

# Treatment possibilities of Class III malocclusions

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# Outline

Diagnosis of Class III malocclusions

Treatment timing of Class III

Treatment options for Class III

Conservative tx

Semiconservative tx

Semiinvasive tx

Surgical tx

Case presentations

# Skeletal diagnosis



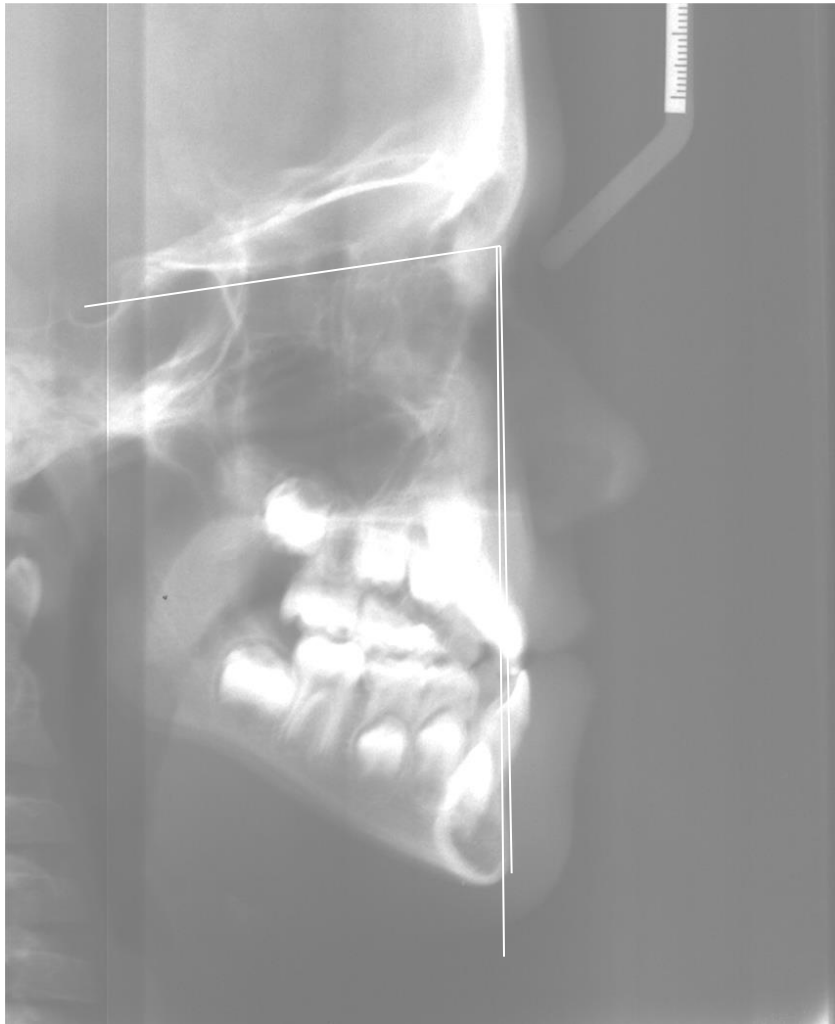
ANB :  $-2^{\circ}$

Norm. :  $2^{\circ}$





# Skeletal diagnosis

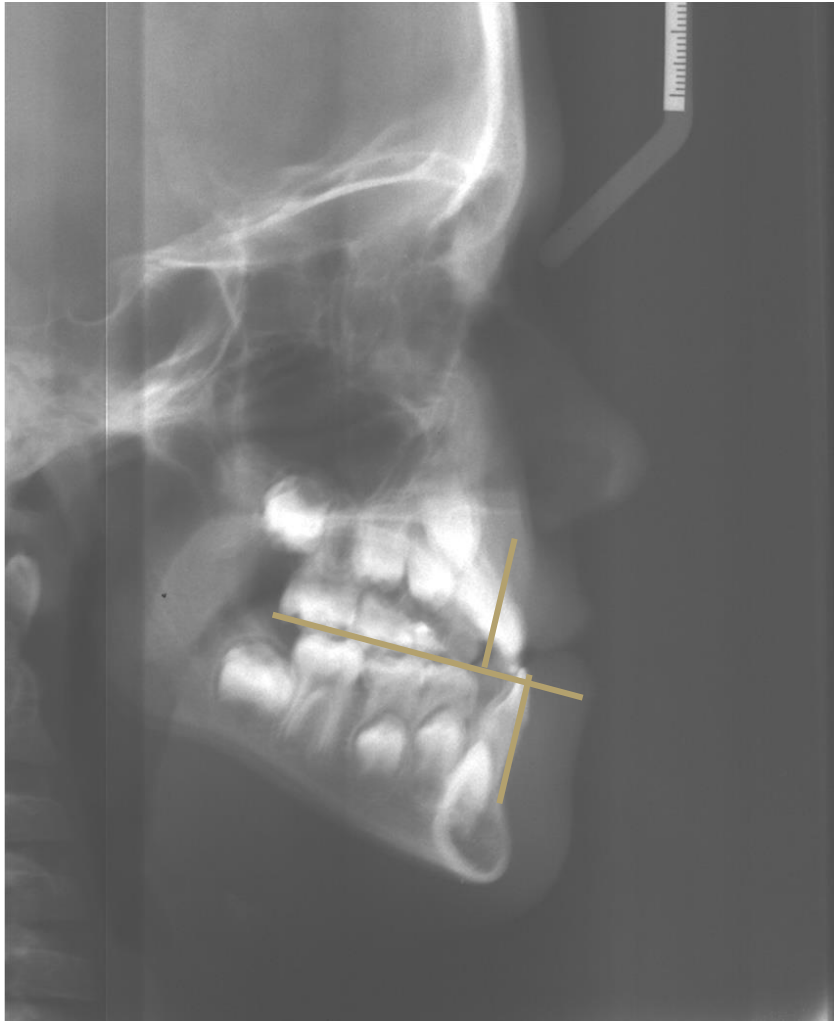


ANB = +0.5°

Norm. : 2°

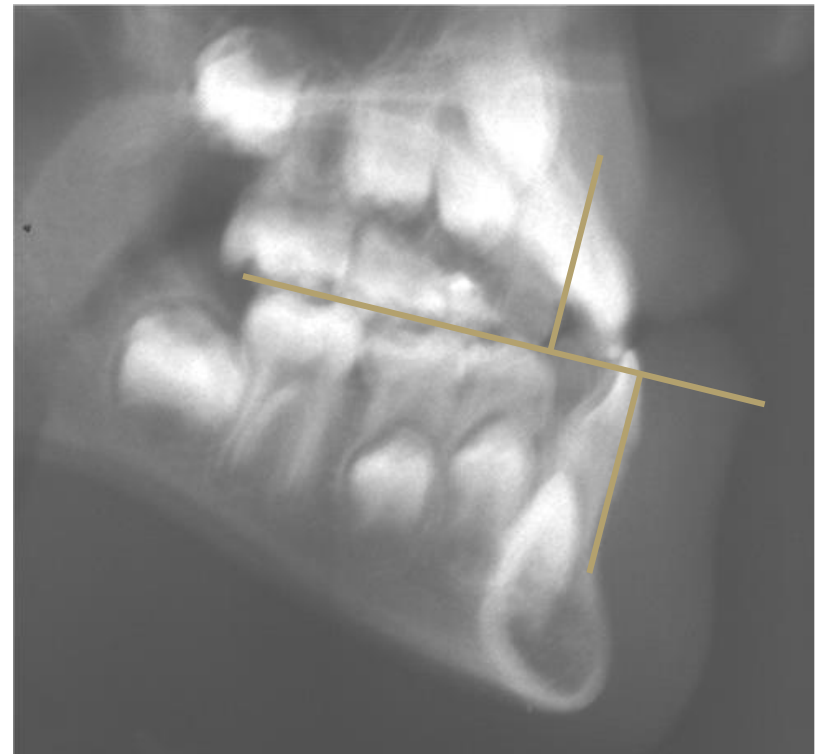


# Szkeletális diagnózis

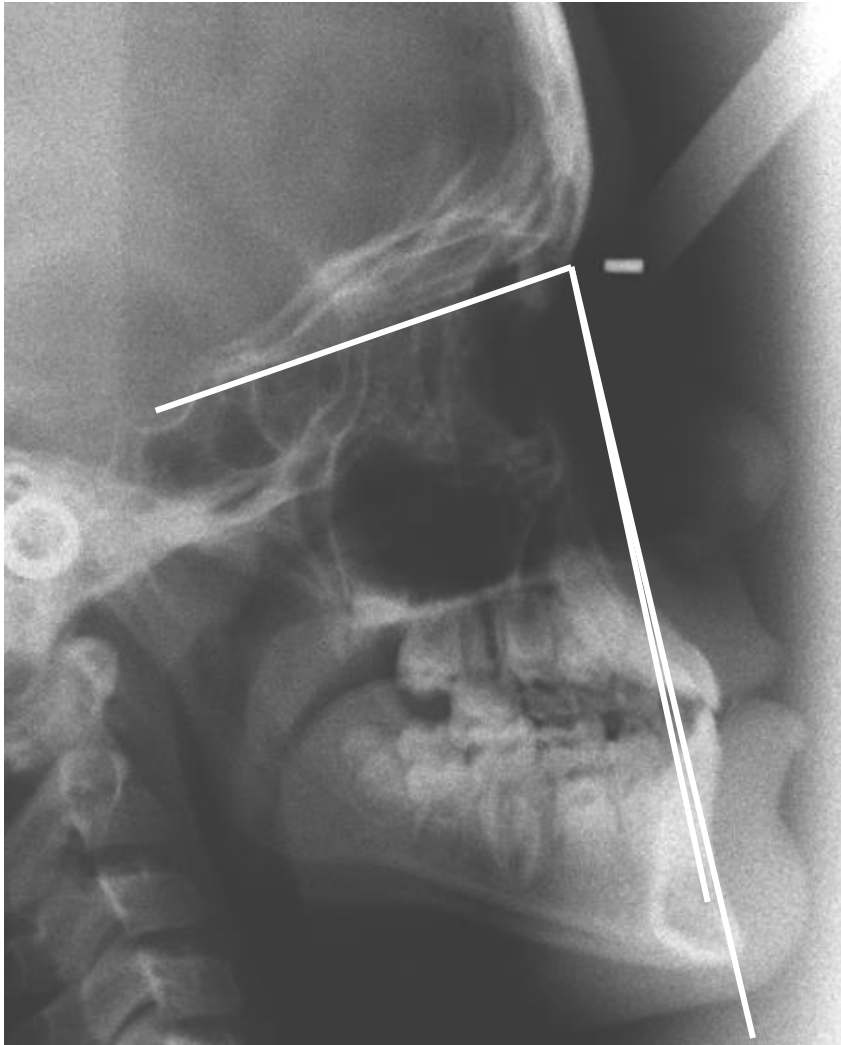


WITS érték: -9mm

norm:0 -2 mm

