

NEWS & TRENDS IN ORTHODONTICS

Vol. 11 2008

Non-extraction, Non-surgical
Treatment on Severe Class III

Dr. John Lin

Future Trends in Orthodontic
Education

Dr. Eugene Roberts

Damon's 3 Essentials in
Maximizing Your Orthodontic
Results

Tips from Dr. Tom Pitts



From left to right: Dr. Tom Pitts, Dr. Dwight Damon, Dr. Chris Chang, and Dr. Errol Yim at the 2008 Damon Forum

News & Trends in Orthodontics is an experience sharing magazine for worldwide orthodontists.
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2008-2009

快速入門矯正・高效學習法

I Love Orthodontics

熱愛矯正學・熱愛學矯正

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器械法 - 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，讓您親學應用，立即熟悉各種圖得的技巧，而不需太多課後練習。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，一步一步透過圖片及影片教學，讓您很難錯失任何細節，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、最簡單的方式，讓每位學員：

熱愛矯正學・熱愛學矯正



高效矯正實習課表 (矯正基礎班)

- | | |
|---|---|
| 1. Initial Consultation | 7. De-bonding & De-bonding |
| 2. Initial Record (Pano + Ceph + TMD + Photo + Model) | 8. Retainer (Removable & Fixed) |
| 3. First Consultation & Tx. Plan | 9. Orthodontic arch Implantation |
| 4. Bonding & Banding (黏瓷牙・全牙・替換・複狀牙・替換維持器) | 10. Assistant Training & Patient Instrument Selection |
| 5. Archwire Adjustment & Bending | 11. Orthodontic Material & Instrument Selection |
| 6. Refine & Power Chain & Clinical Tip | 12. Practice Management & Office Design |

DAMON 高效矯正必修課表 (in-office course training)

矯正基礎

日期 (週)	時間 (日)	LECTURE	LAS
1	9/21	11/09	矯正入門講座 + Damon 簡介
2	10/09	11/23	快速矯正技術與設備
3	10/14	12/07	簡單有效的矯正器械
4	10/23	12/20	不同年齡矯正技術
5	11/04	12/28	Damon 診斷與治療
6	11/20	1/04	矯正材料與設備介紹
7	12/04	1/11	矯正治療：維持與觀察
8	12/18	1/18	矯正力學及診斷技術 (I)
9	12/25	1/22	矯正力學及診斷技術 (II)
10	1/08	1/29	矯正力學及診斷技術 (III)
11	1/15	2/5	矯正力學及診斷技術 (IV)

矯正進階

日期 (週)	時間 (日)
1	9/23
2	10/07
3	10/21
4	11/04
5	11/18
6	12/02
7	12/16
8	1/06
9	1/20
10	2/03
11	2/17

矯正精進

日期 (週)	時間 (日)
1	10/17
2	11/01

日期 (週)	時間 (日)
1	9/19
2	9/24
3	10/03
4	10/24
5	10/31
6	11/07

International Workshop
9/29 - 10/02

時間

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】14:30 - 17:30

矯正精進 (台中・嘉義)

新竹【課程】09:00 - 12:00

【實習】13:30 - 20:00

Damon 認證 (台中・嘉義)

新竹【課程】09:00 - 12:00

【實習】13:30 - 20:00



Passion for Learning

It was a PRIVILEGE for me to give a presentation at the annual meeting of the Progressive Study Group. The Progressive Study Group was organized by Dr. Tom Pitts and consisted of 30 active members. For the past 30 years Dr. Pitts only invites humble orthodontist who are “givers” and who are into excellence. What a wonderful objective! I have yet to hear of a better goal for a study club.

This year the meeting was held in Málaga, Spain (home of Picasso). It was a gorgeous spot for meetings. I was assigned to present on how to use our Taiwan's OrthoBoneScrew to treat impacted cuspids. As usual, I used my favorite software, Keynote to demonstrate how visual-rich the messages could be and I was glad they were warmly received by this gracious crowd. After the presentation many came to me to ask questions, such as: how can I learn to use this screw? how much time do I need to master Keynote? As renowned orthodontists who are over 60s, it is quite extraordinary to witness their ever-lasting fever to learning. A more common scene would have been people patting your back and said good “job” or “interesting”. Only few will actually make a start. But this group is different. They exude passion, energy, and enthusiasm in their work and life. That is why they have become excellent orthodontists and peak performers as doctors and moreover, as educators.

This trip reminds me of the 20 years' study of Dr. Charles Garfield about “Peak Performers”. He concludes that peak performers are:

1. Not born - they are made.
2. Not superhuman with special talents - but average people like you and me.
3. Not workaholics - but they are committed to results, not activities.

Those doctors in the Progressive Study Group have intense commitment to what they do and what they want. They credit their success more to such passion than to aptitude. This issue we will introduce some of the subjects featured in this year's meeting in Spain. I'd like to end with a quote of Shakespeare: “our future lies not in the stars but within ourselves”. It is the passion of learning that makes all the difference.

Chris Hwai-Nan Chang, DDS, PhD, Publisher

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Yu Lin Hsu (left), Chief Editor
Tzu Han Huang,
Associate Editor



Editors (from left to right):

Hsiao Long Wang, Yu Lin Hsu, Hao Yi Hsiao, Ya Han Huang
Yi Yang Su, Shu Chun Wu, Tsung Mao Wang, Yu Lung Lee
Shu Fen Kao, Chien Kang Chen, Chris Chang.

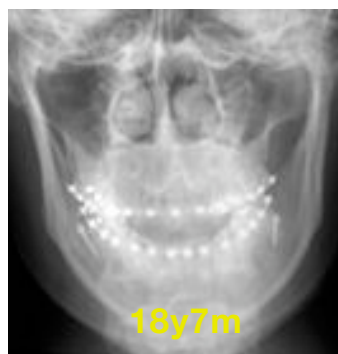
Non-extraction, Non-surgical Treatment of Severe CIII

A Buccal Shelf OrthoBoneScrew 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 12 mm stainless steel OrthoBoneScrews were placed over buccal side between lower first and second molars*. After 2 months of alignment using the Damon system, the closed 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. So the counter-clockwise rotation of the occlusal plan happened, it means not only the whole dentition was distalized, but also the lower molars were intruded and the lower anterior teeth were extruded. After 10 months of distalization using mini-screw, the CIII malocclusion was corrected to Class I and the open bite closed. During 10 months of



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Consultant of NTO

President of TAO (2000~2002)

Author of “ Creative Orthodontics ”



retraction by OrthoBoneScrews, no anterior box or vertical elastics were used. The major open bite was mostly corrected by rotation of the occlusal plane. After the OrthoBoneScrew and Damon treatment, not only occlusion but the facial appearance were improved significantly.

Conclusion: Until OrthoBoneScrew 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 OrthoBoneScrew offers a very powerful treatment option for treating severe Class III cases.

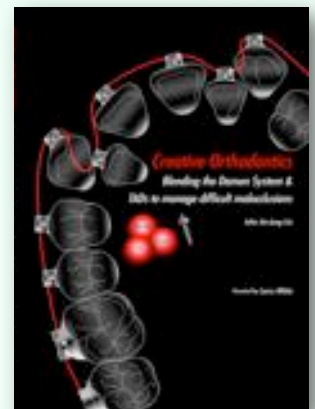
*(*I'd like to thank my periodontist colleague, Dr. Huang Yi-Hao, who successfully placed the buccal shelf OrthoBoneScrew for this patient.)*



Recommendation of “Creative Orthodontics”:

“... The author enthusiastically endorses the Damon system of orthodontic treatment. The advantages of combining OrthoBoneScrews and bite-jumping appliances with the Damon system are discussed. The text is replete with numerous color photographs and sequences of magnificently treated cases. In all, an excellent instructive and reference text for postdoctoral orthodontic students and specialist clinical orthodontists. Definitely recommended reading.”

Alex Jacobson
Associate Editor (AJODO)
Birmingham, Alabama



Future Trends in Orthodontic Education

Eugene Roberts, DDS, PhD

Jarabak Professor of Orthodontics at Indiana University School of Dentistry

Consultant of NTO

International adjustment to the current economic crisis is expected to have a profound influence on many educational programs, including graduate orthodontics. Appropriate training of an orthodontist is an expensive enterprise that must be funded by the student, private and/or public sources.

There are two paths for formal orthodontics training leading to clinical certification. The most common approach is a university program, usually based in a dental school. The second avenue is a hospital-based residency. Each approach has strengths and weaknesses,

so the specialty of orthodontics is best served by a combination of the two. However, this balance is being

threatened by escalating costs of health care education which has considerably exceeded the rate of inflation for many years. Traditionally, private universities have relatively higher tuition and fees, but in recent years the costs have also been rising very rapidly in many public universities. Ultimately, these high costs (the “tuition bubble”) are passed on to students. Since hospitals have public health funds to finance orthodontics residencies similar to medical programs, the residents are paid and there are usually few if any educational costs. Hospital-based residencies will be increasingly attractive to potential students.

Cost of Orthodontics Training

Financing graduate orthodontics training is emerging as a serious dilemma for many institutions. Orthodontics students often have high debts acquired from their previous education. As a student assumes more debt, less borrowing can be publically guaranteed and the interest rates increase for additional funds. Consequently, many students acquire a staggering debt by the time they graduate. To compound the problem, lending institutions are having trouble providing sufficient funds for student loans because of the current liquidity crisis.

Universities require the funds at the time that the education is rendered. If students are

unable to borrow adequate money to fund their education, universities will have a financial crisis.

Funds for student loans are provided by investors. They are relatively safe long-term investments, if inflation is moderate and there is a low risk of default. Typically, investors buy bonds issued by lending institutions that then loan the money over a long period of time at a relatively low rate of return. Therefore, investors are very concerned about potential inflation. Because of the dramatic increase in energy costs, inflation is expected to accelerate worldwide which will decrease the supply of low cost funds to support orthodontics education. The “tuition bubble” may

Hospital-based residencies will be increasingly attractive to potential students.



burst resulting in a financial crisis for educational institutions.

Hospital Residencies

Orthodontics residencies are well suited to hospital settings because orthodontists provide important support for surgical and restorative programs. Since residents are paid and have little or no educational expense, a larger proportion of hospital-based residencies would help ease the financial burden for some students. However, research and didactic training may be compromised because hospital residencies are an intense clinical experience. There are also restrictions for foreign applicants because residents must be licensed by the state. The latter may require a US or Canadian dental degree, national board certification, and passing a regional clinical examination.

Program Length

Because of the increasing complexity of orthodontics, there is a trend toward three year programs. Compared to a two year program, the additional education requires borrowing more money for educational and living expenses, and there is a delay in the entry of the student into a financially productive career. It will be much easier for hospital-based and relatively low cost university program to increase program length. High cost institutions must increasingly focus on a good quality, compact education in as short a period of time as possible.

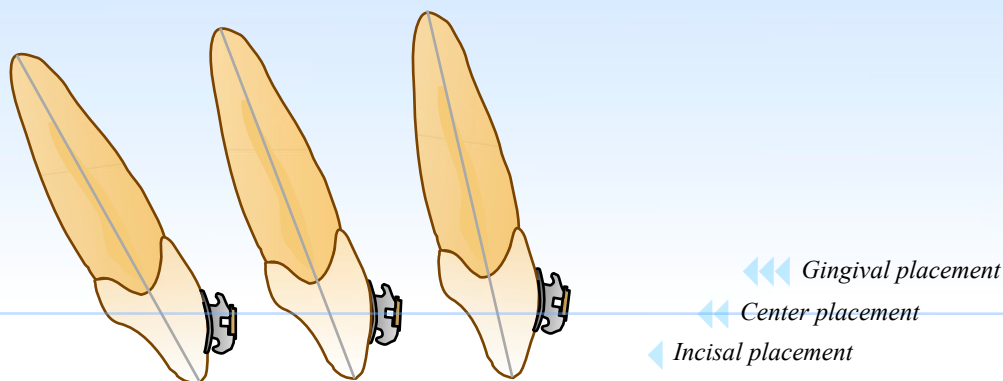
The universities with the highest tuition, fees

and costs of living will be under increased pressure to retain two year programs. Furthermore, it will be difficult for accrediting agencies to increase the minimum program length, although it may be politically popular to do so. If it is necessary to increase program length to say 36 months, it would be wise to consider a composite program. For instance, the first two years in a traditional university setting (didactics, research and the initial clinical experience) with the last year in an affiliated hospital or private practice. In effect, an intense two year didactic program would be followed by a paid or low tuition clinical residency in an approved private practice.

