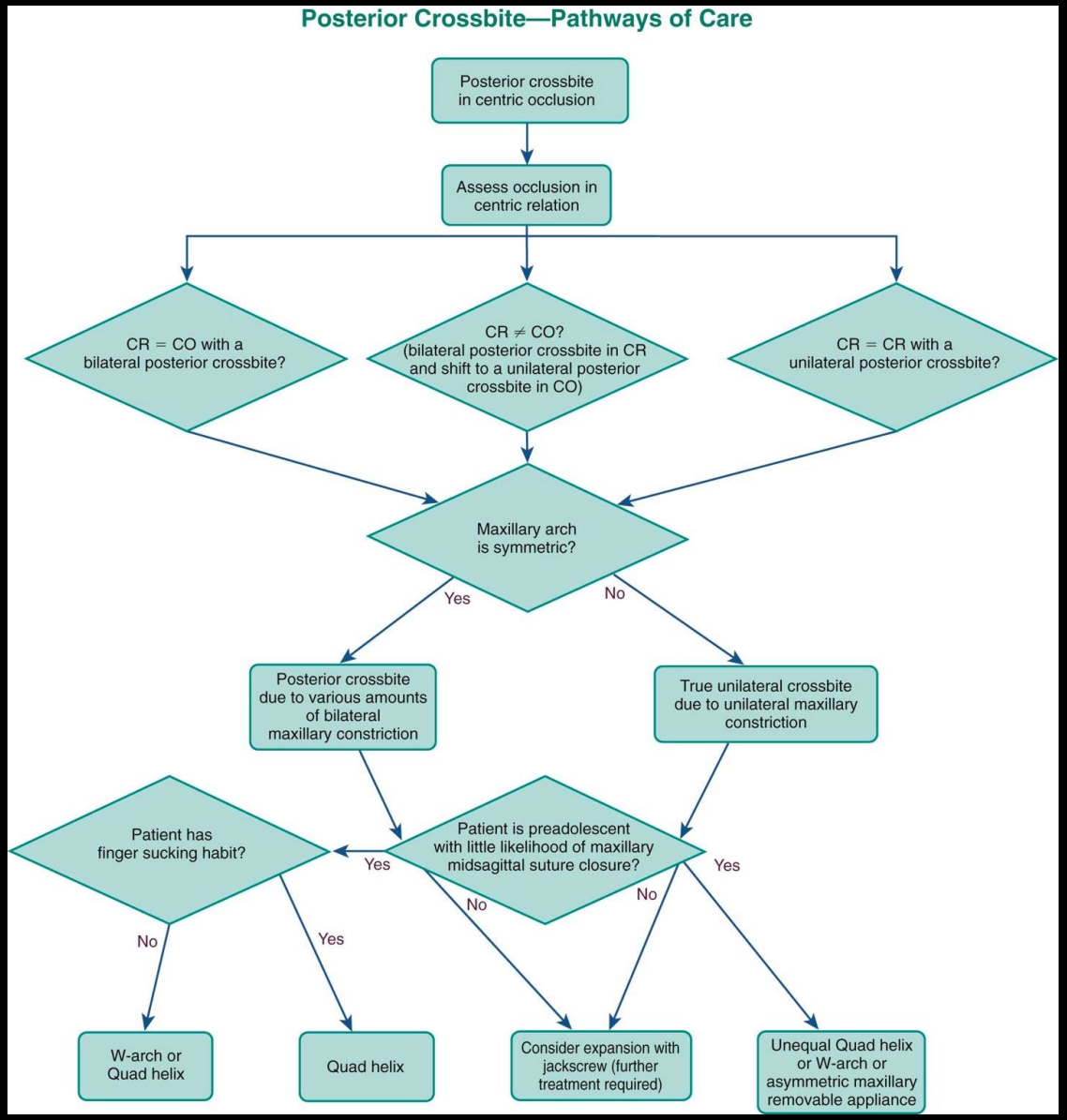
CROSSBITE
NARROW DENTITION



EXPAND THE TEETH

Crossbites and Vertical Problems in Children

9 Describe the clinical findings consistent with a bilateral maxillary constriction, a bilateral constriction accompanied by a mandibular shift, and a true unilateral maxillary constriction.


Posterior Crossbite—Pathways of Care
Posterior crossbite in centric occlusion
Assess occlusion in centric relation
CR = CO with a bilateral posterior crossbite?
CR ≠ CO? (bilateral posterior crossbite in CR and shift to a unilateral posterior crossbite in CO)
CR = CR with a unilateral posterior crossbite?
Maxillary arch is symmetric?
Yes
No
Posterior crossbite due to various amounts of bilateral maxillary constriction
True unilateral crossbite due to unilateral maxillary constriction
Patient has finger sucking habit?
Patient is preadolescent with little likelihood of maxillary midsagittal suture closure?
Yes
No
Yes
No
Yes
No
W-arch or Quad helix
Quad helix
Consider expansion with jackscrew (further treatment required)
Unequal Quad helix or W-arch or asymmetric maxillary removable appliance

Crossbites and Vertical Problems in Children

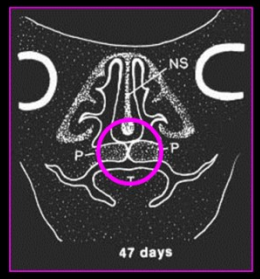
10 Describe the rationale for correcting posterior crossbites.

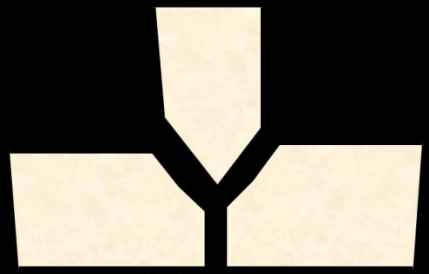
- Abnormal soft tissue growth modification
- Abnormal wear
- Dental Compensation
- Insufficient space- narrow arches

Crossbites and Vertical Problems in Children

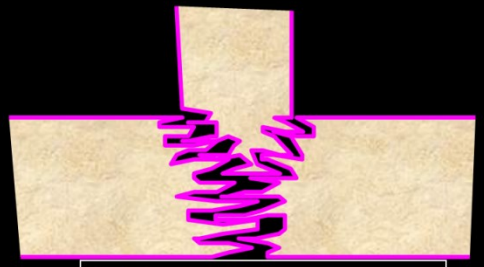
11. Describe the appropriate timing and appliance design for posterior crossbite treatment.

