

Hyrax, quadhelix, headgear, pendulum, Delaire facemask



Hyrax



Indication:

- -serious narrowing of the upper arch
- -bilateral or unilateral cross bite
- -treatment of cleft palate (scar-tissue enlargement)
- hyrax has a **skeletal affect** (childhood, puberty, 8-14 ages)
- Expansion in serious II. and III. class cases

Hyrax is used in mixed and permanent dentition, while children are growing.

After the end of the development hyrax can't be used (alone)

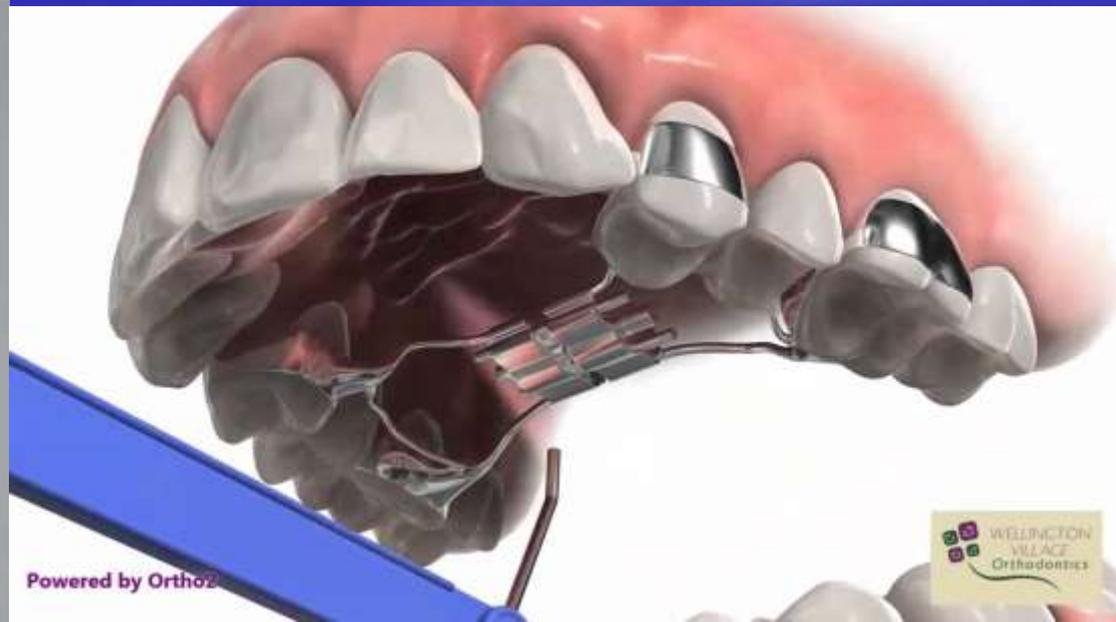
Affect:

- - ripping („breaking”) of the sutura palatina mediana

Hyrax – permanent dentition

Structure in permanent dentition:

- Metal bands on teeth 14,16,24,26,
6 or 12 mm expanding screw



Hyrax – mixed dentition

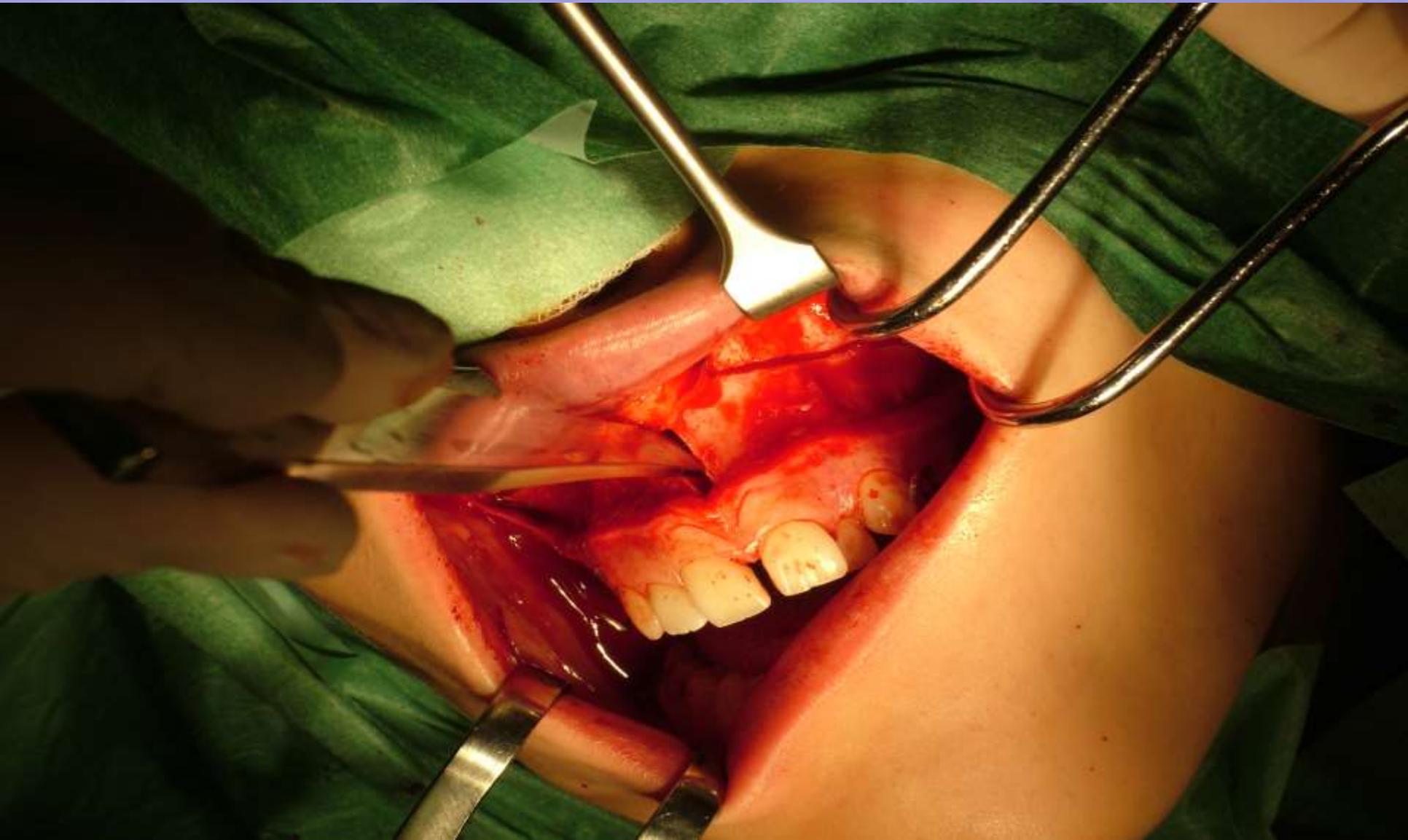
Structure in mixed dentition:

- Acrylic splint on the lateral teeth (canines, primary molars)

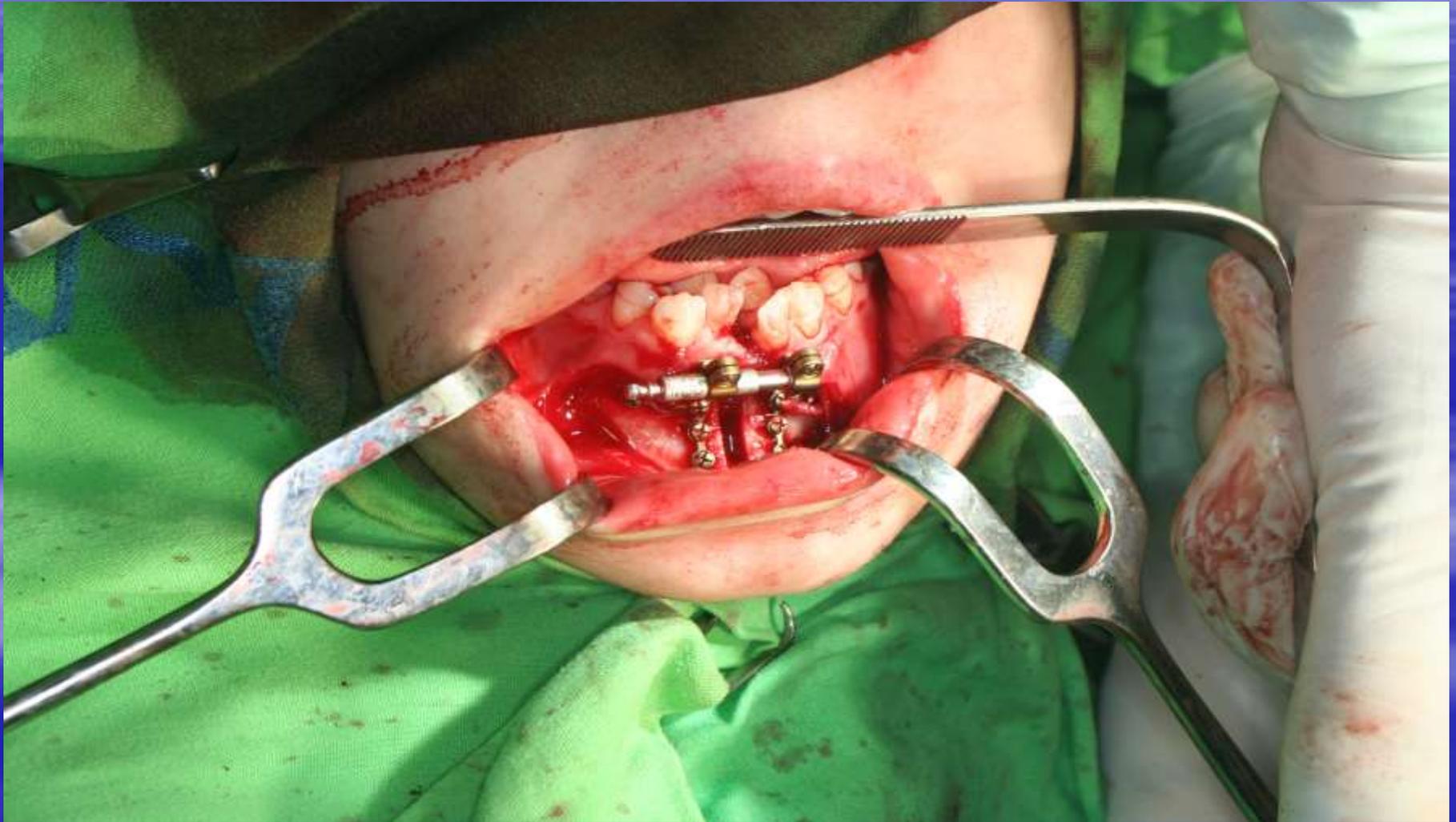
6 or 12 mm expanding screw



Hyrax in adulthood (with surgery, after 18y.)

