Deep Overbite Malocclusion

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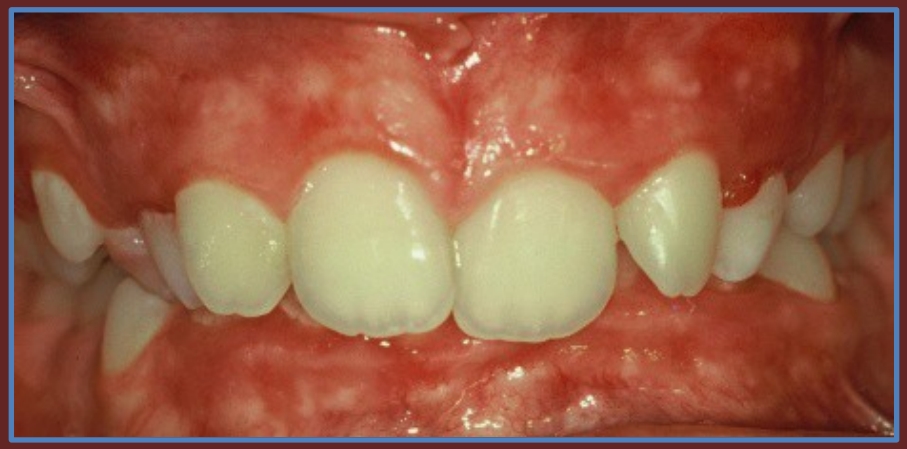

Deep Overbite Malocclusion

www.orthofree.com

Plan

Deep bite Malocclusions

1-Definition and Prevalence

2-Classification of overbite

3-Do Deep Overbites require correction?

4- Aetiology and Diagnosis - Deep bite

5-Deep bite Treatment – Complications

6-Biomechanical Considerations

7- Case report

8-Conclusion

1-Definition -Deep bites

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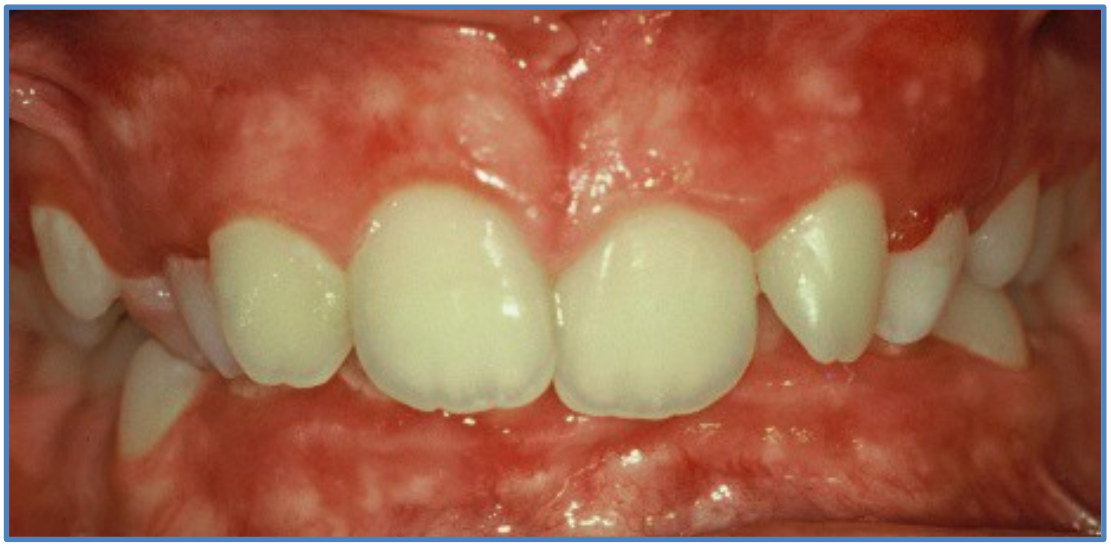
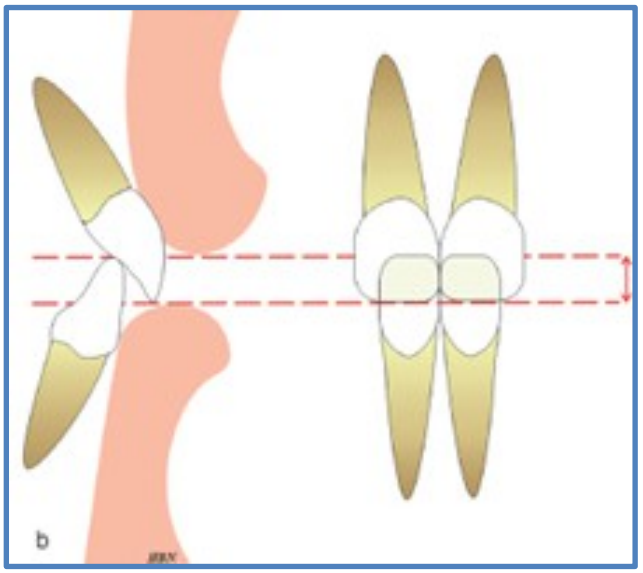
Overbite may be defined as the degree of vertical overlap of the mandibular incisors by the maxillary incisors when the posterior teeth are in occlusion. In a Class I incisor relationship the overbite depth is 2–3 mm on average





http://pocketdentistry.com/23-deep-overbite-malocclusion/

1-Prevalence- Deep bite

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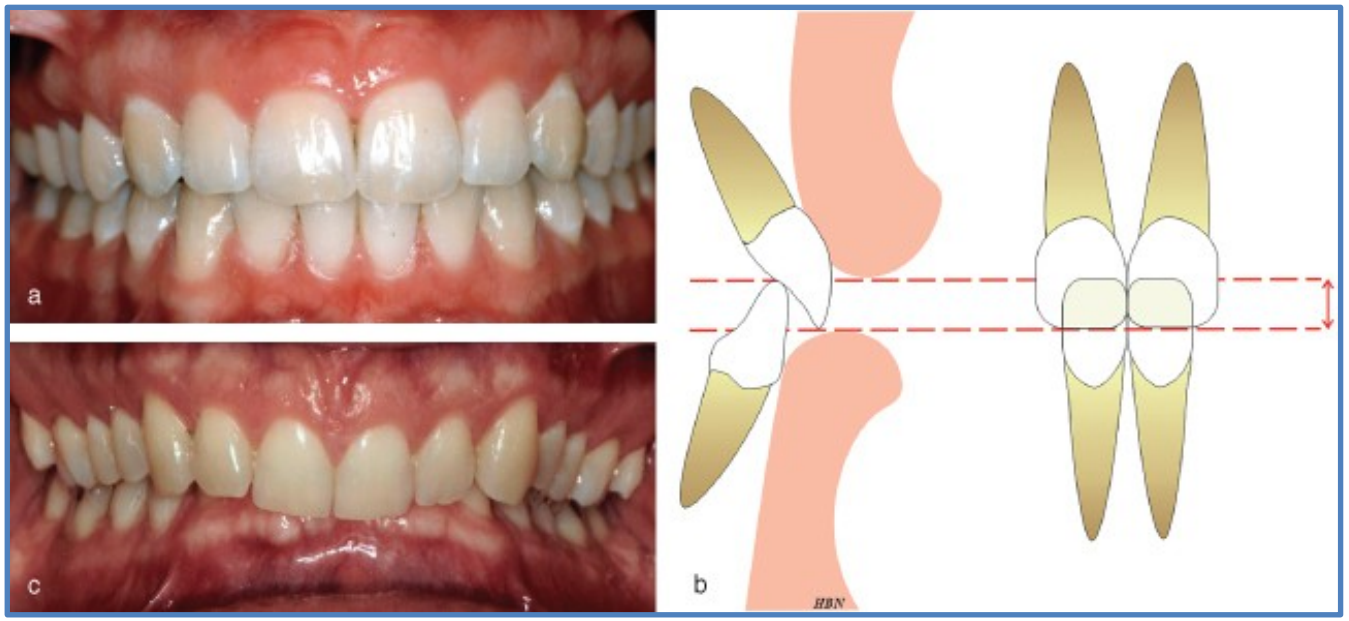
* The prevalence of deep bite varies between racial groups, example, it is almost twice as common in Caucasian Americans compared to African Americans and Hispanics

* 33.1% of cases had overbites of 3-4mm, with 14.2% having 5-7mm overbites. Overbites >7mm were seen in 1.7% of cases. Proffit, Nanda.



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2-Classification of overbite

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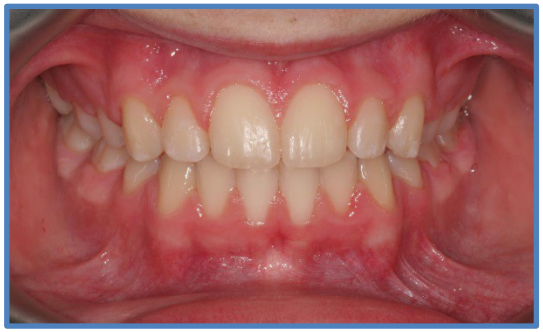
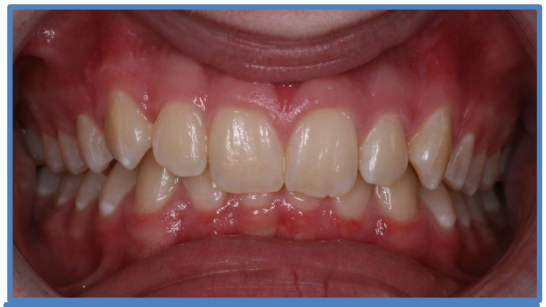
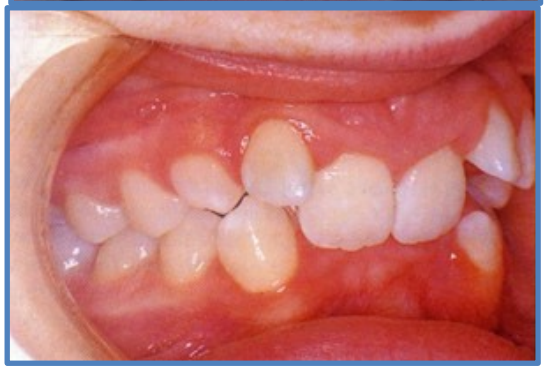
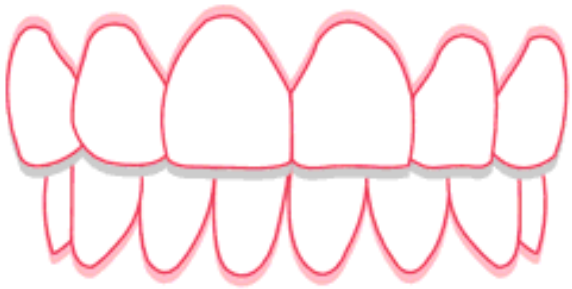




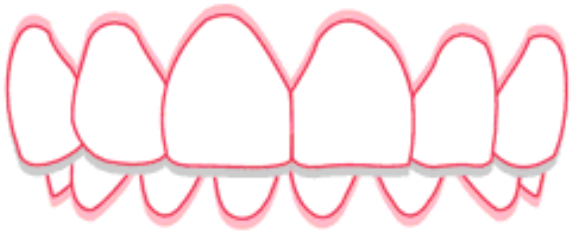


Normal



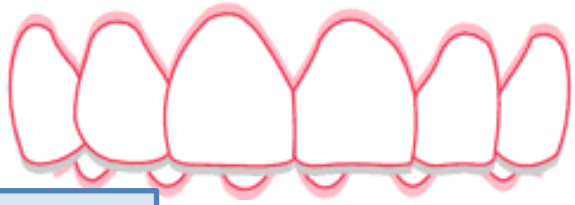
2-3-mm

Moderate



Non Traumatic; 5- 7 mm

Severe



Traumatic >7mm

3-Do Deep Overbites require correction ?

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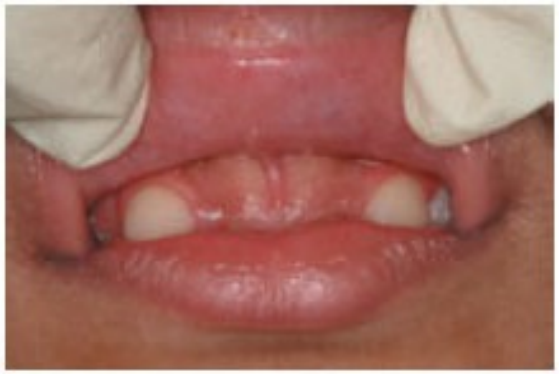
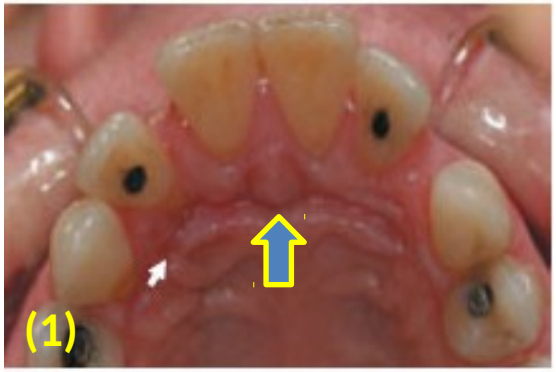
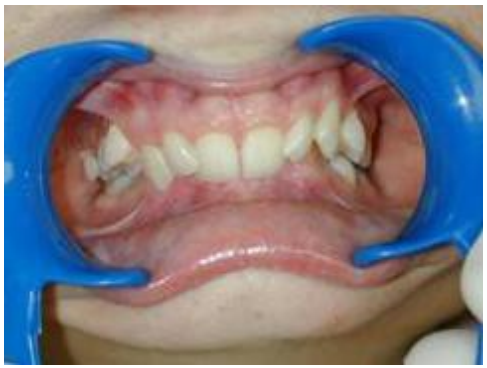
If not treated, deep bites can result

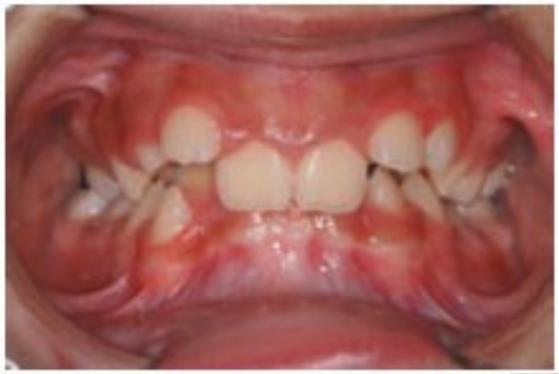
* In trauma to the palatal mucosa, occlusal trauma (1) behind the upper incisors or to the labial gingiva of the lower incisors, root dehiscence (2).

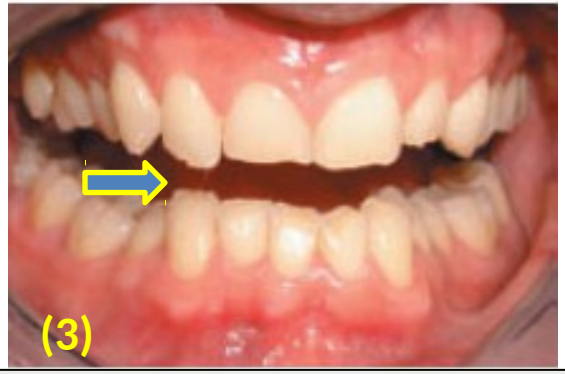
*Excessive attrition (3) of anterior teeth, and Bruxism

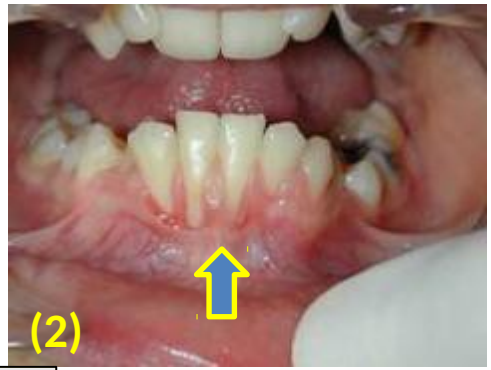












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3-Do Deep Overbites require correction ?

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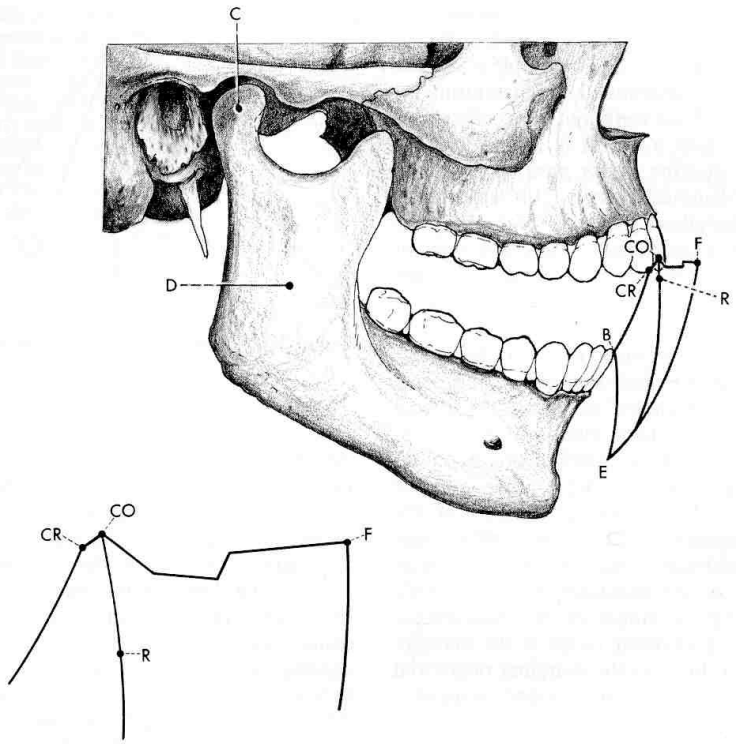
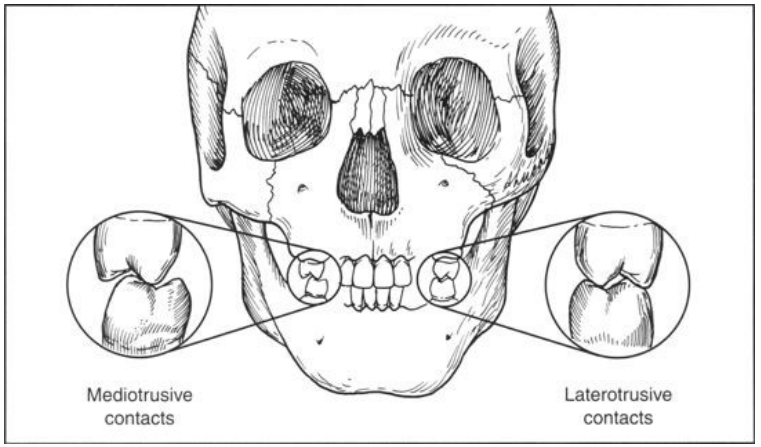
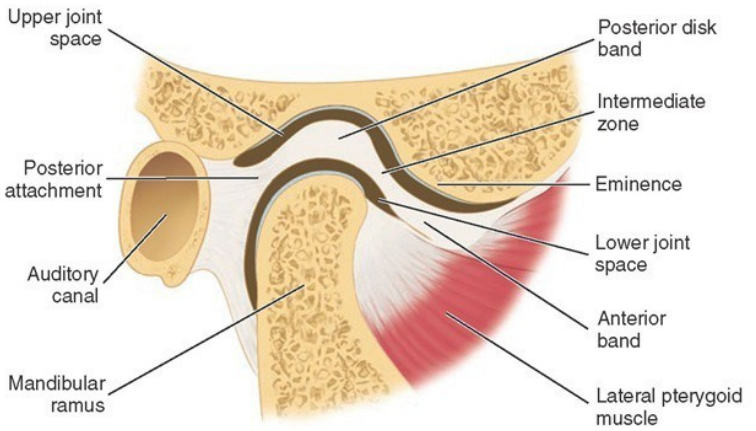
Overbites co-contributing factor in the aetiology of TMD, (abnormal TMJ movements), locking mandibular growth







3-Do Deep Overbites require correction ?

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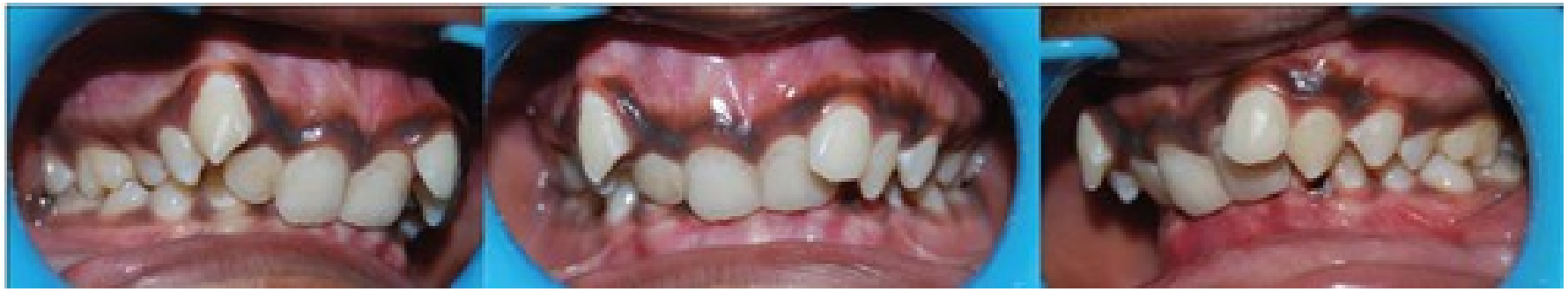
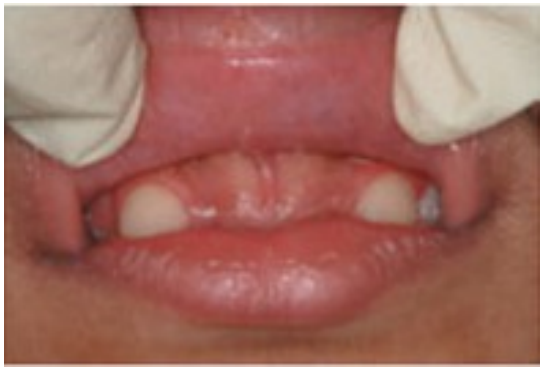
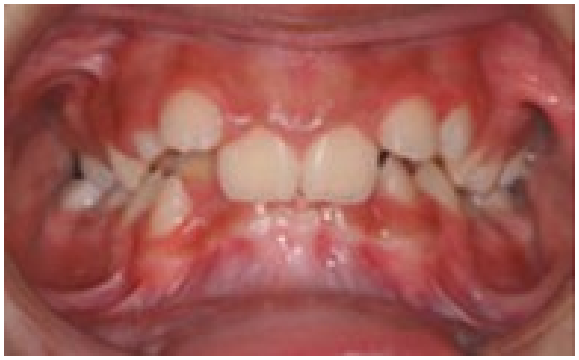
Early treatment unlocking the bite in class II division 2, unlocking mandibular growth, Avoid surgical treatment in adults, Improved smile, esthetic benefits







http://www.apospublications.com/article.asp?issn=2321-1407;year=2013;volume=3;issue=3;spage=89;epage=93;aulast=Garlapati

3-Do Deep Overbites require correction ?