Suture morphology



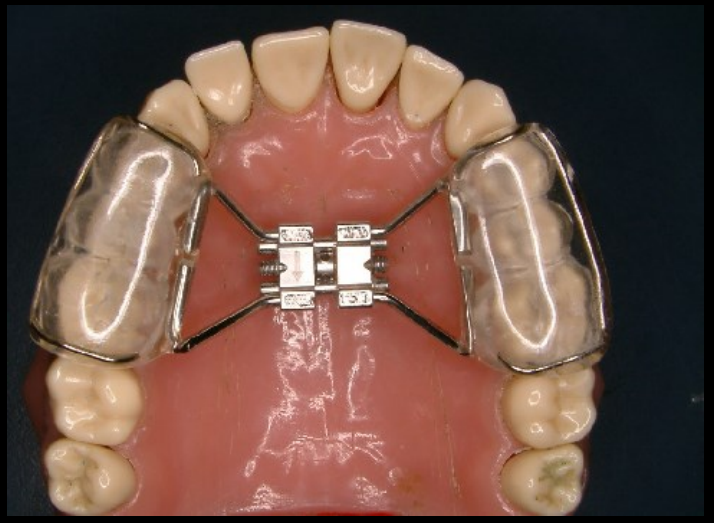


Up to 10 years



Late teens

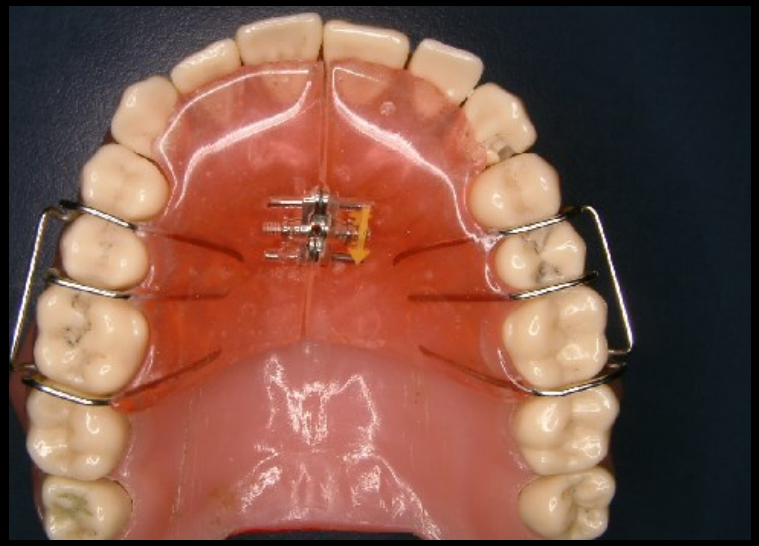
OPTIONS FOR APPLIANCE



RAPID MAXILLARY EXPANDER



QUAD HELIX and W-ARCH



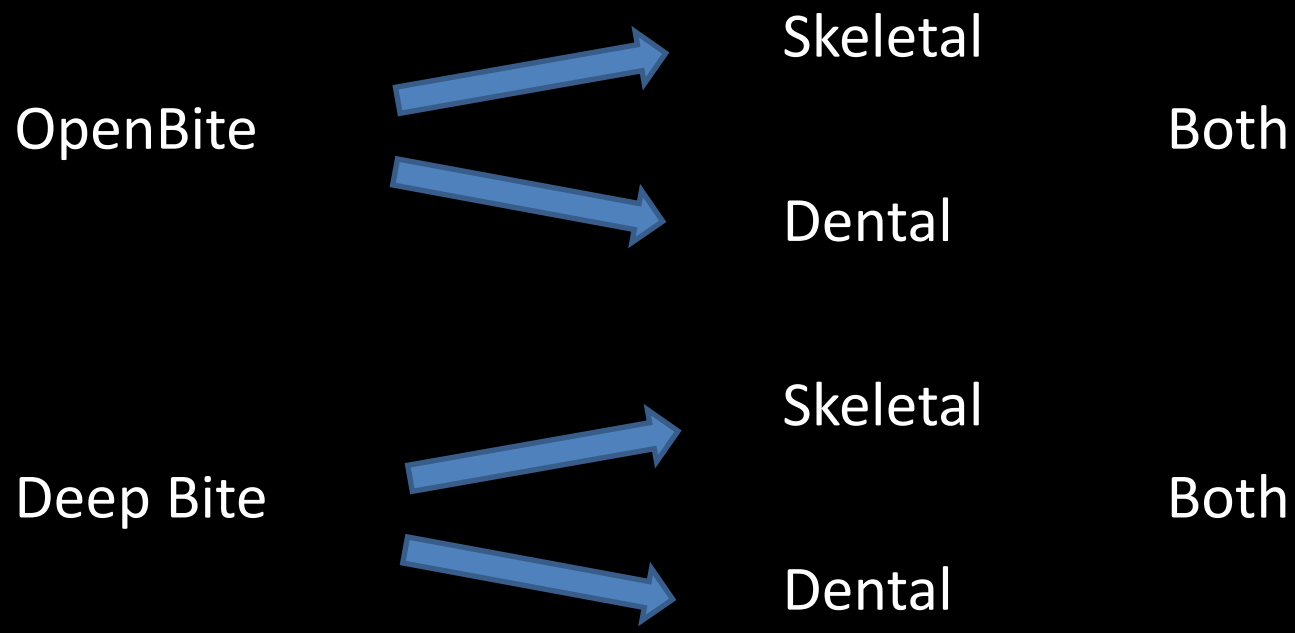
SLOW EXPANSION PLATE

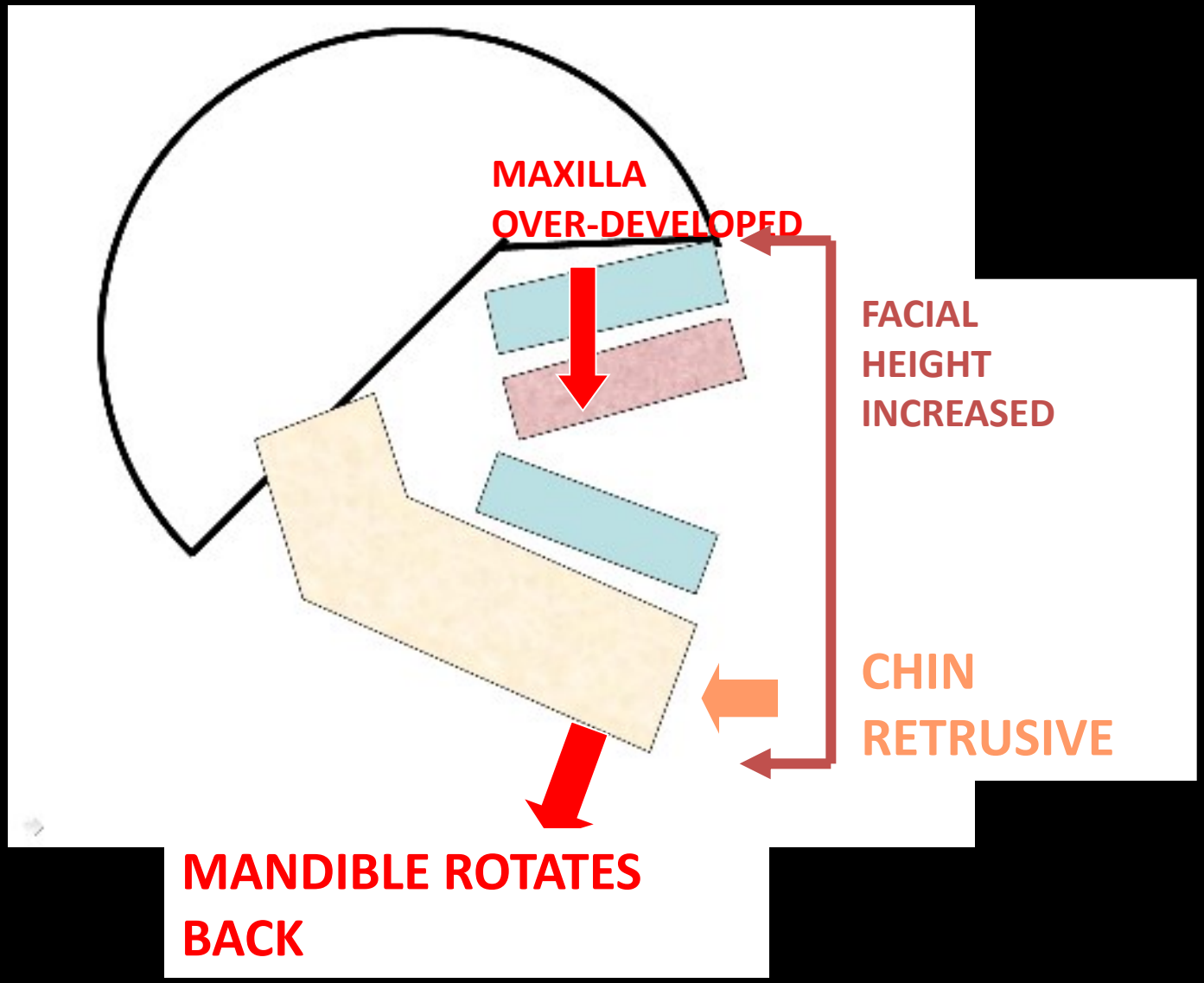
Vertical Problems / Habits

1. Define vertical problem and its classification, i.e., dental, skeletal, and possible etiologies.
2. Describe epidemiology relating to vertical problems and malocclusion.
3. Identify skeletal patterns predisposing patients to deep bite and open bite.
