

DR. RICHARD PARKHOUSE'S THREE-TOED SLIPPERS (LEFT) QUALIFIED HIM FOR A RIDE ON THE DISABLED CHAIR DURING COURSE IN LONDON, PAGE 4.



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FIRST YEAR RESIDENT STUDENTS FROM ST. LOUIS UNIVERSITY AND DRs. CHRIS AND PETER KESLING DURING RECENT COURSE AT ORTHODONTIC CENTER.

SPRING 1999

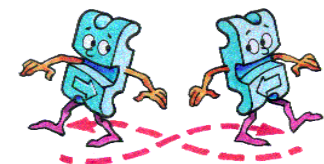
EDGELINES

OBJECTIVES CHANGE, RESULTS THE SAME:



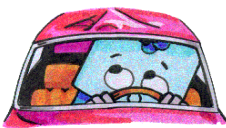
Time and experience have changed the sequence of treatment objectives, Cover Story.

REVERSING BRACKETS—THAT'S A SWITCH



Case in point stresses the importance of changing second premolar brackets, Page 2.

TWIN TIP-EDGE NEEDS MORE HEAD ROOM



Increase in width of Twin Tip-Edge brackets calls for lower positioning, Page 3.

TIP-EDGE GRAPHIC

ADJUNCTS USED WITH TIP-EDGE BRACKETS*

| | |
|------------------------------------|-----|
| Rapid Maxillary Expansion | 8% |
| Functional/Herbst Appliances | 11% |
| Extraoral Anchorage | 15% |
| Extraoral Vertical Control | 15% |
| Two-Phase Treatment | 21% |

*As a percent of total patients treated.

Data based on survey of orthodontists using Tip-Edge brackets and the D.S.A.T.

COVER STORY

Objectives Change With Time

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

Since the introduction of Tip-Edge brackets and the Differential Straight-Arch® Technique over ten years ago, the objectives of the early stages of treatment have changed. This has occurred as orthodontists around the world have gained more appreciation for the varied tooth moving capabilities and superb anchorage possibilities that lie within the ever-changing archwire slot.

There has been a continual reduction in the number of tooth moving objectives in stage one and a corresponding increase of those in stage two. The result is a reduction in overall treatment times of some malocclusions—especially those having extractions, as stage two and posterior space closure begins sooner.

The objectives of the first stage of Differential Straight-Arch treatment are now just three:

1. Align anterior teeth to eliminate crowding or spacing.
2. Vertical correction of deep or open anterior bites.
3. Horizontal correction of anterior over or underjet.

Of course, other tooth corrections may be commenced at the start of treatment, but need not be completed before the beginning of stage two. These include premolar rotations (except in

deep bite cases) and the correction of posterior crossbites through bilateral crossbite elastics and expanded or constricted archwires. The important point

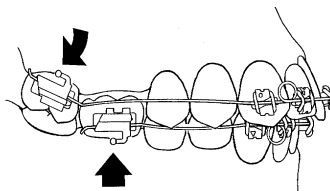


Figure 1. Maxillary second molar can tip distally and super erupt under the influence of the anchor bend. Mandibular anchor molar is free to erupt from the side effects of the bite opening bend and the Class II intermaxillary elastic. TIP-EDGE GUIDE 3rd Ed., third printing. Courtesy Two Swan Advertising, Westville, IN.

to remember concerning posterior occlusion during stage one is that opposing molars must be in occlusion—crossbite or not. If such molars do not occlude, one or both may super erupt from bite opening and/or elastic forces. This results in treatment complications and delays, Figure 1.

Vertical looped archwires are now delegated to alignment of anterior teeth in nonextraction cases only. When posterior spaces exist, even the severest of an-

terior crowding can be easily corrected by nickel titanium auxiliaries, elastomeric ties to plain archwires or in selected cases, the power tipping of canines distally.

Stage two now has seven objectives—some picked up from stage one, others new.

1. Close remaining posterior spaces.
2. Correct or maintain dental midlines.
3. Correct posterior crossbites.
4. Achieve Class I molar occlusion.
5. Overrotate severely rotated premolars.
6. Level anchor molars (if tipped distally).
7. Maintain all corrections of anterior teeth achieved during stage one.