Private Loan Funds

University alumni associations and orthodontics societies could underwrite student loan programs through lending institutions that require membership. By buying bonds to create specific loan funds for their constituency, professional associations could build loyalty and sustain membership. Annual donations over a period of time would build into a substantial fund that would be self perpetuating as students repay the loans with interest. Otherwise, heavily indebted students who do not perceive adequate, immediate benefits of membership, may opt out of alumni associations and professional societies.

Indeed, orthodontics graduate education faces substantial challenges, most of which are financial. Providing a high quality education that students can afford is the immediate need.



Bonding Position & Torque Expression

前牙 torque 的控制會主宰矯正治療的效率及結果，並且會影響治療結果的穩定性。自從 Dr. Andrew 在 1970 年代提出 “Six keys to normal occlusion” 之後，緊接著 Straight wire appliance 問世，使得矯正治療因為不需要複雜的 wire bending 而變得相對簡單許多。但如何讓 bracket 內建的 prescription 完全展現出來，則是我們矯正醫師所要面對的另一項重要課題！首先，我們必須要知道，前牙的 torque expression 並不完全等於內建的 torque prescription，前牙 torque 的展現與 bonding position、牙齒的 labial convexity、是否有 retraction mechanics 以及 size of finishing wire 息息相關。本次我們先針對 bonding position 以及牙齒的 labial convexity 做討論。

根據 Dr. Vigorito 2006 在 JCO 上所發表，針對 50 顆 extracted maxillary central incisor 所作的研究指出，如果以上顎正中門牙牙冠的 midpoint 為 bonding 參考點，當 bonding position 每往 incisal 方向推移 1 mm，就會增加 3° 的 labial crown torque，也就是前牙會往外 flare 3°；而當 bonding position 每往 gingival 方

向推移 1 mm，則會產生 5° 的 lingual crown torque，也就是前牙會往 lingual side tipping 5°，但以上是在沒有使用 retraction mechanics，也就是不拔牙且 wire 沒有 cinch back 的情況下才會產生這樣的結果。此外，牙齒唇側面的 convexity 愈大，bonding position displacement 所造成的 torque expression 改變就會愈大！在 Dr. Vigorito 的研究中，在唇側面弧度特別明顯的牙齒上，即使 bonding position 的位置相對於 midpoint of the crown 只偏移 1 ~ 3 mm，torque expression 的差異可能會達到 25° 之多！

在某些病例中，我們可能會根據患者的 open bite 或 deep bite 情形，而將前牙 bonding 的相對位置往 gingival side 或往 incisal side 移動，由於門牙的唇側弧度通常不會太明顯，因此這種小幅度的 bracket level change 只會造成牙齒垂直高度與 archwire 相對位置的改變，對於 torque expression 的影響並不大。但對於某些因 skeletal discrepancy 導致前牙有明顯 dental compensation，需要特別改善 torque expression 又合併 severe open bite 或 deep bite

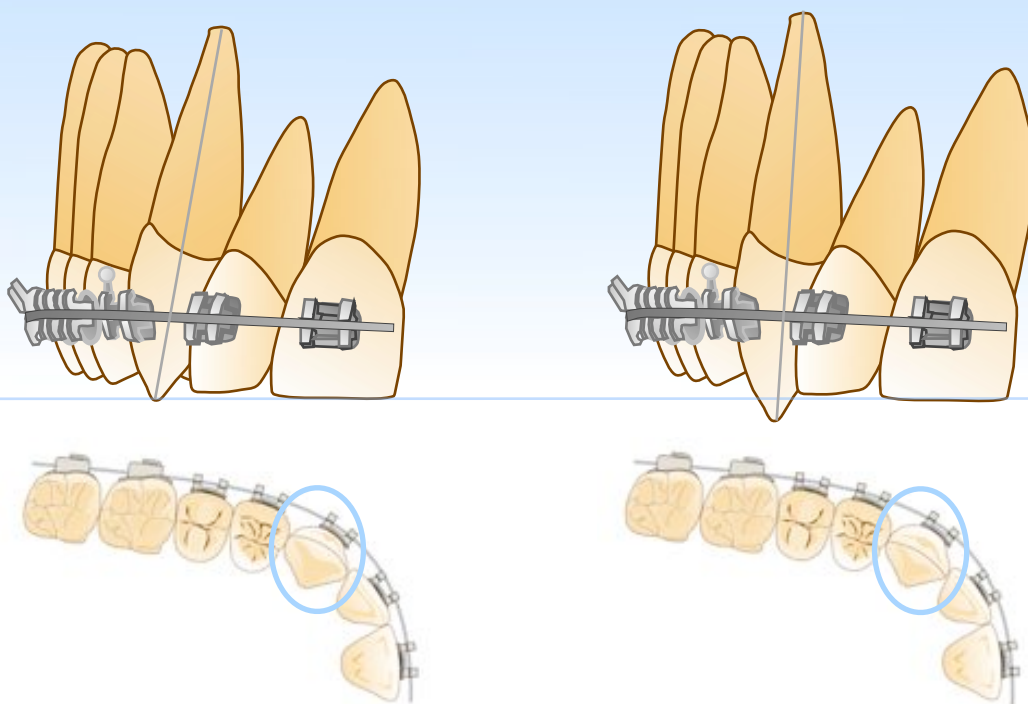


Fig. 1 犬齒矯正器正常位置（左）與往牙齦移動 2 mm（右）比較圖（頰側及咬合面觀）。咬合面觀可以比較出犬齒受到矯正器黏著位置影響而呈現不同的 torque expression。矯正器較靠牙齦者較 upright。

的病例，就必須針對個別病例做特別的 torque selection。

至於犬齒的 torque 則因為犬齒本身的唇側弧度很明顯，此外，在做 open bite 或 deep bite correction 時，通常四顆門牙會一起改變 bracket level，因此，單一顆犬齒的 bracket level change 將對 torque expression 有顯著的影響，常見的情形如犬齒 cusp tip 的磨耗。當一顆犬齒的 cusp tip 有 2 mm 的磨耗時，如果在 bonding 前沒有注意到而直接以 wearing 的 cusp tip 做參考點來 bonding，將使得 bracket level 在不自覺的情形下有 2 mm 的 gingival displacement，除了犬齒會有明顯的 vertical extrusion 之外，也會產生明顯的 lingual crown torque (Fig. 1)，並導致上下顎的咬合無法吻合。所以，在矯正治療開始前一尤其是成人病患，必須仔細審視每一顆牙齒的 occlusal wearing 以及 bone level，以作為 bonding position 的基準。

如果發現牙齒有明顯的磨耗—尤其是上顎犬齒，應注意 bonding 時不要有太多的

gingival displacement 或做過多的 extrusive step，以免造成 torque expression 的改變。至於 occlusal contact 應該在接近 finishing 時或矯正結束後，再做 lingual surface 的 reshaping。這一類的情況也告訴我們，當咬合的 interdigitation 不佳是 inadequate torque 所造成的時候，我們就無法期望在矯正器拆除之後還有任何的“occlusal settle”。這也解釋了為何 Dr. Tom Pitts 會在 bonding 之前 routine 先對所有的牙齒做 occlusal equilibration！

更正啟示：NTO Vol. 10 P.10 的第三段最後一句：“upper anterior 應選用 low torque，lower anterior 則選用 high torque”。因講者 slide 誤植，應改為“上下顎前牙都應選用 low torque”。很抱歉造成讀者的混淆，特此更正。



黃瓊燁 醫師
成大醫學中心口醫部兼任主治醫師
幸福牙醫診所主治醫師

Magic Tool : Class II Finishing Elastics

-----看似毫不起眼但極重要的工具 -----

每一位矯正醫師不論使用哪一個系統，在矯正的完成階段，很難不使用 finishing elastics。就像中國人吃飯時，會自然而然拿起筷子，夾起美食送入口中一般自然而順暢。但學習矯正以來卻很難聽到一場專門為 finishing elastics 準備的兩小時課程，以下與您分享張慧男醫師的臨床經驗！

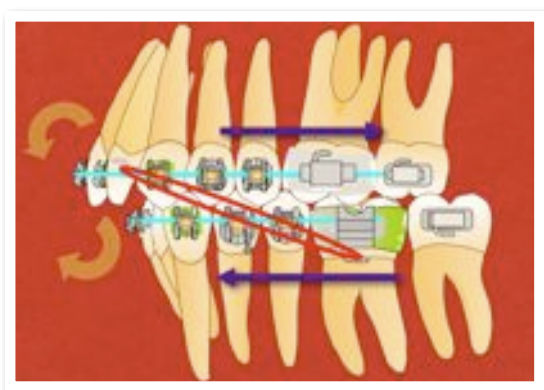


Fig. 1 Class II elastics 會造成上顎前牙 lingual tipping 及下顎前牙 flare out 的副作用。若是一開始即評估會使用大量的 Class II elastics 則可以使用上顎前牙的 high torque bracket 以及下顎前牙的 low torque bracket。另外，下顎 6、7 之間將主線切斷亦是增加效率的小技巧。

據歷史記載，西元 1728 年 Dr. Pierre Fauchard 曾以絲線綁緊的方法來關閉門牙細縫。迄今已有許多的材料被嘗試用在關閉（拉緊）牙齒，以達到齒列矯正的目的。西元1892年 Dr. Calvin Case 發表以 inter-maxillary elastic 來矯正不良咬合的方法，elastic 正式成為矯正牙醫學不可或缺的工具之一。廿世紀初期以來，Dr. Angle, Dr. Tweed, Dr. Schudy 及 Dr. Roth 諸位矯正學大師紛紛建議各種 elastic 的方向及戴法，西元 1963 年 Dr. Jarabak 及 Dr. Fizzel 更提出了 Class II elastic 的 biomechanics，就此確立了我們現今最熟悉的 Class II elastic 使用方法。

雖然我們都知道，矯正的完成需要病人配戴 elastic 是一件再自然不過的事，但是病人並沒有這樣的認知；所以在請病人合作之前，我們需要一再地解釋、解釋、再說明！明確的告知病人，原因、方式、方法、橡皮筋的型號，以及佩戴時間。一再的溝通及教育病人是唯一良方！

市售的 orthodontic elastic 非常的多樣化，Dr. Ricketts 認為，上顎 635 gm 及下顎 550 gm 是適於生理移動的力量，或依照各牙根在骨

內表面積總和，以 150g/cm² 換算後，依作用的方式、牙齒大小、距離及目的來做選擇。

在 Class II cases 中，當主線已經換到 full size main arch wire 後，選擇單側約 175~250 gm (6~7 oz) 的 elastic，每天更換四次。對於 elastics 的選擇要特別注意不論長或短的 elastics 都有垂直向量的分力；在白天時，因為 function 的關係，垂直分力較多，而晚上休息時則水平與垂直向量較均衡。至於選擇的方式，張醫師認為最重要的是 “Read The Face”！在短臉型 brachyfacial 的病例中，用 Class II elastics 使下顎牙齒向前移動，extrude 下顎後牙，tipping 下顎前牙向前，retract 上顎前牙向後，並造成 occlusal plane angle 改變，藉此解決前牙 overjet。但是對於長臉型 dolichofacial 病例，則要非常小心！

課程中，張醫師特別提到在 Class II malocclusion 中，依 Damon System 的 anchorage control 方法，在需要牙齒移動較多的下顎，可將 lower 1st & 2nd molar 之間的主線剪除，並搭配上顎門牙 high torque 下顎門牙 low torque brackets 的選擇，可以有最佳治療效果，而且避



陳建綱 醫師
貝多芬矯正課程講師
康軒牙醫診所主治醫師



Fig. 2 Bi-lateral Class II's non-extraction
Use 5/16" 6 Oz. (Moose)



Fig. 3 Class II left & ant. midline shift
Use 5/16" 6 Oz. (Moose)