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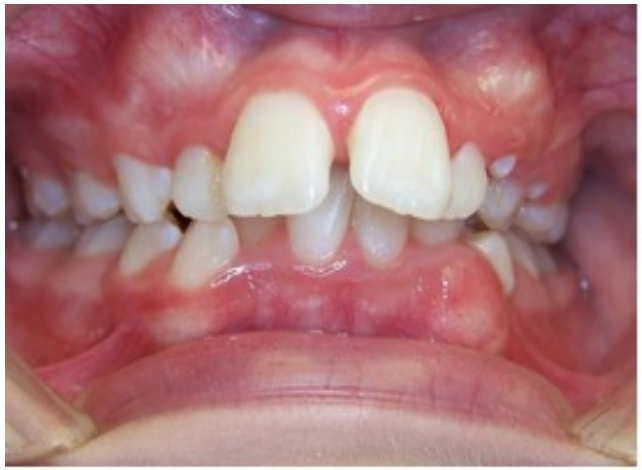
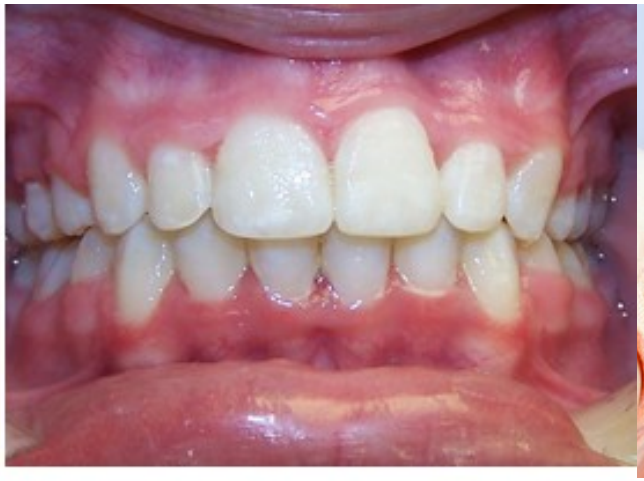
In children, causes of obstructive sleep apnea often include enlarged tonsils (1) or adenoids and dental conditions such as a large overbite.



Before



After

http://www.apospublications.com/article.asp?issn=2321-1407;year=2013;volume=3;issue=3;spage=89;epage=93;aulast=Garlapati

3-Can an overbite - Retrognathia cause snoring ?

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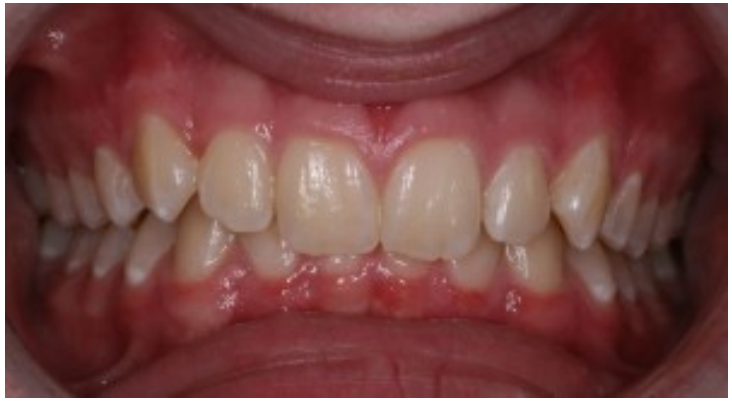

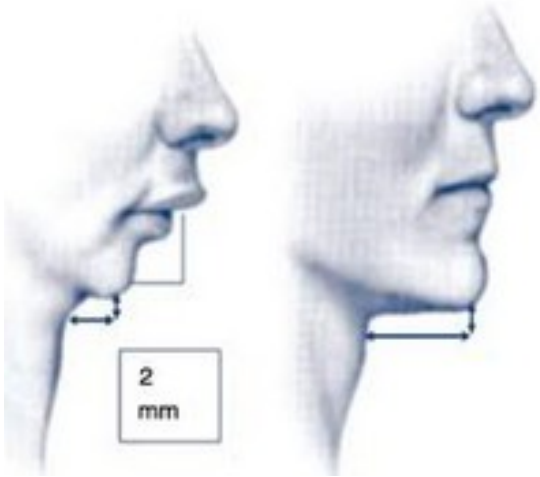

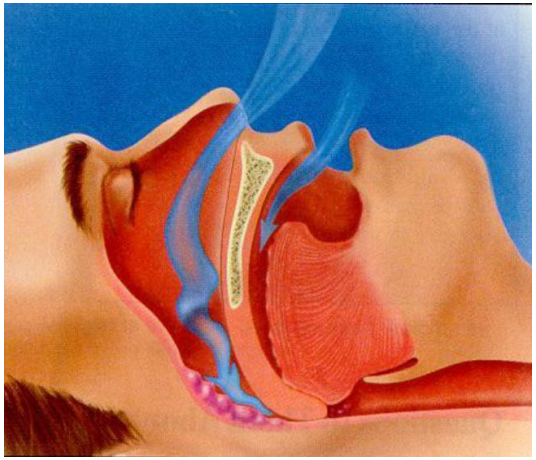

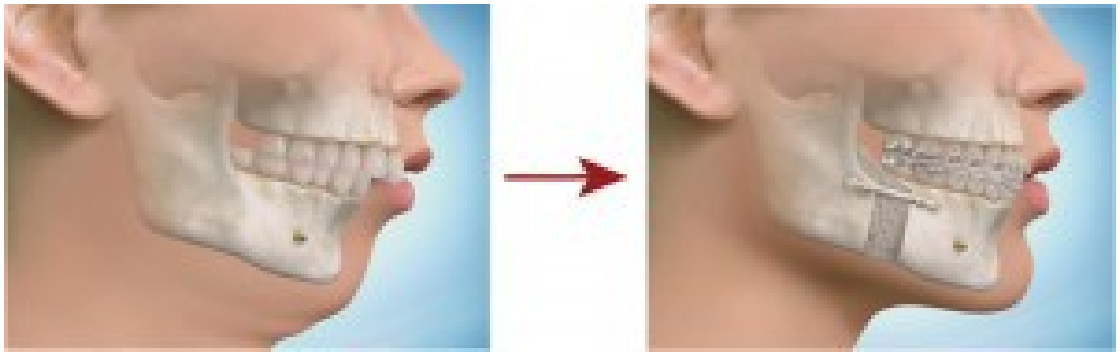

http://www.scielo.br/scielo.php?pid=S1808-86942014000800001&script=sci_arttext&tlng=en

http://www.snoringmouthpieceguide.com/can-an-overbite-cause-snoring/

4- Aetiology and Diagnosis - Deep bites

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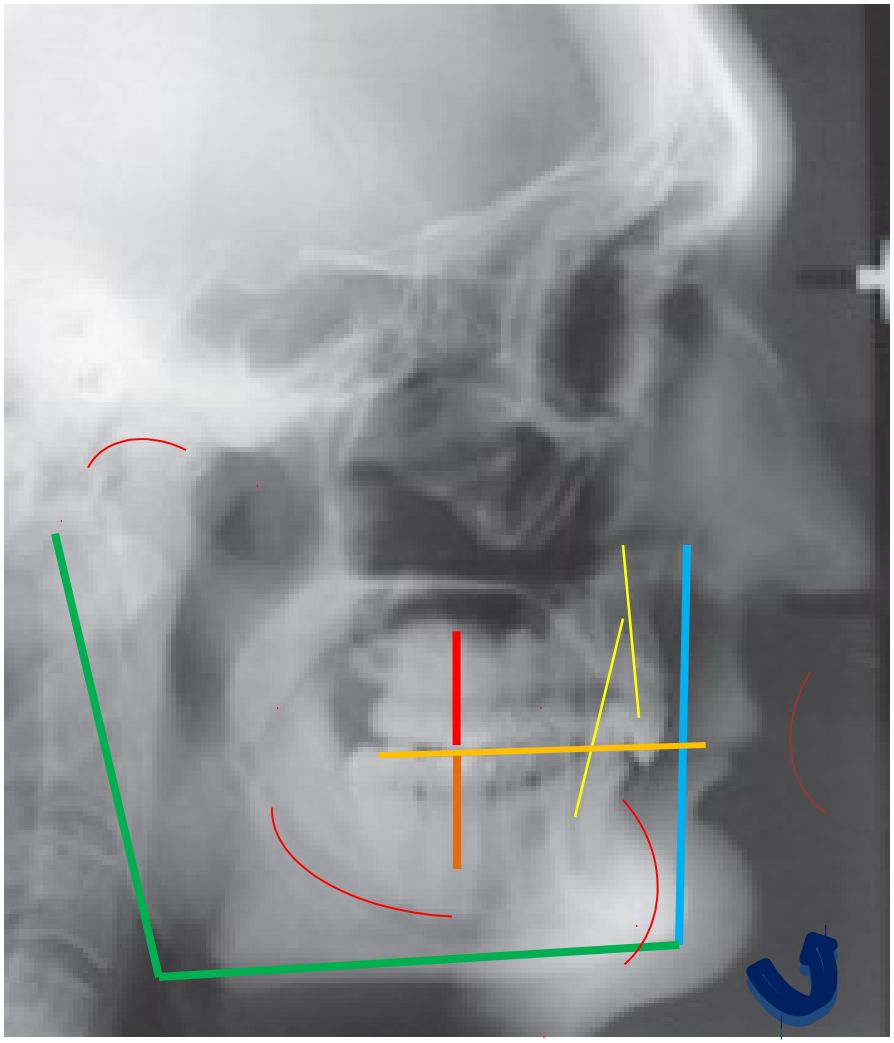
Environmental and/or genetic factors play a role in the development of deep bites.
Individual facial growth patterns to be genetically predetermined.
Deep bites can be **classified as skeletal, dental or soft tissue.**



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4- Aetiology and Diagnosis - Deep bites

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Dental

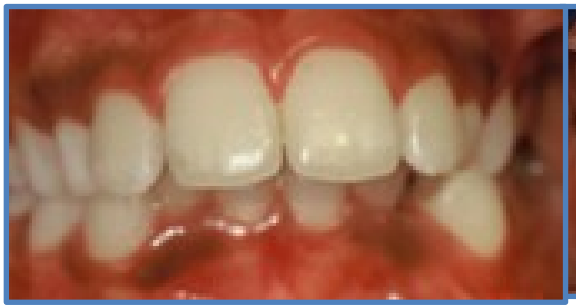
Overeruption of the mandibular incisors often accompanies a Class II division 1 malocclusion,or class II divison 2, Deep bites are commonly associated with

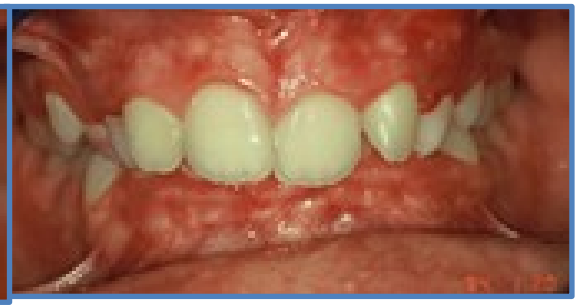
- An excessive Curve of Spee

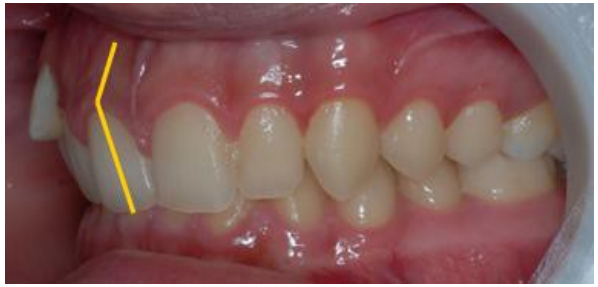
-Over-eruption of anterior

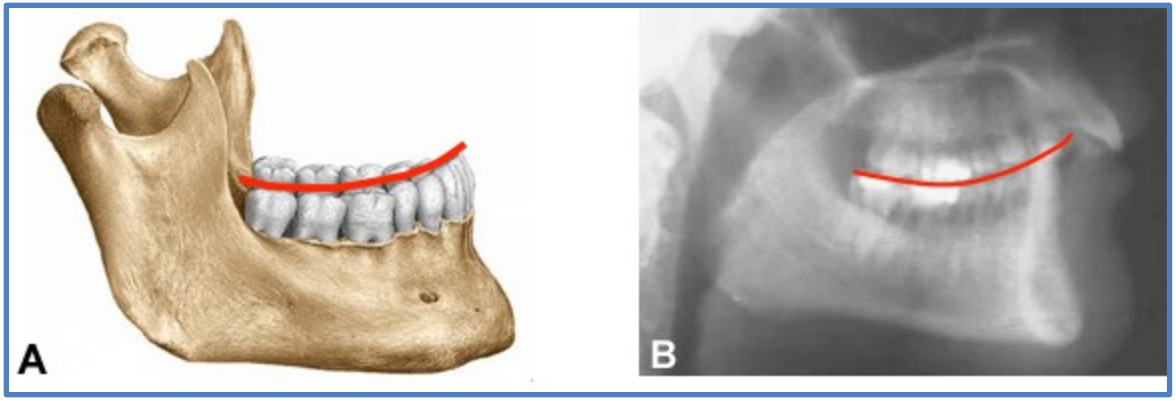
- Infra-occlusion Molars

- Lateral tongue posture or lateral tongue thrust, Premature loss of posterior teeth









4-Aetiology and Diagnosis- Deep bites

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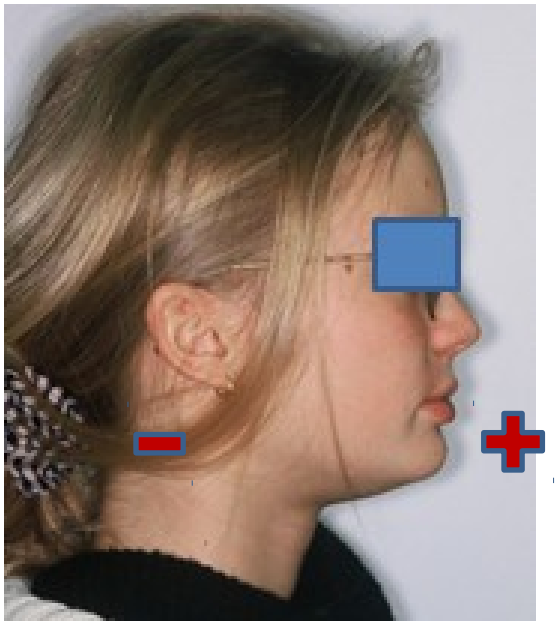
Soft tissue

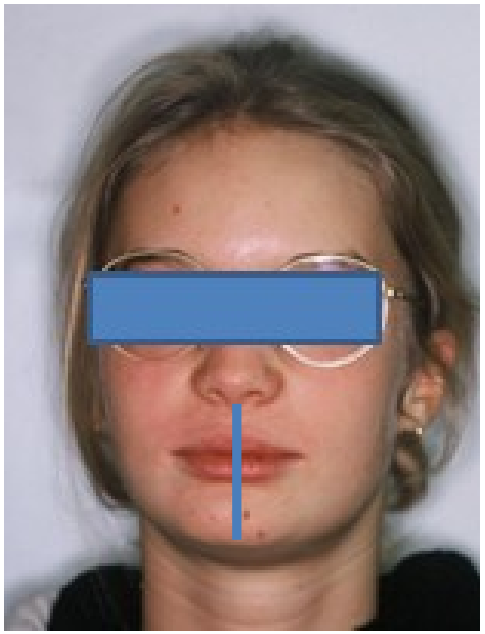
An important aetiological factor in Class II division 2 malocclusion is a

- High lower lip line, which is thought to guide the maxillary and mandibular incisors to erupt in a more retroclined position.

- Reduced lower anterior face height, short face

- Increased mentalis muscle activity, A strap-like lower lip , cause retroclination of the mandibular incisors, or if a high lower lip position is also present





4- Aetiology and Diagnosis - Deep bites

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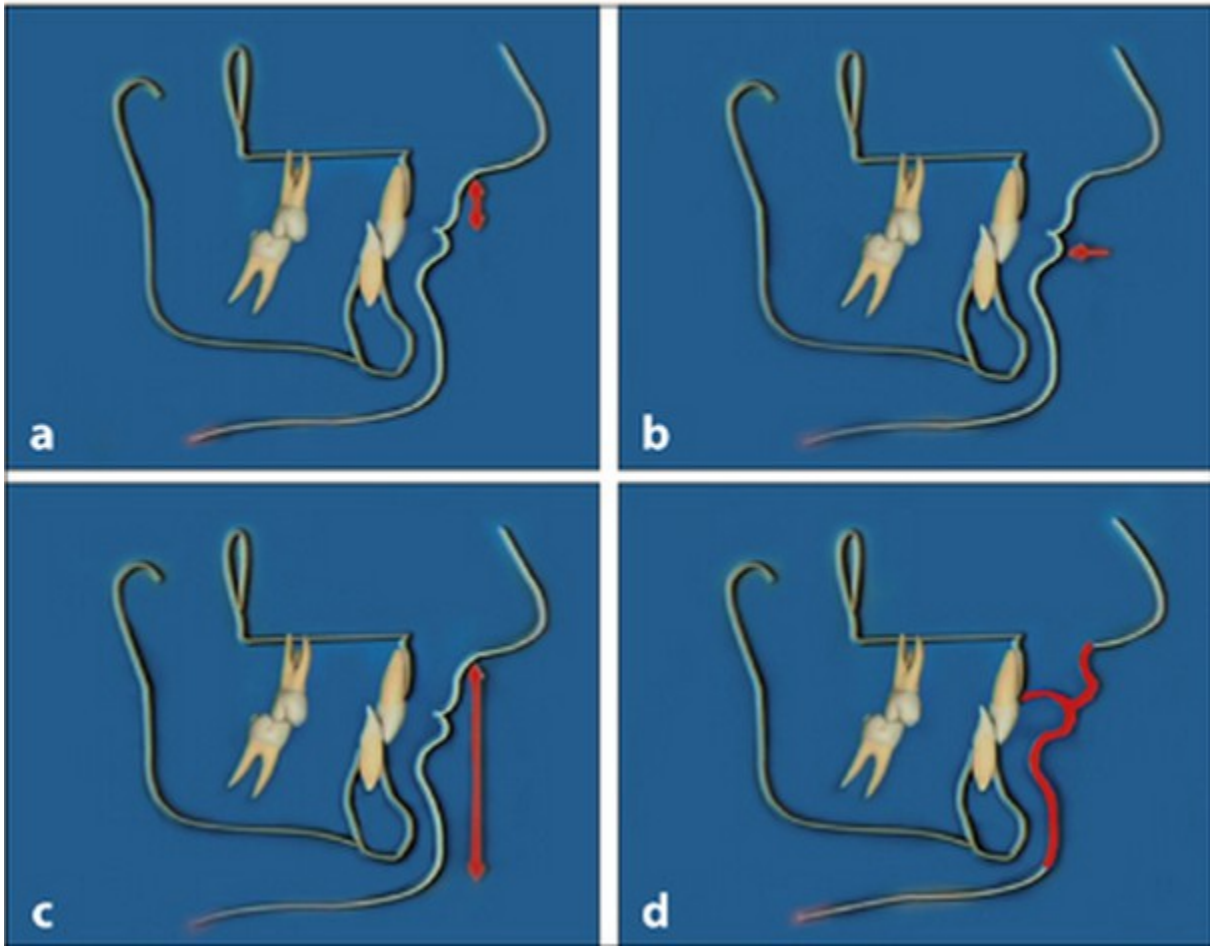
Predisposing characteristics for the development of a Class II, division 2 malocclusion.
- *a and b* **A short upper lip.**
-*c* **A reduced anterior lower facial height with a horizontally orientated mandibular lower border and a small gonial angle.**
-*d* **An excess of labial soft tissues**



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4- Aetiology and Diagnosis - Deep bites

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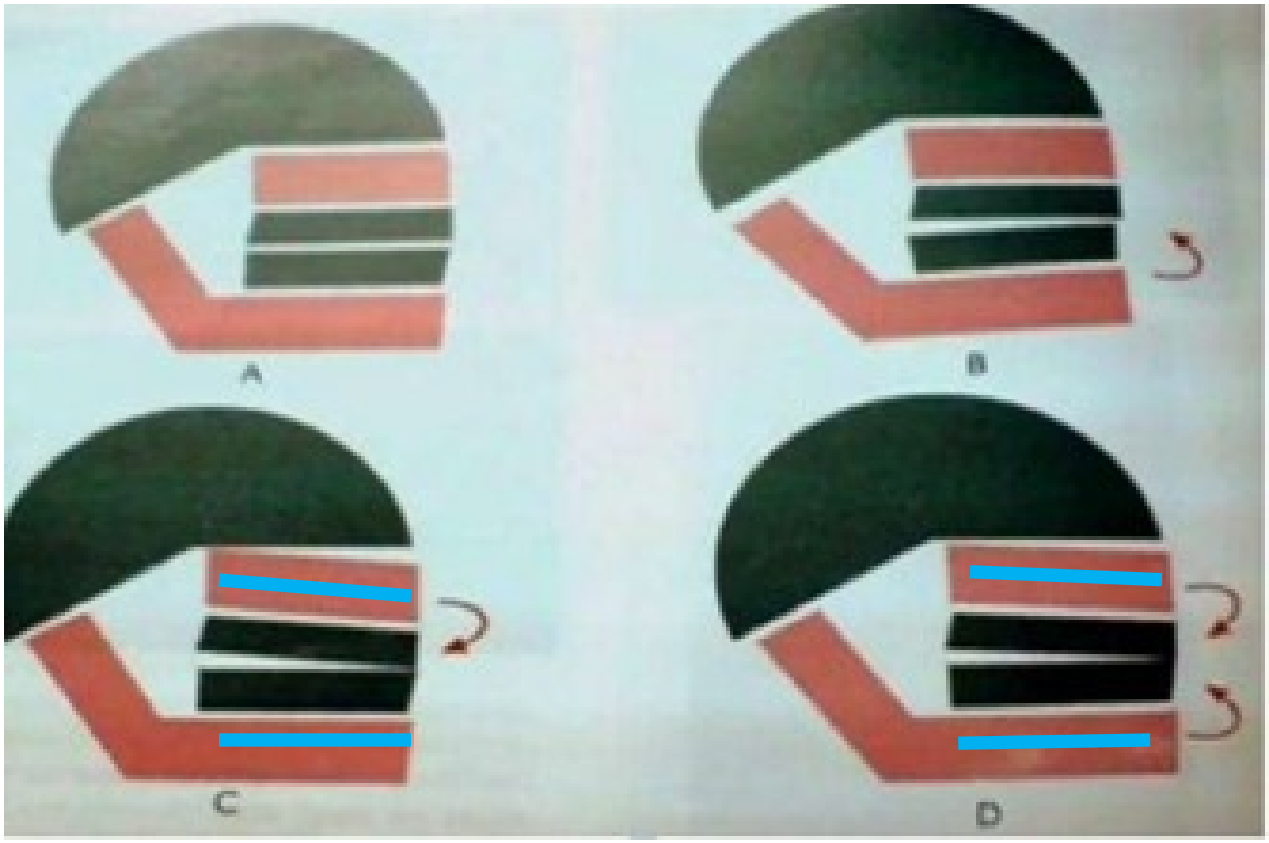

