

# Anterior Crossbite Treated with Four-Bicuspid Extraction and Insignia® System without Manual Adjustments or TADs

## Abstract

An 18-year-old girl reported with chief complaints of crooked teeth, prominent chin, and depression of mouth corners. She was diagnosed with a unilateral end-on Class III (Super Class I) with anterior crossbite, and severe crowding (20mm) in the upper arch. The orthodontic treatment was accomplished in 19 months with extraction of the four first premolars and the application of a custom-made self-ligating orthodontic appliance, Insignia® (Ormco, Brea, CA). There was no bracket repositioning nor archwire adjustments. At the one- and two-year follow-up, the improved functional occlusion and esthetics were stable. (J Digital Orthod 2021;62:52-70)

### Key words:

Insignia® system, customized passive self-ligating bracket, digital set-up, bite turbos, anterior crossbite

## History and Etiology

An 18-year-old girl presented with chief complaints of crooked teeth, prominent chin, and depression of the mouth corners. The patient had no history of systemic diseases.

The dental nomenclature for this report is a modified Palmer notation. Upper (U) and lower (L) arches, as well as the right (R) and left (L) sides, define four oral quadrants: UR, UL, LR, and LL. Teeth are numbered 1-8 from the midline in each quadrant, e.g., a lower right first molar is LR6.

## Diagnosis

A clinical extraoral examination showed a straight profile, prominent chin, facial symmetry, and smile line with normal gingival exposure. The intraoral

examination exhibited coincident upper and lower dental midlines, unilateral end-on Class III (Super Class I)<sup>1</sup> and an incisor crossbite. Severe crowding (20mm) was found in the upper arch, and there was mild crowding (5mm) in the lower arch. The overbite measured 1mm, and the overjet was -0.5mm. The pink and white esthetic analysis showed good oral hygiene and sound soft tissues with no gingival recession nor non-carious cervical lesions. The height of the gingival margins in the esthetic zone of the maxillary anterior region exhibited a natural high-low-high pattern. The size, shape, and proportion of the teeth were good. Four impacted wisdom teeth were revealed by the panoramic radiograph. The temporo-mandibular joint image demonstrated bilateral condyles with similar sizes and no obvious defects. The cephalometric radiograph revealed

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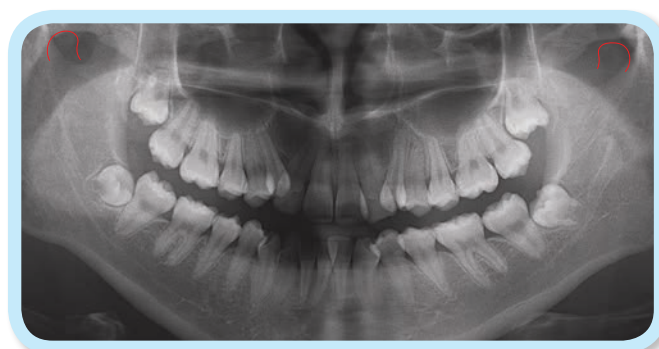
a skeletal Class I relationship, proclined upper incisors ( $U1$  to  $SN=111^\circ$ ), and retroclined lower incisors ( $L1$  to  $MP=80.5^\circ$ ). The mandible was protrusive (Figs. 1-5; Table 1). As shown in the subsequent worksheet, the American Board of Orthodontics (ABO) Discrepancy Index (DI) was  $13^2$  (Worksheet 1).



■ Fig. 1: Pre-treatment facial and intraoral photographs



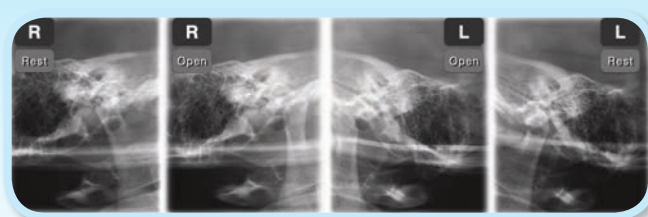
■ Fig. 2: Pre-treatment study models (casts)



■ Fig. 3:  
Pre-treatment panoramic radiograph shows the impacted 3<sup>rd</sup> molars.



■ Fig. 4: Pre-treatment cephalometric radiograph



■ Fig. 5:  
Pre-treatment TMJ transcranial radiographs show bilateral condyles with similar sizes and no obvious defects.

### CEPHALOMETRIC SUMMARY

#### SKELETAL ANALYSIS

	PRE-Tx	POST-Tx	DIFF.
SNA° (82°)	84.5°	85°	0.5°
SNB° (80°)	85°	84.5°	0.5°
ANB° (2°)	-0.5°	0.5°	1°
SN-MP° (32°)	36.5°	37°	1.5°
FMA° (25°)	28.5°	30°	1.5°

#### DENTAL ANALYSIS

U1 To NAm (4mm)	3.5	3	0.5
U1 To SN° (104°)	111°	116.5°	5.5°
L1 To NBmm (4mm)	4.5	2	2.5
L1 To MP° (90°)	80.5°	72°	7.5°

#### FACIAL ANALYSIS

E-LINE UL (-1mm)	3	0	2
E-LINE LL (0mm)	5	1	1.5
Convexity: G-Sn-Pg' (13°)	2°	3.5°	1.5°
%FH: Na-ANS-Gn (53%)	59%	59%	0%

■ Table 1: Cephalometric summary

### Treatment Objectives

#### Maxilla (all three planes):

- A-P: Maintain
- Vertical: Maintain
- Transverse: Maintain

**Mandible (all three planes):**

- A-P: *Maintain*
- Vertical: *Maintain*
- Transverse: *Maintain*

**Maxillary dentition:**

- A-P: *Correct the unilateral end-on Class III by protracting the UL6.*
- Vertical: *Maintain*
- Inter-molar/Inter-canine width: *Decrease the inter-canine width by aligning the blocked-out canines, and increase the inter-molar width for to correct buccal overjet.*

**Mandibular dentition:**

- A-P: *Retract the lower anterior teeth for anterior crossbite correction.*
- Vertical: *Maintain*
- Inter-molar / Inter-canine width: *Increase*

**Facial esthetics:** Correct the depression of mouth corners by correcting the anterior crossbite.

**Treatment Plan**

1. Extract the two upper first premolars to relieve the severe crowding of 20mm in the maxillary arch and to maintain the good upper facial profile.
2. Protract UL6 to correct the end-on Class III molar relationship on the left side.
3. Extract the two mandibular first premolars and retract the lower anterior teeth to correct the anterior crossbite.

**Digital Set-Up**

- (1) Overbite and overjet: Set to 1.5mm (Fig. 6)
- (2) Extract upper and lower first premolars.
- (3) Torque compensation by the system: On
- (4) Set the archwire plane to the center of the upper and lower central incisors.

