News & Trends in Orthodontics

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From left to right: Dr. Chris Chang, Dr. Tom Pitts, Dr. John Jin-Jong Lin at the Dr. Tom Pitts's Clinic

News & Trends in Orthodontics is an experience sharing magazine for worldwide orthodontists.
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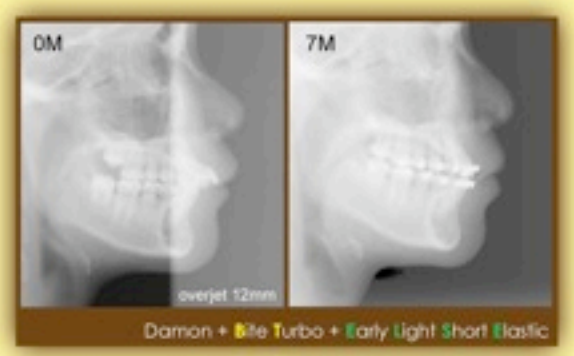
2008秋 - 2009
快速入門矯正．高效學習法



學會開始做矯正需多久？

42 小時讓您入門矯正。本課程採高效學習法及高效矯正簡報法 - Keynote，
在舒適、輕鬆的環境下，學會簡單有效的矯正方法。
教室與診間結合，讓您現學現用，立即熟悉各種習得的技巧，而不需太多課後複習。
全程以 In-Office Training 方式，用病例帶動分析、診斷，
治療計畫與療程技巧，每一步驟皆以圖片及影片教學，
讓您很難錯失任何環節 ，更沒有聽不清楚或無法理解的可能。
為提高課後自我學習及臨床印證之效率，另備有教學電子檔，供學員家中研習。
我們的終極目標是：用最短時間 、最輕鬆的方式，讓每位學員：

熱愛矯正學、熱愛學矯正

DAMON高效矯正必修課表
(In-Office course trainings)

矯正基礎

註：* 表示為2009年課程

	高雄 (四)	台北 (日) NEW	LECTURE	LAB
1	9/25	11/23	理想入門病例 + Damon黏著	Bonding (D3MX) + BT
2	10/09	12/21	快速矯正療程四部曲	Ceph + Photo
3	10/16	12/28	簡捷有效的錨定系統	Damon + OrthoBoneScrew I
4	10/23	*1/04	不拔牙與拔牙分析	Damon + OrthoBoneScrew II
5	11/06	*1/11	Damon診斷流程及微調	Finish Bending
6	11/20	*1/18	完工檢測及報告示範	Fixed Retainer (FR)
7	12/04	*2/15	維持及復發：病例示範	Presentation Demo
8	12/18	*3/01	矯正力學及診斷分析 (1)	DDX + Case Reports I
9	12/25	*3/15	微力秘訣及診斷分析 (2)	DDX + Case Reports II
10	*1/08	*3/29	病例示範及診斷分析 (3)	DDX + Case Reports III
11	*1/15	*4/12	病例示範及診斷分析 (4)	DDX + Case Reports IV

高效矯正實習課表 (矯正基礎班)

1. Initial Consultation
2. Initial Record
   (Pano + Ceph + TMD + Photo + Model)
3. Final Consultation & Tx. Plan
4. Banding & Bonding
   (黏瓷牙、金牙、智齒、埋伏牙、舌側維持器)
5. Archwire Adjustment & Bending
6. Retire & Power Chain & Clinical Tips
7. De-banding & De-bonding
8. Retainer (Removable & Fixed)
9. OrthoBoneScrew Implantation
10. Assistant Training & Patient Instrument Selection
11. Orthodontic Material & Instrument Selection
12. Practice Management & Office Design

矯正進階

	新竹 (二)	高雄 (四)
1	9/23	9/25
2	10/07	10/09
3	10/21	10/23
4	11/04	11/06
5	11/18	11/20
6	12/02	12/04
7	12/23	12/25
8	*1/06	*4/09
9	*3/10	*4/23
10	*3/24	*5/14
11	*4/07	*5/28

• 以病例討論為主軸，培養學員如何正確診斷及快速排除臨床疑點，課程中亦訓練每位學員應用 Keynote

矯正植體 (1 day course)

植體 (五)
11/28

• 矯正植體的操作時機、植法與置回、個案討論、臨床與診及實作示範。

International Workshop

2009/3/02 ~ 3/05

• Keynote & managment
OrthoBoneScrew & Damon

時段

矯正基礎
台北【課程】09:00 - 12:00
高雄【課程】09:00 - 12:00
【實習】另外安排

矯正進階
新竹【課程】09:00 - 12:00
高雄【課程】14:00 - 17:00

矯正植體 (含中、晚餐)
新竹【課程】09:00 - 12:00
【實習】13:30 - 20:00

台灣 DAMON 課程專線
(02)2778-8315 劉姿珮 / 邵美珍
(03)571-1230 林美杏
(07)536-1701 王慧靜

The Art of Appreciation

Many years ago my mentor Dr. Eugene Roberts told me that to appreciate any achievement you have to step back and look at it from a distance. It was not long ago had I really understood what he meant.

As I reviewed two master pieces of orthodontic textbooks written by Dr. Etsuko Kondo and Dr. John Lin, I was amazed by their impressive achievement. Some of their cases have been followed over 30 years. They are the living testimonies for these two great orthodontists' commitment and dedication to their patients and our profession. Their records and results are truly inspirational and so are their treatment philosophies.

This issue we will feature these two giants in our profession. With each over 30 years' experiences they both continue to reinvent themselves and bring in cutting-edge technology in orthodontics. The way they use the self-ligated light force system and orthodontic bone screws are very worth investigating. I have been a student of Dr. Lin for over 20 years. What stunned me the most in reviewing his book was just how little I had grasped his treatment philosophy and techniques. This is a great example of how you need to keep a certain distance in order to appreciate a high mountain. For years, the giant has been right besides me and I simply didn't see him.

Chris Hwai-Nan Chang, DDS, PhD, Publisher

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Non-Surgery, Non-Extraction Treatment Series I :

Class II Open Bite Long Face Syndrome Case

This is a case of severe Class II open bite with only molar contacts. Features of this patient include narrow upper arch, right side unilateral crossbite, severe deficient and retrognathic mandible. This is a typical case of long face syndrome.

Traditional orthodontic treatment usually corrects the open bite by extraction of premolars and accepts the original long face and the retrognathic mandible.

However, the author specializes in treating open bite using an orthodontic mechanism which resembles to the surgical technique, Le Fort I. This mechanism is then referred as “slow Le Fort I TPA” and is consisted of TPA and orthodontic bone screws. It enables the intrusion of upper molars gradually. Before intruding the upper molars with orthodontic bone screws and TPA, the author tried to use two infrazygomatic orthodontic bone screws to distalize the upper dentition to correct the Class II with big overjet to Class I occlusion. Also it is worth noting that the right unilateral crossbite was early corrected with the use of coil spring retraction on right side. In addition, the upper narrow arch was beautifully expanded by the right side cross-elastics in only 2 months.

With merely 3 months’ retraction of the whole upper dentition, the open bite dramatically reduced and the mandible rotated upward and forward. At the age of 21y5m the patient’s overjet has reduced significantly. The author

Dr. John Jin-Jong Lin, MS
Marquette University
Consultant of NTO
President of TAO (2000~2002)
Author of " Creative Orthodontics"

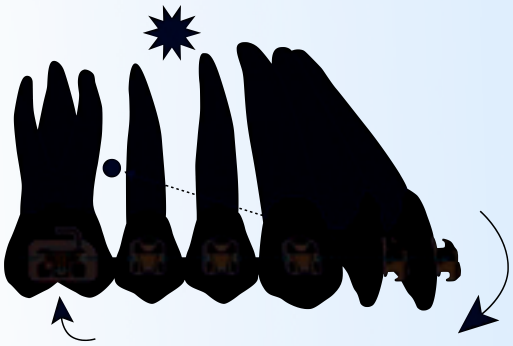
then inserted two buccal shelf orthodontic bone screws to retract the lower dentition. The technique of slow Le Fort I TPA was adopted to intrude the upper molars. It could also enhance the retraction of the whole upper dentition. At the age of 21y8m the anterior open bite almost totally closed without using any anterior vertical elastics. The mandible rotated to a much more ideal position.

What can we learn from this case :

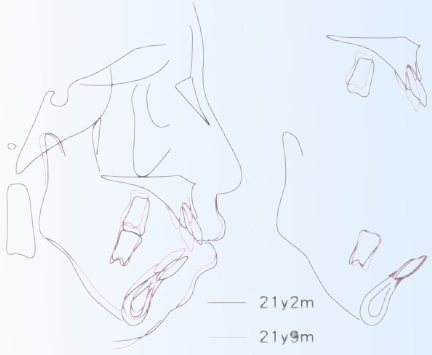
Slow Le Fort I TPA is quite useful to intrude the upper molars, but it's not as efficient as the infrazygomatic crest orthodontic bone screws.

If this case were treated by premolar extraction at the beginning of treatment, it would have been very difficult to achieve such a dramatic change. Nowadays with very powerful weapons as orthodontic bone screws available to correct Class II and open bite, orthodontists can provide more non-extraction treatment options.

Slow Le Fort I TPA



The center of rotation of the whole maxillary dentition is near the apical of upper premolars. The infrazygomatic orthodontic bone screws should be placed around the cervical region of upper molars. A coil spring should be hooked between upper lateral and canine which suggests the direction of the force is below the center of rotation; The combined mechanism then creates a clockwise rotation of the whole maxillary dentition. Anteriorly the incisors will be extruded. (It's desirable for correction of the open bite. For gummy smile patients orthodontic bone screws should be inserted over the apical region of the incisors to prevent extrusion). Posteriorly it creates a "Le Fort I-like" impact on the maxillary molars, which is good for the rotation of the mandible.



The cephalometric tracing clearly shows the dramatic impact of the maxillary molars. It explains why the profile improved significantly after distalization of the whole upper dentition; The chin became more prominent compared with the original retrognathic chin. Also it is worth noticing that the upper incisors extruded due to the clockwise rotation of the whole maxillary dentition. Fortunately this patient didn't have gummy smile prior to the treatment. If the patient had a gummy smile, orthodontic bone screws should be inserted over the incisor area to prevent extrusion of upper incisors.

Non-Surgery, Non-Extraction Treatment Series II :

Severe Class III Open Bite Case

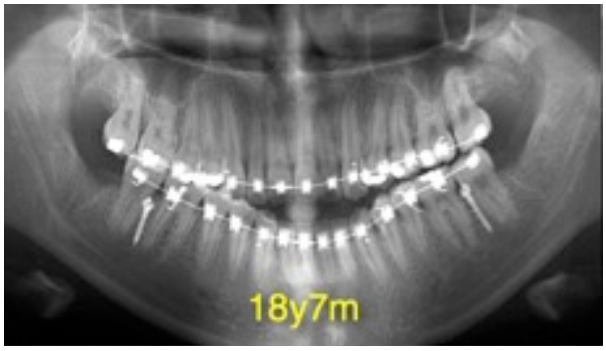
A severe CIII asymmetry and open bite case came for consultation. The author proposed to treat with surgical correction but the patient insisted in using orthodontic treatment only. Facial asymmetry did factor in when choosing the treatment options.

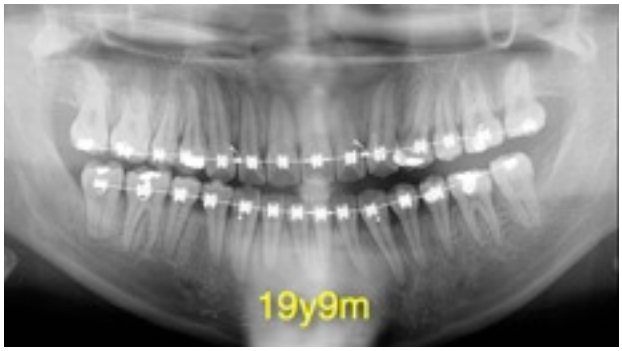
Two 2 mm x 14 mm stainless steel orthodontic bone screws were placed over buccal side between lower first and second molars. After 2 months of alignment using the Damon system, the coil springs were then adopted to retract the whole lower dentition distally. Initially about 12 oz of force was applied on the right and 10 oz of force on the left side.

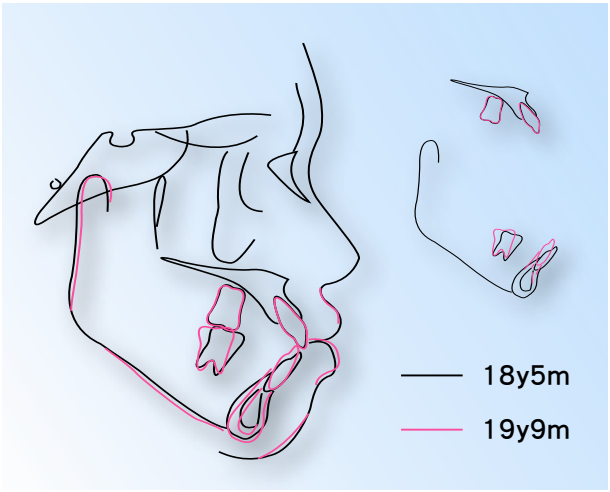
The center of rotation of the whole lower dentition is near the apical region of bicuspids. The force direction is above it. When the counter-clockwise rotation of the occlusal plane happened, it meant not only the whole dentition was distalized, but also the lower molars were tipped back and the lower

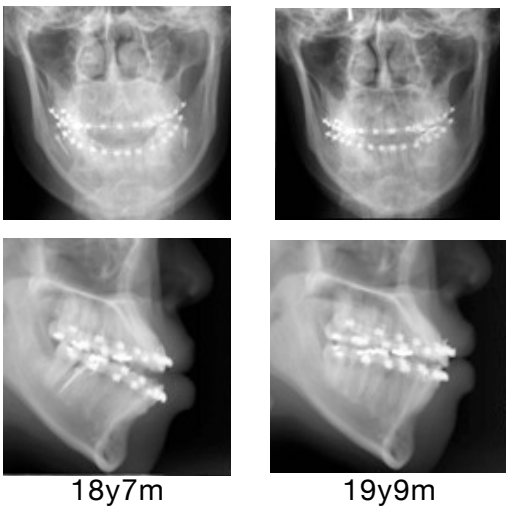
anterior teeth were extruded. After 10 months of distalization using orthodontic bone screws, the CIII malocclusion was corrected to Class I and the open bite closed. During 10 months of retraction by orthodontic bone screws, no anterior box or vertical elastics were used. The major open bite was mostly corrected by rotation of the occlusal plane. After orthodontic bone screws and Damon treatment, not only occlusion but also the facial appearance were improved significantly.

Conclusion : Until orthodontic bone screws severe Class III cases could only be treated with the combination of traditional orthodontics and orthognathic surgery. The distalization of the whole lower dentition using buccal shelf orthodontic bone screw offers a very powerful treatment option for treating severe Class III cases.









- For a detailed description of of slow Le Fort I please refer to the author's book: "Creative Orthodontics: Blending the Damon System & TADs to Manage Difficult Malocclusion".
- I'd like to thank my orthodontic colleague, Dr. Liaw, Yaw-Shen, who did the cephalometric studies of molar distalization with me and offered the precise tracing of this case.
- I'd like to thank my best orthodontist friend, Dr. Rungsi Thavarungkul, from Thailand, who drew the beautiful diagram to illustrate the mechanism of the whole maxillary dentition distalization beautifully.
- I'd like to thank my periodontist colleague, Dr. Huang Yi-Hao, who successfully placed the buccal shelf OrthoBoneScrew for this patient.

