

Early Orthodontic Treatment : What, How, When

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Early Orthodontic Treatment

Philosophy

- if I treat now, will I have to do more later ?
- if I don't treat now, will it harm child ?
- if I don't treat now, will it be more difficult later ?

Early Orthodontic Treatment

Transverse : posterior cross bite
Unilateral with functional shift

Diagnosis

- Transverse
- Cr/CO shift
- Unilateral

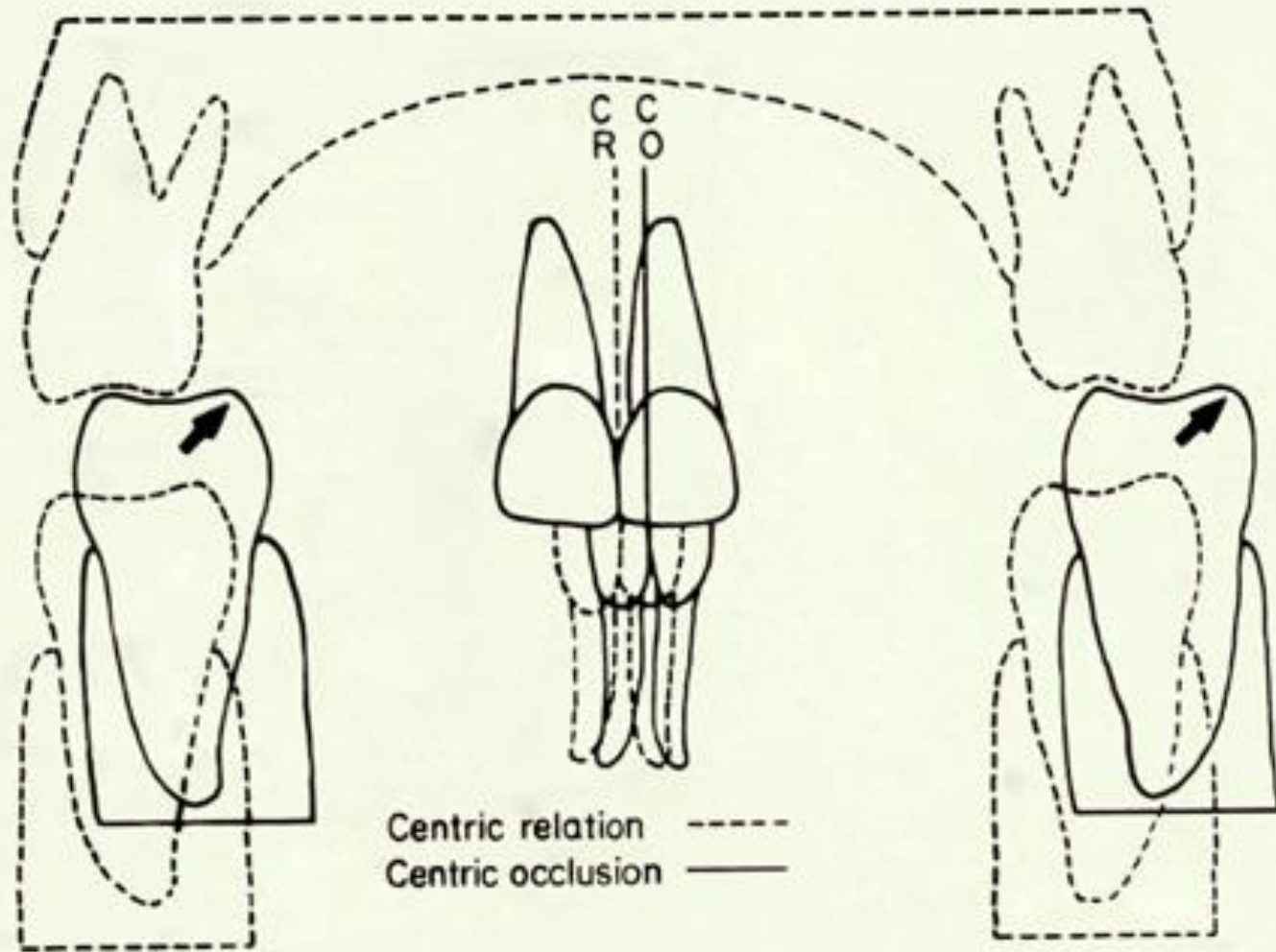


Early Orthodontic Treatment

Diagnosis

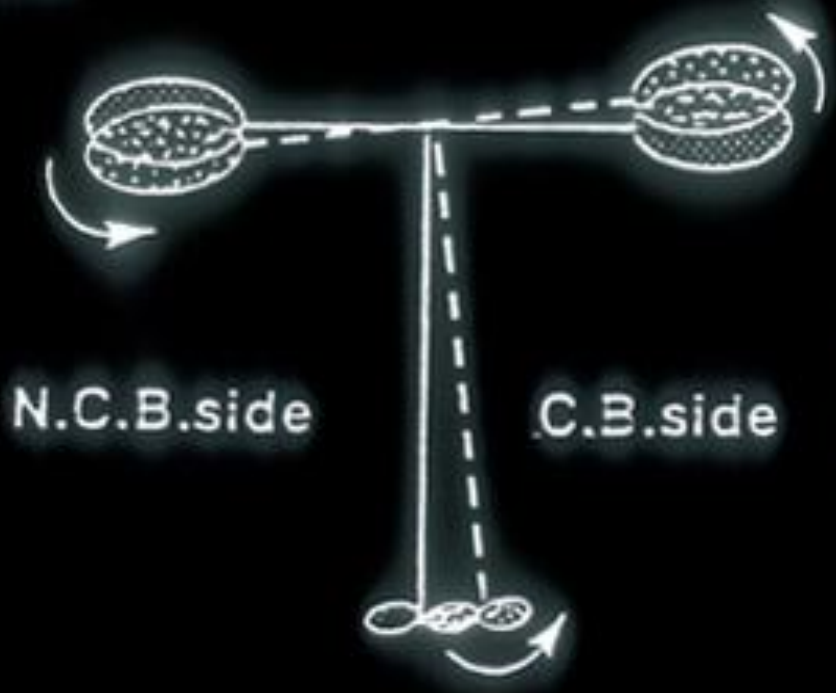