Skeletal deep bites are charaterised by convergent jaw bases, The maxillary basal bone rotates downwards, i.e,. clockwise rotation, The mandible rotates forwards and upwards i.e., anticlockwise rotation, all four planes of face are horizontal and near parallel to each other, the lower facial height is decreased

4-Diagnosis- Deep bites- Cepalometrics analysis

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Skeletal Deep Bites

- Acute cranial base angle
- Reduced ratio (proportion of posterior face height to anterior face height)
- Reduced Y-axis
- Increased ramal length
- Parallel Sassouni planes
- Forward rotation of the mandible, in the direction of mouth closing
- Reduced lower anterior face height
- Reduced gonial angle

Symptoms-Deep bite

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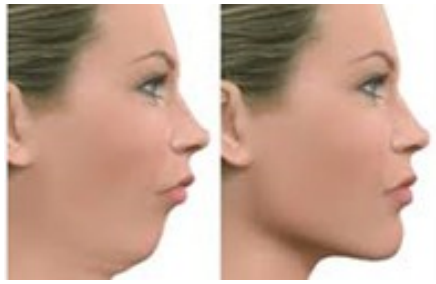
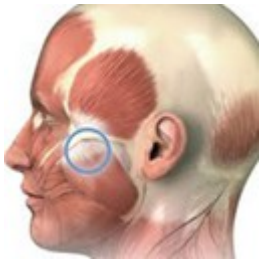
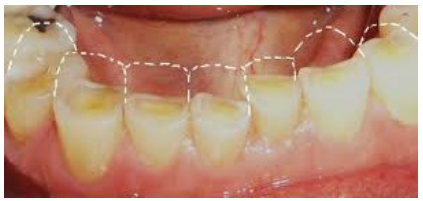
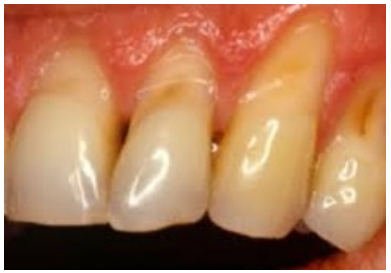
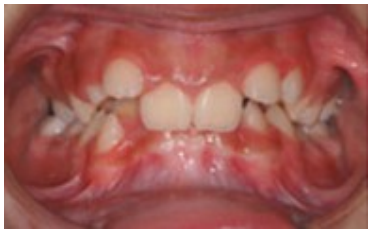
- 1- Jaw pain, Headaches, TMJ pain
- 2-Teeth grinding, Cementum erosion
- 2a- Enamel wear contribute to the problem along with slurry speech, particularly among older patients. As the patient gets older the bite gets deeper which makes the malocclusion worse.
- - Deep bites interfere with clear speech.
- 3- Change the structure of the face, mouth and smile.
- 3a- The shape of the face is short and round and the chin looks too small even when it is actually normal in size. The abnormal teeth alignment contributes to the malocclusion and the shape of the patients face.

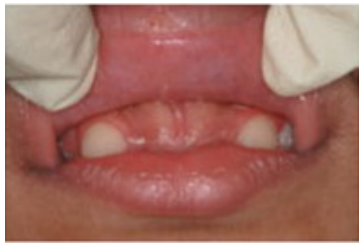












4-Lips and tongue pressure in orthodontic patients

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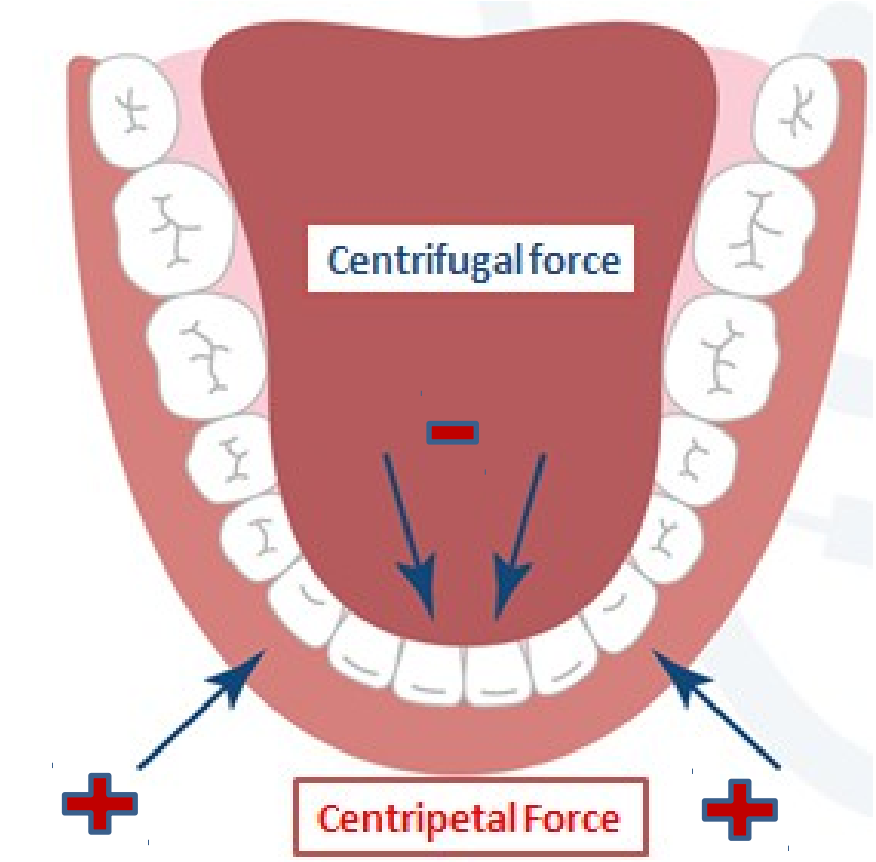
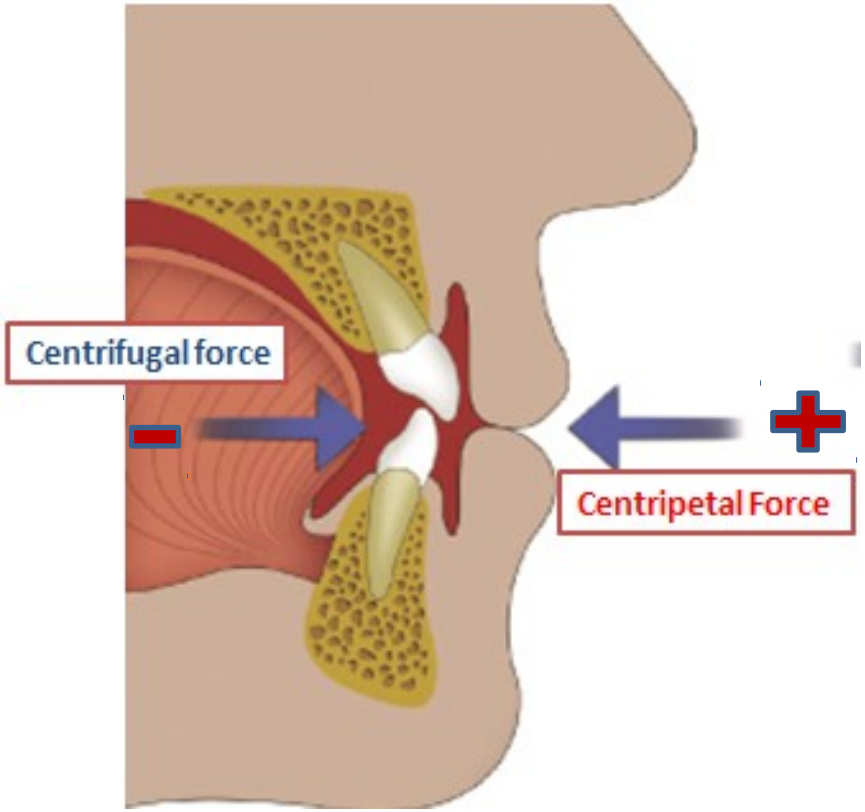
A big factor in the way your teeth grow is their relation to your lips and tongue.
BALANCE OF PRESSURE from the lips pushes the teeth inward, while pressure from the tongue pushes the teeth outward, To keep your teeth straight, there must be a perfect balance of pressure between these tow forces .





Majeroni Orthodontics, Ghilherme Janson and Fabricio Valarelli ,http://ejo.oxfordjournals.org/content/32/4/466.full

4-Deep bite - Cephalometric evaluation

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ODI = Overbite Depth Indicator.

***FH-FP = Frankfort -facial plane (N-Po).**

***LP = Labial Position**
***EL = Esthetic Line.**

***IIA = Inter incisal Angle**

O line- MP=20 deg if sup 25 lower incisor intrusion

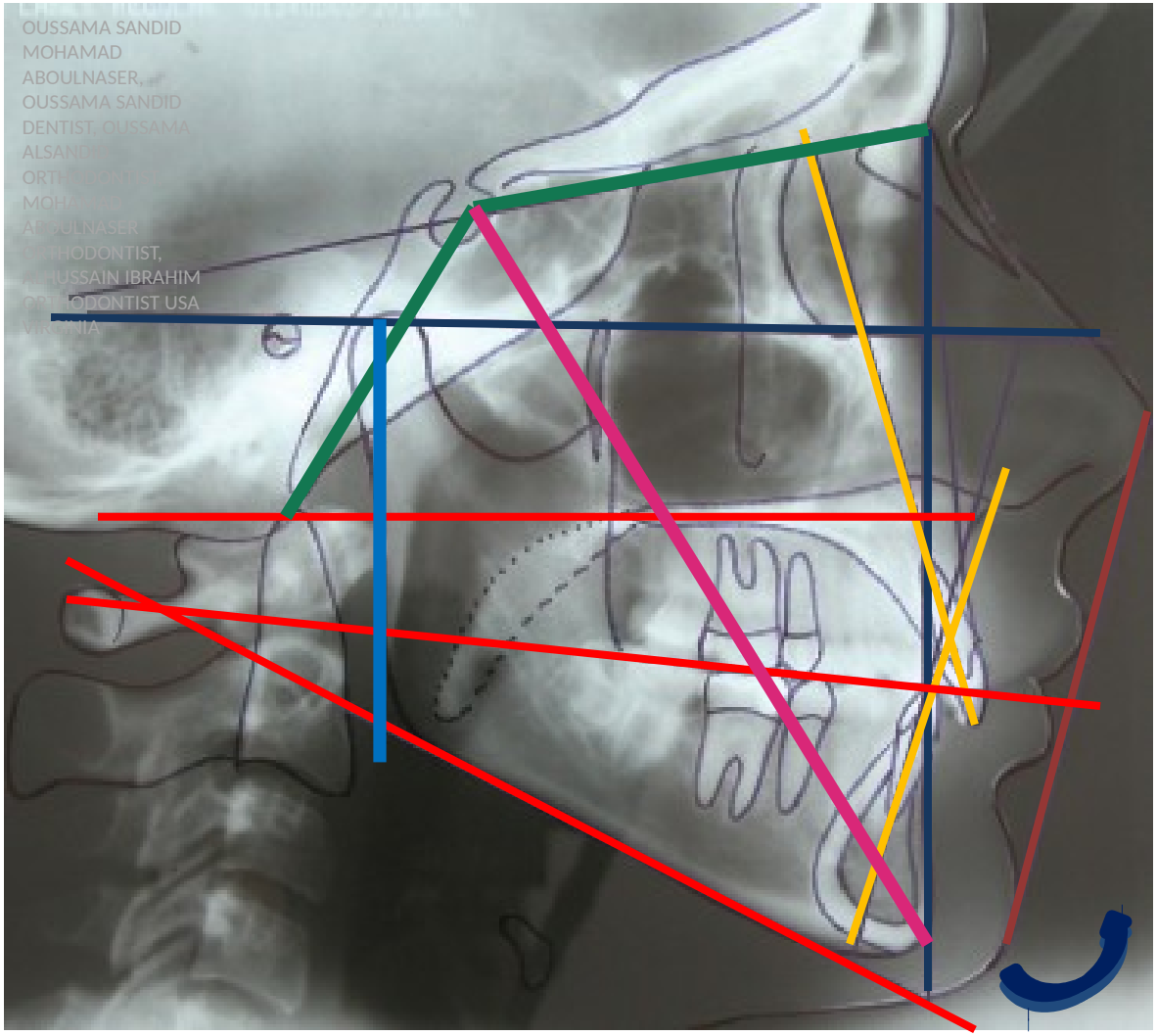
O line –PP =10, If sup 15 deg, upper incisor intrusion

Acute cranial base angle

Reduced Y axix

Increased ramal length

Forward growth rotation Md



4-Deep bite - Cephalometric evaluation

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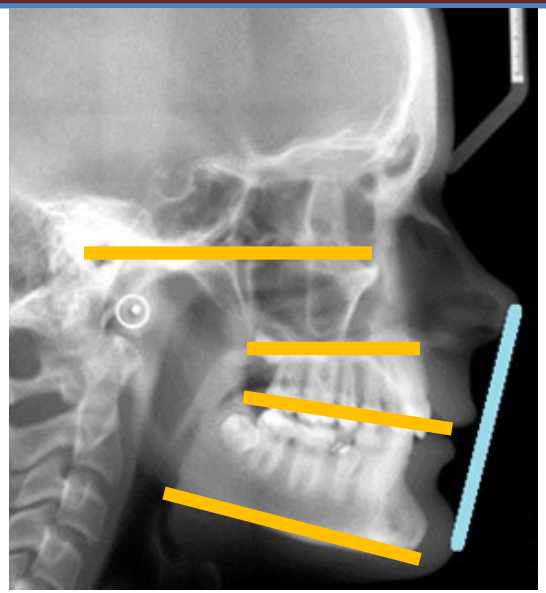
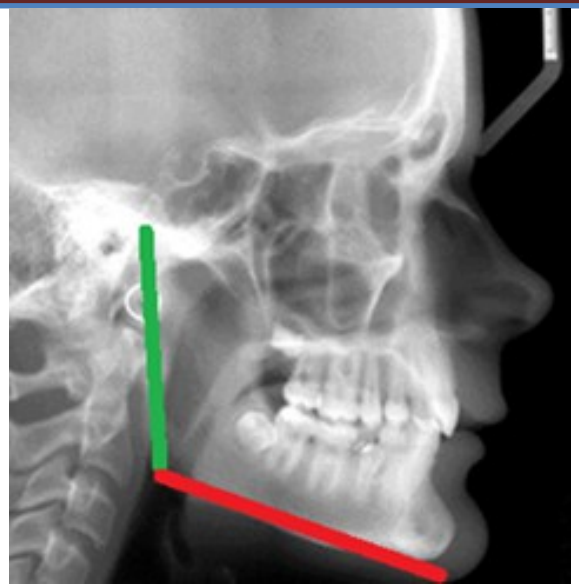
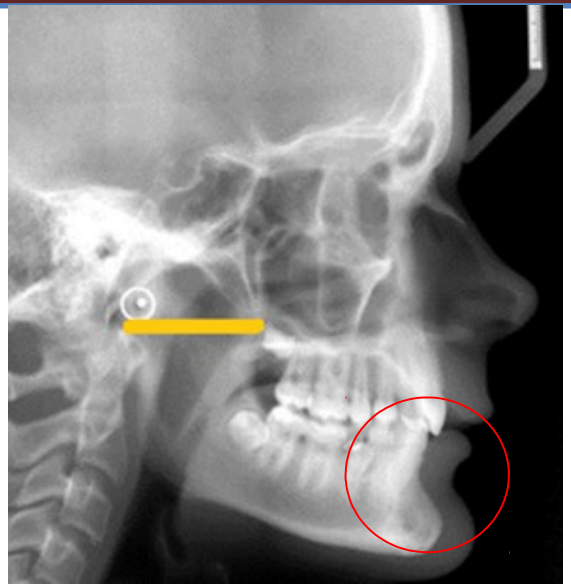
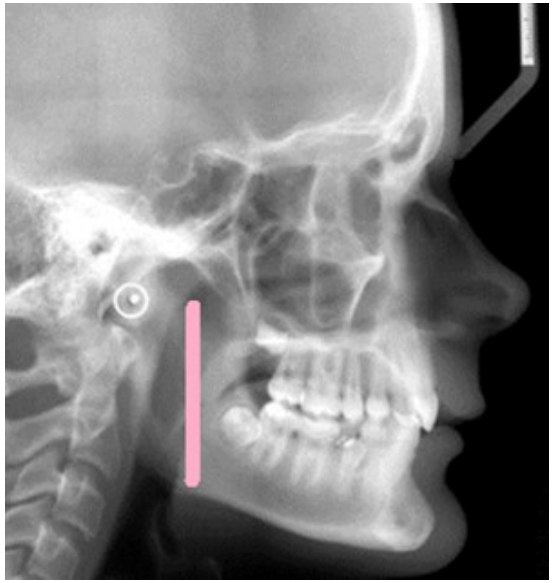
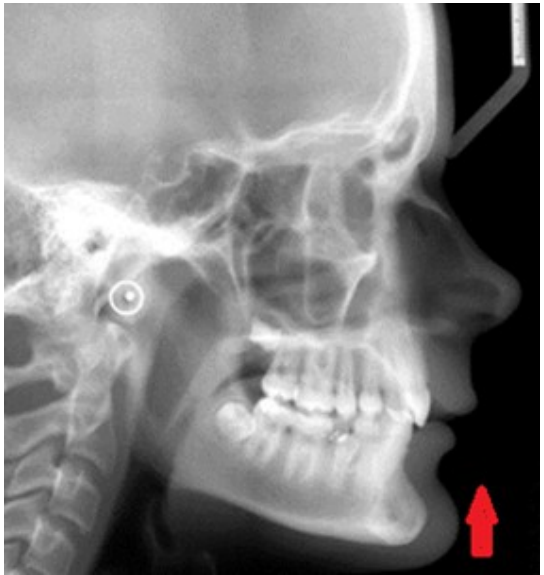
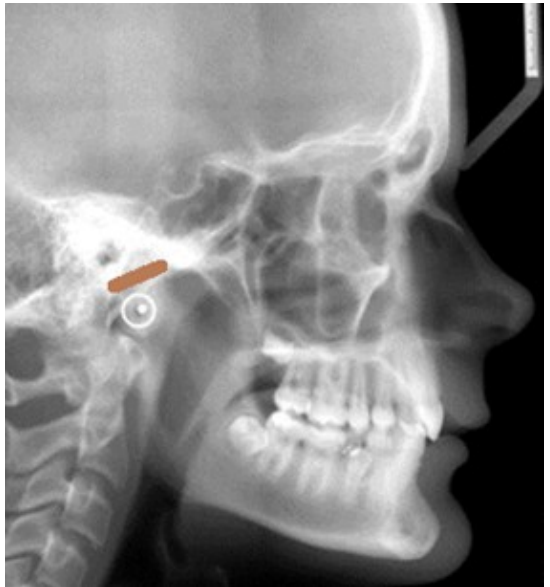






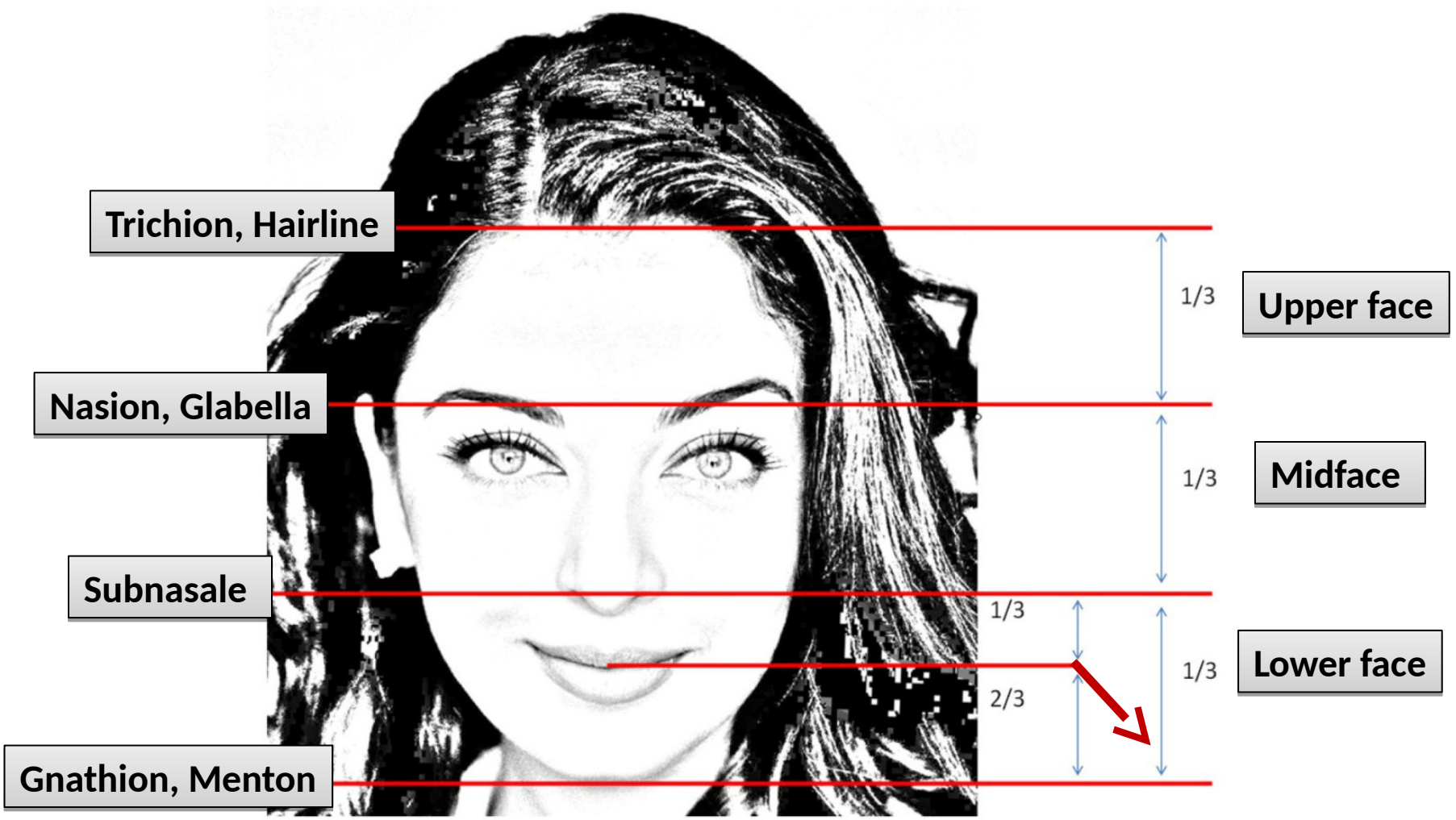






4-Vertical proportions of face: Facial Height

M. ABOULNASER - O. SANDID



5-Deep bite Treatment

5-Deep bite Treatment

M. ABOULNASER - O. SANDID

a-Principes: Molar intrusion, Incisor extrusion

b-Maxillary and mandibular Connecticut Intrusion Arches

c-Rickett's utility arch

d-Burstone's intrusion arch

e-Using reverse-curved archwires

f-Deep bite Treatment with mini-scrwes

g-Removable appliances- Anterior inclined Bite Plan, Clear Aligner

h-Functional appliances , Mandibular advancement, Frankel

i-Class II intermaxillary elastics

j-Orthognathic surgery

K-Cervical pull headgear to maxillary first molars-hook headgear to the upper labial segment

