MEMBERS OF THE KESLING & ROCKE GROUP RECEIVE OFFICIAL NOTIFICATION OF BRAZILIAN TIP-EDGE ASSOCIATION, PAGE 5.

TIP-EDGE® TODAY

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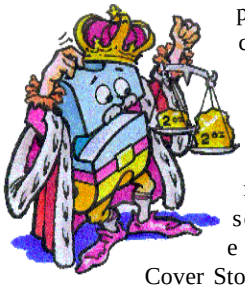
R. POWERS AND DR. VIV BURGESS OF ADELAIDE, SOUTH AUSTRALIA (CENTER) AND (L-R) DREW KESLING, PRESIDENT OF TP AND DRS. CHRIS AND PETER KESLING DURING VISIT TO ORTHODONTIC CENTER.

WINTER 1998-99

EDGELINES

HIS MAJESTY ONLY REQUIRES TWO OUNCES–

Design of the Tip-Edge bracket permits change from two ounces, but desired force is sometimes elusive, Cover Story.

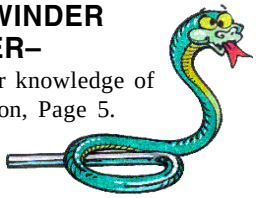


STOP PLIERS REDUCE INVENTORY–

Crimpable Hooks firmly grasp V-bends in pre-formed archwires, Page 3.

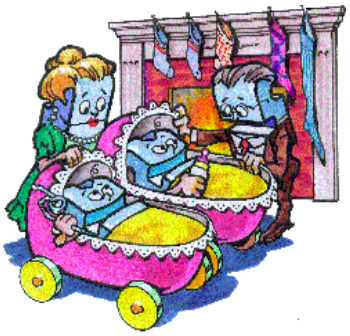
SIDE-WINDER TEASER–

Test your knowledge of their action, Page 5.



TIP-EDGE GRAPHIC

THE TWINS' FIRST CHRISTMAS



"Look, Mother! The twins have even broader smiles than Tippy. They may be bigger than he is in ten years!"

COVER STORY

Majesty of Tip-Edge and The Elusive Two-Ounce Force

By Peter C. Kesling, D.D.S., Sc.D.

The continuous application of relatively light intermaxillary traction in concert with appropriate archwire pressures against attachments that can differentiate between anchor teeth and those to be moved, results in what has been described as the "Majesty of Tip-Edge."[1]

The design of the Tip-Edge archwire slot creates anchorage potential in every tooth in the anchorage arch.[2] In this manner it is easy to correct either Class II or III malocclusions, as compared to conventional edgewise appliances that create anchorage in every tooth, Figure 1.

In deep bite cases archwire forces cause the anchor molars to temporarily elevate ever so slightly while reciprocally intruding the anterior teeth. This results in the rapid elimination of anterior tooth contact and interferences. The addition of two ounces of intermaxillary force can begin the simultaneous distal/lingual tipping of the anterior teeth or an entire dental arch.

In openbite cases the same two ounces of intermaxillary force can cause the anterior bite to close when applied together with archwires with minimal or zero anchorage bends. In the absence of strong bite opening bends, the vertical components of force on the anchor molars from the elastics can be overcome by the forces of occlusion. Yet, the anterior vertical force from these same elastics can, in the absence of opposing archwire pressures, close the openbite.

To date, the only satisfactory means of applying two ounces of intermaxillary force is through the use of latex elastics that are placed and removed by the patient. However, even with excellent cooperation and "two-ounce" elastics, the forces may not be proper.

Too Little Force

When the force of Class II or III elastics is below one ounce, it may not be sufficient to open the bite and/or make necessary anteroposterior interarch corrections.

A significant part of rapid bite opening is the slight, though temporary, elevation of the anchor molars. This, of course, is one of the reasons it is so important to always have opposing anchor molars in occlusion. Without two ounces of intermaxillary pull, the vertical component of force on the anchor molar may be too light to cause the necessary elevation against the forces of occlusion.