The direct attention now paid to dental midlines is the most

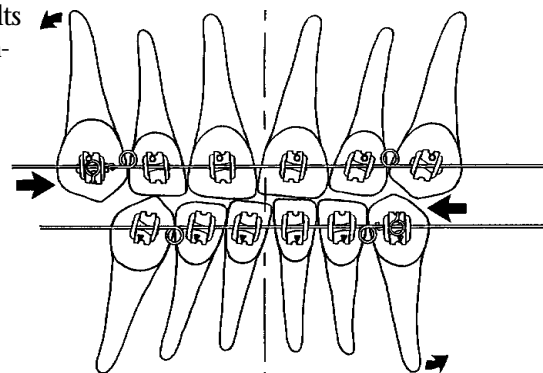


Figure 2. Counterclockwise Side-Winder springs applied to the maxillary right and mandibular left canines to correct dental midline discrepancy. TIP-EDGE GUIDE 3rd Ed., third printing. Courtesy Two Swan Advertising, Westville, IN.

Please see COVER STORY next page

COVER STORY

Objectives Change . . .

Continued from page 1

significant new objective to be addressed in stage two. Usually midline discrepancies are caused by imbalanced distal tipping of mandibular canines, Figure 2. If left unattended during posterior space closure, the result can be a Class II molar tendency on one side and a Class III on the other. By the appropriate application of Side-Winder springs to the mandibular canines, their degrees of distal crown tipping can easily be harmonized. This in turn varies the rates of posterior space closure on each side to help ensure Class I molar occlusion at the end of stage two. Subsequent changes in the midline during stage three are reduced or eliminated because the degree of root uprighting on either side of the dental arch is balanced.


The objectives of stage three remain the same:



1. Achieve final axial inclinations of all teeth.
2. Maintain all corrections achieved during stages one and two.

Even though the objectives have not changed, the means of

achieving root torque during stage three are more varied and with rectangular archwires nearly automatic. The original two and four spur torquing auxiliaries are now delegated mainly for use in cases requiring excessive degrees of torque. With the gradual appreciation for the vast inherent anchorage potential of the Differential Straight-Arch Technique, such cases are extremely rare. Extractions are indicated in fewer cases (less than 30-35 percent) and when required, tend to occur further distally—second premolars rather than firsts.

Torquing requirements, therefore are, in general, less and can be taken care of easily and more aesthetically by IRT's, Torque Bars and, when using rectangular archwires, by the Side-Winder springs themselves. 

Note: All of the changes in objectives mentioned above as well as how each is achieved are covered in the 235-page 1998 third printing of the 3rd Edition of the *Tip-Edge Guide*. Also included are Dr. R. Parkhouse's latest chapter on finishing with rectangular archwires as well as appliance improvements, reprints, Q's & A's and case reports. To order, call:

1-800-TIP-EDGE

X-rays Reveal Importance of Reversing Second Premolar Brackets

It is well known that the design of the Tip-Edge archwire slot permits crown tipping in one direction (usually distal) and provides final crown tip control in the other. There are no decisions to be made when selecting brackets for the anterior teeth—each is designed to allow distal crown tipping.

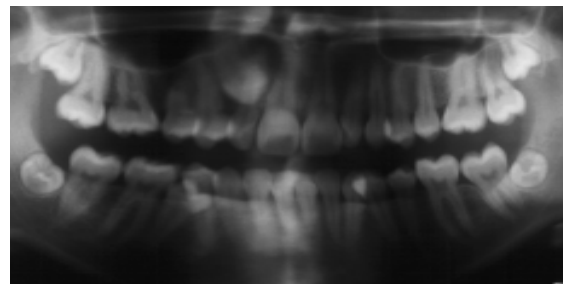
However, premolar brackets are manufactured to permit either clockwise or counterclockwise crown tipping. When brackets are packaged in nonextraction kits, all the premolars are designed to permit distal crown tipping. This could cause a problem if such a kit of brackets were used by an inexperienced operator on a patient having the first premolars removed. Such a situation existed recently during treatment by a graduate orthodontic student.

All students were supplied with nonextraction kits of Tip-Edge brackets and instructed to switch the second premolar brackets left to right if their treatment plans called for the removal of first premolars. The case in point had considerable crowding with an impacted maxillary canine and mandibular second premolar on the right side. The maxillary and mandibular first premolars were extracted, but the student forgot to make the switch of the maxillary second premolar brackets.

The patient was later placed into stage three with a .022" round mandibular and .0215" x .028" maxillary archwires. Side-Winder springs were placed as would be appropriate for a first premolar extraction case. At approximately the same time the patient discov-

Continued on page 3

Figure 1. At the beginning of treatment the maxillary second premolars were upright. The treatment plan included the extraction of the four first premolars.



