

Transforming Class II Treatment



AdvanSync™
CLASS II MOLAR-TO-MOLAR

Class II Overview

- One of the most common conditions
- Headgear, elastics, surgery, removable and fixed appliances treat Class II cases
- Most do not simultaneously advance the mandible while correcting malocclusions

The AdvanSync Opportunity

- AdvanSync represents a breakthrough in Class II therapy; “game changing technology”
- Addresses a significant market need
- A large Herbst user base exists and is convertible
- Great for existing accounts and for competitive account building potential

Breakthrough Design

- Allows doctors to bond 5-to-5 while treating the Class II
- Half the size of other Herbst appliances



MiniScope vs. AdvanSync

- Offers clinicians the ability to fabricate approx. 70% to 75% of cases in-house

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Which Patients?

- 60% to 70% of all patients starting orthodontic treatment have a Class II malocclusion
- Of these patients, 70% of them are mandibular deficient
- Patient's aged 7 and up
- Mixed or permanent dentition
- Mild and severe Class II's
- Also works for non-growing (adult) patients



Improved Comfort

- Clinical trial showed that the AdvanSync appliance is more comfortable than previous Herbst appliances.
- No cantilever arms and screws in the bicuspid area make AdvanSync almost undetectable in the patient.



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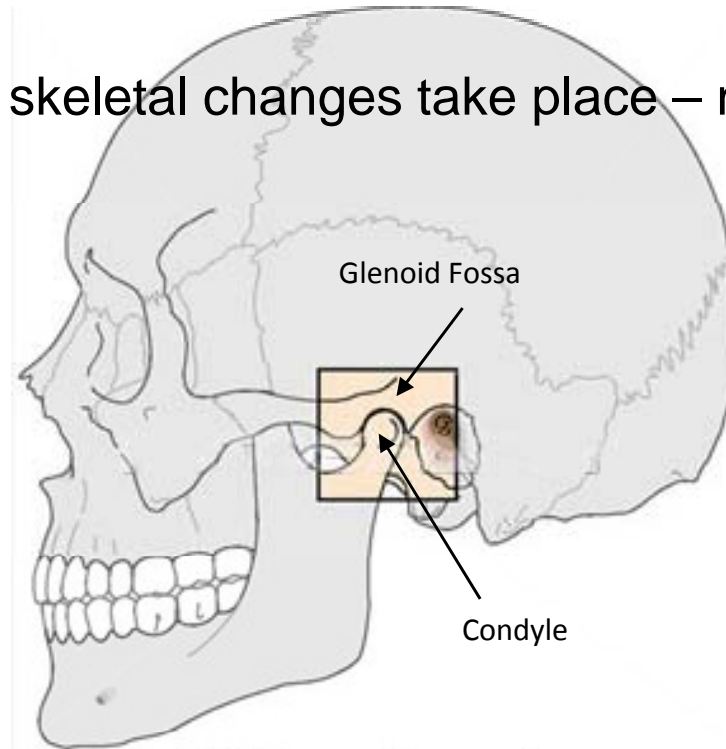
How the Herbst Works

- Upper and lower crowns linked by arm or telescoping mechanism
- Mechanism holds mandible forward in protruded position during treatment to modify mandibular growth
- Allows opening/closing movement of the mandible as well as lateral movement
- Generates forward growth of glenoid fossae



Orthopedic Correction

- Forces the mandible forward which unloads the condyle in the fossa.
- A combination of condylar growth and remodeling of the fossa occurs.
- Studies confirm that true skeletal changes take place – not just dental movement.