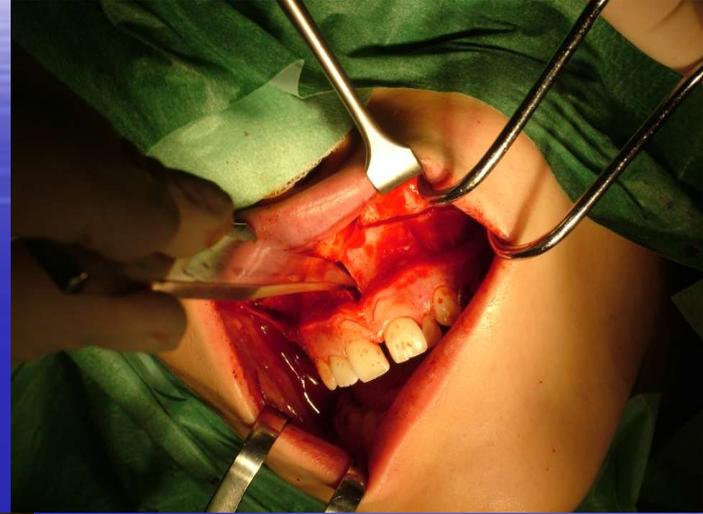


Hyrax in adulthood, (with surgery, after 18y.)



Surgical solution in adulthood

(after 18y.)



Hyrax is never used in the lower jaw without surgery



Hyrax in adulthood

- Used after surgical intervention (surgical ripping)
- In adulthood without surgical intervention there is only dentoalveolar (tipping) affect of hyrax

Tasks:

- first impression in order to choose the optimal sized metal bands
- ring-fit
- second (situation) impression with the bands in order to place the expanding screw in the right place









Bonded with glas-ionomer cement or phosphat-cement



Bonded with glas-ionomer cement or phosphat-cement



Activation:

- On the first and second day **three times a day**
 - Until the end of the first week **twice a day**
 - Until the end of the active expansion **once a day**
- The active period is approximately 3-4 weeks.**

-sutura palatina mediana enlargement



Hyrax

Side effects :

- decubitus
- caries
- traumatic occlusion
- injury of the gum

Case I

narrowing, lack of place



Case I

Gap between the central incisors shows the correct result (shows the skeletal affect)