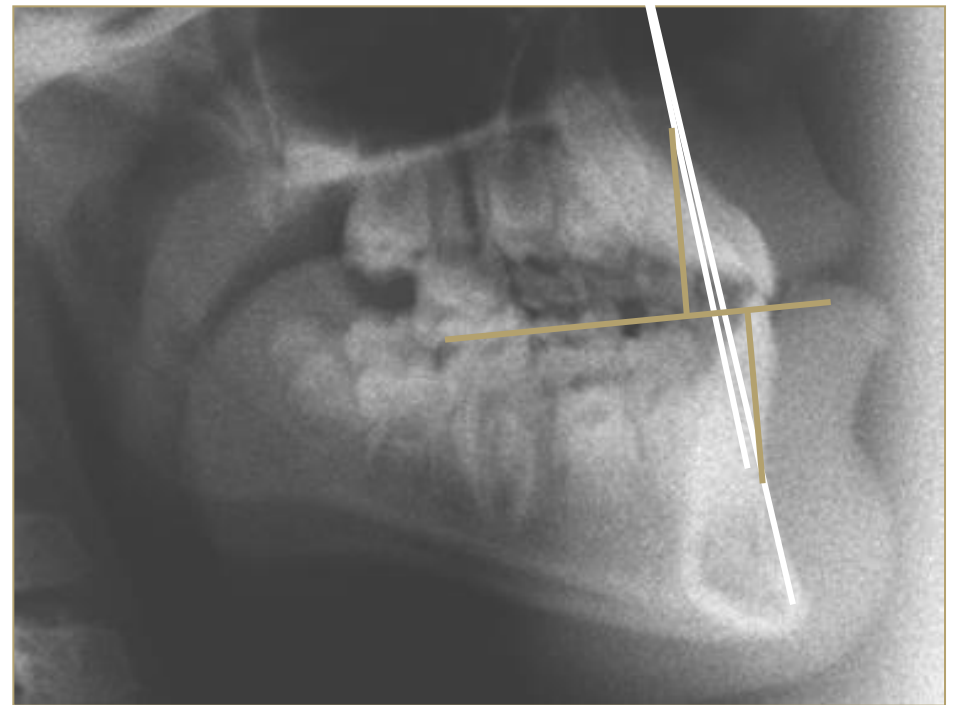


# Szkeletális diagnózis

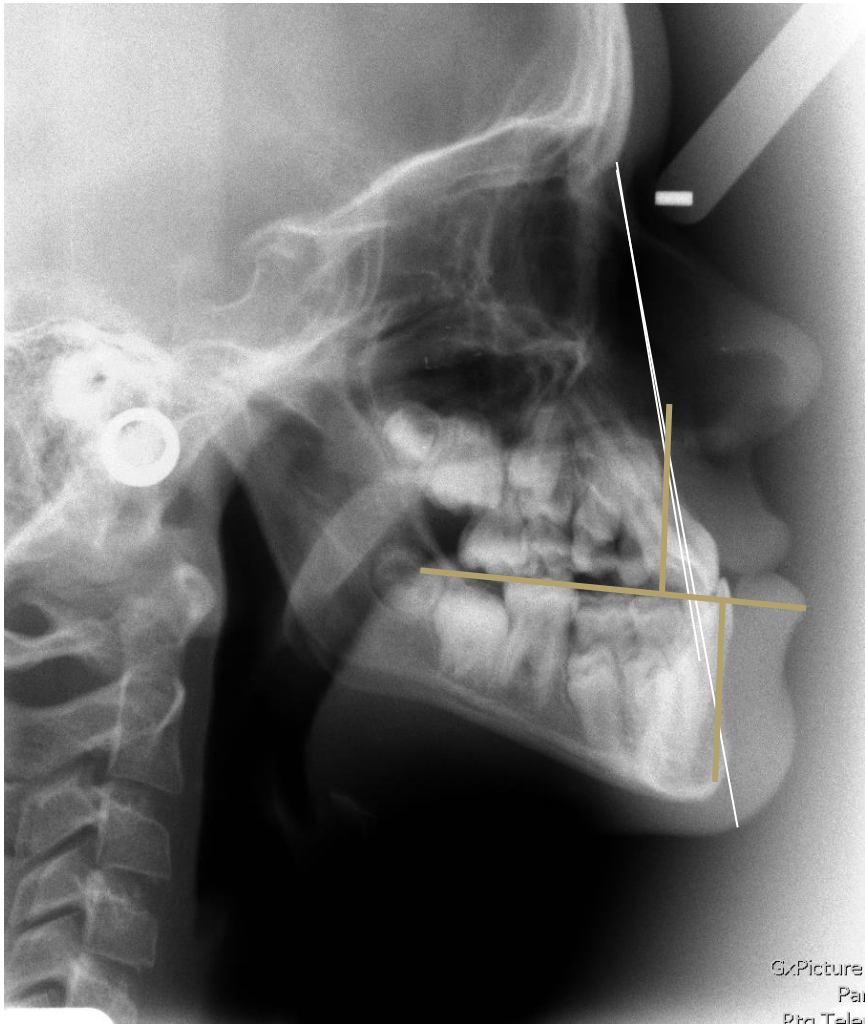


ANB szög=-1°

WITS: -8mm



# Skeletal diagnosis

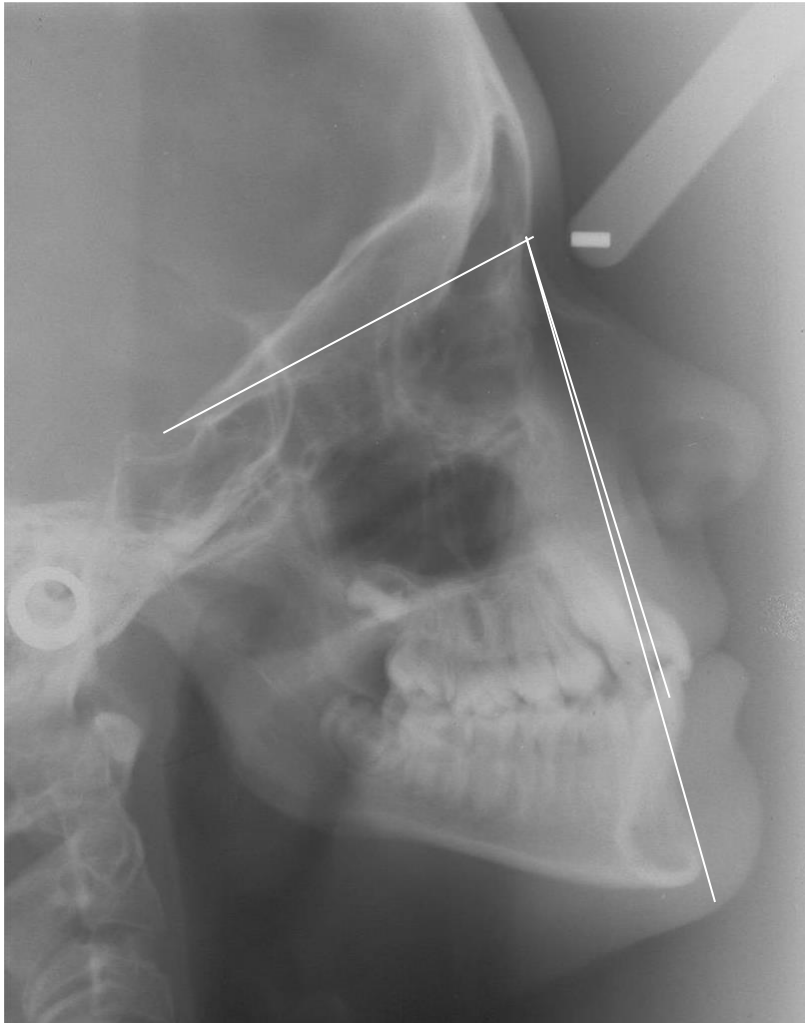


ANB =  $-1^{\circ}$

WITS: -10mm

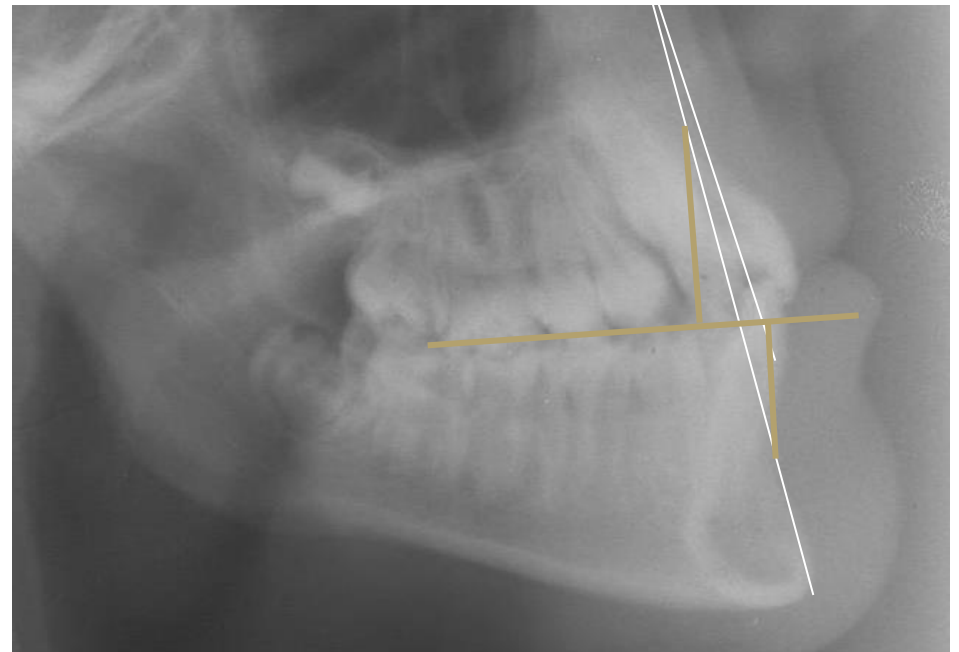


# Skeletal diagnosis



ANB=+1.5°

