

# Full-Cusp Class II Malocclusion with 12 mm Overjet: Non-Extraction Treatment with Bone Screws and Passive Self-Ligating Appliance

## Abstract

**History:** A 12-year-old female presented with flared maxillary central incisors.

**Diagnosis:** The skeletal Class I relationship (SNA, 85°; SNB, 80°; ANB, 5°) was associated with a full-cusp Class II molar relationship on the right side and an end-on Class II molar relationship on the left side. Dental analysis revealed flared maxillary central incisors (U1-to-NA, 10 mm; U1-to-SN, 128.5°) with an excessive overjet of 12 mm. The facial profile was convex with protrusive lips (1.5 mm/4.5 mm to the E-line). The Discrepancy Index was 20.

**Treatment:** A fully fixed passive self-ligating (PSL) appliance was bonded on all present permanent teeth (UR6-UL6 and LL6-LR6). Skeletal anchorage was provided by bilateral infrazygomatic crest (IZC) miniscrews. Class II elastics were implemented to reduce the overjet and overbite.

**Results:** After 22 months of active treatment, satisfactory facial profile and dental alignment were achieved. The Cast-Radiograph Evaluation score was 18, and the Pink and White esthetic score was 0.

**Conclusions:** A full-cusp Class II malocclusion with 12 mm overjet, flared U1s, 100% overbite, and periodontal impingement was treated without extraction. Bilateral IZC anchorage facilitated the retraction of the entire maxillary dentition. The 12 mm overjet was corrected to a pleasing result with stability noted at the 5-year follow-up. (*J Digital Orthod* 2023;72:4-18)

**Key words:**

Excessive overjet, full-cusp Class II malocclusion, periodontal impingement, Class II elastics, infrazygomatic crest miniscrews, passive self-ligating appliance, interproximal reduction

## Introduction

The dental nomenclature used in this report is a modified Palmer notation with four oral quadrants: upper right (UR), upper left (UL), lower right (LR), and lower left (LL). From the midline, permanent teeth are numbered 1-8.

Traditionally, an overjet greater than 10 mm required orthognathic surgery for optimal correction.<sup>1,2</sup> To correct full-cusp Class II malocclusions with lip and incisor protrusion, bicuspid extraction is the usual option in non-surgical treatment planning.<sup>3</sup> In this

case report, however, a full-cusp Class II malocclusion with a 12 mm overjet was treated to a pleasing result with neither surgical intervention nor extraction. The primary objective for this case report is to present a conservative option for treating this challenging malocclusion.

## History and Etiology

A 12-year-old female sought orthodontic consultation for bimaxillary protrusion. Extraoral examination showed protrusive lips with a trapped lower lip. Intraoral examination revealed an

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excessive overjet of 12 mm associated with flared U1s and 100% overbite complicated by periodontal impingement (Figs. 1-5). No contributing dental trauma, oral habits, nor significant signs or symptoms of temporomandibular dysfunction were noted.

## Diagnosis

### Skeletal:

- Intermaxillary relationship: *Skeletal Class I relationship* (SNA, 85°; SNB, 80°; ANB, 5°)



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



**Fig. 2:**  
Pre-treatment panoramic radiograph. Unerupted upper second molars were noted.

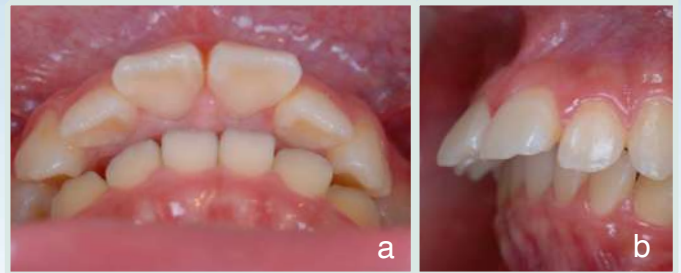


**Fig. 3:** Pre-treatment cephalometric radiograph

- Mandibular plane angle: *Within normal limits (WNL)* (SN-MP, 36.5°; FMA, 29.5°)
- Vertical Dimension of Occlusion (VDO): *WNL* (Na-ANS-Gn, 54.5%)

**Facial:**

- Convexity: *Convex profile* (G-Sn-Pg', 14.5°)
- Symmetry: *WNL*



**Fig. 4:**  
Inferior (a) and left lateral (b) intraoral views show a 12 mm overjet, periodontal impingement, and flared maxillary anterior teeth.

- Lip Protrusion: *Protruded upper and lower lips were 1.5 mm/4.5 mm to the E-line.*

**Dental:**

- Classification (molar relationships)  
Right side: *Full-cusp Class II*;  
Left side: *End-on Class II*
- Overjet: *12 mm*
- Overbite: *5 mm 100% overbite with periodontal impingement*

The American Board of Orthodontics (ABO) Discrepancy Index (DI) was 20, as documented in the supplementary Worksheet 1.<sup>4</sup>

**Treatment Objectives**

The treatment objectives were to correct:

- (1) 12 mm overjet,
- (2) impinging overbite,
- (3) protrusive maxillary dentition,
- (4) flared maxillary anteriors,



■ Fig. 5: Pre-treatment dental models (casts).

- (5) protruded upper and lower lips, plus
- (6) Class II molar and canine relationships.

## Treatment Plan

To correct the full-cusp Class II molar relationship with an excessive overjet, adequate space was necessary to retract the entire maxillary dentition.

Three treatment options were proposed:

- (1) Try non-extraction treatment for 12 months with bilateral infrazygomatic crest (IZC) bone screws inserted to retract the maxillary dentition.<sup>5</sup>
- (2) Extract U4s with bilateral IZC bone screws inserted to retract the maxillary dentition.
- (3) Extract U4s and L4s, and close spaces.