Case I

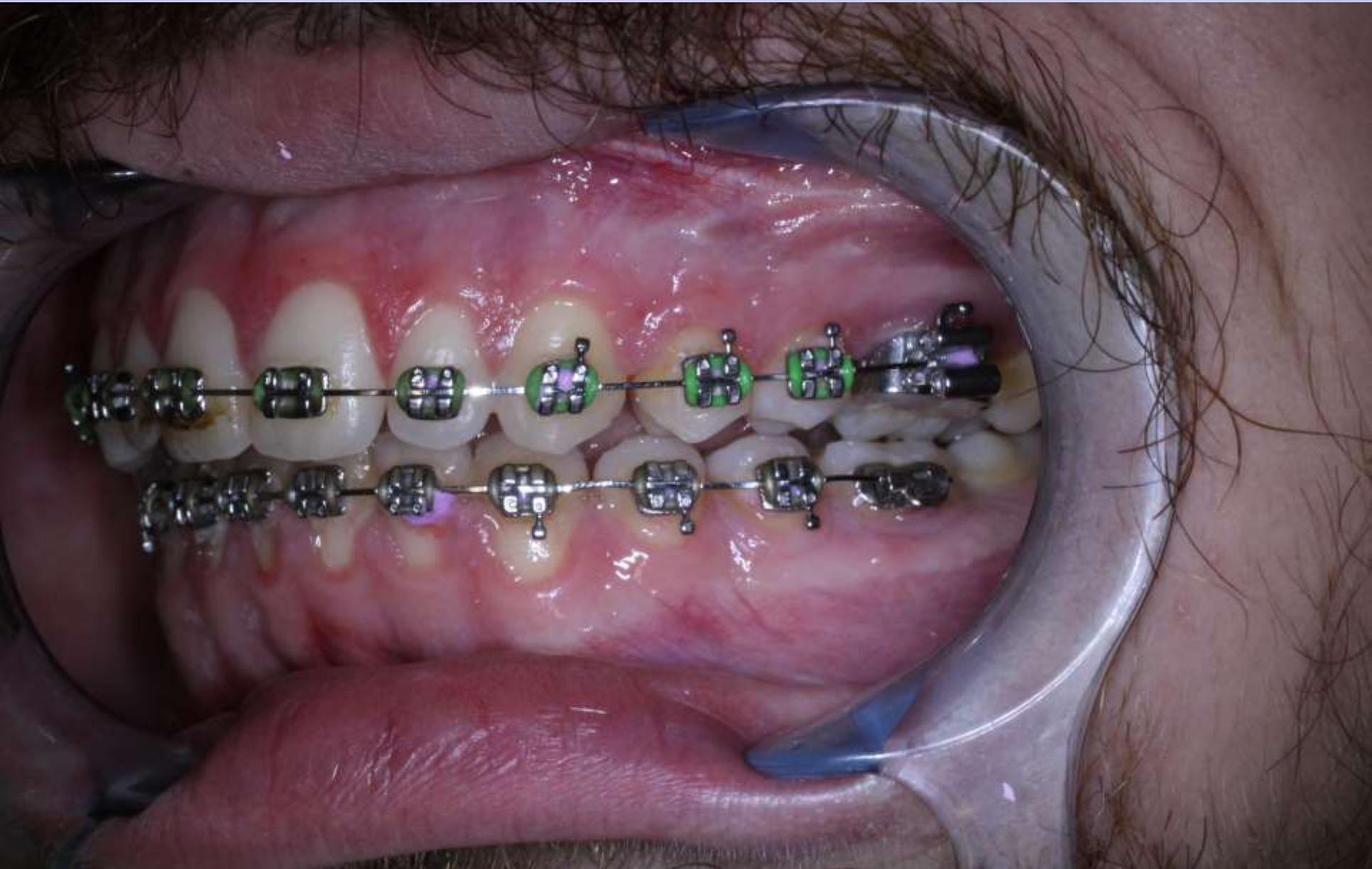


Case I

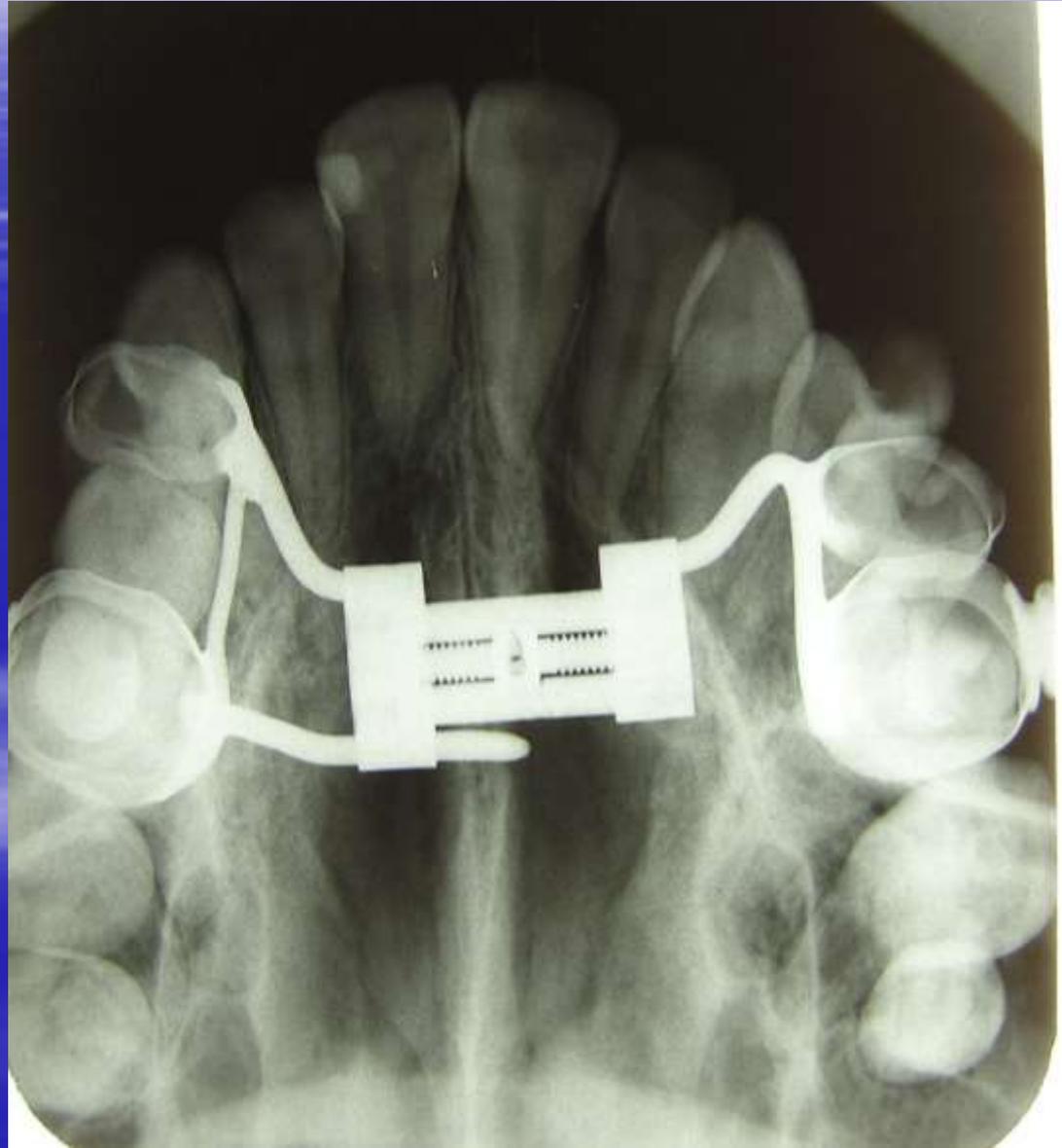
- next step multiband



30 % over – enlargement is necessary because of the relapse

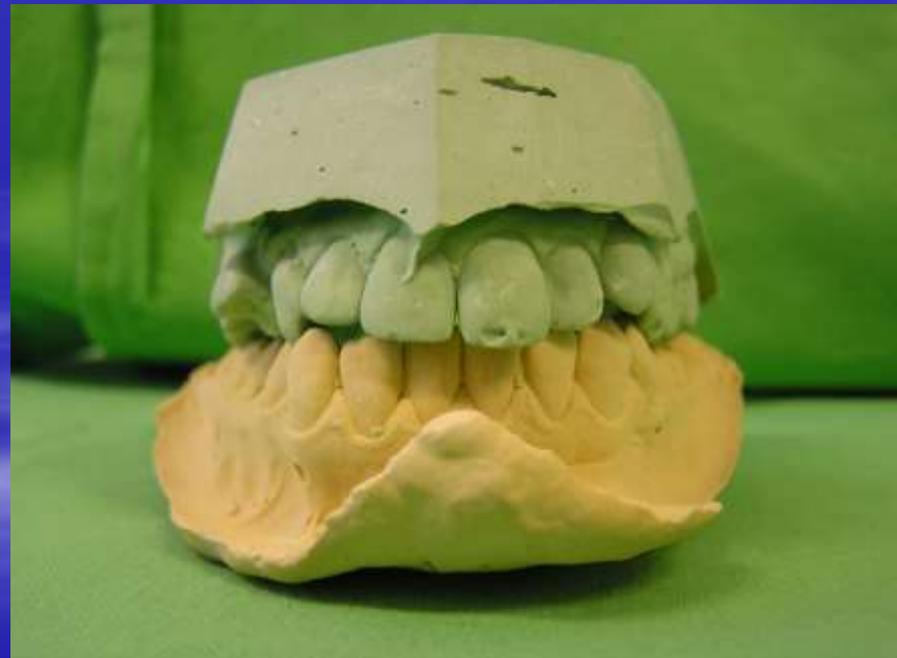


The inactive hyrax remains in the mouth 5-6 month as retainer (to avoid relapse)





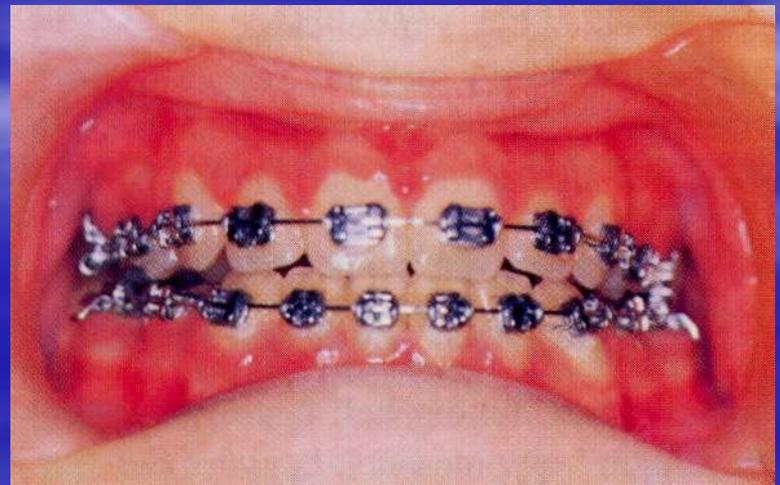
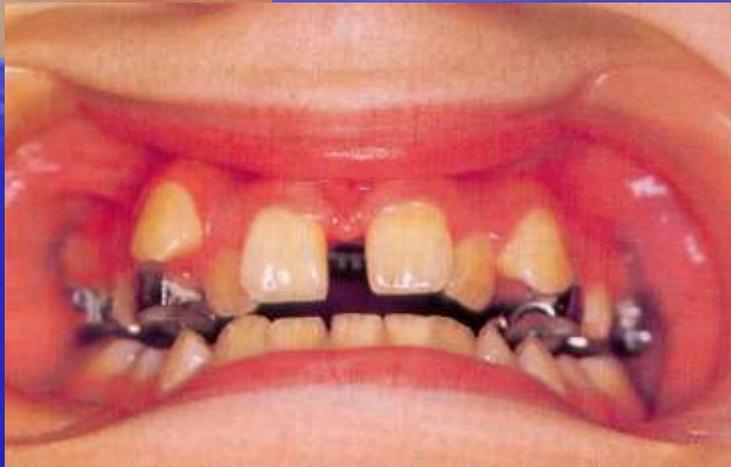
Case II



Case II



Case III





Quad-helix

Indication:

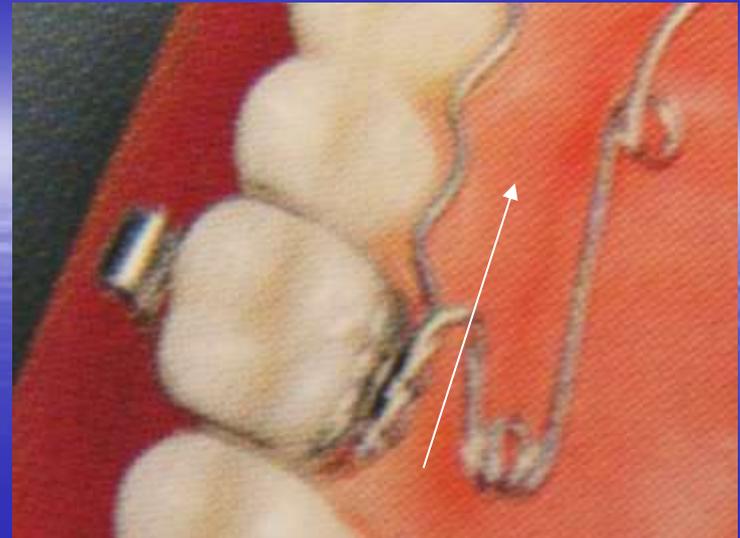
- Stricture, narrowing
- after the closure of left palate

Advantage:

- Can be installed on teeth 16,26,
- The palatinal spring can be removed and activated outside the mouth during the treatment



Quadhelix 3.