WITS: -6mm



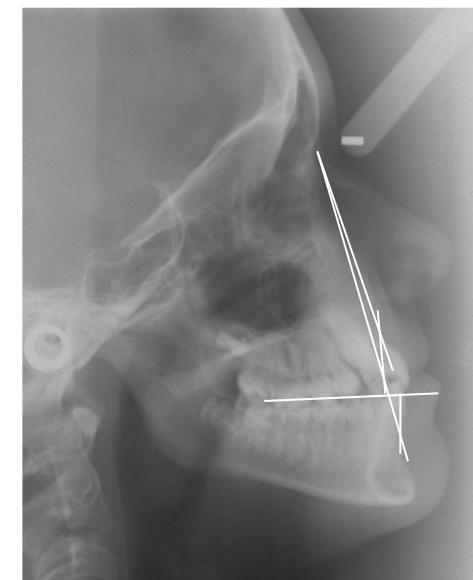
# Dental diagnosis



# Dental diagnosis



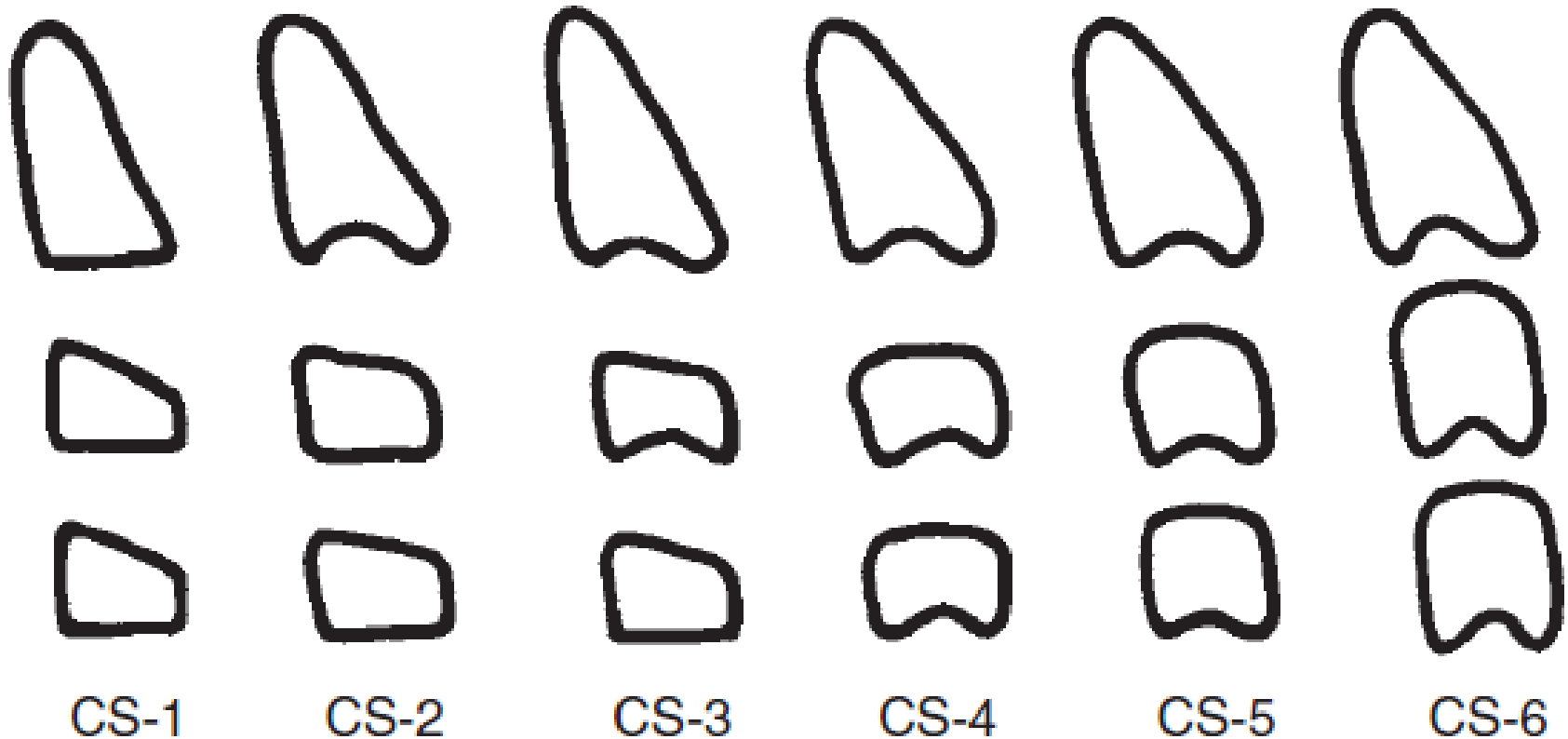
# Dental diagnosis



ANB: 2°

WITS: -6mm

# Treatment timing of Class III



Graber, Contemporary Orthodontics 2012. Ch 14. Optimizing Orthodontic and Dentofacial Orthopedic Treatment Timing