- Transverse
- Anterior
- Posterior





Posterior

Anterior



Condyles

— ○ = RCP

- - ○ = ICP

Mandibular
Midline

Etiology of Constricted Maxilla

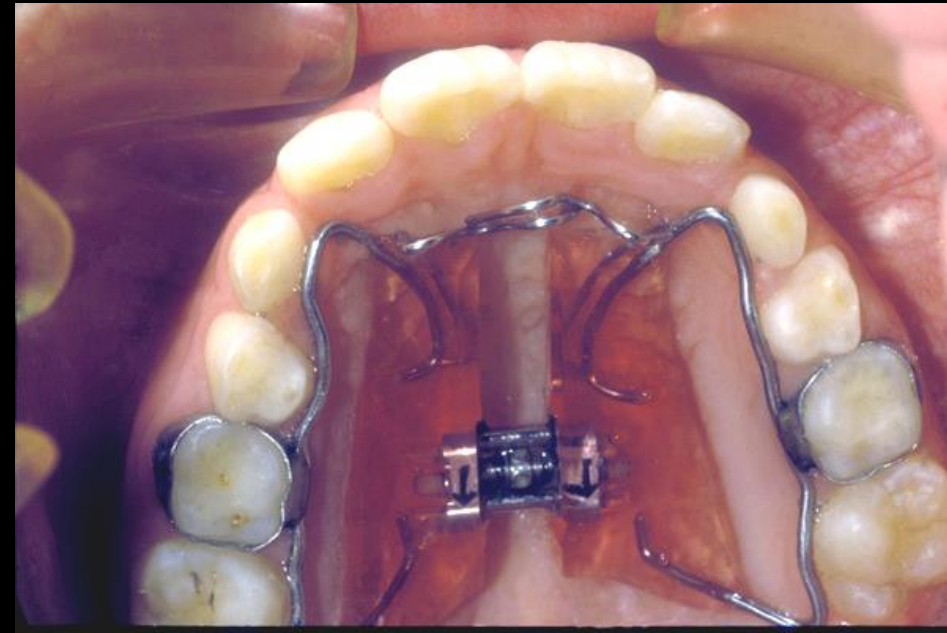
Habit

Airway

Hereditary



Etiology of Constricted Maxilla Habit Correction



Etiology of Constricted Maxilla

Habit

Airway

Hereditary



Etiology of Constricted Maxilla

Habit

Airway

Hereditary





Treatment Strategies

Observation

Equilibration

Expansion

TMJ adaptation on NCB side

- Condylar growth?
- Translation of temporal bone?
- Remodelling of fossa?