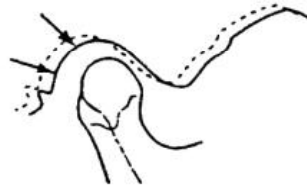
Condylar Growth



Condylar Reshaping



Fossa Remodeling



Temporal Bone Rotation




Maxillary Growth Inhibition



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Herbst Research

AJO-DO




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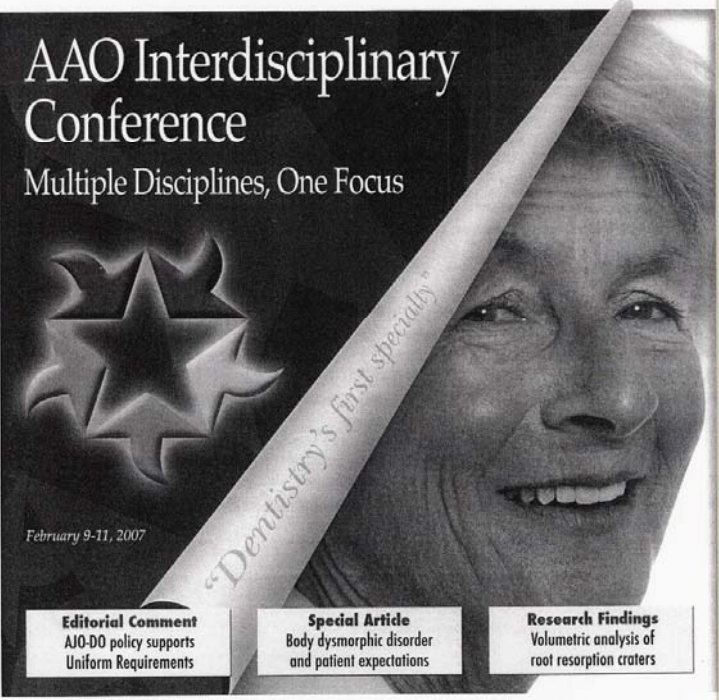
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Editorial Comment
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ORIGINAL ARTICLE



Treatment effects of the edgewise Herbst appliance: A cephalometric and tomographic investigation

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Introduction: The crown Herbst appliance was introduced in the late 1980s because of shortcomings of the banded Herbst. In edgewise Herbst treatment, a fixed appliance is used with the crown Herbst to maximize the skeletal effects of treatment. Treatment response to the edgewise Herbst appliance has not been reported in the literature. Our objective was to investigate skeletal and dental changes in patients with Class II malocclusions treated with the edgewise Herbst appliance. **Methods:** Fifty-two consecutive patients were treated with the edgewise Herbst appliance; 32 (18 girls, 14 boys) met the criterion of 16 months out of Herbst treatment and were included in the study. Mean treatment time with this appliance was 8.0 ± 1.8 months. Patients in the mixed dentition received additional treatment with 2×4 appliances until proper overbite, overjet, and torque on the incisors and permanent first molars were achieved. Patients in the permanent dentition were treated with full appliances to finalize the occlusion. Cephalometric measurements were taken at pretreatment, posttreatment, and 16 months after removal of the Herbst appliance, and the results were compared with 32 untreated Class II subjects from the Bolton Brush Study, matched for sex, age, and cephalometric dentofacial morphology. Data were analyzed with ANOVA, Tukey-Kramer multiple comparison tests, and 2-tailed *t* tests. **Results:** After 8 months of Herbst treatment, incisal relationship was overcorrected to an end-to-end incisal relationship and improved 8.4 mm, compared with the control group. The maxilla moved backward 1.4 mm at Point A, and the mandible moved forward 1.7 mm. The maxillary incisors moved lingually 1.7 mm, and the mandibular incisors were proclined 3.6 mm. The molars were corrected to a Class III relationship with a change of 7.2 mm compared with the control group. The mandible moved downward and forward. However, the condyle showed only 0.2 mm forward movement in the fossa. Sixteen months after appliance removal, the molars had relapsed into a Class I relationship, for a net change of 2.4 mm compared with the control group. Net overjet gain was 2.7 mm. Net restraint of maxillary growth was 1.3 mm, and net forward movement of the mandible was 1.0 mm. The maxillary incisors had no net movement, and the mandibular incisors had a net forward movement of 0.3 mm. Overall, skeletal change contributed 85% of the net overjet correction. **Conclusions:** Class II treatment with the edgewise Herbst appliance is accompanied by both skeletal and dental changes. The changes are stable, with significant skeletal differences remaining 16 months after appliance removal. The forward and downward movement of the mandible with minimal changes in the position of the condyles in the fossae suggests a combination of condylar growth and remodeling of the glenoid fossa with treatment. (*Am J Orthod Dentofacial Orthop* 2006;130:582-93)