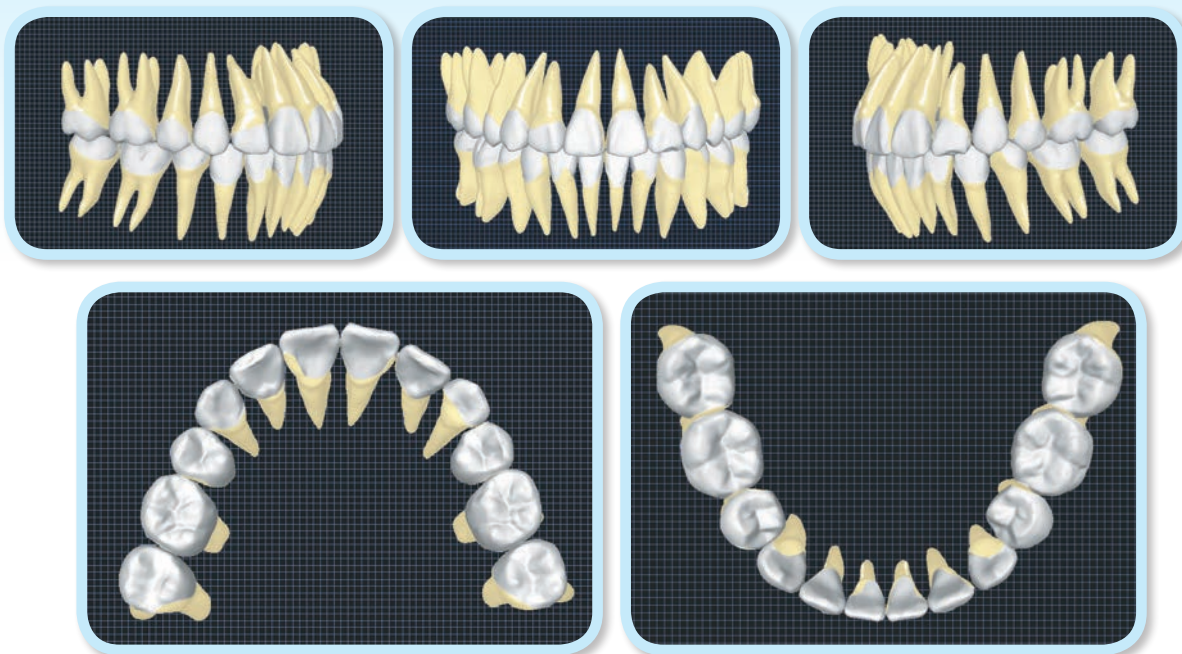
Insignia® is a highly efficient leveling, aligning, and torque expressing tool. While brackets and wires are digitally customized, the anchorage is managed clinically with elastics, TADs, and ligature wires. Consequently, it is unnecessary to tell the technicians how the doctor would like to close the extraction spaces. The digital set-up should be as simple as the example above.

Sometimes it is impossible to achieve good crown and root alignment at the same time given that the tooth morphology has been modified by either attrition or previous dental restorations. With TruRoot® data integration of Insignia®, the decision of whether to align the roots or crowns is left to the doctor's discretion. In this case, the decision was made to align the marginal ridges instead of the roots considering that there were no caries nor any ill-fitting restorations (Fig. 6)

**Appliance and Treatment Progress**

The treatment was initiated with bonding of a 0.022-in slot Insignia® fixed appliance (Ormco, Brea, CA). Subsequently, all four premolars were extracted. The study cast was a useful tool for the assistant to make sure that the jigs fitted well and were seated into a



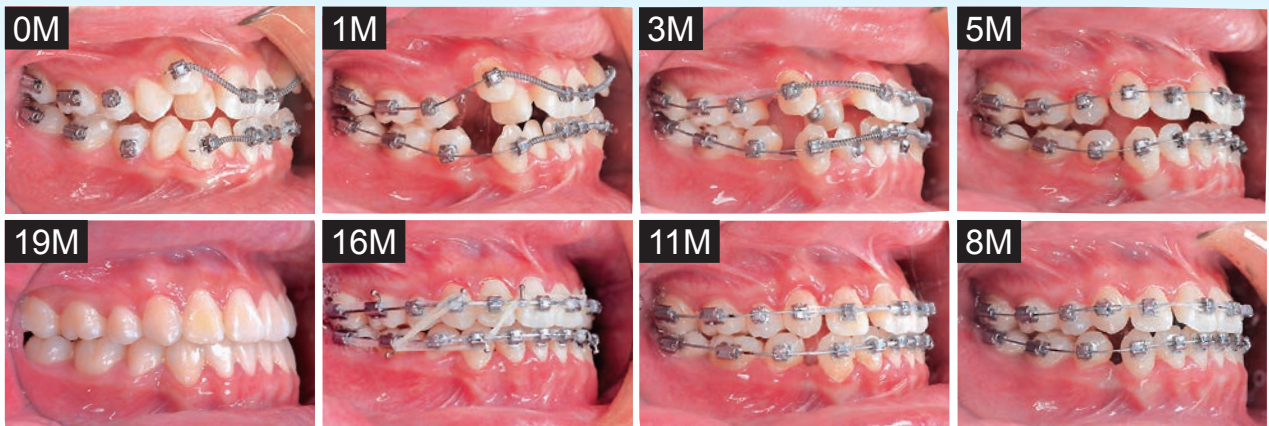


■ Fig. 6:

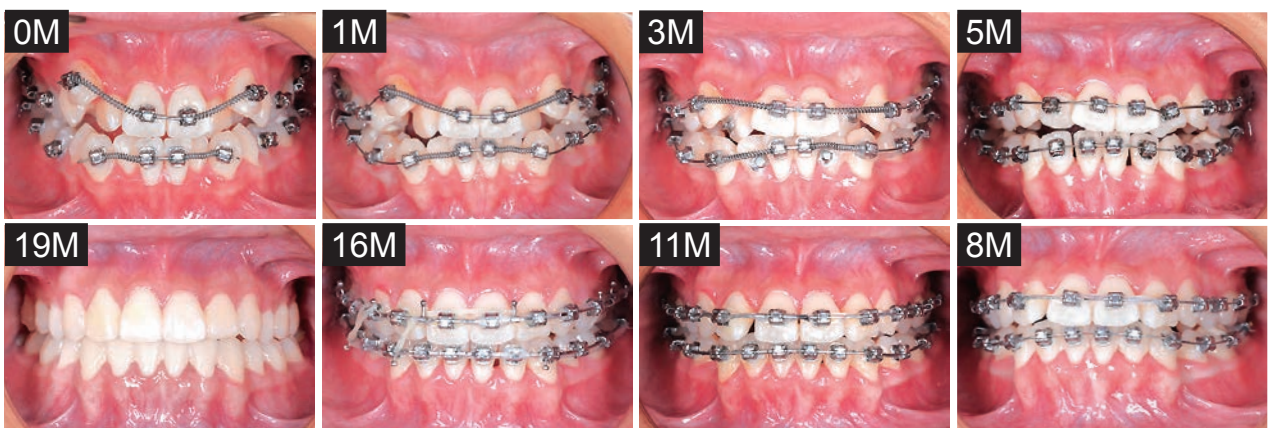
*Different from aligners, for customized braces, only the end result and bracket position need to be checked in the digital set-up. Especially in an interdisciplinary treatment, with TruRoot<sup>®9</sup> data integration of Insignia<sup>®</sup>, the doctors and specialists can specifically and efficiently decide whether to align the crowns or the roots via online communication.*