5l-Bite turbo

5m-Lingual technique

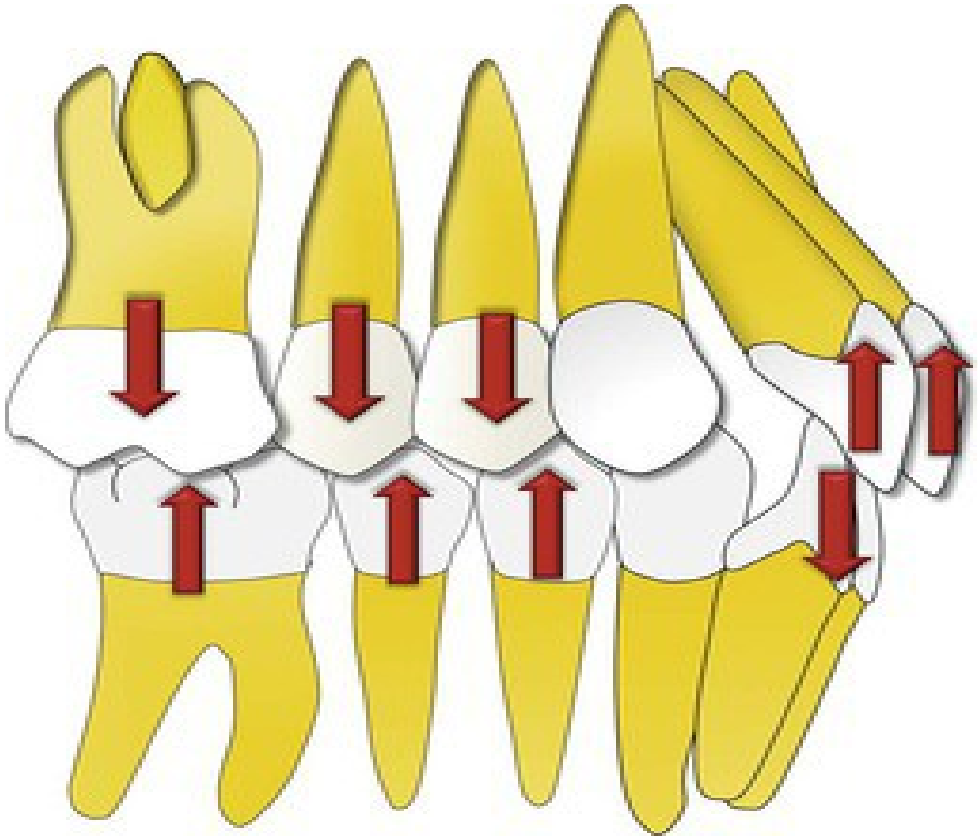
5n-Leveling the curve of Spee

50-Deep bite - Bracket Placement

5a-Deep bite Treatment

Madhur Upadhyay, Ravindra Nanda

a- Principes: Incisor intrusion, Molar extrusion



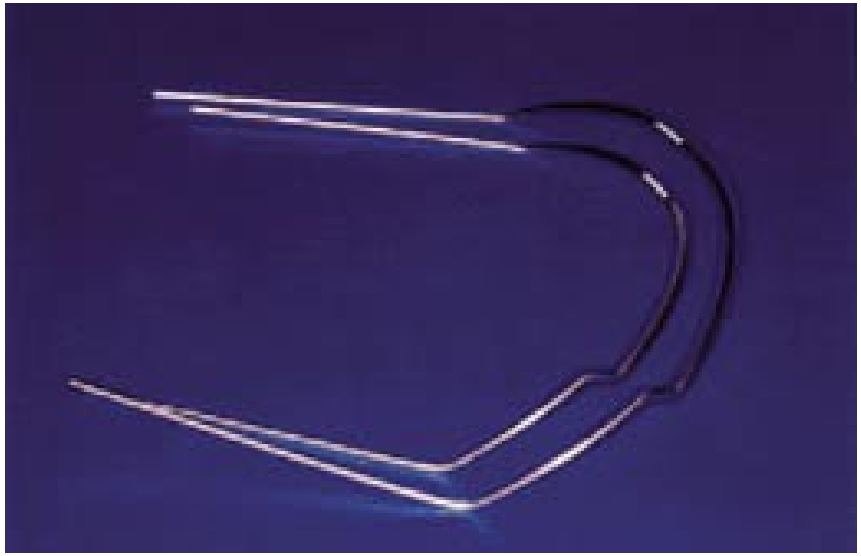
Molar extrusion

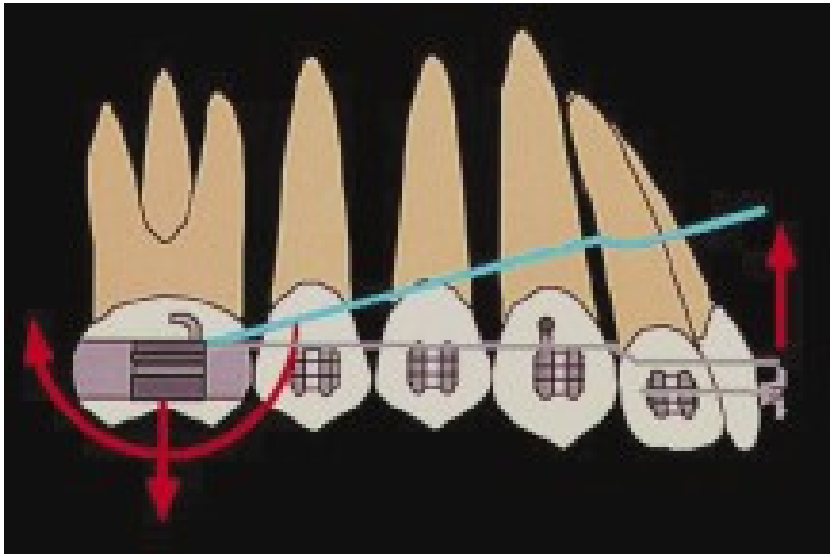
Incisor intrusion

5b-Deep bite Treatment

RAVINDRA NANDA, ROBERT MARZBAN, ANDREW KUHLBERG, JCO, VOLUME 32 : NUMBER 12 : PAGES (708-715) 1998

b-Maxillary and mandibular Connecticut Intrusion Arches



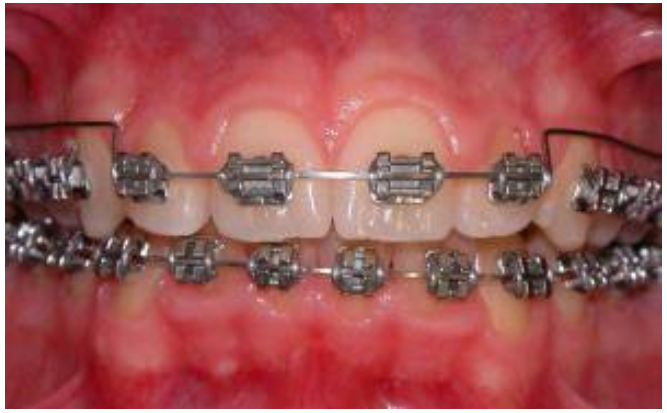


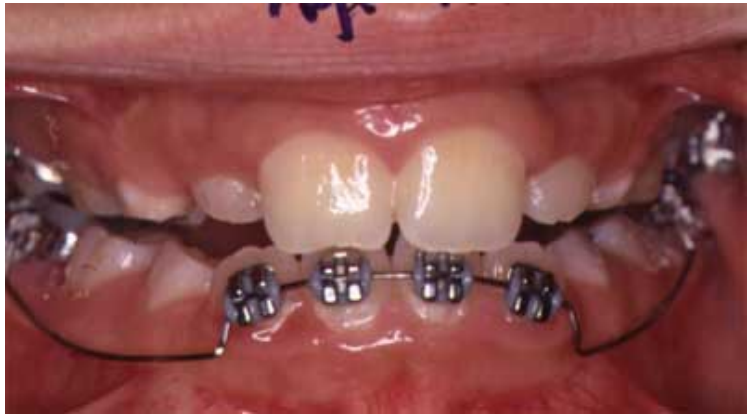
Intrusion force system consists of anterior intrusive force, posterior extrusive force, and posterior tipback moment.

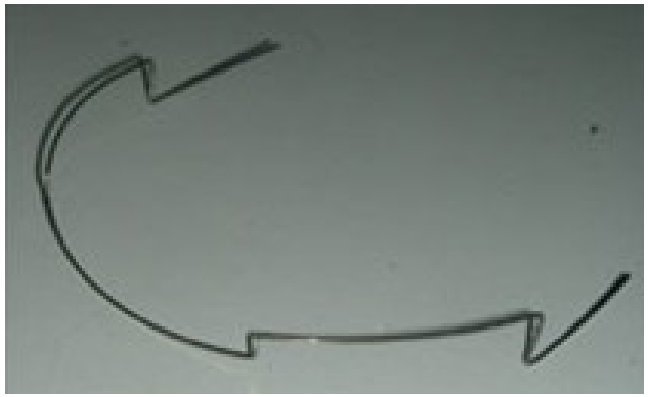
5c-Deep bite Treatment

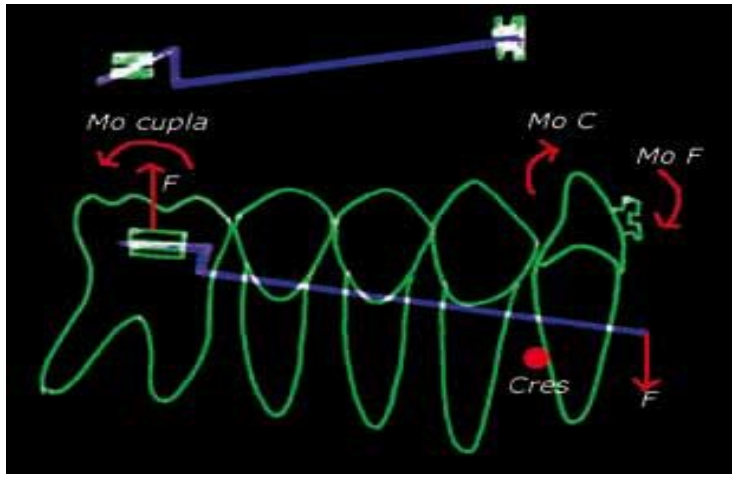
M. ABOULNASER - O. SANDID

c-Rickett's utility arch



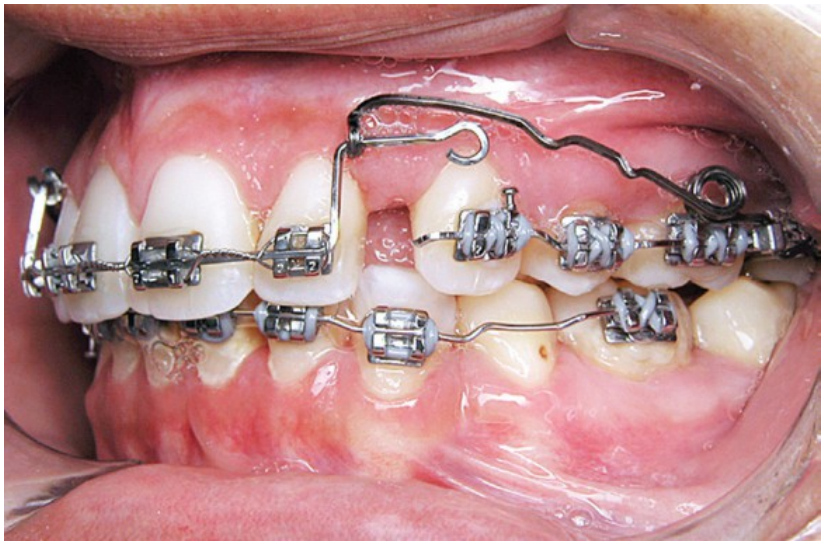


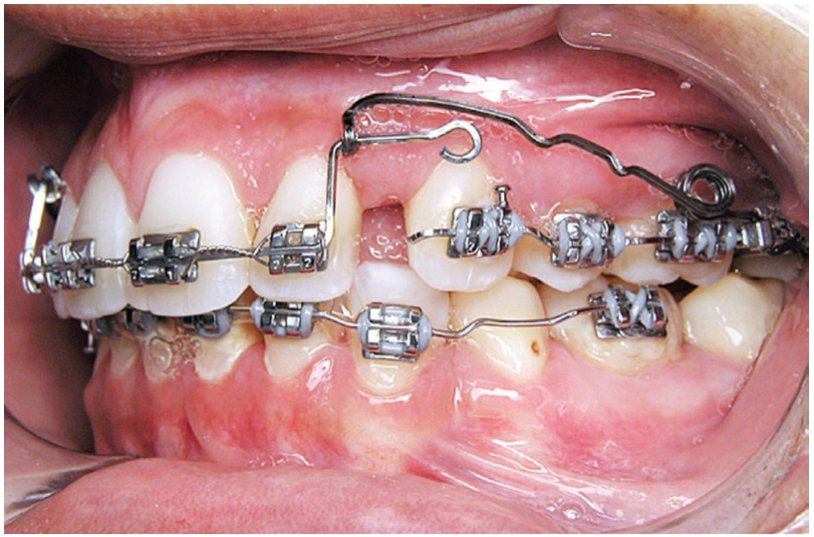




5d-Deep bite Treatment

D-Burstone's intrusion arch- 3-pieces

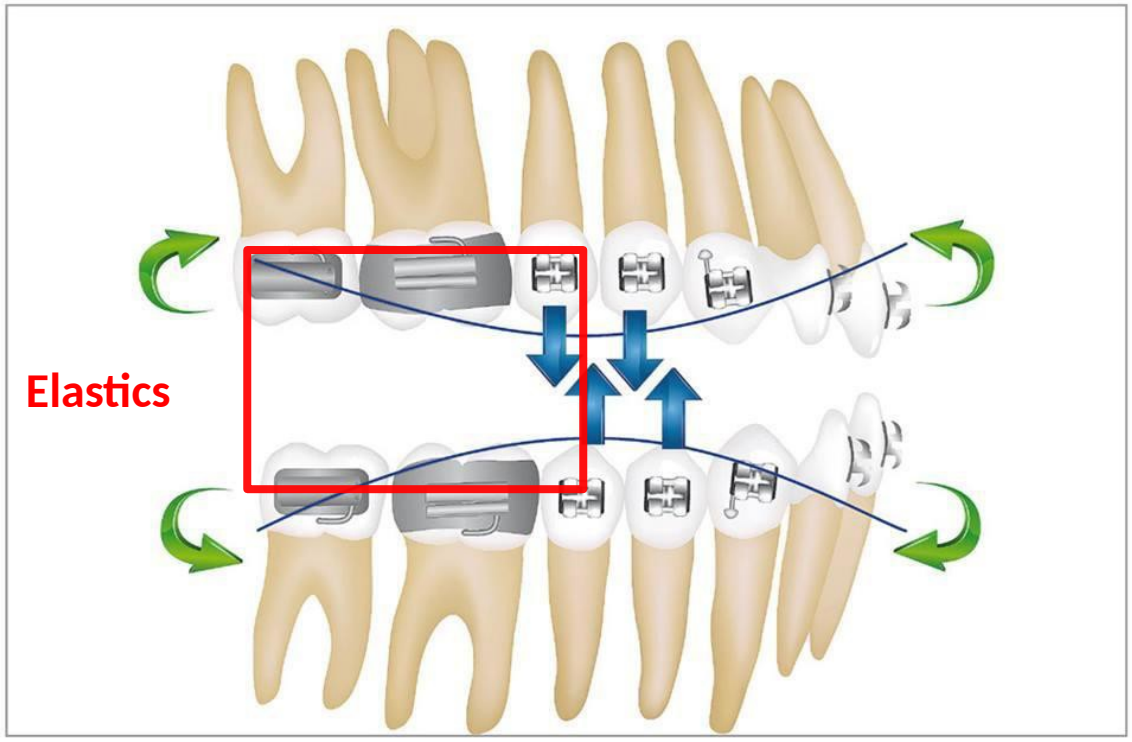


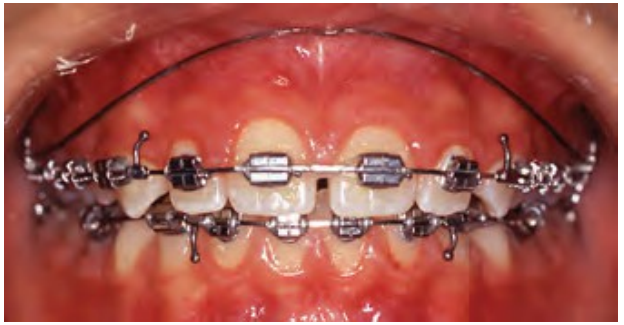


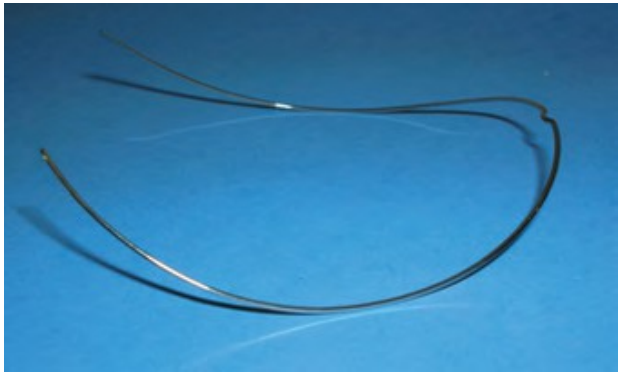
http://m.blog.daum.net/orthosu/7892617

5e-Deep bite Treatment-Using reverse-curved archwires

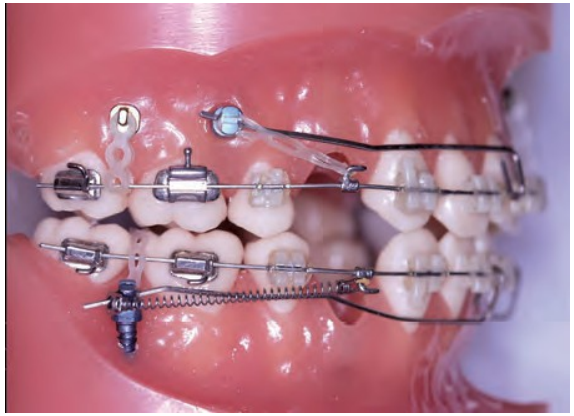
Deep bite be treated by extrusion of posterior teeth, intrusion of maxillary and/or mandibular incisors or a combination of procedures

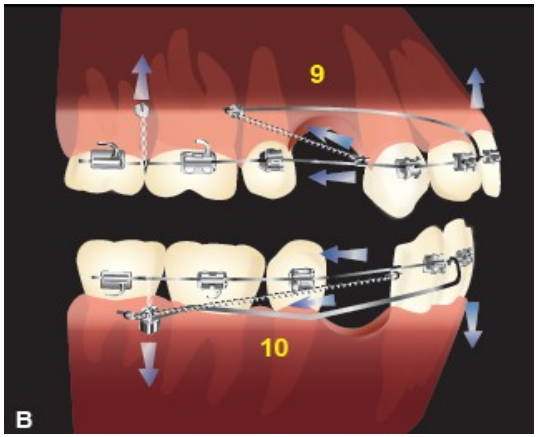


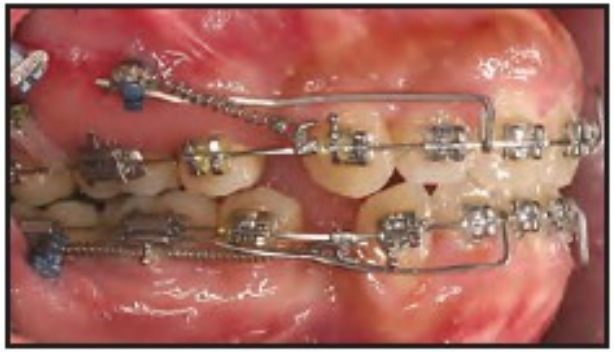


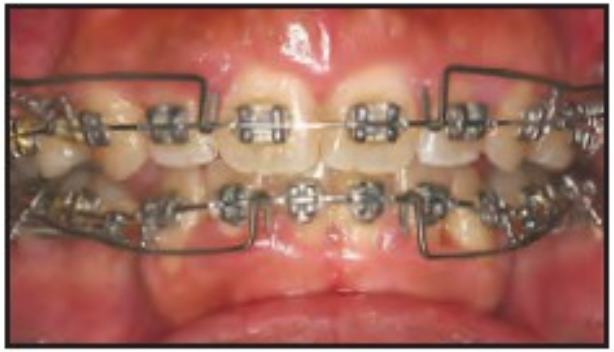


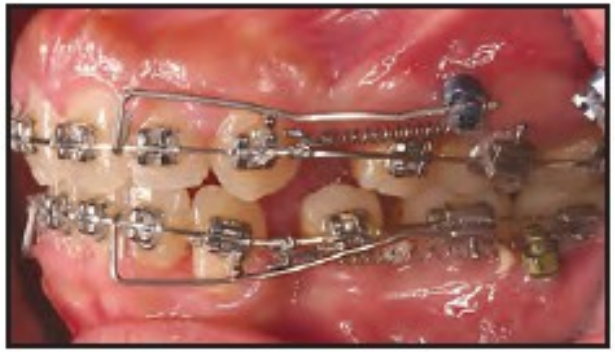
5f- Reduction Gummy Smile Using Miniscrew Anchorage