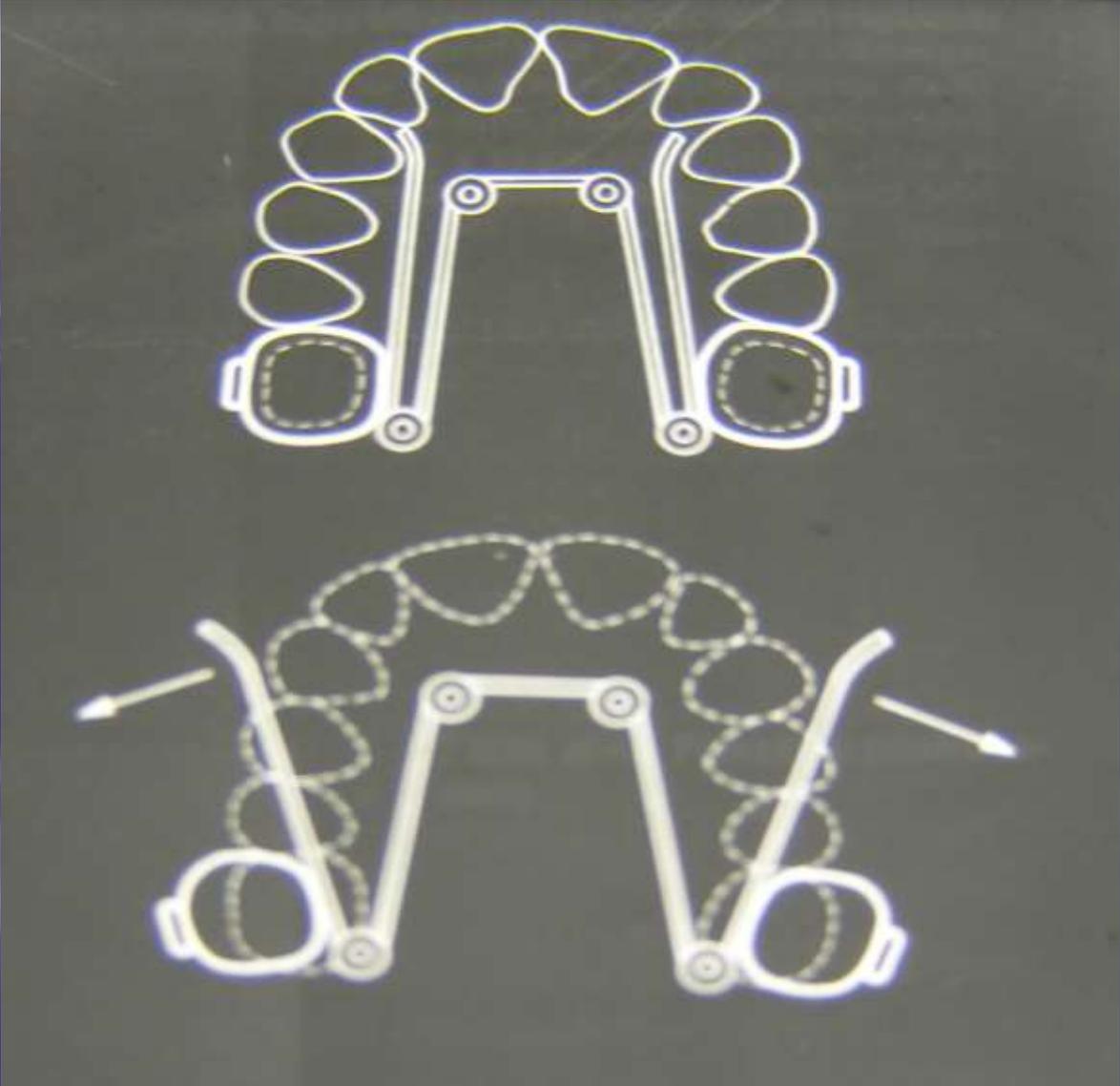
- Effects:
- - fast enlargement, partly dentoalveolar affect, partly sceletal affect (bodily movement)
- Build-up:
- -16,26 rings and stainless steel spring with 4 helix
- Retention time is important

Quad-helix

Disadvantages:

- Difficult to wear
- Difficult to activate
- Gingivitis
- Caries (by bad oral hygiene)







November 30, 2009



May 17, 2010



Quad Helix Progression Before&After



Headgear

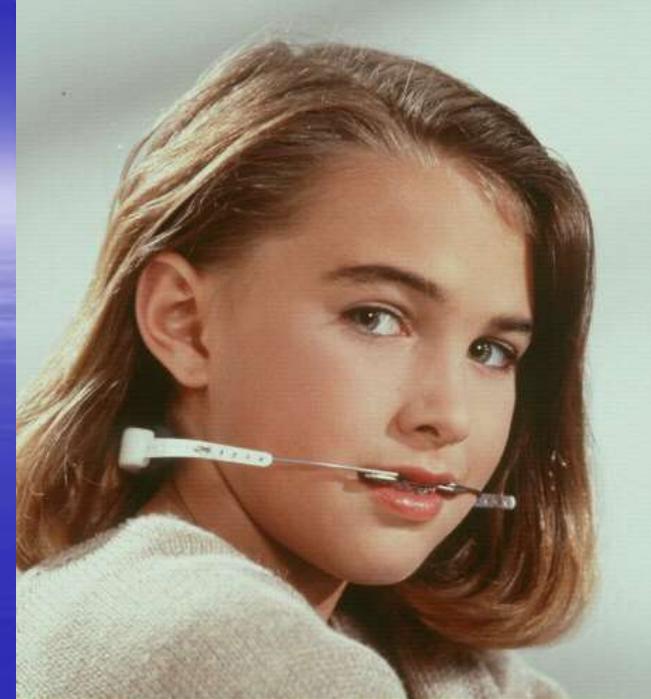


- Headgear – facebow: connected to molar bands of fixed appliances or to removable appliances

Indication: - prohibition or growing of the maxilla or distalisation of the upper jaw

- distalisation of the upper molars (fixed appliance)
- anchorage of the upper molars (fixed appliance)
- Influence of the inclination of the maxilla
- Intrusion of the molars (in open bite)
- Extrusion of the molars (in deep bite)

Headgear with fixed appliances



Indication:

- Molar teeth:
 - anchorage of the upper molars, for example after extraction of 14, 24;
 - distalisation of the upper molars, f.e: before eruption of 2th molars or after extraction of 17, 27;
 - molar teeth intrusion (open bite) – high pull headger
 - molar teeth extrusion (deep bite)– cervical headger

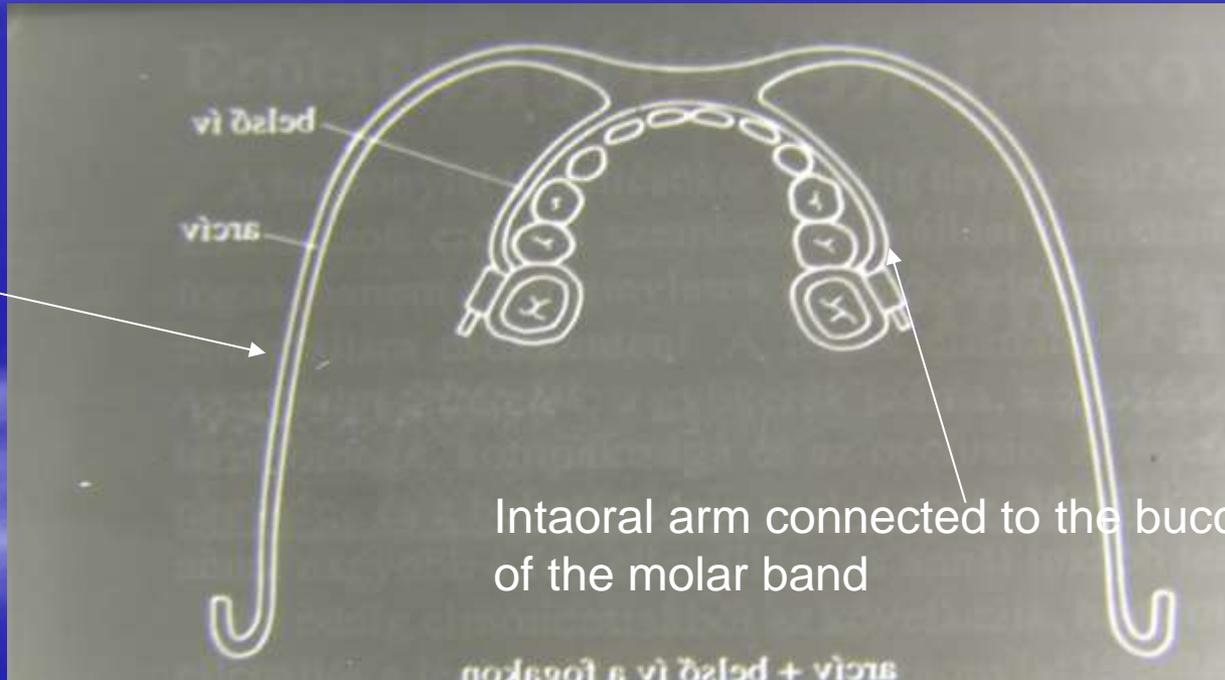
Headgear

- Effects:
 - -dentoalveolar adaptation (periosteum, proc.alveolaris)
 - -bazalic adaptation (sutura)
- Powers:
 - -orthodontic
 - -orthopedic

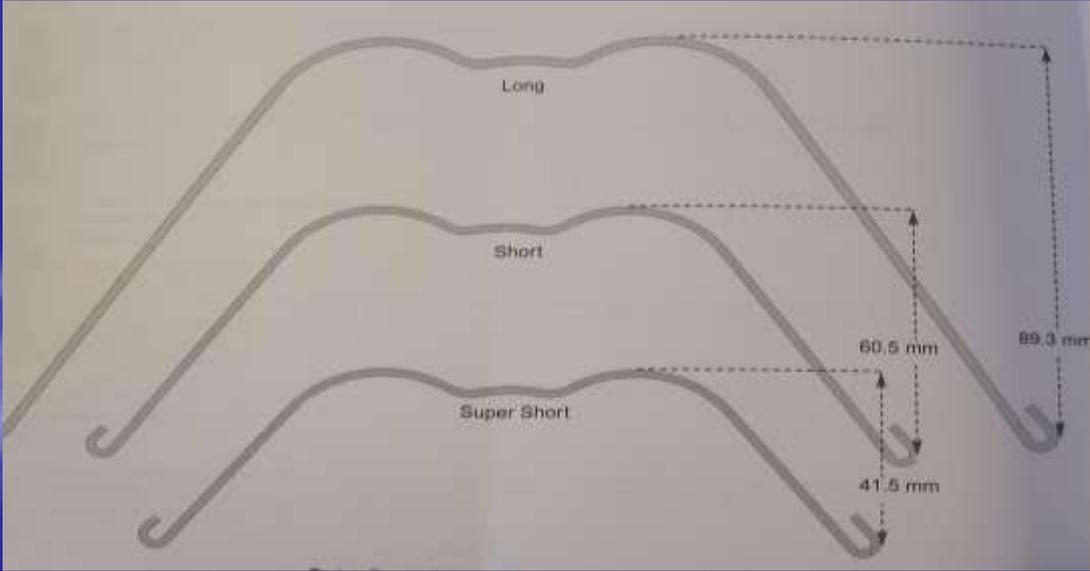
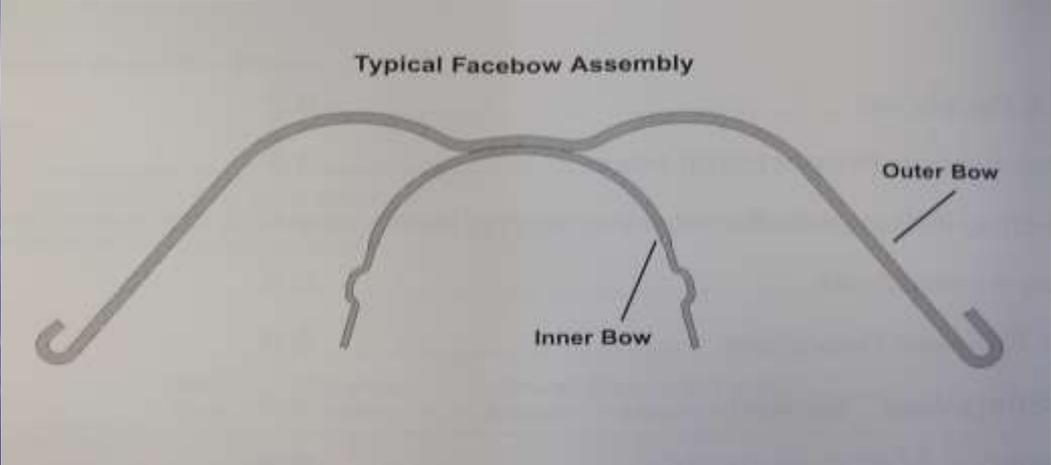