Fig. 4 Bi-lateral Class II's & ant. open
Use 5/16" 6 Oz. (Moose)



Fig. 5 Post. openbite (V elastic)
Use 5/16" 6 Oz. (Moose)



Fig. 6 Post. open & ant. midline shift
Use 5/16" 6 Oz. (Moose)



Fig. 7 Openbite in a specific area
Use 3/8" 3.5 Oz. (Monkey)

免副作用 (Fig. 1)。至於 Class III malocclusion 就上下相反了。

另外，除了單純的 bi-lateral Class II (Fig. 2)，依據 case 的不同狀況，還有①單側 Class II + Ant. midline elastic，以改正中線偏移 (Fig. 3)；②雙側 Class II + Ant. trapezoid，以預防前牙開咬 (Fig. 4)；③雙側 V-elastic 則是在拉近後牙咬合 (Fig. 5)，若有中線偏移，還可加上 midline elastic (Fig. 6)；④另外，若有局部的 open bite，則可以用 Tent elastic 來解決 (Fig. 7)。

最後，當上下顎的前後及水平方向問題都改正後，只剩下細微的咬合接觸需要調整，這時就可以將主線在犬齒遠心端切斷，進入 up & down finishing elastics 的調整。通常在 deep bite cases 會選擇下顎切線，open bite 則選擇切上顎主線，若是 normal overbite，則選擇排列較佳者

主線不動，對側牙弓主線切斷，然後拉 up & down finishing elastics。舉例來說，在 Class II cases 中，可以用 “w with (or without) tail” 的形式 (Fig. 8)，讓上下顎後牙互相靠近，達到咬合更緊密的目的！



Fig. 8 “W” without a tail 3/4" 2 Oz. (Ostrich)



Damon's 3 Essentials in Maximizing Your Orthodontic Results

Tips from Dr. Tom Pitts

工欲善其事，必先利其器。但是當您有了好工具，您也必須知道使用它的方法才能展現出好工具的威力！為了使治療效率更高、治療成果更卓越，我們應該更加清楚地了解如何運用 Damon System Mechanics！來自大師的秘訣加上三篇文章的精華整理，在此我們以實際的臨床治療效果，讓您深入了解 Damon 成功的秘訣。開始使用 Damon System 但還無法充分感受其好處的醫師們千萬別錯過！

Essential #1 – Begin with the End in Mind: Match Torque Selection to Case Goals

行動開始時就要知道終點在那裡！要讓牙齒呈現最後我們所希望的角度，最簡便的方法就是依據每一位病人不同的情況來選用 variable torque bracket。選擇矯正器時除了考量 crowding、是否拔牙，還有預計使用的 mechanics (elastics 也會影響 torque 的表現)。

一旦進入第一條方線，牙根便漸漸開始依照 bracket 上的 torque 設定開始移動。選用 variable torque bracket 的好處是讓牙齒提早開始適應，增加定位後牙根在骨頭的時間，所以在 debond 後牙齒角度相對的也較穩定。

談到在 passive self-ligating appliance 時的 torque expression，長久以來一般醫師普遍有個錯誤想法認為 archwire 必須緊密地壓住 bracket 的底部 (即 fully engaged) 才能表現出 bracket 的 torque。但其實 torque expression 實際上是因為方線的兩個邊緣接觸 bracket 相對的內壁 (opposing walls of lumen) 時就開始產生 (Fig. 1)；而且整體的表現量必須扣除主線在 lumen 裡的 play，以及所使用的 major mechanics (如拉第二類橡皮筋) 造成的偏差量。

由 Pandis 主持的研究證明 Damon passive self-ligating brackets 對上顎門牙製造的 torque 和 conventionally ligated brackets 同樣地有效。兩者主要的差別在於 Damon bracket 沒有摩擦力；conventionally ligated brackets 則因橡皮圈或結紮線綁住而產生摩擦力。而 active self-ligating brackets 也有類似的摩擦力缺點。若要克服摩擦力就需要有產生更大力量的機制，而大的力量正是 Damon system 不想要的。

那麼該如何防止因 wire to lumen play 以及

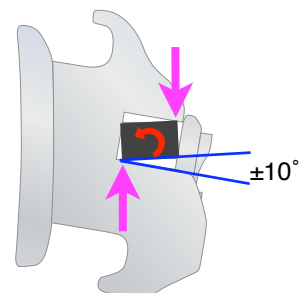


Fig. 1 Torque expression

Torque 小口訣：

1. 拔牙而不亂用 High Torque
2. 亂而不拔牙用 Low Torque
3. 若要使用很多 CII elastics 則
上顎用 High Torque
下顎用 Low Torque
4. 若要使用很多 CIII elastics 則
上顎用 Low Torque
下顎用 High Torque

treatment mechanics 造成的 torque loss 呢？答案是扭轉主線以增加主線上所表現的 torque。

因為只要不塞入一條橫切面大小和槽溝內腔一樣大的不鏽鋼線（fully engaged），設計在 bracket 上的 torque 就無法完全表現出來。舉例來說：.019 X .025 不鏽鋼線在 .022 X .027 的溝槽中約有 $\pm 10.5^\circ$ 的 play。所以在上顎門牙區為了彌補 wire play 或是 major mechanics（以 Class II mechanics 為例）造成的 torque loss，在 .019 X .025 不鏽鋼線上的上顎門牙區至少需要再加 $+10^\circ$ 甚至到 $+20^\circ$ 來補償。

所以在 Damon system 中 pre-torqued archwire 的設計就是為了幫助 torque expression。有時即使事先選用理想合適的 torque bracket，但是當已經換到 .017 X .025 TMA 仍無法對上顎前牙提供足夠的 palatal root torque 時，在這種情況下通常建議先使用 .017 X .025 pre-torqued Ni-Ti (20° of torque) 來幫助往理想的 palatal root torque 發展，再視情況看是否需要再換到 .019 X .025 pre-torqued Ni-Ti。在一些特殊的情況例如 Class II large overjet, lower incisor 在治療前就已經 flare out，預計使用大量的 Class II elastic 來改善 overjet，但這樣又會讓 lower incisor 更加 flare out，所以在這樣的情況下我們除了在 lower

incisor 使用 low torque bracket 之外，基於希望讓牙齒在骨頭中適應新角度的時間能拉長，所以我們在 .014 X .025 CuNiTi leveling 之後就可以換到 .016 X .025 pre-torqued Ni-Ti (20° of torque)，開始讓 torque expression 增加，再慢慢進到 .017 X .025 pre-torqued Ni-Ti (20° of torque)，最後到 .019 X .025 pre-torqued Ni-Ti (20° of torque)。所以善用 Damon system 中的 variable torque bracket 加上 pre-torque wire，可以讓您更輕鬆地進入 finish stage。

Essential #2 – Unlock the Malocclusion: Disarticulate the Arches with Bite Turbos

只要是打開 malocclusion 讓牙齒移動更方便的凸塊，都可以稱為 Bite Turbos。在以前我們處理深咬或是前牙錯咬的病例時會習慣使用 Bite Turbos 來提高咬合，但其實 Bite Turbos 的用處不只如此，它可以幫助我們：

1. 防止珐瑯質磨損，同時避免 bracket 脫落。
2. 提高 light wire 對 arch development 的效果。
促進 early light elastics 對前後、垂直和橫向修正的效率。
3. 幫助改善 high or low angle 臉型。



Fig. 2a Initial bonding
0.014 CuNiTi



Fig. 2b 3-month progress
0.014 CuNiTi



Fig. 2c 7-month progress
0.014 X 0.025 CuNiTi

更有創造力地利用 Bite Turbos，對治療結果會有更深遠、廣泛的影響 (Fig. 2)。

至於 high mandibular plane angle 的病例，Bite Turbos 的位置通常放在後牙區，除了利用 Bite Turbos 將後牙壓入，加上 elastic 輔助讓前牙 extrusion，進而改變 occlusal plane 使 mandibular plane angle 降低。相反的，low mandibular plane angle 的病例 Bite Turbos 則放在前牙區，合併使用 early light posterior vertical elastics，借助後牙 extrusion 修正 low mandibular plane angle 常伴隨的深咬問題。

當要修正後牙錯咬但前牙 Bite Turbos 放置有困難的時候，Dr. Stuart Frost 則在下顎第一大臼齒利用流動樹脂將咬合面填平，合併使用 early light crossbite elastics 來修正後牙錯咬。

Essential #3 – Be Creative: Use Early Light Short Elastics for Early Inter-arch Correction

一旦利用 Bite Turbos 讓上下顎分開後，就可以依照最後的治療目標來決定 early light elastics 的方向。假如改善 Class II relation 是首要任務，則短的第二類橡皮筋將有助於早期牙齒基底的移動。或是 low angle case 主要考量是 ant. deep bite 的狀況，則可早期使用 post. triangle elastics (增加垂直分量)，使後牙 extrusion。elastics 的設計可以考量水平和垂直的向量，只要有助於修正，幾乎任何位置都可以戴橡皮筋。

但是，在使用 early light elastics 時力量的控制必須非常注意。傳統上第二類橡皮筋是由下顎第一大臼齒拉到上顎犬齒近心處的 hook 上。在使用 early elastics 時，則擔心這樣的拉法會因水平向量的分力過大而造成下顎前牙外展；或因力量拉在犬齒位置 (archwire 彎曲處) 而對牙弓形狀造成不利影響。所以若要在 initial leveling wire 上使用 early light elastics，就必須減小水平向量的分力，使不好的影響減到最少；因此 early light “short” elastics 是相當重要的概念！

我們以一個臨床病例來說明如何輕鬆使用以上三樣武器來改善 Class II large overjet。12 歲邱小妹因為上門牙太暴來診所求助 (Fig. 3)，經檢查後發現兩側 molar 為 End-on Class II、canine Class II relationship, overjet 為 13mm (Fig. 4)，upper incisors flare out，以及 upper arch spacing (Fig. 5)。在選擇上顎 standard 下顎 low torque brackets bonding 後，我們在 .014 CuNiTi archwire 時就開始請她配戴上4拉到下6的 early light short elastic (2 oz Quail)，一天換四次，並且同時在下顎第一大臼齒上放置由 GI cement 調成的 Bite Turbos，希望藉著 disocclude 的動作讓 early light short elastic 的效益發揮到最大 (Fig. 6)。中間換到 .014 X .025 CuNiTi 時橡皮筋改成 3.5 oz Fox 拉一樣位置，等到 11 個月時我們發現 overjet 已經改善到剩下約 6 mm (Fig. 7)，這個時候我們將 molar 上的 Bite Turbos 去除，改成放在上顎門牙舌側的 Bite Turbos，目的是希望直接給予下顎門牙明確的咬合定位，並且繼續配戴 Class II elastic (4.5 oz Bear)，位置改成上 3 到下 6，從 11 個月的照



Elastic Type	Size	Weight
Quail	3/16"	2 oz
Parrot	5/16"	2 oz

選擇橡皮筋的原則：

簡單的說就是依照主線的粗細決定力量，再根據拉的距離決定尺寸。上圖主線皆為 .014 CuNiTi 因此選擇 2 oz 的 elastic，但因拉的距離不同而選用 Quail (左) 或 Parrot (右)。



◀◀ **Fig. 3** Initial profile

◀ **Fig. 4** 13mm overjet

◀ **Fig. 7** 11 months



Fig. 5 Initial

Fig. 6 Bonding

U: standard

L: low torque bracket

BT: 36, 46

Elastic: 上 4 下 6, Quail

Fig. 8 11 months

BT: 11, 21

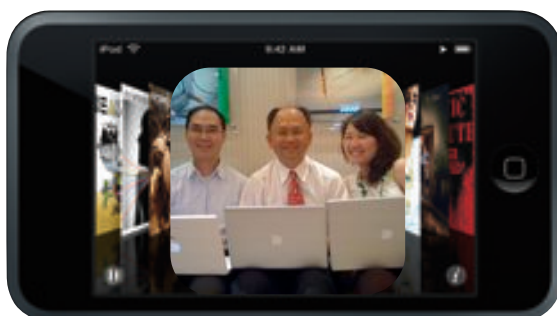
Elastic: 上 3 下 6, Bear

片中幾乎已經可以看到最後的治療成果了 (Fig. 8)。

結論：在擬訂治療計劃時，使用 Damon System 的醫師有很多方式可以使治療更輕鬆、更有效率。關鍵就在於如何早期靈活運用 variable torque bracket, Bite Turbos, 以及early light short elastics, 有了這三樣武器，您一定可以獲得更卓越的治療成果！

