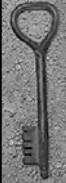


*Early Treatment*


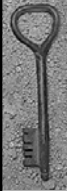
*Columbia University  
School of Dental and Oral  
Surgery*

*Dr. Shany Park  
2006*



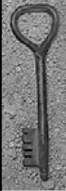
*Normal occlusion:  
Deciduous dentition*

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


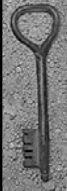
*Early Treatment*

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




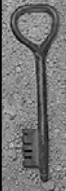
*Normal occlusion:  
Deciduous dentition*

- ◆ Spacing:
  - Generalized spacing
  - Primate Spacing

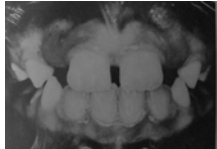
*Normal Occlusion:  
Deciduous dentition*

- ◆ Age: 2 ½ to 5 ½ years old

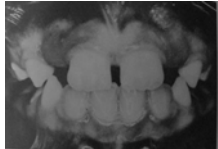
*Normal Occlusion:  
Early Mixed dentition*

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




### Normal Occlusion: Early Mixed dentition

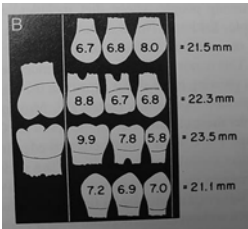
- ◆ No Primate spaces
- ◆ Diastema (ugly duckling stage)
- ◆ Mild crowding is accepted



### Abnormal Occlusion



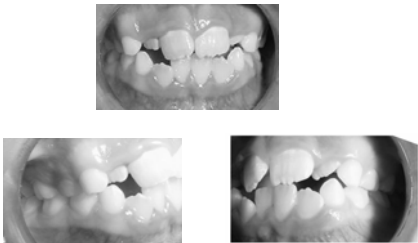
### Normal Occlusion: Early Mixed dentition



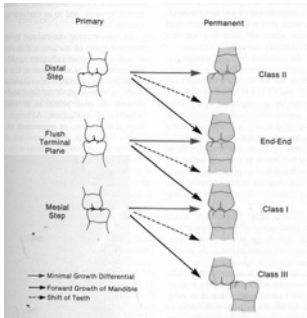
6.7	6.8	8.0	+ 21.5 mm
8.8	6.7	6.8	+ 22.3 mm
9.9	7.8	5.8	+ 23.5 mm
7.2	6.9	7.0	+ 21.1 mm

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

### Abnormal Occlusion



### Normal Occlusion: Early Mixed dentition



Primary      Permanent

Distal Step      Class II

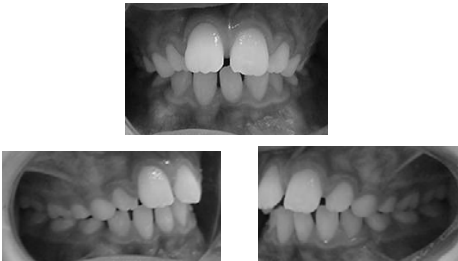
Flush Terminal Plane      End-End

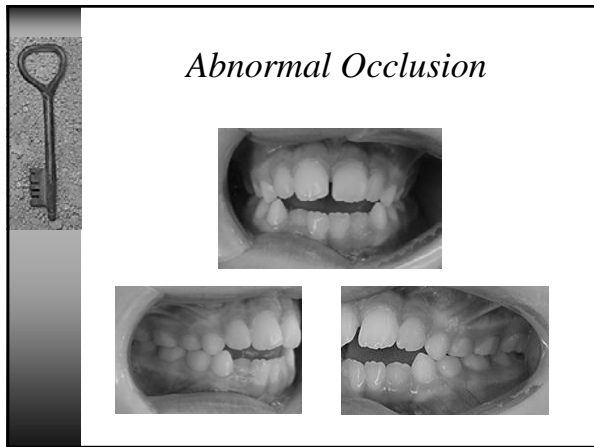
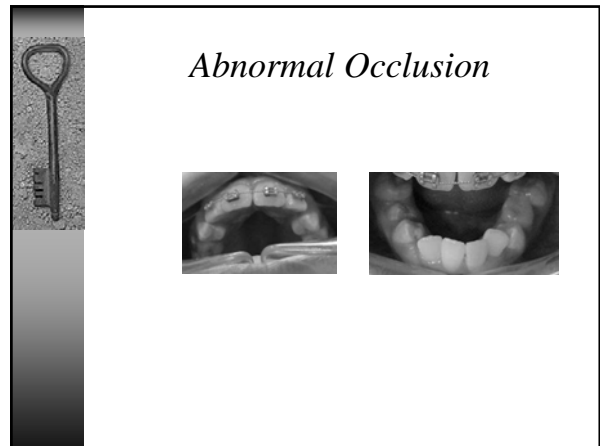
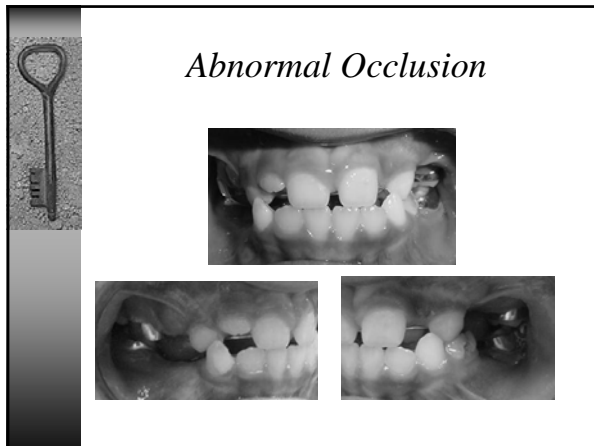
Mesial Step      Class I