After a thorough explanation of the advantages and disadvantages of the different treatment plans, the patient chose treatment plan (1), fully aware that bicuspid extraction was indicated if progress was not adequate after the initial 12 months of treatment.

CEPHALOMETRIC SUMMARY			
	PRE-TX	POST-TX	DIFF.
<b>SKELETAL ANALYSIS</b>			
SNA° (82°)	85°	84°	1°
SNB° (80°)	80°	81.5°	1.5°
ANB° (2°)	5°	2.5°	2.5°
SN-MP° (32°)	36.5°	38°	1.5°
FMA° (25°)	29.5°	31°	1.5°
<b>DENTAL ANALYSIS</b>			
U1 TO NA mm (4 mm)	10	3	7
U1 TO SN° (104°)	128.5°	107°	21.5°
L1 TO NB mm (4 mm)	2	2.5	0.5
L1 TO MP° (90°)	79°	82.5°	3.5
<b>FACIAL ANALYSIS</b>			
E-LINE UL (-1 mm)	1.5	-2.5	4
E-LINE LL (0 mm)	4.5	0.5	4
%FH: Na-ANS-Gn (56%)	54.5%	55%	0.5%
Convexity: G-Sn-Pg' (13°)	14.5°	10.5°	4°

■ Table 1: Cephalometric summary

## Treatment Progress

0.022" slot Damon Q® passive self-ligating (PSL) brackets (Ormco, Brea, CA) were bonded on all teeth except for the unerupted U7s and L7s. 0.014" CuNiTi archwires were inserted in both arches; low torque was selected for both the maxillary and mandibular anteriors (Fig. 6). Class II elastics (Quail, 3/16", 2 oz) were then applied to reduce the excessive overjet in the early stage of treatment:<sup>6</sup> they were bilaterally attached from U4 drop-in hooks to L6 buccal hooks (Fig. 7) and were discontinued 1 month after application. The maxillary archwire was changed

from 0.014" CuNiTi to 0.014x0.025" CuNiTi in the 3<sup>rd</sup> month (3M) of treatment.

After 4 months (4M) of initial alignment, 2x12-mm OrthoBoneScrews® (iNewton Dental, Inc., Hsinchu City, Taiwan) were placed bilaterally in the infrazygomatic crests (IZCs) (Fig. 8). These bone screws anchored a continuous retracting force to retract the maxillary dentition. The maxillary and mandibular archwire sequences were: 0.014x0.025" CuNiTi, 0.017x0.025" TMA, and 0.016x0.025" SS.

Interproximal reduction (IPR) was performed in the 6<sup>th</sup> month (6M) on both maxillary and mandibular



**Fig. 6:**  
Torque selection: Low torque for both (a) maxillary anteriors and (b) mandibular anteriors.



**Fig. 7:**  
Class II elastics were attached bilaterally from U4 drop-in hooks to L6 buccal hooks to facilitate reduction of the excessive overjet (0M~1M).

incisors (Fig. 9) in order to (1) gain space to relieve crowding, (2) reshape the tooth forms, and (3) eliminate black triangles after alignment.<sup>7-12</sup>

After 12 months (12M) of treatment, both canine and molar relationships were significantly improved (Fig. 10). The overjet was reduced from 12 to 0 mm. The brackets on the L4s and L5s were rebonded to more gingival positions, and the mandibular archwire was thus changed back to 0.014x0.025" CuNiTi.

Bilateral IZC bone screws were removed in the 14<sup>th</sup> month (14M) of treatment. L7s were erupted and bonded. A composite resin restoration was performed on UR1 to fix the incisal edge defect.

In the 20<sup>th</sup> month of treatment, the maxillary archwire was sectioned distal to the canines, and drop-in hooks were inserted from U3s to U5s (Fig. 11). Continuous intermaxillary elastics (Ostrich, 3/4", 2 oz, full-time) were prescribed to settle the occlusion. Archwire adjustments were performed on both maxillary and mandibular archwires for detailing and



**Fig. 8:**  
IZC screws (arrow) were inserted bilaterally in the 4<sup>th</sup> month to retract the maxillary dentition (4M~14M).



■ **Fig. 9:**  
Interproximal reduction (IPR) was performed: (a) before IPR; (b) after IPR.



■ **Fig. 10:**  
Class I canine and molar relationships were almost achieved by the 12<sup>th</sup> month (12M). The overjet was reduced to 0 mm.



■ **Fig. 11:**  
Finishing and detailing: maxillary archwire was sectioned distal to the canines with archwire adjustment. Continuous intermaxillary elastics (Ostrich, 3/4", 2 oz, full-time) were prescribed to settle the occlusion (20M).

finishing. After 22 months of active mechanics, all appliances were removed (Figs. 12-15).

## Retention

Lingual fixed retainers were bonded on the lower incisors, and Essix overlay retainers (Densply Sirona, Charlotte, NC, USA) were delivered on both arches.

## Treatment Results

A Class I occlusion with an ideal overbite and overjet was achieved. The ABO Cast-Radiograph Evaluation (CRE) was 18 points (Worksheet 2).<sup>13</sup> The Pink and White esthetic score was 0 (Worksheet 3).<sup>14</sup> Compared to the protrusive lips before orthodontic treatment, the facial profile was nearly ideal to the E-line (Fig. 15).