Implications of No Treatment

limited self correction
condyle fossa adaptation
facial asymmetry
dental compensation
muscle adaptation
Mn warped to crossbite side



Treatment Strategies

Observation

Equilibration- 50% success

Expansion



Treatment Strategies

Observation
Equilibration
Expansion

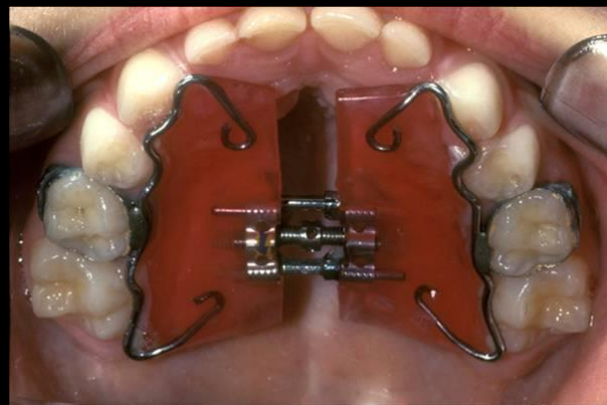
Crossbite correction success: primary

Schroeder	84%	F
Lindner	90%	F
Kutin/Hawes	100%	F
Berlocher	100%	F
Bell/Le Compte	100%	F

Thilander	71%	R
Kurol/Berlund	40%	R

Appliances for Maxillary Expansion

Haas type



Quad Helix

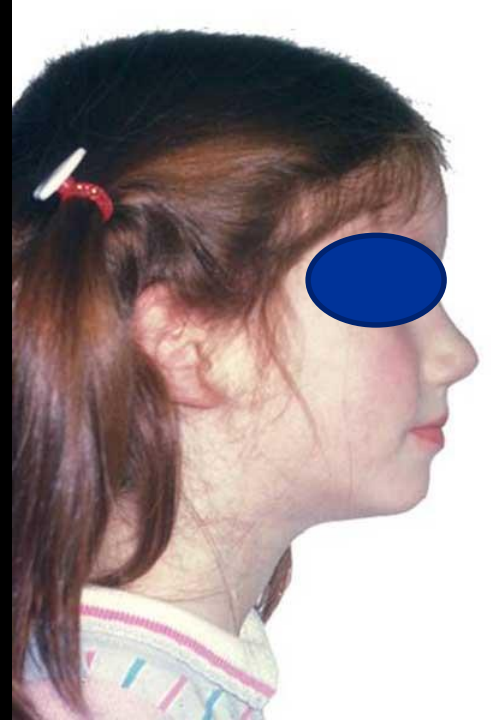
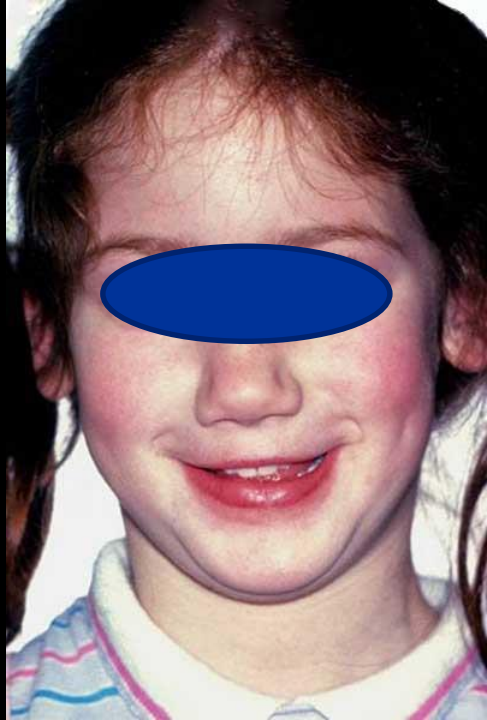