4. Explain oral-facial growth patterns and physiology as they relate to vertical problems.
5. Identify treatment and timing for vertical problems.

Vertical Problems / Habits

1. Define vertical problem and its classification, i.e., dental, skeletal, and possible etiologies.




MAXILLA
OVER-DEVELOPED
FACIAL
HEIGHT
INCREASED
CHIN
RETRUSIVE
MANDIBLE ROTATES
BACK



2 yr old





THUMBSUCKING

6MONTHS AFTER CEASING

Vertical Problems / Habits

2 Describe epidemiology relating to vertical problems and malocclusion.

Vertical Problems / Habits

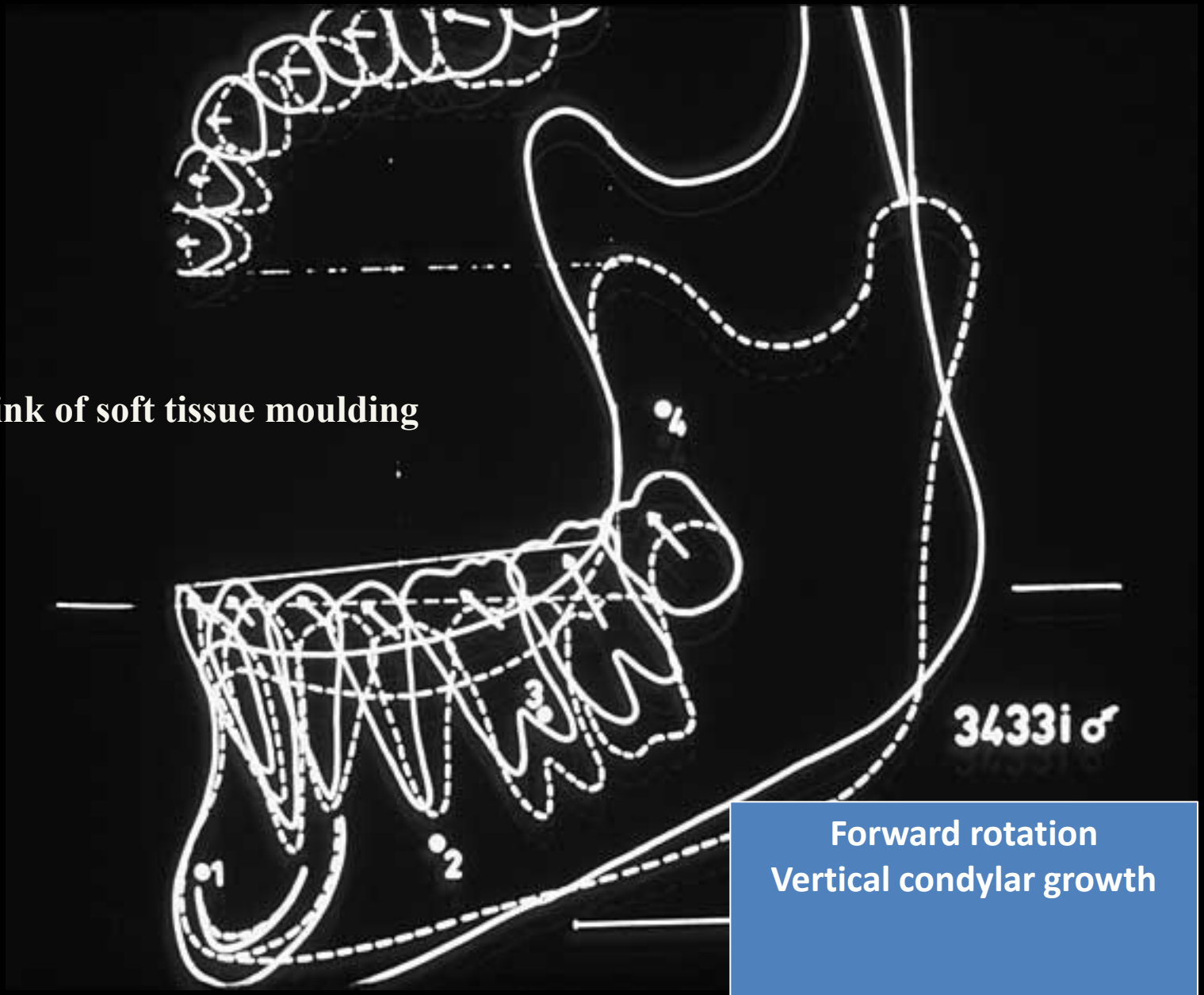
3 Identify skeletal patterns predisposing patients to deep bite and open bite.