3 Keys to Maximize the Power of Damon System

Tips from Dr. Tom Pitts

在上期中我們介紹了大師 Dr. Tom Pitts 應用於 Damon system 的三個重要秘訣：Torque Selection，Bite Turbo， Early Light Short Elastics。本篇以一個 large overjet 且 deep bite 的 case 與您分享實際在臨床上的應用。

這位 27 歲男性的患者，從外觀看來 profile 大致上可以接受。在口內檢查則發現以下問題 (Fig. 1)：

1. ＃17, 47 buccal crossbite
2. overbite : 8 mm, overjet : 11 mm
3. 上顎前牙區 spacing
4. Exaggerate curve of Spee
5. 四環黴素染色

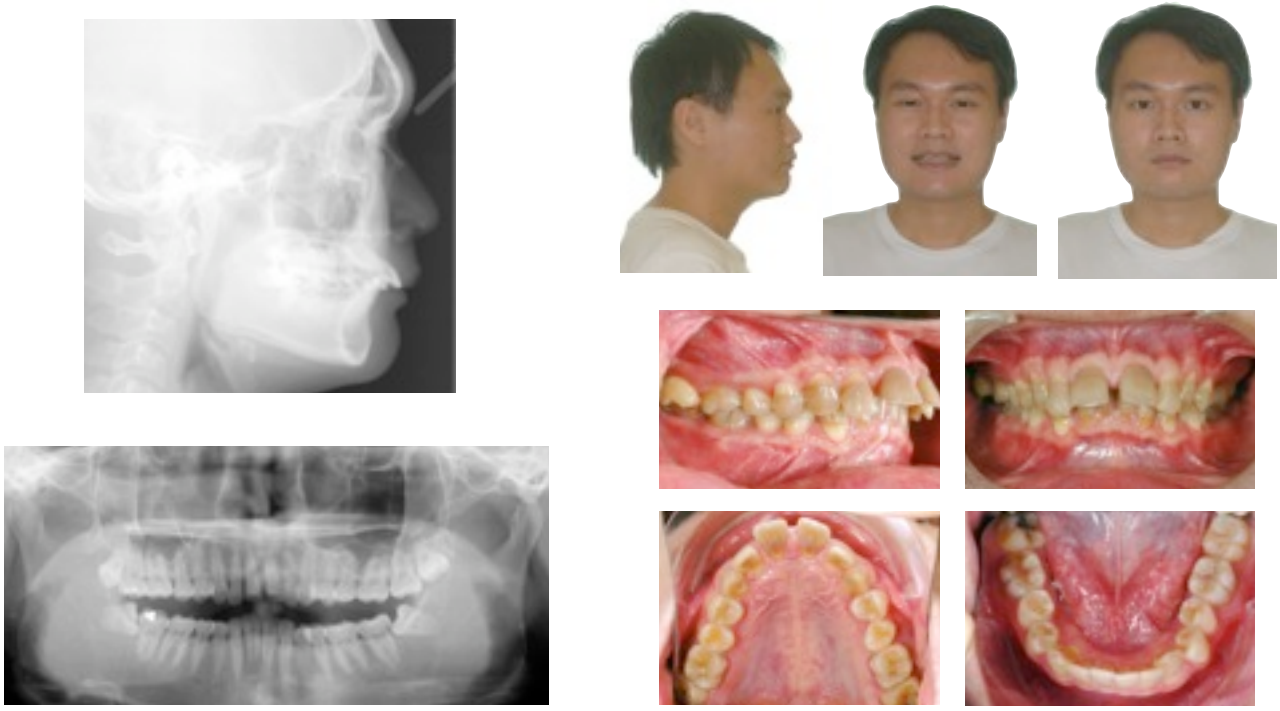


Fig. 1 治療前臨床及X光照片

吳智源醫師（左）貝多芬矯正課程講師
張慧男醫師（中）貝多芬矯正中心負責人
蘇筌瑋醫師（右）貝多芬矯正課程講師 本期主編

First key – Torque Selection

“Begin with the end in mind”，在 bonding 之前，我們要先思考將會使用何種 mechanics， 而這些 mechanics 會對牙根造成什麼樣的結果，進而對 bracket 的 torque 來做選擇。

在這 case 中為了改進 overjet，矯正治療過程中會使用到大量的 Class II elastics，但這樣會造成 upper incisors 過度 upright 以及 lower incisors 過度 flare out。為了避免這個狀況，我們在上顎門牙可以選用 high torque bracket，下顎門牙則可用 low torque bracket。(Fig. 3)

Second key – Bite Turbo

一般來說 bite turbo 的主要功用是來打開咬合，幫助牙齒移動。而 bite turbo 的常用形式則有二種：一種是 posterior bite turbo，另一種是 anterior bite turbo。在這個 case 中，我們初期先用 posterior bite turbo 來打開 bite ，目的是為了改進右側的 posterior cross bite。bite turbo 墊高的高度要以 cusp 能通過而不被阻擋為宜。使用 bite turbo 墊高之後，搭配錯咬橡皮筋來修正 #17 buccal crossbite 的問題，待改正之後再去除 posterior bite turbo。 接下來為了改善 deep bite，我們在上顎前牙腭側放置 anterior bite turbo，也同時讓上下顎的對咬關係 reposition。(Fig. 4、 5)

Third key – Early Light Short Elastics

在這個 case 中我們可看到許多 elastics 的應用：例如為了改正後牙的 crossbite，我們選用 3.5 oz Chipmunk (上 7 到下 7 舌側)。為了改進 overjet，我們在矯正初期就開始使用 early light short elastics，在 .014 CuNiTi 時請病人佩戴 2 oz Quail（上 4 下 6 ），到了 .014 x .025 CuNiTi 改成 3.5 oz Fox 拉一樣位置。初期的 archwire 都是比較細，所以我們所選用的橡皮筋的力量也不能太大，以免對 archform 造成不良的影響。(Fig. 6)

Fig. 3 上顎門牙用 high torque bracket
下顎門牙用 low torque bracket

Fig. 4 Posterior bite turbo，墊的高度要剛好讓 #17 不受咬合干擾。

Fig. 5 Anterior bite turbo，用來改善 deep bite

到了 .017 x .025 TMA 的階段，我們使用 L 型的 finishing elastics (6 oz Moose 上 3 到下 3 下 6) 來讓後牙有更好的 intercupitation。

靈活運用 early light short elastics，不但可以輕鬆地改善 deep bite 和 overjet，同時也讓我們更有效率地達成治療目標。

結論：在治療這個 case 前，很多人可能會想到用 orthodontic bone screw 來改善 deep bite 以及 overjet，但是如果能夠把握 Dr. Tom Pitts 的三個重要原則，不用 orthodontic bone screw 也能輕鬆地治療。Torque Selection、Bite Turbo、Early Light Short Elastics 有了這三樣武器，相信您以後的治療也都能夠達到簡單、快速、有效的結果。

Reference：

1. Jeff K：Honing Damon System Mechanics for the Ultimate in Efficiency and Excellence. Clinical Impressions 2008;16(1):23-8.
2. Su YY: Damon' s 3 Essentials in Maximizing Your Orthodontics Results. News and Trends in Orthodontics 2008;12:12-5.
3. Chang CHN: Beethoven Orthodontic Mobile Learning Program. Advanced Damon Course No. 1. 2008; Newton' s A Ltd, Taiwan.

Fig. 6 Early light short elastics 在第一條線時通常是 2 oz 的力量，拉 first premolar 到 first molar 的距離。

2 months　　13 months

Fig. 7 治療前後比較

iPod touch

矯正行動學習的最佳利器

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系列三: 簡潔有效的錨定系統	系列九: 病例示範及診斷分析 (2)
系列四: 不拔牙與拔牙分析	系列十: 病例示範及診斷分析 (3)
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Treatment Effects of Muscle Wins ! Method

Using Damon Brackets in Skeletal Class III cases

解剖權威 Dr. Harry Sicher 曾說“ Whenever there is a struggle between muscle and bone, bone yields ! ”當骨頭和肌肉爭戰的時候，骨頭總是妥協的一方。這也就是說，Muscle Wins ! 今天 Dr. Kondo 要與我們分享她如何利用舌頭、口腔周邊肌肉、咀嚼肌、鼻呼吸、閉唇、嚥下等動作，並結合 low force wires and low friction brackets 等武器，達到術中治療時間縮短、術後長期咬合穩定的結果，打贏這場肌肉、骨頭雙贏的勝仗！

“其實都是肌肉惹的禍？！”

Muscle Wins ! 在 Dr. Kondo 四十三年的矯正行醫經驗裡，經由系統性的電腦斷層影像 (CT) 及肌電圖 (EKG) 分析後發現，大部分的咬合不正，都與不協調的肌肉運動有關。舉例來說，deep bite cases 與部份肌肉太緊有關，因此臨床表徵常可見咀嚼力道過強、後牙咬合高徑過短、Gonial angle 較小以及短臉型等；而 open bite cases 則常肇因於咬合力道不足或合併 Hyoid muscle 張力過強、後牙咬合高徑過高、Gonial angle 較大及長臉型，此類患者通常也會合併有呼吸道狹窄、tongue habit 及口呼吸等情形；至於 lateral deviation (asymmetry) cases 在臨床上則多可發現患者有咬合不協調（例如單側咀嚼）、頸部肌肉不協調及頸椎異常等問題，造成臉部、顳顎關節頭及下顎枝不對稱；頭頸部位置不良、口內正中線及咬合平面歪斜等臨床症狀。換言之，都是肌肉惹的禍！猶有甚者，這樣不良的口腔環境會影響到人類重要而基本的本能 - 呼吸（nasal respiration) ! 而如何恢復及重建這些與呼吸及吞嚥有關的肌肉功能（ functional recoveries ），Dr. Kondo 認為這將是影響長期咬合穩定的關鍵因素。與一般認為「Growth 完成之後再做 OGS 」的想法不同，Dr. Kondo 認為，asymmetry case 應在青春期前早期治療方能達到最佳治療效果，臨床上不只要注意 perioral muscle，還要同時注意 head posture 及 neck muscles，例如胸鎖乳突肌如果有明顯兩側張力不平衡的現象，張力過大側應儘早做 tenotomy 並配合物理治療，這樣兩側下顎枝及 condyle head 才能均衡發育。而 Dr. Kondo 所認同的 upper lip 及 lower lip length 的黃金比例為 1: 1.7。

What are functional recoveries ?

Functional recoveries，就是將與呼吸有關的肌肉群 (tongue, perioral, neck and chewing muscles) 功能正常化；重建舌頭置放的空間，達到閉唇、嚥下的鼻呼吸（nasal

Low tongue
↓
Epiglottis turns down
↓
Larynx：Constricted airway
↓
Low and forward tongue position for open airway and respiration
↓
Abnormal swallowing and respiration
↓
Malocclusion is induced and aggravated.

Low tongue causes epiglottis to turn down, constricting larynx and airway.

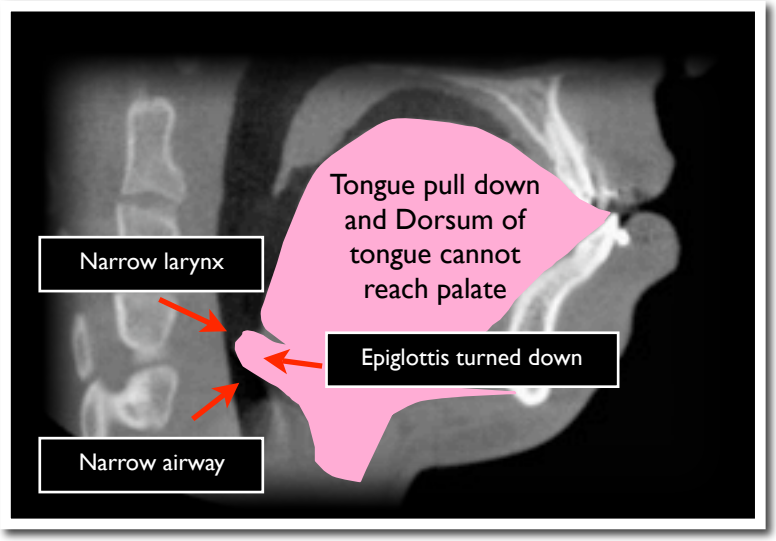

Fig. 1 Relationship between tongue position and respiration

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respiration) 形態。在治療的初期達成 functional recoverys 並建立正常的呼吸及吞嚥模式是治療成功的重要因素。

我們先一起來看一個 skeletal Class III open bite malocclusions 的病例：(Fig. 1)

舌頭沒有伸及上顎弓→造成上顎弓發育狹窄，舌頭位置也因而受限→呼吸道狹窄→舌頭向前伸欲打開呼吸道→形成 tongue thrust and mouth breathing →咀嚼肌功能低下→咬合力減低→臼齒咬合高徑 (posterior occlusal vertical dimension) 增加→前牙開咬 (anterior open bite) 形成。

這類病例我們如何做 functional recoveries 及重建 nasal respiration ? (Fig. 2)

1. 先 bonding brackets 並使用 light wire 先活化 PDL，二至三週後再開始做上顎撐寬。
2. 用 removable expansion plate 重新塑型上顎牙弓，取代 RPE splitting midpalatal suture 的功能；也藉此提供舌頭上提之空間。
3. 利用咀嚼口香糖 (gum chewing) 訓練舌頭及口腔周圍肌肉，使舌頭上舉 (lift up tongue)。
4. Lift up tongue with gum chewing 可使狹窄受限的上顎弓再塑型、再擴張。
5. 口香糖訓練也可使會厭軟骨向上仰 (epiglottis upward) →呼吸道因此打開了(open air way) →可以閉唇用鼻子呼吸了(nasal respiration) !
6. 利用 low force and low friction system 提供一個良好的口腔周圍環境，而矯正線在矯正器的 slot 裡有足夠的空間活動，使牙齒在內外力量平衡的區域 (neutral zones) 排齊、移動，我們稱之為牙齒生理性的運動 (physiological movement)。
7. 扶正近心傾斜的臼齒，使臼齒咬合高徑 (posterior occlusal vertical dimension) 降低；並增進咀嚼肌功能，使臼齒由三級咬合關係轉為一級咬合關係。
8. Lip training 使得前牙區得到良好 torque control，並可避