Hyrax



Removable



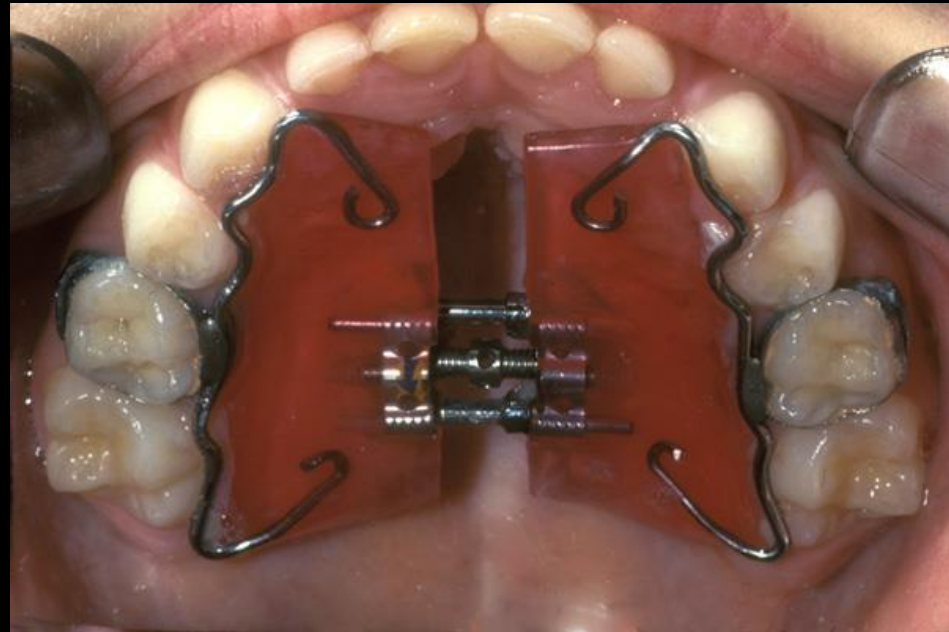




Haas Type Appliance

Visit 1

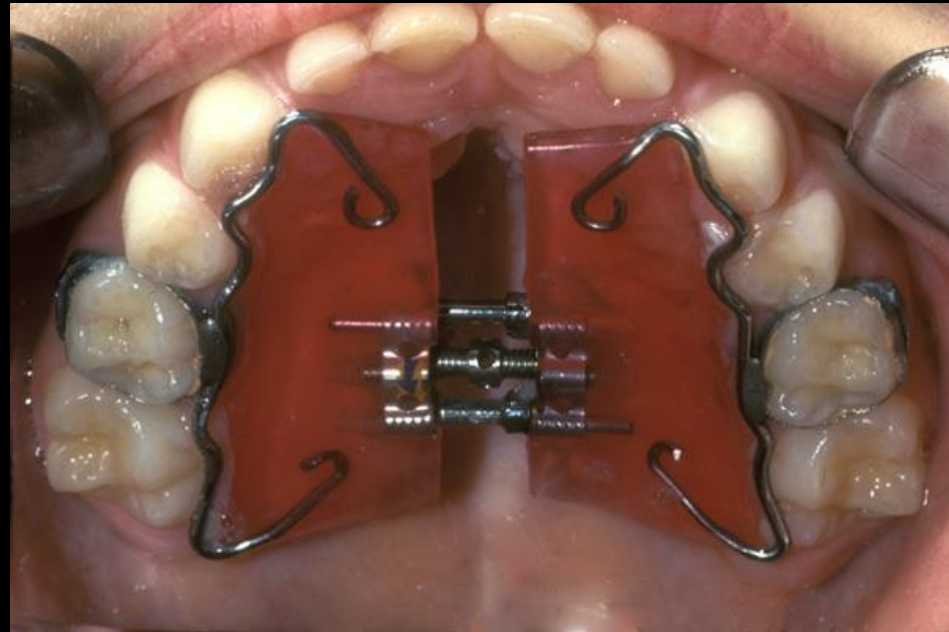
- separate 55 / 65
- record separators
- patient instructions
- scanner / 3D printing