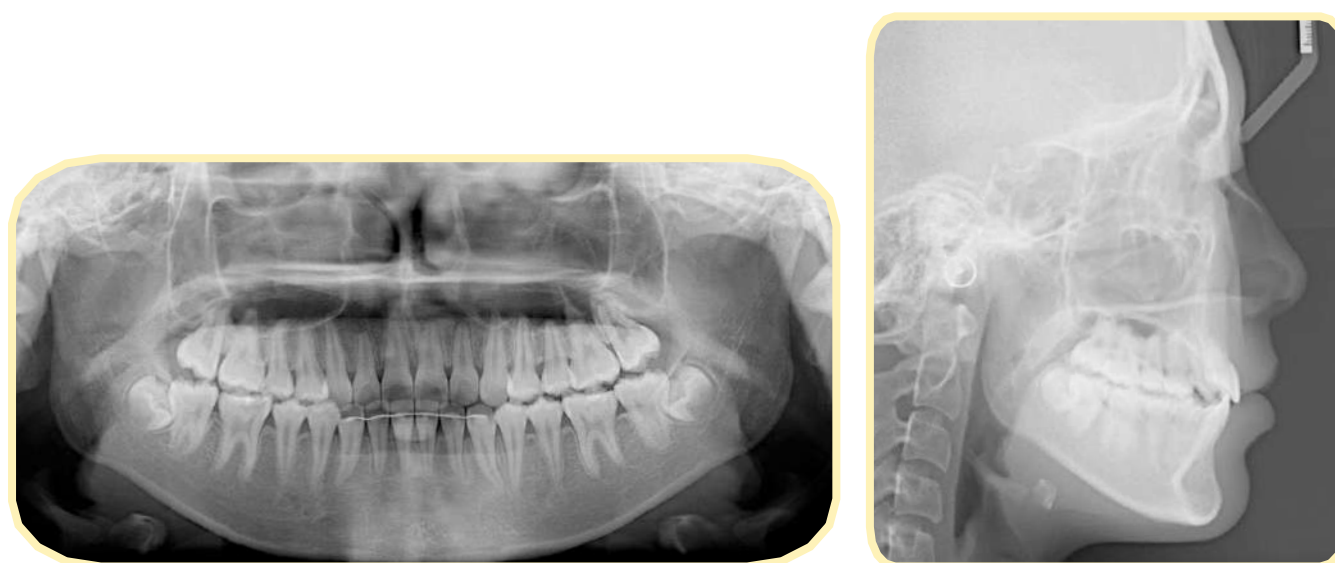
From the superimposed cephalometric tracings (Fig. 16), three points were noted. (1) The maxillary incisors were retracted 7 mm, which decreased the U1-SN angle by 21.5° (Table 1). (2) U6s were retracted. Such a huge amount of maxillary retraction could be attributed to the continuous retracting force provided by the IZC screws and the arch expansion effect of the Damon system application. (3) The mandibular incisors were slightly flared by an increase of 3.5° in the L1-MP angle with mandibular molar extrusion, attributable to the effects of Class II mechanics and non-extraction after relieving the crowding.

## Follow-up

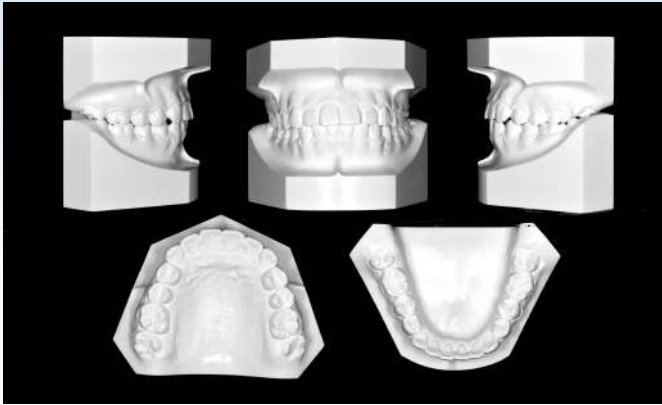
The whole treatment progress, along with follow-up records, documents the stability of the final occlusion (Figs. 17-20).



■ Fig. 12: Posttreatment facial and intraoral photographs



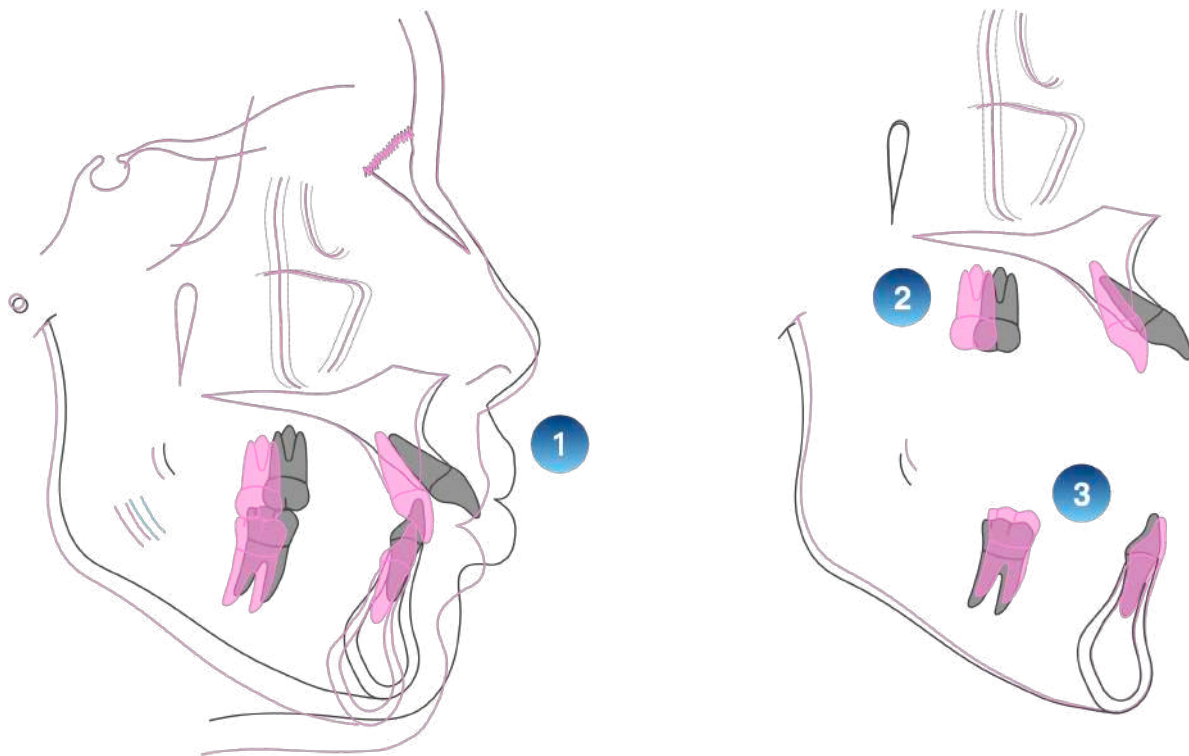
■ Fig. 13: Posttreatment panoramic (left) and cephalometric radiographs (right)