Please see COVER STORY next page

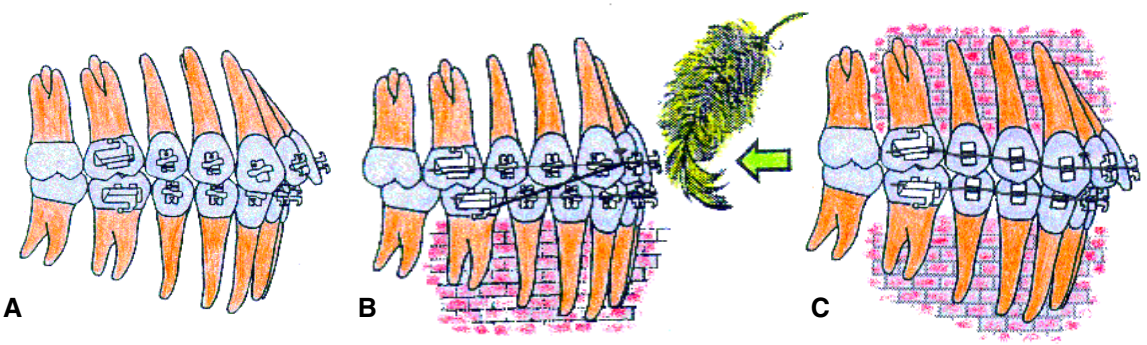


Figure 1 A-C. A) Tip-Edge brackets in place on a Class II malocclusion. **B)** The addition of archwires and two ounces of intermaxillary force sets up anchorage in the mandibular arch while the maxillary teeth are easily retracted to achieve a Class I occlusion. **C)** Conventional edgewise brackets and archwires cause every tooth to become an anchor tooth.

COVER STORY

Two-Ounce Force . . .

Continued from page 1

The horizontal force vectors at each end of the elastics will also be reduced. The resulting force may not be enough to overcome posterior occlusal interferences and lip or tongue pressures between the anterior teeth—even if there is no direct anterior tooth-to-tooth contact. Therefore, desired Class II or III corrections will not occur or may be delayed which could result in longer treatment time and/or loss of anchorage—especially in extraction cases.

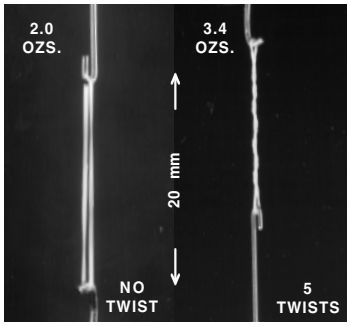


Figure 2. Untwisted 5/16″ light elastic (left) pulls 2.0 ozs. when extended 20 mm. When twisted 5 times, pull increases to 3.4 ozs. (right).

Too Much Force

If for some reason forces exceed two ounces, there is the possibility of moving anchor teeth mesially or, in the case of intermaxillary use, the excessive eruption of anchor molars and/or extrusion of anterior teeth.

Such excessive forces can be caused by the patient wearing the wrong elastics or "doubling" or "tripling" up to make up for poor cooperation in the past. The solution to this problem is, of course, patient education and continued reinforcement of the need to follow wearing directions "to the letter."

If the patient twists the elastics more than once or twice, the pull can be dramatically increased, Figure 2A&B. Further tests indicate that twisting 15 times causes the force to *decrease.*

However, another cause for excessive elastic force can be due to misleading labeling of elastics by the manufacturers themselves.

For some reason it has long been the custom to identify elastics by their diameter, thickness and the force exerted when stretched twice their diameter.

The problem is that when stretched further, as is usually the case in the mouth, the force progressively rises.

Elastics, both intra and interarch, are normally stretched approximately twenty millimeters. This can result in elastics that are labeled as "Two Ounce" actually pulling 4 or more ounces, Figure 3.

The only way to ensure the desired pull with *any* elastic is through the use of a tension gauge. When attempting to measure forces in the two ounce range, a four ounce gauge is required for accuracy. A sixteen ounce gauge is not nearly as accurate with low force values, Figure 4.

"TWO OUNCE" Elastics Extended 20 millimeters:

	SIZE	FORCE	SIZE	FORCE
American	1/8″	4.8 oz.	3/16″	3.4 oz.
Ormco	1/8″	3.4 oz.	3/16″	2.5 oz.
RMO	1/8″	3.4 oz.	3/16″	3.1 oz.
TP	1/8″	3.9 oz.	5/16″	1.9 oz.
Unitek	1/8″	4.8 oz.	3/16″	3.4 oz.

Figure 3. Elastics labeled "Two Ounces" deliver varying degrees of force when stretched 20 millimeters. The values were determined using a Q-test machine.