The Herbst appliance was introduced in the early 1900s by Emil Herbst as a fixed bite-jumping device for Class II treatment.¹ Pancherz^{2,3} reintroduced the Herbst in the 1970s as a banded appliance and called attention to the possibilities of stimulating mandibular condylar growth. The crown Herbst was introduced in the late 1980s in response to breakage problems and shortcomings of the banded Herbst appliance.⁴⁻⁷ The crown Herbst is worn full time, unlike a removable functional appliance. The active treatment time is relatively short and requires little or no patient cooperation, and the appliance is streamlined, making hygiene simple. Research showed that the Herbst appliance can correct Class II skeletal problems by

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Herbst Research

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Treatment effects of the edgewise Herbst appliance: A cephalometric and tomographic investigation

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- *Conclusions:* Class II treatment with the edgewise Herbst appliance is accompanied by both skeletal and dental changes. The changes are stable, with significant skeletal differences remaining 16 months after appliance removal. The forward and downward movement of the mandible with minimal changes in the position of the condyles in the fossae suggests a combination of condylar growth and remodeling of the glenoid fossa with treatment.

Overview of Class II Alternatives

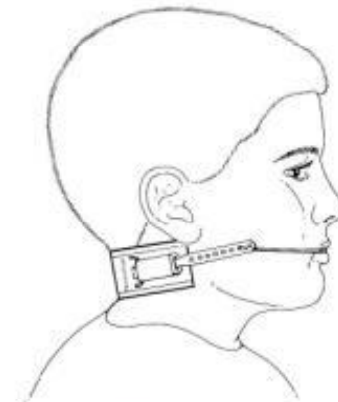


Figure 5-6. Cervical-pull facebow with safety release.

Class II Treatment Options

- Fixed Appliances
- Removable Appliances
- Elastics
- Headgear
- Surgery

CJB (Traditional Model)

- Use of 4 mm or 5.5 mm hex head screws.
- CekaBond or Loctite is recommended to keep screws tight.
- Activated with traditional spacers 1-5 mm.
- **Advantages/Disadvantages:**
 - Non-telescoping - Rod and Tube may separate leading to emergency appointment
 - Long cantilever design required
 - Least expensive design



Flip Lock

- **NO Screws**
- **Ball and Socket allows for greater lateral excursion.**
- **Activated with 1-4 mm C-Spacers**
- **Advantages/Disadvantages:**
 - Non-telescoping – rod and tube may separate. Long cantilever design required
 - Fragile connector to the crowns
 - Generally considerable up – charge



Hanks Telescoping Herbst

- Patient can not disengage
- Greatest lateral excursion of all the mechanisms
- Screws are encased in mechanisms
- 1-2 mm C-Spacers
- **Advantages/Disadvantages:**
 - Considered more fragile than MiniScope
 - Considerable up – charge
 - Several sizes available to reduce length of cantilever