Headgear with fixed appliance

Extraoral arm



Intaoral arm connected to the buccal tube of the molar band



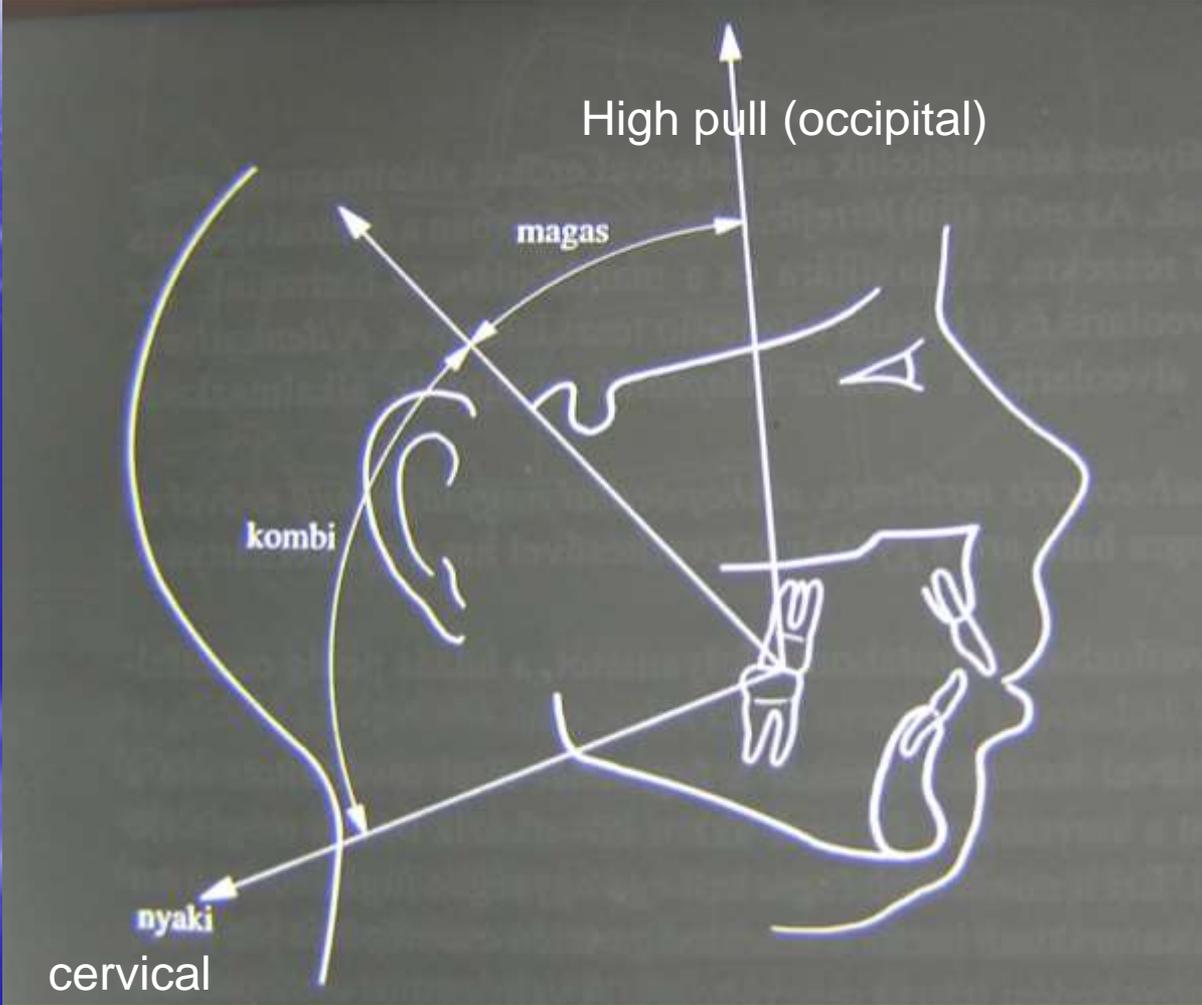
Headgear

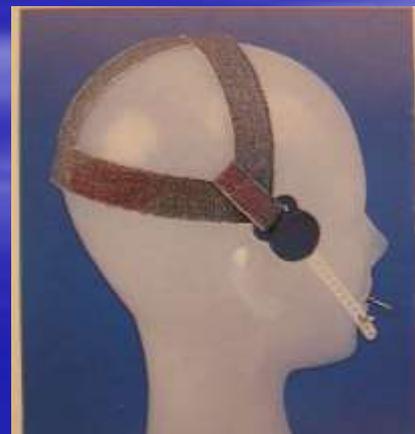
According to the direction of the anchorage:

- -cervical
- -occipital (high pull)
- -combi

According to connection:

- -multiband ring
- -removable instrument





Cervical headger

- Distalisation
- Extrusion of the molar area (in deep bite)



High pull headger

- Distalisation
- Intrusion of the molars (in open bite)