Reference

1. Morein S. Tip-Edge challenges older appliances. J Gen Orthod 1996;7:No. 1.
2. Kesling CK. Differential anchorage and the edgewise appliance. J Clin Orthod 1989;23:402-409.

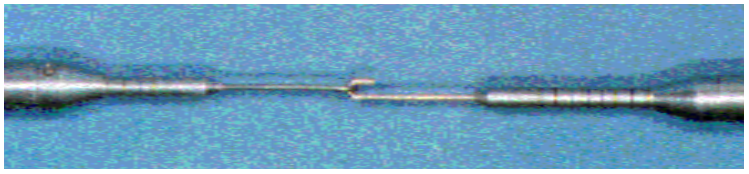


Figure 4. A four ounce and sixteen ounce Richmond tension gauge pulling against one another. The sixteen ounce gauge (at left) registers four ounces while the four ounce gauge (at right) shows the true pull of two ounces.

Q's and A's

Q. *How can I increase the torque value on the maxillary central incisors of a Class II Division 2 malocclusion?*

Richmond, ENGLAND

A. One has many choices when using Tip-Edge brackets: 1) Place Rx-III High Torque (22 degree) brackets on the central incisors and torque with Side-Winder springs against a passive, .0215″ x .028″ archwire. 2) Use Rx-I prescription brackets and place third order (torque) adjustment in the central area of the archwire. Torque with Side-Winder forces. 3) Use a .022″ round main archwire and apply torque forces solely to the central incisors via Individual Root Torquing auxiliaries or a two spur torquing auxiliary. 4) Place Tip-Edge brackets with Deep Grooves on the central and lateral incisors. At the beginning of stage three remove the caps to uncover the Deep Grooves in all four incisors. Round the edges off the ends of a 30 degree Torque Bar (those portions that engage the lateral incisor brackets) and engage in the Deep Grooves under a .022″ round main wire.

All scenarios above will result in increased torque values to the central incisors while leaving the lateral incisors undisturbed or at normal inclinations.

Q. *I have a twelve-year-old patient, with a Class II deep bite and space between every tooth anterior and posterior. Should I put molar stops in the archwires?*

Tempe, ARIZONA

A. Molar stops can be placed that will allow some space closure. These are called "anticipated molars stops." That is, anticipate that the molar stops will hit the molar tubes just before all the spaces are closed.

Q. *I have been in stage one for several months but still need 2 to 3 millimeters to move the maxillary left lateral incisor into the archform between the canine and central incisor. I have 2 to 3 millimeters between the premolar and molar on the opposite side of the arch. What should I do in order to get the lateral into position efficiently without losing space?*

Beverly, MASSACHUSETTS

A. A plain archwire with no circles could be made and shaped to the arch with molar stops. Place a coil spring on the wire between the canine and central incisor to open space. Power pins could also be placed in the canines for Class II elastics. Tie the lateral to the archwire with elastic thread. Also, a loop wire could be fabricated with loops on either side of the lateral incisor and molar stops, etc.

Using Crimpable Hooks with Round Archwires

Until recently the use of Crimpable Hooks has been limited to rectangular archwires due to the tendency for the hooks to rotate around the archwire when crimped to round archwires. Through a minor archwire modification it is now possible to successfully utilize Crimpable Hooks on round archwires, Figure 1.

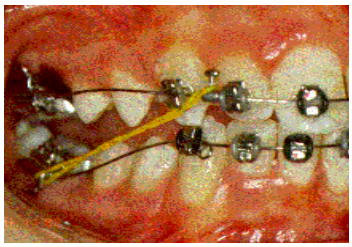


Figure 1. Intraoral photo showing Class II elastic engaged on Crimpable Hook on .016″ high tensile archwire.

A small V-bend is placed in the archwire where the hook is to be located, using TP's Stop Pliers, Figure 2.

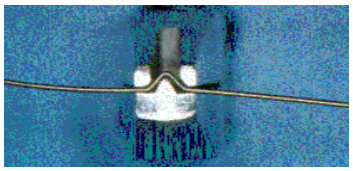


Figure 2. Stop Pliers (TP100-165P) automatically form a 1 millimeter high V-bend (illustration approximately 2X).

The V-bends should be placed horizontally in the archwire with their "points" directed lingually, Figure 3.