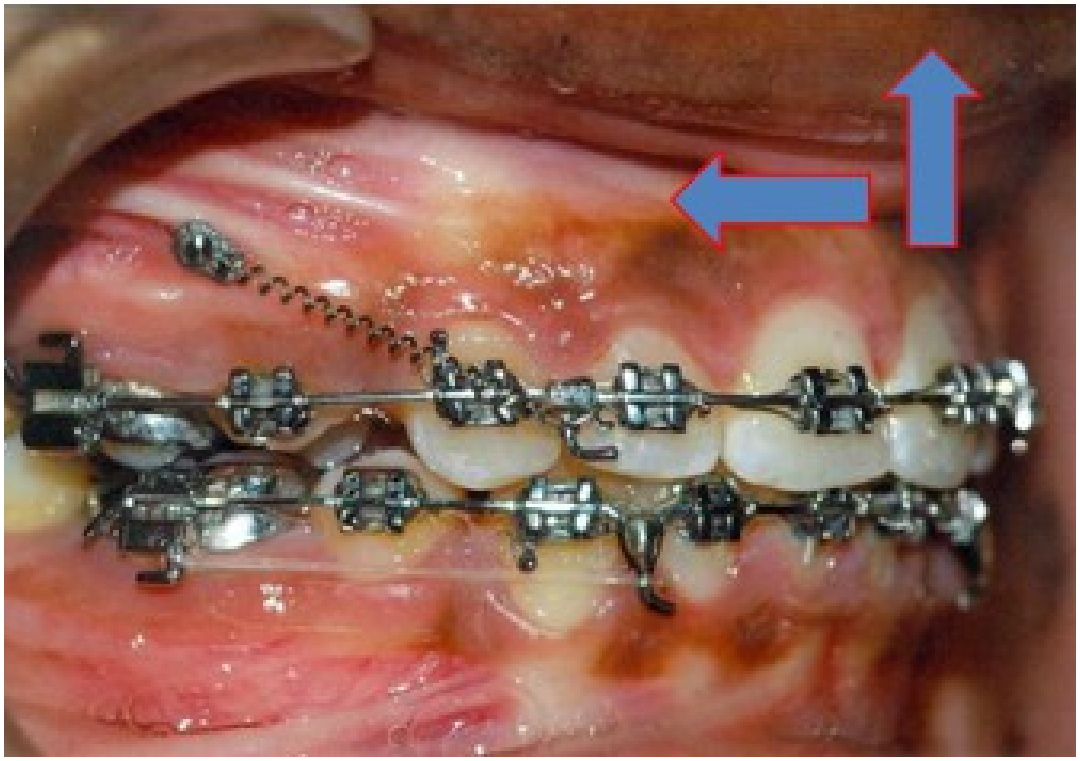




“Gummy smiles” 1,2—En masse upper and lower anterior retraction; 3,4—En masse upper and lower anterior intrusion

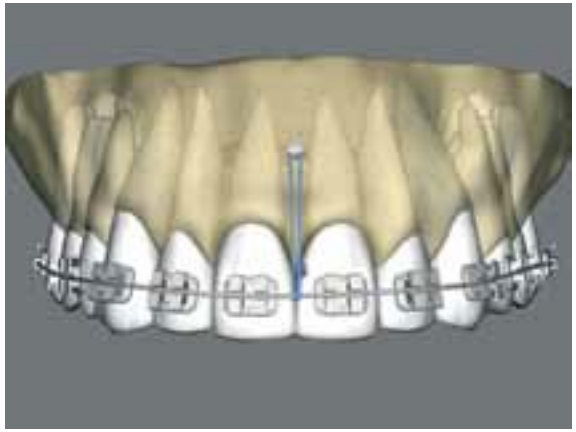
JAMES CHENG-YI LIN, ERIC JEIN-WEIN LIOU, S. JAY BOWMAN, © 2010 JCO, VOLUME XLIV NUMBER 3

5f-Micro Implants for Intrusion and Retraction

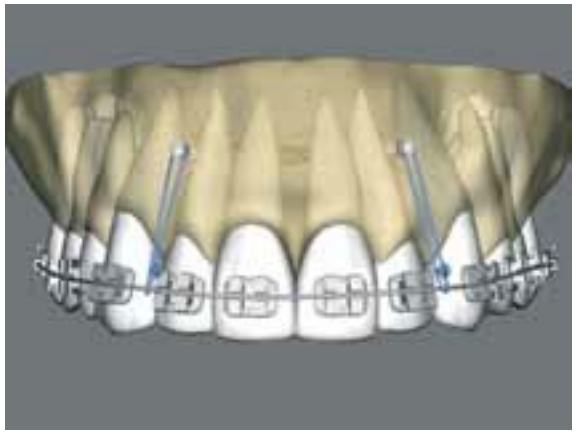


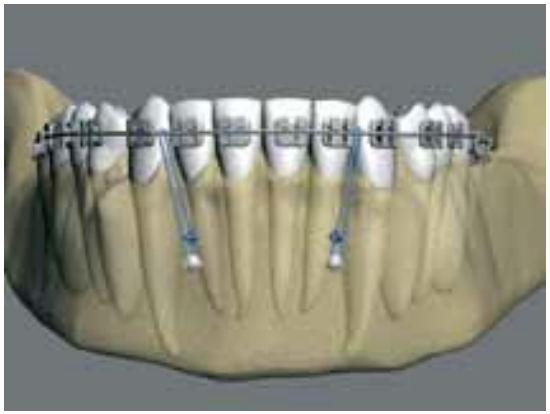
5f-Deep bite Treatment with mini-screws

M. ABOULNASER - O. SANDID



Upper and lower incisor intrusion when it is desirable to have these teeth tip buccally.



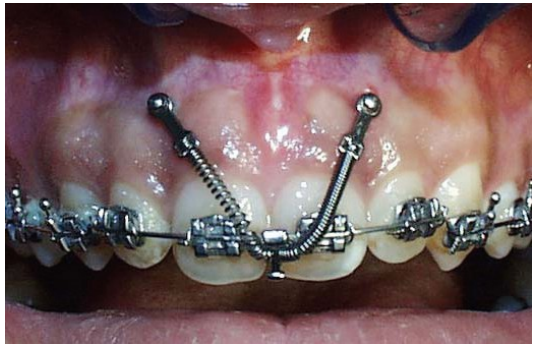


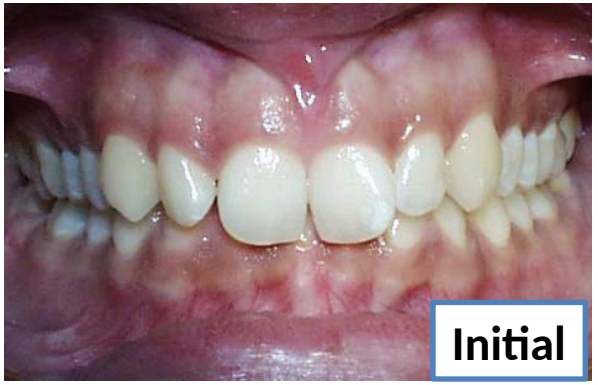
Upper and lower incisor intrusion when it is desirable to maintain teeth's axial tipping.

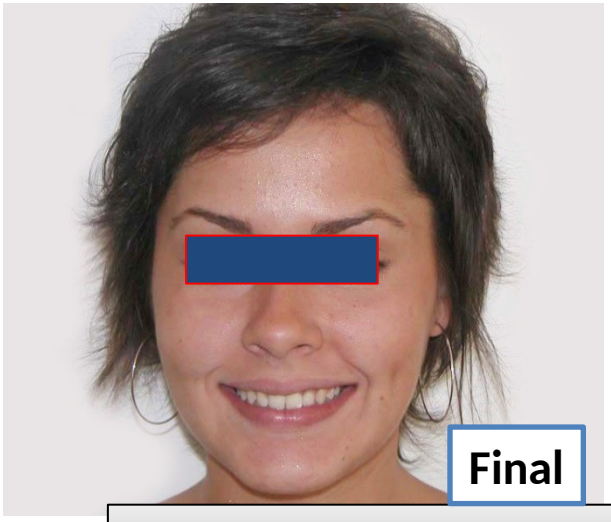
Telma Martins de Araújo, Mauro Henrique Andrade Nascimento, Dental Press J. Orthod. v. 13, no. 5, p. 36-48, Sep./Oct. 2008

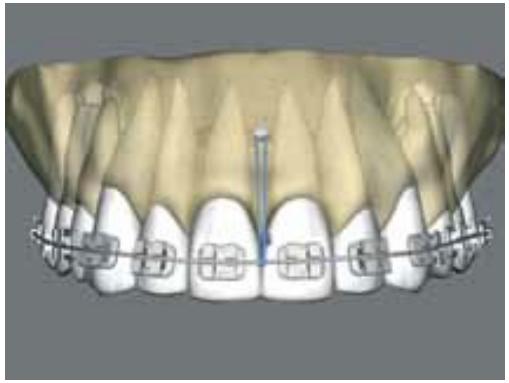
5f-Deep bite Treatment

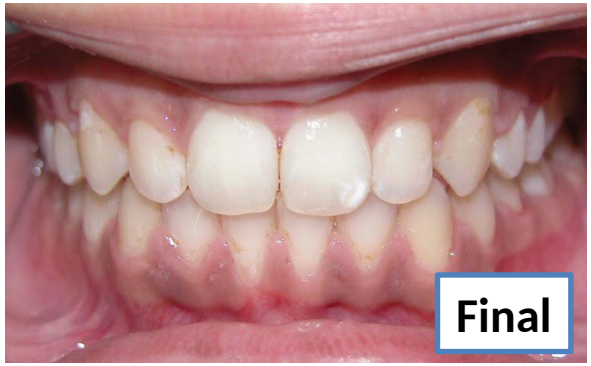
F-Deep bite Treatment with mini-screws





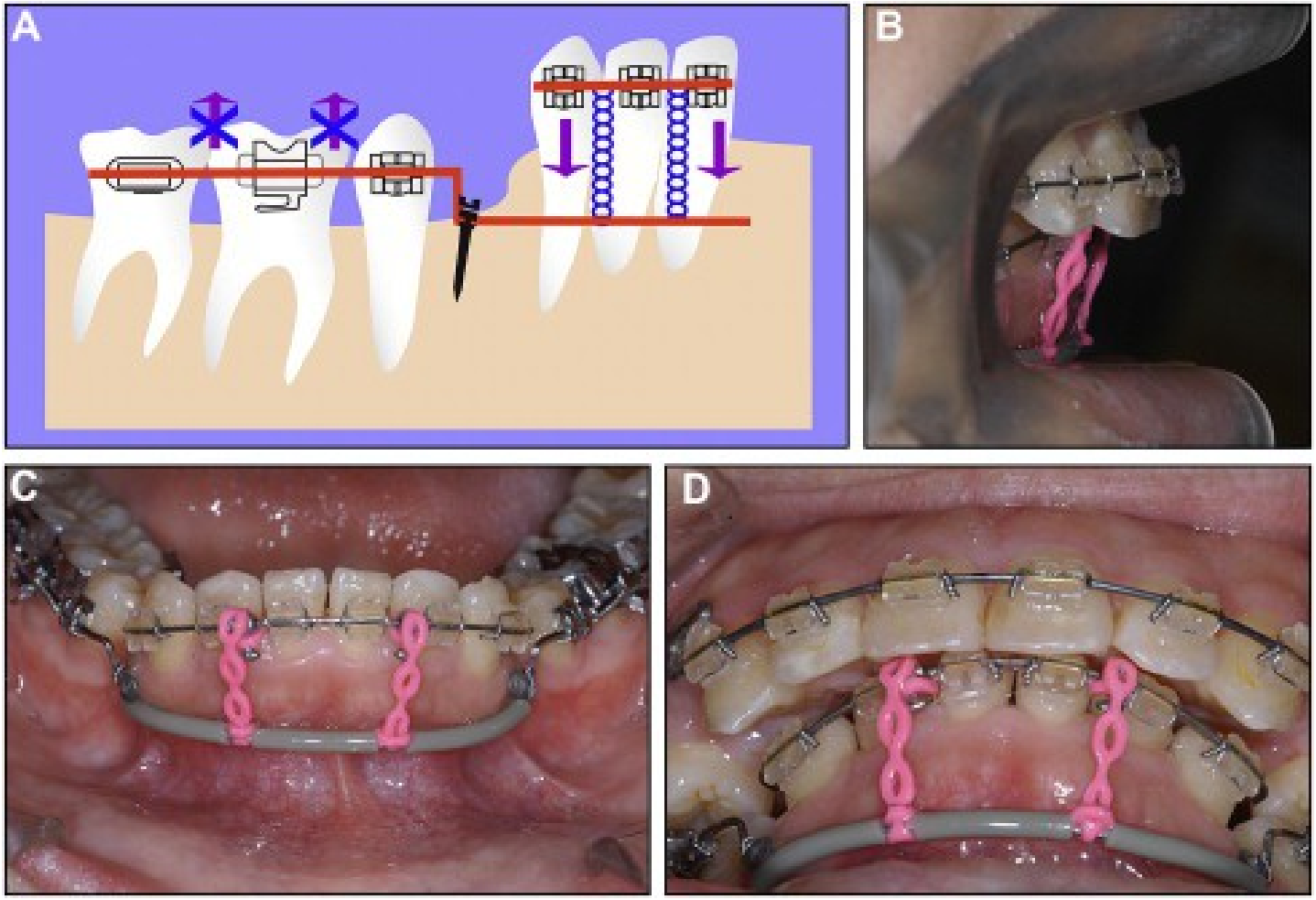






Tülin Uğur TANER, Soner KAMACI DDS, Bahadır GİRAY DDS, ***Hacettepe Dişhekimliği Fakültesi Dergisi*** *Cilt: 31, Sayı: 3, Sayfa: 44-51, 2007*

5f-Deep bite Treatment with mini-screws



5g-Deep bite Treatment

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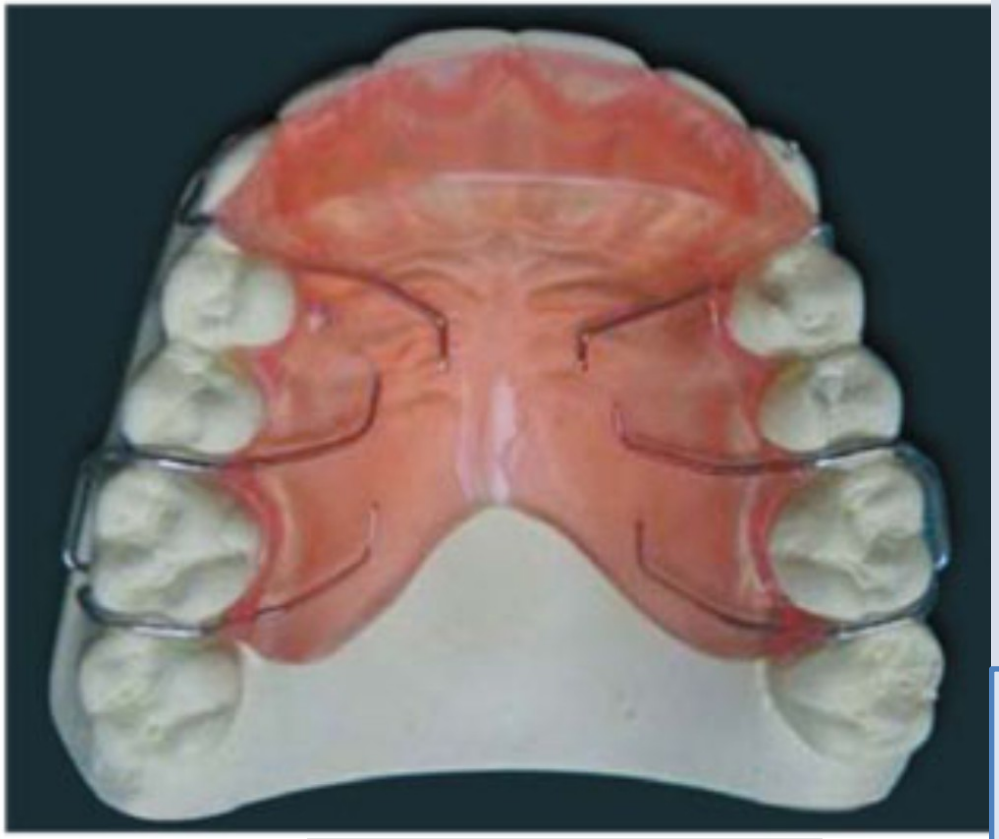
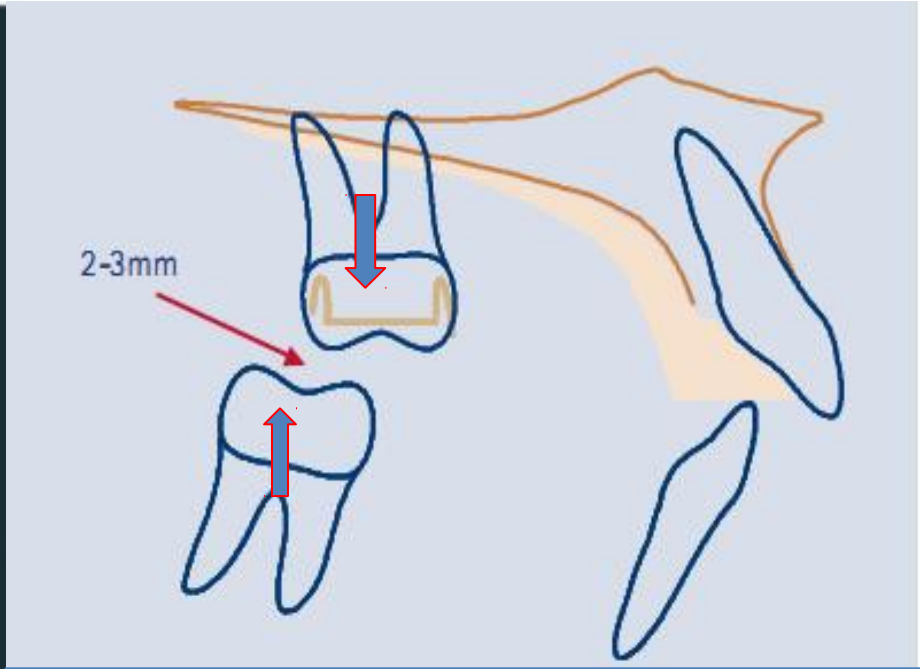
Removable appliances- Anterior inclined Bite Plan



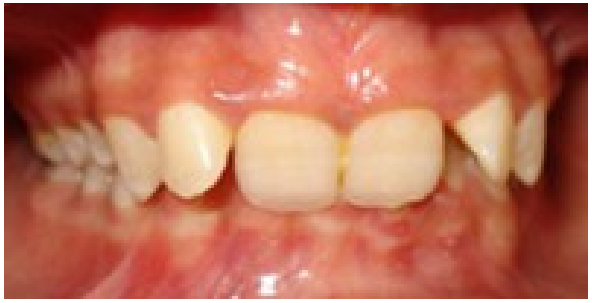
http://dentallecnotes.blogspot.com/



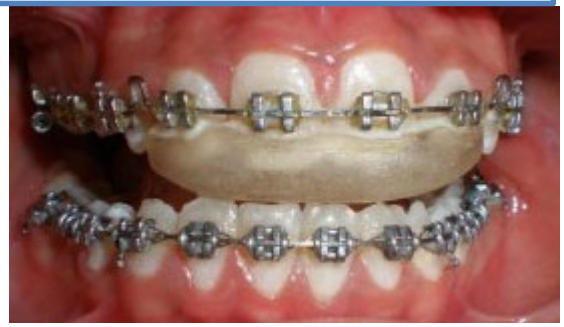
Overbite correction with Removable Appliances, the posterior teeth should be separated by about 2-3 mm- anterior bite plane that causes a posterior disclusion

5g-Deep bite Treatment

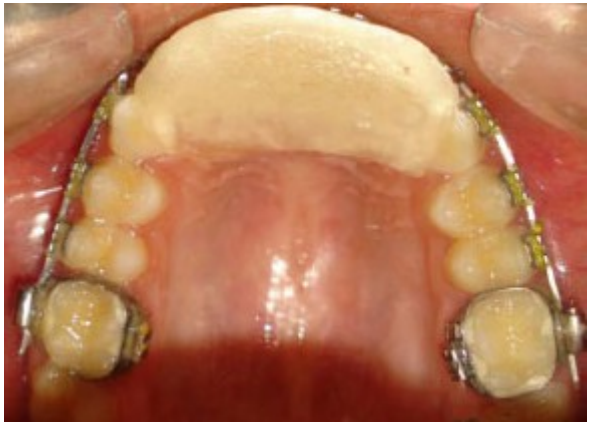
Fixed Acrylic Bite Plane for Deep Bite Correction



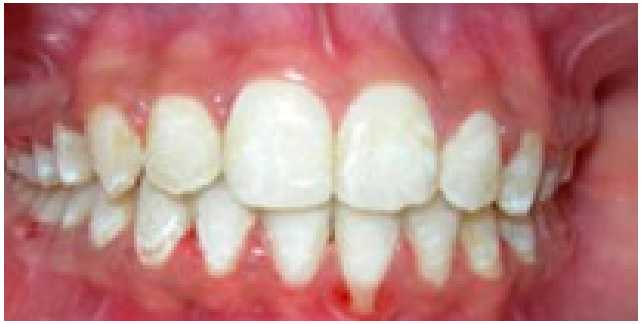
Pre-treatment



With fixed bite plane



Occlusal view



Post-treatment

http://orthocj.com/2011/03/a-new-fixed-acrylic-bite-plane-for-deep-bite-correction/

5g-Deep bite Treatment

Deep-Bite Correction Using a Clear Aligner and Intramaxillary Elastics

Initial

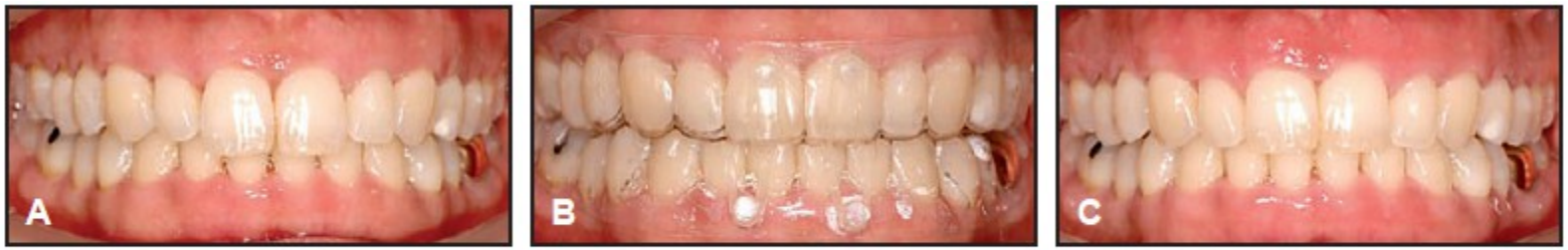


Fig. 8 A. 29-year-old female patient with Class I malocclusion and deep bite before treatment. B. During treatment with Suspender Clear Aligner. C. Bite opening after 10 weeks of treatment.