Q's and A's


Q. I am about 6 months into a four first premolar extraction case and have been waiting for the cuspids to erupt. Now they are bracketed—maxillary spaces are almost closed and the profile looks much better. The overjet has reduced to approximately 4 millimeters but the extraction sites in the mandibular arch are still quite open. I would like to see more anteroposterior correction, resolution of overjet and closure of spaces. Should I engage the premolars? Could I use a very light E-Link force in the mandibular arch to speed space closure? He seems to be a decent elastic wearer.

Greencastle, INDIANA

A. You are doing well—so far so good. When you are trying to achieve the corrections you want, a decent elastic wearer won't make it. Elastics must be worn 24 hours a day and be 2 to 2.5 ounces of measured force. Many times the spaces in the upper close faster than the lower—dense mandibular bone—maxillary space being used up by anterior retraction and so on. Make sure the anchor bends are in the right plane. Don't place E-Links in the mandibular arch, the anteriors will tip lingually and compound the overjet—you don't want that.

Q. I have a patient who requires the extraction of four premolars to correct his malocclusion. The maxillary second premolars are very small both mesiodistally and occlusogingivally while the maxillary first premolars are large and well formed. I would like to extract the maxillary second premolars but the first molars are in a full step Class II relationship. I am concerned that I will have a difficult time holding the molars distally during treatment. Will I have to modify my treatment mechanics or use extraoral forces to correct the Class II molar relationship if I opt for the extraction of maxillary second and mandibular first premolars?

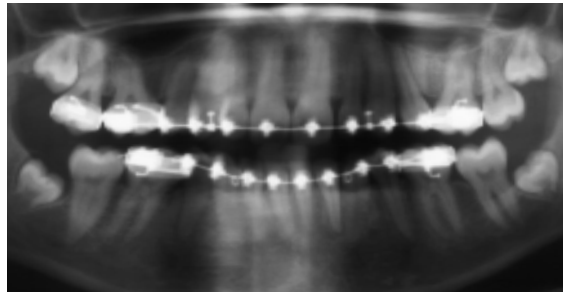
New York, NEW YORK

A. During Class II Differential Straight-Arch treatment the maxillary molars are never used as anchorage units during stage one. Since no mesially directed forces are delivered to the maxillary molars until after the overbite and overjet have been corrected, the problem of maxillary anchorage loss during Class II treatment should not be a problem—even with the extraction of maxillary second premolars. There is no need to change your treatment mechanics for this patient. By retaining the larger maxillary first premolars you will achieve a far better treatment result for this patient. 

X-rays Reveal . . . *Continued from page 2*

ered she was pregnant and requested no more x-rays be taken until after the baby was born. This precluded monitoring the mesiodistal uprighting of her teeth with a panoramic x-ray as would usually be done during or near the end of stage three. Since Tip-Edge brackets are designed to limit uprighting, it was decided to leave all springs in place during her pregnancy.

Ten months after stage three began the patient had delivered a healthy baby boy and a panoramic x-ray was taken, Figure 2. This revealed the root tips of the maxillary second premolars had been overuprighted mesially. Actually,



since the brackets were, in effect on backwards, these teeth had undergone ten months of power tipping—not uprighting at all. The solution was to reverse the Side-Winder springs, left to right, and return the roots to their proper upright positions. The only harm was that the patient had been inconvenienced by being required to wear the fixed appliances four to six months longer than might otherwise have been necessary.

The recognizing and reporting of this incident points out the importance of correct placement of Tip-Edge brackets, not just on second premolars, but on all teeth as well.

Figure 2. The maxillary second premolars were not reversed—switched from left to right. The result was the inadvertent power tipping of their roots mesially.

Twin Tip-Edge Brackets Need More Head Room

Orthodontists familiar with narrow brackets such as Tip-Edge Rx-I (or even 256) may find it necessary to reconsider bonding heights on mandibular teeth when using Twin Tip-Edge brackets. Because of their relative larger width, the cusps of the maxillary teeth may occlude with the corners of their occlusal tie wings, Figure 1A.

Narrower brackets can be bonded at 4 or even 3.5 millimeters in the mandibular arch and not have such interference because the opposing maxillary cusps can pass between them, Figure 1B. Of course, it would not be good technique to bond the premolars at lower levels than the molar tubes or anterior brackets. This would necessitate stepping the archwires down on both sides of the premolars to avoid their relative super eruption.