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Approaching Efficient Finishing

Hard and Soft Tissue Contouring

追求完美的治療結果是每位矯正醫師的夢想，無論是矯正器、矯正線，甚至矯正螺絲，只要是能更快更好，必定引起醫師們研究學習的熱潮。但是，除了有效率的工具之外，口腔裡的組織尚有許許多多的細節需要我們的注意！以下摘錄4月27日四位醫師在新竹署立醫院的報告，針對矯正治療的咬合調整、異常牙齒形態的處理，以及軟組織處理方式與原則的心得與您分享。

Part 1. Occlusal Equilibrium

Dr. Dunguni 曾於 2005 JADA 中的一篇文章中以一個矯正醫師的觀點談論與矯正治療相關的咬合調整，他認為以功能考量下，有六個常見情形會在矯正治療中進行咬合調整：

1. 外傷性咬合干擾

有時候某些牙齒會因為我們黏著矯正器的位置或是所使用的機制，造成治療中或治療後的 premature contact，甚至會產生牙齒疼痛的症狀，在 ant. or post. crossbite correction (Fig. 1) 的病例也常見。除了改變矯正器位置及機制之外，可能還需要將受力過重的接觸點施以咬合調整，避免反覆性撞擊造成牙周受傷。

2. 美觀性牙形重塑

對於一些 chipped or damaged 的牙齒可以於治療前進行 enameloplasty，改善切緣的美觀 (Fig. 2)。

3. 前牙舌側較厚之邊緣脊



Fig. 3 Large marginal ridge

Fig. 1 Post. crossbite



Fig. 4 Interproximal reduction



Fig. 2 Irregular incisal edge



Fig. 5 Unworn cusp



在某些病人會因為前牙的邊緣脊太厚 (Fig. 3) 造成無法建立正確的 overbite 及 overjet，此時需要將邊緣脊調整來改善。

4. 牙齒鄰接面的修磨

由於 anterior Bolton's ratio discrepancy，為了要使咬合關係正常，有時可利用 interproximal reduction 改善 (Fig. 4)，同時也可使單顆牙齒長寬比趨近於 1:0.8。

5. 鄰近已磨耗牙埠之未磨耗牙埠

如果在未磨耗的 cusp 附近存在因 malocclusion 造成磨耗的 cusp 時，在 finishing stage 時需要稍作調整以避免 cusp 因未磨耗而造成干擾 (Fig. 5)。這個情況可能在一些 post. crossbite 的病人口中發現。

6. 牙周受損之病人

在患有牙周病 (Fig. 6) 牙周狀況不佳或是牙齒牙根很短的病人，要特別留意咬合力造成的傷害。因為有牙周病的牙齒或多或少都有動



Ivory's Separator
新雅 齒間分離器



切削 細修
N221-010 大新 三葉精鑽-S7



新雅 87470 medium Dual 7"
EVENWET STRIPS

搖度，有時不容易在使用咬合紙時顯現出咬點，須小心觀察。

除了以上六點外，一般病例會在 debond 三至六個月後，讓病人的 dentition 做 final set-up，再進行 final detail occlusal equilibration。一般 detail occlusal equilibration 可分為 direct method 或 indirect method，direct method 是利用咬合紙直接在病人口內記錄干擾點，然後加以調整；indirect method 則是先將病人的咬合記錄轉移至咬合器，在咬合器上進行 trial occlusal adjustment 後，再將欲修的干擾點轉移至病人口內。取 CR bite 的方式有 leaf gauge、bimandibular manipulation、chin guided method 等，端看醫師的熟悉度或偏好，至於咬合調整的先後次序為：① CO-CR discrepancy。② Lateral excursion。③ Protrusive excursion。④ Anterior guidance。咬合調整的目的在於維持下顎之 stability，進而提供 TMJ 一個良好 function 的基礎。

Part 2. Hard Tissue Contouring

談到矯正治療中硬組織（牙齒）的修型，我們仍然可以依照 Dr. Dungoni 的分類，細述各項需要作 hard tissue contouring 的情況及方法：

Large or uneven marginal ridge

有時我們在臨床上會看到上顎兩顆正中門牙或側門牙的 lingual side 會發現牙齒兩邊的 mesial 和 distal marginal ridge 特別明顯（或者可以說 incisor 的 lingual fossa 特別凹陷）（Fig. 7），這時我們可以稍微修整隆突的 ridge 以避免將來 overjet 無法 correct。可以使用 high speed 加 diamond wheel 或 low speed 加 green stone 來修磨牙齒，差別在於 high speed 速度快，平常少使用的醫師要小心不要失手一下修太多；low speed 振動大產熱多，使用時要用手指頂住牙齒一點一點慢慢修；最後再用咬合紙確認是否有均勻接觸。

Fig. 6 Peri. compromised tooth



Fig. 7 Reduction of marginal ridge

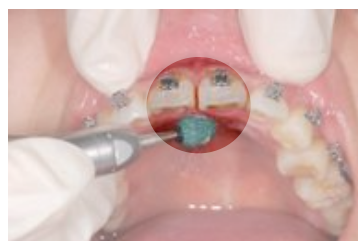


Fig. 8 Interproximal reduction



Fig. 9 Medium sand strip



Fig. 10 Fine sand strip

GC Fuji II LC A₂

Inter-proximal reduction

在矯正治療中有很多情形會需要作 inter-proximal reduction，例如：改善牙齒長寬比例、建立更好的 connector、調整 Bolton ratio，以及 black triangle reduction 等。我們在臨床上會先使用齒間分離器將牙齒稍微分開 (Fig. 8)，再用 high speed 加上粗顆粒的 diamond fissure bur 來修型，之後用細顆粒的 finish fissure bur 來微調及 finish，最後再用 sand strip 來進行 final finish (Fig. 9, 10)。

Esthetic re-contouring

A. Incisal edge

在某些例如 open bite 的 case 中，我們常會看到 incisal edge 上，仍保留崎嶇不平的 mamelon，為了讓牙齒看起來更平整，我們也建議將其修整，創造更美觀的笑容。

B. Substitution

在取代的病例中往往需要作到大量的牙齒修型（如犬齒取代側門齒），除了美觀考量外，牙齒因為過多的修型造成的敏感也是醫師在一開始就應評估的條件之一，若是在評估後認為修整後造成輕微的敏感是可接受的，那麼除了分次依病人症狀進行調整外，還可以在每次微調後用 fluoride varnish 來減輕術後敏感。

C. Fusion

在處理 fusion 的文獻中我們看到的多是將 fusion 的牙齒根管治療後再進行 hemisection。但臨床上我們發現 fusion 多發生在下顎前牙區，也就是美觀較不要求的區域，而且牙齒根管治療後再 hemisection 的治療方式，其 prognosis 較無法確定，所以我們寧可採取不處理的方式，得到稍微 compromise 的矯正結果。

Traumatic Interference

A. Dens Evaginatus

對於亞洲人種常見發生於 premolar area 的 dens evaginatus (Fig. 11)，我們建議在牙齒尚未萌發到咬合面之前可以使用“加法”的原則來處理，也就是使用復形用的 GI cement 將突出的 cusp 糊成金字塔型 (Fig. 12)，來加強它使其不易被折斷，並定期觀察 premolar 萌發至咬合面後 GI cement 被磨耗的情形，再加以填補。若是病人就診時 premolar 已萌發至咬合面，這時就可採用“減法”的原則來漸漸地逐次用 high speed 加 white stone 來修磨突出的 cusp (Fig. 13)，希望突出的 pulp 能因此受到緩慢的刺激後逐漸向內退縮，進而避免因咀嚼力量或食物造成 cusp 突然的斷裂而損傷 pulp。

B. Talon cusp



Fig. 11 Dens Evaginatus



Fig. 12 GI cement protection



Fig. 13 Reduction with intervals

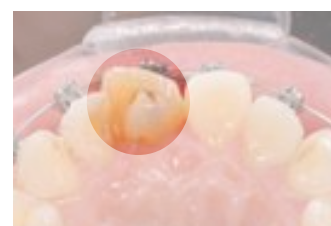


Fig. 14 Talon cusp

Extra-cusp 發生在前牙時就是所謂的“talon cusp” (Fig. 14)，為了達成 normal overjet，牙齒的修型是必需的，這時我們可採用“先加再減”的方法來處理，先將牙齒表面的深溝用流動的樹脂封填（為了預防蛀牙），再逐次地修磨舌側 cusp，每次的修磨都要做到 finish 和 polish（用 resin point），再加上 fluoride varnish 來減輕敏感。其實最後總體修牙的量是極有可能造成此顆牙需要接受根管治療，這個可能性一定要事先與病人溝通，讓病人了解。不過，矯正醫師也不用太內疚，因為 talon cusp 的牙齒本身就因為表面深溝延伸至牙齦下面，常導致蛀牙、牙髓炎，所以幾乎都逃不過根管治療的命運，只要事先充分與病人溝通，病人通常可以理解及接受。

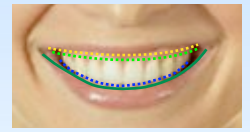
Part 3. Cosmetic Gingival Contouring

身為矯正醫師的您，在矯正 finishing 階段，可曾注意過患者在 posed smile 時，所露出來的牙齦外形（contour）（Fig. 15）是否美觀？牙齦的最高點（zenith）相對於牙齒長軸（long axis）的位置（Fig. 16）是否理想？lip line 與 gingival line 是否協調（harmony）？smile arc，意即 upper incisal edge curvature（smile line）與 lower lip curvature 的平行關係是否和諧（consonant）？是否有牙齦緣差異（Fig. 17）或

牙齦露出過多（Fig. 18）的問題？正中門牙的長寬比例是否適當（Fig. 19）？

有了前述的基本概念，要如何運用呢？首先，要讓 smile arc 和諧，藉由 lower lip curvature 來決定 upper incisal edge 的位置；接著再由建立理想的門牙長寬比例，就能找到適當的牙齦緣位置。從而看看正中門牙、側門牙及犬齒的牙齦緣位階（gingival margin level），是否有高—低—高的變化？是否有牙齦緣差異及牙齦露出過多的問題？爾後，再確定 short crown height 是否起因於變異的被動萌發（altered passive eruption），即延遲性的牙齦緣根尖向位移（delayed apical migration of the gingival margin）的現象所造成？最後，還要看的就是牙齦外形，即三度空間的立體形態是否美觀。

在臨床操作上：一、如果只有牙齦外形的問題，您可以在塗抹局部麻藥（topical anesthetic）後，輕易地利用軟組織雷射（例如 Diode laser）做修型（contouring）處理。二、如果牙齦緣差異及牙齦露出過多的問題，係源自於變異的被動萌發；且所要改變的牙齦緣位置的量（X），加上牙齦溝深度（0.7 mm），小於牙齦溝探測深度（sulcular probing depth）（S）時，即 $X + 0.7 < S$ ，則您可以用局部麻藥及軟組織雷射做牙齦切除（gingivectomy）即可。



..... Lip line
..... Gingival line
..... Upper incisal edge curvature
— Lower lip line



Fig. 15a Pre-surgery



Fig. 15b Post-surgery



Fig. 16 Zenith



Fig. 17 Gingival margin discrepancy



Fig. 18 Gummy smile



Fig. 19 Short crown height

三、如果您所要改變的牙齦緣位置的量，加上牙齦溝深度，明顯大於牙齦溝探測深度時，就需要上浸潤麻醉，做齒槽骨脊深度探測（alveolar crest sounding）。當所要改變的牙齦緣位置的量，加上生物學的寬度（biologic width = 2 mm）及牙齦溝深度，小於齒槽骨脊探測深度（alveolar crest sounding depth）（A）時，即 $X + 2 + 0.7 < A$ ，您可以用軟組織雷射或電刀（electrosurge）做牙齦切除，再用軟組織雷射做牙齦整型（gingivoplasty）（Fig. 20）。