Vertical Problems / Habits

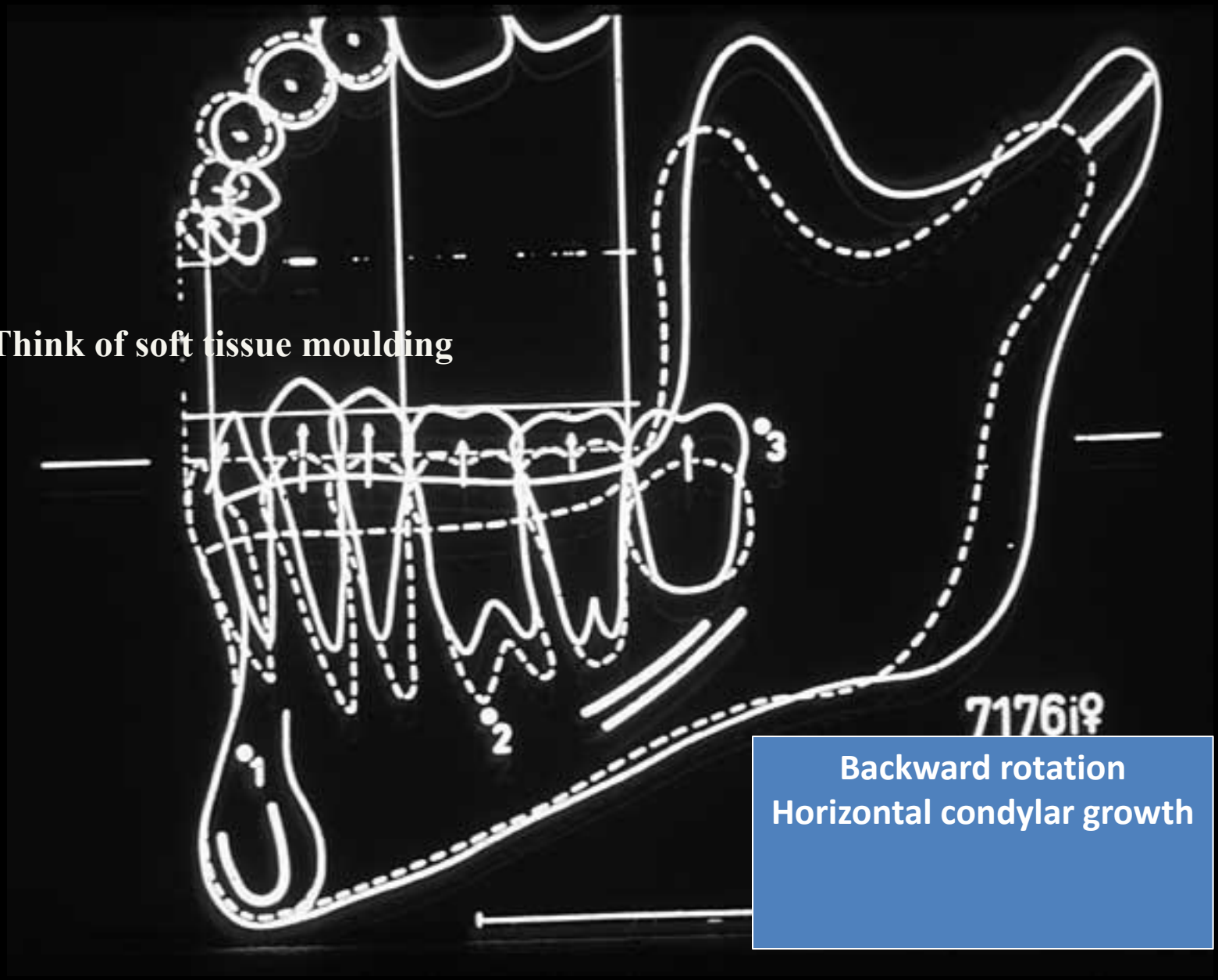
4 Explain oral-facial growth patterns and physiology as they relate to vertical problems.