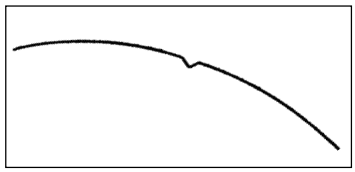


Figure 3. V-bend formed in .016" wire points to lingual (actual size).

After the bends are placed, Crimpable Hooks are firmly crimped into place directly over the V-bends, Figure 4.

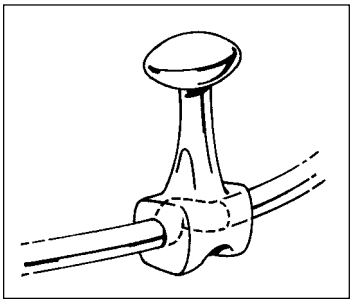


Figure 4. Crimpable Hook locked in place over the .016" round archwire. Note the V-bend is directed lingually.

When placed in this manner, hooks can be locked in place as firmly as possible with rectangular archwires.

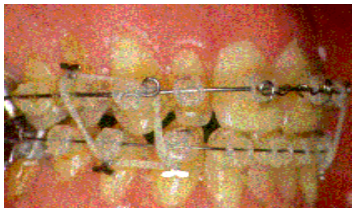
The ability to use Crimpable Hooks with round wires can significantly reduce inventory, since it is not necessary to stock complete kits of preformed Tip-Edge archwires in various sizes. All that is needed are maxillary and mandibular .016″ and .022″ plain, preformed high tensile, stainless steel archwires (such as TP's Original Premier Plus). This allows those first getting started with the Differential Straight-Arch® Technique to begin treating patients without having to stock an inventory of multi-sized preformed archwires.

CASE REPORT

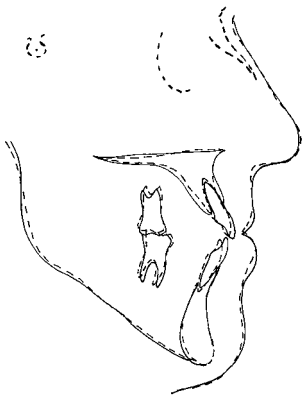
The patient, a Class I, 43-year-old male, presented with extreme crowding in both arches. The maxillary laterals were short and narrow. The maxillary premolars and first molars were in mild crossbite and there was an anterior openbite. A diagnostic set-up confirmed that because the maxillary laterals were narrow, extraction of the mandibular right central incisor would yield a good occlusion. The maxillary centrals would be shortened with a disc. Due to the patient's age, no rapid maxillary expansion was planned. Many teeth showed severe erosion.

The mandibular right central incisor was extracted. TP MXi Tip-Edge brackets were placed on all teeth. Nickel titanium archwires (.014″) were used to level the anteriors. They would later be replaced with .016″ stainless steel archwires and crossbite elastics.

Wide maxillary and constricted mandibular .022″ archwires with the aid of crossbite elastics corrected the crossbite. An anterior box elastic worn as much as possible closed the anterior openbite.



In order to "sock in" the occlusion, a .014″ nickel titanium mandibular archwire was placed to allow vertical occlusal adjustment. Power pins were placed through the vertical slots and posterior box elastics were placed. Invisible Side-Winder springs uprighted the maxillary centrals.



W.L. ..... Male, 43 Years
Extraction LR1
Archwires Used 6 (3U, 3L)
Adjustments ..... 15, **Time:** 17 Months
Retention ..... Maxillary Retainer
Mandibular 3-to-3

Cephalometric Changes:

	Start-Dotted	Finish-Solid
1 A-Po	+3 mm	+5 mm
Wits	–3 mm	0 mm
SN-MP	44.0°	44.5°
SNA	77.0°	76.0°
SNB	77.0°	76.0°
ANB	0.0°	0.0°
1-SN	102.5°	105.5°

Letters to the Editor . . .

Dear Editor:

I am writing with respect to the Summer edition of *Tip-Edge Today*. I found the cover story a most interesting and timely article as it covers precisely the main area we wish to emphasize in our course in October this year with Richard Parkhouse. However, if I may be so bold, I would like to suggest that there may be an omission with respect to the advantages of a round wire Stage III.