Class III

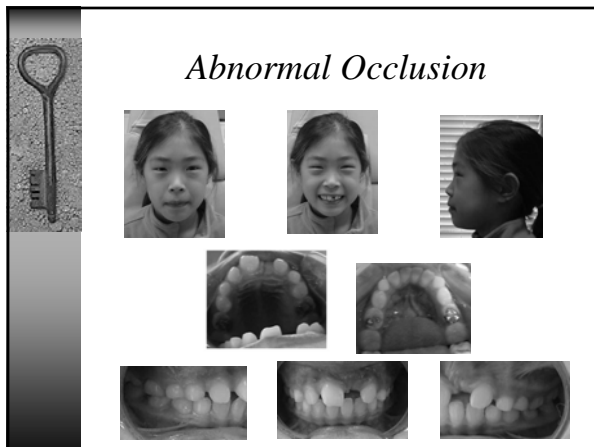
— Minimal Growth Differential  
 — Forward Growth of Mandible  
 - - - Shift of Teeth

### Abnormal Occlusion






- 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



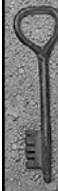
### *Increased susceptibility to Trauma*

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




### *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



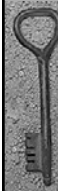
### *Space Management*

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



### *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



### *Space Management*

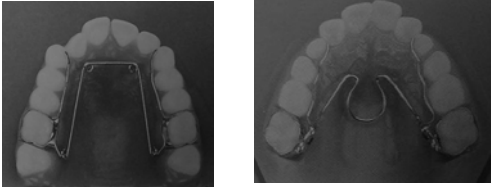
- ◆ Space Conservation: Space loss
  - Interproximal caries
  - Early loss of deciduous teeth
  - Early extractions of deciduous teeth

**Esthetics**

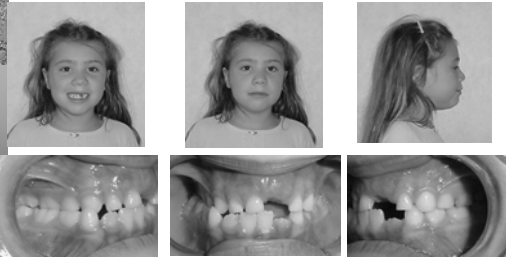
- ◆ Improve smile
- ◆ Self-esteem issues
- ◆ Some diastema is normal stage of dental maturation

**Posterior Crossbite treatment:  
Palatal Expander**


- ◆ Quad Helix appliance
- ◆ Porter Arch appliance



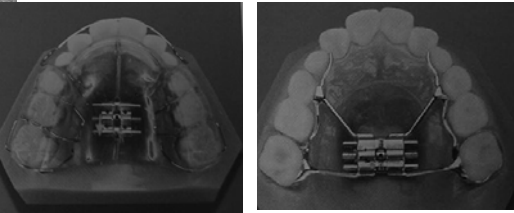
**Posterior Crossbite:  
Lateral functional shift**