stable position.<sup>6</sup> It could also be used as a guide to cut the first archwire extraorally to the proper length. Self-curing Type II glass ionomer cement (GIC) Fuji II<sup>®</sup> (GC America, Alsip IL) was applied on the occlusal surfaces of both L6s for the purpose of opening the bite. Open coil springs were placed between the central incisors and canines, which led to the distalization of the canines and the flaring out of the central incisors, thereby relieving the crowding and correcting the anterior crossbite. Since there was much more severe crowding in the upper arch (20mm) than the lower (5mm), the upper incisors are more susceptible to flaring. Consequently, the central incisor crossbite was corrected within the first month of the treatment. The remaining height of the bite turbos and the amount of lateral incisor crossbite were checked at every visit to ensure there

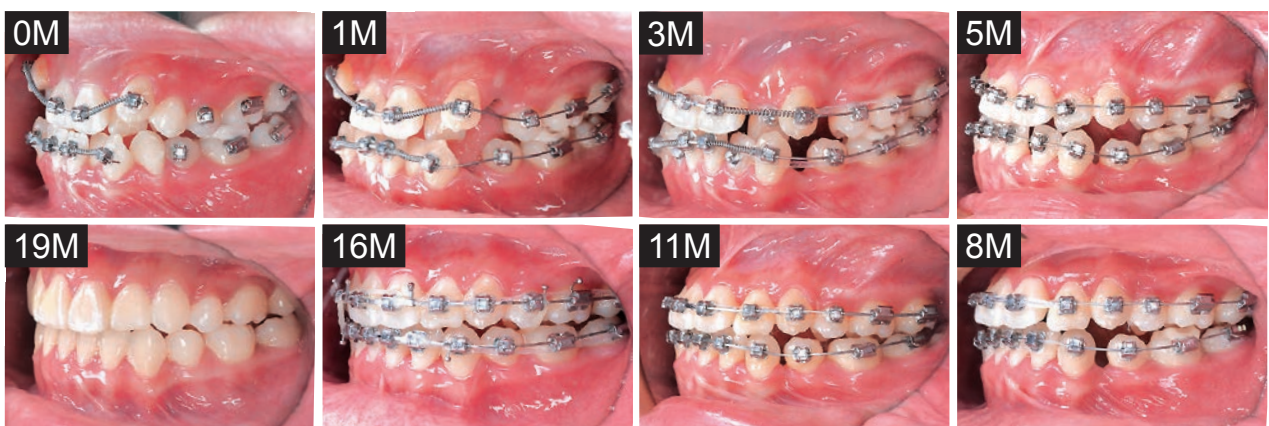
was sufficient vertical clearance for the blocked UR2 and UL2 to move out labially (Figs. 7-9, 3M). The patient was trained to use a tongue blade to squeeze out the blocked-in upper lateral incisors. In the fifth month of treatment, the lower dental midline shifted to the right due to light premature contact between UL2 and LL3. With the gradual alignment of UL2, the mandibular functional shift diminished accordingly (Figs. 8-9, 5M). Despite that the UR2, UR1, UL1, and UL2 were bound together with a power chain, UR2 flared out in the 11<sup>th</sup> month of treatment due to a premature contact with LR3. This, however, was only temporary since the distalization process of LR3 was still under way (Figs. 7-8, 11M). In the 14<sup>th</sup> month of treatment, interproximal reduction was performed on the upper incisors to enhance the anterior Bolton ratio. In the 16<sup>th</sup> month, the upper



■ Fig. 7: Treatment progression from the right buccal view is shown for 19 months (M) of active treatment in a clockwise order. See text for details.

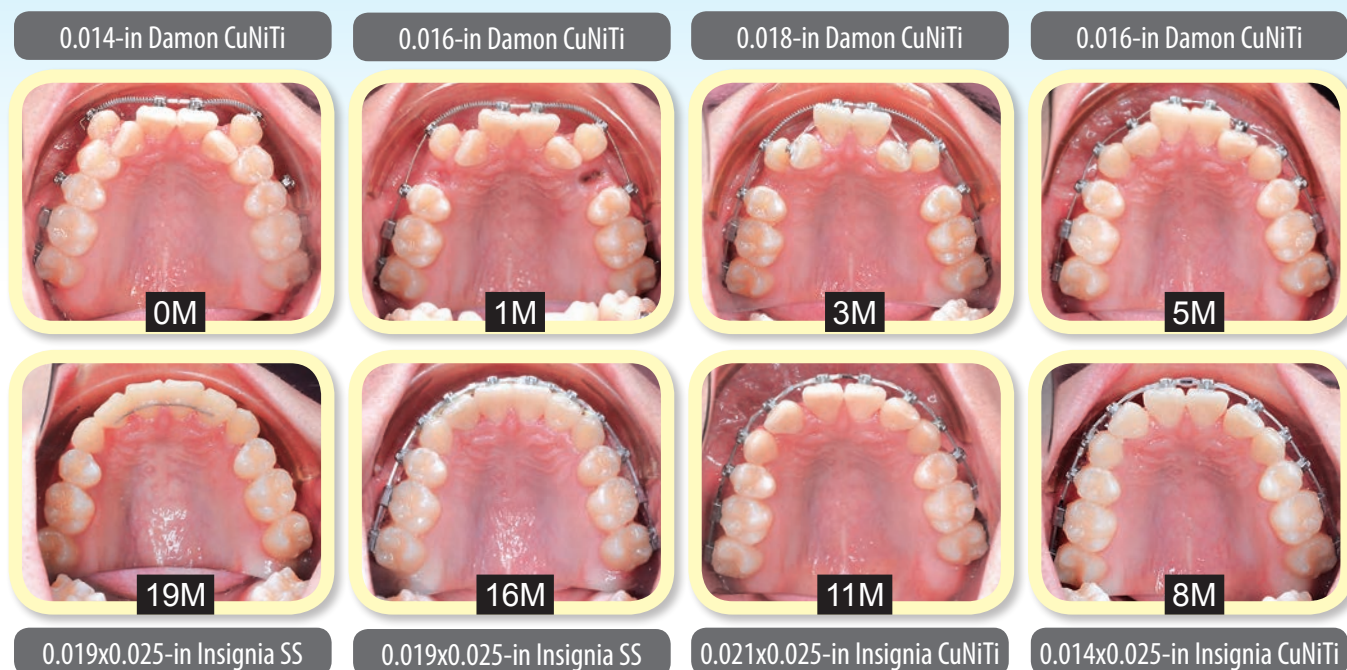


■ Fig. 8: Treatment progression from the frontal view is shown for 19 months (M) of active treatment in a clockwise order. See text for details.