Part 4. Consideration of Soft Tissue Management

當矯正到了 finish 的階段時，針對前牙的部份，Dr. Sarver 告訴我們要從 smile arc 的角度來評估是否有達到美觀的需求，從硬組織上：牙齒的長寬比例、門齒到犬齒的排列及大小、切端是否有順著微笑的曲線等，都希望能達到和諧的要求；軟組織的考量上：微笑時暴露牙齦的量、以及牙齦邊緣是否一致對稱，形成均勻的海鷗型則是我們觀察的重點；以下我們舉出一個個案報告來跟大家分享這部份的心得。

患者是十歲九個月小朋友，為雙側 molar Class I、左上門齒異位萌發的病例（Fig. 21），我們放上 Damon 3 矯正器以及 follow Damon wire

sequence 換線經過 14 個月後，從臨床照片觀察到前牙區的切端及牙齦邊緣不平齊（Fig. 22），此時會直覺考慮作牙齒切緣的修磨和牙周手術來調整牙齦；但是當我們仔細看前牙咬合照片時（Fig. 23），發現兩個正中門牙的 inclination 其實不一樣，所以必須先調整 torque：我們在兩顆正中門牙都換上了 Damon high torque 的矯正器，5 個月後兩顆門牙的角度已大至相同（關於 torque 選擇，可以回顧 NTO Vol. 10，黃瓊嫻醫師有一篇精彩的文章介紹），因此在矯正的過程中，應該時常重新檢視臨床照片，先確定牙齒的排列、角度等都沒有問題後，才進行硬組織與軟組織的調整。

矯正進入第 19 個月 finish 的階段，我們發現前牙區牙齦邊緣高度仍然不一致（Fig. 24），如果想作牙齦的修整，該選擇 gingivectomy 還是 surgical crown lengthening？有什麼判斷的方法來讓我們決定使用的術式？我們可以依照下列原則來進行術前的評估：

1. Oral hygiene

當病人在矯正期間如果口腔衛生無法維持，牙齦邊緣容易產生發炎腫脹的狀況，必須清潔乾淨待牙齦回復原本健康的位置後，再評估牙齦的高度才會準確。

2. X-ray taking



Fig. 20a Sounding for detection



Fig. 20b Diode Laser



Fig. 20c Sounding for check-up



Fig. 20d 1 week post surgery



Fig. 21 Ectopic eruption

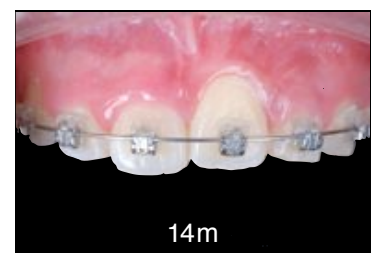


Fig. 22 Uneven gingival margin

在手術區域應先拍攝根尖片，以評估牙根周圍的骨頭是否有牙周的破壞及缺損，是否需要先進行牙周部份的治療。

3. Probing

手術評估時，要先對欲處理的區域（通常是上顎六顆前牙）做 probing，通常建議手術前上完麻醉藥後沿著每顆牙齒的 sulcus 再做一次，因為這樣才可以精確的標定出最底部的骨頭到牙齦邊緣的距離有多少，因為 sulcus 底下的 bone level 是連續的，所以 probing 時也應該順著 walking；從 probe 接觸到最底部的 bone 到牙齦的距離，就是 clinical probing depth (Fig. 25)，我們知道，牙齒的 biologic width 約為 2 mm (Fig. 26)，因此需要修去的牙肉高度，就是將 clinical probing depth 減去 biologic width 的距離 (Fig. 27)。

4. Attached gingiva

在需要做牙周手術的區域，我們要觀察是否有足夠的 attached gingiva，attached gingiva 是固定在骨膜上的一層角化上皮組織，它可以讓我們將刷毛放在該區來清潔牙齦溝而不會容易造上牙肉的受傷及萎縮，同時也能降低牙齦發炎的機會；有 attached gingiva 附著的牙齒，經過矯正移動後也比較不會因為口腔黏膜的運動而容易發生移動，而在考量牙周手術術式時，缺乏

attached gingiva 的區域，我們也會盡量選擇在手術中補上 graft 或是轉入 pedicle flap 來增加角化牙齦的量。

總結來說，當牙周組織健康，有足夠的 attached gingiva，從 X-ray 上觀察沒有骨頭缺損，probing 時發現 bone level 一致，只有牙齦高度不整齊時，我們會選擇 gingivectomy 來單純修整牙肉 (Fig. 28)；而當前三項相同，但 probing 時發現牙齒間 bone level 的高度不相同時，我們會選擇 surgical crown lengthening 的術式，不但要調整 gingival height，更要修整 bone level (Fig. 29)。這個 case 我們選擇用 diode laser 進行 gingivectomy，在術後12天牙齦部份傷口便已經癒合 (Fig. 30)，由於考慮這個病例可能是 altered passive eruption，但病人的年紀還在發育的階段，牙齦的高度仍有所變動，因此需要持續的觀察追蹤（關於 altered passive eruption 的診斷，將於下期 NTO 作介紹）。

至於成人的部份，經過牙肉的修整後，我們會要求一星期後回來檢查傷口及口腔清潔，軟組織的部份大致在兩個月後會達到穩定，所以如果需要製作後牙即非美觀區的補綴物，通常會在此時 delivery，但是前牙美觀區補綴物的製作，也有文獻建議最久需要追蹤到六個月。



Fig. 23 Poor inclination of 21



Fig. 24 Uneven gingival margin

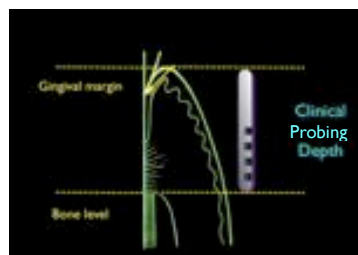


Fig. 25 Clinical probing depth

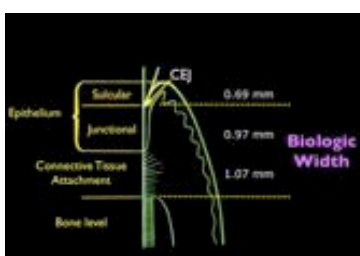


Fig. 26 Biologic width



Fig. 27 The amount of gingivectomy

clinical probing depth	5 mm
— biologic width	2 mm
gingivectomy	3 mm

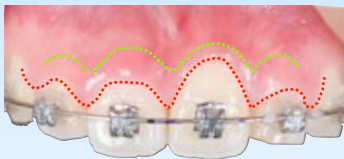


Fig. 28 Indication of gingivectomy



Fig. 29 Indication of surgical crown lengthening

Attached Gingiva	+	+
Probing	Equal bone level	Bony discrepancy
Operation	Gingivectomy	Surgical crown lengthening

矯正在快要 finish 的階段，如何接近完美，相信是每位醫師夢寐以求想要達到的境界，方法其實無它，就是盡量照下臨床的圖片，然後反覆仔細地研究，探求問題出現時口內外狀態所可能忽略的種種蛛絲馬跡。將這些心得提出與大家分享，希望各位醫師不吝指正。



Fig. 30a Initial



Fig. 30b The day after gingivectomy by Diode Laser



Fig. 30c 5 days after surgery



Fig. 30d 12 days after surgery



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STb

Light Lingual System

Dr. Kyoto Takemoto

Interviewed by Dr. Rungsi Thavarunkul

Edited by Sandra Diver



Dr. Kyoto Takemoto, the man behind the success of lingual orthodontics in Japan. He is also one of the creators of the new STb lingual appliance, launched early in 2006 and evolved lingual orthodontics to a new era.

What are the problems that you experienced in the 7th generation of lingual brackets that made you come up with the new STb ?

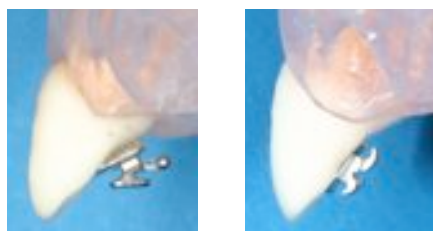


Fig. 1 Large profile of 7th generation lingual brackets that caused the food debris entrapment and speech problem (left) have been substituted by smaller STb (right).

Fig. 2 New anterior STb Lingual appliances (right) have 50% larger inter-bracket distance compared with old 7th generation lingual brackets (left) and can be easily placed much closer to the tooth surface, between marginal ridges, because of their smaller bonding pads.



Please tell us about the main improvement and benefit of STb for both orthodontist and patient.

Dr. Takemoto : Most of my lingual orthodontic patients always complain about discomfort, especially when they are talking and eating, because of the 7th generation bracket size. They are quite big, so the patients cannot pronounce very well. For dentists, their complaints for the old lingual orthodontic appliances are difficult arch-wire insertion, difficult double over-tie, arch-wire ligation and longer treatment time. These huge brackets are also the obstacle for oral hygiene maintenance. So these are the reasons why the new STb lingual orthodontic appliances have been designed to be very small in both bracket profile and bonding pad. We found this increased significantly, the bonding strength, because of the closer distance between lingual tooth surface and bonding pad. We also changed the retentive mesh from the delicate 100 gauge mesh to the rougher 80 gauge. That increased bond strength between the pad and the Composite. So I'm proud to say that today we are stepping into the new era of lingual orthodontics by the development of four major innovations.

1. New STb lingual appliances that are very small, low profile and have passive ligation properties.
2. New technology archwire such as Copper-NiTi wire, SE NiTi wire and TMA that are very flexible compared to the conventional wires.
3. New improvement in laboratory procedure.
4. New Micro-Implant Anchorage that helps us a lot in anchorage control, especially in extraction cases.

So now it is a good opportunity to learn about lingual orthodontics because of the increasing demand for esthetic orthodontic treatment and these four new improvements.

Dr. Takemoto : The most important benefit of this STb for both dentist and patient is the result from larger inter-bracket distance and passive ligation step. In the past, one of the biggest disadvantages of lingual orthodontic treatment, compared to labial treatment, is shorter inter-bracket distance. That is a reason why lingual appliances create more orthodontic force to the teeth. This is the big problem because with the heavy force, teeth will move slower, compared to teeth where a light continuous force has been applied. In addition, when you move teeth with heavy force, patients will feel more uncomfortable or more pain.

To achieve this light continuous orthodontic force we needed to increase the inter-bracket distance, so we made the bracket very small.

$$F = \frac{192IE}{L^3} Y$$

F : Wire exerts force.

L : The distance between the right edge of the bracket and the left edge of the bracket.

I : $nD^4/64$ (*D* is the cross section diameter)

Y : The deflection distance of the wire midpoint from the equilibrium position.

E : The modulus of elasticity of the wire

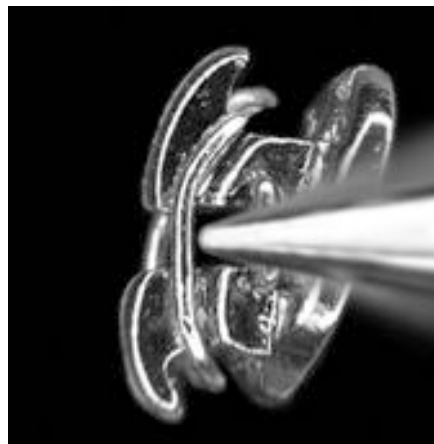
Muraviev, Ospanova and Shlyakhova, *A.J.O.*
Volume 119, Number 6

Fig. 3 Estimation of force produced by nickel-titanium super-elastic arch-wires

Fig. 4 Passive ligation step of STb with 0.012 super elastic NiTi wire can create the low friction system for faster tooth movement

Fig. 5 The relapse of lower anterior teeth can be corrected by 6 STb and 0.012 SE NiTi wire in 6 weeks, before (left) and after (right)

Using the STb we can increase the inter-bracket distance by more than 50% compared to the 7th generation bracket. That means we can reduce considerable force, because we already know that the force of the NiTi wire is inversely proportional to the 3rd power of inter-bracket distance (Fig. 3). We also designed the built-in passive ligation step for every STb. (Fig. 4) So when leveling and aligning with the small NiTi wire, usually 0.010" or 0.012", the friction between bracket and wire will be very low (as achieved labially when using Damon System). Therefore the teeth can be moved very fast by the light continuous force along the low-friction passive-ligation system, such as for the MTM (Minor Tooth Movement) in the relapse case. I can correct this in only 6 weeks, by using only 6 lower anterior STb and one 0.012" NiTi wire (Fig. 5). If you choose to treat the case like this, by using a clear aligner you would use 10 or 20 aligners with very good patient cooperation, and still find it impossible to correct. These can relapse in only 6 weeks. So in the new era of lingual orthodontics your patients can be treated more esthetically, more comfortably, faster and more reliably with these new STb.