Haas Type Appliance

Visit 2

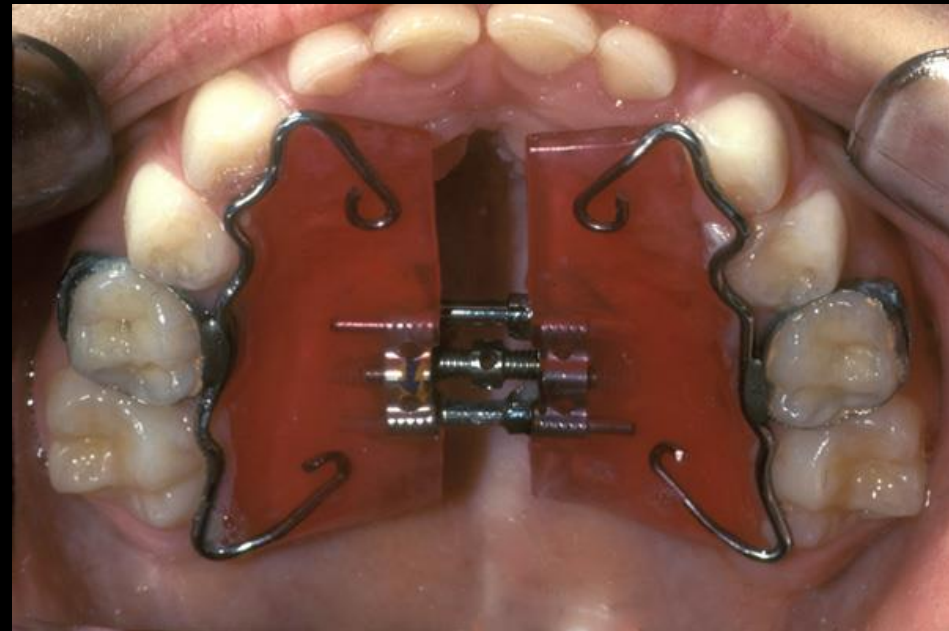
- remove separators
- band fit 55 / 65
- impression
- band transfer
- re-separate / record



Haas Type Appliance

Visit 3

- remove separators
- trial fit
- check expansion screw
- show parent
- cement
- instructions