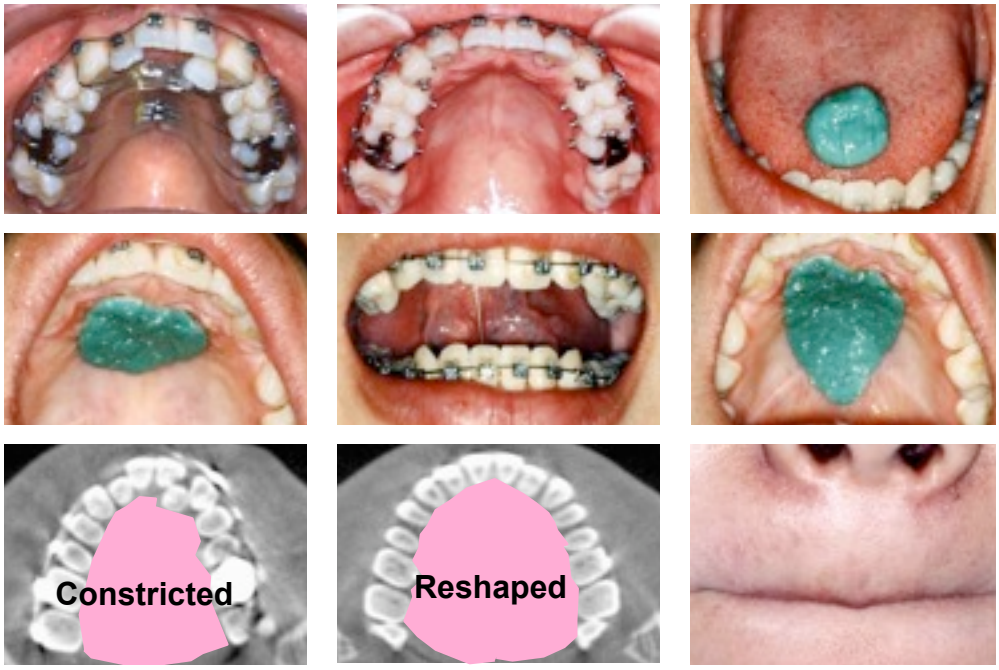


Fig. 2 Tongue training with gum chewing

免因為 molar uprighting（tip-back）而導致前牙 flare-out。

接下來我們要談談這場演講的重頭戲：Training of the tongue and perioral muscles

面對 Class III、上顎牙弓窄的 case，Dr. Kondo 會先黏著上顎矯正器，並佩戴 upper removable expansion plate 擴張上顎，先創造足夠的 tongue space，這樣舌頭上頂才會比較容易；接著觀察唇繫帶以及舌繫帶是否需要做 frenectomy 以及檢查病人的開口度，若是開口度不大，需先作 mouth opening exercise，讓最大開口度能達到能開到三指幅，等待繫帶的修整傷口癒合之後，便會開始要求病人利用口香糖來訓練舌頭：Dr. Kondo 會先觀察病人舌背是否出現兩條平行線— 即 expansion plate 撐開的距離，有痕跡出現表示患者已經習慣 ”Lift up the tongue”，此時再教病人作咀嚼口香糖的舌頭訓練才有效。每天不限定 training 次數，當然做得愈勤勞愈好，可以請患者在看電視、等電車時就可以做訓練。此外，Dr. Kondo 還強調必須是特定品牌的口香糖才有效，適合用來做舌頭訓練的口香糖必須要不會太粘、不會太軟才好成型，咀嚼適當硬度的口香糖還有助於活化腦細胞！

訓練過程如下：

1. 嚼口香糖嚼到軟了、感覺口水分泌增加之後，放到舌頭上捲成一個小圓球。
2. 舌頭將口香糖上頂，用力壓在上顎處。
3. 舌頭用力擠壓口香糖，讓它攤平壓扁覆蓋在上顎。
4. 舌頭向上向前用力擠壓口香糖，讓舌頭與上顎間沒有空隙之後，做吞口水的動作。如果吞嚥動作正

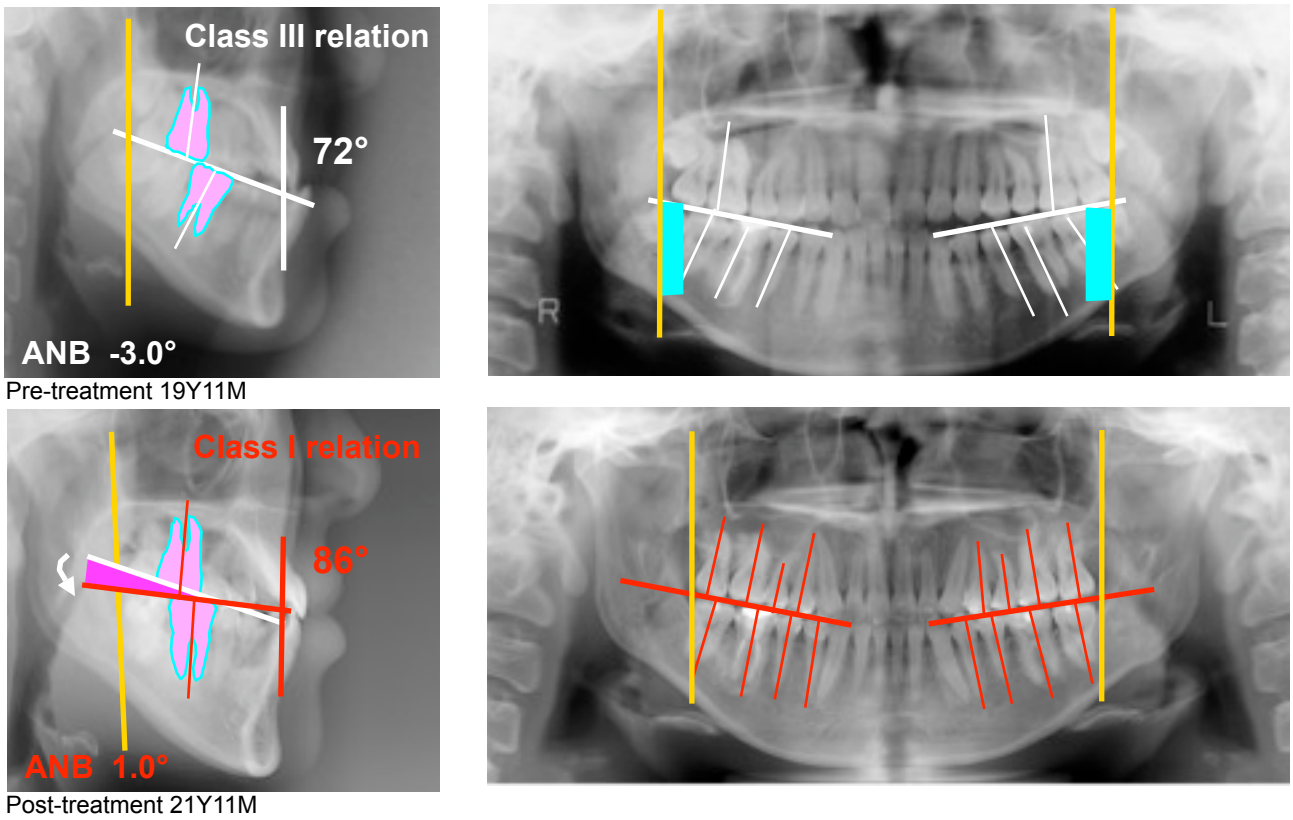


Fig. 3 Reconstructing occlusal plane by upright and intruding lower posterior teeth

確，患者再度張口時可見口香糖整個被延展往 palate 方向延伸。

5. 可藉由咀嚼更硬的口香糖來增強咀嚼力量。

Expansion screw 每兩天轉一個 turn（90˚），屬於 slow expansion，因此不會看到前牙出現 diastema 或 spacing。上顎的擴張時間視 case 而定，約需六至十個月，之後口香糖的咀嚼訓練也約需六個月。在這過程中，病人需注意要隨時維持鼻呼吸，以及嚼口香糖時要注意左右兩邊都要均衡地咬，有些人習慣用一側吃東西，會有一側的肌肉比較強壯，需先換另一側咀嚼，因此剛開始時可以互相觀察是否有均衡地用兩邊咀嚼。

為避免在這個階段牙弓沒有充分的擴張，前牙反而 flare out 出去，所以須告訴病人盡量做抿唇的練習，如果是 open bite 的病人，嘴部肌肉會比較鬆弛，可以將面紙放在嘴前，練習發出破裂音，例如日文的“Pa”、“Pi”、“Po”，來練習唇部的肌肉張力。Open bite 患者通常因為唇部肌肉力量不足，對著面紙發出破裂音時通常無法讓面紙飄起，因此要以能發聲時讓面紙飄動為原則做練習。Lip training 跟 tongue training，就是 Dr. Kondo 強調的 MFT (Myo-Functional Therapy)，需要向病人強調隨時隨地都可以做，甚至漸漸不需要口香糖也可以練習。

Uprighting of mesially tipped posterior teeth

除了 muscle training 以外，面對 full Class III 的 case ，如何不使用骨釘或手術的方式來改善 anterior-posterior disharmonies？過去我們常使用 Class III elastics，但會造成上顎第一大臼齒的 extrusion，容易造成開咬。另外，常可看到 Class III 的 case 往往 molar 會往近心傾倒，要如何 upright molar 而不會造成 open bite？ Dr. Kondo 利用 .014 的 Australia wire 並在 5、6 之間作 anchorage bend

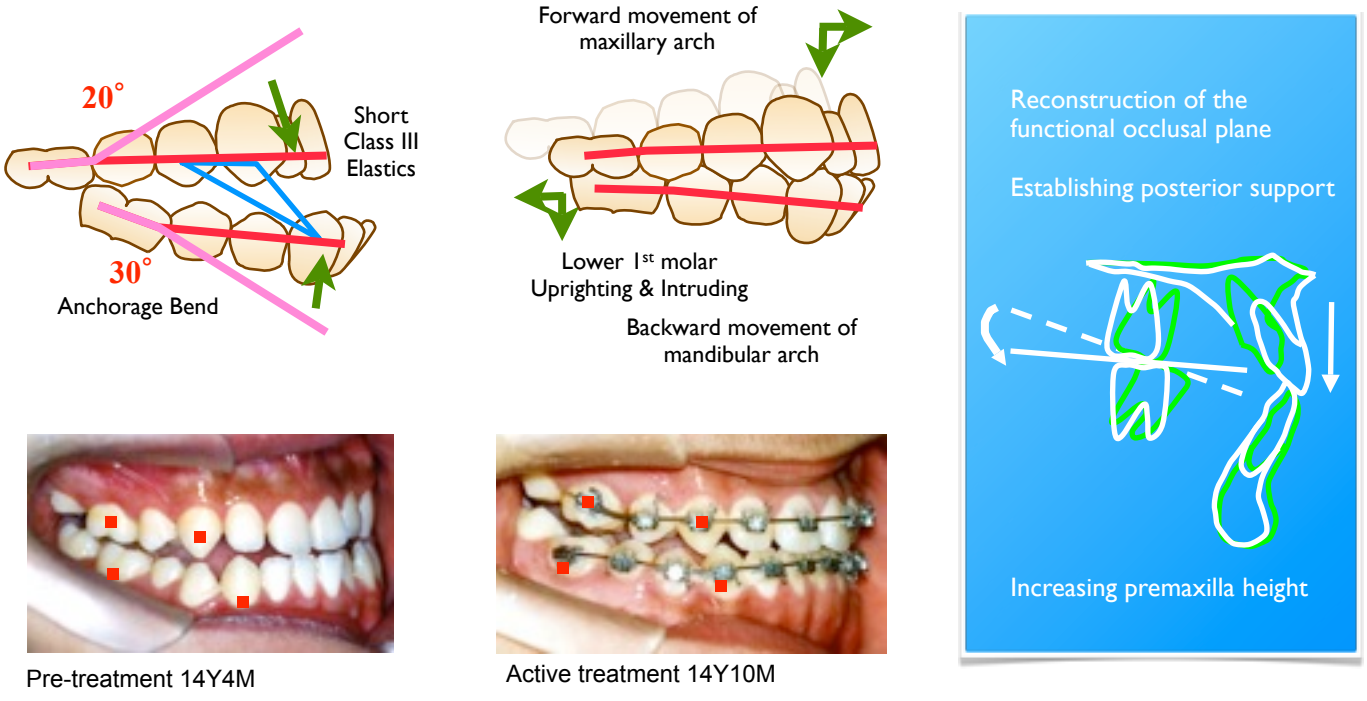


Fig. 4 Force system and effects, Open bite Class III case

（ tip-back bend ）來讓 molar uprighting，並佩戴下三上四或下三上五的 short Class III elastic，以及上三下三四以及上四下四五的三角型橡皮筋作 vertical finishing ，再配合上 gum chewing，就可以得到 molar upright 與 intrusion 的結果而不需要使用骨釘。

Fig. 3 是一個 Class III 的 case，從治療前 pano 的 functional occlusal plane 連線上可看到從下顎小臼齒到大臼齒都有近心傾斜，因為無法將 6、7 一起作 upright，所以 7 不放矯正器先 bond 到 6 並做 anchorage bendt，等到 6、7 都 upright 之後，線才放到 7。在治療前的 pano 中，下顎 7 離 PM line 有一段距離（ 綠色區域 ），uprighting 之後再來看 pano (Fig. 3 圖右)，卻發現下顎 7 幾乎與 PM line 沒有距離了，也就是表示 6、7有往後方移動。利用簡單的 mechanism 就可以把 molar 向後方移動。

我們比較 lateral view 可以看到 functional occlusal plane 減少了 14°，anterior crossbite 也改為正常。這類的 case 都是同樣使用 anchorage bending + short elastic 的方式，短時間就可改正 molar relationship。

Dr. Kondo 提到如何改變臼齒咬合高徑（ POVD ），也就是如何利用 vertical control 來解決 open bite 或是 deep bite 的問題。從 Fig. 4 來介紹 Dr. Kondo 所使用的 mechanism :

面對 open bite Class III case，Dr. Kondo 利用 .012 ~ .014 的 Australian wire 在 5 6 間做 25 ~ 35° 的 anchorage bend 來 upright 及 intrude 第一大臼齒，以減少咬合平面的角度並且建立 posterior support；同時拉 short class III elastic 讓上顎及上顎牙弓向下向前，下顎牙弓向後，並藉由換越來越硬的線來維持下顎前牙的 vertical height。

如果沒有彎 anchorage bend，elastic 在軟線的階段容易造成線變形，上下第一大臼齒會向 mesial tilting。

遵循 Dr. Kondo 的 mechanics 及 training 方式，不用任何 bony anchorage 就能使後牙 intrusion 甚至變成 posterior open bite！

至於治療 Deep bite Class III 的 case，則希望能夠增加後牙的高度，並讓前牙 lingual tipping。

Dr. Kondo 會讓病人戴下顎的 bite plate 把 bite 打開，並訓練病人將舌頭上提，增加 anterior vertical height。Dr. Kondo 特別強調 anchorage bend 一定要配合 elastics，例如 open bite case 要使用 short Class III elastics 以及 Class III canine triangular elastics 讓後牙的咬合高徑增加，約使用 60 ~ 80 gm (企鵝) 的力量。至於 deep bite case 則使用 long Class III elastics，拉到上顎 7 讓後牙 elongation 以改善 deep bite。較常使用的 elastics 拉法如 Fig. 5。

Dr. Kondo 強調從矯正的一開始就訓練病人正確的呼吸及吞嚥，能夠有效的克服水平縱向及前後方向的牙齒移動而不需要藉助骨釘及手術的方式，這是一種運用肌肉達到改善 malocclusion 的原則與觀念，與 Damon