Think of soft tissue moulding

Forward rotation
Vertical condylar growth

Think of soft tissue moulding



Backward rotation
Horizontal condylar growth

Vertical Problems / Habits

5 Identify treatment and timing for vertical problems.

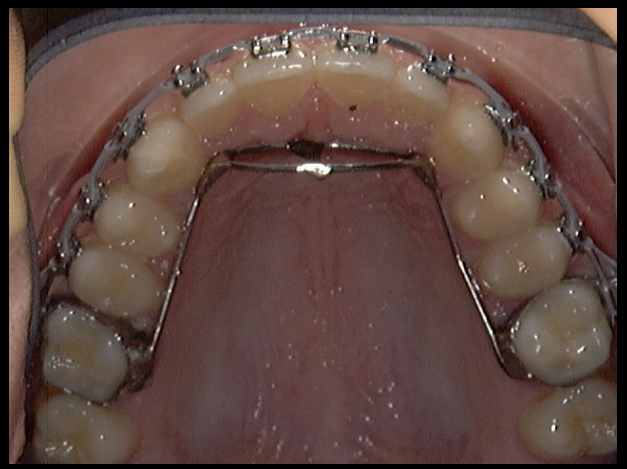


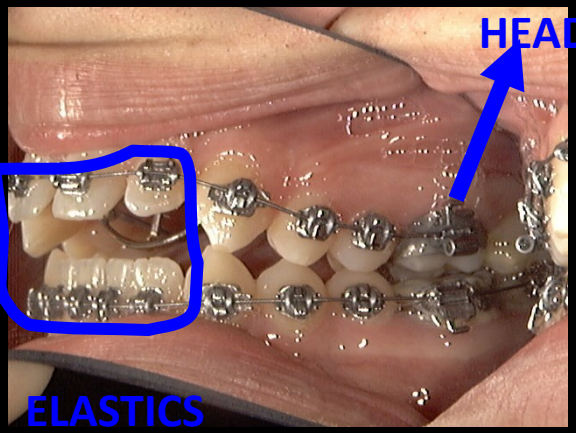


ANTI- HABIT APPLIANCE

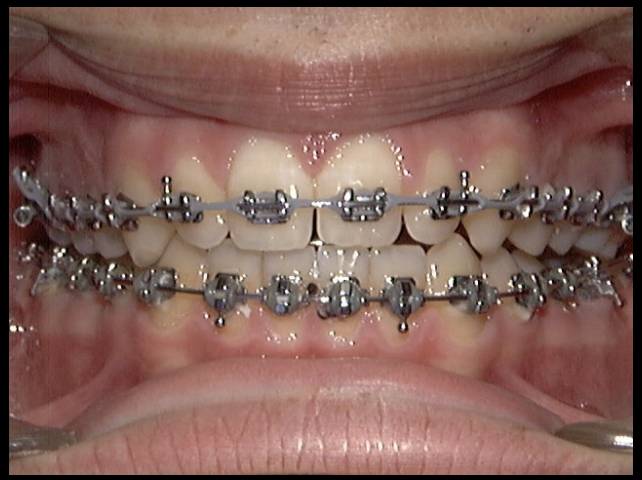












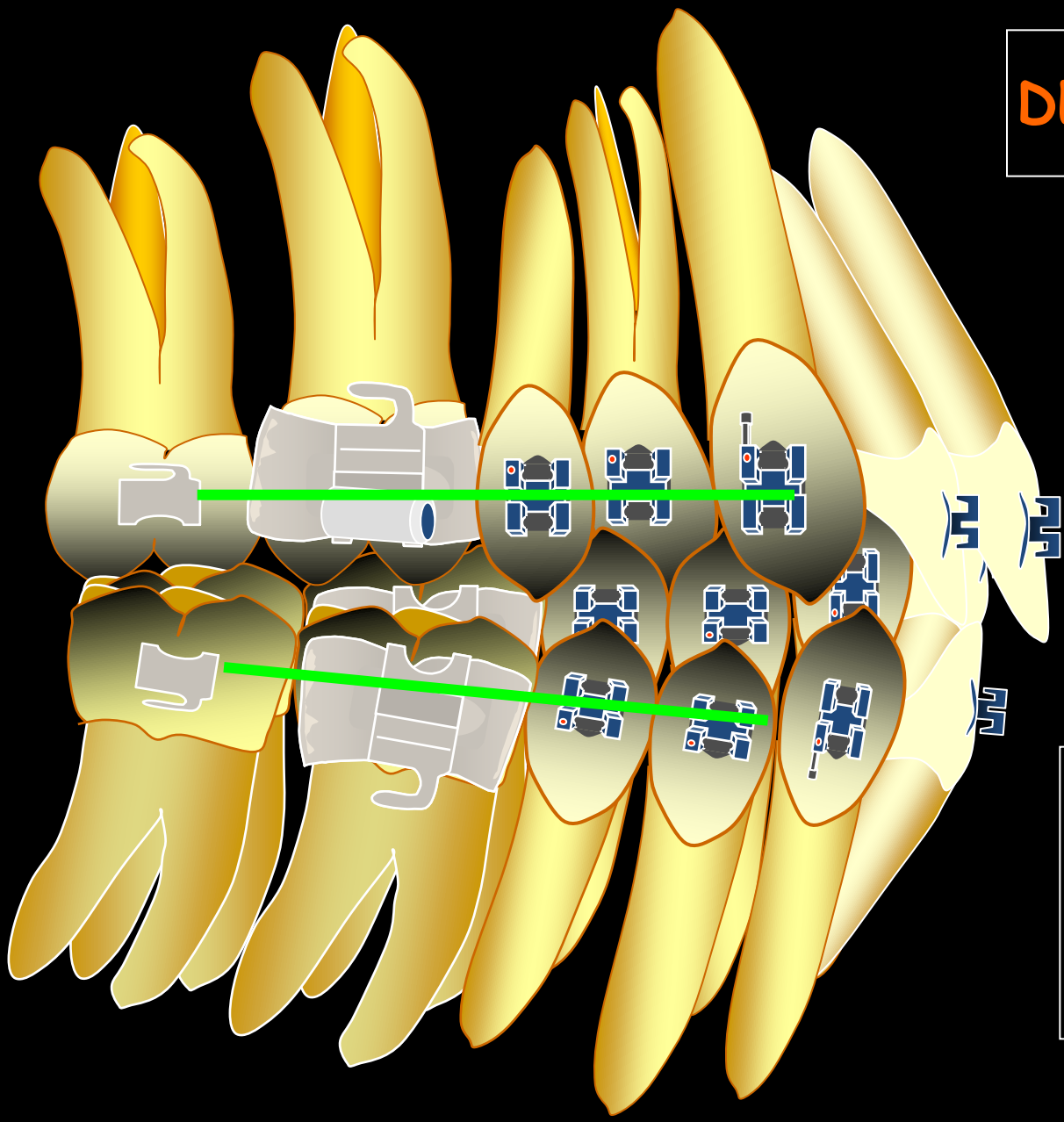
OLDER CHILD

HEADGEAR



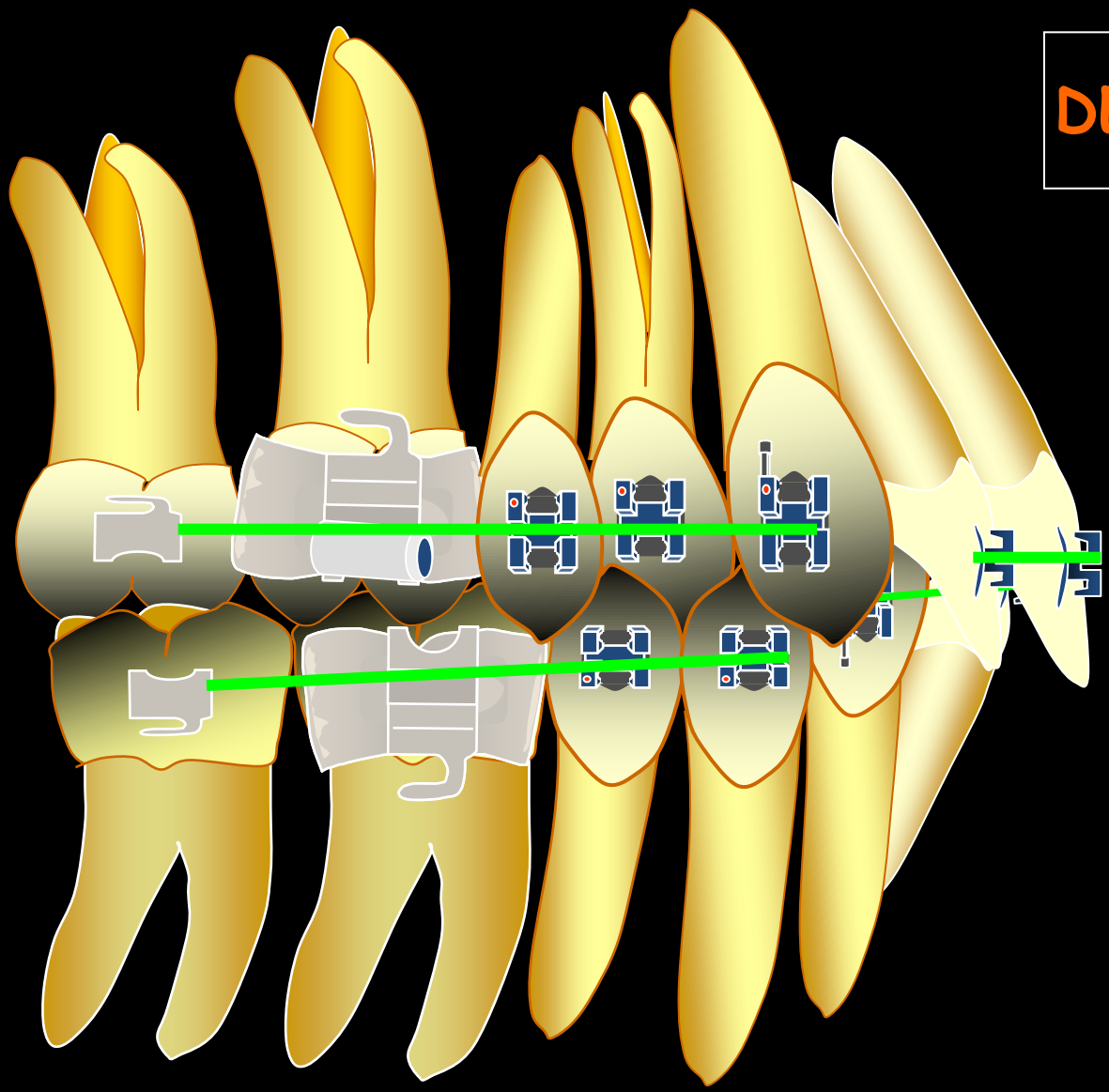
ADD HEADGEAR TO INTRUDE

POSTERIOR TEETH



DEEP OVERBITE

Many geometries

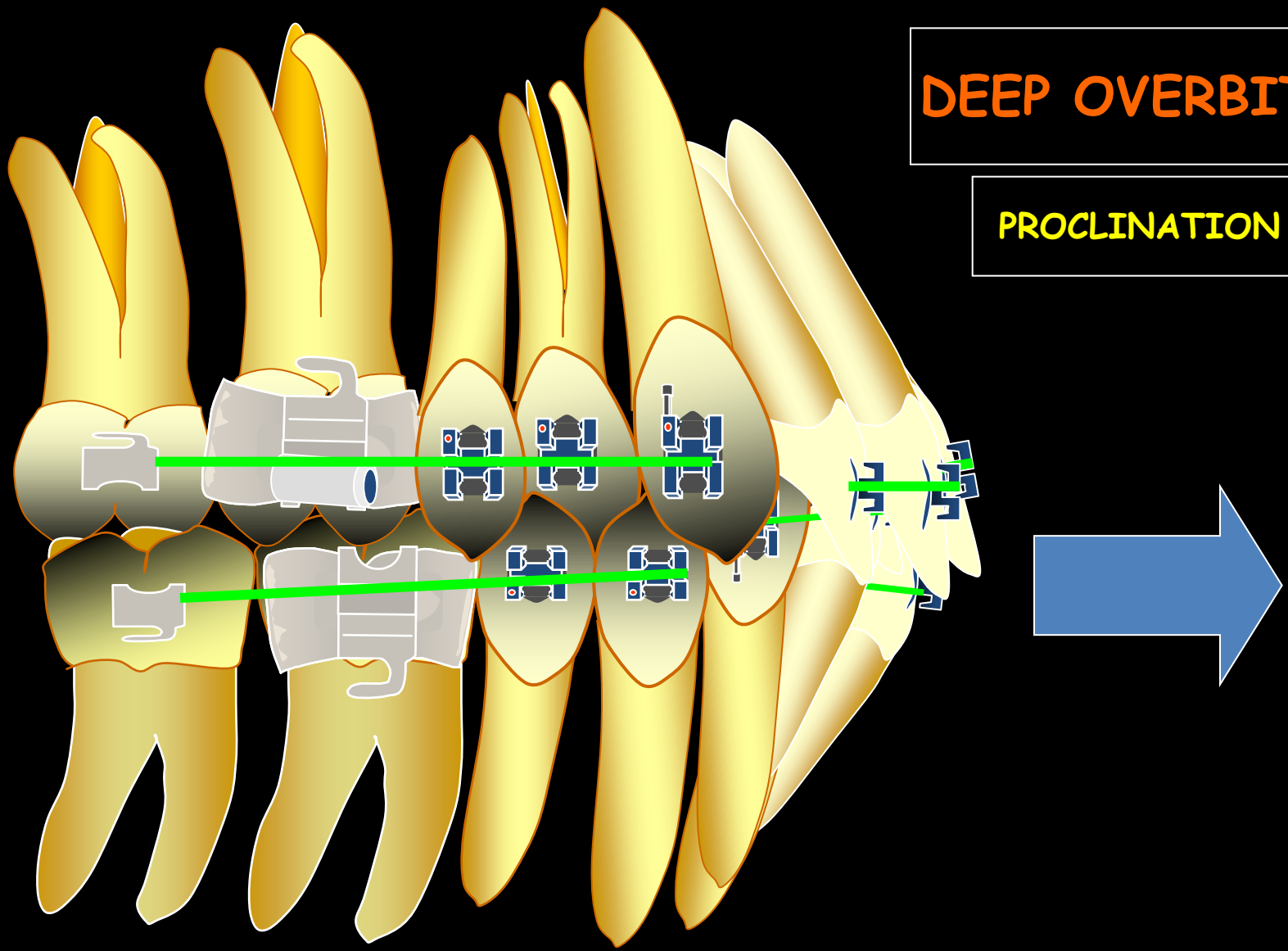


DEEP OVERBITE

INTRUSION

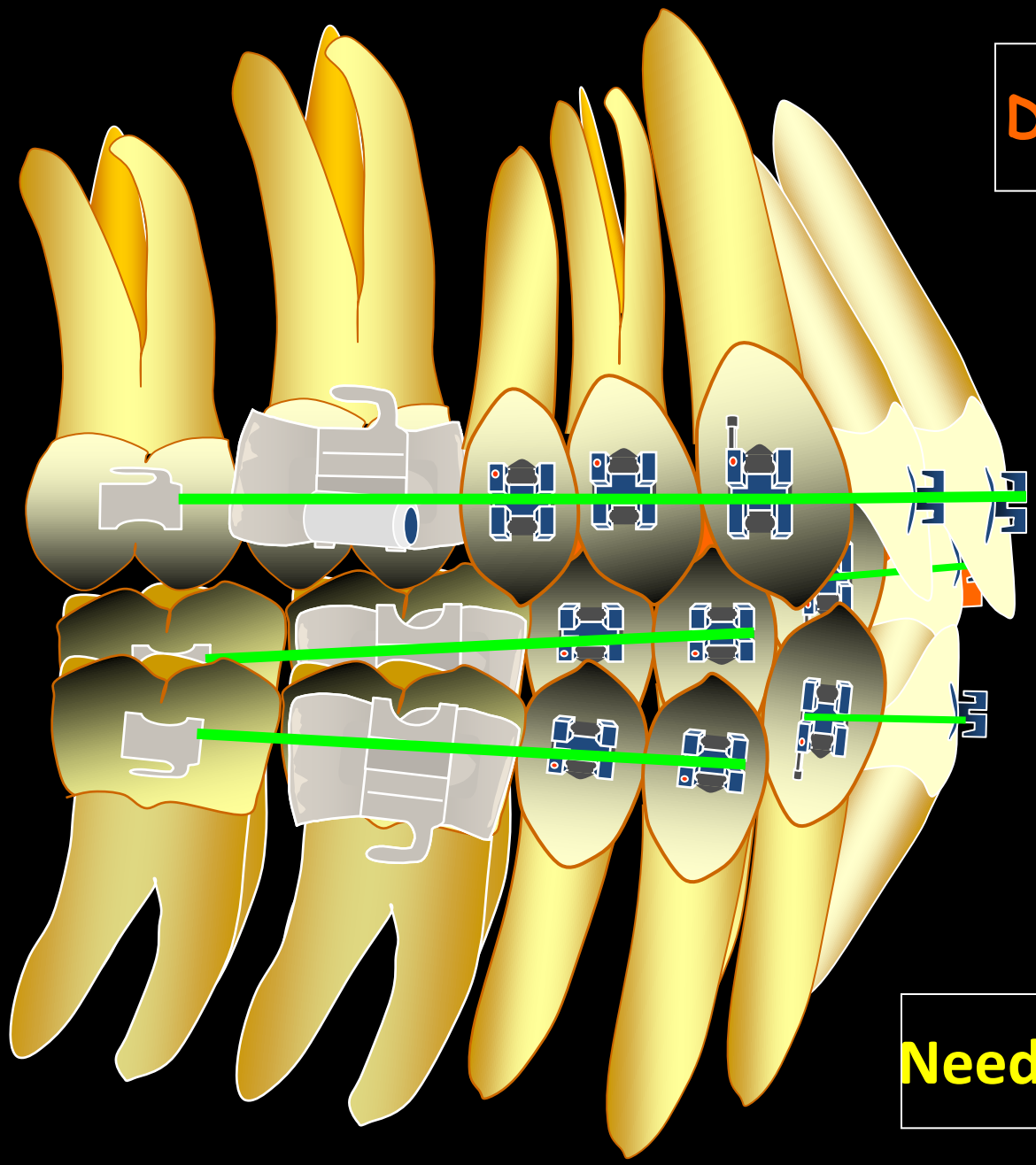
UPPER

LOWER



DEEP OVERBITE

PROCLINATION



DEEP OVERBITE

POSTERIOR EXTRUSION

Perhaps BP

Needs condylar growth

Adjunctive Orthodontic Treatment Procedures

1. Describe indications for repositioning anterior teeth in adults.
2. Discuss use of diagnostic set-ups in planning adjunctive incisor positioning.
3. Describe indications and methods for extrusion of fractured teeth.
4. Describe periodontal implications of orthodontic treatment in adults.
5. Explain the indications for molar uprighting in adjunctive orthodontic treatment as part of general dental care.
6. Describe the technique used to upright a tipped molar.
7. Identify appropriate appliances for different clinical problems.
8. Explain types of appliances, in terms of active and reactive units.
9. Explain appliance placement, adjustments and timing.
10. Identify potential side effects or sequela of treatment.
11. Describe patient tolerance of the appliances.
12. Identify expected treatment time.
13. Describe retention procedures.