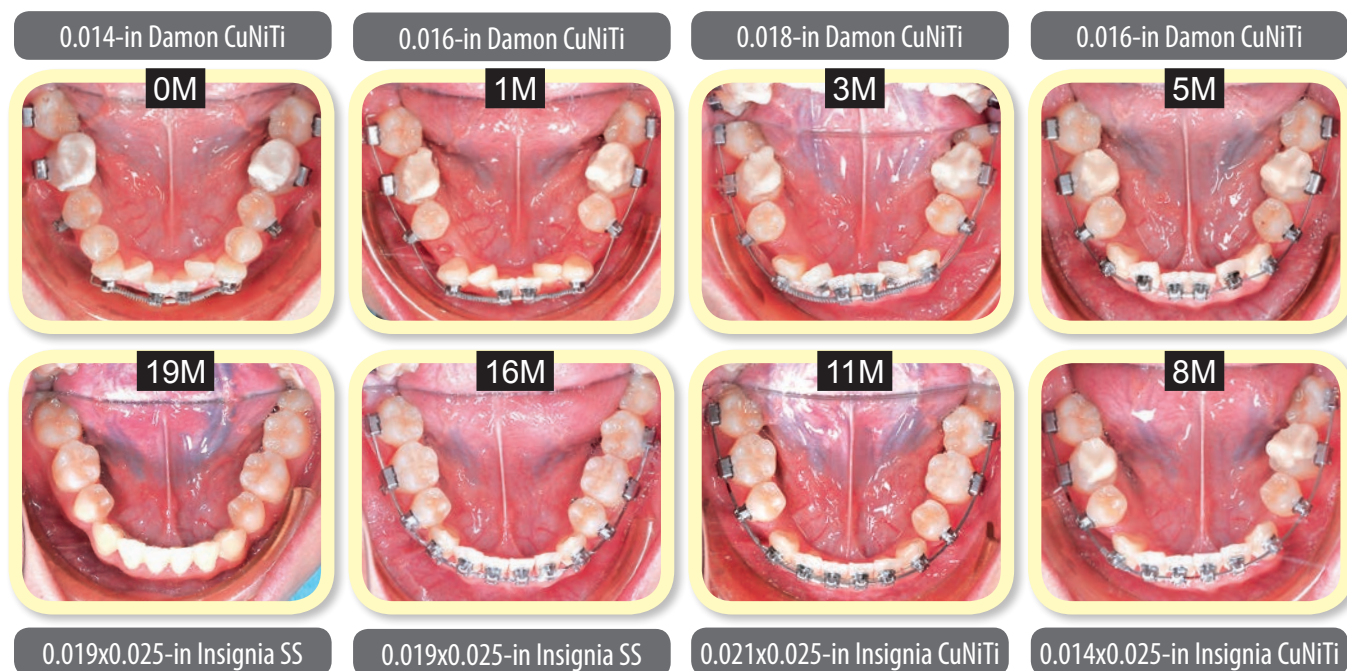
■ Fig. 9: Treatment progression from the left buccal view is shown for 19 months (M) of active treatment. See text for details.





■ Fig. 10:

Treatment progression of the maxillary arch is shown from the occlusal view for 19 months (M) in a clockwise order. Open coil springs were placed between the central incisors and canines for canine distalization and flaring of the central incisors. See text for details.



■ Fig. 11:

Treatment progression of the mandibular arch is shown from the occlusal view for 19 months (M) in a clockwise order. Placement of open coil springs in the third month was the active mechanics to correct lower arch crowding. Since the premolars were extracted, the additional use of a power chain during the 0.018-in NiTi archwire phase was not necessary.

and lower midlines became coincident. This was achieved by the application of Class II elastics (3.5-oz Fox,Ormco) on the right side, and a short crossbite elastic (3.5-oz Chipmunk,Ormco) on the left side to keep the occlusion settled (Figs. 8-9, 16M). Asymmetry of the gingival margin in the upper anterior teeth was noticed. Considering that the gingival line could not be seen at all even with the broadest smile, the patient refused the recommendation of gingivoplasty with a diode laser (Fig. 12). After 19 months of active treatment, all appliances were removed. There was no manual adjustment of the bracket bonding positions nor wire bending throughout the entire treatment period.

## Result Achieved

### Maxilla (all three planes):

- A-P: *Maintained*
- Vertical: *Maintained*
- Transverse: *Maintained*

### Mandible (all three planes):

- A-P: *Maintained*
- Vertical: *Maintained*
- Transverse: *Maintained*

### Maxillary dentition:

- A-P: *UL6 was protracted to correct the end-on Class III. The upper incisors were flared 5.5° to achieve a positive overjet, and to maintain the good upper facial profile (Fig. 16).*
- Vertical: *Maintained*
- Inter-molar / Inter-canine width: *The inter-canine*

*width was decreased by aligning the blocked-out canines, and the inter-molar width was slightly increased to achieve a positive buccal overjet.*

### Mandibular dentition:

- A-P: *The lower anterior teeth were retracted and retroclined by 7.5° to correct the anterior crossbite (Fig. 16).*
- Vertical: *Maintained*
- Inter-molar / Inter-canine width: *Increased*

### Facial esthetics:

The depression of mouth corners was corrected. The chin is less prominent in appearance and the facial profile has become more pleasing (Fig. 12).

## Maintenance

Fixed lingual retainers (Maxillary 2-2 and Mandibular 2-3) were bonded, and clear overlay retainers for both arches were delivered. The patient was instructed to wear the overlay retainers full time for the first month and nights only thereafter. Instructions were given for both oral hygiene and retainer maintenance.

## Final Evaluation of the Treatment

An ABO Cast-Radiograph Evaluation score of 7 points<sup>4</sup> was achieved. The major discrepancies were the mild end-on Class III molar relationship on the left side (2 points), the occlusal contacts on the left side (2 points), and the root angulation of UR2, LL5, and LR5 (3 points) (Worksheet 2).