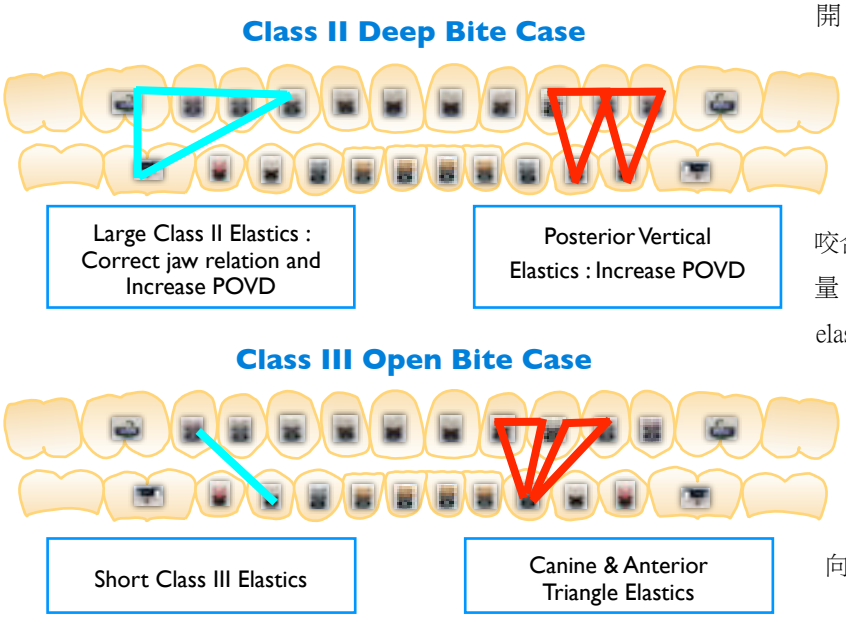


Fig. 5 Different kinds of elastics

system 的觀念相契合，因為牙齒的移動其實不需要 heavy force；Muscle wins philosophy 是訓練病人藉由舌頭及周邊肌肉來影響 cancellous bone 中的牙齒排列以及得到自然的 torque。傳統的矯正器將牙齒一顆顆綁起來，牙齒承受的力量約為 500 gm，Damon system 的 slot 提供給 wire 足夠的空間，讓一顆顆牙齒 passive 的 ligation 在一起 (10 gm)，Damon system 所提供的 light-force、low friction 效果能與 muscle wins philosophy 配合產生 double effects，讓 dentoalveolar blood circulation 不會受到阻礙，牙齒就能自然地移動。

Long-term occlusal stability

Dr. Kondo 認為最有益 occlusal stability 的利器並非 retainer。因為即使做完矯正治療，咬合仍會因上顎顏面骨頭的發育生長、下顎運動以及周邊環境而持續不斷改變。所以增進咬合的關係並在發育早期恢復及重建這些與呼吸有關的肌肉功能 (functional recoveries) 將有助於治療後上顎骨顏面發育及下顎的運動。

以下我們列出 Dr.Kondo 認為 long-term occlusal stability 所需的 criteria : (Fig. 6)

1. Functional occlusal plane 通過 mandibular foramen。
2. Functional occlusal plane 與 upper and lower 1st molars 的 root axis 呈 90° 垂直的關係；且 upper 1st molars root axis 通過 zygoma 的 key ridge，因咬合力會集中於此處。
3. Condylar head 位於 posterior position，且患者無開口障礙、開口疼痛等臨床症狀。
4. PN line。患者完成矯正治療後，所有的牙齒最好座落在 PN line 之前；也就是 PN line 之近心處，這樣牙齒就確定位在 cancellous bone 內。
5. Dens 的高度應不超過 McGregor line (枕骨底點與 PNS 的連線) 4 mm， 使頭部旋轉不受限制。(Dens 意指第二頸椎向上突起銜接第一頸椎的部位)
6. 下顎運動的平穩 (smooth jaw movement) : CDM line (condylar guidance) 與 F line (anterior guidance) 呈現平行的關係 :
   a. CDM line : condylar head 最頂端的點與 condylar head 的最前緣的點，取其中點劃一切線。
   b. F line : Upper incisal edge palatal side 的最低點與 upper incisors and lower incisors 的接觸點 BP (Bite point) 的連線。

Muscle Wins ! Dr. Kondo 利用矯正的 mechanical therapy 加上生長發育、肌肉的協調穩定，達到最終的咬合穩定；大大減少臨床上需要拔牙及手術的機會。她所追求的不只是一個美麗的笑容，而更是利用舌頭、口腔周邊肌肉、咀嚼肌、鼻呼吸、閉唇、嚥下等動作重新找回齒列穩定的位置，並建立正確的呼吸方式進而達到全身性的健康。這是 2008 年端午節我所聽到的福音，我也從 Dr. Kondo 領受她給予矯正醫師亦或一般牙醫師的新使命。

感謝 : 賴德文醫師及蘇筌瑋醫師記錄，黃瓊嫻醫師彙整

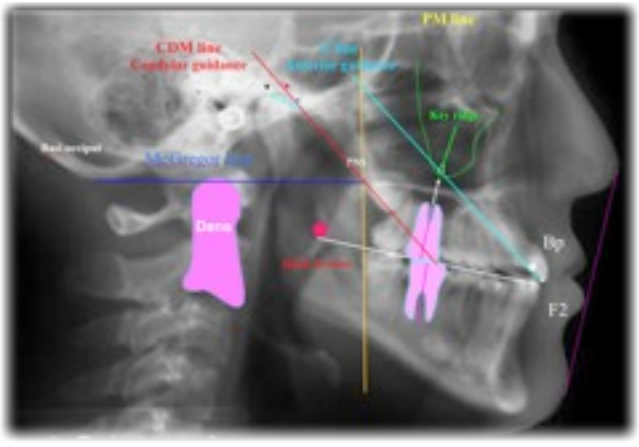


Fig. 6 What type of occlusion established at the end of active treatment in Class III cases can achieve long term stability ?

Utilization of a Third Molar in Orthodontic Treatment of Skeletal Class III Adult Case with Lateral Deviation

A 28-year-old Japanese male came in our clinic for consultation. He appeared in good health with no contributory medical history.

The patient has hereditary Class III malocclusion from his maternal side of family. He presented a long-lower facial height and a concave profile. His lower lip appeared protruded and the nasolabial angle was favorable at 106.0°.

His chief complaints included anterior cross bite, speech and chewing dysfunction, dished-in face and TMD symptoms.

Diagnosis

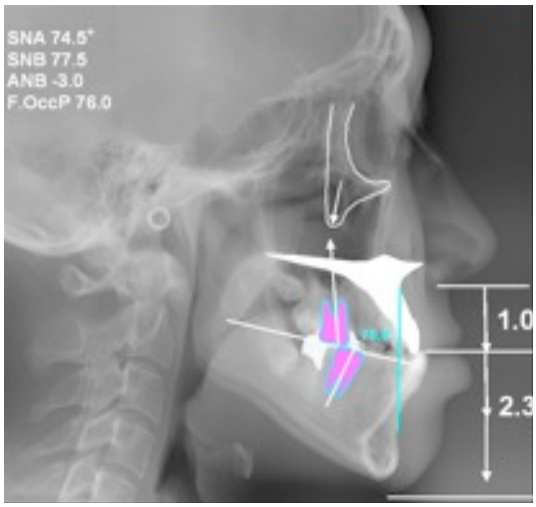
The cephalometric film indicated this was a skeletal Class III malocclusion. The patient also had a narrow maxillary dento alveolar arch and TMD symptoms. The intra-oral examination revealed short lingual and upper labial frenum attachment.

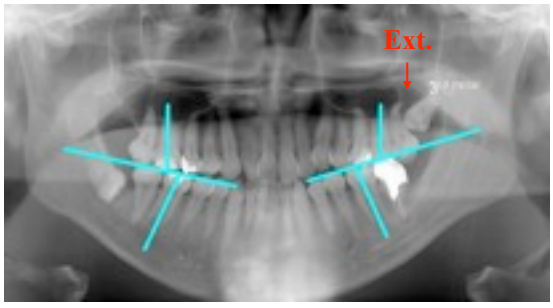
The maxilla was retruded (SNA : 76.0°, MEAN : 81.5°±3.1°).

The mandible was in an average position (SNB : 79.0°, MEAN : 78.2°±3.1°).

The molar and canine presented a Class III relation with -2.0 mm overjet and 1.0 mm overbite. Maxillary left 2nd molar was over erupted, causing occlusal interference in the posterior area which then resulted in a 4.0 mm mandibular deviation to the right side in the central occlusion.

The patient has a short lingual frenum, which prevents his tongue from being positioned within the maxillary arch. It also causes the anterior placement of the tongue and mouth breathing. A narrow maxillary dento-alveolar arch was the result of the same caused and consequentially led to posterior cross bite on the both sides. The mandibular posterior teeth were mesiolingual tilted, creating an excessive posterior vertical dimension (ANS-PNS to GoGn : 33.0°, MEAN : 26.3°±6.3°) and a mandibular shift when opening (SN to GoGn : 46.0°, MEAN : 34.5°±6.1°). This skeletal Class III malocclusion combined with TMD symptoms had been aggravated by functional and environment factors as well as growth and genetic factors. Therefore the form and function of the joint might be adversely affected due to the structural and functional asymmetry.





	wits	SNA	SNB	ANB	GoA	SN-GoMe
Pre	-16.0	76.0	79.0	-3.0	127.0	46.0
Post	-3.0	78.5	77.5	1.0	127.0	45.0

Fig. 1 Pre-treatment (28Y0M) 2006.02.01

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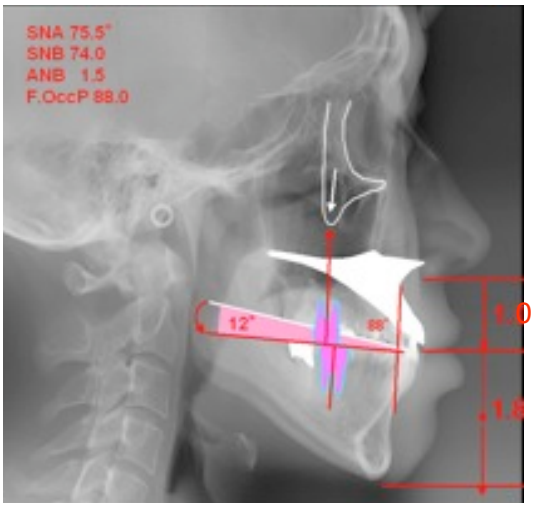
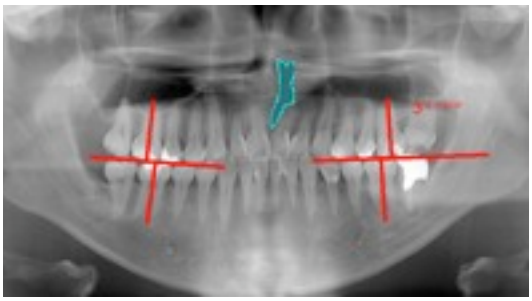
Author of " Muscle Wins ! Treatment in Clinical Orthodontics "





Pal.P-GoMe	1 - SN	1 to GoMe	1 to DC-L1i	F.Occp-AB	O.J.	O.B.
33.0	104.0	88.0	92.0	76.0	-2.0	1.0
32.0	114.0	80.0	96.0	88.0	2.0	2.5

Fig. 1 Post-treatment (30Y3M) 2008.05.14

Treatment Plan

An orthodontic treatment plan was made to treat this malocclusion with Damon 3 brackets and reshaping of the maxillary dento-alveolar arches. This reshaping technique aimed to restore harmony of the tongue, perioral and chewing muscles. Such procedure could also reestablish the proper functions of nose breathing without surgical intervention. The extraction of the left maxillary 2nd molar was required and the extraction space could be replaced by the maxillary left 3rd molar.

The total treatment time was 27 months. Begg type and tooth positioner was adopted for retention. Appliances used included the followings: Damon 3 brackets, removable maxillary expansion plate, and MFT with chewing gum.

Discussion and Summary

The case presented here, which was originally classified as a surgical case, was successfully treated solely orthodontically. One of the most crucial contributing factors to the success of this treatment was the reshaping of the maxillary dento-alveolar arch. This reshaping successfully widened his tongue space and re-established normal respiration as result of a more opened air way; furthermore, it improved his swallowing functions and allowed his lips close effortlessly.

Both maxilla and maxillary arch performed a forward-downward movement. The mandibular arch distalized and the mandibular posterior teeth were turned upright and intruded. These helped to reconstruct the functional occlusal plane and to establish favorable anteroposterior, vertical skeletal and occlusal relationships. The tongue and masticatory muscle training, that was constant vigorous gum chewing during and after treatment, was effective in stimulating normal chewing function, respiration and swallowing. The light force and low friction features of the Damon brackets were of particular importance in the stimulation of functional recovery. However, this system cannot create optimal torque for all teeth. If this passive appliance is used to correct malocclusions, we need another force to create additional torque. Therefore, the best way to correct malocclusion is through restoration of normal functions, respiration and swallowing. It can reduce active treatment time and provide a long-term occlusal stability.

Pre-treatment (28Y0M) 2006.02.01

Start of treatment (28Y0M) 2006.02.15

12 months into active treatment (29Y0M) 2007.02.06

Post-treatment (30Y3M) 2008.05.14

Active treatment time : 27 months

3 months post-treatment (30Y6M) 2008.08.24

Fig. 2 Intra-oral photographs from pre-treatment to post-treatment

The intra-oral examination revealed short lingual and upper labial frenum attachment which caused the tongue unable to be positioned within the Mx. dentoalveolar arch. The molar and canine presents a Class III relation with -2.0 mm overjet and 1.0 mm overbite. Maxillary left 2nd molar was over erupted, causing occlusal interference in the posterior area which then resulted in a 4.0 mm mandibular deviation to the right side in central occlusaion. Such deviation also led to TMD symptoms

The treatment began by bonding Damon 3 brackets and wearing a removable Mx. expansion plate, in conjunction with short Class III and canine triangle elastics. 12 months later, anterior cross bite was almost corrected. Then a lingual frenectomy was performed after the myo-functional training (MFT) started which aimed to lift up tongue.

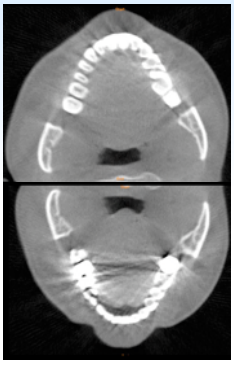
The Max. dentoalveolar arch was reshaped which together resolved occlusal interference in the posterior area and TMJ symptoms. The mandibular posterior teeth were turned upright and intruded by distalizing the mand. arch. Short Class III and canine triangle elastics were also adopted. As a result, antero posterior and vertical skeletal occlusal disharmony were almost corrected in 12 months. O.J. and O.B. became 1.5 mm respectively. The tongue achieved a normal posture and nasal breathing was improved. Then the Max. expansion plate was removed. Note the left maxillary second molar was extruded.

24 months later, all elastics were discontinued for the final three months. 3 weeks later, since the tongue and other perioral muscles seemed to have adapted to the new environment. The Max. appliance removed. 27 months later, a stable occlusion with Class I canine and molar relation was established. The midline was on and the O.J. and O.B., were 1.5 mm and 2.0 mm respectively. There were no recurrent TMD symptoms and the jaw movement appeared smoothly. The treatment time was 27 months.

Stable occlusion was maintained.

Fig. 3-A **CT image at pre-treatment and post-treatment**

The post-treatment axial CT image revealed all teeth were held within the cancellous bone of the alveoli. The alignment was satisfactory and the arch fits the shape of a relaxed tongue. There was a good balance between the relaxed tongue, the perioral and masticatory muscles.