Combi headger



Distalisation of upper molars



Distalisation of upper molars



Distalisation of upper molars



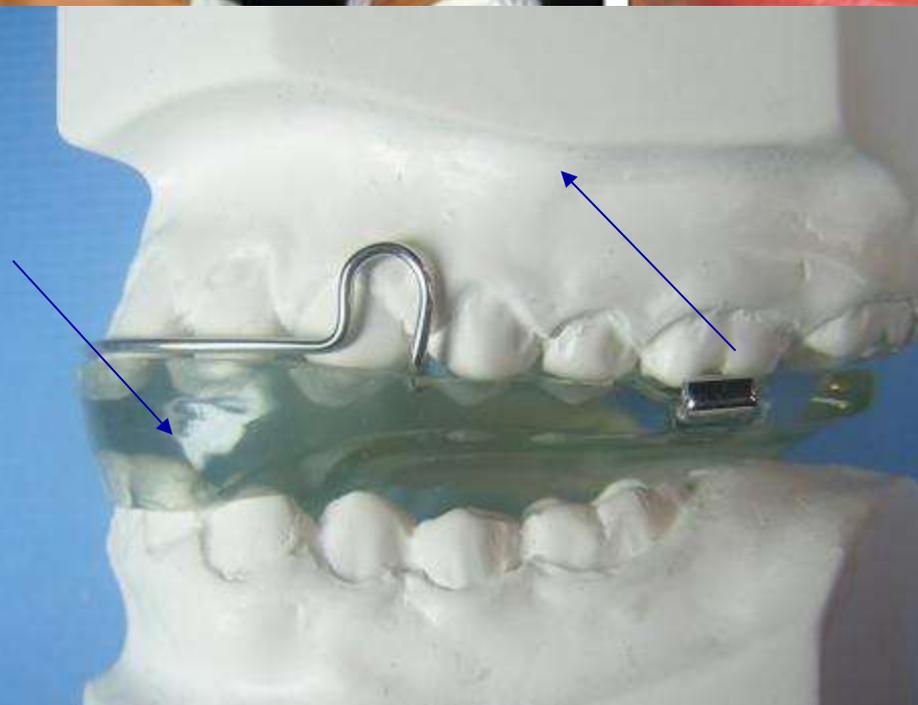


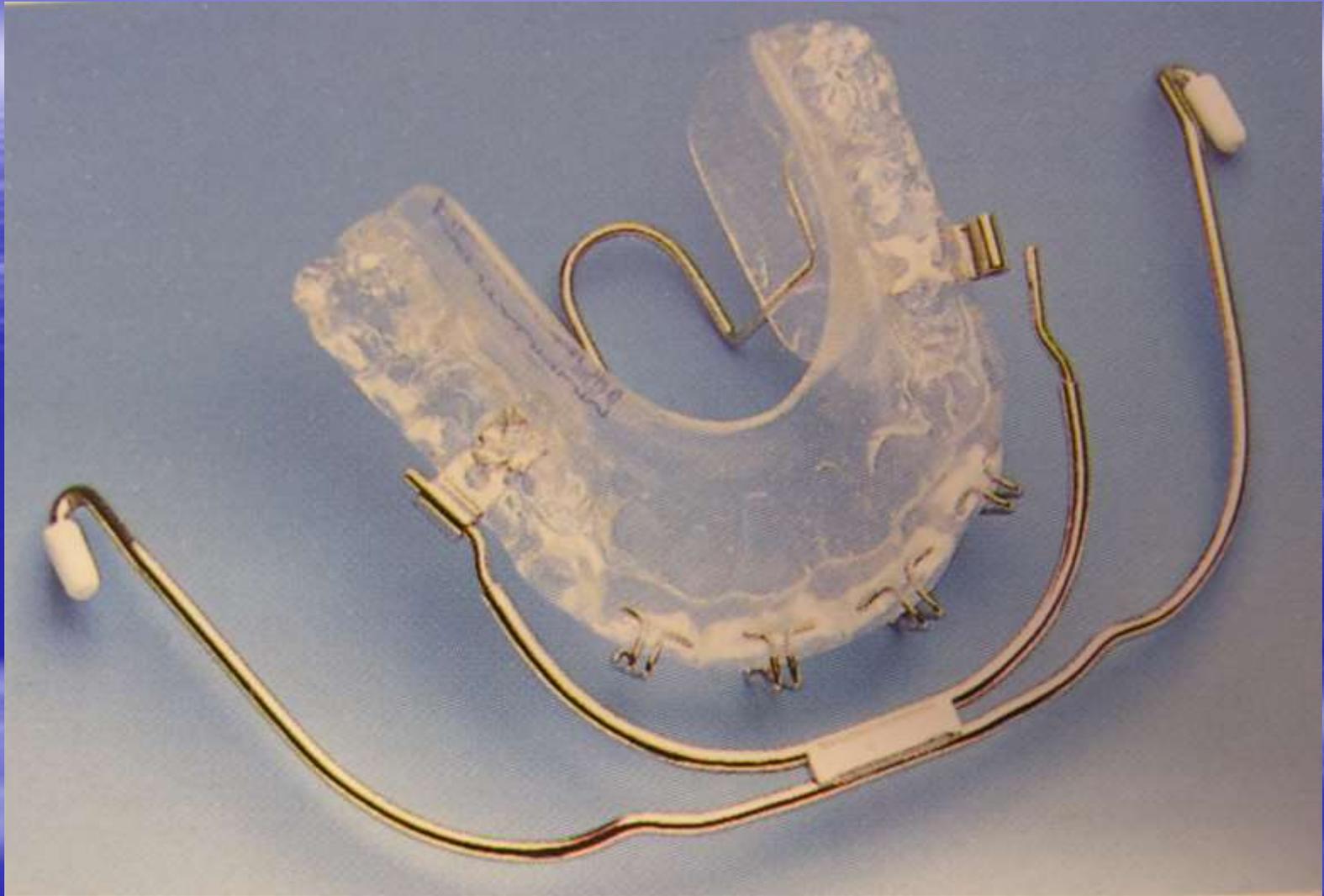


High-pull headger, open bite

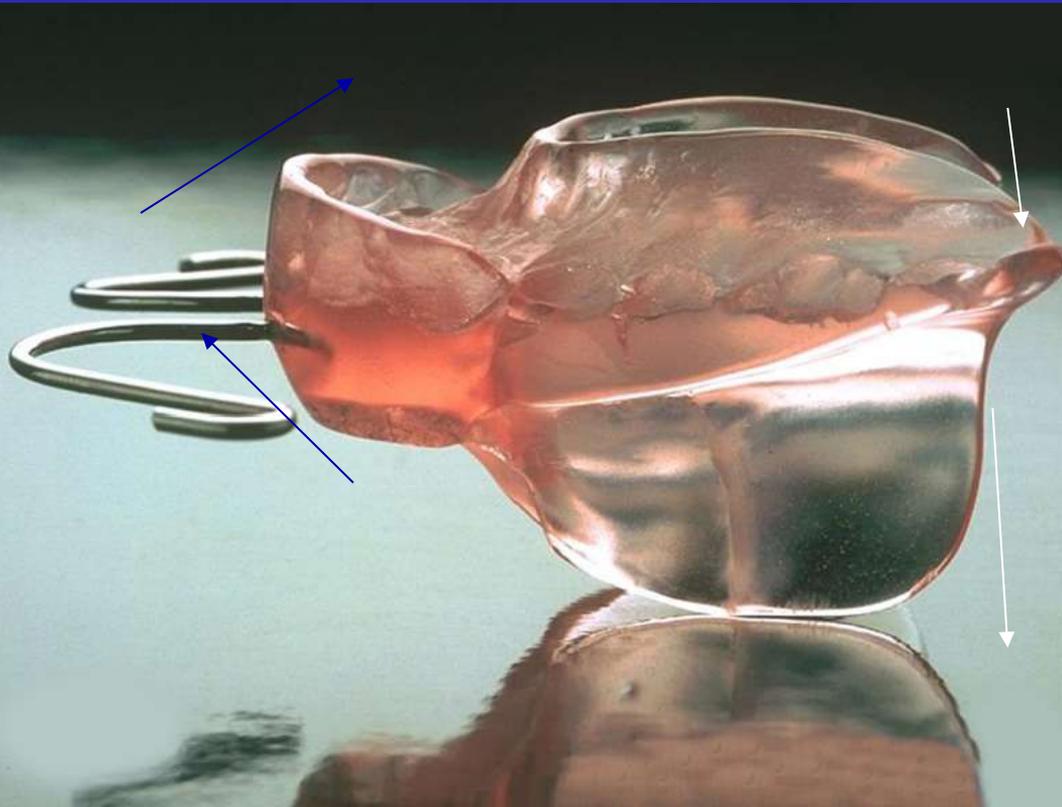


Headgear with bimaxillary appliances (tipping of the maxilla – posterior rotation)





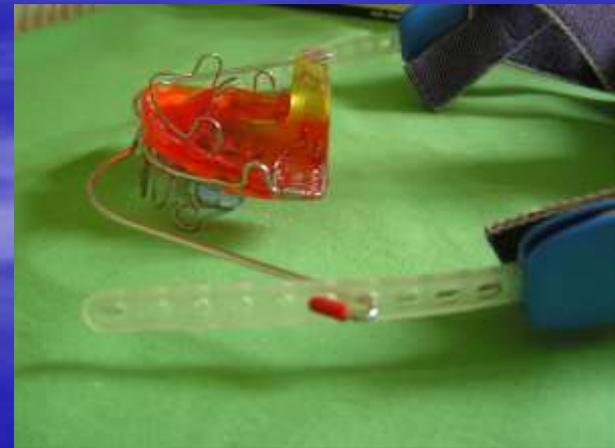
- J hook, frontal headger – **anterior rotation** of the maxilla