I refer to a subject that has been dear to my heart for many years, namely the ability of the . . . Tip-Edge appliance to individually and differentially torque teeth. I always emphasize the advantages of being able to overtorque teeth if desired for final stability and to easily individualize the amount of torque on particular teeth. An example of this would be the overmovement of a palatally impacted upper canine or a lingually displaced lower incisor. In addition, upper central incisors sometimes require differing degrees of torque for the optimum long term result.

Dr. Colin Twelftree
Warradale, SOUTH AUSTRALIA

An excellent point. Round archwires would be the choice when wishing to overtorque teeth with auxiliaries. We shall add it to our list and see that it works its way into the next printing of the TIP-EDGE GUIDE.

THE EDITOR

Dear Editor:

As a Begg, now Tip-Edge, practitioner of some 30 years, I have to disagree with the rescue treatment mechanics suggested for the lingual dumping of lower anterior teeth during stage one in *Tip-Edge Today*, spring 1998.

The problem of lingual dumping of lower anterior teeth is inherent to differential tooth movement and whilst a problem it is in fact the paradox that is its greatest advantage. This is the **inherent anchorage potential** which enables cases which otherwise would be treated with extraction to be treated nonextraction.

I feel the mechanotherapy to resolve this difficulty should not be based on uprighting springs but rather on coiled springs between the cuspids and the first permanent molars and driving the anterior segment forward again.

The most important point to observe in extraction cases with the Tip-Edge Technique is that the incisor relationship is not overretracting through lingual movement of the lower anterior teeth which are tipping lingually rather than coming back from a labial position to a vertical overbase upright position.

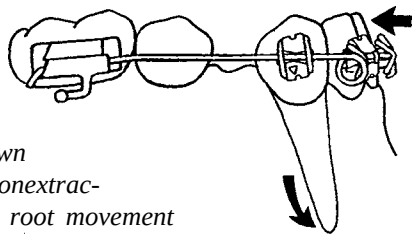
The solution to the problem is to avoid it in the first place by better diagnosis of the lower anterior segment in relation to the extraction site. The need to extract in the lower arch is far less than is generally considered and the need to extract the first premolars should only be contemplated in cases where the lower anterior segment is proclined and there is severe to extreme lower arch crowding or a gross bimax protrusion.

In general, lower anterior segments which are vertically placed or tend to have a slight lingual lean should be treated nonextraction almost irrespective of the degree of crowding. When the lower anterior segment is vertical but some crowding, the case can still be treated nonextraction with proximal stripping in the lower arch.

The important law to remember with the Tip-Edge brackets and the Differential Straight Arch Technique is that **there is an inbuilt anchorage potential within the technique and especially in the lower arch which has its natural tendency in a nonextraction and especially an extraction** case to retract the lower anterior segment in stage one and especially in stage two.

Iain Edwards
Bondi Junction, AUSTRALIA

The use of coil springs would certainly stop and possibly reverse lingual crown tipping. However, if the case were misdiagnosed as suggested, or one of congenitally missing teeth, they would also prevent the posterior teeth from moving mesially, which surely would be desired. For this reason, uprighting springs were suggested.



Also it was pointed out in Spring of '98 that what often appears to be distal crown tipping of canines (even in nonextraction cases) is actually mesial root movement during intrusion. Uprighting springs would seem to be the obvious source of corrective forces if this were the case.

However, we certainly agree with Dr. Edwards concerning the need for an enlightened diagnosis considering the amazing anchorage potential that is inherent in differential tooth movement.

THE EDITOR

Removal of Invisible Side-Winder Springs

Due to the small, right angle hooks on the ends of Invisible Side-Winder springs, they are more difficult to grasp with pliers to disengage from archwires than the larger loop hooks of regular springs. A method of spring removal is possible that avoids the need to grasp the end of the arm altogether.

First the elastomeric ring is removed from the bracket, archwire and spring assembly. The round beak of a light wire pliers is then inserted into the coil of the spring. While squeezing the handles of the pliers firmly, the coil is moved occlusally, Figure 1. This slightly activates the arm as the vertical leg is withdrawn from the vertical slot. A slight rotation of the pliers toward the arm, Figure 2, frees the end of the leg from the slot and lifts the arm away from the archwire. In this manner an Invisible Side-Winder spring can be easily and safely removed.