Pre-treatment (28Y0M) 2006.02.01 *Post-treatment (30Y3M) 2008.05.14*

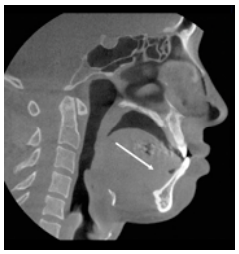
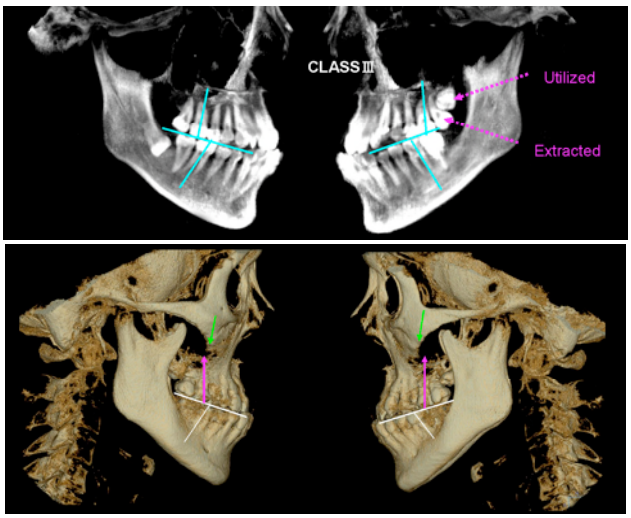
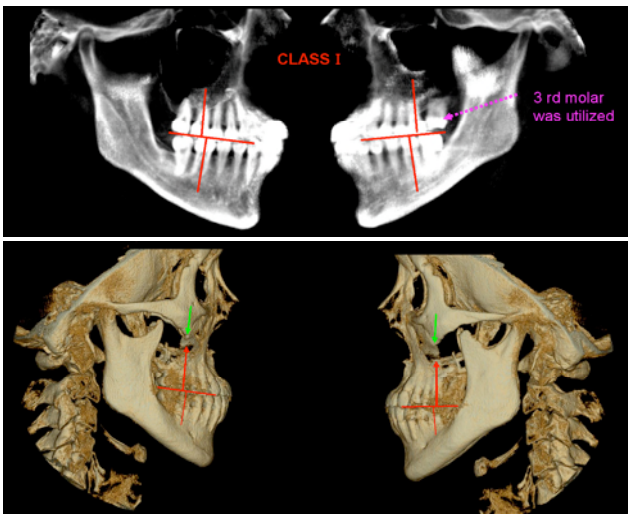


Fig. 3-B-1 **CT image at pre-treatment and post-treatment**

The post-treatment sagittal CT image indicated the tongue was able to be positioned within the maxillary arch. The air way was expanded, and also nose breathing and lip closing were improved. The interincisal angle appeared more favorable.

Pre-treatment (28Y0M) 2006.02.01 *Post-treatment (30Y3M) 2008.05.14*





Pre-treatment (28Y0M) 2006.02.01 *Post-treatment (30Y3M) 2008.05.14*

Fig. 3-B2 **3D image at pre-treatment and post-treatment**

The post-treatment lateral 3D image showed a stable occlusion with posterior support. The long axes of maxillary and mandibular posterior teeth were perpendicular to the functional occlusal plane.

The normal line on the inferior apex of the zygomatic arch (the Key ridge) went through the bifurcation point of the mesiobuccal and distobuccal root of the maxillary first molar.

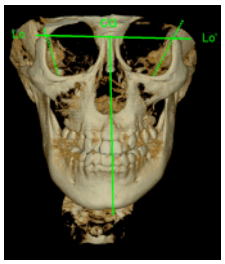
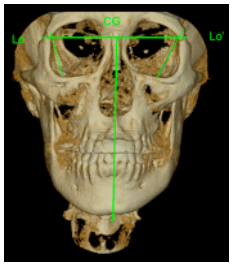


Fig. 4 The post-treatment frontal 3D image indicated the mandibular deviation to the right was improved and the midline was coincident.



Pre-treatment (28Y0M) 2006.02.01 *Post-treatment (30Y3M) 2008.05.14*

Fig. 5 The post-treatment CT image curved MPR showed both condyles in comparable positions in the articular fossae, indicating that normal functions have been attained after the treatment.

Pre-treatment (28Y0M) 2006.02.01 Post-treatment (30Y3M) 2008.05.14

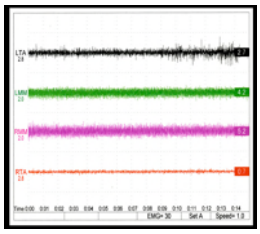
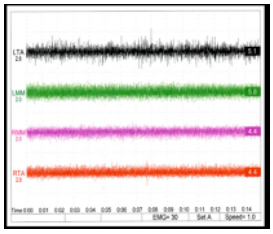
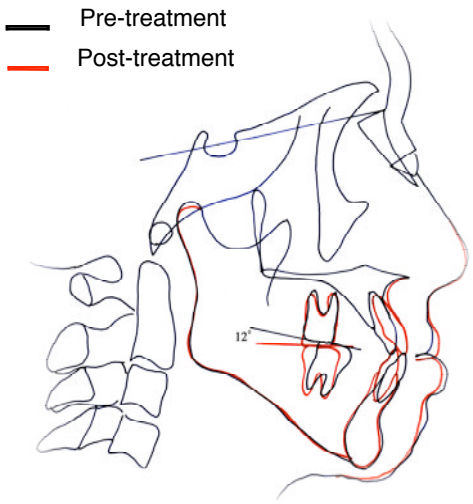


Fig. 6 **Functional findings: Comparison of electromyogram (EMG) record from pre-treatment to post-treatment**

The post-treatment EMG record revealed that both Masticatory muscles (MM) and Temporal muscles (TM) achieved favorable bilateral balance as a result of the treatment.

Pre-treatment (28Y0M) 2006.02.01 Post-treatment (30Y3M) 2008.05.14





Both maxilla and maxillary arch performed a forward-downward movement. The mandibular arch distalized and the mandibular posterior teeth were turned upright and intruded.

As a result, the functional occlusal plane (F. Occp－AB) tilted downward by 12.0° during the treatment. The long axes of maxillary and mandibular posterior teeth were perpendicular to the functional occlusal plane.

The crown of upper incisors inclined labially which provided a proper incisal guidance and freedom of mandibular movement in all directions. As a result, temporomandibular problems were resolved by the establishment of optimal functional loading and the elimination of prematurity.

This treatment restored functional occlusion and favorable antero-posterior and vertical skeletal occlusal relationships in the absence of an orthognathic surgery.

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The Application of Orthodontic Bone Screw Anchorage in a Severe Class II Adolescent Patient

Introduction

Orthodontic bone screw anchorage has been applied in many clinical orthodontic conditions successfully. Some of them are maximal retraction in protrusion cases, Class II correction, Class III correction, and molar distalization in crowding cases. Moreover, molar intrusion in molar elongation or open bite cases, deep bite correction, midline correction, and the correction of canting occlusal plane and posterior crossbite. In many situations, the anchorage requirement is not critical in adolescent patients because of favorable growth potential. Some orthodontists are worried that the use of orthodontic bone screw in adolescent patients may interfere with the growth of the adolescent patients. In this case report, the author put orthodontic bone screws in non-tooth bearing area of the adolescent patient, without incurring any complication and got a good treatment result. Orthodontic Bone Screw anchorage is a powerful tool in severe Class II adolescent cases.

Fig. 1 *Pretreatment extraoral view, obvious perioral protrusion and lip incompetency were noted.*

SNA	80
SNB	71
ANB	9
SN-MP	38
U1-SN	118
L1-MP	103

Fig. 2 *Pretreatment cephalometric film, ANB is 9 degrees which showed skeletal class II relationship. SN-MP is 38 degrees, with divergent mandibular plane. U1-SN is 118 degrees, and L1-MP is 103 degree, showing flared upper and lower incisors.*

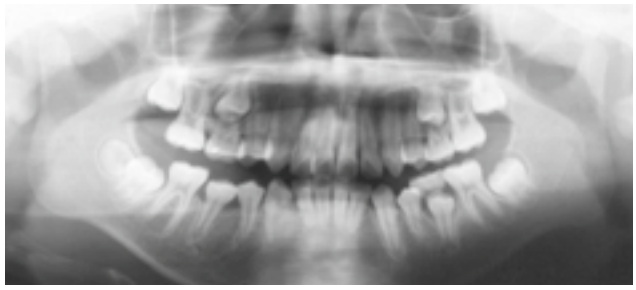

Fig. 3 *Pretreatment panoramic film. It revealed #55, #65, and #75 has not shedded and there are developing permanent tooth buds beneath them. The tooth bud of right mandibular third molar has been noted.*

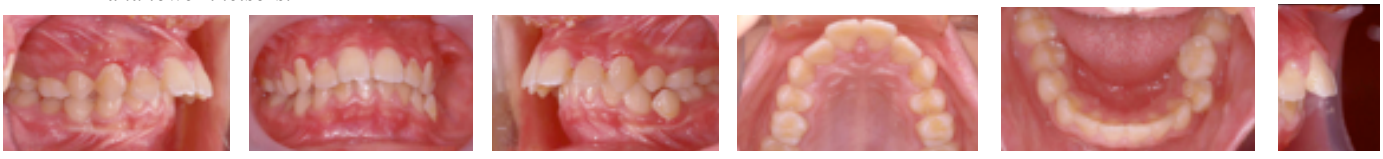

Fig. 4 *Pretreatment intraoral view, Overjet and overbite are quite large. Both sides are Class II occlusion.*

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Clinical Examination

The 10-year-old boy's chief complaint was excessive maxillary protrusion. Extraoral frontal view showed mild facial asymmetry with mandible deviating to left side, perioral protrusion, lip incompetency, and no gummy smile (Fig. 1). Extraoral lateral view showed maxillary protrusion, chin retrusion, acute nasolabial angle and imbalanced perioral soft tissue. Intraoral frontal view showed flared upper incisors and deep bite with 4.5 mm overbite. Intraoral occlusal view showed both upper and lower arches were symmetrical ovoid shape. There was no space deficiency in upper arch, but there was 1.5 mm deficient in lower arch. Bilateral class II occlusion was noted. The overjet was 12 mm.

Radiographic Examination

Cephalometric analysis:

ANB was 9 degrees which showed a skeletal class II relationship. SN-MP was 38 degrees, with divergent mandibular plane. U1-SN was 118 degrees, and L1-MP was 103 degree, showing flared upper and lower incisors (Fig. 2).

Panoramic film:

It revealed that #55, #65, and #75 had not shedded and the permanent tooth buds were developing in the bone. The tooth bud of right mandibular third molar was noted.

Diagnosis and Treatment Plan

According to the above examinations, the patient showed a severe Class II occlusion composed

Fig. 5 *The patient started to wear high-pull headgear at the beginning of orthodontic treatment. He was suggested to wear the headgear over 12 hours per day.*

Fig. 6 *2 months of treatment, the patient started to wear a functional appliance all day long except eating and brushing. During nights, he continued to wear headgear.*

Fig. 7 *Extraoral view after 1Y5M orthopedic treatment. The effectiveness seemed to be limited.*

Fig. 8 *Intraoral view after 1Y5M orthopedic treatment. Overjet is still quite large and occlusion is still in Class II.*

of maxillary protrusion and mandibular retrusion. His mandibular plane angle was beyond average so he had a tendency of vertical growth. In addition, his upper and lower incisors were flared, and the overjet and overbite were quite large. The treatment plan included the primary orthopedic phase and the secondary orthodontic phase. In the orthopedic phase, we intended to use high-pull headgear to suppress the forward and downward growth of maxilla. Also we utilized functional appliance to facilitate the forward growth of mandible. In the orthodontic phase, we planned to correct the patient's severe malocclusion with full-mouth edgewise fixed appliance and orthodontic bone screws. As to his facial

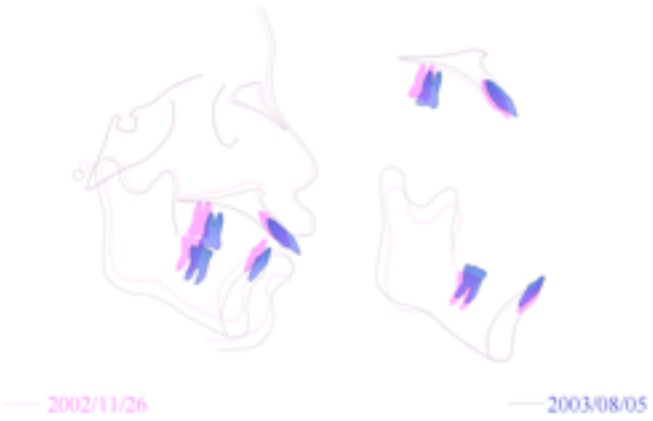
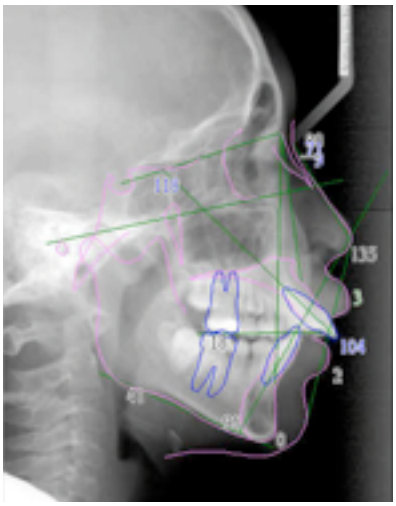


Fig. 9 *The superimposition of cephalometric films showed the ineffective result of orthopedic treatment. It may come from the insufficient wearing time.*



SNA	80
SNB	71
ANB	9
SN-MP	41
U1-SN	118
L1-MP	96

Fig. 10 *Cephalometric film after 1Y5M orthopedic treatment.*

Fig. 11 *After extracting upper 1st and lower 2nd bicuspids, fixed appliance was applied, and miniscrews were inserted at the upper infrazygomatic crest, Ni-Ti coil spring was applied.*

Fig. 12 *Deep overbite would impede the retraction of anterior teeth, lever arms were applied to intrude anterior teeth. The result of bite opening was noted.*

asymmetry, since the patient and his parents did not have any complaints about this problem and it was still acceptable, and there was no simple ways to correct it, therefore we decided to neglect the problem.

Treatment Procedure

2002/03/27 The patient started to wear high-pull headgear and was suggested to wear over 12 hours per day. (fig. 5)

2002/05/26 The patient started to wear functional appliance all day long except eating and tooth brushing. He continued to wear headgear during sleep. (Fig. 6)

2003/08/15 After a 17-month orthopedic treatment, the effectiveness was considered limited. (Fig. 7-10)

2004/02/13 After the extraction of the upper first and lower second premolars, an upper fixed orthodontic appliance was applied. (Fig. 11)

2004/02/20 Orthodontic bone screws (J-Screw, Bio-Ray Biotech Cor| oration, Taiwan) wer inserted at upper posterior are: (infra-zygomatic cre t), meanwhile, the anterior teeth vere retracted by Ni-Ti :oil spring.

2004/04/03 he lower fixed ortho(ontic appliance was applied. (Fig 11)

2004/06/04 The bilateral lever arms were applied in both arches for bite opening and avoiding the spatial interference of upper and lower incisors during space closure. (Fig. 11)

2004/07/09 The decreased overbite was noticed, and space closure continued. (Fig. 11-12)

2005/04/29 Because the chain of action of the retraction force was applied much lower than the center of resistance of the whole upper dentition, the overbite deepened and the occlusal plane steepened during space closure. The upper incisors cannot be retracted smoothly due to the overbite interference, and consequently Class I occlusal relationship cannot be achieved.