# CVMS



CVMS 1

CVMS 2

CVMS 3

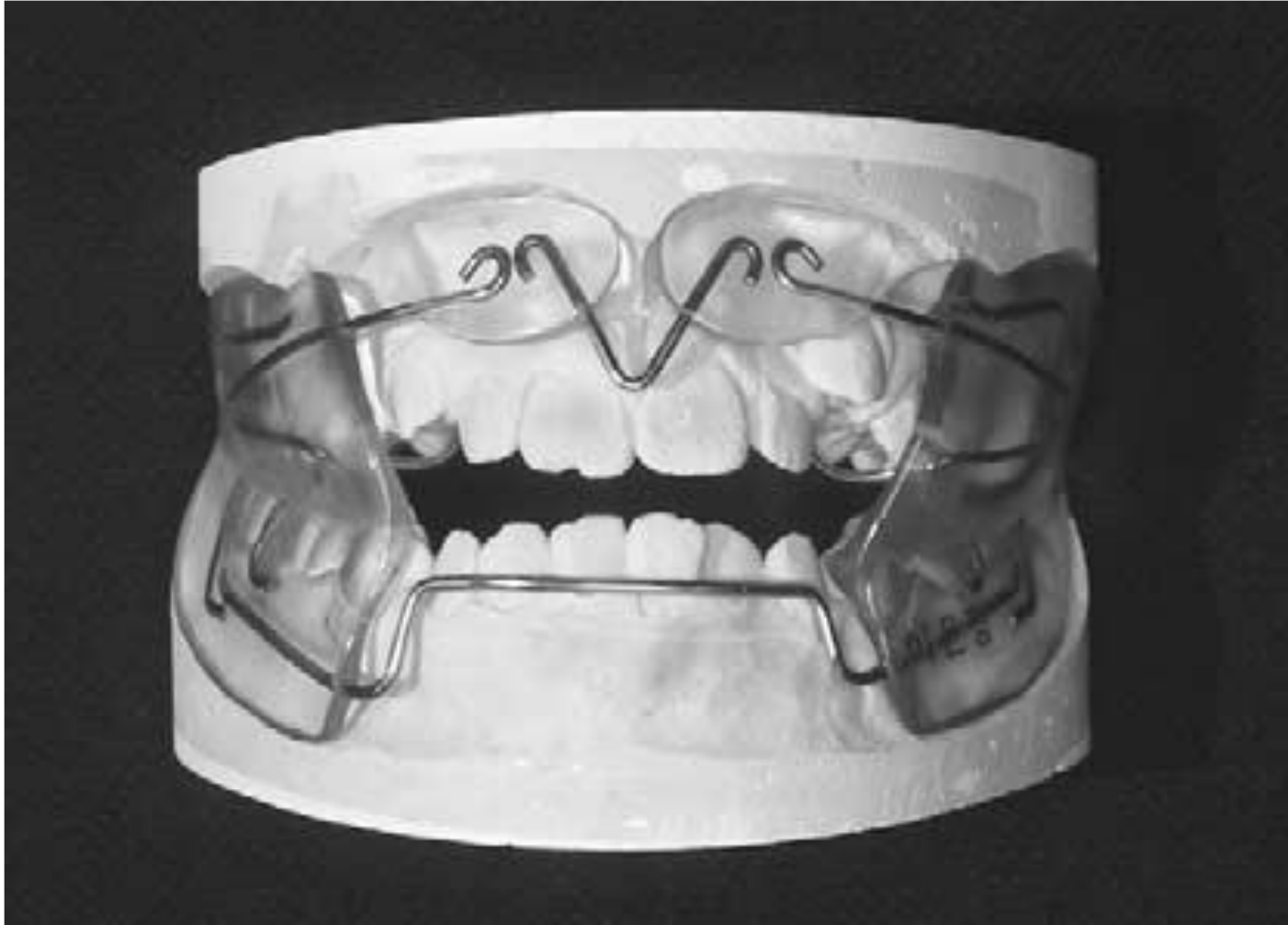
CVMS 4

CVMS 5

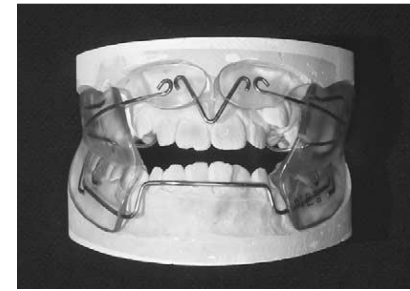
CVMS 6

Graber, Contemporary Orthodontics 2012. Ch 14. Optimizing Orthodontic and Dentofacial Orthopedic Treatment Timing

# Fränkel III



# Fränkel III



**Baik et al. 2004, AJODO:** 30 prepubertal noncleft patients mean age  $8.0 \pm 1.2$  years, at least *14 hours* per day, mean treatment duration,  $1.3 \pm 0.6$  years

**The treatment effects were mainly from backward and downward rotation of the mandible and linguoversion of the mandibular incisors**

**Levin AS, McNamara JA Jr, Franchi L, Baccetti T, Fränkel C .2008. AJODO:** 32 prepubertal noncleft patients, good compliance, 2.5+3 years active treatment and retention.

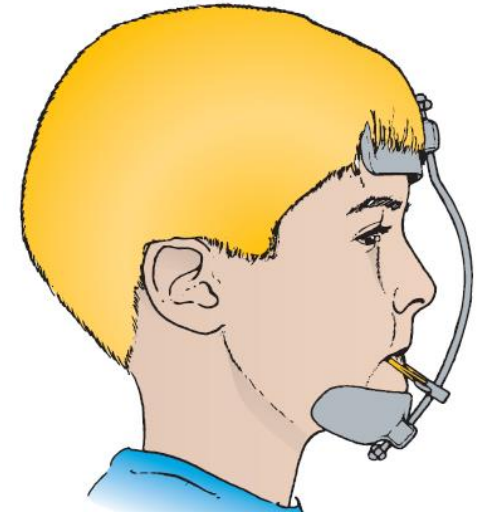
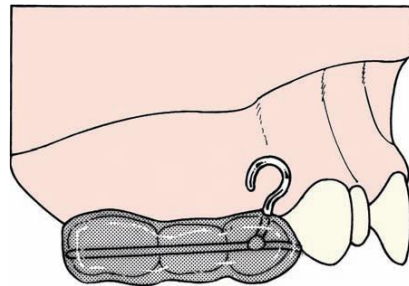
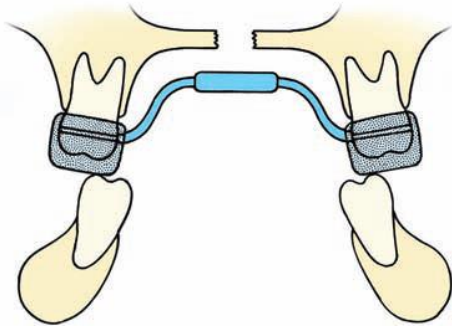
**Long-term results of FR-3 therapy in patients with good compliance consisted of significant maxillary modifications and induced changes in mandibular morphology. Long-term appliance wear (more than 5 years) should be emphasized when considering treatment outcomes.**

**Falck F, Zimmermann-Menzel K, J Orofac Orthop. 2008**

Patients treated with the FR-3 consisted of **56 subjects**. **Maxillary landmarks (point A, nasospinale), and the upper incisor (root included) did move significantly farther forward in the treated group than** in the control group ( $p < 0.01$ ). The **gonial angle decreased** by 7.17 degrees in the FR-3 group, as opposed to 2.07 degrees in the untreated group ( $p < 0.001$ ). No significant differences were noted in mandibular-length growth (Ar-Pog, Ar-Go, Go-Pog).



# Hyrax + face mask



Graber, Contemporary Orthodontics 2012. Ch 14. Optimizing Orthodontic and Dentofacial Orthopedic Treatment Timing

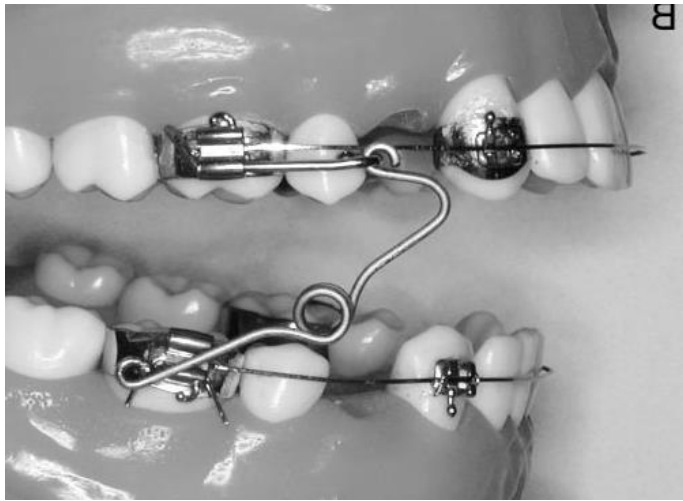
Significant improvements of SNA angle, ANB angle, overjet, and molar relationship remained stable during the posttreatment period. No significant effect was found in the mandibular skeletal measures

**Cozza et al.2010.AJODO**

# Fränkel III in Germany

- Korbmacher H, Kahl-Nieke B, Schnabel S. J Orofac Orthop. 2000
- To evaluate current attitudes to early interceptive treatment, 2001 orthodontic offices in Germany.
- Functional appliances (67.5%), in particular the Fränkel III (47.3%), were dominant in correction of Class-III malocclusions.
- Although recently published studies support the use of facial masks in theory, they are rarely used in practice.