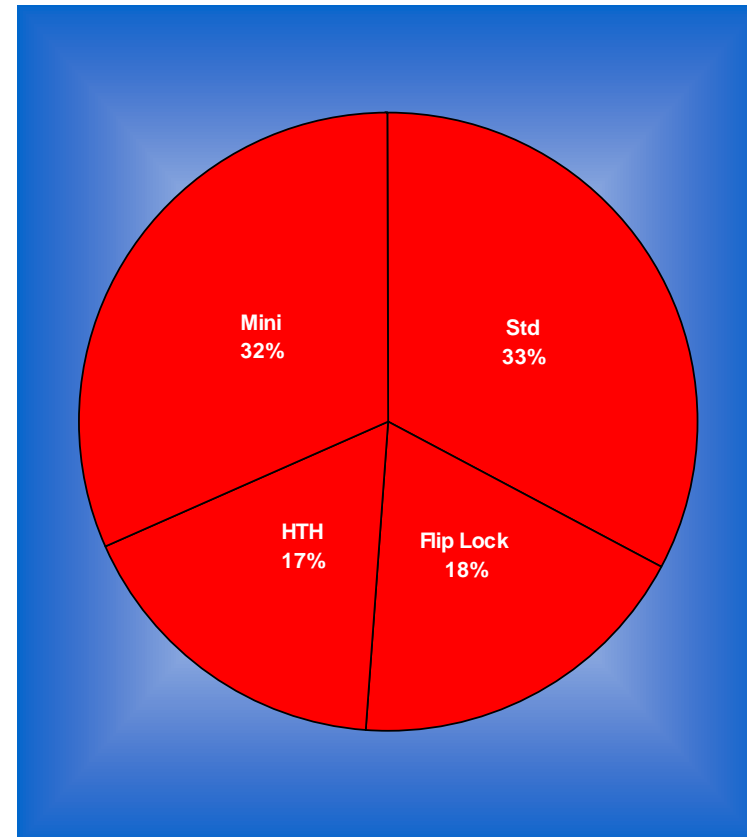
MiniScope

- Patient will not be able to disengage from mechanism.
- Telescoping format allows mechanism to be shorter.
- Lower axel between 1st and 2nd bicuspids
- Apple Core Screws increase lateral movement.
- 1-2 mm C-Spacers
- **Advantages/Disadvantages**
 - Versatile – Apple Core screws
 - Several lengths available
 - Requires cantilever and prevents bonding of the lower bicuspids



Usage of Various Herbst models

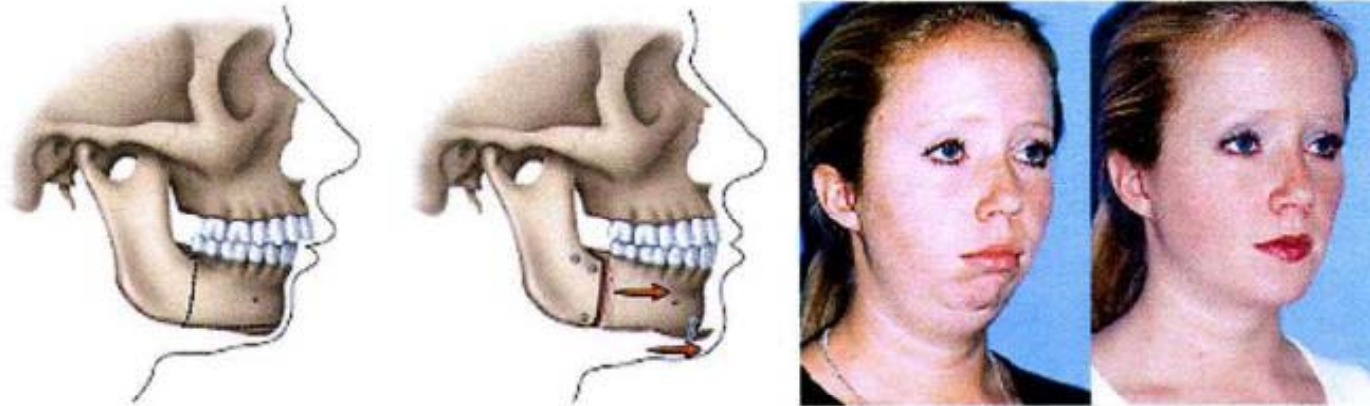
- Std Mechanisms – 29%
- Flip Lock Mechanisms – 18%
- HTH Mechanisms – 17%
- MiniScope Mechanisms – 34%
- Other – 2%



Perception / Negatives of Herbst

- Breakage
- Cheek Irritation
- Expense
- Need to use Commercial Laboratory
- Patient's reaction to the size of the appliance
- Timing of Herbst treatment and coordination with brackets.