2005/05/27 A orthodontic bone screw was inserted subapical to upper incisors, locating inferiorly to ANS (anterior nasal spine). A 0.012 inch ligature wire was extended from the neck beneath the platform of the screw and a hook was formed at the end of the ligature wire. Thus, the intrusive force to upper incisors can be applied by connecting the hook and the main archwire with an elastic chain (Fig. 14).

2005/07/01 The overbite is obviously opened wider than before. (Fig. 14)

Fig. 13 *All the extraction spaces are closed, but dental midlines did not coincide. The anterior teeth were obviously dumped and overbite was deepened. It was still Class II occlusion on left side.*

Fig. 14 *An upper anterior subapical orthodontic bone screw was inserted. A 0.012 inch ligature wire was extended from the neck of the screw and a hook was formed at the end of the ligature wire. Thus, the intrusive force to upper incisors can be applied by connecting of the hook and the main archwire with an elastic chain.*

2005/11/25 After bite opening, retraction of the upper dentition therefore can be continued to achieve class I occlusion. (Fig. 15)

2006/03/24 In the finishing stage, interarch elastics are applied. (Fig. 16)

2006/06/30 Debonding.

The total treatment course is 4Y3M. The orthopedic phase took 1Y11M, and the orthodontic phase took 2Y4M. The patient's profile improved significantly, and the ideal Class I occlusion was achieved. (Fig. 17-21).

Discussion

During the mixed dentition stage, we used headgear and functional appliance to provide orthopedic treatment. Although we took advantage of his growth peak, the treatment result of orthopedic phase seemed limited. It might be due to the insufficient wearing time.

The main improvement of this case resulted from teeth extraction, and the use of orthodontic bone screw to open the bite and retract upper dentition to the extreme.

The use of orthodontic bone screw anchorage in this adolescent did not cause any adverse effect to his skeletal development.

There seemed no difference between the usage of orthodontic bone screw in adults and this adolescent patient. The bone density is not significantly lower, and no screw failure happened during the treatment. The success rate of orthodontic bone screw in adolescents needs to be evaluated in further studies.

When utilizing posterior orthodontic bone screw anchorage to retract upper anterior teeth, a force system is created that retracts the posterior teeth. It is unlike those in conventional orthodontic treatment, where posterior teeth are protracted by the counterforce of retracting incisors. In addition, the force of retracting the anterior teeth from orthodontic bone screw is applied coronally to the center of resistance of the whole upper dentition, so the deepening of the overbite is much more significant than it is in traditional cases. It results from that the exaggerated Curve of Spee, which is usually utilized to avoid bite deepening in traditional treatment, is unable to intrude the anterior teeth. Instead, accompanying the force applied from orthodontic bone screws, it produces a tip back and intrusive movement of the posterior teeth. The undesirable rotation of the occlusal plane impede the

Fig. 15 *The overbite had been opened and the occlusal plane was much adequate. The left side occlusion was much close to Class I relationship.*

Fig. 16 *It was quite close to an ideal occlusion. The patient was asked to wear inter-arch elastics.*

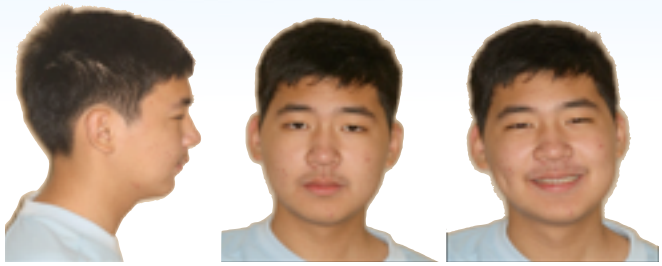


Fig. 17 *The post-treatment extraoral view revealed much coordinated and natural appearance of his perioral soft tissue.*

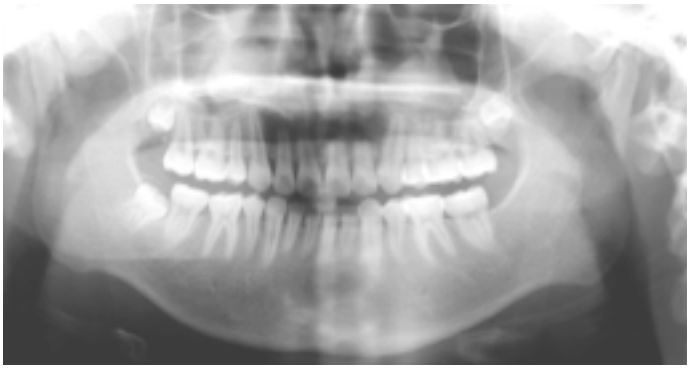


Fig. 18 *Post-treatment panoramic film revealed acceptable parallelism of roots. There are three third molars which should be extracted in the future.*

Fig. 19 *The post-treatment intraoral view. The orthodontic bone screws were removed in this appointment.*

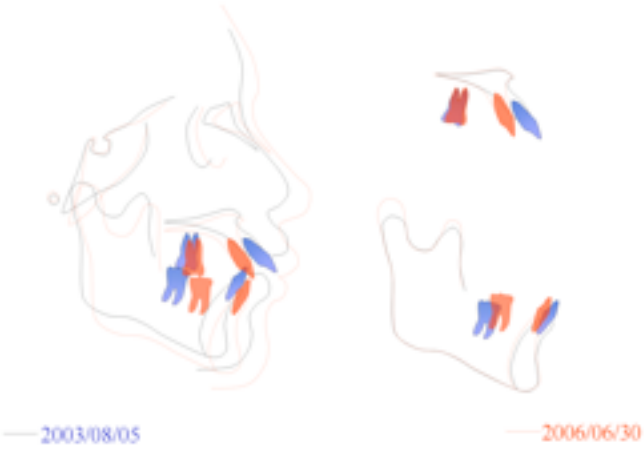
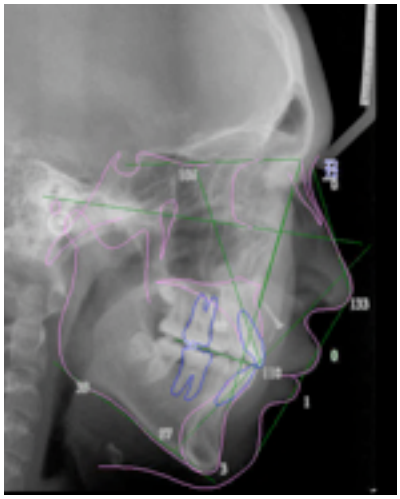


Fig. 20 *Cephalometric superimposition of this patient. The upper incisors was retracted about 12 mm and intruded about 3.5 mm. The mandible had an obvious growth of around 8 mm downward and forward.*



SNA	80
SNB	71
ANB	9
SN-MP	41
U1-SN	118
L1-MP	96

Fig. 21 *Post-treatment cephalometric film showed an obvious improvement of the skeletal Class II relationship. The upper incisors had been corrected to a much more ideal inclination.*

backward movement of the upper incisors and consequently make impossible the ideal Class I occlusion. Therefore, an anterior subapical orthodontic bone screw, combining a hook made of ligature wire and elastic chain, provides an intrusive force to upper incisors. This combination of retraction and intrusion force system is especially important when a large amount of anterior retraction is expected. (Fig. 22)

Conclusion

Generally adolescent patients have considerable growth potential, and thus, the requirement for anchorage is not very critical. In some adolescent cases with much skeletal discrepancy, although we will try orthopedic treatment, the effect and result are determined by the unpredictable growth amount of the patient. Therefore, a large amount of teeth movement is needed to compensate the patient's skeletal discrepancy, and the orthodontic bone screw anchorage plays an important role in these cases. In adolescent patients who need powerful anchorage in orthodontic treatment, orthodontic bone screw anchorage should be taken into consideration undoubtedly.

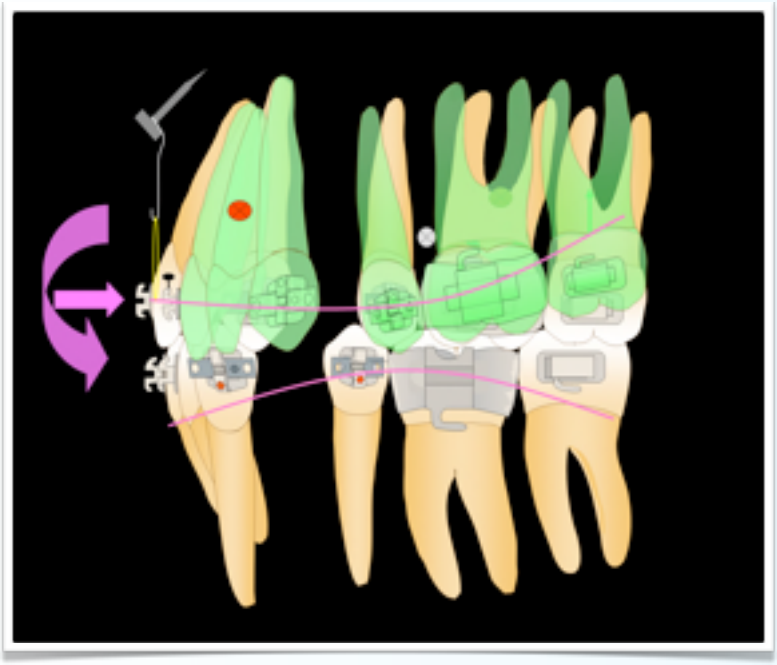
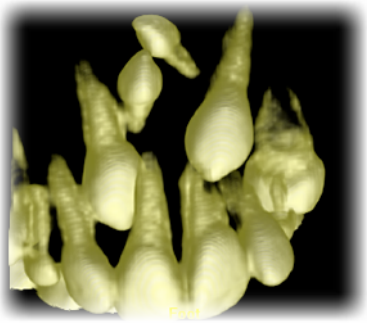


Fig. 22 *Diagrammatic representation of forces encountered in the second stage in this case. When using posterior orthodontic bone screw anchorage to retract upper anterior teeth, a force system is created that retracts the posterior teeth. It is unlike those in traditional orthodontic treatment, posterior teeth are protracted by the counterforce of retracting incisors. In addition, the force of retracting the anterior teeth from orthodontic bone screw is applied coronally to the center of resistance of the whole upper dentition, so the deepening of the overbite is much significant than it is in traditional cases. It results from that the exaggerated Curve of Spee, which is usually utilized to avoid bite deepening in traditional treatment, is unable to intrude the anterior teeth. Instead, accompanying the force applied from orthodontic bone screws, it produces a tip back and intrusive movement of the posterior teeth. The undesirable rotation of the occlusal plane impede the backward movement of the upper incisors and consequently make impossible the ideal Class I occlusion. Therefore, an anterior subapical orthodontic bone screw, combining a hook made of ligature wire and elastic chain, provides an intrusive force to upper incisors.*

The Dream Screw for the Next Generation's Orthodontists

OrthoBoneScrew

Beethoven Orthodontic Center



OrthoBoneScrew (OBS) has a double-crossed rectangular slot on its neck. This 0.018 x 0.025 inches rectangular slot provides a versatile use of orthodontic mechanics. A 0.07 x 0.025 wire in dimensions can be secured in the slot firmly.

A case report demonstrating an OBS application of labial and palatal impacted canines

Te-Wen Lai, Hao-Yi Hsiao, Chris Hwai-Nan Chang, Beethoven Orthodontic Center

Excisional uncovering to allow auto-eruption

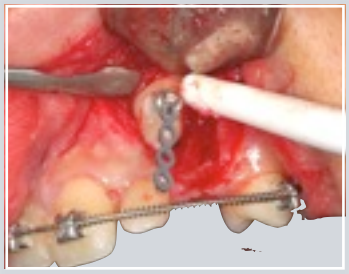
Screw: 3mm from suture

Mechanics Design :

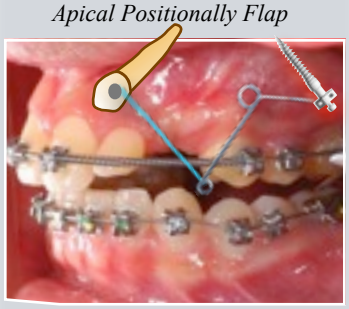
This 13-years-and-8-months-old male adolescent had two maxillary impacted canines. The right one was located palatally between #11 & #12 but the left one transposed labially between #21 & #22 with little chance for self-correction.

Firstly we created space by placing Damon brackets and NiTi opening spring between #11 & #14, #21 & #24 without engaging adjacent tooth during switching. Secondly we considered two different surgical techniques to expose these two impacted canines. Finally we designed a 3D lever arm in conjunction of OrthoBoneScrews to pull them out.

With the aid of OrthoBoneScrews as intraoral skeletal anchorage, we can prevent undesirable movement.



Apical Positionally Flap



Force systems: backward--> outward --> downward

4 months in treatment

OrthoBoneScrew
Corporate Headquarters
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Tel: +886 3 5735676 Fax: +886 3 5736777
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矯正螺絲（OrthoBoneScrew）設計極致化

使用矯正螺絲（骨釘），可以提高矯正的效率。但是什麼樣的矯正螺絲才算是『操作便利、功能完備』的矯正螺絲呢？

首先矯正螺絲的設計要符合生物力學的理念，因為它是鎖在人體骨頭上，藉由骨頭與矯正螺絲的相對作用力，使矯正螺絲成為穩定可靠的錨定。

以 OrthoBoneScrew 為例，將它分兩部分來看：

非螺紋區－露出骨頭外，可掛橡皮筋、彈簧或矯正槓桿（lever arm）；是提供矯正力量來源區段。

螺紋區－鎖在骨頭內，與骨頭產生相對作用力；是固定 OrthoBoneScrew 的區段。

1. 非螺紋區：可分三個部分探討

1). 頂端圓弧區：頂端採取圓弧形設計，可以避免刮傷周圍軟組織。

2). 四面方孔區：四個面都有方洞，可以置入方線彎成的矯正槓桿（lever arm），藉以提供三維矯正力量。由於四個面都有方洞，螺絲鎖入的深度及操作可以更便利。

3). 領部溝（鉤）槽區：溝槽凹陷的設計，可以使掛在領部的橡皮筋不易彈脫。

2. 螺紋區：那些設計可以讓我們在操作時『堅固不易斷裂、易攻不易鬆脫』呢？

1). 若要堅固不易斷裂，在接近領部下方的螺紋區螺牙的弧度內徑則要逐漸縮小，如此可以強化此區因而降低可塑性斷裂的機會。

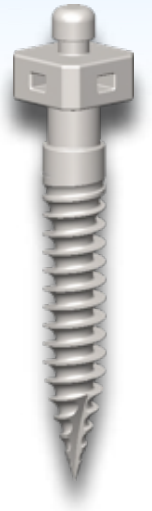
2). 螺牙底部半徑要採取圓弧設計，以便降低應力。

3). 螺牙外型採取倒鉤型設計，可以防止鬆脫。

4). 尖端缺口設計，使骨屑往外排除的空間，讓自攻鎖入更加容易。

5). 尖端角度尖銳設計，使自鑽輕鬆不費力，不須使用手機預鑽。

蘇乙洋醫師（左）貝多芬矯正課程講師 新洋牙醫診所
張慧男醫師（中）貝多芬矯正中心負責人
徐玉玲醫師（右）貝多芬矯正課程講師



→1	漸縮內徑強化	降低此處發生塑性斷裂可能性
→2	降低應力牙弧	螺牙底部半徑具圓弧設計
→3	防止鬆脫牙型	倒鉤型螺牙外型設計
→4	易鎖自攻缺口	不鏽鋼材質提供自攻缺口
→5	自鑽螺釘尖頭	免預鑽孔並降低鎖入扭矩