Adjunctive Orthodontic Treatment Procedures

1 Describe indications for repositioning anterior teeth in adults.

Adjunctive Orthodontic Treatment Procedures

2 Discuss use of diagnostic set-ups in planning adjunctive incisor positioning.







Adjunctive Orthodontic Treatment Procedures

3 Describe indications and methods for extrusion of fractured teeth.

Occasionally just extrude and restore













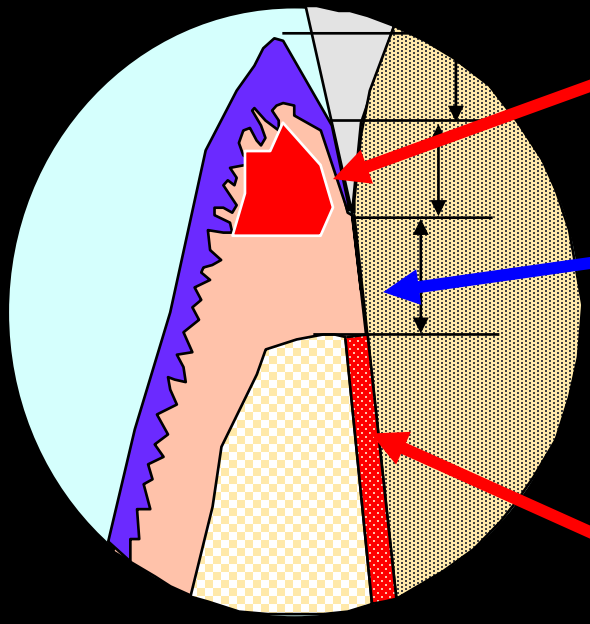
Adjunctive Orthodontic Treatment Procedures

4 Describe periodontal implications of orthodontic treatment in adults.

Orthodontics in Periodontally Compromised Patients

Gingivitis

limited by buffer zone



Bacterially induced inflammatory lesion

Buffer Zone

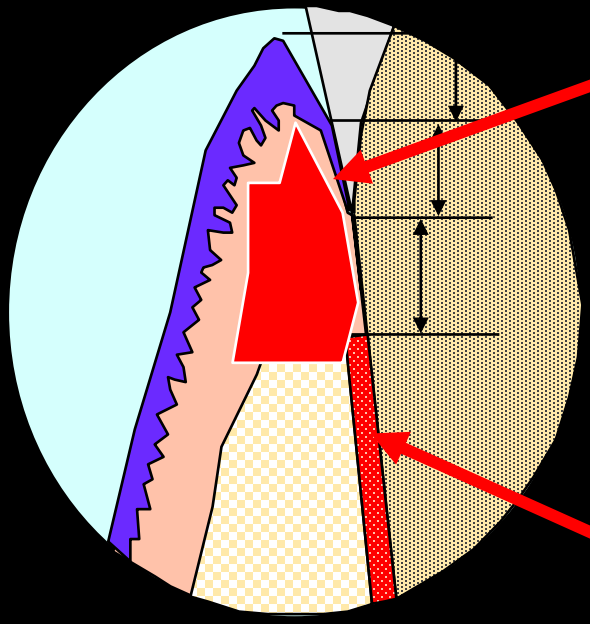
Traumatically induced inflammatory lesion

Goonewardene

Orthodontics in Periodontally Compromised Patients

Periodontitis (inflammation & trauma)

unlimited



Bacterially induced inflammatory lesion

JOINED TO

Traumatically induced inflammatory lesion

Goonewardene

Adjunctive Orthodontic Treatment Procedures

5 Explain the indications for molar uprighting in adjunctive orthodontic treatment as part of general dental care.

Tipped Molars

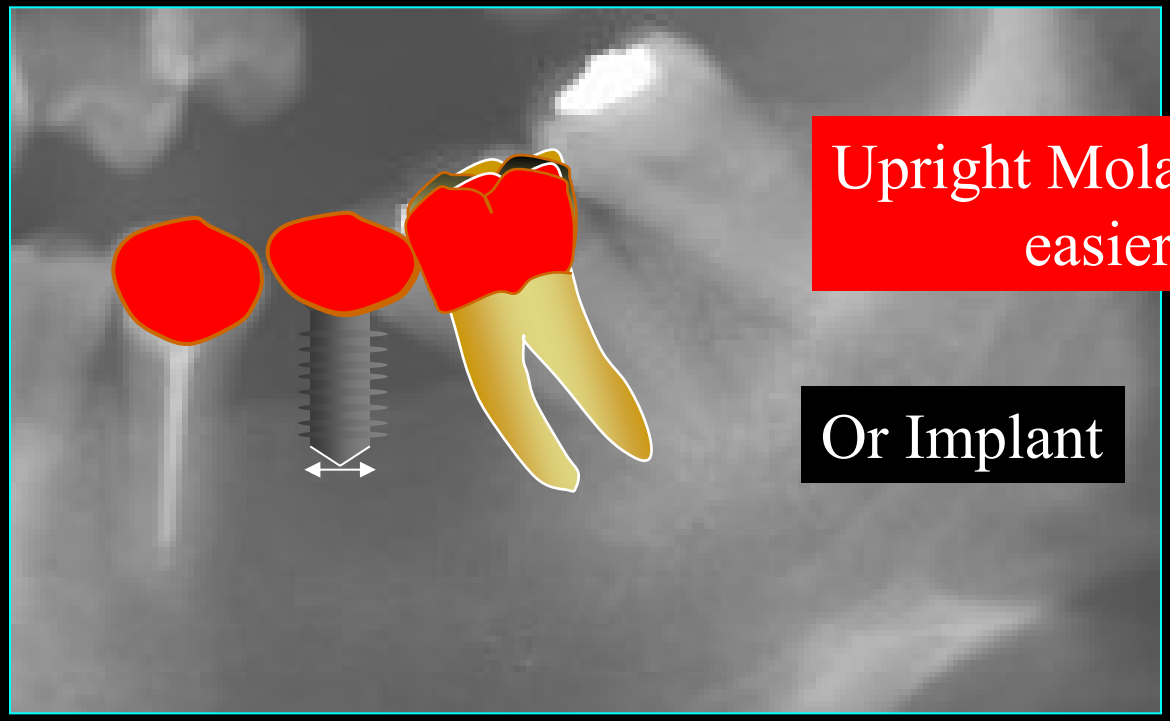
- Why do we upright?
  - Periodontal Issues with tipped teeth
  - Abutments- Mechanically sound
    - Loading through long axis
  - Ease of preparation of abutments

Tipped Molars

- Wise, R.J. and Kramer, G. M. (1983). Predetermination of osseous changes associated with uprighting tipped molars by probing. International Journal *of* Periodontics and Restorative Dentistry, 3, 68-8 1.