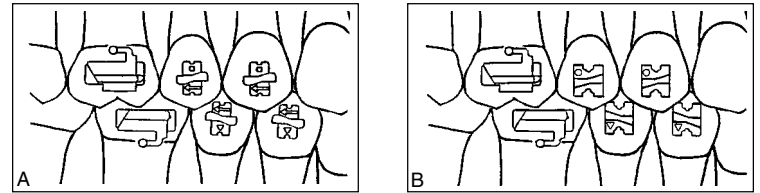


Figure 1 A & B. A) Narrow Tip-Edge Rx-I brackets can be bonded relatively high on mandibular teeth with little chance of being struck by opposing cusp tips. B) When bonded at the same height, wider Twin Tip-Edge brackets may interfere with occlusion. The solution is merely lower positioning of all mandibular attachments—molars included.

Therefore, when considering using Twin Tip-Edge brackets, the bonding level of all mandibular attachments, including molar tubes, should be adjusted gingivally. This will reduce the chance for occlusal interference and make possible the use of “straight” archwires—one of the sheer joys when changing to full size rectangular archwires for stage three in the Differential Straight-Arch Technique.

CASE REPORT

This 34-year-old female presented with a Class III malocclusion with anterior and bilateral posterior crossbites. The patient had a cleft palate which had been surgically repaired as a child. Both maxillary permanent canines were missing. The extraction of mandibular teeth was indicated to retract the incisors. Due to severe gingival recession, the mandibular right and left permanent canines were extracted. Intraoral photos taken six years after appliance removal show stability of correction achieved.



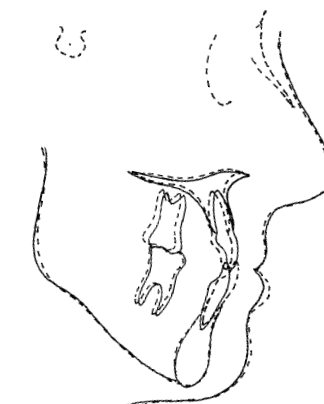
Tip-Edge appliances with .016" high tensile stainless steel archwires were placed in both arches. Coil springs in the maxillary arch create space for the premolars. The patient was instructed to wear light Class III elastics 24 hours each day.



Pre-Stage III. The premolars were braced and engaged to the archwires. Anchor bends mesial to molars were removed and replaced with bite sweeps.



Stage III. .022" high tensile archwires in both maxillary and mandibular arches. Side-Winder springs were engaged in the brackets of those teeth requiring uprighting.



S.S. Female, 34 Years
 Missing U33
 Extraction L33
 Archwires Used 4 (2U, 2L)
 Treatment Time 24 Months
 Retention Maxillary Retainer
 Mandibular Spring Aligner

Cephalometric Changes:

| | Start-Dotted | Finish-Solid |
|--------|--------------|--------------|
| 1 A-Po | +6.5 mm | +1.5 mm |
| Wits | -9.0 mm | -5.0 mm |
| SN-MP | 45.0° | 45.0° |
| SNA | 71.0° | 73.0° |
| SNB | 74.5° | 74.0° |
| ANB | -3.5° | -1.0° |
| 1-SN | 94.0° | 93.5° |

Postgraduate Centre in London Offers Tip-Edge Course

A two-day Tip-Edge course was held at the new Postgraduate Centre, St. Georges Hospital in South West London. The course was held on December 12th and 13th with 20 participants in attendance.

Dr. Richard Parkhouse of Wales was the host for this course and Professor Andrew Richardson of Belfast, Ireland assisted. The Postgraduate Centre was an excellent venue for the course with facilities that included a spacious lecture theatre, typodont room and dining room.



Dr. Richard Parkhouse (center) and Professor Andrew Richardson (fourth from the right) along with participants of the two-day Tip-Edge course held at the Postgraduate Centre, St. Georges Hospital.

Russia Update

In September 1998 Doctors Doyle Baldrige and Wayne Logan presented the 4th Tip-Edge Course at Khabarovsk State University in Khabarovsk, Russia with twenty doctors in attendance. Dr. Igor Yelistratov of Khabarovsk also assisted during the course.

Tip-Edge in South Australia

A Differential Straight-Arch Technique course in Adelaide, South Australia was an outstanding success due to the many talents of Richard Parkhouse and the support received from TP. The course was conducted on the 29th and 30th of October at the Radisson Playford Hotel in Adelaide, and was enjoyed by 47 participants, comprising specialist orthodontists and graduate students.



The boy in the front row (blue trousers) is the son of one of the participants. He seemed to understand much of what Richard was presenting and was fascinated with the typodonts! Perhaps we have a budding Tip-Edge operator of the future. This is fine evidence of Richard's communication skills.

*Prof. Wayne J. Sampson
P.R. Begg Chair in Orthodontics*

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