Is there any problem in controlling rotated teeth when using such a small bracket like STb ?

Dr. Takemoto : No, I think that orthodontists have misunderstood this point for a long time. From my experience I found that the larger inter-bracket distance and wire flexibility are playing a more important role in rotational control than the bracket width. In the past, I had to bend many vertical loops to correct lower anterior crowding. But nowadays, with the larger inter-bracket distance of STb and small and flexible 0.012" SE NiTi wires, I can correct crowding more easily and faster. The lower anterior STb brackets are the best proof for this because, although these bracket slots are only 1 mm width (Fig. 6), I can still use them with 0.012" NiTi wire to correct the lower anterior crowding very fast and effectively (Fig. 7).

Fig. 6 Narrow and slim lower anterior STb with passive-ligation step (left) compared to the bulky 7th generation lower anterior bracket (right)

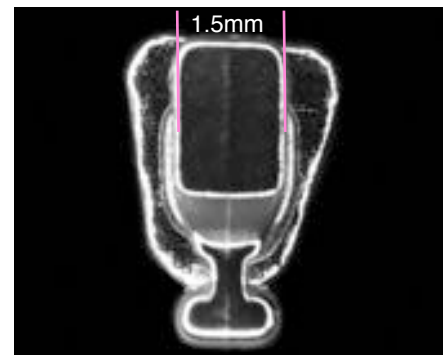
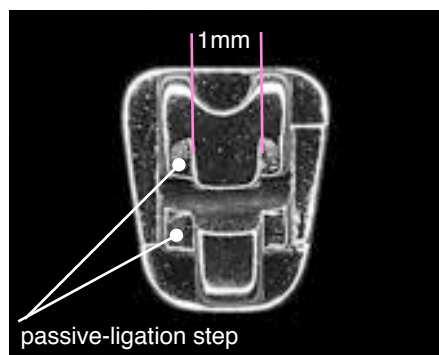


Fig. 7 Larger inter-bracket distance and passive ligation step of STb make it more easier to correct rotation when using with 0.010" or 0.012" SE NiTi wire (7a,b) than the 7th generation of brackets that have shorter inter-bracket distance, and need some vertical loops for rotational correction. (7c)

What is the most important thing that the Lingual orthodontic beginners have to concern ?

Dr. Takemoto : The most important thing that not only beginners but also experienced lingual orthodontists have to concern is bracket position. You have to know how to place it right and how to set up the model to the right position. This is very important.

Fig. 10 For ideal torque and in-out performances, STb should bond a little occlusally.



For the orthodontists who have experienced the 7th generation brackets and switched to this new STb. Do they need to change their mechanics?

Dr. Takemoto : Almost the same, but less wire bending because of the larger inter-bracket distance of STb and the development of Micro Implant Anchorage (MIA). Nowadays, I use a lot of MIA in maxillary retraction mechanics by putting them in mid-palatal suture area, or in between U5 and U6. I also use them for intrusion of upper incisor but seldom use them in the lower arch.

Fig. 11 Utilizing OrthoBoneScrews as the anchorage for retraction mechanics in extraction cases by placing in mid-palatal suture area (left) or in between U5, U6 (right)



Have you considered straight wire lingual appliance and self-ligation lingual appliance?

Dr. Takemoto : It's my dream, straight wire lingual appliance, I'm still thinking of it. I already have some ideas but cannot tell you now. That's our goal, I and Dr. Fillion. We always discuss this idea and how to avoid canine inset with comfortable design. Self-ligation system is too big for lingual and you will have problems with the rotation of teeth because of short inter-bracket distance. This is the reason why we designed a passive-ligation step in STb. The height of this step is 0.013", so when you use the small wire 0.010" or 0.012" it will be a passive slot, but for the larger wire 0.014" or 0.016" it will turn to an active slot.

Any secret to enjoy working?

Dr. Takemoto : Work with fun! Please enjoy your work by creating extraordinary experience. If you work in the same way every day, it will be very boring. So work with passion, always thinking of new ideas, new experiences, new trials, new appliances, new techniques and new life.

Excerpt from Align (June 2008)



*Dr. Rungsi Thavarungkul
Author & Guest Editor*



*Sandra Diver
Guest Editor*

Doing is Believing

I have used the Damon System as my fixed appliance of choice exclusively for 8 years and have practiced orthodontics for 19 years. For several years now I have watched the debate or should I say debasement of Dwight Damon and the Damon System with shock and dismay. The recent entries into this dialogue now make me feel that I can no longer sit idly by and ignore it.

Dr. Peck's recent entry in one of our esteemed journals has really been the catalyst to make me want to respond. I must admit I was surprised that a journal would publish what really amounts to an unwarranted personal attack against Dr. Damon and all of us who choose to use the Damon System and I ask myself how any person who considers himself a thinking person and an educator can be so close minded and blind to the benefits that Dwight Damon has brought to our specialty.

For almost a century orthodontic theory has taught us that we should pursue the goal of using forces on the teeth that were light enough not to occlude the vasculature but strong enough to entice the teeth to move. Dr. Damon did not invent light forces, but what he has done has transformed the way thousands of orthodontists around the world treat patients. He has spent untold hours studying the interaction of various wires with different bracket configurations to maximize the benefits of each and has ended up with a system of low friction and light forces that produces a synergistic effect that now allows orthodontists worldwide to obtain results that were previously unheard of. Yes Dwight Damon is a skilled clinician, but the results are seen not only by him, but by everyone who uses the Damon System properly. When I described these effects to a former classmate, his question to me was whether what I was seeing was because I was now a better clinician than I was 10 or 20 years ago. As I told him, there is no question in my mind that I am now a better clinician than in years past and much of it is due to the tools that Dwight Damon has given me with which to practice.

The degree of misinformation bantered about by those who have no personal experience with the Damon System nor even the benefit of attending one of Dr. Damon's complete courses is staggering. Dr. Damon has never claimed to not extract any teeth. Indeed, he claims that he extracts far fewer than he could before, and how can that be a bad thing for the patient? Does he promote bimaxillary protrusion as a goal of treatment? Absolutely not; although the anti-Damon System rhetoric would have one believe that



Pre-treatment

were so. Does the system use "over expanded" archwires? Anything but! So where does the expansion come from? Only future research will tell us.

So where is the issue? Is it one of marketing? There are still orthodontists who hold a grudge against Align Technology for direct-to-consumer marketing a decade ago even though the side effect was to increase the public awareness of the need for orthodontic treatment and subsequently increase every orthodontist's business, even if they themselves did not provide Invisalign as a treatment option. Marketing something that is a benefit to the patient

can not be a bad thing if it raises their awareness and moves them to action. Is it simply because the D3 Hybrid had some quality control issues? That is a problem that resides with ORMCO, not with the Damon System or Dr. Damon. By the way, ORMCO did acknowledge the problem and did replace all the faulty brackets if they were returned to the company. Is it because Dr. Damon has made a great deal of money from his designs? If so then every orthodontist who has profited from an innovation they

common jealousy by those who didn't think of everything that Dr. Damon has thought of first.

I am also amazed at the amount of time and energy some orthodontists have spent on pursuing so-called stability without the benefit of mechanical assistance as if it were the "holy grail" of our specialty. There is no other area of medicine or dentistry where treatment results are anticipated or expected to last indefinitely. Even if one were to somehow place teeth in perfect balance with the musculature at the time of treatment completion, muscle tone changes as part of the aging process so even that impossible feat could be presumed to be only temporary in nature. Is it reasonable in the face of all current evidence to disparage those who achieve stunning esthetic results and then choose to use some form of mechanical retention, permanent or otherwise, to prevent or defer the natural aging process and so maintain their results? I think not. In fact to claim stability is important and then disparage those who use bonded retention is most disingenuous.

When all is said and done, the combined experience of thousands of orthodontists around the world that continue to utilize the Damon System to achieve extraordinary results for their patients speaks volumes. So while the orthodontic curmudgeons are comfortable in their belief that the sun continues to revolve around the earth and bemoan the loss of another colleague who has sailed off the edge, I personally will order another kool aide. After all, it is another sunny day in Damonland.



Post-treatment

brought to market is equally guilty, and they are too numerous to mention. Yet I have never observed others being publicly chastised the way Dr. Damon has been. What of the common complaint about lack of published evidence? If our specialty really practiced what is preached about evidence based orthodontics, then there should be a general uproar against those who still practice two phase treatment given the amount of evidence to the contrary. There should be an even greater dispute with those who still place RPE's given the degree of periodontal damage demonstrated in the recent article in the June 07 AJODO. Has there been either? Not that I am aware of. So the only remaining motive I can think of is



*David E. Paquette, DDS, MS, MSD
Charlotte, NC
Diplomate, American Board of Pediatric Dentistry
Diplomate, American Board of Orthodontics
Fellow American College of Dentists
Milo Hellman Award 1990*

Keys in Determining Extraction or Not : Profile and Growth

A 11-year-and-one-month-old girl came for orthodontic consultation. Her mother mentioned that her one permanent premolar had been removed because of severe crowding. Subsequent extraction of remaining three premolars was suggested by the same doctor. There was no significant medical and dental history. Her oral hygiene was fair and she had received dental care since childhood. There was also no signs and symptoms of temporomandibular dysfunction.

DIAGNOSIS

The patient had a fairly straight profile and slight asymmetrical appearance (Fig. 1). She had a Class II malocclusion and 50 % overbite. There was 8 mm space deficiency on the upper and 3 mm on the lower. Her lower dental midline was shifted to the left (Fig. 2 and 3). The panoramic radiograph showed four wisdom teeth present. There was a missing upper right premolar extracted one month before (Fig. 4). Cephalometric analysis revealed Class I skeletal relationship (Fig. 5).

TREATMENT OBJECTIVES

The primary objective of treatment was to attain Class I molar and canine relationships with ideal overjet and overbite while maintaining pretreatment facial esthetics. The specific treatment objectives were to :

1. Eliminate space deficiency over upper left canine area.
2. Correct midline deviation.
3. Preserve original facial profile

TREATMENT ALTERNATIVES

The first treatment option is to obtain a bilateral Class I occlusion by extracting the three first premolars according to the previous doctor's



Fig 1. Pretreatment facial photographs



Fig 2. Pretreatment intraoral photographs

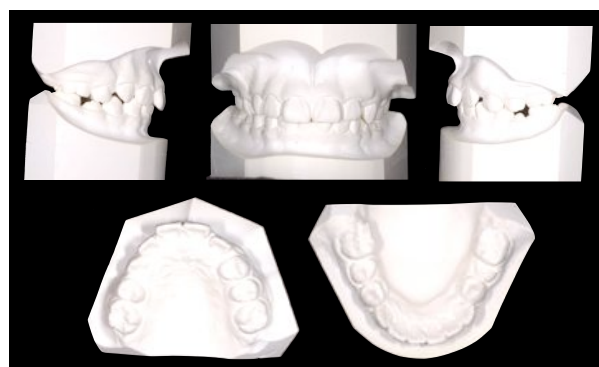


Fig 3. Pretreatment study models

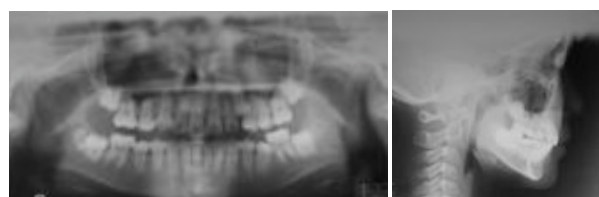


Fig. 4-5. Pretreatment pano and ceph radiographs



Fig 6. Posttreatment facial photographs



Fig 7. Posttreatment intraoral photographs



Fig 8. Posttreatment study models



Fig. 9-10. Posttreatment pano and ceph radiographs

plan. The second one would be to achieve a Class I occlusion on the right side and a Class II occlusion on the left side with which we can then preserve the three first premolars. The third one would be to regain extraction space and fabricate a prosthesis, both of which would bring about a bilateral Class I occlusion.