Final

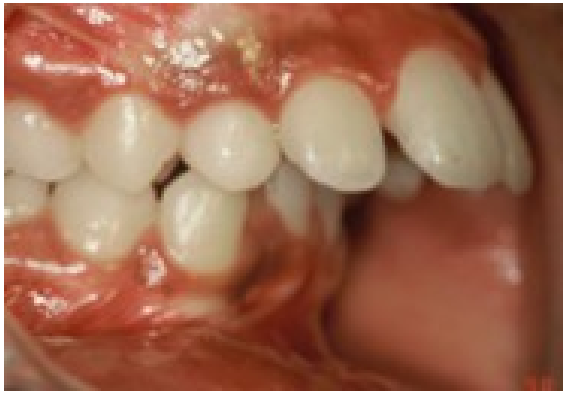
Fig. 13 Follow-up records taken three years after end of treatment.

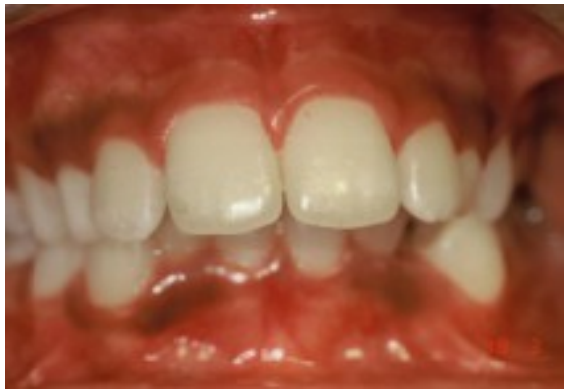
JAE HYUN PARK, TAE WEON KIM, JCO/MARCH 2009

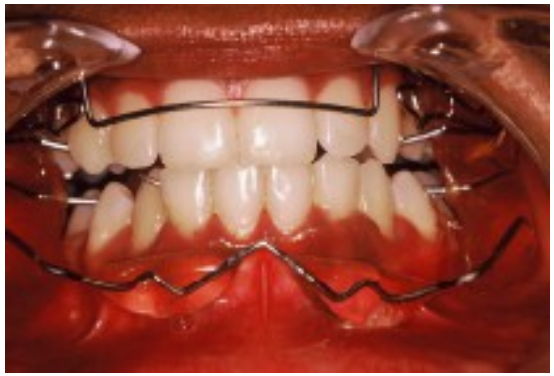
5h-Deep bite Treatment

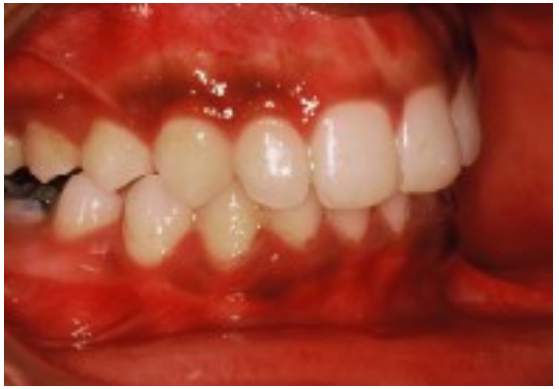
M. ABOULNASER - O. SANDID

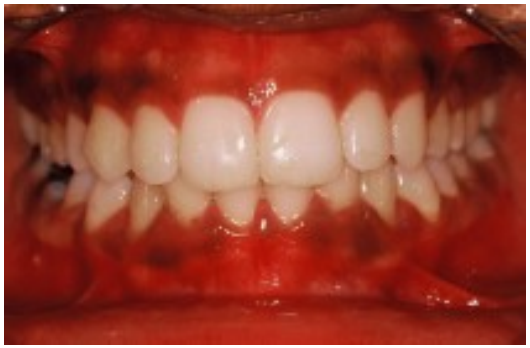
Functional appliances, Mandibular advancement, Frankel





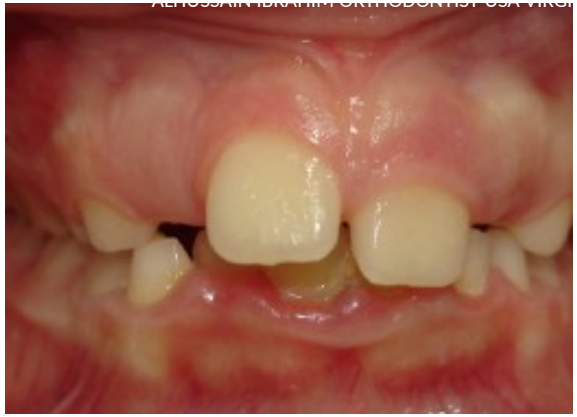


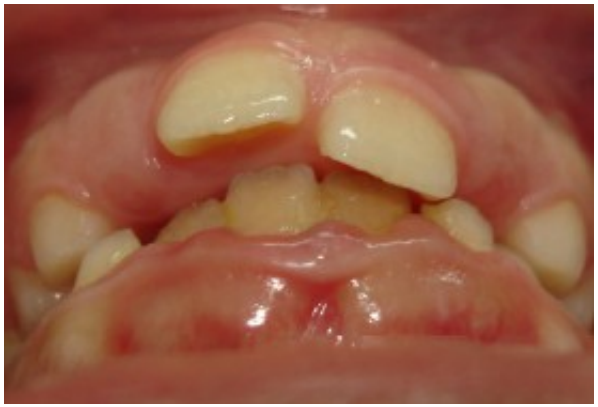


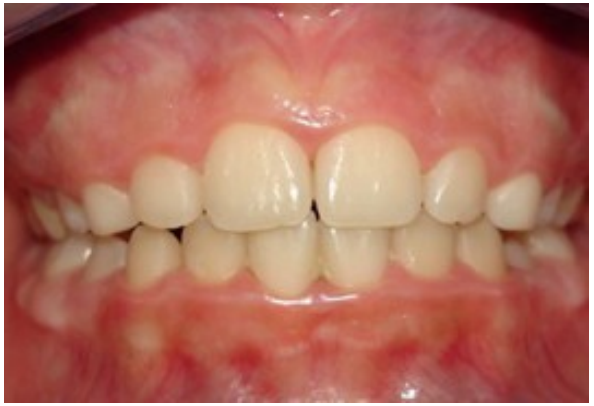


Before **After**

5h-Early Treatment of A Class II, Division 2 Malocclusion Trainer for Kids (T4K)







Miroslava Dinkova, http://www.journal-imab-bg.org -/ *J of IMAB*. 2014, vol. 20, issue 5/

5h-Deep bite Treatment

Aditya Chhibber, Madhur Upadhyay, Ravindra Nanda,http://www.orthodonticproductsonline.com/

Twin Force Bite Corrector

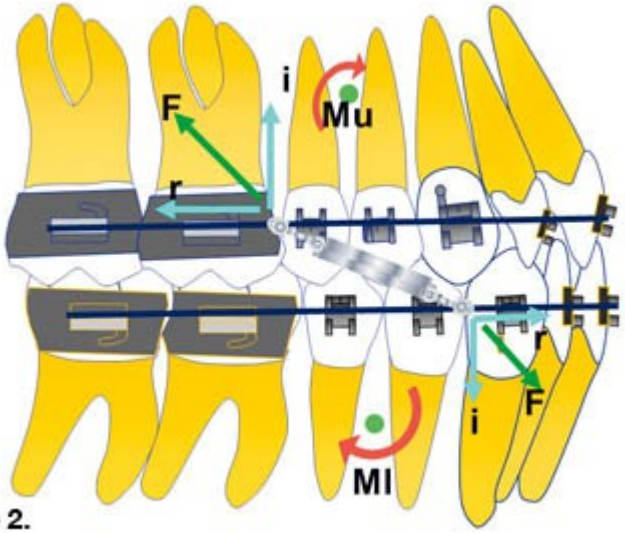
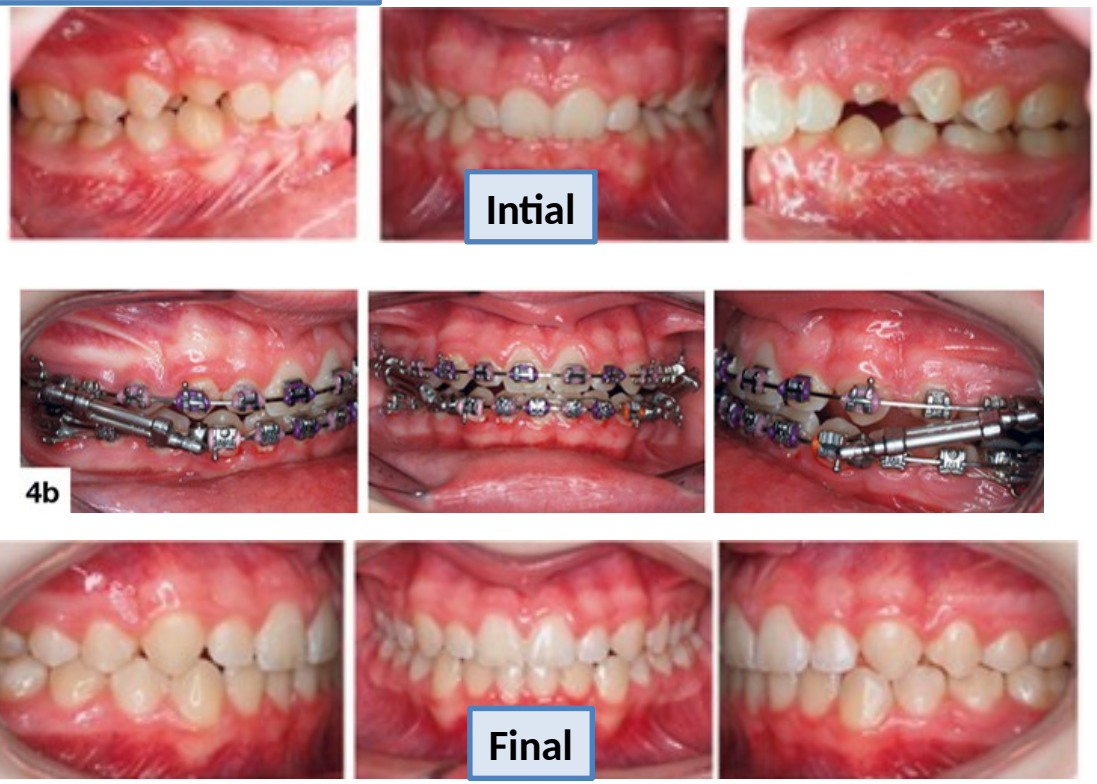
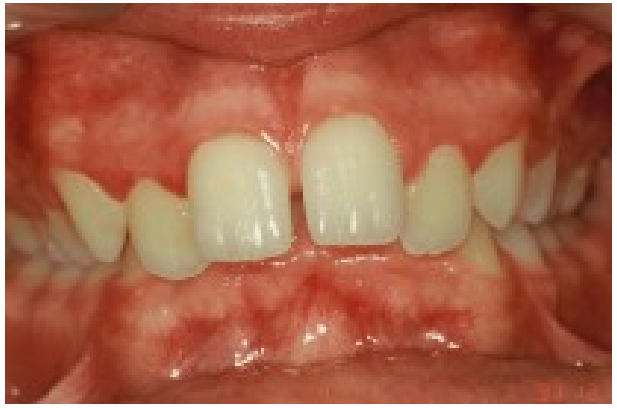


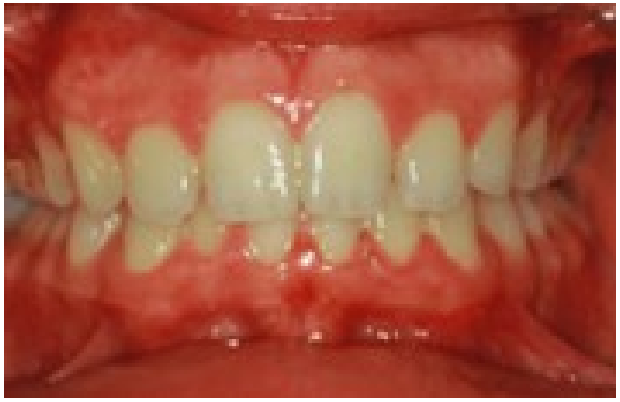
Figure 2.

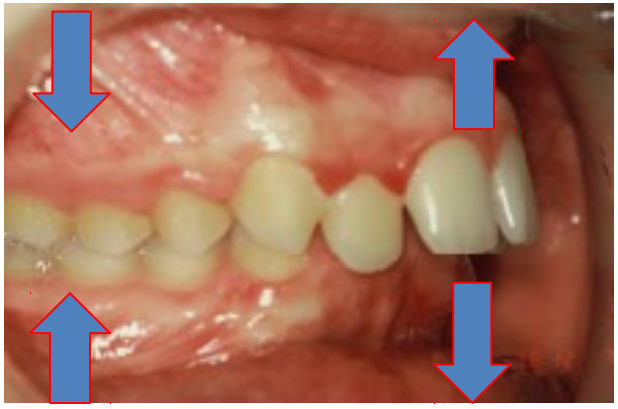


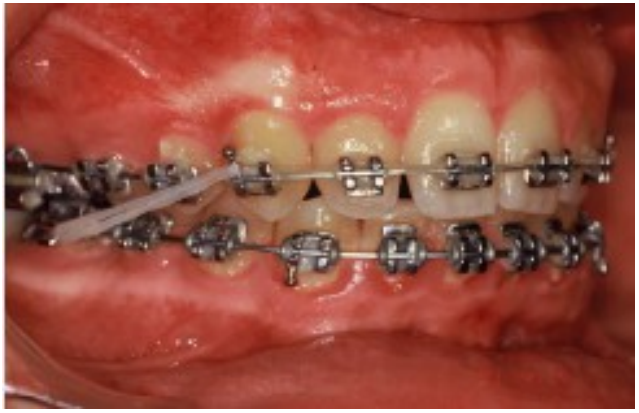
5i-Deep bite Treatment

Class II Divison 1 Deep bite-intermaxillary elastics





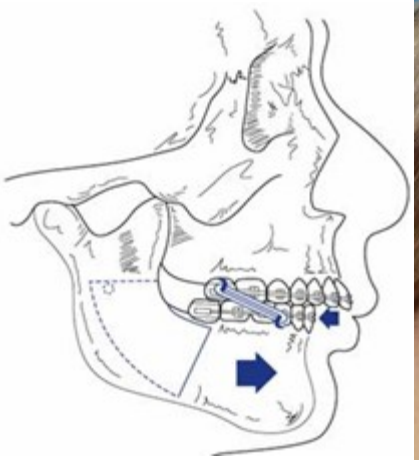


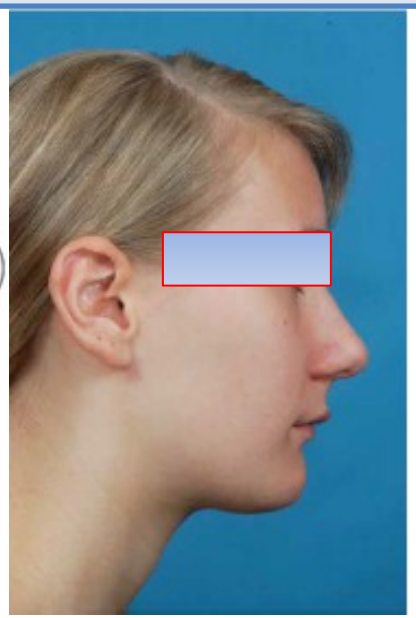


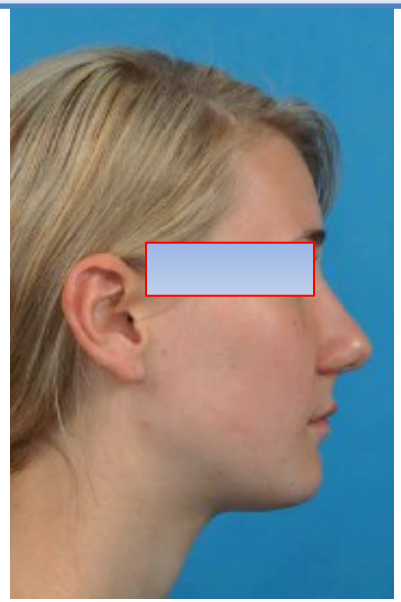
Before & After Treatment Results

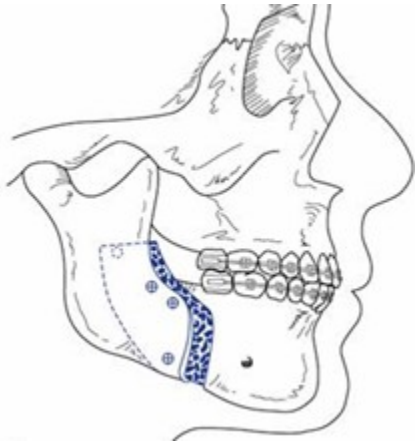
5j-Deep bite Treatment

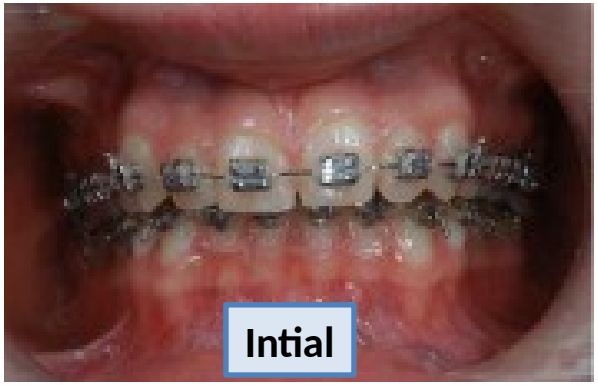
Orthognathic surgery, Class II, deep bIte, prominent Chin

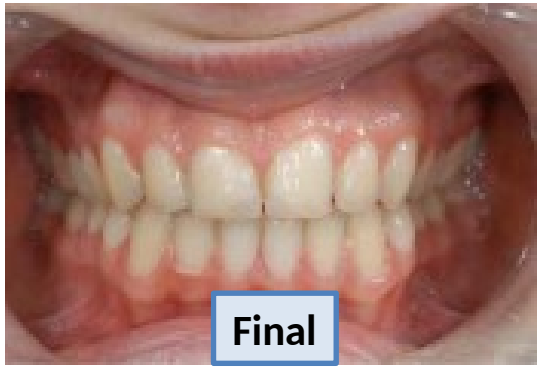








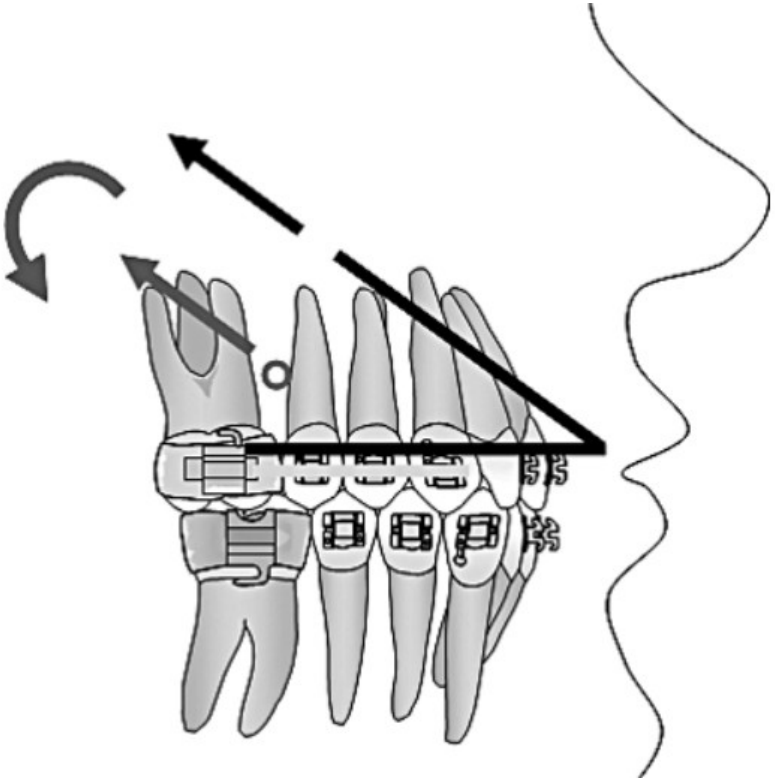


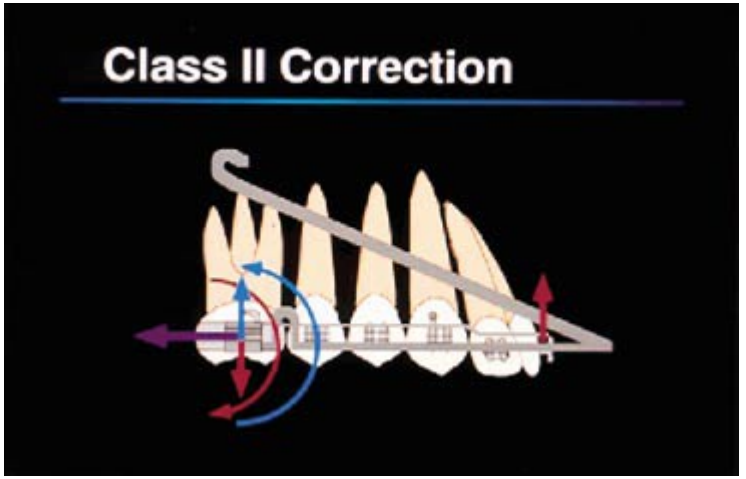


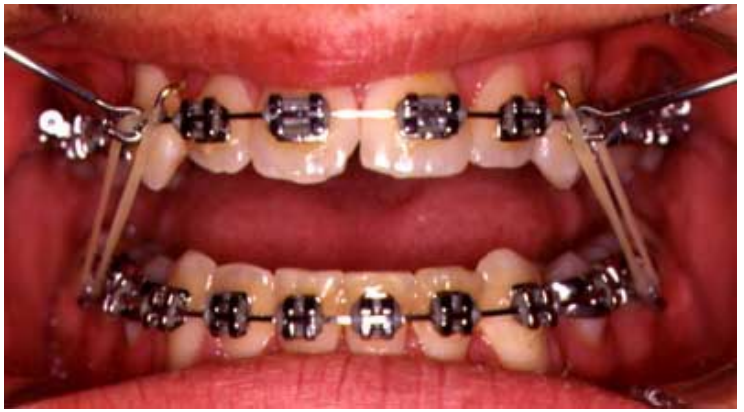
Maurice Y. Mommaerts, *Evelyn Asselman*,