# Alt-RAMEC + Liou spring



Liou and Tsai, 2005. CPCJ

# Hyrax + modified face mask

Alcan et al. 2000. AJODO



$F=750g$

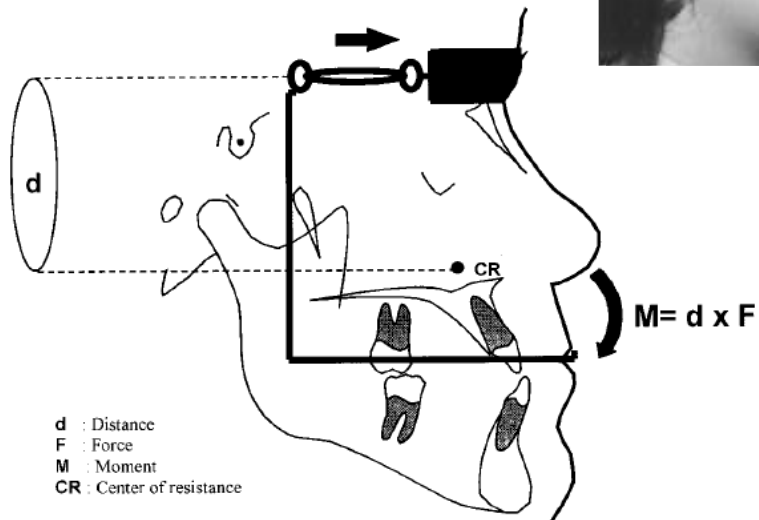
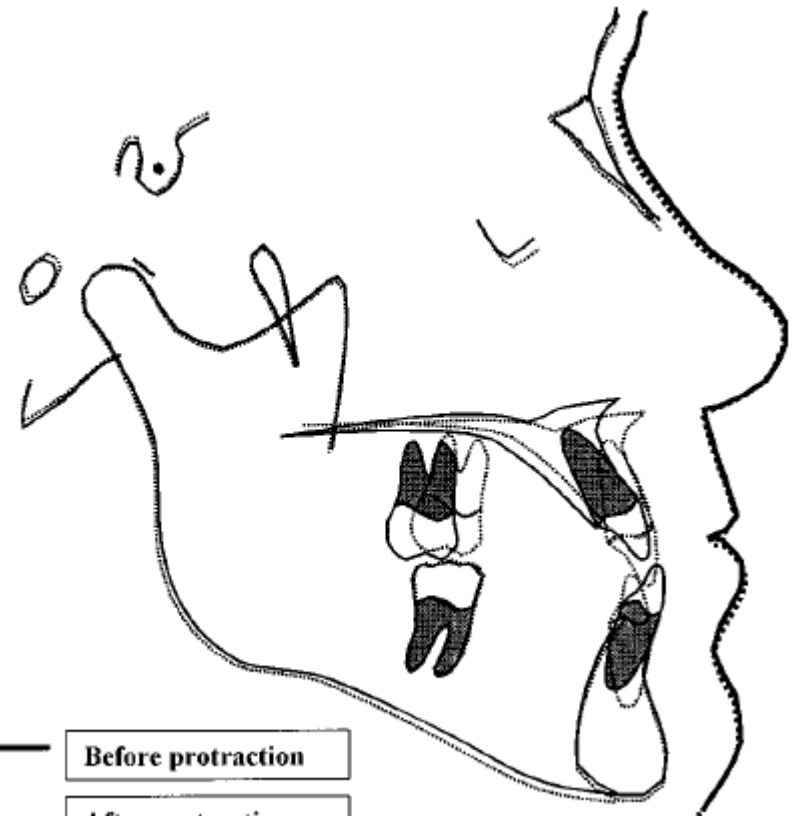


Fig 5. Force and moment system of MMPH.



# Bone Anchored Maxillary Protraction (BAMP)



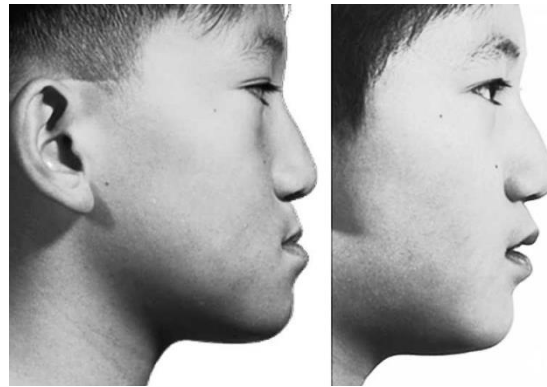
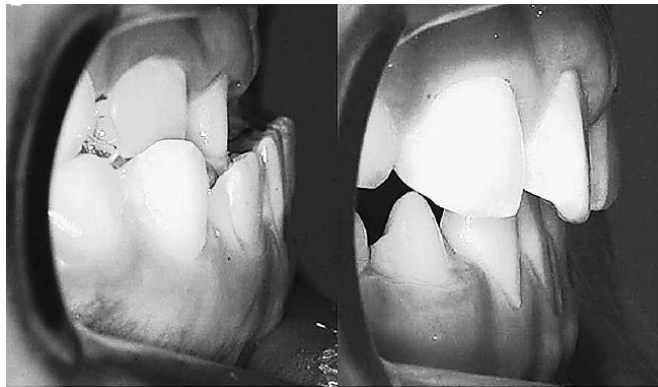
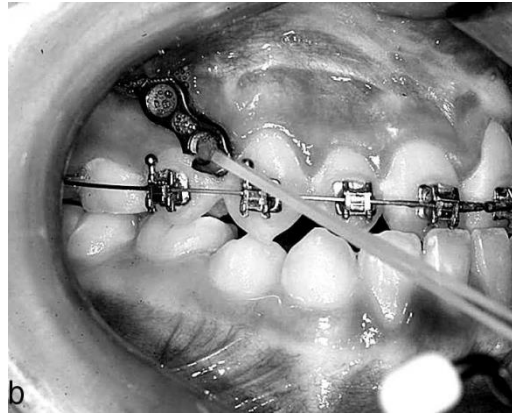
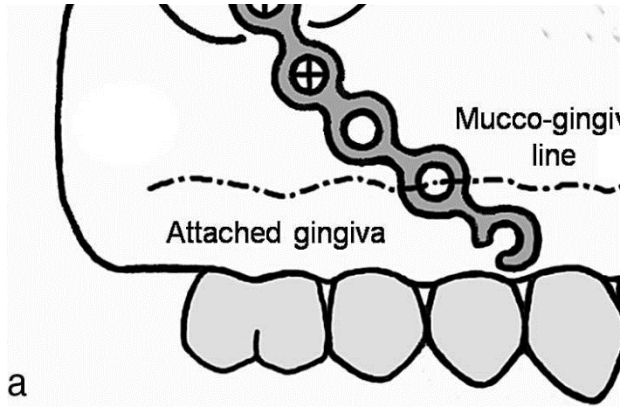
De Clerck et al., 2010. J Oral Maxillofacial Surg

# Hybrid-hyrax + mentoplate



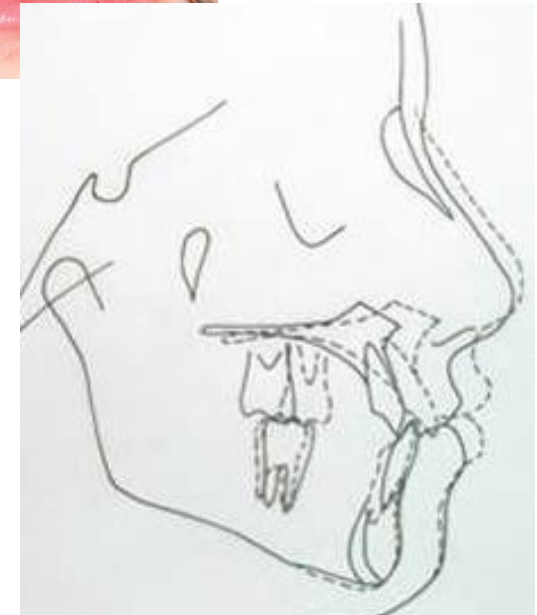
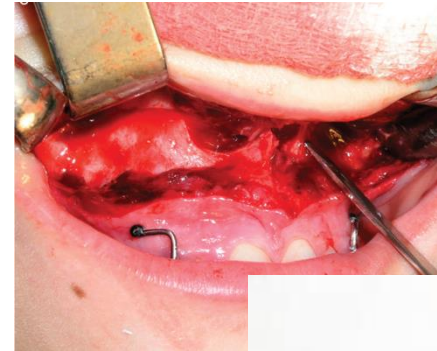
Wilmes et al., 2011. JCO

# Minilemez + arcmaszk



Baek et al., 2010. Angle Orthodontist

# SARME + Face mask



Kücükeles et al., Angle Orthodontist, Vol 81, No 1, 2011



In the short term, statistically significant maxillary advancement was achieved with surgically assisted maxillary protraction. However, in the long term, these sagittal changes were not stable, whereas RME and FM provided stability.