Based on symmetry of extraction site and consistency with the original plan, the first option was chosen.

TREATMENT PROGRESS

The remaining three first premolars were extracted and 0.018 slot straight-wire fixed appliances were placed. Followed by alignment and leveling using a 0.016 and 0.016 X 0.022 NiTi wire, extraction space was closed with sliding mechanics made by 0.016 X 0.022 stainless steel. The extraction space was closed after 16 months. At the finishing stage the patient's four second molars had not erupted. The debonding procedure had to wait until they all fully erupted. The total treatment time was 28 months. The retention protocol followed were a fixed retainer on the mandibular arch and a full coverage vacuum-made retainer on the upper arch.

TREATMENT RESULTS

The patient's smile line was coordinated with the lower lip (Fig. 6) The posttreatment photographs and dental casts show a satisfactory occlusion with bilateral Class I molar and canine relationships. Lower dental midline was deviated 1 mm to the left (Fig. 7 and 8). Cephalometric analysis indicated a favorable inclination between the upper and lower teeth (Fig. 10). Superimpositions demonstrated that there was considerable growth of the mandible (Fig. 11).



Fig 11. Superimposed tracings

	Standard	Initial	Final
SNA	82°	80°	80°
SNB	79°	74°	76°
ANB	3°	6°	4°
Wits (A→B)	0 mm	1	1.5
A→N	2 mm	-3	-3
Pg→N	0 mm	-1	-0.5
U1/L1	130°	135°	132°
U1→FH	117°	106°	111°
L1→MP	91.4°	84°	86°
MP angle	32°	32°	38°
Upper Lip→E line	-1 mm	-3	-5
Lower Lip→E line	0 mm	-3	-4

Table. Cephalometric summary

DISCUSSION

Serial extraction has long been advocated to treat severe crowding. In most cases, when the erupting canine erupts into extraction site, its root inclination tends to tip mesially and there is residual space between canine and premolar. Therefore, in order to get ideal result, subsequent fixed appliance therapy is recommended.

Fixed appliance treatment in adolescent patients are sometimes faced with increased treatment time. It mostly happens when four second molars have not erupted completely.

In the examinations of the American Board of Orthodontics (ABO), five out of the seven scoring criteria involve second molar. Therefore, even in the finishing stage, we still have to closely follow the condition of second molars. The use of braces

on second molars may be necessary if the alignment of the archform is concerned.

In this patient, the previous treatment plan of serial extraction was worth revisiting. According to this patient’s profile, non-extraction therapy might be an alternative. With the continual growth, the profile may become flatter. Nowadays we have more weapons to obtain ideal treatment results without extraction. Appropriate selection of appliance, such as low torque Damon brackets, will minimize the effect of anterior flaring. In addition, miniscrews can also prevent this side effect during the stage of leveling and alignment. Thus, extraction is no longer a necessity to solve crowding cases. However, it is still regarded the most appropriate treatment method for problematic profiles.



From left to right:
Dr. Hao Yi Hsiao (Author)
Dr. Chris HN Chang
Dr. Yu Lin Hsu
Beethoven Orthodontic Center, Hsinchu, Taiwan

Unsolved Mystery

Ankylosis and Multiple Missing Teeth

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 1200.



X 20



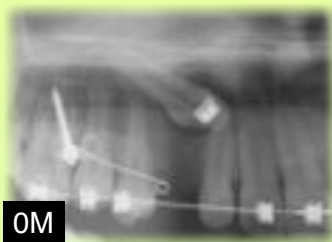
The first case that kicks off our new column was brought to us by our colleague, Dr. Rungsi, from Thailand during Newton's A and Beethoven's first international OrthoBoneScrew and Damon workshop back in June, 2008.



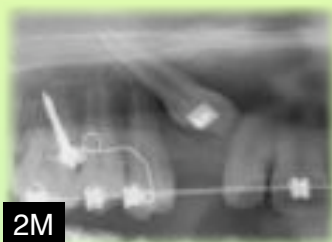
A 13 year-old male patient presents with the upper anterior teeth spacing as the chief complaint. The panoramic and cephalometric x-ray indicate a total of 13 permanent teeth missing and all of the deciduous molars ankylosed. The patient is now in his teenagehood and presents a shy demeanor.

His father, also a dentist, plans to put implants in lieu of the missing teeth; however, the patient is too young for the procedure. He is now soliciting alternative treatment plans from our NTO readers. We encourage all of our colleagues to draw from your clinical experience and creativity to develop a treatment plan of yours. Please send your proposals to beeth.oven@msa.hinet.net by August 31, 2008.

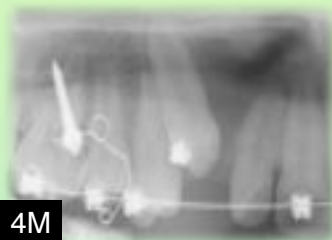




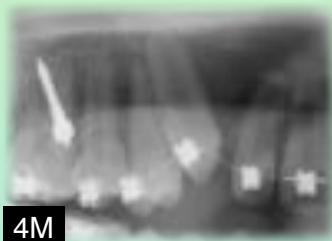
0M



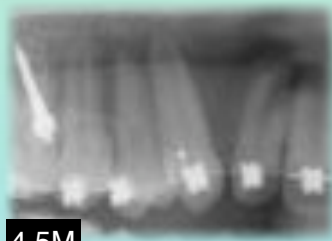
2M



4M



4M



4.5M

OrthoBoneScrew

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The Dream Screw for Next Generation's Orthodontists

OrthoBoneScrew

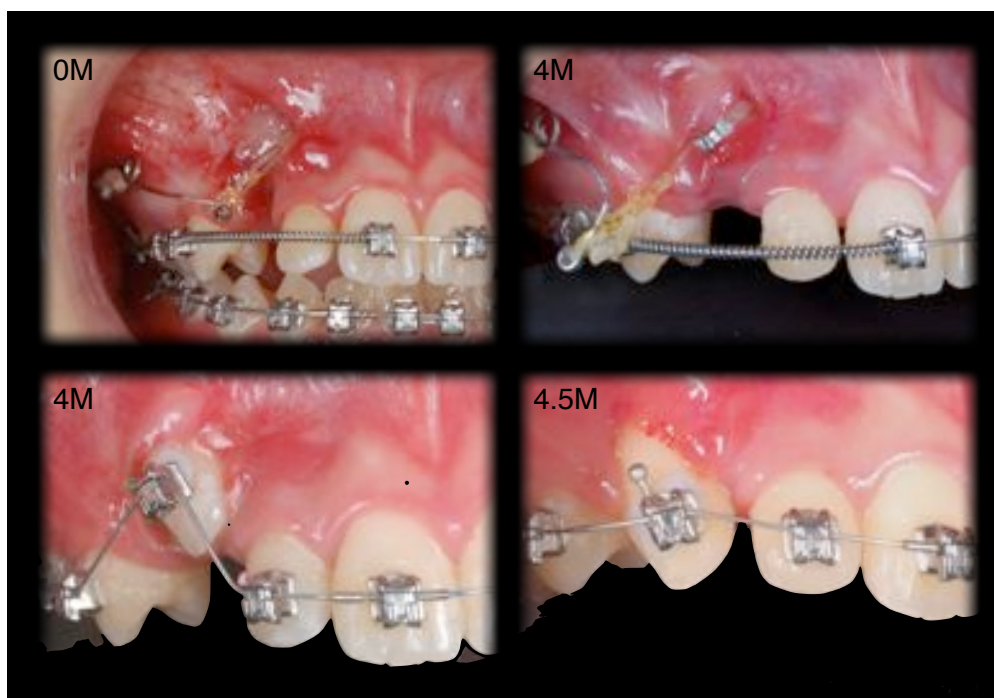
Beethoven Orthodontic Center

OrthoBoneScrew (OBS) has a double-crossed rectangular slot on its neck. This 0.018 by 0.025 inches rectangular slot provides versatile use of orthodontic mechanics. A wire size of 0.017 by 0.025 inches dimensions can be secured in the slot firmly.

A case report demonstrating a 3D control of impacted tooth

Mechanics design:

A 0.017 x 0.025-inch TMA lever arm was consisted of a helical coil on one end and helical attachment on the other end. When this lever arm was inserted in the square hole in the **OrthoBoneScrew** (located at infrazygomatic crest) and activated, it could build a force system which distalized the canine first, then moved buccally slightly, and finally downward to the reserved canine space. If the mechanics were designed to exert force directly from the main arch wire, it would have been detrimental to the roots of the incisors. During the follow-up visits, the helix was adjusted without taking it out. After four months, the impacted canine was successfully moved away from the previously impacted site and was ready for bracket bonding.





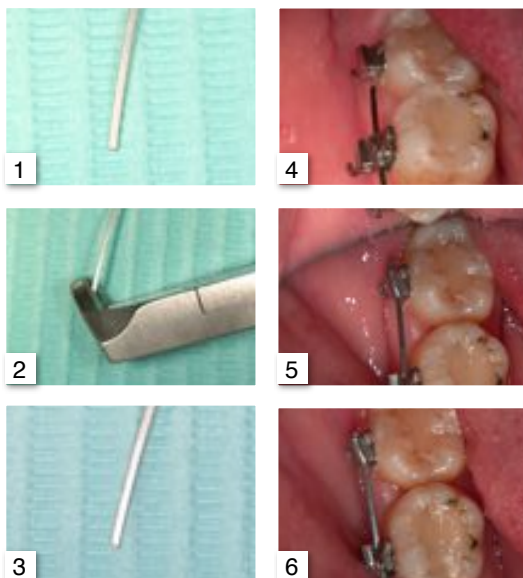
陳建綱 醫師
貝多芬矯正課程講師
康軒牙醫診所主治醫師



王肖龍 醫師
貝多芬矯正課程講師
全方位牙醫診所主治醫師

Damon Tips

當我們在使用 Damon System 做矯正治療時，初期在 3~6 個月的 0.014 CuNiTi 治療之後，通常會進行下一條線的置換，通常是 0.014 x 0.025 CuNiTi，有時在 1st molar tube 與 2nd molar tube 穿線時，會遇到阻力很大，或穿不進去的狀況，這樣的原因，推測多半是 molar 的 leveling 尚未完成，可以考慮繼續用 0.014 或 0.016 CuNiTi 繼續 leveling；或是因 tube 內部有 calculus 阻塞而使穿線不順利，這時可用 end cutter 將線尾斜剪約 45 度角，這時再穿進去，您會發現容易多了！最後別忘了要將線尾再剪平，以免刺傷了黏膜組織，若是 molar tube 有 tie-together，可將 cutting bevel 反向，以利將 ligature wire 推向 tube base，讓線順利穿出，而不會被擋住！



Accurate Positioning of the Centric Relation

In most cases we can differentiate “pseudo-class III” cases from “true-class III” cases by checking if a functional shift (FS) is present. Since a FS can deviate a centric relation (CR), we need to develop an easy and reliable method to record the accurate position of CR. The following example shows a simple, easy and most importantly, accurate way of recording the position of CR.

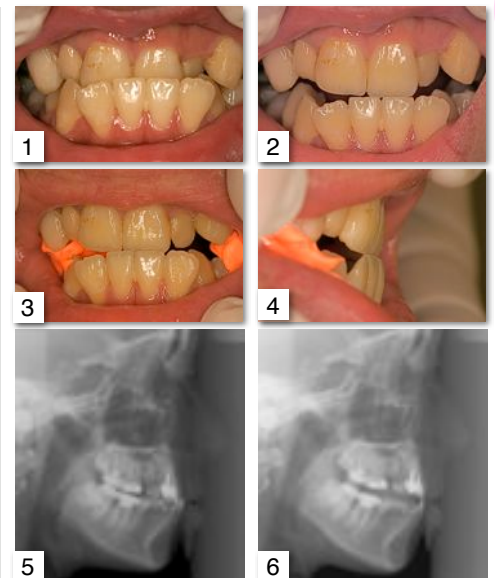
1. Check CO and CR intra-orally: Guiding the mandible to the centric occlusion (CO) and CR.
2. Use StoneBite for recording the CR position: Squeeze the soft mixture into the inter-arch space of posterior teeth and wait 1~2 minutes for it to set. (Fig. 3, 4)
3. There is a visible difference in the cephalometric films of the two. (Fig. 5, 6)



StoneBite

This is a product by Dreve used for occlusion records during prosthodontic preparation.