5k-Deep bite Treatment

K-hook headgear to the upper labial segment



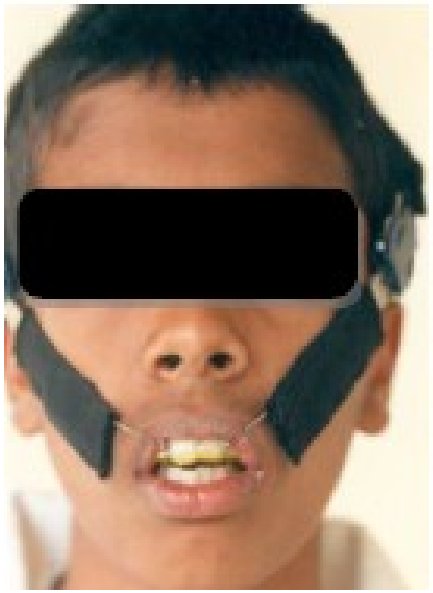


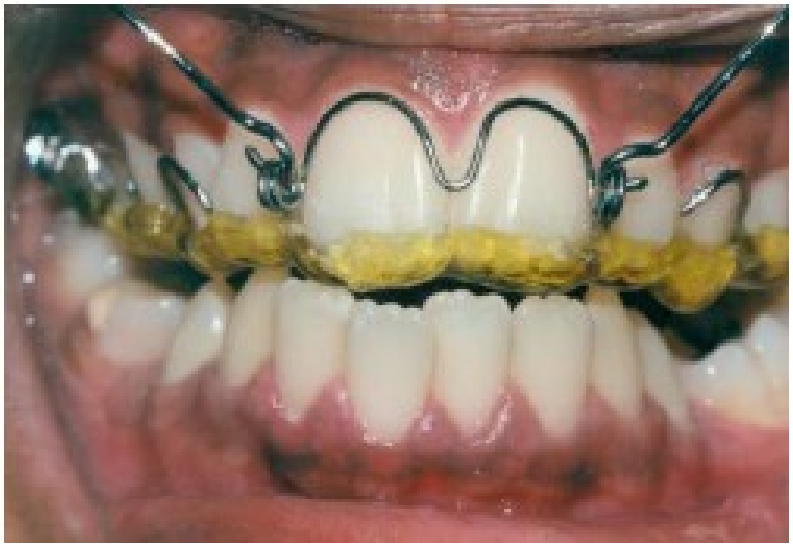


http://www.angle.org/doi/pdf/10.1043/0003-3219%282004%29074%3C0480%3ATROAHP%3E2.0.CO%3B2

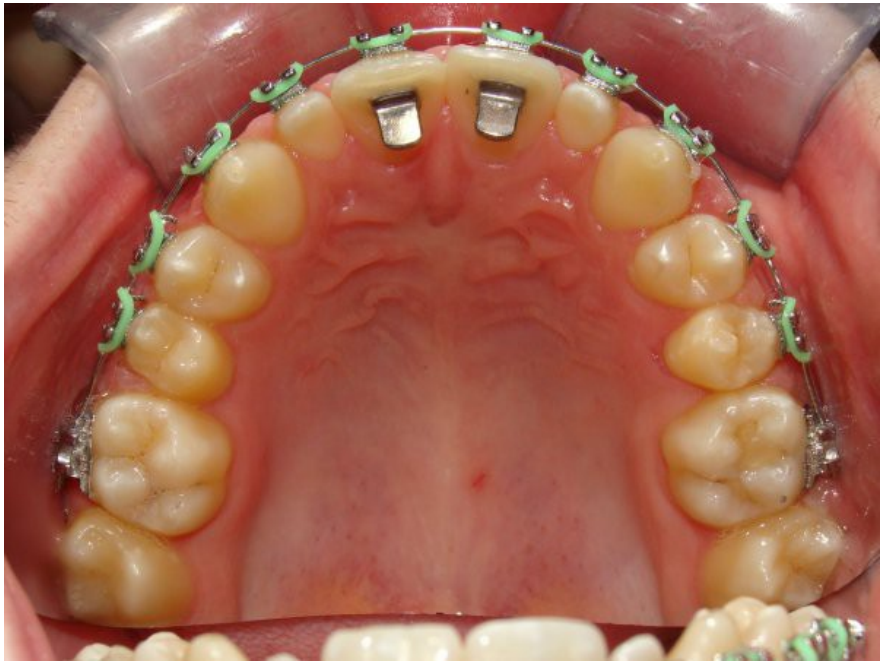
5k-Deep bite Treatment

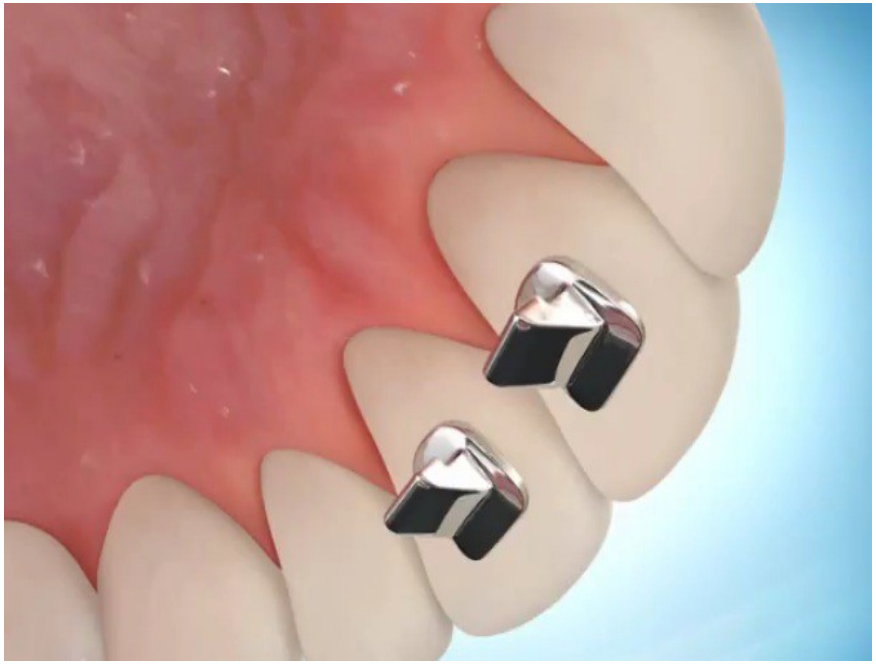
k-hook headgear to the upper labial segment



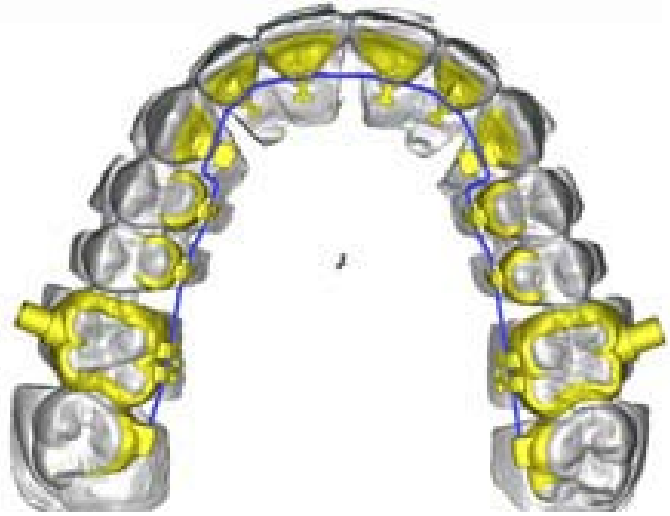


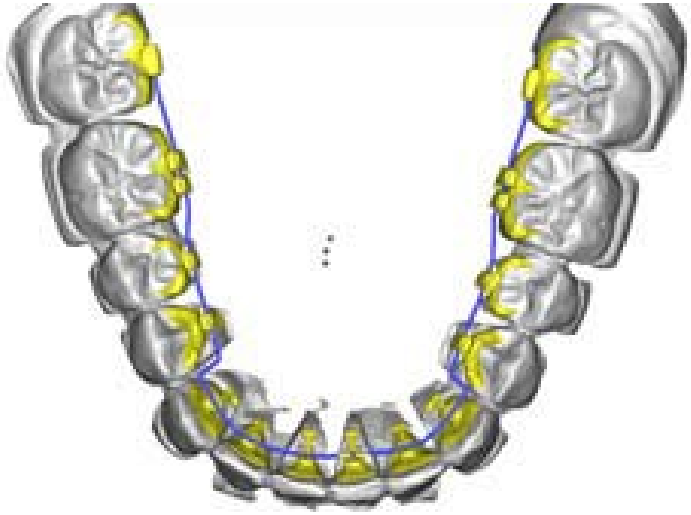
5l-Bite turbos

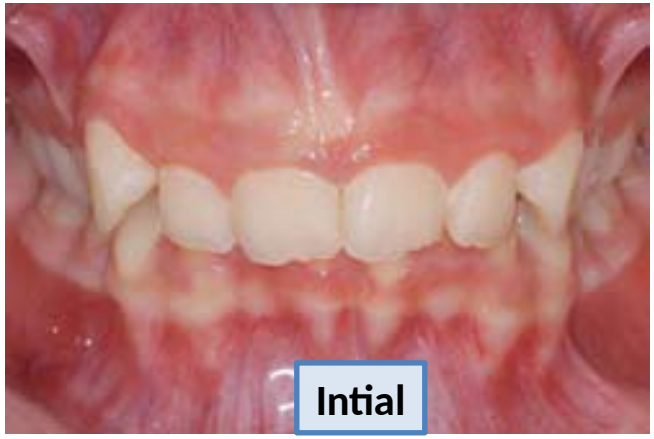


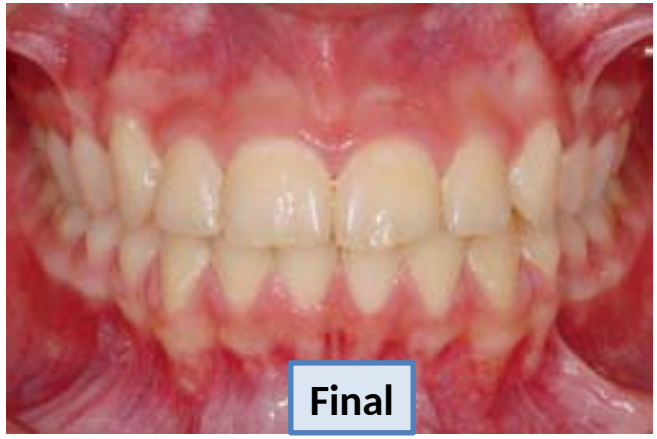


5m-Deep bite
Incognito-Lingual braces



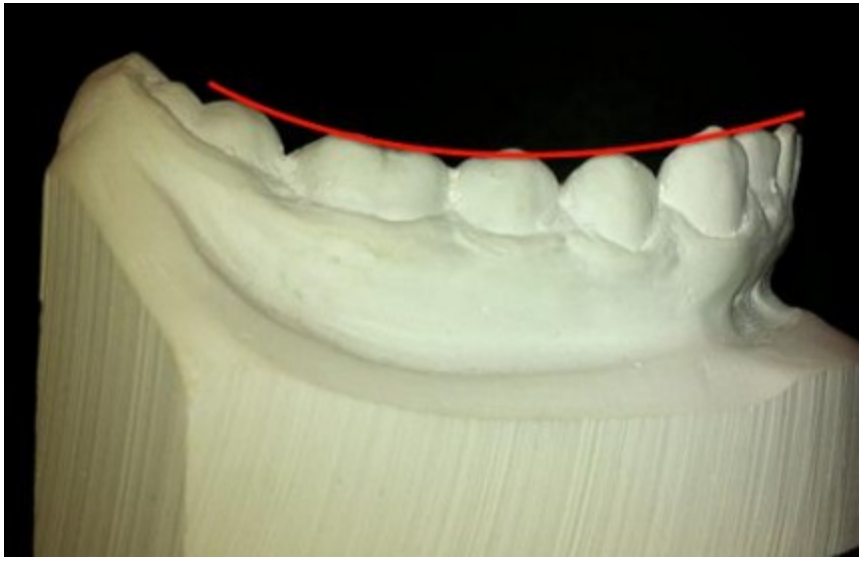


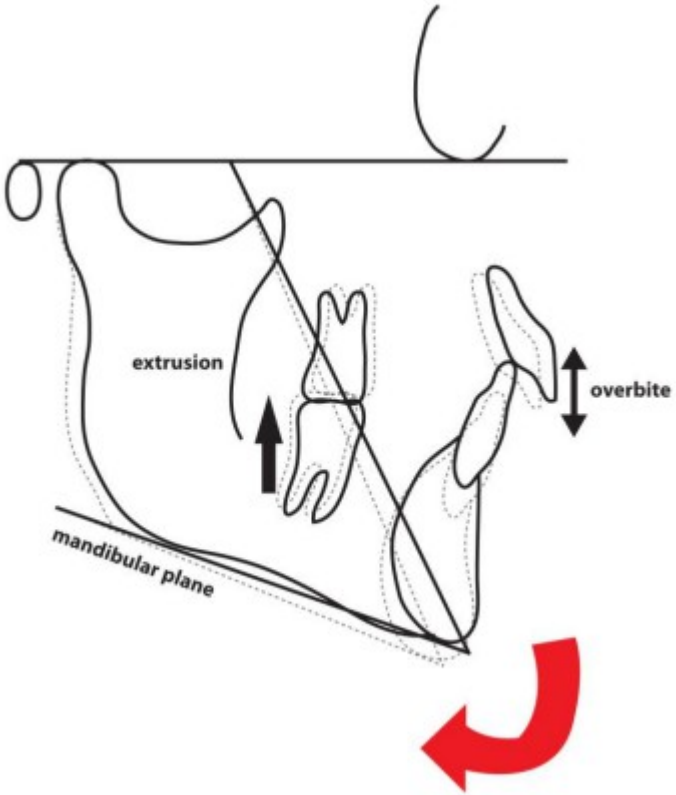




5n-Deep bite Treatment

Leveling the curve of Spee

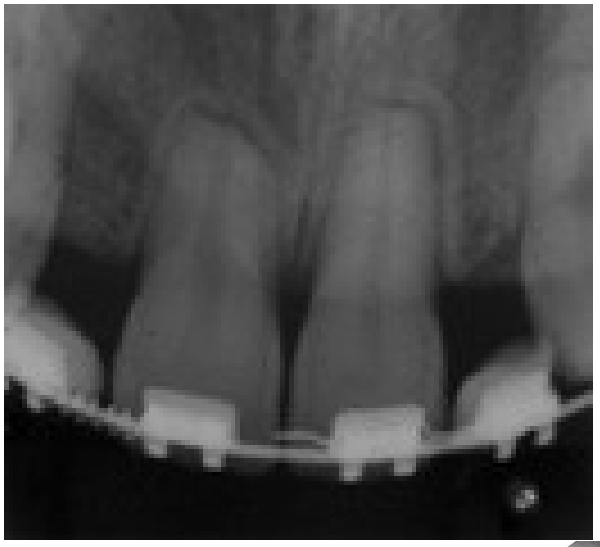


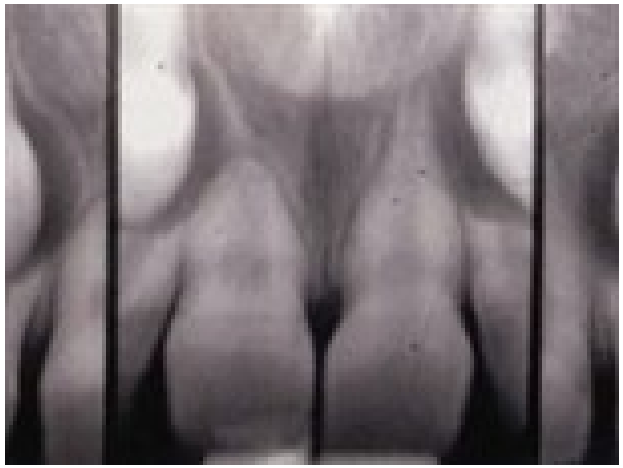


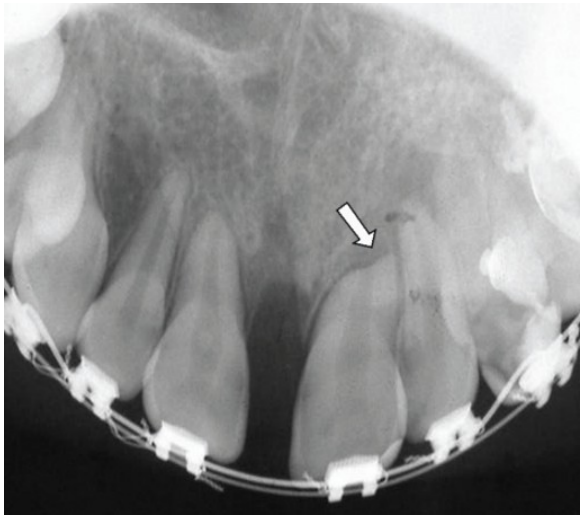
Extrusion of molars and resultant downward and backward mandibular rotation (solid line = pre-treatment; dotted line = post-treatment)

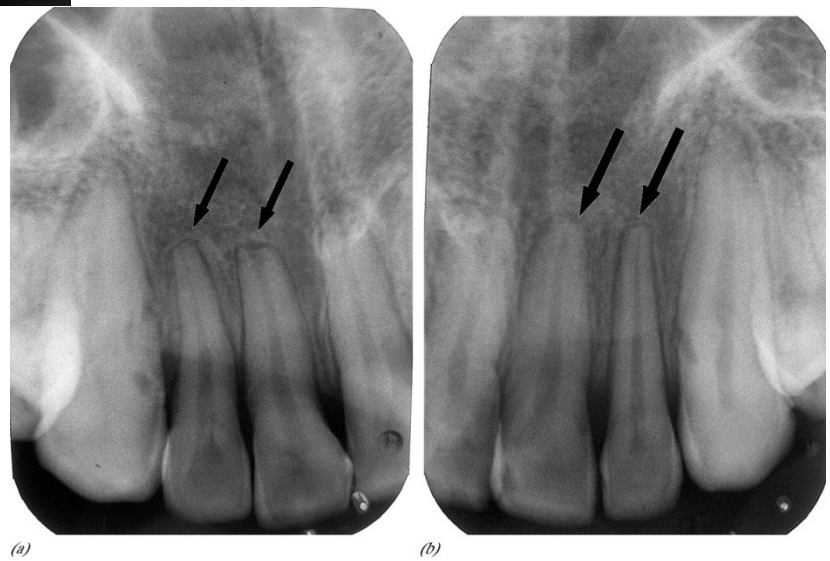
https://tspace.library.utoronto.ca/bitstream/1807/33470/7/Nardone_Jessica_201211_MSc_thesis.pdf