Superimposition of the pre and post-treatment cephalometric tracings confirmed the slight flaring



Appointment	Archwire	Notes
1 (0 mo)	U/L: 0.014-in Damon CuNiTi	Disarticulation with posterior bite-turbos constructed with Fuji II® Type II Glass Ionomer cement (GC America, Alsip IL) on the occlusal surfaces of the L6s.  The blocked-in lateral incisors were not bonded.
2 (1 mo)	U/L: 0.016-in Damon CuNiTi	After extraction of U4s and L4s, open coil springs were used to decrowd the anterior teeth.
3 (3 mo)	U/L: 0.018-in Damon CuNiTi	Buttons were bonded to the U2s and L2s in order to rotate the the blocked-in teeth outwardly with power chains.
4 (5 mo)	U/L: 0.016-in Damon CuNiTi	U2s and L2s were bonded and engaged to the main wire. Patient was instructed to use a tongue blade to accelerate pushing the U2s out.
5 (7 mo)	U/L: 0.018-in Damon CuNiTi	A new customized Insignia® bracket was bonded to LL7 with the supplied jig, due to dislodgment and loss of the original bracket.
6 (8 mo)	U/L: 0.014x0.025-in Insignia CuNiTi	A new Damon Q® bracket was bonded to LL7 due to dislodgment and loss of the Insignia® bracket.
7 (9 mo)	U/L: 0.018x0.025-in Insignia CuNiTi	Preparing for the En-Masse retraction, the mandibular anterior teeth were tied together with an 0.010-in stainless steel ligature wire, since they were already well aligned.  The posterior bite turbos were removed, because there was neither a crossbite problem nor bracket biting risk.
8 (11 mo)	U/L: 0.021x0.025-in Insignia CuNiTi	Power chains were used to retract the lower arch En-Masse, and to close all tiny spaces in the upper arch.
9 (13 mo)	U/L: 0.019x0.025-in Insignia SS	
10 (14 mo)		Inter-proximal reduction (IPR) was performed on the upper incisors to optimize the anterior Bolton ratio.  90° dropping hooks were inserted at the L3s, and the Class III elastics (Fox, 1/4-in, 3.5-oz) from L3s to U6s to retract mandibular anteriors were placed.
11 (16 mo)		IPR was performed on the lower incisors to alleviate the dark triangles.  To coincide the upper and lower dental midlines, Class II elastics (Fox, 1/4-in, 3.5-oz) from UR3 to LR6, and from UL1, UR1, LR3, to LR6 were placed.  A crossbite elastic (Chipmunk, 1/8-in, 3.5-oz) from UL5 to the lingual button of LL5 was applied to enhance the occlusion.
12 (17 mo)		Crossbite elastics (Chipmunk, 1/8-in, 3.5-oz) from UL6 and UL7 lingual buttons to the LL6 and LL7 buccal sides were used to settle the occlusion.
13 (19 mo)		All appliances were removed. Anterior fixed retainers were bonded on the anterior teeth. Removable clear overlay retainers were delivered for both arches, and the patient was instructed to wear them full time for the first month and nights only thereafter. Instructions were provided for oral hygiene and maintenance of the retainers.

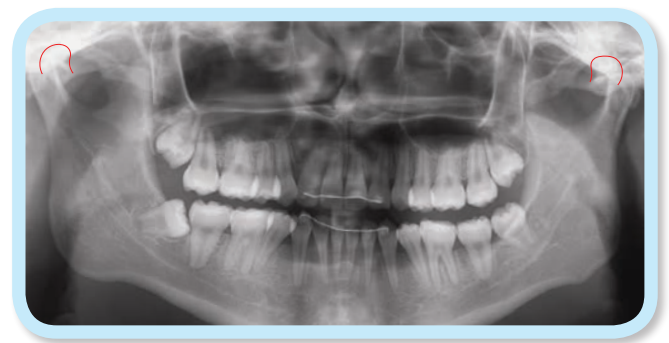
■ Table 2: Treatment Sequence



■ Fig. 12: Post-treatment facial and intraoral photographs



■ Fig. 13: Post-treatment study models (casts)



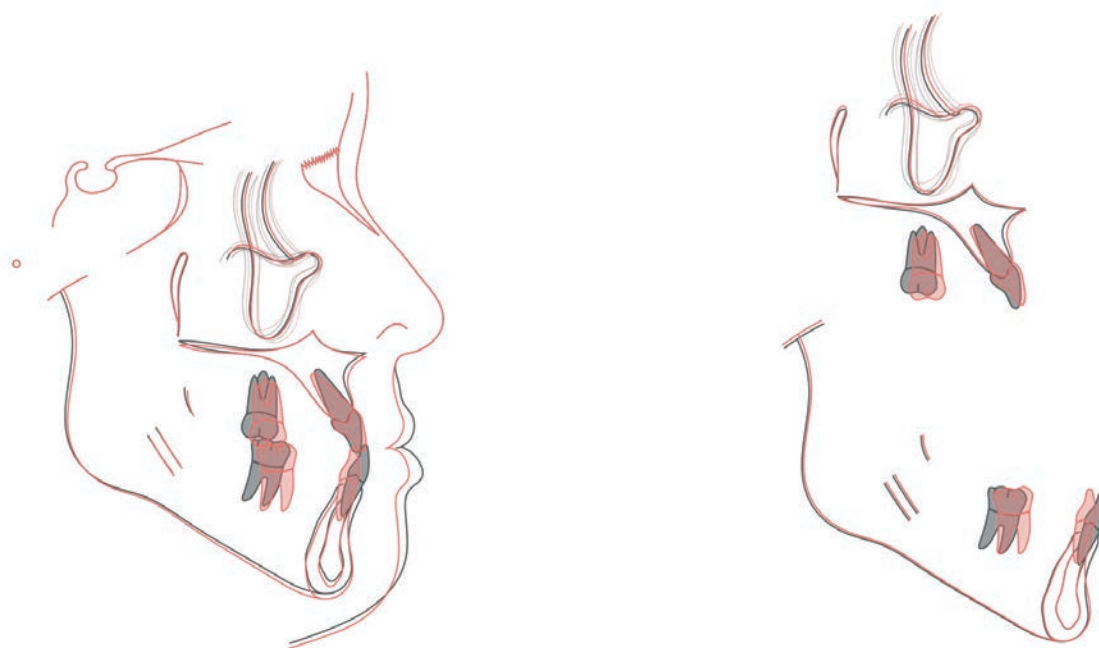
■ Fig. 14:  
Post-treatment panoramic radiograph shows both condylar heads outlined in red.



■ Fig. 15: Post-treatment cephalometric radiograph

out of the upper incisors. This aided the correction of the negative overjet and the maintenance of a good upper lip profile, while the lower incisors were retracted and retroclined. The lower incisor roots were kept in the alveolar process over the bony housing of the mandibular symphysis. There was intentional slight anchorage loss on the upper left molars, which helped to correct the end-on Class III on the left side. The mandible angle was well maintained (Fig. 16).