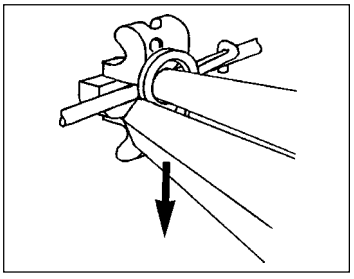


Figure 1. Entire spring is moved incisally by grasping the coil.

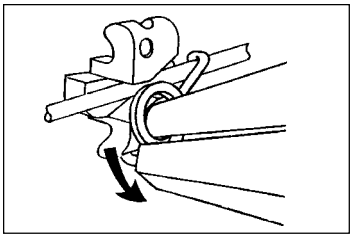
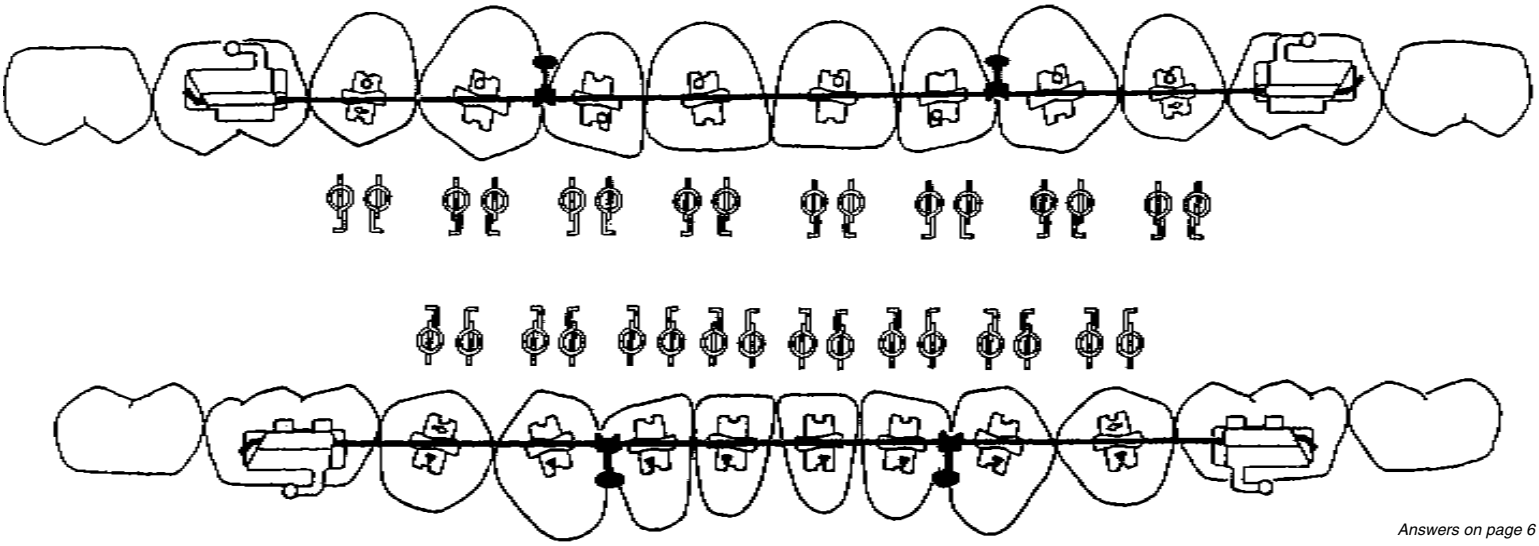


Figure 2. As the leg of the spring is withdrawn from the vertical slot, the pliers are rotated toward the arm for easy removal.



Answers on page 6

Tip-Edge Teaser

On the illustration above circle the proper invisible Side-Winder spring for each tooth to begin stage three of this four premolar extraction case to achieve not only the necessary mesial or distal uprighting but also to provide:

A. Labial root torque of the maxillary lateral incisors.

B. Labial torque to the lingually positioned root of the mandibular left lateral incisor.

C. Palatal root torque of the maxillary central incisors.

D. Labial torque to the palatally positioned root of the maxillary right canine.

The archwires are full size (.0215″ x .028″) stainless steel with no modifications except for slight bite sweeps to maintain anterior bite opening.

Japan Tip-Edge Society–14th Meeting

The 14th national meeting of the Japan Tip-Edge Society was held August 9th with over 70 in attendance. The President, Dr. Kuniaki Miyajima, reported the Society now has over 300 members, and meets twice a year (summer and winter). The next meeting is scheduled for February 11th, 1999 in Tokyo. Dr. Miyajima has also presented a "Class III and Openbite Tip-Edge Typodont Course" which has been well received by many orthodontists in Japan.