■ Fig. 14 Posttreatment dental models (casts)



■ Fig. 15: Pre- and posttreatment photographs showing changes in the lip position and correction of the excessive overjet

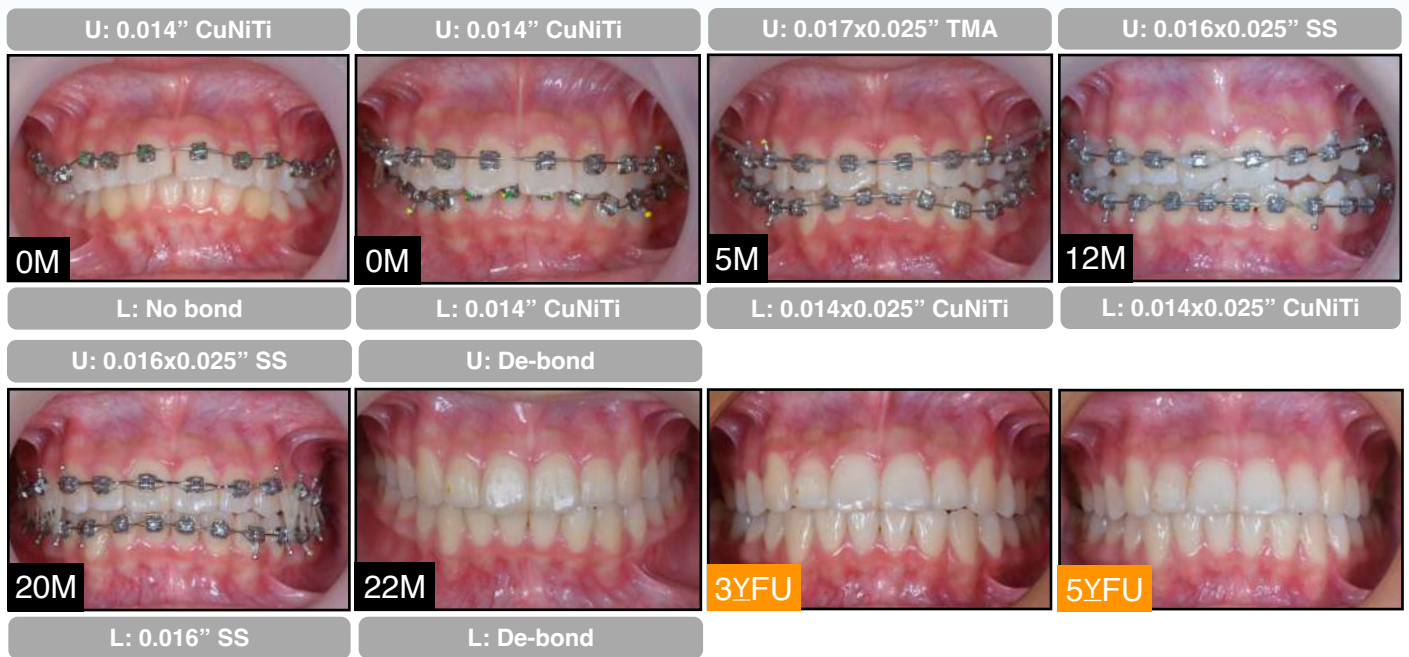


■ Fig. 16: Superimpositions of the cephalometric tracings before (black) and after treatment (pink) document (1) retraction and decreased inclination of U1s, (2) retraction of the maxillary first molars, and (3) slight flaring of L1s and extrusion of mandibular first molars. See text for details.





**Fig. 17:** Treatment progress - overjet  
The overjet was corrected from an excessive 12 mm to 0 mm, and the result was still stable 5 years after treatment.