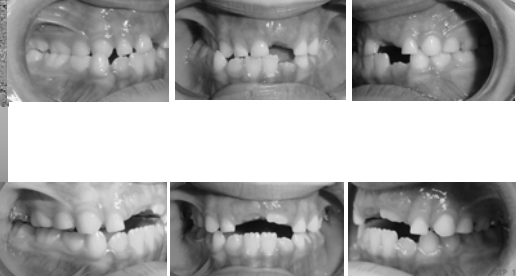
**Rapid Palatal Expander (RPE)**

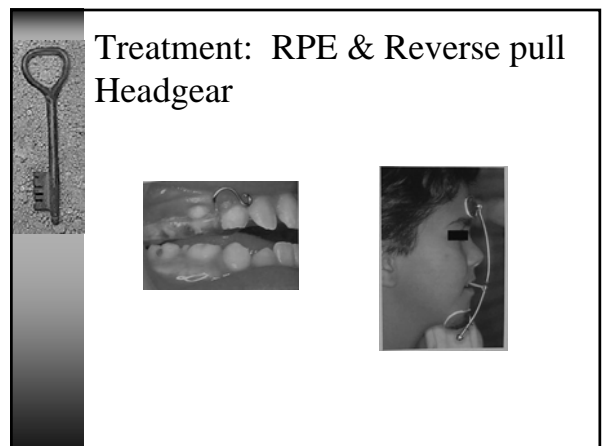
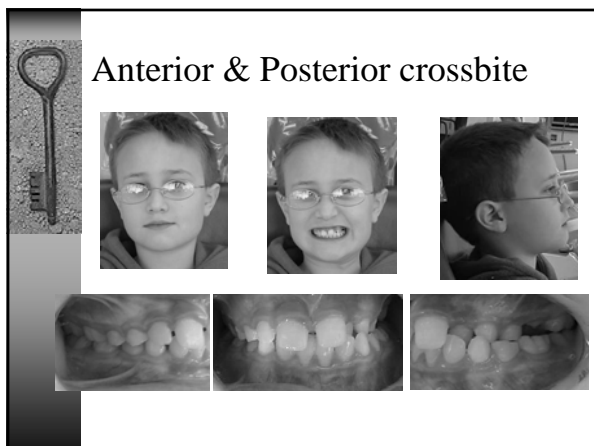
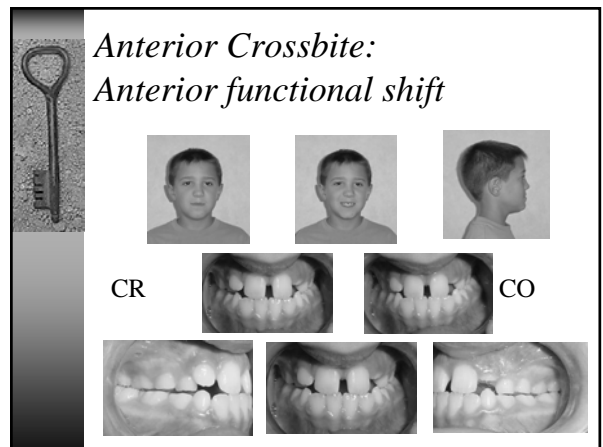
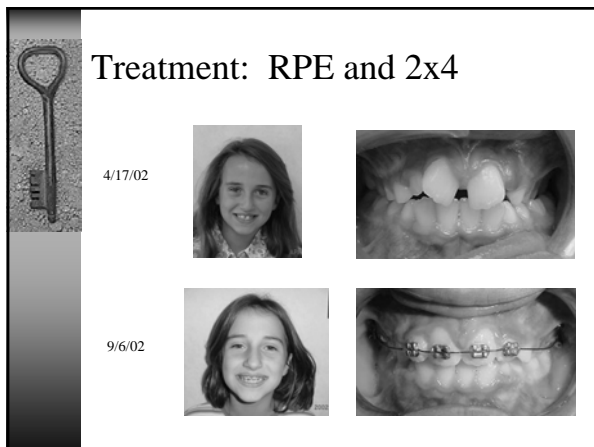
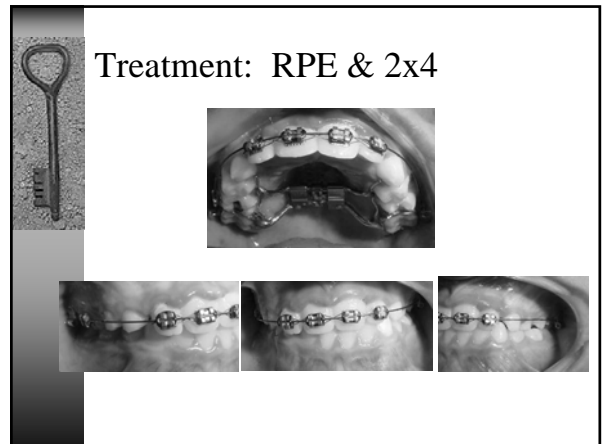
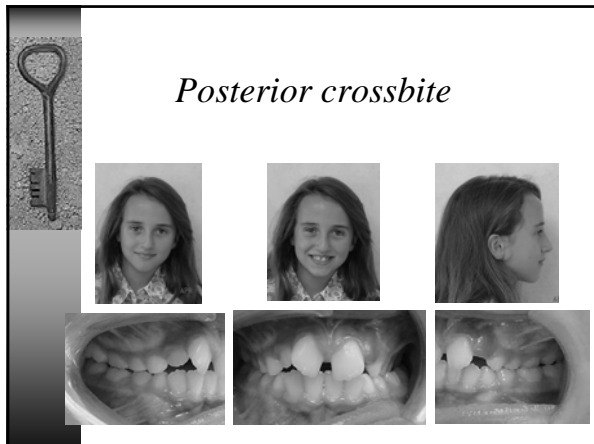