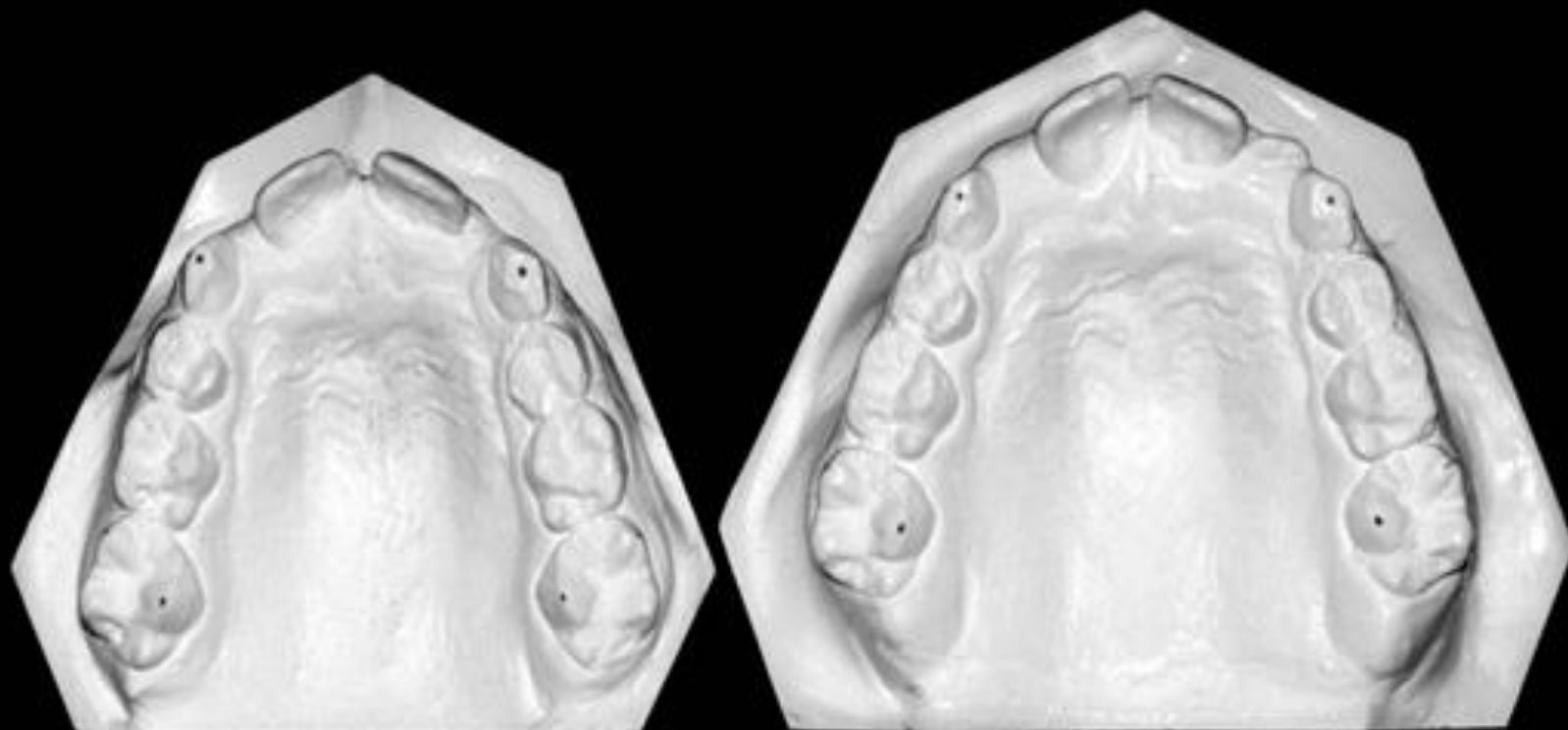
Rate of expansion

SME 1 quarter turn every 2-3 days

RME 1- 2 quarter turns per day

$\frac{1}{4}$ turn equals 0.25 mm expansion

- Younger children (under 10) **SME**
- Permanent dentition growing **RME**
- Adult non growing **SARPE / non surg SME**
- Gender differences / maturation



CHANGE IN MAXILLARY ARCH WIDTH

3 - 3: 4.78mm, SD 1.90, $p < 0.001$

6 - 6: 4.86mm, SD 1.63, $p < 0.001$

Clinical Significance

- Expand quadhelix 5mm before cementation
- Haas or Hyrax : 4 one quarter turns = 1mm
- 20 turns = 5mm
- every 2nd day = 40 days
- every 3rd day = 60 days
- every 4th day = 80 days
- Removable 1 turn / week
- Over expand
- Retain for 6 – 9 months



Haas expander Post Expansion



Haas expander Post Expansion



16 / 26 correct transverse relation
Increased space for Mx permanent incisors
Best done before Mx laterals erupt