The IBOI Pink & White dental esthetic score was 2. The gingival margin of UR2 was higher than that of UL2, producing an asymmetry. The size of the UR2 was slightly larger than the UL2. However, since the dental midlines were coincident, the overbite and overjet were normal, and the canines were in a Class



■ Fig. 16:

Superimposed cephalometric tracings (Pre-tx: grey, Post-tx: red) show the dento-facial changes during treatment. The tracings superimposed on the anterior cranial base (left) show the improvement of the profile and a well-maintained mandible position. The superimposed maxillary (upper right) and mandibular (lower right) tracings show that the UL6 was protracted to correct the end-on Class III. The upper incisors were labially flared by  $5.5^\circ$ , and the lower anterior teeth were retracted and retroclined by  $7.5^\circ$  to correct the anterior crossbite. See text for details.



I relationship, there was no need to adjust the size of UR2. The patient was satisfied with her new bright smile (Fig. 12) (Worksheet 3).

At the one-year and two-year follow-up, the dentition displayed stable esthetics and an enhanced functional occlusion with the left molars having gradually settled down. Extraction of all third molars was recommended to prevent caries and periodontitis (Figs. 17 and 20).

## Discussion

### The advantages of customized braces

The precise bracket positioning firstly eliminates the excessive reactivations associated with repositioning procedures. Secondly, a thicker wire can be placed, to fill up more of the 0.022-in slot and decrease the play value.<sup>7,8</sup> This leads to less bowing effect, and promotes more expression of the three-dimensional



■ Fig. 17: One year follow-up facial and intraoral photographs



control of the brackets' built-in prescriptions. For instance, in an extraction case, the main working wire would be a 0.016x0.025-in stainless steel archwire for Damon Q®, and a 0.019x0.025-in stainless steel archwire for Insignia®. Therefore, if used appropriately, Insignia® is expected to cause less mechanical side effects. This means less time spent on adjustments.

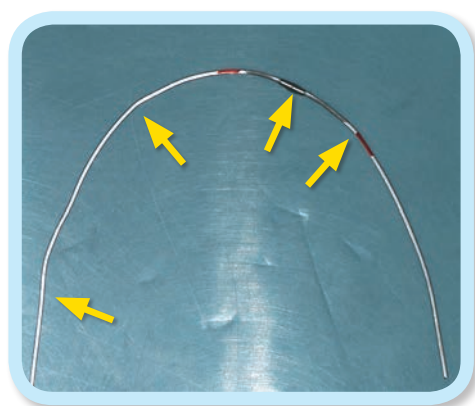
Thirdly, due to the manufactured pre-curved Cu-NiTi archwire (Fig. 18), dentition alignment can be greatly improved in the early treatment stages with flexible wires. This not only promotes easier wire changing, but also reduces the amount of patient discomfort.

Furthermore, TruRoot®<sup>9</sup> eliminates the need for doctors to speculate the root axis direction of a tooth with crowns or extensive restorations. According to the patients' needs and the prosthodontists' suggestions, the doctor can accurately determine

whether to align the crown or the root, thereby facilitating communication and treatment planning.

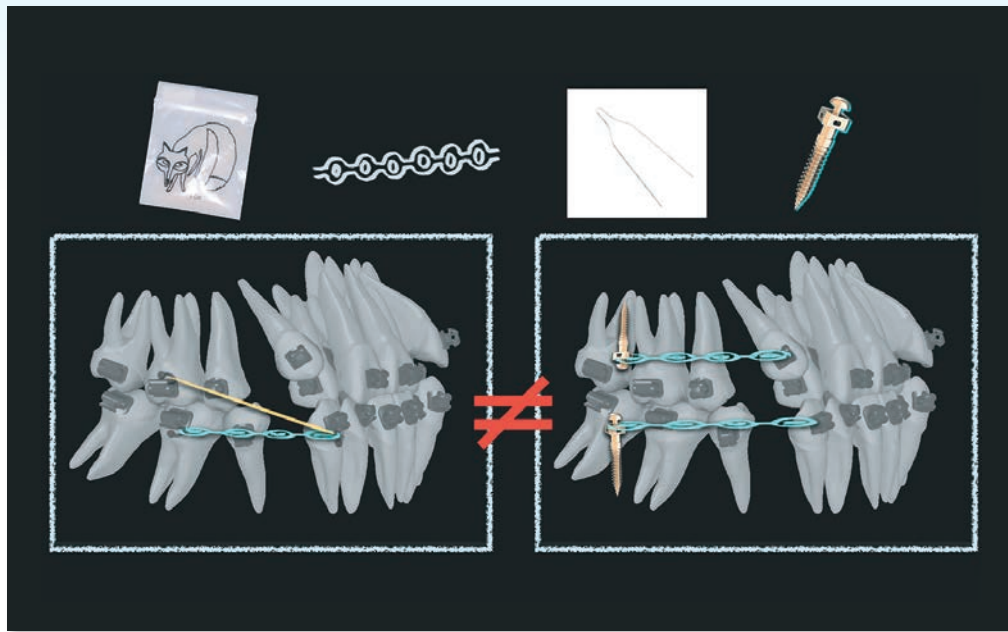
### The differences between customized braces and aligners

The digital designs of customized braces such as Insignia® have minimal mechanical implications (Fig. 19). It can therefore be referred to as a highly efficient leveling, aligning, and torque expressing tool. With these devices, the anchorage is completely controlled by the doctor. The doctor can choose to apply a power chain to exert forces on both ends to achieve slight anchorage loss in the molars, or utilize a bone screw to obtain absolute anchorage. Accordingly, it would make little sense to appoint a program such as *"closing the extraction space 80% by the posterior movement of anterior teeth and 20% by the anterior movement of posterior teeth"* to the Insignia Approver software. When reviewing cases with the Approver software, the animated transformation from T1 (*pre-treatment*) to T2 (*post-treatment*) can be neglected. The focus should be on the quality of dental alignment in T2, and the justification of the relative movements of the roots and crowns with the superimposition of T1 and T2. Conversely, the digital design of aligners (e.g., Invisalign®) has great mechanical implications. The concept can be thought of as built-in power chains in the plastic with staging (*sequential movements of teeth*). Consequently, different designs will result in different anchorage expression, highlighting the importance of the animation during analysis with the ClinCheck® software.



■ Fig. 18:

The customized precurved (arrows) 0.014x0.025-in CuNiTi archwire of Insignia®.