**Fig. 18:** Treatment progress - frontal view with archwire specifications

## Discussion

This young patient with an excessive 12 mm overjet, full-cusp Class II malocclusion, and lip protrusion was delighted that neither orthognathic surgery<sup>1,2</sup> nor extraction of four bicuspids<sup>3</sup> was performed during her treatment. Nevertheless, bilateral Class I canine and molar relationships, reduced overjet (0 mm), and an acceptable facial profile to the E-line were achieved (Figs. 12-16). The upper lip was retruded 4 mm, to -2.5 mm to the E-line (Table 1). The finish was 1.5 mm more retrusive than ideal (-1.0 mm to the E-line) but it was harmonious with the

facial profile. Three notable aspects of the treatment are discussed below:

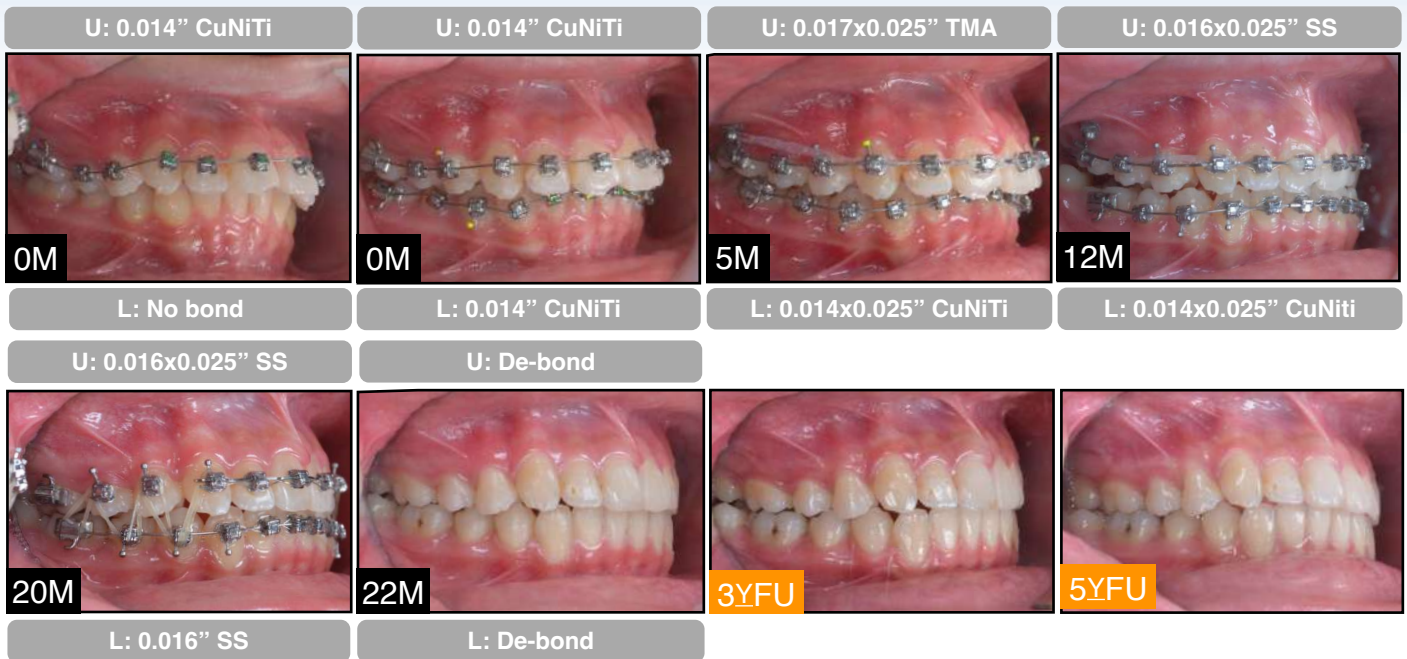
### 1. Treatment planning: Try non-extraction

In treatment planning, three options were given. After a thorough explanation and discussion with the patient, option (1) was chosen: try non-extraction treatment for 12 months with bilateral IZC bone screws inserted to retract the maxillary dentition.

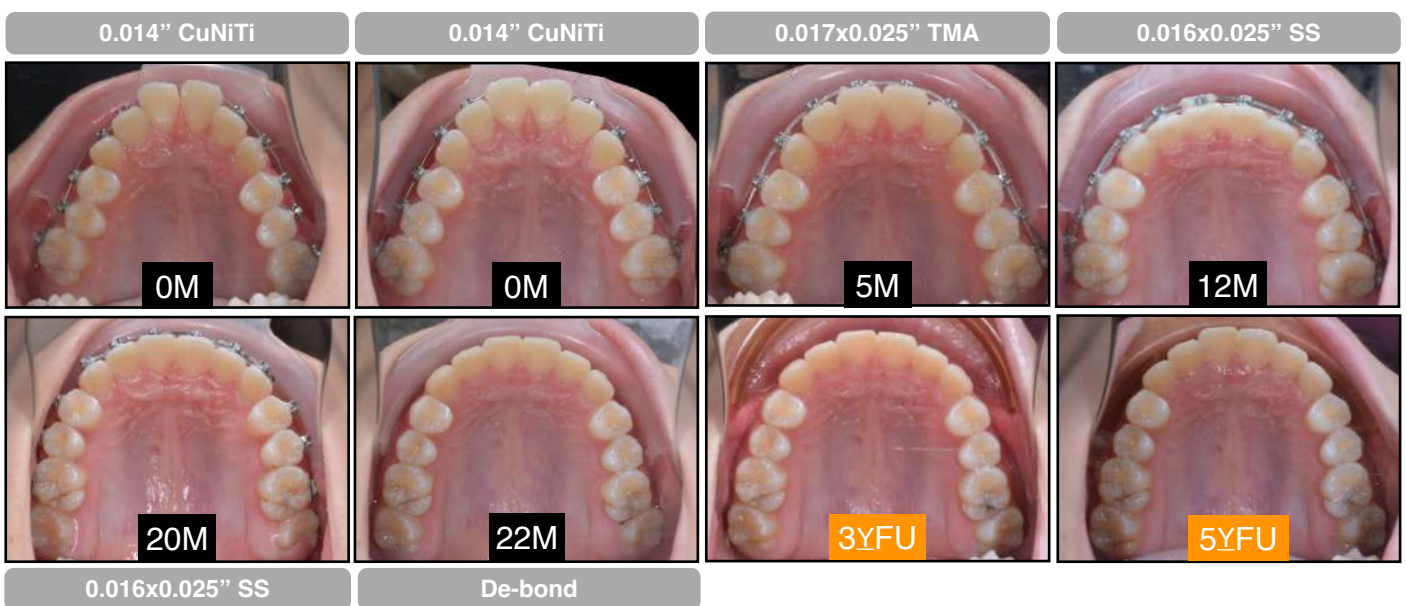
Although extraction of U4s could solve the excessive overjet with full-cusp Class II malocclusion more predictably,<sup>3</sup> as in treatment