before



after



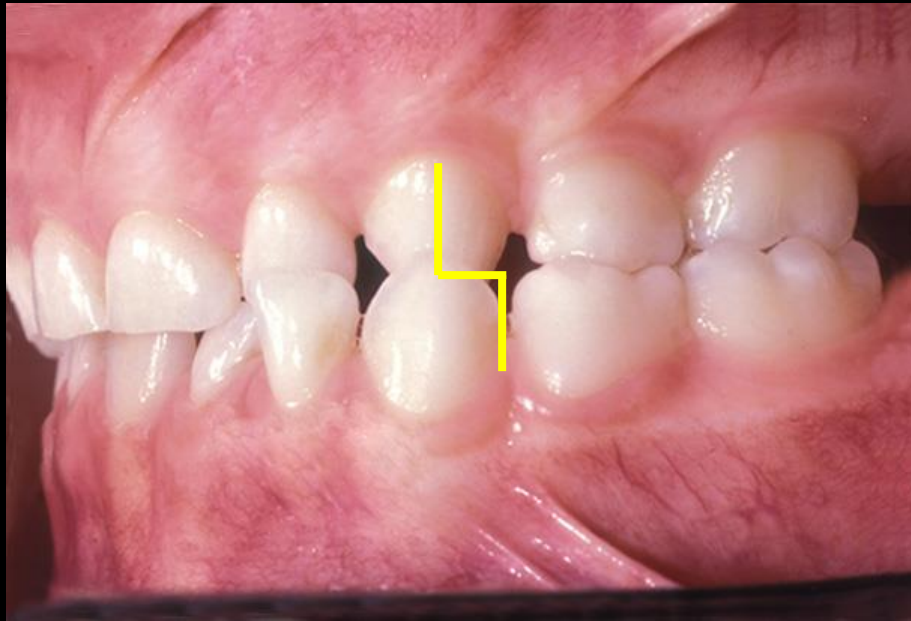
after



After- over correct



before



After-Class 2
improved





Haas expander
2 years Post Expansion



Haas expander
7 years Post Expansion





Haas expander
7 years Post Expansion





before



After-long term





Age 6 ↑ Haas expander: 2 months active / 6 months retain

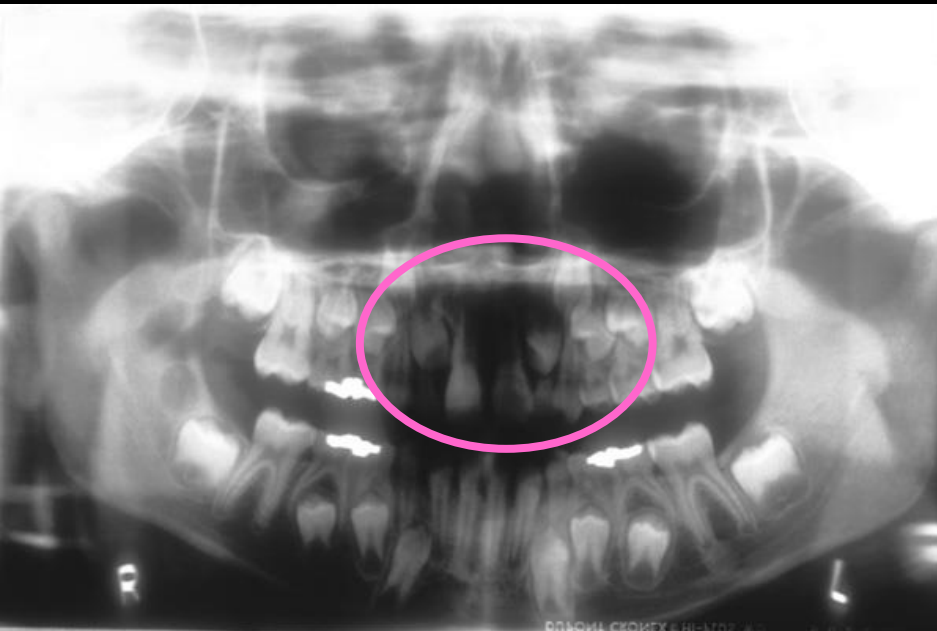


Age 14 ↓ Early treatment - effective and stable



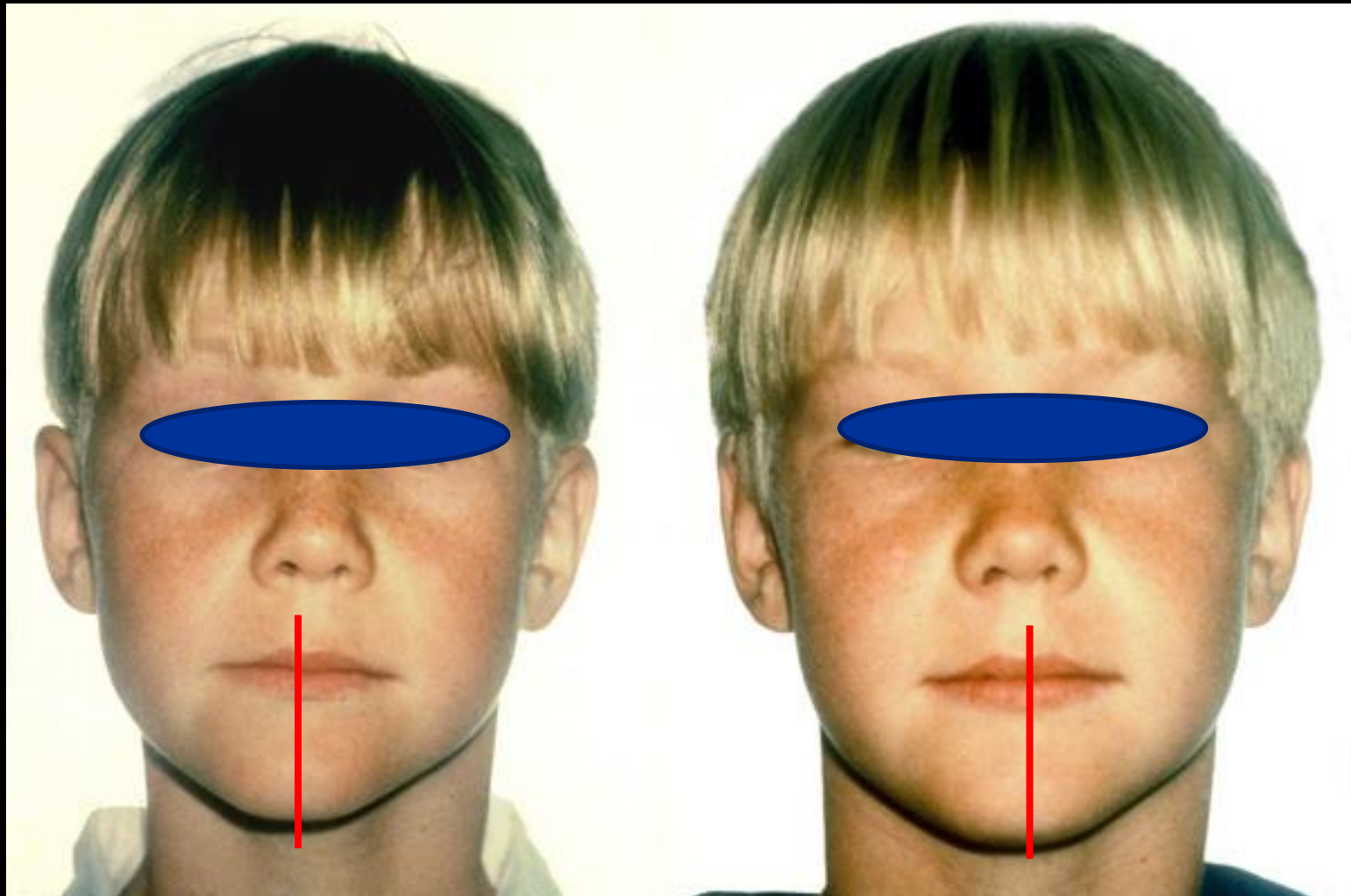
Significant increase in Mx arch perimeter