Orthognathic Surgery Mandibular Advancement



Correcting a Receding Lower Jaw or "Weak Chin": The bone in the lower portion of the jaw is separated from its base and modified. The tooth-bearing portion of the lower jaw and a portion of the chin are repositioned forward.

Inappropriate for growing individual. Cost and recovery.

What Else is in the Orthodontists' Drawer?

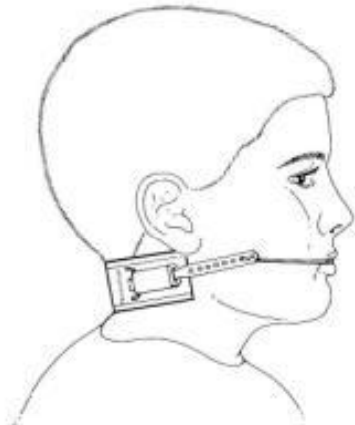


Figure 5-6. Cervical-pull facebow with safety release.

Headgear to restrain the Maxilla

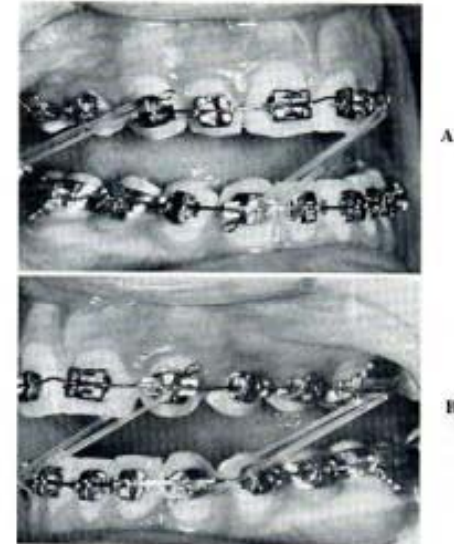


Fig. 17-11 ■ Midline correction can be approached with any combination of asymmetric posterior and anterior diagonal elastics. A, B, In this patient, a combination of Class II, Class III, and anterior diagonal elastics are being used, with a rectangular archwire in the lower arch and a round wire in the upper, attempting to shift the maxillary arch to the right.

Notice: Compliance Required!! Class II Elastics

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Removable Functional Appliances

Notice

24/7 compliance is unlikely.
Appliance loss is likely.



Twin Block



Frankel Functional Regulator



Bionator, Orthopedic Correctors and Activators

AdvanSync Marketing



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4 Key Value Messages

- Class II Treatment in Class I Time
- Achieves Maximum Orthopedic Correction
- Improved Patient Comfort and Satisfaction
- Convenient and Easy to Use

Class II Treatment in Class I Time

- Appliance placed simultaneously at initial bonding, eliminating need for two phase treatment
- Completes treatment within 6 to 9 months—synchronized with orthodontic treatment
- Provides constant activation, eliminating need for patient compliance

Maximum Orthopedic Correction

- Advances mandible while restraining maxillary growth
- Produces long term orthopedic changes as documented by clinical research
- Generates forward growth of glenoid fossae with minimal changes in position of the condyles in the fossae
- Immediate improvement in jaw position

Improved Patient Comfort

- Arms are 50% shorter than those in previous Herbst appliances
- Sits further back in the mouth than other Herbst appliances for a more discreet appearance
- Facilitates enhanced lateral jaw movement
- Speech is unaffected—unlike removable appliances
- Patients adjust to appliance very quickly

Convenient and Easy to Use

- Easy to deliver for doctors and staff
- No TPAs or lingual arches necessary
- Allows freedom of mechanics mesial to the molar crowns
- Simple and streamlined design
- Built in activation—no need to change arms for final activation

Components of 10 Patient Kit

Rods/Telescopes	20
Screws	40
Upper Crowns	20
Lower Crowns	20
1mm Spacers	40
2mm Spacers	80
Extenders	20
Large Wrench	2
Small Wrench	3



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