options (2) and (3), the patient was still given the chance to try non-extraction treatment with a deadline for evaluation. If after 12 months of

treatment with IZC bone screws the overjet was still not solved, extraction would be considered.



■ **Fig. 19:** Treatment progress - right buccal view. U7s were unerupted, allowing space to retract the maxillary dentition. IZC screws were inserted from the 4<sup>th</sup> month to 14<sup>th</sup> month (4M~14M), providing anchorage to retract the entire maxillary dentition.



■ **Fig. 20:** Treatment progress - maxillary occlusal view. Note arch form development was stable at the 5-year follow-up.

In this case, the result after 12 months of treatment was more than satisfactory (Fig. 10). Therefore, extractions were ruled out. Nevertheless, it is important to give a thorough explanation of the possibility/probability of extraction before commencing the treatment.

## 2. Temporary Skeletal Anchorage Devices: IZC bone screws

Since both U7s were unerupted (Fig. 1), there was adequate space to retract the whole maxillary dentition. However, in patients with a protrusive profile, if retraction was attempted with only Class II elastics, it would lead to an excessively convex facial profile and posterior rotation in the mandible, which increases the lower facial height, and.<sup>19</sup> Temporary skeletal anchorage devices (TSADs), however, can provide skeletal anchorage and vertical control while retracting the maxillary dentition without the adverse effect of Class II elastics, making it possible to perform a non-extraction treatment. IZC bone screws were inserted in the 4<sup>th</sup> month and were removed in the 14<sup>th</sup> month, when a reduced overjet (0 mm) and bilateral Class I canine and molar relationships were achieved. In retrospect, a better correction could have been achieved without Class II elastics.

It should be noted that the insertion site of IZC bone screws was above the U6 buccal root (Fig. 8) instead of the area between U6 and U7 as commonly used in adults.<sup>5</sup> The bone width and quality for screw retention in this site was much better than between U6 and U7, since the U7s were unerupted.

## 3. Arch form Development: PSL brackets

To correct such a large overjet, adequate space was required to retract the maxillary anteriors. Since the U4s were not extracted, the space was gained from: (1) retracting the entire maxillary dentition into the space of the unerupted U7s, accomplished with power chains anchored by IZC screws, (2) IPR of maxillary anteriors, and (3) arch form expansion (development).

In this present case, the maxillary arch form was tapered (Fig. 1); therefore, arch form expansion yielded substantial space for anterior retraction. With the aid of Damon Q® PSL brackets, arch expansion was achieved with a light continuous force instead of a traditional heavy short force generated by a rapid palatal expander (RPE).<sup>20,21</sup> Expansion performed with PSL brackets results in less discomfort and complications, it is not age-limited,<sup>21</sup> and it results in more physiologically determined tooth positions than RPE.<sup>20-23</sup>

It is important to note that the expanded arch form was still stable at the 5-year follow-up with the retention of lingual fixed retainers on the lower arch and Essix overlay retainers on both arches (Fig. 20).

## Conclusions

This case report demonstrates the treatment of a full-cusp Class II malocclusion complicated by an excessive 12 mm overjet, flared U1s, and 100% overbite with periodontal impingement. Non-extraction treatment was made possible by using TSADs as anchorage to retract the entire maxillary dentition and by expanding the arch with PSL brackets. The result was stable at the 5-year follow-up.

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# Discrepancy Index Worksheet

TOTAL D.I. SCORE 20

**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. 12 mm = 5 pts.

Negative OJ (x-bite) 1 pt. per mm. Per tooth = 0

Total = 5

**OVERBITE**

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

Total = 5

**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 = 4

**OCCLUSION**

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

Total = 6

**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  $\leq -2^\circ$  5^\circ = 4 pts.

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

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

**SN-MP**

$\geq 38^\circ$  36.5^\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  $\geq 99^\circ$  79^\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 pt. = \_\_\_\_\_
- 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. = \_\_\_\_\_

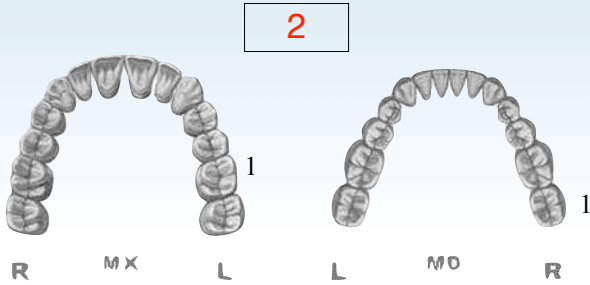
Identify:

Total = 0

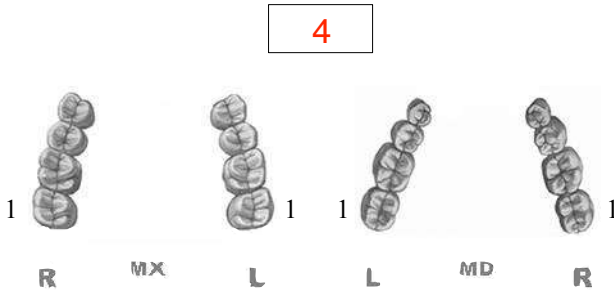
# Cast-Radiograph Evaluation

Total Score: 18

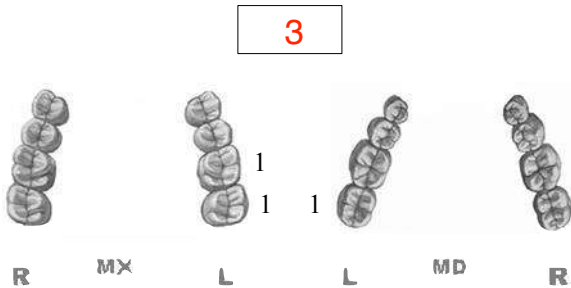
## Alignment/Rotations



## Marginal Ridges



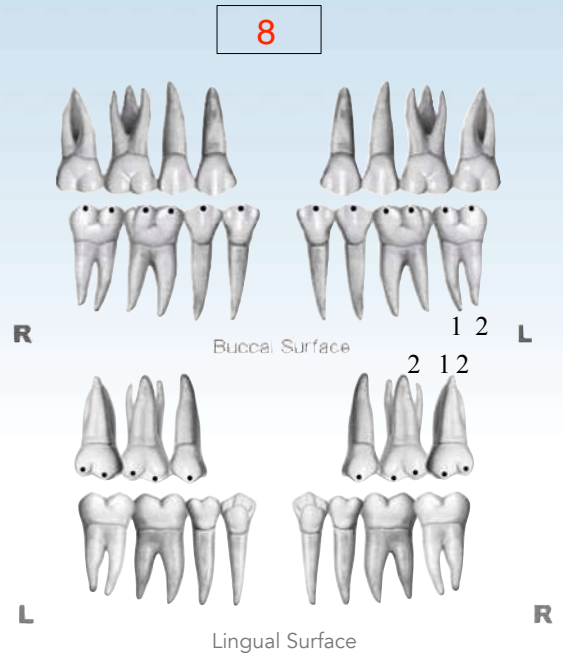
## Buccolingual Inclination



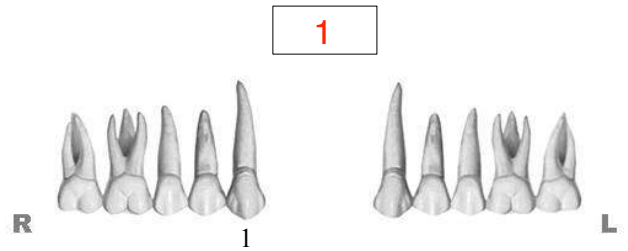
## Overjet



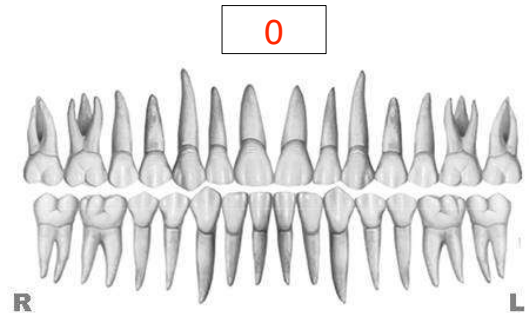
## Occlusal Contacts



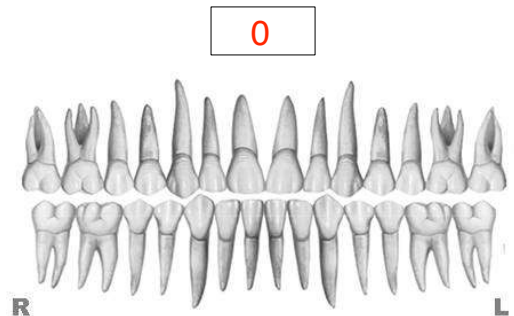
## Occlusal Relationships



## Interproximal Contacts



## Root Angulation



**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 = 0

## 1. Pink Esthetic Score

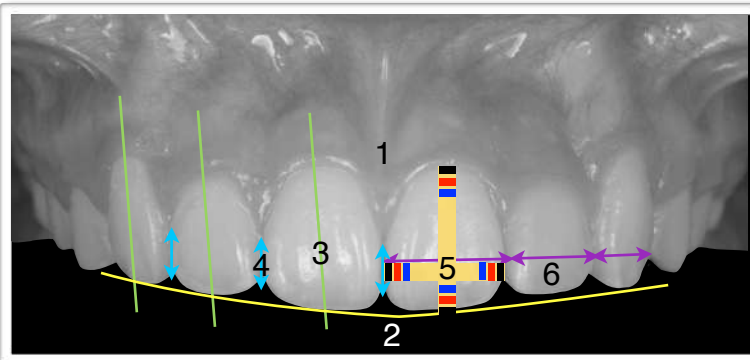


Total = 0

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

1. M & D Papillae	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2
2. Keratinized Gingiva	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2
3. Curvature of Gingival Margin	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2
4. Level of Gingival Margin	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2
5. Root Convexity (Torque)	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2
6. Scar Formation	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2

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



Total = 0

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	0	1	2
6. Tooth to Tooth Proportion	0	1	2

1. Midline	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2
2. Incisor Curve	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2
3. Axial Inclination (5°, 8°, 10°)	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2
4. Contact Area (50%, 40%, 30%)	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2
5. Tooth Proportion	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2
6. Tooth to Tooth Proportion	<span style="border: 1px solid red; border-radius: 50%; padding: 2px;">0</span>	1	2



## OBS Super Set

Created by Dr. Chris Chang, OBS is made of medical grade, stainless steel and titanium, and is highly praised by doctors for its simplistic design, low failure rate and excellent quality. OBS is your must-have secret weapon for maximum, reliable anchorage.