Best done before Mx laterals erupt

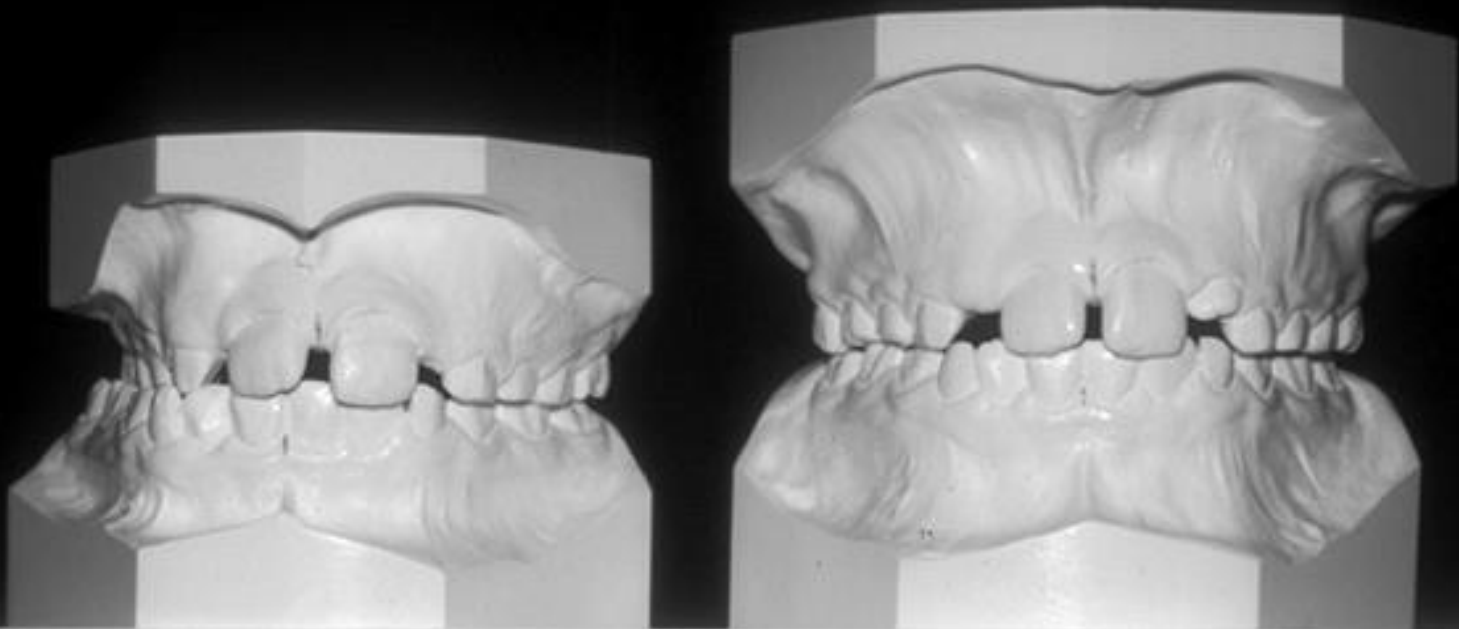


Facial Asymmetry

Improved by elimination of Cr / Co shift



Midline improved but seldom had 100% correction



MIDLINE DEVIATION

T1:	2.47mm,	SD 1.04
T2:	0.63mm,	SD 1.03
T1-T2:	1.84mm,	p < 0.001



Age 6 ↑ Haas expander: 2 months active / 6 months retain



Age 14 ↓ Early treatment - effective and stable



Early Orthodontic Treatment

Transverse : posterior cross bite

8-10% frequency

High success rate