Nevzatoğlu S, Küçükkeleş N. Angle Orthod. 2014 Nov

**Long-term results of surgically assisted maxillary protraction vs regular facemask.**

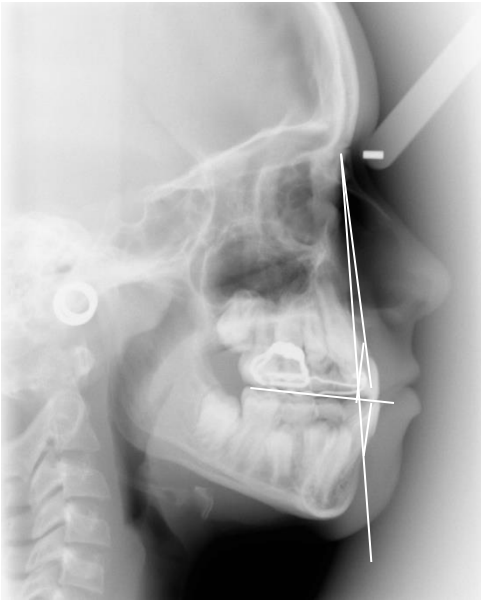
# Hyrax + face mask



ANB: 2°

WITS: -3mm

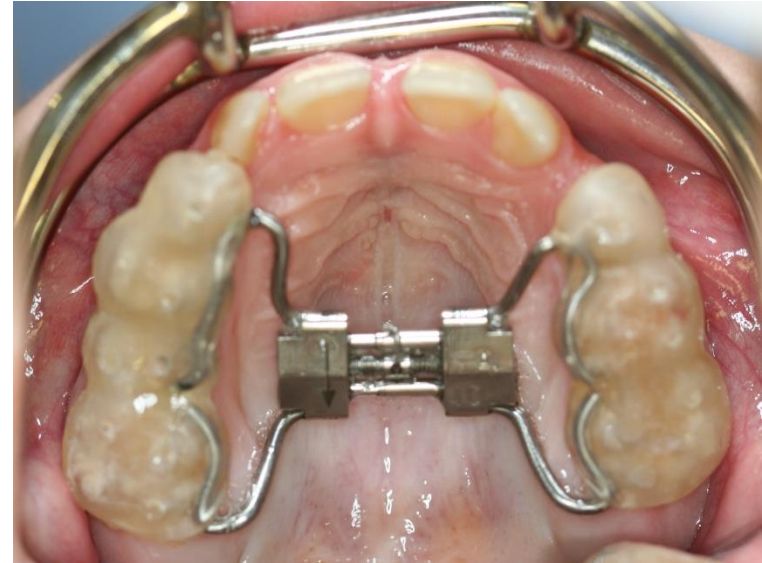
CVMI: 2-3

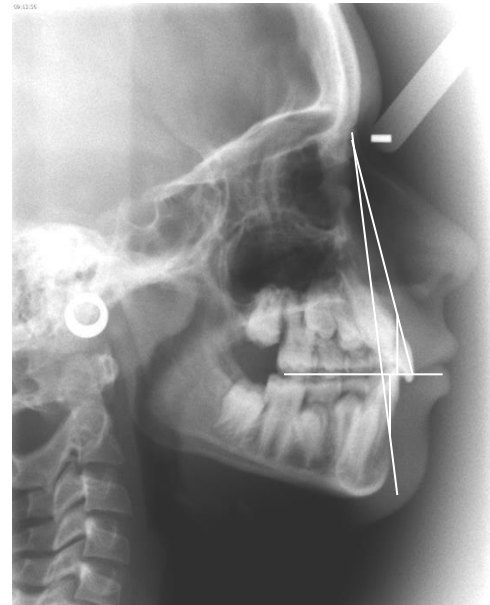
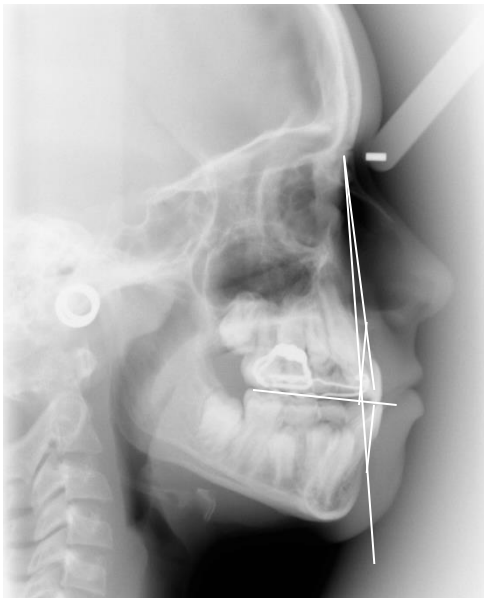