### Smooth Mushroom Head

For comfort & retention of elastic chain

### 4-way Rectangular Holes

For lever arm to solve impacted tooth

### Double Neck Design

Easy hygiene control & extra attachment



Made in Taiwan

New

**Titanium** Higher biocompatibility\*

1.5 | 1.5X8mm

**Stainless Steel\*\***

2.0 | 2.0x12mm

2.7 | 2.0x14mm (with holes)



Buy a Super Set, get **OBS Clinical Guide** (eBook) for free.

\* TADs made of Ti alloy have a lower failure rate compared to SS when placed in thin cortical bone. These results are consistent with a biocompatibility-related tendency for less bone resorption at the bone screw interface. Reference: Failure Rates for SS and Ti-Alloy Incisal Anchorage Screws: Single-Center, Double Blind, Randomized Clinical Trial (J Digital Orthod 2018;52:70-79)

\*\* The overall success rate of 93.7% indicates that both SS and TiA are clinically acceptable for IZC BSs.

Reference: Failure rates for stainless steel versus titanium alloy infrazygomatic crest bone screws: A single-center, randomized double-blind clinical trial (Angle Orthod 2019;89(1):40-46)





## Screws & Aligners

# International Workshop

### Beethoven International Workshop

demonstrates how to incorporate TADs and minor surgeries in complex orthodontic treatment. Experienced practitioners get to (1) learn firsthand from the world-renowned orthodontist and lecturer, Dr. Chris Chang, (2) observe management secrets behind a highly efficient clinic, and (3) take home effective clinical tips developed by the Beethoven group to take your clinical results to the next level!



### Observership at Beethoven

Chair-side observation of Dr. Chang's clinical treatment and patient communication



### Master-level TAD Learning

Identify various clinical indicators for TADs and master application skills



### All New Hands-on Workshop

Custom-made model designed by Dr. Fernando Rojas-Vizcaya for realistic impaction treatment practice



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course@newtonsa.com.tw

Hsinchu, Taiwan



2024

Dates updated!

Screws & Aligners

Nov 26-28

Keynote (optional)

Nov 29

Course fees\*:

Day 123 USD **3,950** (Early bird rate\*) USD ~~4,600~~

Day 4 USD **500** (Early bird rate\*) USD ~~700~~

\* Fees cover local transportation, meals and three nights of shared accommodation (double occupancy). Airport pick up is available upon request with additional charges.

\* Early bird rate ends two months prior to the course date.

*“Dr. Angle would be glad to know that contemporary orthodontics has a professional as Chris Chang!”*



Prof. Dr. Paulo Fernandes Retto, Portugal



**Dr. Chris Chang**

DDS, PhD. ABO certified, Angle Midwest member, director of Beethoven Orthodontic Center, Taiwan

Dr. Chang received his PhD in bone physiology and Certificate in Orthodontics from Indiana University in 1996. As publisher of Journal of Digital Orthodontics-a journal for interdisciplinary dental treatment, he has been actively involved in the design and application of orthodontic bone screws.

## Course Schedule

DAY

**1 Chair-side observation**

DAY

**2 Lecture, chair-side observation**

Lecture topic: **Screws & Aligners**

DAY

**3 VISTA & 4 other minor surgeries for orthodontic practice**

Hands-on workshop

DAY

**4 Keynote workshop**

(optional) conducted by Newton's A team



# IMPACTION



**VISTA** ✓

Vertical Incision Subperiosteal Tunnel Access



# 2024 第二十四屆 貝多芬高爾夫邀請賽 Beethoven Golf Invitational



本年度邀請賽已正式登錄 R&A 賽事行程

## 宗旨

秉持貝多芬齒顎矯正堅持完美與感動之創院精神，藉由高爾夫運動參與，養成健康運動的習慣，活絡人際間的互動，致力推動高爾夫運動人口倍增回饋於社會並鼓勵具潛力之青少年選手參與，開拓選手的國際視野。



## 日期

54 洞比桿賽  
預賽：2023 年 12 月 30 - 31 日  
決賽：2024 年 1 月 1 日

## 地點

寶山高爾夫球場（新竹縣寶山鄉寶新路二段 465 號）

## 資格

2000 年 12 月 30 日（含）至 2011 年 12 月 29 日（含）之間出生具業餘身份選手參加。

## 報名

11 月 27 日前掃描 QR Code 填寫表單或  
傳真新竹市高爾夫球委員會報名。

電話：0972-957917 彭小姐  
傳真：03-5388112



主辦單位：Beethoven 貝多芬齒顎矯正中心 承辦單位：Newtown Newton's A 新竹市體育會高爾夫委員會 FLY GOLF 曾秀鳳高爾夫教學中心

協辦單位：寶山高爾夫俱樂部 Newton's A 金牛頓藝術科技 安徒生 安徒生兒童牙醫診所 NEWTON 金牛頓植牙中心 彼得潘兒童青少年牙醫診所