European Begg Society Meeting

The European Begg Society of Orthodontics will hold its 19th Congress in Stockholm, Sweden Wednesday through Sunday, May 26th-30th, 1999. The scientific program will begin on Thursday morning with Dr. Richard Parkhouse of Wales presenting the Begg Memorial Lecture. Doctors Tom Rocke and Chris Kesling will present "The latest in Tip-Edge from Indiana." Many others from around the world will share their knowledge and experiences with various techniques and appliances.

These include Doctors Brian Lee, Hans Booy, Tore Asen, Girish Karandikar, Thor Henriksson, Ewa-Carin Ekberg, Rolf Lindman, Anil Malik, Birgitta Nelson, Tom Weinberger, Staffan Segerdahl, Paul Hagglund, Sabine Ruf, Javier del Valle, Sverker Toreskog, Lars Bondemark, and Jonathan Sandler. Also speaking will be Professors Hans Pancherz, Jim Moss, Juri Kurol and Urban Hagg.

The social program will include a steamboat voyage in Stockholm, a visit to the Vasa Museum and a one day post-congress tour of the old Viking settlement, Birka.

New Brazilian Tip-Edge Association

Doctors Tom Rocke and Peter Kesling receive copies of the Statute (translated into English) for the Brazilian Tip-Edge Association from the President, Dr. Jorge Catarcione (center). The Association was officially organized on August 21, 1998 and will help increase the use of Tip-Edge throughout Brazil through Congresses and courses. The 3rd edition (3rd printing) of the TIP-EDGE GUIDE is also being translated in Portuguese under the direction of Dr. Catarcione.

Mr. Luis Carlos Abbud (right), Principal of Faculdade de Odontologia de Nova Filburgo-RJ, officially incorporated the Differential Straight-Arch Technique utilizing Tip-Edge brackets into the curriculum at the University.

Kesling and Rocke Group Presents Fall Course

Thirty-three orthodontists from Brazil participated in a Tip-Edge course held at the Orthodontic Center in Indiana on September 17th-19th, 1998. Dr. Moyses Almeida interpreted for the attendees. On the last day of the course the group was joined by orthodontists from the U.S., Canada and France.

Participants of the Fall Tip-Edge Course held at the Orthodontic Center.

Tip-Edge In Dominican Republic

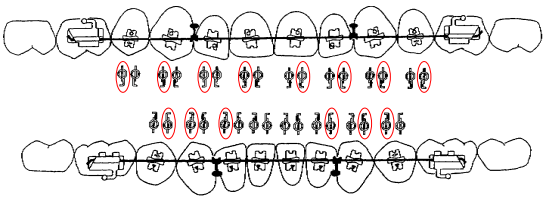
The first comprehensive continuing education Tip-Edge course was offered in November in San Pedro. The instructor was Dr. Chanda Kale and the course was organized by Dr. Michael Flores.

This course was unique since this was the first time such an educational program was offered in the Dominican Republic. It was a huge success with 35 participants, some of them driving 200-300 miles to the city of San Pedro.

The course will be expanded this November 1998 to include new students and a similar course is to be offered in the capital, Santa Domingo. Most students have already started treating cases using the Tip-Edge system and are thrilled with their results.

Staff and students at Tip-Edge course held in San Pedro, Dominican Republic.

Answers to Tip-Edge Teaser on page 5:



A. Simple placement of Side-Winder springs to move the maxillary lateral incisor roots distally will also torque them labially because the archwire is rectangular and the brackets have been bonded upside down.

B. Since a full size, mandibular archwire is in place, the lingually inclined root of the left lateral incisor will automatically be torqued labially as its root is moved distally by the counterclockwise Side-Winder spring.

C. The power from Side-Winder springs alone acting against the rectangular archwire will cause the torque built into the brackets on the maxillary centrals to express itself. Remember, space along the archwire is necessary for both the uprighting and torquing of these teeth.

D. The upper and lower inner surfaces of the Tip-Edge archwire slot will close against the rigid, .0215″ x .028″ archwire as the root of the maxillary right canine moves distally. This will cause the root to also torque *labially* toward the -4 degrees inclination built into the base of the bracket.

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