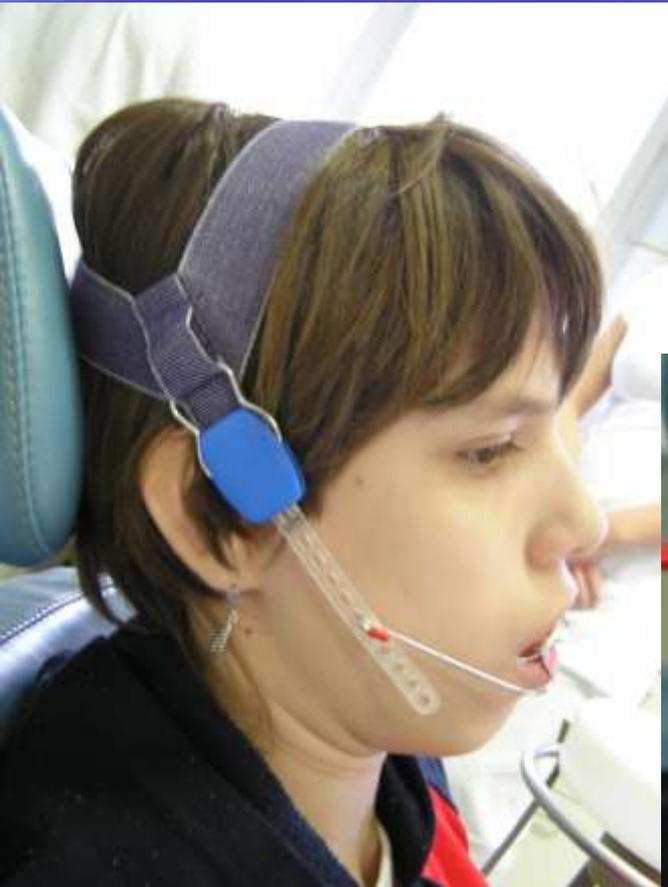
Correction of II. class case



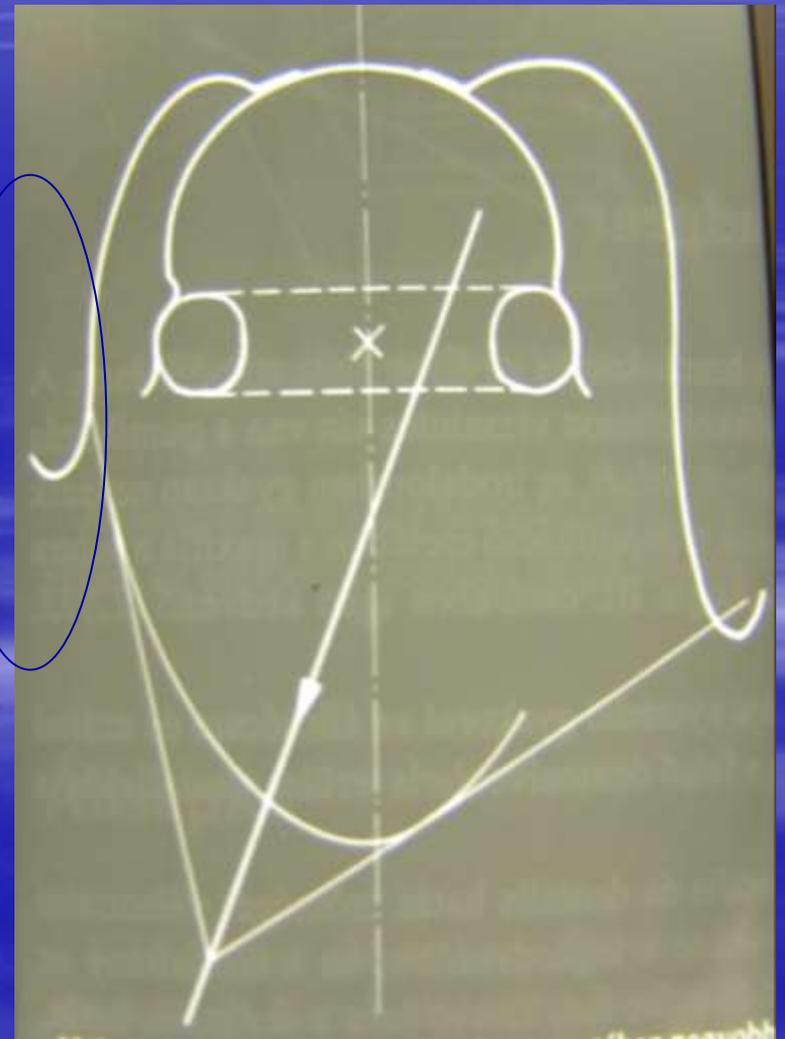
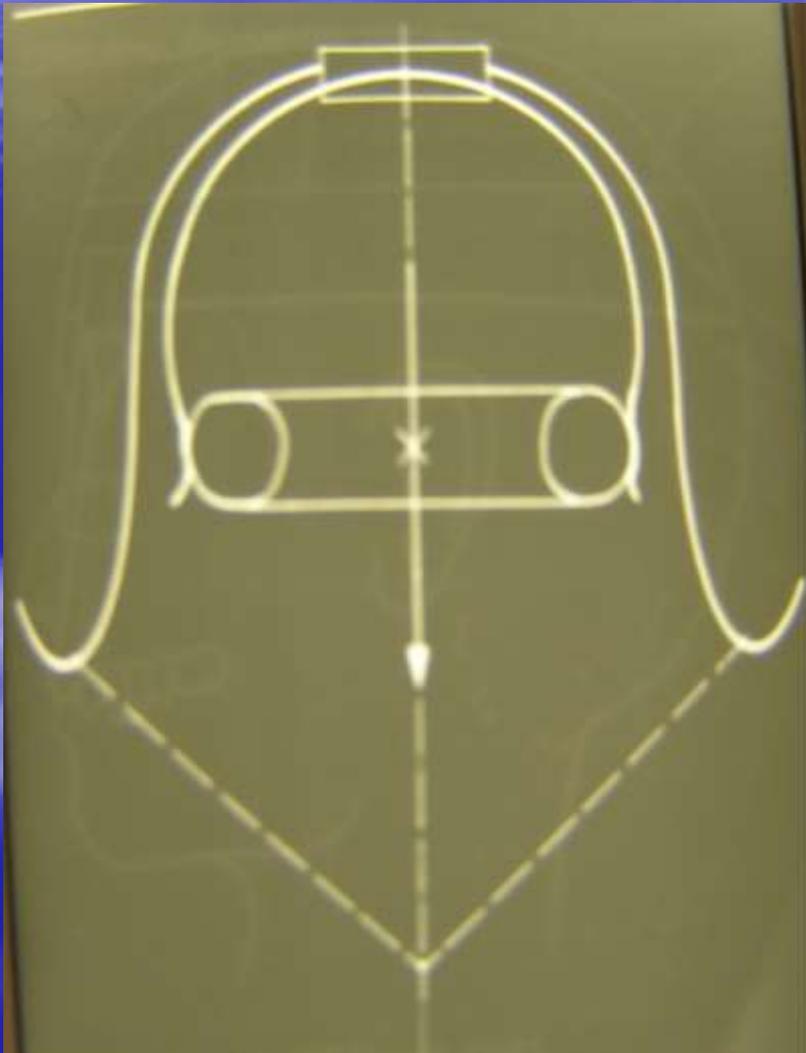
Correction of II. class case



Correction of II. class case



Asymmetrical headger (the shorter arm is stronger)



Pendulum

- Distalisation of the upper molars
- Expansion of the upper arch
- In II. class cases



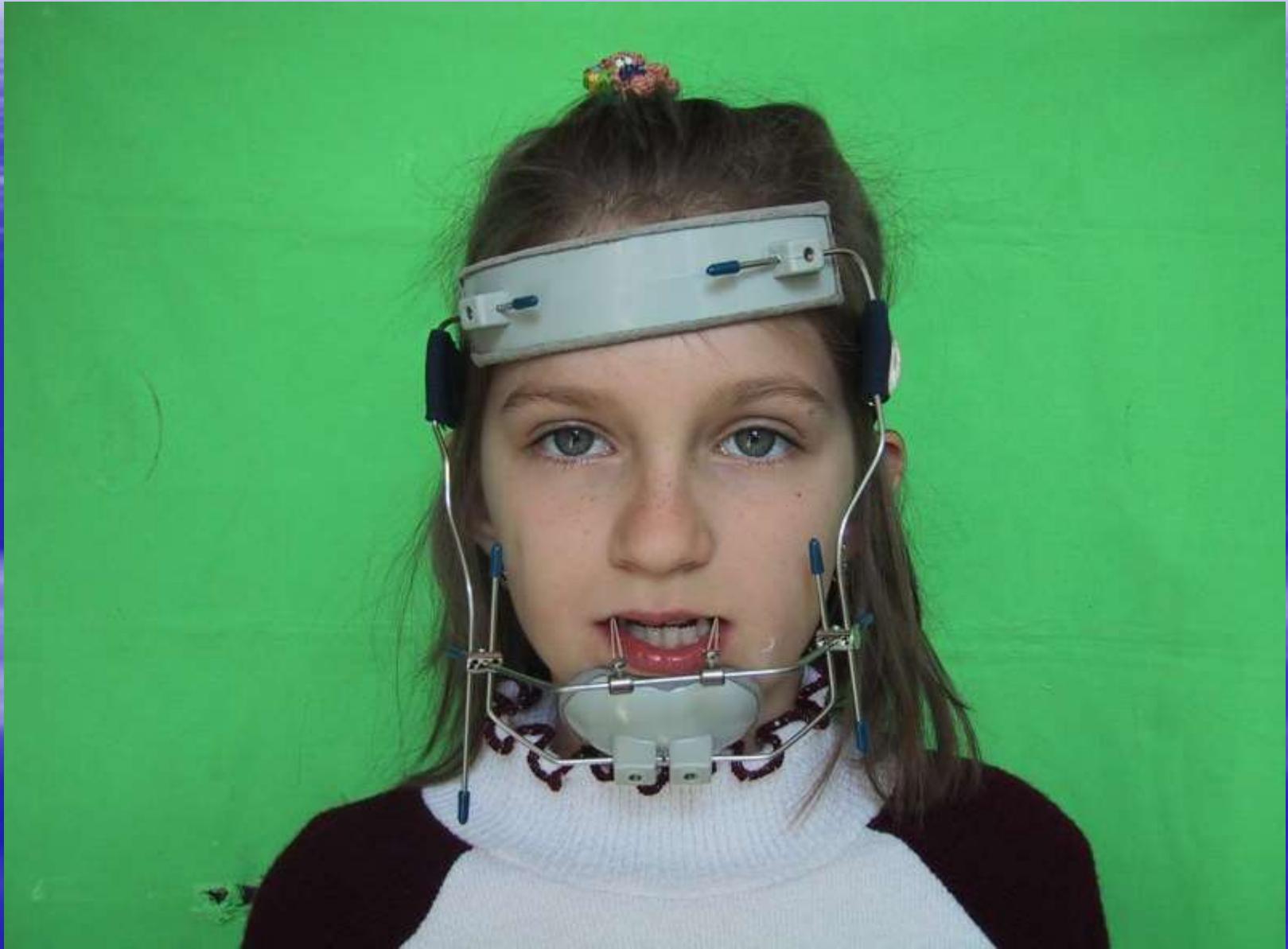
Pendulum

- Distalisation of the upper molars
- Expansion of the upper arch
- In II. class cases





DeLaire facemask (reverse headger)



