


*Early Treatment*

*Columbia University  
School of Dental and Oral  
Surgery*

*Dr. Shany Park  
2006*



*Early Treatment*

- ◆ Preventive Orthodontic treatment
- ◆ Interceptive orthodontic treatment
- ◆ Phase I treatment



## *Normal Occlusion: Deciduous dentition*


- ◆ Age: 2 ½ to 5 ½ years old














## *Normal occlusion: Deciduous dentition*


- ◆ OB: Moderate to Shallow
- ◆ OJ: 3mm
- ◆ Molar occlusion: Flush terminal plane
- ◆ Buccal OJ: Positive all around




## *Normal occlusion: Deciduous dentition*


- ◆ Spacing:
  - Generalized spacing
  - Primate Spacing



## *Normal Occlusion: Early Mixed dentition*



- ◆ OB: Shallow
- ◆ OJ: Shallow
- ◆ Molar Occlusion:
  - Mesial step or Flush terminal will shift to CI I molar occlusion





## *Normal Occlusion: Early Mixed dentition*

- ◆ No Primate spaces
- ◆ Diastema (ugly duckling stage)
- ◆ Mild crowding is accepted

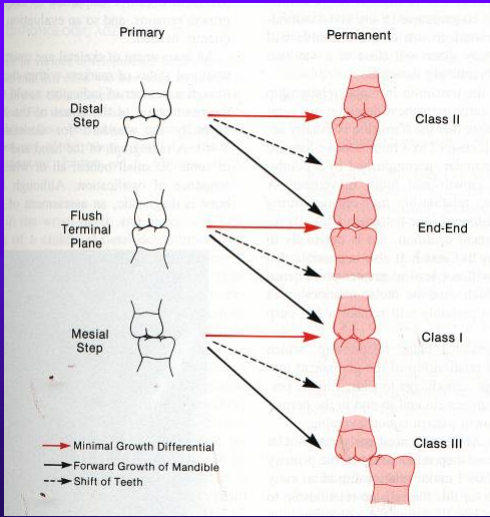



## *Normal Occlusion: Early Mixed dentition*

B	6.7	6.8	8.0	= 21.5 mm
	8.8	6.7	6.8	= 22.3 mm
	9.9	7.8	5.8	= 23.5 mm
	7.2	6.9	7.0	= 21.1 mm

- ◆ Lee way space:
  - Maxilla: 1.5 mm each side
  - Mandible: 2.5 mm each side





# Normal Occlusion: Early Mixed dentition



# Abnormal Occlusion



*Abnormal Occlusion*



*Abnormal Occlusion*



*Abnormal Occlusion*



*Abnormal Occlusion*



*Abnormal Occlusion*

A collection of clinical photographs illustrating abnormal occlusion. The top row shows three facial views of a child: a neutral expression, a smiling expression, and a profile view. The middle row shows two intraoral views of the upper and lower dental arches. The bottom row shows three close-up views of the teeth in occlusion, highlighting various malocclusions such as spacing and crowding.

*Abnormal Occlusion*

Two intraoral photographs showing dental arches with orthodontic braces. The left image shows the upper arch with a clear space between the central incisors. The right image shows the lower arch with a similar spacing issue.




## Early Treatment: Benefits

- ◆ Guide growth
- ◆ Reduce chance of extraction or surgery
- ◆ Reduce phase II treatment time
- ◆ Esthetics




## *When do we treat early?*

- ◆ Functional problems
- ◆ Higher chance for Trauma
- ◆ Space Management
- ◆ Esthetics



## *Functional Problems*

- ◆ Crossbites
  - Functional shift
    - Anterior
    - Lateral
  - Constriction of maxilla
    - Narrow maxilla
    - Narrow smile



## *Functional Problems*

- ◆ Class III
  - Overgrowth of mandible
  - Deficient growth of maxilla
- ◆ Openbite
  - Tongue thrusting habit
  - Thumb sucking habit
  - Prolonged use of Pacifier
  - Foreign object biting habit



## *Functional Problems*

- ◆ Mouth breather
  - Adenoid face
  - Long face syndrome
    - Tongue rests on mandible instead of touching the palate
      - Maxillary constriction
      - Posterior crossbite
    - Clockwise rotation of mandible
      - Anterior Openbite
    - Dry mouth
      - Increased caries rate
      - Increased Gingival inflammation