As shown in the picture the tool is consisted by a mixture tube and a handle. When you press the handle, two differently colored pastes will instantly be combined into a rigid orange block in 1~2 minutes.



矯正名言錄

學習建議：

單一系統的學習，不要東學一套，西學一套。

大原則大家都知道，差別在細節。



鄭文韶醫師

於林錦榮醫師診所 6-13-08

1 迴響

Dear 張醫師、高老師：

昨天有幾件令人興奮的事情，想要跟兩位分享：

1. 昨天早上上完課後，晚上的門診剛好有一個要拆 Ice 的患者，除了拆的速度比以往都快，也沒有任何一顆的 bracket base 殘留，患者也蠻舒服的，真是感謝張醫師。再也沒有一件事比學完之後馬上能應用在患者身上更令人開心了！
2. 上次去見習時真的很幸運，可以看到那兩個這麼經典的 case 利用 OBS + lever arm 治療的 canine impaction 以及那位 cleft palate 的患者。之前在醫院的時候，也常常在輪到我跟診時看到一些特殊的 case 或剛好有一些特殊設計的 appliance 要我製作。我想，這應該是上帝的旨意，給我這麼多的機會叫我要好好學矯正，我會加油的！
3. 中午開車回台南時，接到 Nakazawa 和 Dr. Kondo 打來的電話，兩位剛好在會議中想到要打電話給我。Nakazawa 說 Dr. Kondo 蠻喜歡我的，我覺得很開心，能和他們認識都是因為學了 Damon 和日文的關係。這半年來因為想要更了解 Damon system 的初衷而開始學習，因而認識了許多好人。學習，果然是一件令人開心的事啊！



黃瓊嬋 醫師, Tainan, Taiwan

2 迴響

Dear Sandra:

You can't imagine what happen here. Dr. Chris, his wife and their staff at Beethoven are so energetic that impressed all Thai dentists a lot. We saw Chris and his team's treating 160+ patients only in two evenings, total of 10 hours working. Everything went so fast and smooth. For example, the new record of placing a OrthoBoneScrew is 15 seconds per side. His lecture was still stunning even for me who had seen his lecture for many times. The hotel is quite good but the food are better.

Tomorrow our group will have a good opportunity to attend Dr. John Lin's 2-hour lecture about Damon and OrthoBoneScrews which I am sure will be the another great lecture and everyone in our group will go home happily. This course convinces me to come back to Taiwan again with the new Thai group at the end of September.



Dr. Rungsi, Bangkok, Thailand

3 簡報藝術—寓教於樂

參加繼續教育，如果能夠像觀賞一部好萊塢電影，聲光美，畫面佳，而且又能有所收穫，那是多棒的一件享受。在一個偶然機會，聆聽張慧男醫師的演講，驚艷大師投影片的製作技巧與一流的口才，是筆者經歷的簡報達人中的達人。大嘆“有為者亦若是，大丈夫當如是也”。筆者從事牙科教育工作超過二十年，自行摸索也累積不少心得，但有些“眉角”總是無法突破，欣聞張醫師有在開班傳授教學藝術與簡報聖經。這是企盼已久的課程，經過張醫師的一番調教後，功力大增。每一位想從事牙科教育工作者，皆應有這方面的訓練，否則很有可能被淘汰掉。張醫師的教育課程，理論與實務結合，筆者最為讚賞。每一張投影片，可能就是一段故事，而且投影片本身就會說故事。張醫師的簡報不是在賣蘋果電腦或 iPod，他是

在告訴我們這些產品的優點和使用經驗。您如果想在下次的簡報令人刮目相看，耳目一新，請參加張老師的簡報聖經課程。



林茂雄 醫師, Taipei, Taiwan

4 簡報藝術—魔鬼藏在細節中

聽了幾場張慧男醫師的演講，覺得很生動，很活潑，而且很鮮明；感覺張醫師把演講當成一種藝術，全心的投注其中；無論是音樂的出沒，畫面的處理和重點的輪番浮現，都配合的天衣無縫，彷彿人和電腦合為一體，演講內容也讓人聽得一清二楚。而為了提昇自己的演講技巧，最近報名參加 Keynote 一連串的課程，現簡介如下：

Kenote 1. 介紹很多基本的技巧，上完好像就可以上台演講了，原來一個好的演講，背後要不厭其煩地處理任何小細節，的確如張醫師所說的“魔鬼藏在細節中”。

Kenote 2. 介紹進一步的技巧及 Dr. Kokich 的十大演講秘訣。

Kenote 3. 介紹構圖美學的概念，並介紹蘋果電腦總裁 Steve Jobs 的演講秘訣。

上完三堂課，覺得抓住了很多東西，額外的收穫是張醫師演講常用的配樂和小道具，都灌電腦裏，以後隨時可“借用”，頗為方便。



林伯璣 醫師, Ilan, Taiwan

5 The International Workshop

Current and Practical Orthodontic Technique

“I feel so relieved and satisfied after attending the workshop. The current and practical orthodontic techniques demonstrated in the workshop will assist me in solving those complicated problems of many patients that seemed unsolvable in the past.”



Dr. Kittichai, Bangkok, Thailand

6 The International Workshop In-clinic Chair-side Learning

“At first I thought I might benefit from this course more or less. My expectation was not high because I never attended Dr. Lin and Dr. Chang’s lecture before. After attending this 3-day course I found that this course very useful. The lectures were so informative not only about OrthoBoneScrew placement but also treatment plans. The in-clinic chair-side learning allowed me to observe closely how to use OrthoBoneScrew and how the clinical management was in action. Thanks to Dr. Lin, Dr. Chang and all of their staff.”



Dr. Kamon, Bangkok, Thailand

7 The International Workshop Clinical Management Tips

“It’s so amazing. I was so glad to be part of this study group. I learned a lot of clinical management tips and saw many amazing cases using OrthoBoneScrews in ways I have never seen before.”



Dr. Pradit, Bangkok, Thailand



Newton's A

金牛頓藝術科技

夏、秋季課程

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	7/5, 8/9, 9/6 (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	7/12, 9/13 (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	7/19, 8/23, 9/20 (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	7/26, 8/30, 9/27 (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	7/31, 8/31, 9/18 17:15 ~ 18:00	樂於嘗試生活科技應用者
專業簡報	Keynote簡報法 series 2 Dr. Kokich的十大秘訣	1. 多媒體簡報製作 2. 簡報演練	07月31日 (四) 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	08月31日 (日) 09:00~17:00	科技人、醫師、教師、學生
專業簡報	Keynote簡報法 series 1 簡報聖經	Keynote入門	09月18日 (四) 09:00~16:00	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	8/16~8/17	國一至高三學生
矯正新知 分享活動	Damon Study Group 西班牙心得	1. 矯正新知分享 2. 蘋果科技在牙科上的應用	09月07日 (日) 10:00~16:00	牙科醫師、助理
International	Effective Keynote Presentation Workshop	Keynote	2008/9/29	Orthodontists
International	Damon & OrthoBoneScrew Workshop	1. Damon System 2. OrthoBoneScrew	9/30~10/2	Orthodontists

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

The Dream Screw for Next Generation's Orthodontists

OrthoBoneScrew



Easy Application

- Allow self-drilling with no machinery tools

Revolutionized Design

- Adopts square hole (0.018X0.025-in) to fit rectangle wires

Enhances Strength

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

Economic Cost

- Half of the price of compatible products in the market

OrthoBoneScrew

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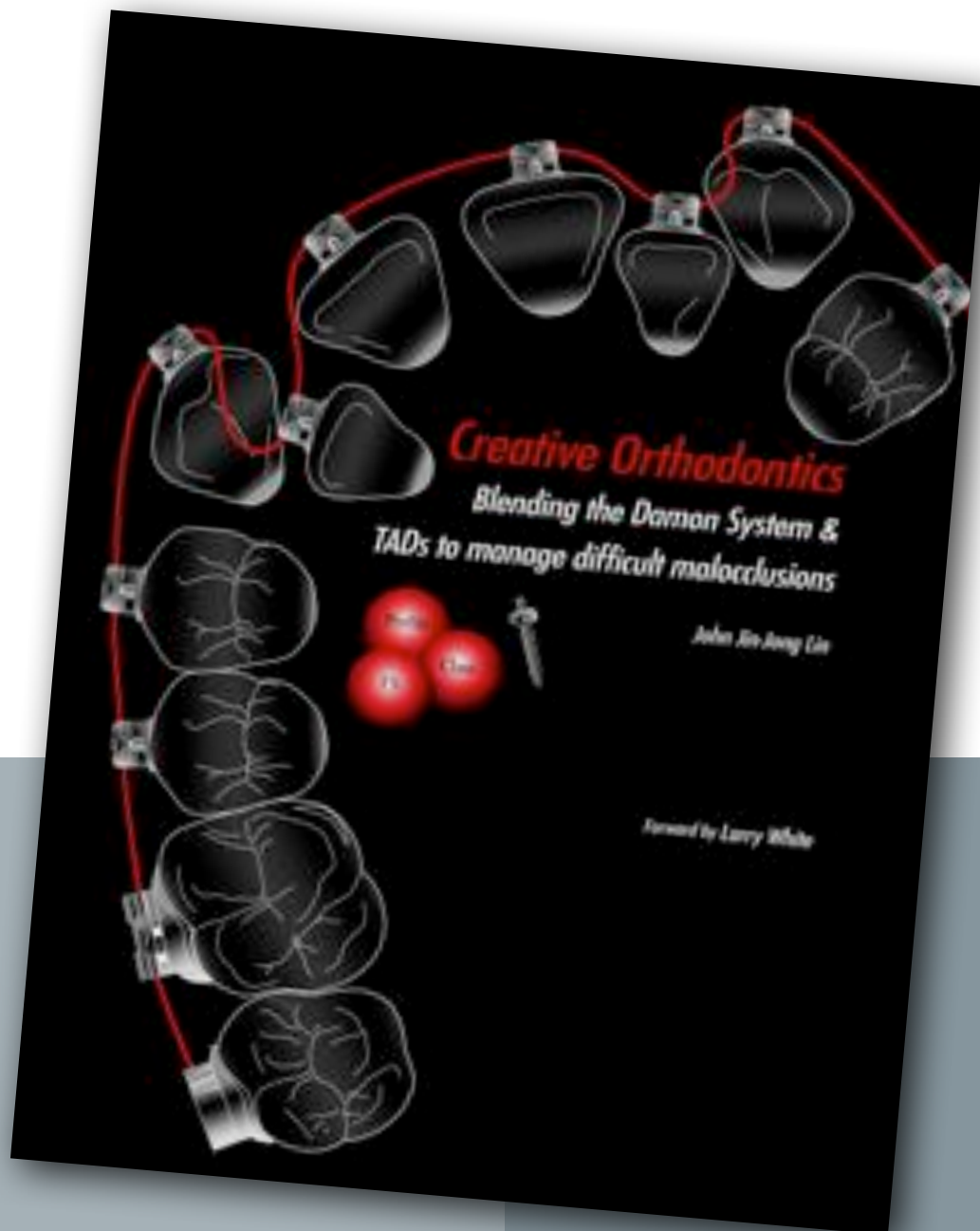
diameter	length	number
1.5 mm	8 mm	OBS 1508
2 mm	8 mm	OBS 2008
2 mm	10 mm	OBS 2010
2 mm	12 mm	OBS 2012

<http://orthobonescrew.com>

Contact: info@orthobonescrew.com

“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 (second from the left, first row) at the 2008 Beethoven International OrthoBoneScrew and Damon Workshop