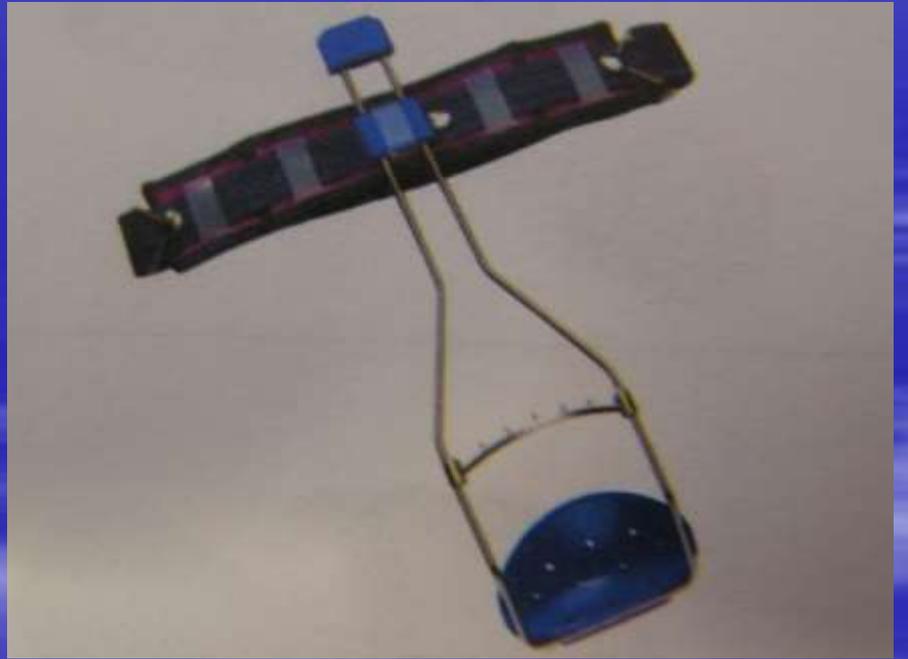
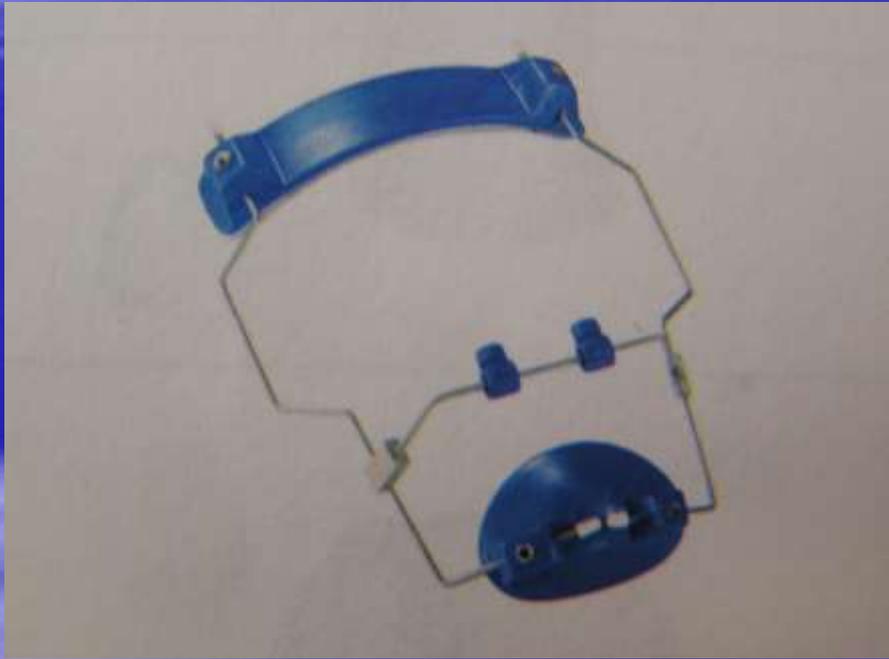
Delaire mask

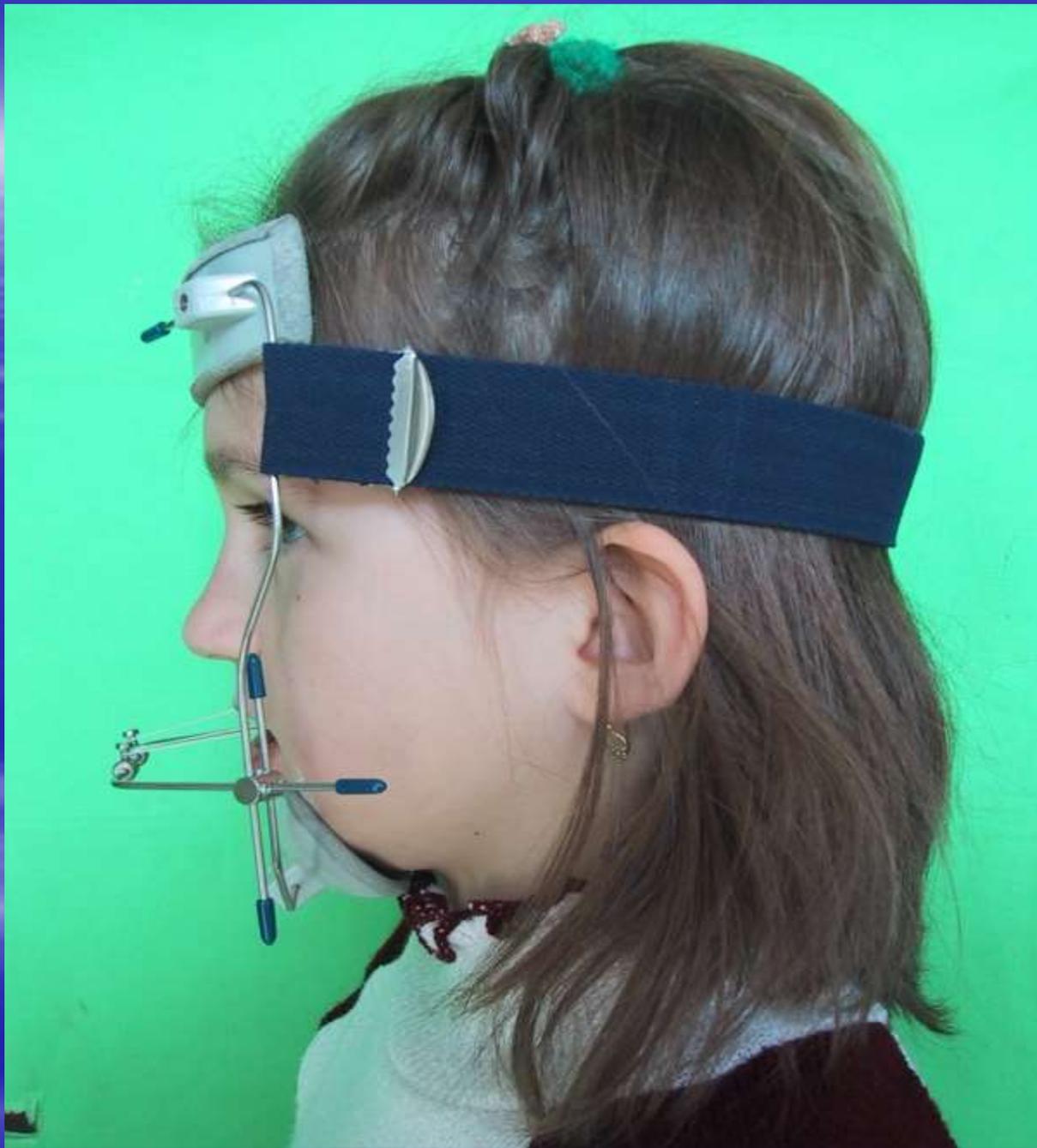
(reverse headgear, mainly in III. class)

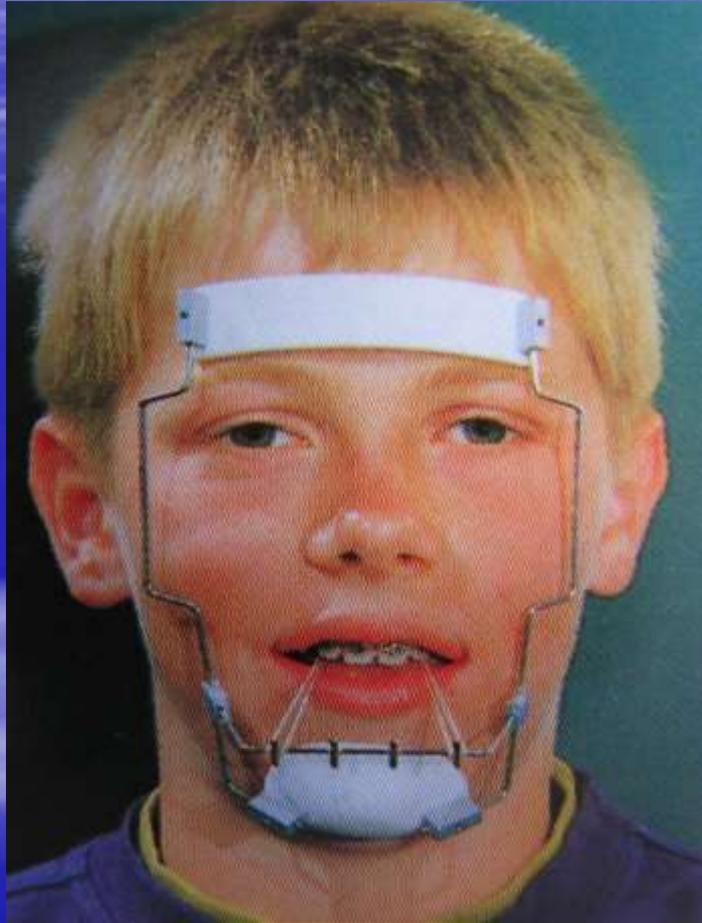
- An extraoral, forehead-pogonion based instrument that moves the maxilla in mesial direction at the age of 8-12
- treatment of micrognathia or retrognathia
- increasing of SNA angle
- the forces work at the sut. nasomaxillaris and pressure on the pogonion and the condyllus
- skeletal effect

Delaire mask

- Build-up:
- - mask intended for outer support
- - connected to intraoral fixed or removable instrument
- Forces are parallel to the occlusal level
- **Can be combined with Hyrax screw in III. class cases -**







Thank you for your attention!