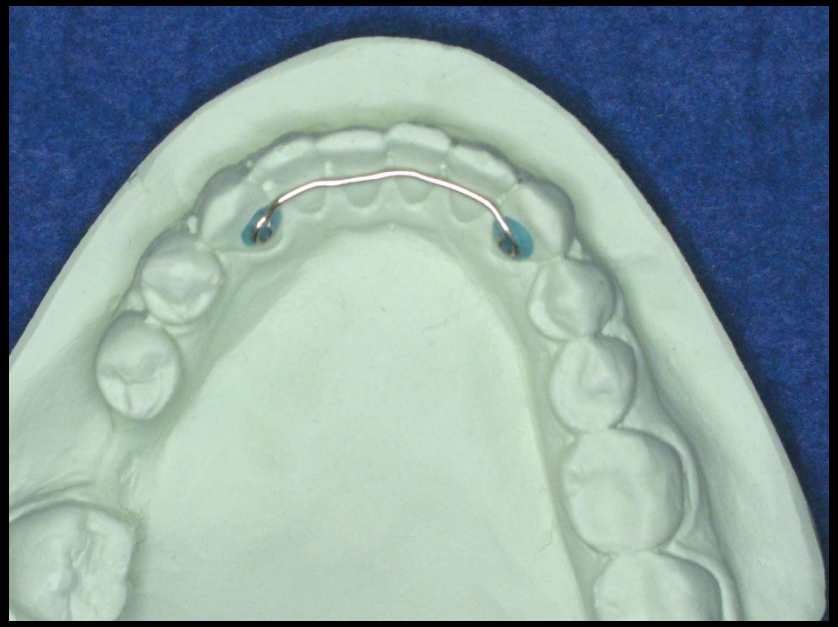
Tipped Molars



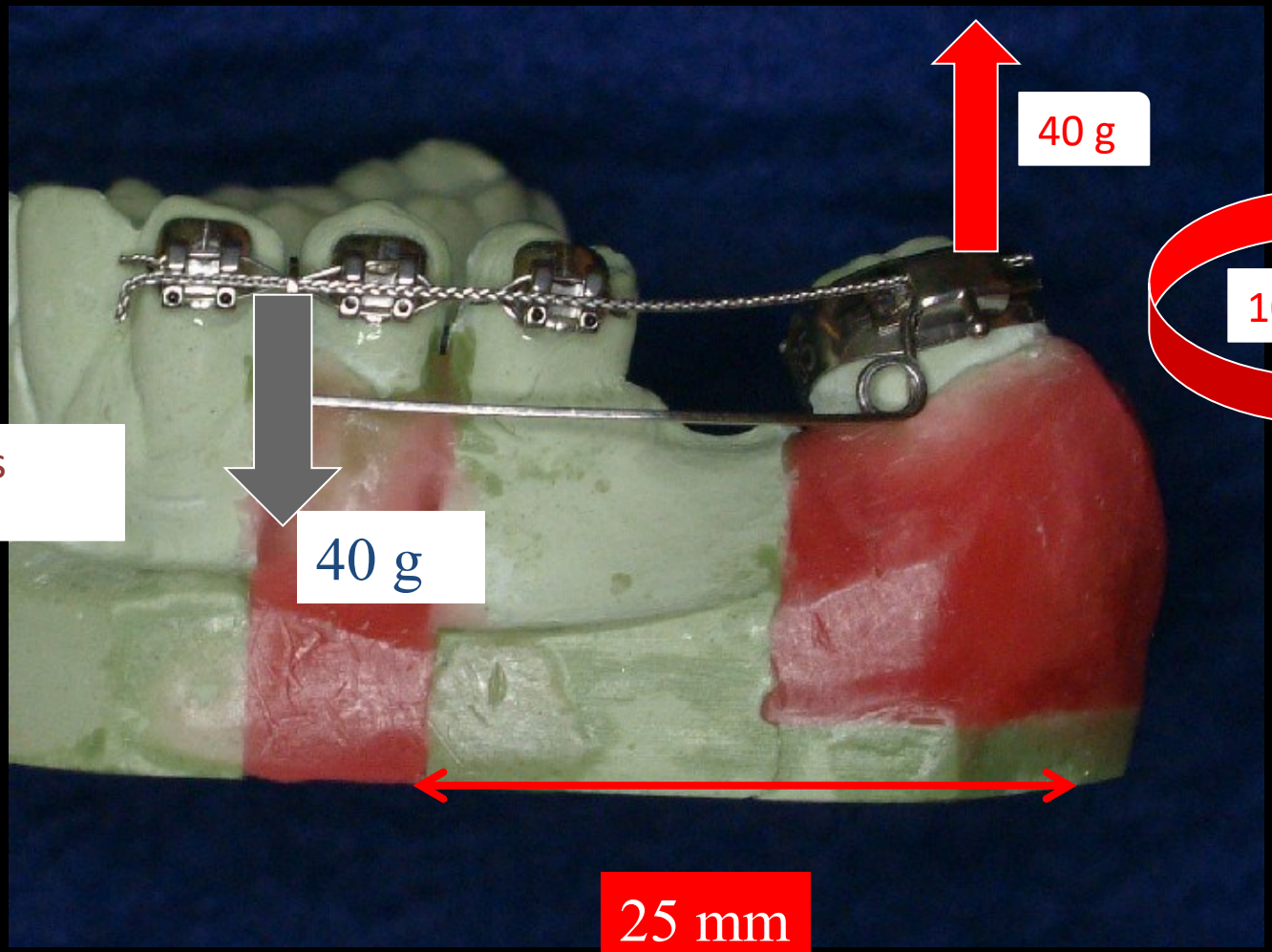
Adjunctive Orthodontic Treatment Procedures

6 Describe the technique used to upright a tipped molar.

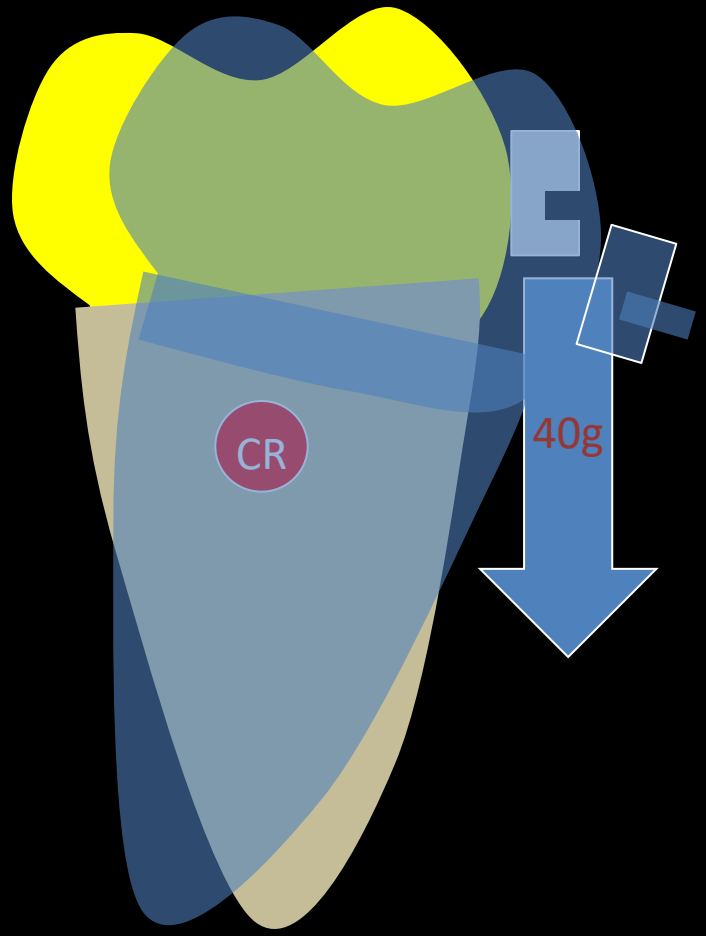
Canine to Canine Stabilizing Arch



Helical uprighting spring “hooked” over segmental arch wire



From the frontal the force is buccal to the Centre of resistance of teeth so they tip to the buccal



That's why we have the 3-3 li retainer

Adjunctive Orthodontic Treatment Procedures

7 Identify appropriate appliances for different clinical problems.

- Headgear
- Fixed appliances
- Removable appliances
- Adjunctive devices- numerous

Adjunctive Orthodontic Treatment Procedures

8 Explain types of appliances, in terms of active and reactive units.

Adjunctive Orthodontic Treatment Procedures

9 Explain appliance placement, adjustments and timing.

Adjunctive Orthodontic Treatment Procedures

10 Identify potential side effects or sequela of treatment.

Adjunctive Orthodontic Treatment Procedures

11 Describe patient tolerance of the appliances.

Adjunctive Orthodontic Treatment Procedures

12 Identify expected treatment time.

Adjunctive Orthodontic Treatment Procedures

13 Describe retention procedures.





Removable

Fixed

Pericision

IPR