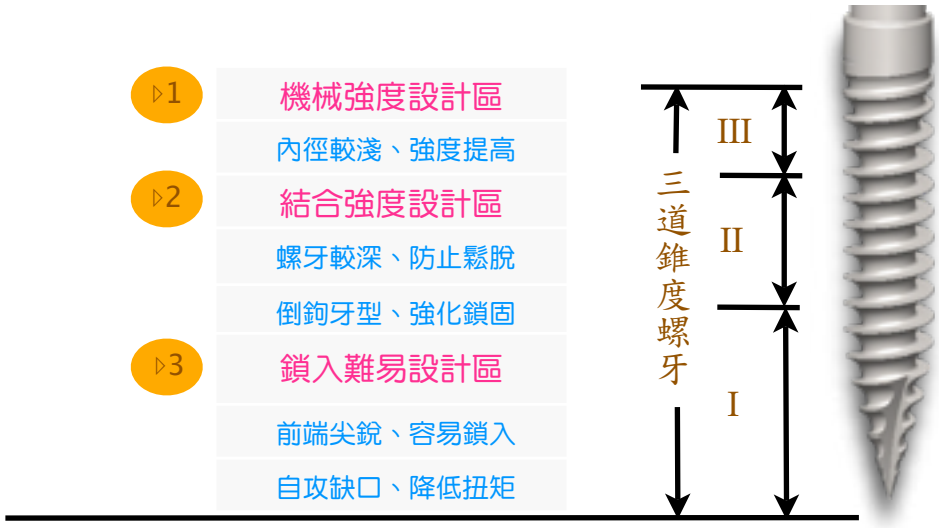
整個螺紋區內的螺牙包含三種錐度的設計：

1). 尖端 → 鎖入難易設計區：尖端要尖銳和缺口設計；則可輕鬆自鑽；且鎖入更加容易。

2). 中段 → 結合強度設計區：中段螺牙較深，可防止鬆脫。倒鉤牙型的設計，可以強化鎖固螺絲。

3). 領區 → 機械強度設計區：螺牙的弧度內徑要淺，可以強化此區而降低可塑性斷裂的機會。

矯正螺絲有以上的設計，才算接近 『 操作便利、功能完備 』的目標。當然矯正螺絲的材料很重要，找到恰當的材質，配合完善的設計，那麼矯正醫師和患者就都有福了！



Orthodontic Motto

Dr. Eugene W. Roberts

The biggest room in your house is the room for improvement !

1 迴響

我思我見談 Orthodontic Bone Screw - 簡介 OrthoBoneScrew

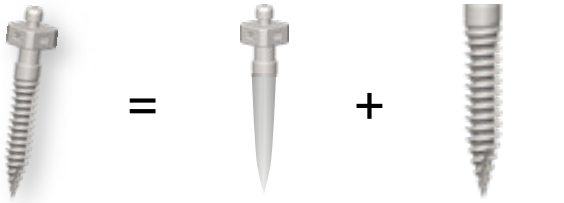
Orthodontic Bone Screw 的出現造福很多醫師，這其中也包含了我。國內外市面上多種minicrew廠牌，包括 MIA、Mondeal、A1、J1、A1-square type，我一直都在嘗試。其中黃鎮洋醫師所研發的 orthodontic bone screw 更是我在 palatal side 的首選。對於國內外所有研發各種 orthodontic bone screw 的醫師和工程師們所作的努力和貢獻，我實在很感恩，並且極度佩服。

我們把 orthodontic bone screw 它分成 1. 主體（body part-B）和 2. 螺紋（spiral part-S）來討論。

主體就如一根小鐵釘，越細越容易釘入，越粗則體積越大，釘入骨裡所必須取代的組織越多，因此阻力增加，術後腫脹感較明顯。

螺紋越薄則越利越易攻入，越深則螺紋間的組織越多，鬆脫較不易，若再加上 undercut 則 retention 會更好。放置 orthodontic bone screw 所擔心的問題，一是斷裂，這方面用不鏽鋼材質所作成的 screw 已獲得改善；另一則是鬆脫的問題。這方面我覺得 screw 的 body part 對 retention 的貢獻較小，spiral part 則扮演比較重要的角色，因此同尺寸的 screw，螺紋越深，主體相對越細，則 screw 易攻入，且 retention 也將獲得提昇。

最近張慧男醫師研發出新的 orthodontic bone screw，命名為 OrthoBoneScrew，只有一種尺寸，直徑 2.0 mm，長度 12 mm，使用了以後發現以下優點：



OrthoBoneScrew　　Body Part-B　　Spiral Part-S

1. 螺紋削得很深，且有 undercut，理論上 retention 應很不錯。
2. 掛 coil spring 的凹槽更深，coil spring 較不易鬆脫，power chain 也容易掛。
3. 平台下面的一小段圓柱洗得深些，掛 inter-maxillary elastics 很方便。
4. Screw 尖端洗了一個深且長的凹槽，自攻時更輕鬆。
5. 平台上有四個方洞，對 accessary arch 有更自由的選擇。

Orthodontic Bone Screw 的發展雖然有韓國領先風潮，但我們更為發揚光大，不同形式的 screw 各有它的優點和缺點，我認為都還有再進步的空間。期待國內各位設計醫師，多費巧思，把台灣設計的 screw 在國際舞台上發光發熱，再度成就另一種「台灣之光」！

名人牙醫診所 林伯璣

Dr. Larry White

Steal idea shamelessly !

Dr. Tom Pitts

Begin with the end in mind !

2 迴響

9 / 7 參加張醫師的回娘家系列，課程分上下午兩個部份。上午的課程中，張醫師詳細的說明了 Damon 的一些罩門，以及如何趨吉避兇並加以化解 ； 另外還介紹了矯正領域中很重要而且是未來主流的 - OrthoBoneScrew，針對一般常見的問題，以科學實驗的精神，一一提出研究的數據報告來解答，加上模擬下顎骨頭硬度的木板，讓我們實地操作，連我這個手無縛雞之力的女生都能很輕易地鑽入，真高興以後 lower buccal shelf area 需要植入迷你螺絲前，不必再 pre-drilling 了！

下午的課程則由金牛頓的黃經理替我們上了 keynote、pages 的速成課，讓我們可以輕易簡單的製作出屬於自己診所風格的介紹文宣以及專業的矯正病例檔案。附帶一提的是，金牛頓的電腦工程師們個個都身懷絕技，舉凡所有電腦相關的疑問都能迎刃而解，還教了我不少小祕訣。

犧牲了相夫教子，享受天倫之樂的時光來到新竹上課，心中著實掙扎，但當夕陽西下，滿載而歸，還是非常值得，很感謝金牛頓和張醫師。

宏欣牙醫診所 丁瑞

3 迴響

"OBS"

OrthoBoneScrew is Our Best Solution to achieve good outcome and benefit for selected patients.

Dr. Supachai Laothunthong

Bangkok, Thailand

4 迴響

工欲善其事，必先利其器

矯正三寶：Damon，OBS 與 Keynote。要將矯正做得好，施力要輕，錨定要穩，資料整理要清楚明瞭。其中 OBS (OrthoBoneScrew) 以 Newton' s A 的產品最好！小巧、簡潔、鋒利，有方洞設計還要做到 All-in-one！除了 OBS 還有更簡單易用的工具嗎？有了矯正三寶，要進入矯正界高門大戶的殿堂都變得容易多了。

感謝張醫師把多年研發的 OBS 的結晶與大家分享。只要能夠謙卑的學習，虛心的運用 OBS 與 Damon，每個學員都能站上巨人的肩膀，看見矯正世界的藍海。

從來都沒有像今天一樣叫人熱愛學矯正，熱愛矯正學。

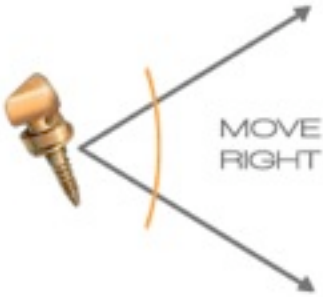
桃新醫院 何琪康

Preliminary Evaluation of Vector TAS

Dr. John Jin-Jong Lin

Design	Advantage	Disadvantage
No sharp edges from wire slots or hex bolts	--	More demonstration is required to better illustrate this feature.
Screw head	A small, neat, beautiful system A special delta-shape head	Fit no traditional springs but the Ormco delta spring.
Thread forming vs. Thread cutting	Beautiful diagram	The two diagrams look similar. The explanation is not clear enough.
Delta coil springs	Excellent and unique design Preventing dislodge	Procedures of spring placement should be in two diagrams to make them more clearly.
Asymmetric buttress	Innovative description	The diagram of the blue screw seems upside down.
Self-ligating lock	Excellent lock, seems the only one in the TADs market.	--
Asymmetric buttress thread design	Innovative description	More clinical data is needed to demonstrate its effects.
Tissue suppression stops	Innovative description	Clinically this design is not a key determinant of preventing soft tissue inflammation
Titanium 6-4	--	Titanium Alloy or TiAl6V4 may be more formal

VectorTAS™
TEMPORARY ANCHORAGE SYSTEM



Usage	Advantage	Disadvantage
Self-tapping	--	It's a common feature of TADs
Potential surgical cases treated without surgery	Very good statement for TADs	More clinical data is needed to demonstrate its effects
Madajet	Creative idea	More clinical data is needed to demonstrate its effects
Allows mid-treatment adjustment without removal of attachment	--	More demonstration is required to better illustrate this feature
Attachments	Two coil spring can be attached on one screw.	--
Clinical testimony	--	More clinical data is needed
Atlas	Easy for the novice	Not detailed enough, ie: mucosa area, paramedial mid-palatal suture area
Price	--	About 2.5 to 3 times more expensive than Asian screws
Selling in kits only	Convenient for beginners.	Inconvenient for advanced users unable to purchase screws individually.

You can get more information about vector in Ormco's web site :
www.ormco.com/index/ormco-products-vector

Bone Reduction in Management of Impacted Teeth

There are some important principles in treating impacted teeth successfully. We have discussed the usage of the cone beam CT, adequate surgical uncovering procedures, and specific mechanics with OrthoBoneScrew in NTO Vol. 9. Now we turn to another principle- bone reduction.

Mechanism of Bone Resorption

Tooth movement requires bone remodeling. Bone remodeling is a complex process involving the coordination of activities of cells from the osteoblasts and osteoclasts, which form and resorb the bone and cause the tooth movement. Bone remodeling usually starts with the bone resorption. Sodek clearly describes the mechanism of osteoclastogenesis and osteoclastic bone resorption (Sodek et al., 2000). Bone resorption requires the recruitment of osteoclast, which is produced by the monocyte/ macrophage lineage of hematopoietic cells. Theses osteoclasts were regulated by the stimulated osteoblasts through the M-CSF and RANK/RANKL/OPG system and further process the matrix degradation through the proton transport (Teitelbaum et al., 2000). This complicated bone resorption process takes time. If the anticipated resorbed bone volume is large, it will be a very long process. Therefore, to facilitate the orthodontic treatment in this situation, the active bone reduction with the aids of "osteo-burs" should be considered.

Fig. 1

Rationale of Bone Reduction

Kokich claims that some cases of unsatisfied movement of impacted teeth were resulted from the insufficient bone removal during the uncovering procedure (Kokich 2004). When dental follicle is deflated and removed during the uncovering, the enamel of the impacted crown comes into contact with the bone. Further resorption will only occur through pressure necrosis, which will be a slow process. Therefore, when performing the uncovering procedure, we not only need to focus on the elimination of the covering bone to CEJ, but more importantly we need to remove the bone on the route of traction.

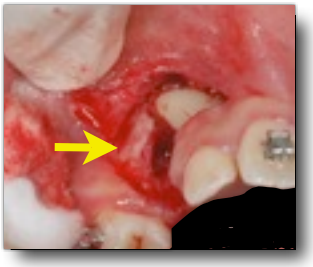


Fig. 2

Keys to Speed Up the Movement of Impacted Tooth

Take the following case for an example (Fig. 1). When performing this uncovering procedure, we first located the impacted tooth and removed all the egg-shell covering bone down to CEJ. Then we further evaluated the design of mechanics. An outward, backward and downward mechanical movement were anticipated by applying of a lever arm extending through the OrthoBoneScrew with square holes (See page 31). We further removed the bone structure lying on this moving route using a surgical carbide bur and a high speed handpiece (Fig. 2). This allowed the impacted tooth move faster.

Conclusion

Management of impacted teeth is a common situation in orthodontic treatment. Bone resorption occurs through pressure necrosis during the remodeling process; however, it is a slow process. When a surgically uncovering procedure is indicated, the reduction of the bone covering the teeth and on the traction route can help teeth erupt and move to the anticipated position significantly faster and reduce overall treatment time.

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Dr. Hao-Yi Hsiao (left) Beethoven Orthodontic Course Lecturer
Dr. Chris Hwai-Nan Chang (middle) Beethoven Orthodontic Center Director
Dr. Shang-Chen Chiu (right) Beethoven Orthodontic Course Lecturer

Speaker Introduction

Dr. Tom Pitts

Associate Clinical Professor, University of Pacific School of Dentistry - Orthodontic Department. Dr. Pitts received his undergraduate dental education from the University of the Pacific, School of Dentistry and his orthodontic specialty training from the University of Washington. He served in the Army Dental Corps between 1966 and began his private practice in Reno, Nevada, in 1970. Dr. Pitts is the founder of the well-respected Progressive Study Club and did full-time consulting in orthodontic practices around the United States for many years, returning to private practice in 1990. He lectures throughout the United States on clinical and practice management efficacy.