# Hyrax + face mask



Maxilla  
transzverzális  
tágítása







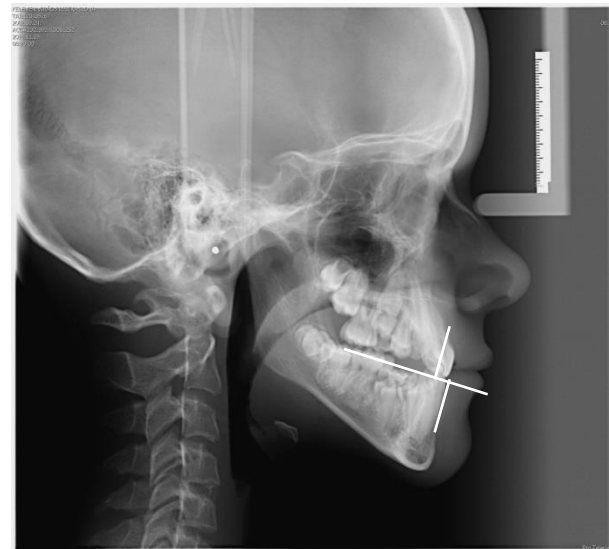
ANB: 0°

WITS: -11mm

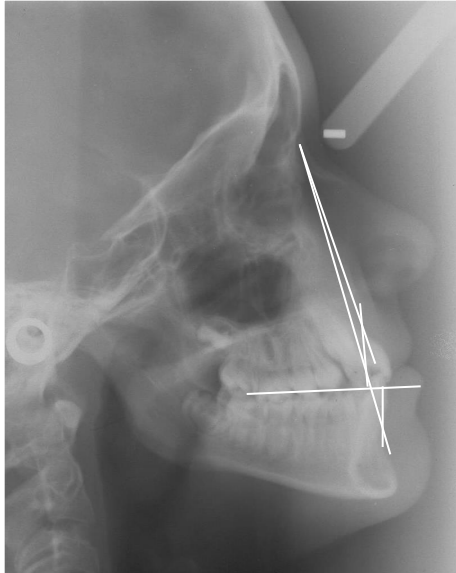
CVMI: 3



# Alt-RAMEC + face mask



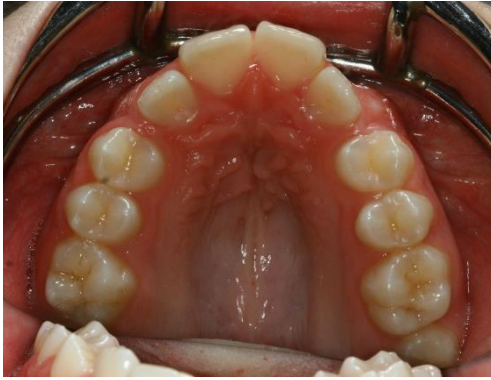




ANB: 2°

WITS: -6mm



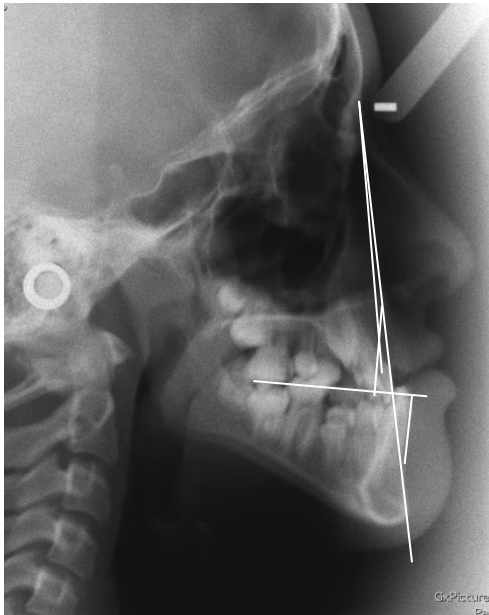


ANB: 2°

WITS: -6mm

CVMS: 3-4



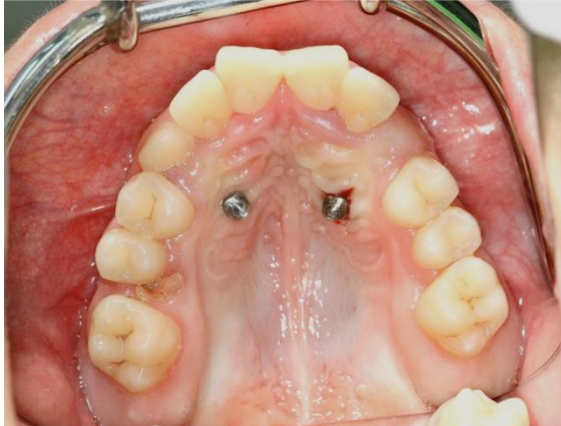


ANB:  $-2^{\circ}$

WITS: -11mm

CVMI: 4

# Hybrid hyrax + Alt-Ramec + face mask

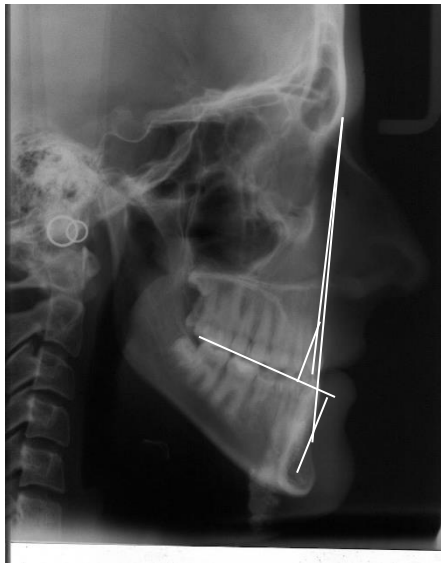


4x ki – 3x vissza





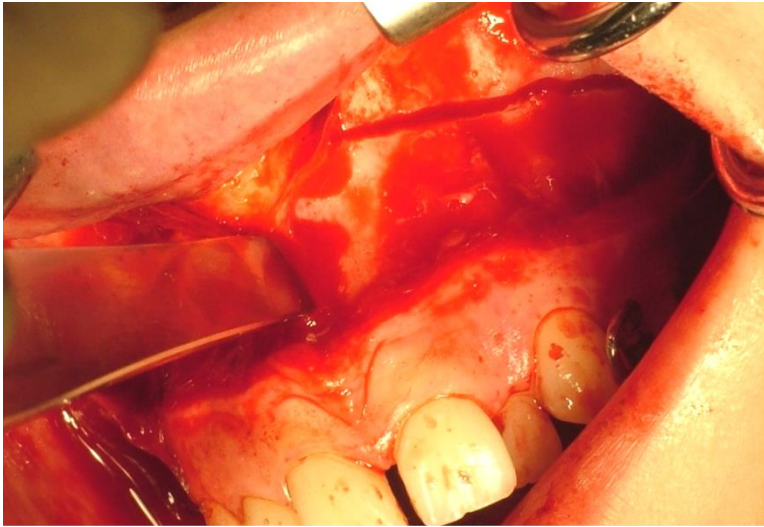
# SARME + Facemask



ANB:  $-2^{\circ}$

WITS: -12mm

CVMI: 6

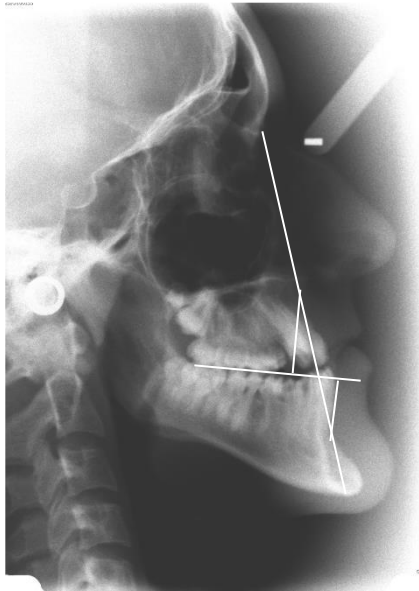


## Orthognát sebészet: Dr. Bogdán Sándor



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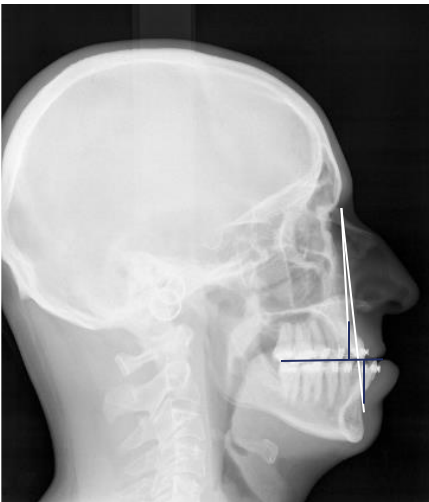
ANB: 0°

WITS: -15mm

CVMI: 6



# Le Fort I osteotomy



ANB:  $-1^{\circ}$

WITS: -6mm

CVMI: 6

# Le Fort I osteotomy



Ortognát sebészet: Dr. Nagy Krisztián

# Le Fort I osteotómia



Ortognát sebészet: Dr. Nagy Krisztián