Complications -Intrusion in Orthodontics and root resorption

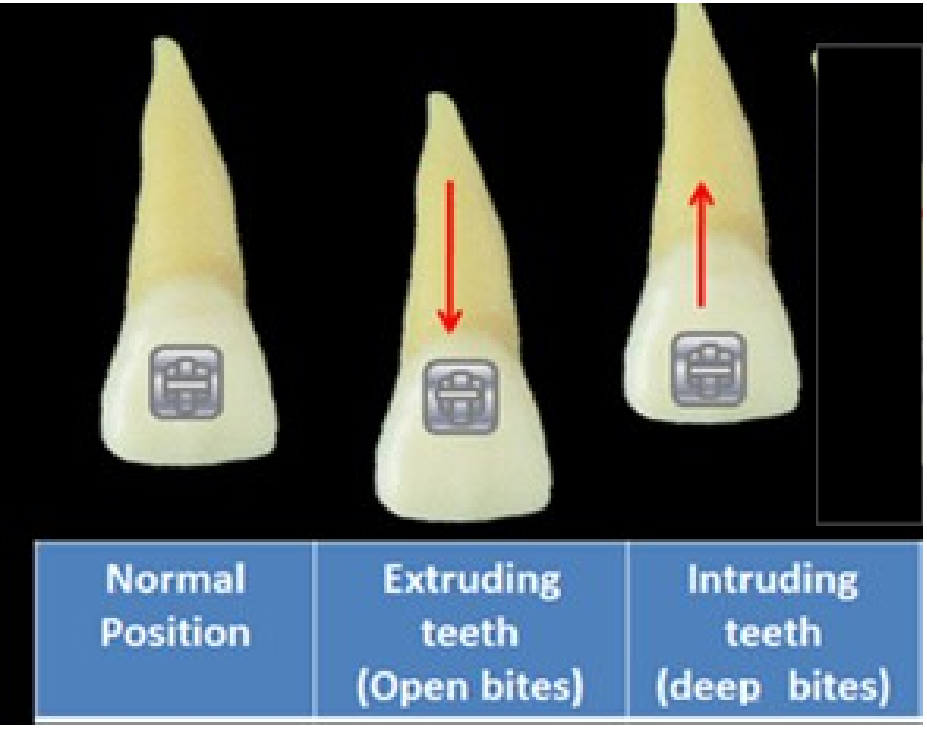


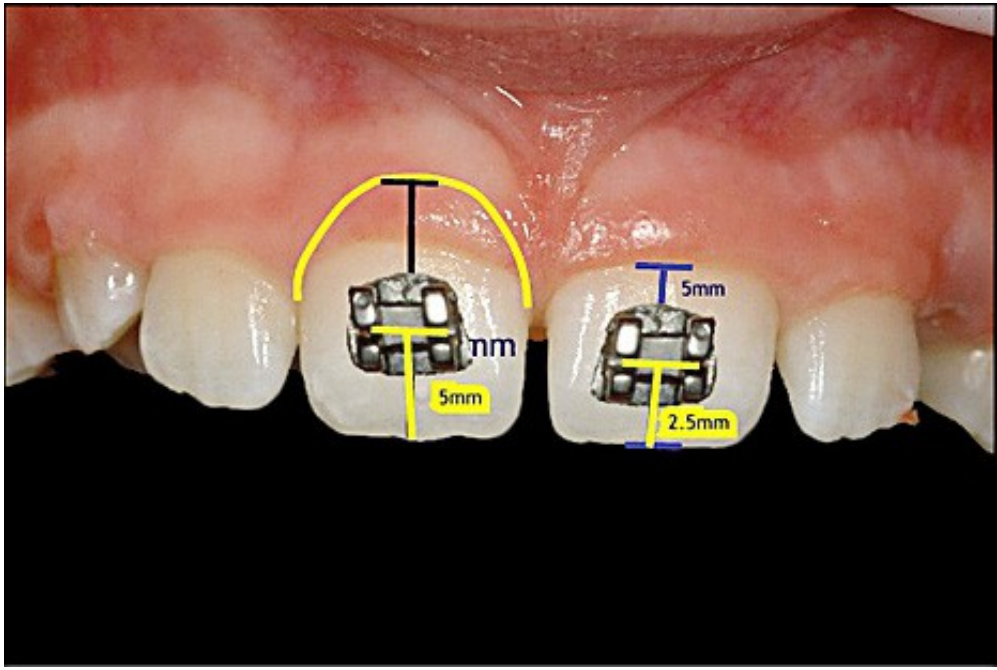






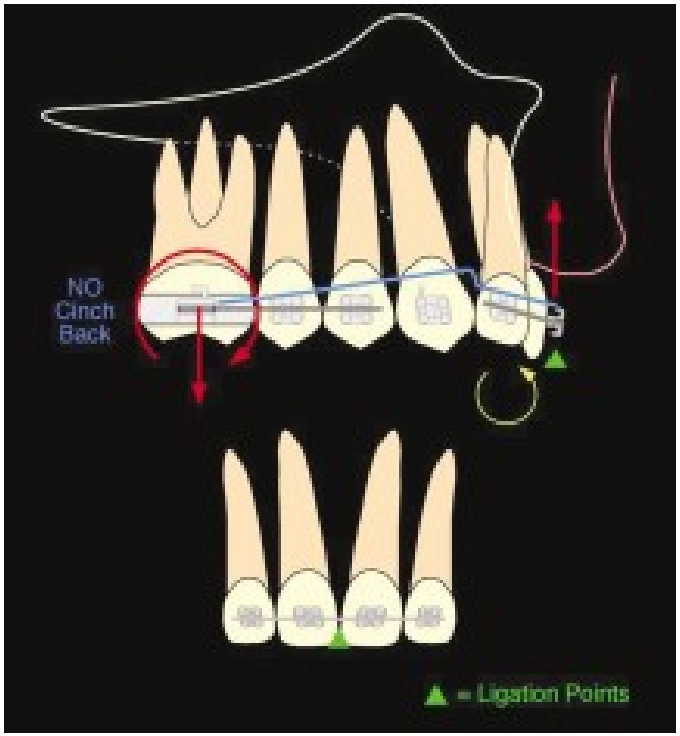
50-Deep bite - Bracket Placement



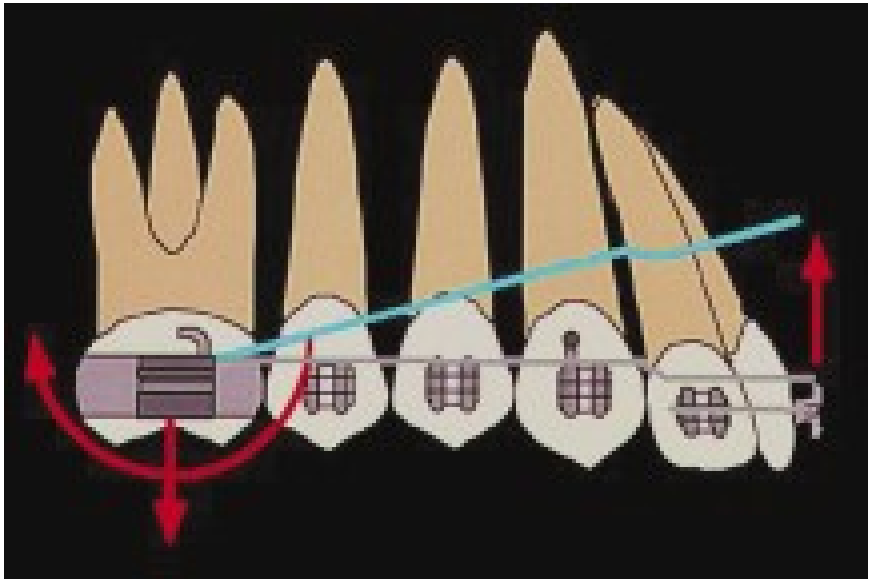


http://pocketdentistry.com/principle-7-build-treatment-into-bracket-placement/

6-Biomechanical Considerations



Force system and ligation points of intrusion arch in Class II, division 2 malocclusion.



Intrusion arch produces anterior tipback moment and intrusive force along with extrusive force on molars.

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Biomechanical Considerations

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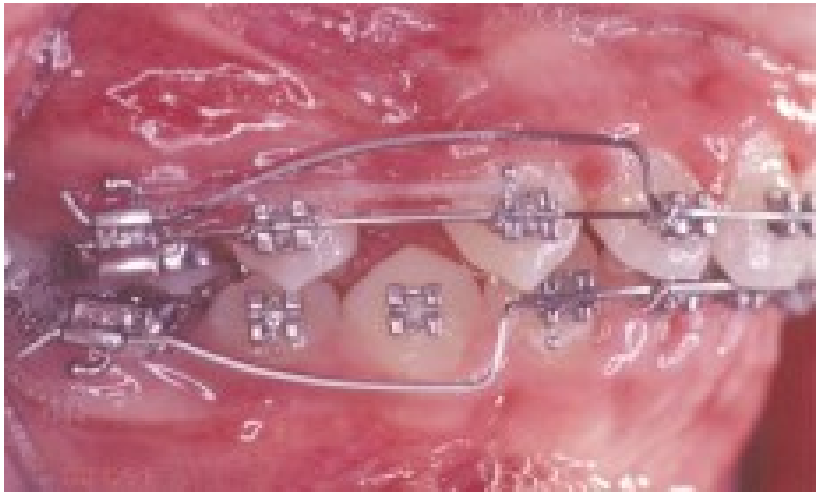
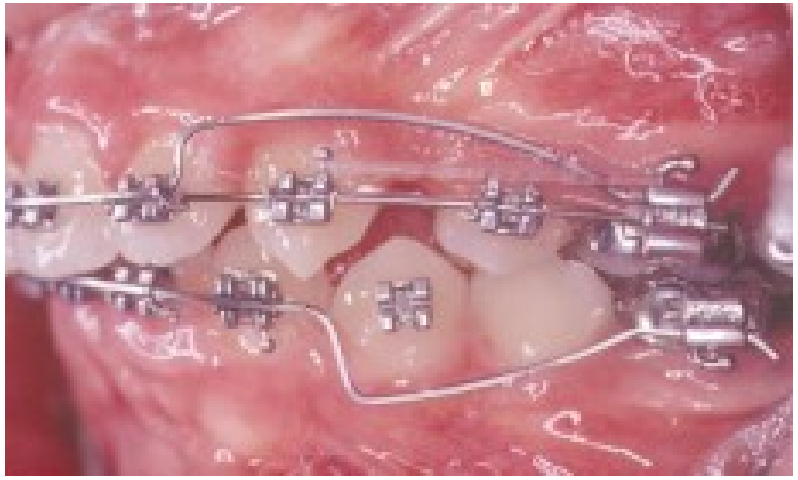
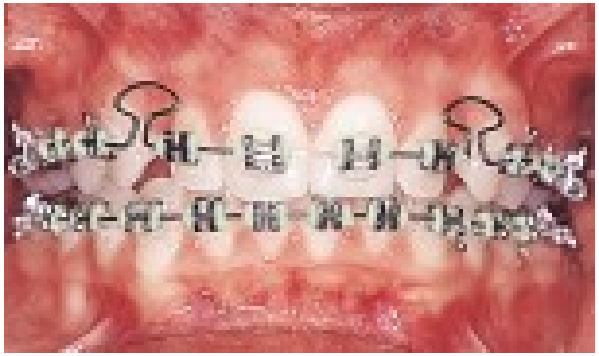




Canine retraction with .016" × .022" stainless steel base arch and overlay intrusion arch for anchorage and incisor control.

Biomechanical Considerations



.017" × .025" CNA mushroom-loop archwire after intraoral activation.

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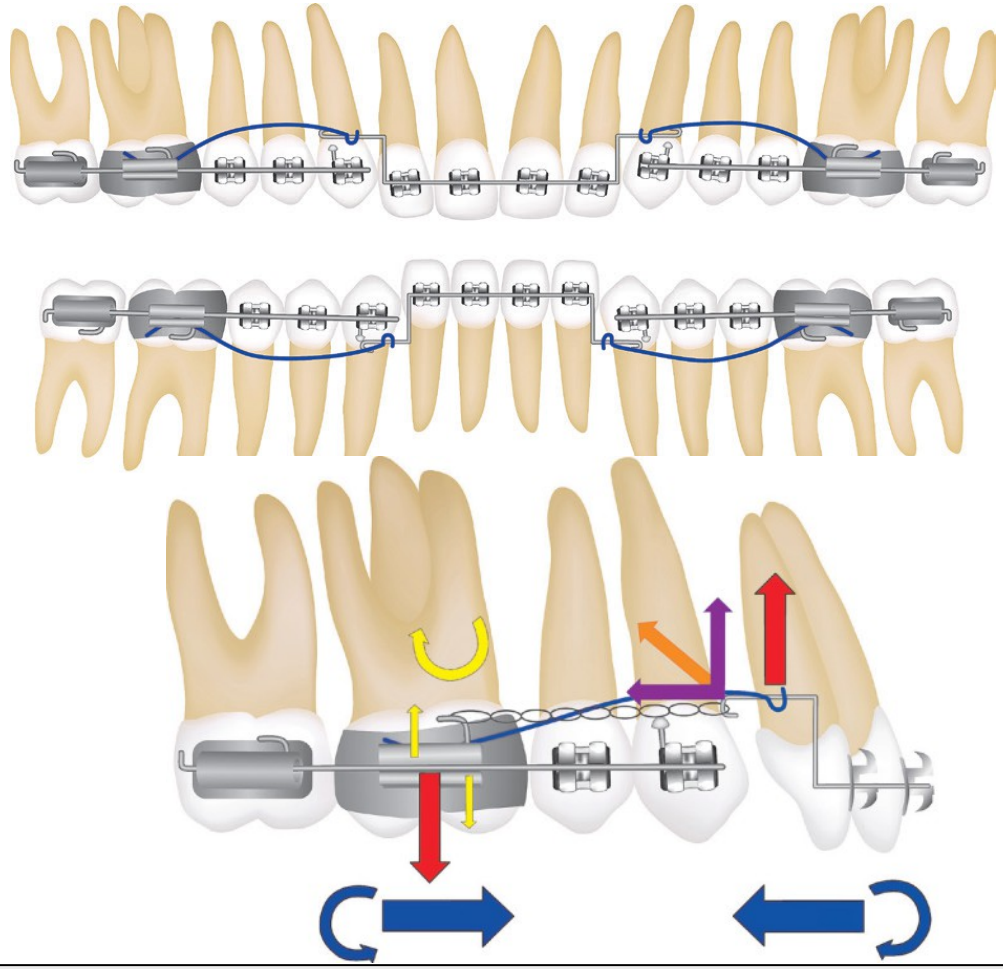
Deep bite Treatment

Burstone- 3-pieces Intrusion Arch Wire



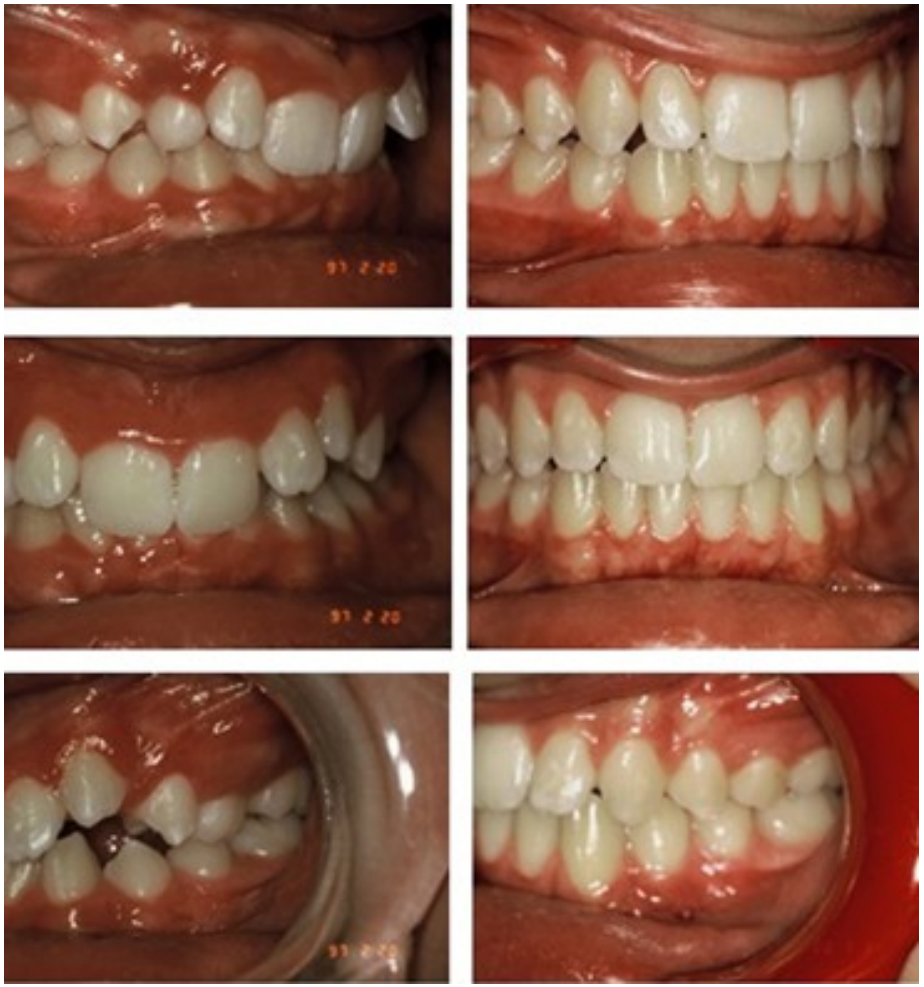
Sergei Godeiro Fernandes Rabelo Caldas, Alexandre Antonio Ribeiro, http://www.scielo.br/pdf/dpjo/v19n2/2176-9451-dpjo-19-02-00126.pdf

7-Case report

- Class II divison 1 deep bite
- Class II division 2 Deep bite

Class II divison 1 deep bite case 1

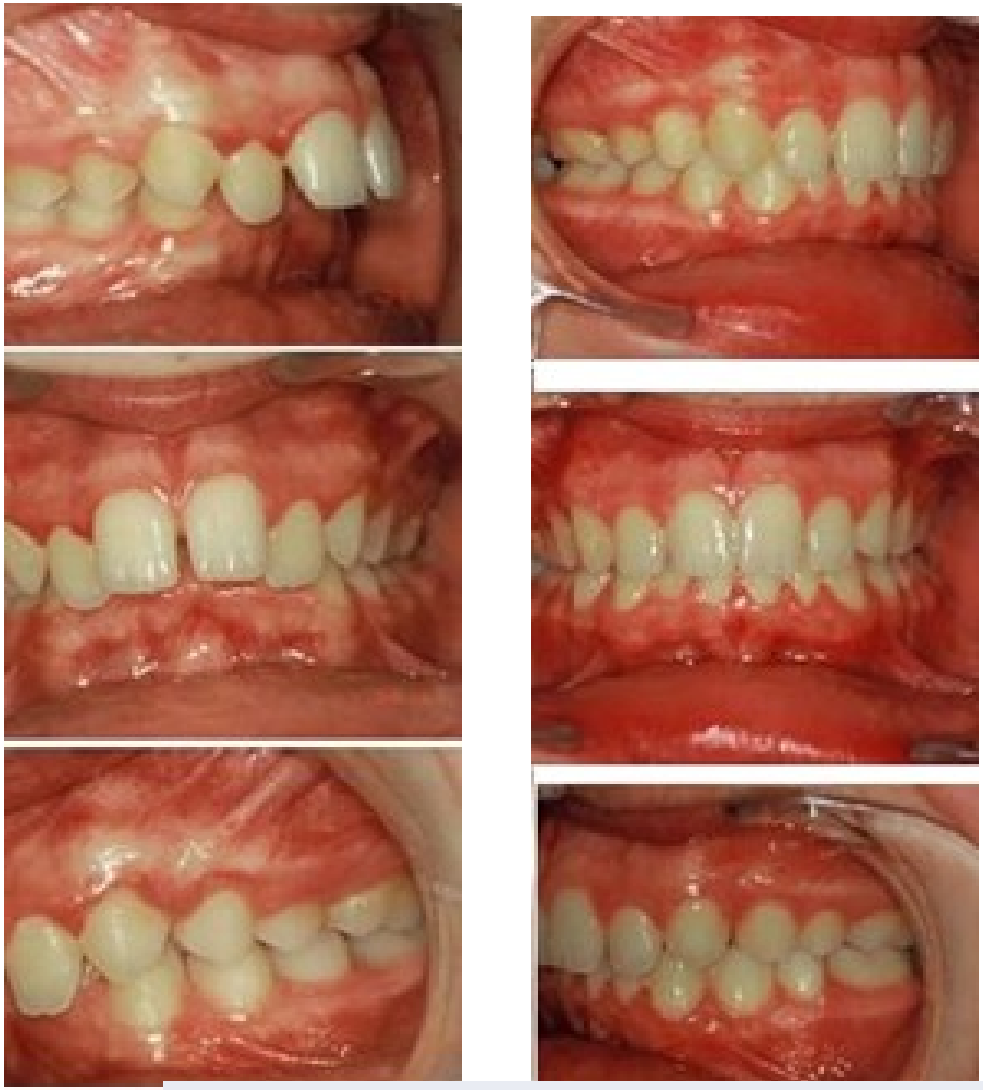
M. ABOULNASER - O. SANDID



Before & After Treatment Results

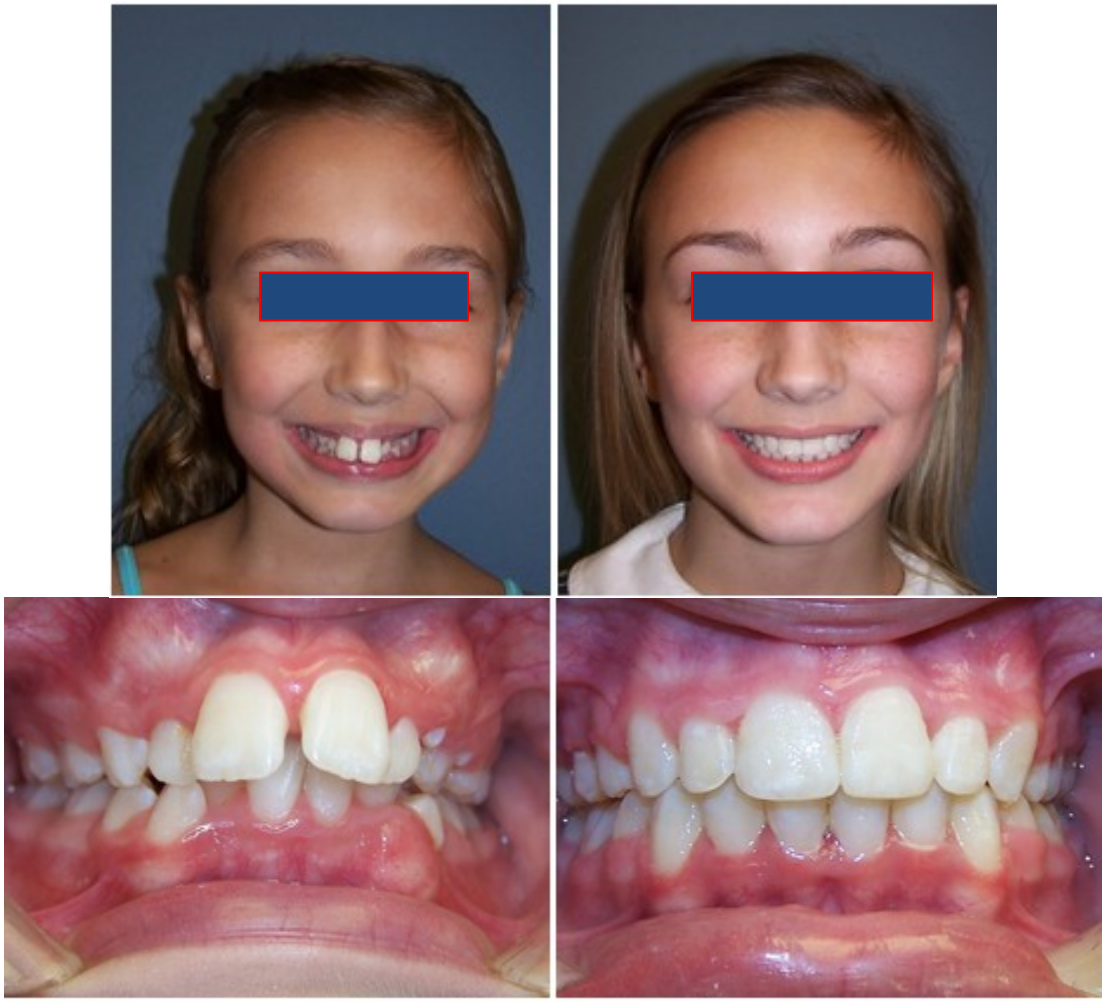
Class II division 2 Deep bite: case 2

M. ABOULNASER - O. SANDID



Before & After Treatment Results

Class II division 2 Over Bite and Narrow Arch**: case 3**



Before After

http://www.hodgesortho.com/photogallery/amazing-smiles-11602/over-bite-and-narrow-arch-45452

Conclusion

- Deep anterior bites are a common problem amongst patients with correction of deep overbites often a strong functional indication for orthodontic treatment. Uncorrected deep bites may lead to loss of tooth structure due to attrition, as well as periodontal compromise due to traumatic occlusion and impingement. It is important to assess the patient facially, skeletally and dentally to ensure correct diagnosis of the vertical dimension. Identification of the aetiology of the deep bite will allow formulation of appropriate treatment mechanics.

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- [9] Karanth DHS, Shetty SV. Comparative study of various Intrusion arches. *J Ind Orthod Soc*. 2001;34:82-91.
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