## *Increased susceptibility to Trauma*

- ◆ Severe Class II
  - Increased OJ
  - Trauma to maxillary central incisors



## Space Management

- ◆ Severe Crowding: Serial Extraction
  - Guided Eruption
  - Extraction of deciduous teeth
  - Extraction of permanent teeth



## *Space Management*

- ◆ Space Conservation: Space loss
  - Interproximal caries
  - Early loss of deciduous teeth
  - Early extractions of deciduous teeth



## Esthetics

- ◆ Improve smile
- ◆ Self-esteem issues
- ◆ Some diastema is normal stage of dental maturation

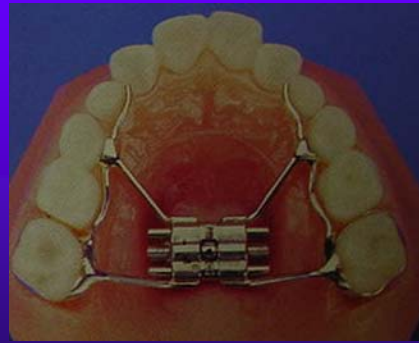
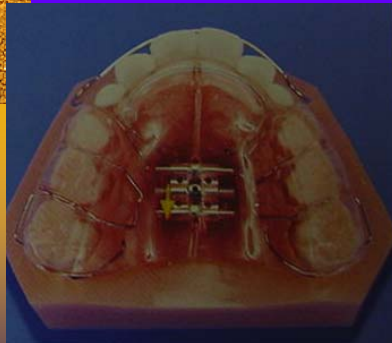


## *Posterior Crossbite: Lateral functional shift*





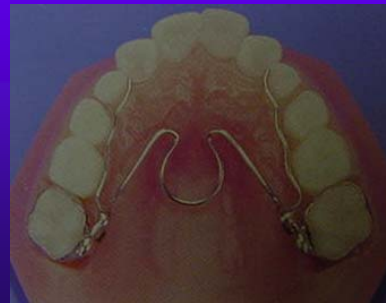
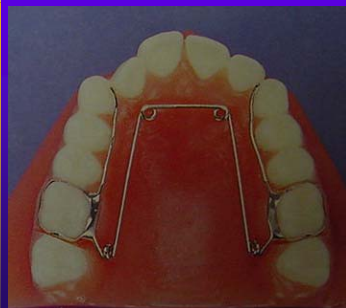
## *Posterior Crossbite treatment: Palatal Expander*



## *Posterior Crossbite treatment: Palatal Expander*

◆ Quad Helix appliance

◆ Porter Arch appliance





## *Rapid Palatal Expander (RPE)*



## *Elimination of midline shift*





*Posterior crossbite*




Treatment: RPE and 2x4

4/17/02



9/6/02



Anterior & Posterior crossbite

The top row consists of three photographs of a young boy with glasses. The first is a front-facing view with a neutral expression. The second is a front-facing view with a smile, showing the teeth. The third is a profile view of the boy's head and teeth. The bottom row consists of three close-up photographs of the upper teeth, showing the crossbite from different perspectives.

Treatment: RPE & 2x4

The top row features a single photograph of the child's upper dental arch with orthodontic appliances, including a Rapid Palatal Expander (RPE) and 2x4 brackets. The bottom row features three close-up photographs of the teeth with the appliances, showing the placement of the brackets and the expansion mechanism.

*Anterior Crossbite:  
Anterior functional shift*



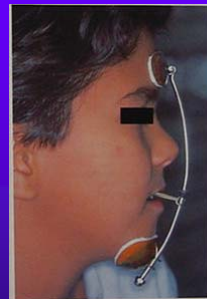
CR




CO



*Treatment: RPE & Reverse pull  
Headgear*



*Anterior Crossbite Treatment:*



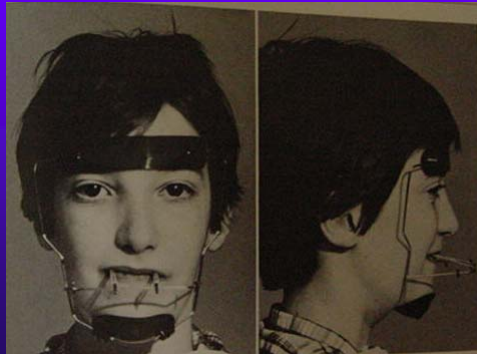
Removable Finger Spring Appliance with posterior bite plate







Treatment: Bonded RPE with  
Reverse Pull Headgear  
2 mo. progress



*Openbite: Thumb sucking habit*



*Openbite: Treatment*

Tongue Guard    Tongue rake    Blue grass



The image displays three dental models illustrating different treatments for an open bite. On the left is a 'Tongue Guard', which is a metal appliance with a central bar and side flaps. In the middle is a 'Tongue rake', featuring a series of metal bars across the palate. On the right is 'Blue grass', which consists of a metal wire with a small white rectangular block in the center of the palate.