■ Fig. 19:

*The anchorage is managed clinically with elastics, TADs, and ligature wires, not digitally with the customized brackets and wires. See text for details.*

### A new work flow for braces treatment

The course of treatment is divided into two stages, the active stage and the refining stage.<sup>10</sup> The objective of the active stage is to achieve 80% of the treatment goals, including the obtaining of a normal overbite and overjet, the regulation of midline deviation to within 3mm, and the reduction of the extraction space(s) to less than or equal to 1mm. Adjustment of bracket positions and wire-bending should not be undertaken unless a major premature contact or occlusal interference arises. Once the above was attained, the treatment can move on to the refining stage. Photographs,

panoramic radiographs, and oral scans (or study casts) are acquired and analyzed for the planning of treatment finalization. The procedure includes adjustment of the bracket positions, and the course of archwire placement starting from thin flexible wires to thick rigid ones. Since there will be no more drastic tooth movements, which implies less wire deformation, the time interval can be reduced. The material choice of the finishing archwire should not be limited to stainless steel, TMA can be used instead. This approach diminishes the need for repeated changes to the bracket positions and archwires. Higher efficiency and less material waste can be attained.



■ Fig. 20: Facial and intraoral photographs 2 years post-treatment document the current condition of the patient.

### The concept of handling the braces should be followed when using Insignia®

The difference between the predicted and the actual treatment outcome in an Insignia® extraction case is usually the torque of the anterior teeth. Such a deviation is common with fixed mechanics, for example, the exertion of heavy forces on a

round flexible archwire. Another deviation is lack of retraction of the upper anterior teeth in cases with overbite but no overjet. All in all, the recommended concepts for all fixed appliances should be followed when using Insignia® in order to prevent the occurrence of side effects.

If this case were to be retreated, placement of open

coil springs in the third month would implement decrowding of the arch. Since the premolars were extracted, the additional use of a power chain during the 0.018-in NiTi archwire phase was not necessary. That would increase the risk of bowing effect, and also complicate the patient's oral hygiene practice.

## Conclusions

Insignia® is a highly efficient leveling, aligning, and torque expressing tool without mechanical implications such as anchorage. Consequently the digital set-up should be as simple as possible, and only the T2 (*post-treatment simulation*) alignment should be checked.

Additional use of power chains or wire bending increases the friction in the system and PDL necrosis associated with frequent reactivations. Both problems slow down the treatment progress.

Adjust the bracket positions only after completing 80% of the treatment course according to the newly gathered information (*photographs, panoramic radiograph, study casts*). Execute wire bending for individual teeth in the final phase under the condition that none of the brackets require further rebonding.

## Acknowledgements

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# Discrepancy Index Worksheet

TOTAL D.I. SCORE **13**

## OVERJET

0 mm. (edge-to-edge)	=	
1 – 3 mm.	=	0 pts.
3.1 – 5 mm.	=	2 pts.
5.1 – 7 mm.	=	3 pts.
7.1 – 9 mm.	=	4 pts.
> 9 mm.	=	5 pts.

Negative OJ (x-bite) 1 pt. per mm. per tooth =

Total = **4**

## OVERBITE

0 – 3 mm.	=	0 pts.
3.1 – 5 mm.	=	2 pts.
5.1 – 7 mm.	=	3 pts.
Impinging (100%)	=	5 pts.

Total = **0**

## ANTERIOR OPEN BITE

0 mm. (edge-to-edge), 1 pt. per tooth  
then 1 pt. per additional full mm. per tooth

Total = **0**

## LATERAL OPEN BITE

2 pts. per mm. per tooth

Total = **0**

## CROWDING (only one arch)

1 – 3 mm.	=	1 pt.
3.1 – 5 mm.	=	2 pts.
5.1 – 7 mm.	=	4 pts.
> 7 mm.	=	7 pts.

Total = **7**

## OCCLUSION

Class I to end on	=	0 pts.
End on Class II or III	=	2 pts. per side _____ pts.
Full Class II or III	=	4 pts. per side _____ pts.
Beyond Class II or III	=	1 pt. per mm. _____ pts. additional

Total = **2**

## LINGUAL POSTERIOR X-BITE

1 pt. per tooth Total = **0**

## BUCCAL POSTERIOR X-BITE

2 pts. per tooth Total = **0**

## CEPHALOMETRICS (See Instructions)

ANB  $\geq 6^\circ$  or  $\leq -2^\circ$  = 4 pts.

Each degree  $< -2^\circ$  \_\_\_\_\_ x 1 pt. = \_\_\_\_\_

Each degree  $> 6^\circ$  \_\_\_\_\_ x 1 pt. = \_\_\_\_\_

SN-MP

$\geq 38^\circ$  = 2 pts.

Each degree  $> 38^\circ$  \_\_\_\_\_ x 2 pts. = \_\_\_\_\_

$\leq 26^\circ$  = 1 pt.

Each degree  $< 26^\circ$  \_\_\_\_\_ x 1 pt. = \_\_\_\_\_

1 to MP  $\geq 99^\circ$  = 1 pt.

Each degree  $> 99^\circ$  \_\_\_\_\_ x 1 pt. = \_\_\_\_\_

Total = **0**

## OTHER (See Instructions)

Supernumerary teeth	_____ x 1 pt. = _____
Ankylosis of perm. teeth	_____ x 2 pts. = _____
Anomalous morphology	_____ x 2 pts. = _____
Impaction (except 3 <sup>rd</sup> molars)	_____ x 2 pts. = _____
Midline discrepancy ( $\geq 3$ mm)	_____ @ 2 pts. = _____
Missing teeth (except 3 <sup>rd</sup> molars)	_____ x 1 pts. = _____
Missing teeth, congenital	_____ x 2 pts. = _____
Spacing (4 or more, per arch)	_____ x 2 pts. = _____
Spacing (Mx cent. diastema $\geq 2$ mm)	_____ @ 2 pts. = _____
Tooth transposition	_____ x 2 pts. = _____
Skeletal asymmetry (nonsurgical tx)	_____ @ 3 pts. = _____
Addl. treatment complexities	_____ x 2 pts. = _____

Identify:

Total = **0**

## Cast-Radiograph Evaluation

Case #

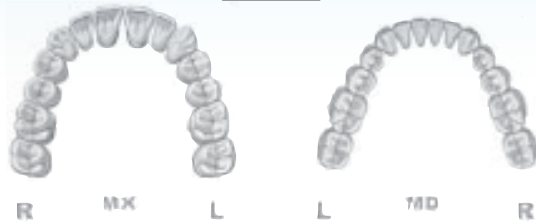
Patient

Total Score:

7

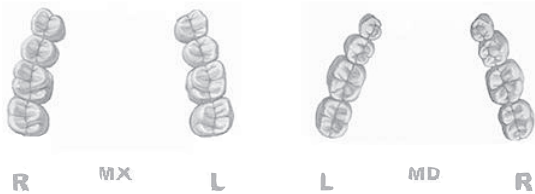
Alignment/Rotations

0



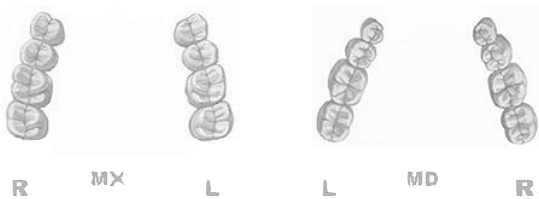
Marginal Ridges

0



Buccolingual Inclination

0



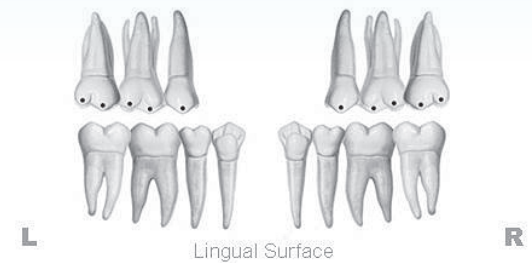
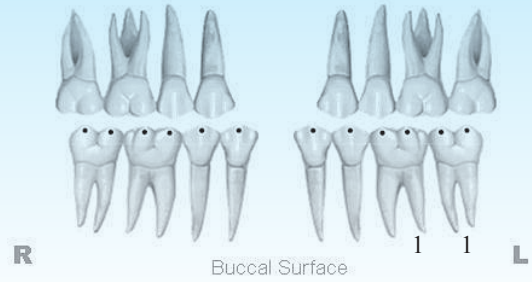
Overjet

0



Occlusal Contacts

2



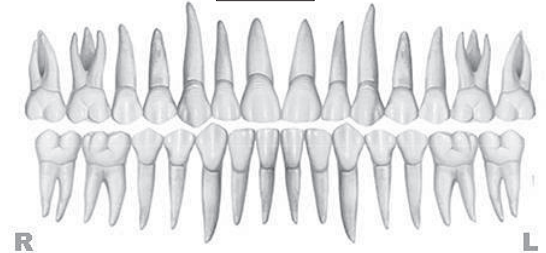
Occlusal Relationships

2



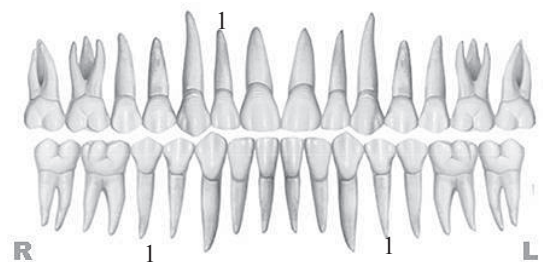
Interproximal Contacts

0



Root Angulation

3

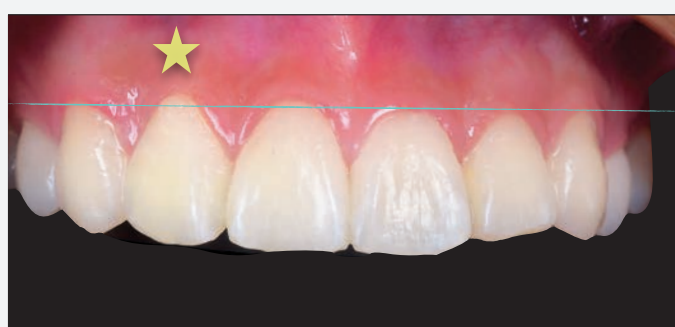
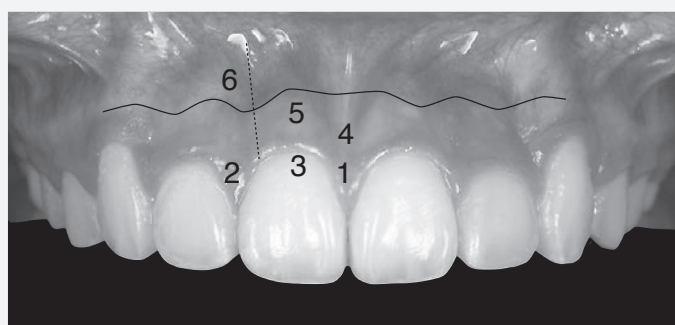


**INSTRUCTIONS:** Place score beside each deficient tooth and enter total score for each parameter in the white box. Mark extracted teeth with "X". Second molars should be in occlusion.

## IBOI Pink & White Esthetic Score

Total Score: = **2**

### 1. Pink Esthetic Score

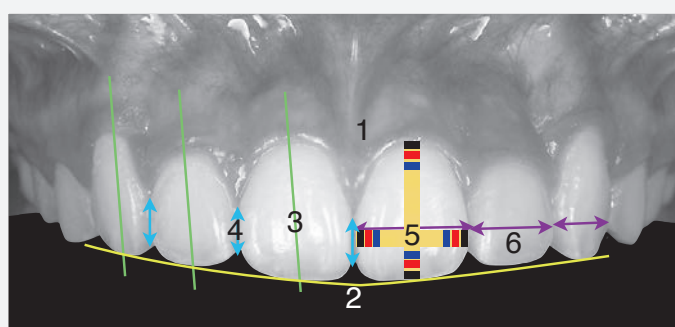


1. M & D Papillae	0	1	2
2. Keratinized Gingiva	0	1	2
3. Curvature of Gingival Margin	0	1	2
4. Level of Gingival Margin	0	1	2
5. Root Convexity ( Torque )	0	1	2
6. Scar Formation	0	1	2

Total = **1**

1. M & D Papilla	0	1	2
2. Keratinized Gingiva	0	1	2
3. Curvature of Gingival Margin	0	1	2
4. Level of Gingival Margin	0	1	2
5. Root Convexity ( Torque )	0	1	2
6. Scar Formation	0	1	2

### 2. White Esthetic Score ( for Micro-esthetics )



1. Midline	0	1	2
2. Incisor Curve	0	1	2
3. Axial Inclination ( 5°, 8°, 10° )	0	1	2
4. Contact Area ( 50%, 40%, 30% )	0	1	2
5. Tooth Proportion ( 1:0.8 )	0	1	2
6. Tooth to Tooth Proportion	0	1	2

Total = **1**

1. Midline	0	1	2
2. Incisor Curve	0	1	2
3. Axial Inclination ( 5°, 8°, 10° )	0	1	2
4. Contact Area ( 50%, 40%, 30% )	0	1	2
5. Tooth Proportion ( 1:0.8 )	0	1	2
6. Tooth to Tooth Proportion	0	1	2





# Products

Dental Products Essential Kit



**NEW**

## Double Retractors 2.0 **Autoclavable!**

Double Retractors x2, Black Board x2

While keeping the same lip & cheek two-way design, the new Double Retractors 2.0 is upgraded to medical grade PPSU. This new material is more durable, resilient and most importantly, autoclavable. Its smooth edges and translucent quality make it the best aid to perfect intra-oral photography.



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Handle x1, BT molds x6, BT extended molds x6, Button molds x6

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