**Posterior Crossbite treatment:  
Palatal Expander**

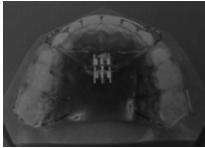


**Elimination of midline shift**

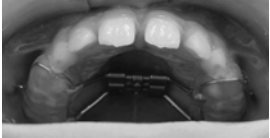








*Anterior Crossbite Treatment:*




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

Removable Finger Spring Appliance with posterior bite plate



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



*Class III*




*Openbite: Thumb sucking habit*

*Openbite: Treatment*

Tongue Guard    Tongue rake    Blue grass

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

*Removable Tongue Crib*

*Increased risk for trauma*

*Openbite: Thumb sucking habit*  
*Blue grass appliance*

◆ 2/16/02                      ◆ 5/19/02

*Increased risk for trauma*



*Treatment:  
Headgear &/or Bite plate*

*Serial Extraction*

*Space Management*

◆ Serial Extraction

*Serial Extraction*

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

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


*Serial Extraction*

*Serial Extraction*

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

◆ 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

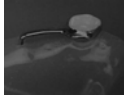
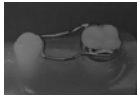

### Removable Space maintainer Pedo partial



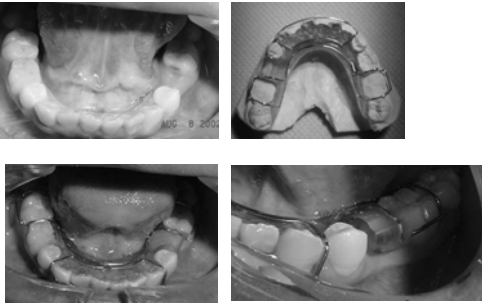
### Space conservation

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

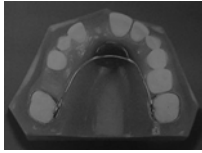
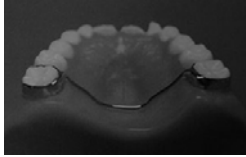
### Fixed unilateral appliance


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

### Removable space maintainer

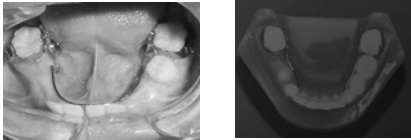


### Fixed Bilateral appliance


- ◆ Nance appliance
 
- ◆ Transpalatal Arch (TPA)
 



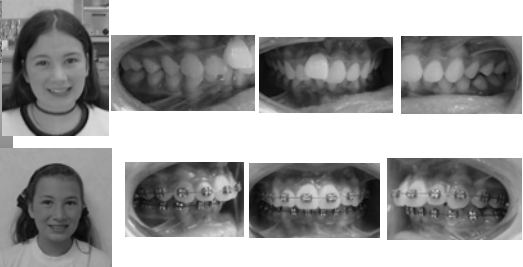
## Lower Lingual Holding Arch




The image shows two views of a Lower Lingual Holding Arch (LLHA). On the left is a clinical photograph showing the metal arch fixed to the lingual surfaces of the lower premolars and molars. On the right is a panoramic radiograph showing the arch in place, spanning the lower dental arch.



## Esthetics: Self-esteem



The image is a composite of two rows of photographs. The top row shows a young girl's smile before treatment, followed by three side-view radiographs showing the progression of orthodontic treatment. The bottom row shows the same girl's smile after treatment, followed by three side-view radiographs showing the final stages of treatment.



## *Summary*

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