*Removable Tongue Crib*



The image shows a removable tongue crib appliance. The top part is a photograph of the metal appliance itself, which has a central bar and side flaps. Below are two clinical photographs: the left one shows the appliance being inserted into a patient's mouth, and the right one shows it fully seated, effectively closing the open bite.

*Openbite: Thumb sucking habit  
Blue grass appliance*

◆ 2/16/02

◆ 5/19/02



**Treatment:**  
**Blue Grass 3 mo. progress**



*Increased risk for trauma*



*Increased risk for trauma*





*Treatment:  
Headgear &/or Bite plate*



**Space Management**

- ◆ Serial Extraction



*Serial Extraction*




The top row contains two clinical photographs: the left one shows the upper dental arch with extraction sites, and the right one shows the lower dental arch with extraction sites. The bottom row contains three clinical photographs showing the upper dental arch with spaces being closed.

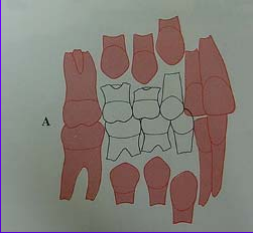
*Serial Extraction*



The top image shows the upper dental arch with extraction sites. The bottom row shows two clinical photographs showing the upper dental arch with spaces being closed.

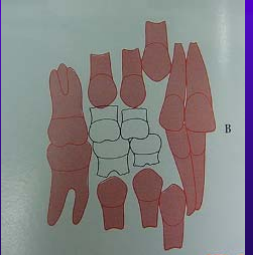


## *Serial Extraction*




A

- ◆ Initial stage:
  - 4 incisors erupting per arch with lack of space

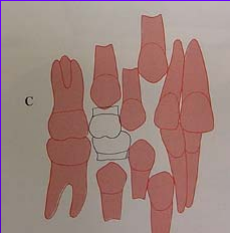


B

- ◆ Extraction of deciduous canines:
  - Allow permanent incisors to align

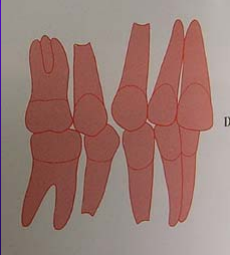


## *Serial Extraction*



C

- ◆ Extraction of first deciduous molars:
  - Allow first premolars to erupt ahead of canines



D

- ◆ Extraction of first premolars
  - Allow canines to erupt
  - Extract second deciduous molars to allow eruption of second premolars




## *Serial Extraction*



- ◆ 13 year old girl without serial extraction



- ◆ 13 year old girl with serial extraction



## Space conservation


- ◆ Interproximal caries
  - Restoration
- ◆ Early loss of deciduous teeth
  - Space maintainer
  - Space regainer
- ◆ Extractions
  - Space maintainer
  - Space regainer
- ◆ Missing teeth

Removable space maintainer





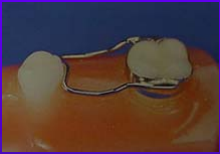

Removable Space maintainer  
Pedo partial






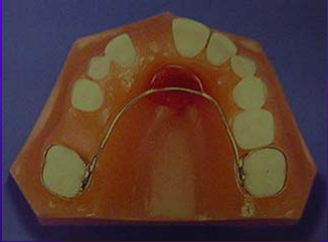
## Fixed unilateral appliance

- ◆ Distal shoe
- ◆ Band & Loop
- ◆ Crown & Loop



## Fixed Bilateral appliance

- ◆ Nance appliance
- ◆ Transpalatal Arch (TPA)



Lower Lingual Holding Arch



Esthetics: Self-esteem





## *Summary*

- ◆ Early Orthodontic treatment:
  - Guide growth to more favorable direction
  - Reduce the chance of extraction or surgery
  - Reduce phase II treatment time length
  - Esthetics