Associate Clinical Professor of Orthodontics, University of Pacific 1998-Present
Clinical Management & Practice Management Consultant, 1986-present
Northern Nevada Dental Society, President 1974
Pacific Coast Society of Orthodontics, Board of Directors 1985-86, and 1996-present
Nevada State Orthodontic Association, President 1971-72, President 1995-96
Professional Practice
Reno, Nevada, February 1970-present
Minden, Nevada, 1989-1999

Time Schedule

08:30 - 09:00	Registration
09:00 - 10:30	1 The reality of arch development and very light forces
	2 Combining arch development with proper anterior torque
10:30 - 11:00	Coffee break
11:00 - 12:30	3 Defining our "New Esthetic Model" -The art of smile protection and enhancement
12:30 - 13:30	Lunch
13:30 - 15:00	4 Mastery of orthodontic finishing -Bracket placement -Arch wire coordination -Finishing elastics
	5 Periodontal response to light forces
15:00 - 15:30	Coffee break
15:30 - 17:00	6 Revolutionary light early elastics
	7 Case reports
	8 Resention

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潘傑 YONG CHIEH (02)2778-8315

台北廣得許可證
台北字第 2106 號

強力推薦 Great Recommendation

鄭重推薦矯正臨床的好老師 Dr. Pitts

Dr. Pitts為Dr. Damon於Washington University之矯正研究所同學，Damon System早期研發的大功臣，筆者與張慧男醫師於半年前曾前往Reno參觀其非常成功的大型矯正診所，不愧是矯正診所經營的高手，雖然病人非常多，卻能很有秩序地經有看診，且和藹可親地與家屬及病患閒話家常，更熱心地分享其治療原則及小訣竅，於半天的門診參訪中受益良多。

Dr. Pitts累積其近40年之矯正臨床經驗，配合最新發展之Damon System，得和眾多寶貴之Damon臨床經驗，尤其擅長講座最難之矯正finishing，Damon系統中革命性的早期elastics應用，如何得到理想之torque，以前筆者只能在Damon forum片斷地聽1~2個小時之演講，總覺得非常不過癮，如今Dr. Pitts將以一天之時間，與國內同仁們分享其寶貴之第一手Damon臨床經驗，對於使用過或未用過Damon的矯正同仁們，均是吸收寶貴矯正臨床經驗的好機會。

中華民國齒顎矯正學會顧問
台灣口腔矯正學會顧問
林錫榮

Dr. Tom Pitts不僅是近年來市場上最受矚目的自鎖型矯正器Damon System的發明人之一，更重要的是，他創辦了世界知名的Progressive Study Group，其中成員包含大師級的Dr. Damon本人。三十年來集合了三十位在他心目中「謙虛」、「追求卓越」的矯正醫師，透過年度的學習聚會，彼此交流分享自己的臨床心得。今年我有幸兩度與Dr. Pitts做近距離的交流，一次是與林錫榮老師一起參觀Dr. Pitts的診所，見識到他設計鎖內可以點好整排矯正器的精準及效率，在緊湊的看診中也遺不忘強調Damon系統中的關鍵步驟—torque selection，bite turbo，以及early light short elastics的使用，除了Dr. Pitts精湛的實務技巧外，我們也親睹他充滿服務熱誠的高效經營團隊；另一次則是受邀前往西班牙參加Progressive Study Group的年度學習聚會，分享我將簡報軟體Keynote在矯正上之應用，也見到大家熱烈的詢問，Dr. Pitts不藏私、求知若渴的態度，我想是除了卓越的Damon矯正技巧之外，他最令我敬佩，也是讓我希望能舉辦邀請大家來到聽遺位世界級的資深矯正實力派專家的原因。Dr. Pitts的演講是任何想要快速抓住Damon精髓的矯正醫師千萬不可錯過的絕佳機會！

員多另矯正中心負責人
孫旭芳

演講資訊 Lecture Information

Organizer	中華民國齒顎矯正學會
Co-Organizer	台灣口腔矯正醫學會、通傑企業股份有限公司
Topic	**Optimal Esthetic and Finishing Techniques**
Speaker	**Dr. Tom Pitts**
Time	**2008.11.15 週六 8:30~17:30**
Venue	公務人力發展中心前瞻館 (福華文教會館) 台北市新生南路3段30號1F
Registration	(02)2778-8315 分機 122 楊小姐、124 王小姐
	郵政劃撥帳號 17471807，戶名：通傑企業股份有限公司
	請於劃撥單備註欄註明「08.11.15 演講」
Fee	2008.10.31前 會員2000、非會員2500、學生500
	2008.10.31後 會員2500、非會員3000、學生1000
Certification	參加者發給繼續教育6學分
Remark	演講期間備有茶點及午餐，報名未出席者，恕不退還既收款項。

Update

11/15 sat @ Taipei

Dr. Tom Pitts

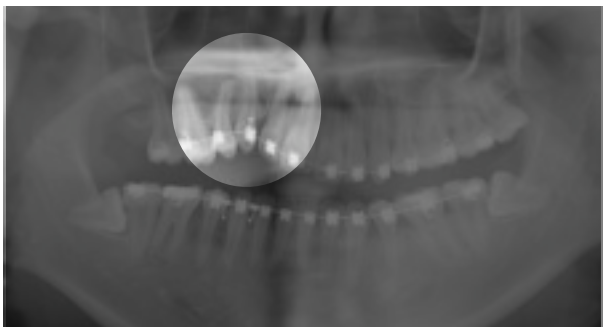
Optimal Esthetic Orthodontics & Finishing Techniques

Unsolved Mystery

Ankylosed Canine

The pursuit of excellence is a never-ending journey. NTO aims to provide a platform for world-wide orthodontists to exchange and share their clinical experience so together we can move further and faster. From this issue on we are opening a new column to publish difficult cases that our readers encounter in their practice. We invite our colleagues to brainstorm and share with us your clinical analyses and treatment plans. Our consulting team will together review these ideas and select the best one to be published in the next issue. NTO will give out a box of the latest OrthoBoneScrew as a token of appreciation to the orthodontist whose plan is selected. The complete set includes one handle, 2 blades and 20 pieces of screws in a carrying box, and is worth of USD 1500.

A 18 year-old female patient complained about open bite. There was no contact from the right 2nd premolars to the left 1st premolars. As the orthodontic wire sequencing proceeded, we found out that the right upper canine remained at the original position from the beginning to the 23rd month. It was suspected that the right upper canine was ankylosed. We encourage all of our colleagues to draw from your clinical experience and develop a treatment plan of yours to share with us. Please send your proposals to beeth.oven@msa.hinet.net by November 31, 2008.



23 months into active treatment (21Y4M)

Response for Unsolved Mystery

The unsolved mystery published in the 11th issue of NTO received a wide range of responses from our readers and we are pleased to facilitate such an enthusiastic participation of learning and sharing. After a thorough discussion among our consultants, we are glad to report that Dr. Ching-Huei Hong (洪清暉)'s treatment plan is most recommended among all the received proposals. He will receive one super set of OrthoBoneScrew which includes 20 screws (no squared-holes), 2 blades, one handle and one container. We have also selected two quality treatment plans provided by Dr. Jin-Lai Chang（張鈞堯）and Dr. Chiung Hua Huang（黃瓊嫻）, each of who will receive 10 screws in appreciation of their generous contribution to our collective learning.

Dr. Hong' s Treatment Plan

1. Apply four SSC on lower primary molars to enhance chewing function.
2. Extract the upper left 1st primary molar.
3. Move upper canines to achieve Class I relationship.
4. Maintain by an upper removable denture including lateral incisors and premolars until reaching 18-20 years of age.
5. When switching to fixed protheses, there are two options for consideration.
   Option I : put implants in replacement of the removable denture. 2nd orthodontic treatment will be delivered if necessary.
   Option II : remove all the ankylosed primary teeth and begin the 2nd orthodontic treatment combined with implants for full mouth rehabilitation.

Dr. Ching-Huei Hong

Newton's A

金牛頓藝術科技

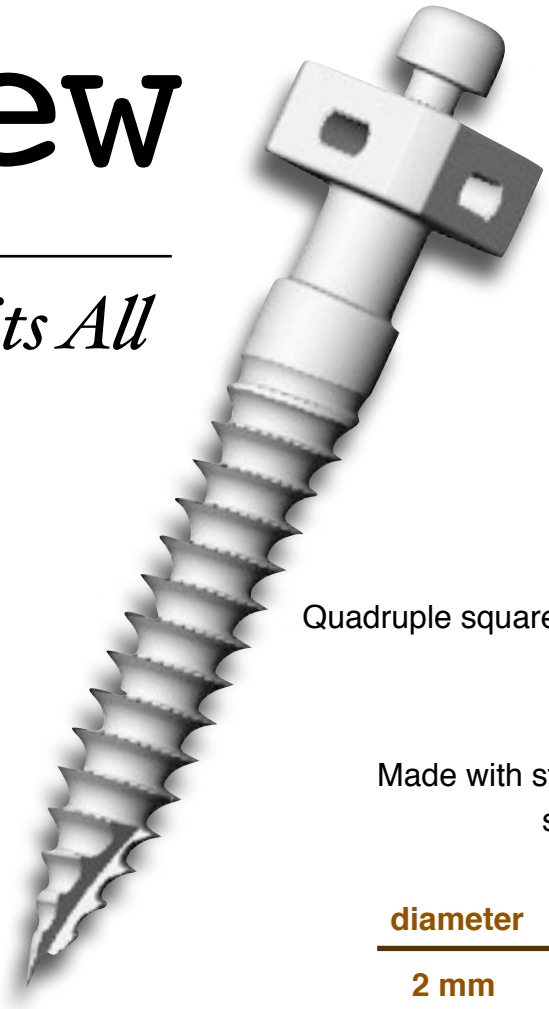
秋、冬季課程

類型	課程名稱	內容	開課日期	上課對象
免費推廣	iWork系列：免費 個人化的印刷品	Pages	11/8, 12/6（六） 15:00～16:00	樂於嘗試生活科技應用者
免費推廣	iWork系列： 免費 簡單上手的多媒體簡報	Keynote	10/11, 11/15, 12/13（六） 15:00～16:00	樂於嘗試生活科技應用者
免費推廣	iLife系列： 免費 多采iPod影音生活	iPod + iTunes	10/18, 11/22, 12/20（六） 15:00～16:00	樂於嘗試生活科技應用者
免費推廣	iLife系列： 免費 管理美好生活影像	iPhoto	11/29, 12/27（六） 15:00～16:00	樂於嘗試生活科技應用者
免費推廣	iLife系列： 免費 認識iPod界的天王巨星	iPod Touch	12/18 17:15 ~ 18:00	樂於嘗試生活科技應用者
專業簡報	Keynote簡報法 series 1 簡報聖經	1. Keynote入門 2. 常見簡報問題	12月18日（四） 09:00～17:00	科技人、醫師、教師、學生
專業簡報	Keynote簡報法 series 2 Dr. Kokich的十大秘訣	1. 多媒體簡報製作 2. 簡報演練	2009年 09:00～17:00	科技人、醫師、教師、學生
專業簡報	Keynote簡報法 series 3 掌握賈伯斯的演講祕訣	1. 簡報設計 2. 演說技巧	2009年 09:00～17:00	科技人、醫師、教師、學生
青少年簡報	魅力領袖簡報營	1. 簡報入門 2. iLife + iWork導覽	2009年2月5日～2月6日 09:00～17:00	國一至高三學生
International	Keynote, OBS & Damon Workshop	Keynote, Management OrthoBoneScrew & Damon	2009/3/02 ~ 3/05	International Dentists

注意事項：上課期間欲租借教學用電腦，酌收維護費200元。
上課地點：金牛頓藝術科技教育中心（交大華廈2樓）新竹市建中一路25號（巴士馬偕醫院下車步行5分鐘）
報名專線：03-5735676 黃小姐　　金牛頓網頁： www.newtonsa.com.tw

Ortho Bone Screw

One Size Fits All



EASY APPLICATION

Free of pre-drilling

REVOLUTIONIZED DESIGN

Quadruple squared-holes ideal for rectangular wires

ENHANCED STRENGTH

Made with stainless steel (316L) of improved strength and high bio-compatibility

diameter	length	squared-hole	code
2 mm	12 mm	No	OBS 2.0
2 mm	12 mm	Yes	OBS 2.4

Order: (03) 5735676 Winnie Liu
OBS web site: orthobonescrew.com
Newton' s A web site: www.newtonsa.com.tw

OrthoBoneScrew in-office Workshop

１０ 小時 lecture＋ hands-on練習＋臨床觀摩

時 間 表 (11/28 W5)

9 : 00 ~ 12 : 00 植體時機、植法、正確使用、雜症排除
14 : 00 ~ 15 : 00 model 操作
15 : 00 ~ 20 : 00 植法及用法實習
20 : 00 ~ 20 : 30 植體病例討論

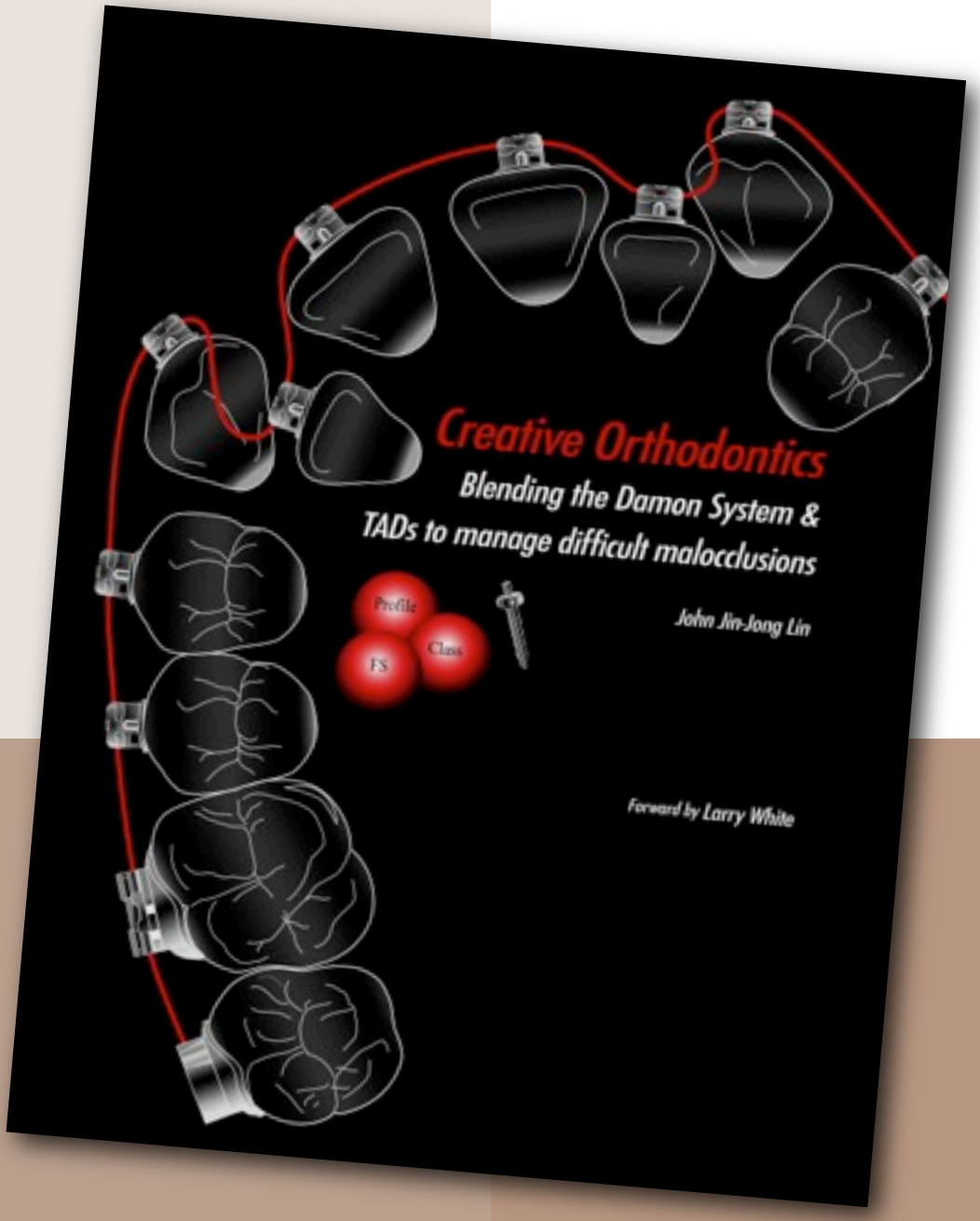
講師 張慧男 博士

新竹貝多芬齒顎矯正中心負責人
美國印第安那普渡大學齒顎矯正研究所博士

課程專線 : (02) 27788315 邵美珍，劉姿珮；(03) 5735676 黃思涵

"An excellent instructive and reference text for postdoctoral orthodontic students and specialist clinical orthodontists. Definitely recommended reading!"

—Alex Jacobson, associate editor of *AJODO*



Dr. John Lin (sixth from the left, first row) at the 2008 Beethoven 2nd International OrthoBoneScrew and Damon Workshop