Dear Doctors,

I am honored to announce that Dr. Larry White has taken the helm of Clinical Impressions as its editor. With over 45 years in the profession, Dr. White offers a unique combination of skills and experience that will serve you well in providing practical ways for improving the quality of your treatment and overall practice life.

Perhaps best known as the esteemed editor of the Journal of Clinical Orthodontics for 17 years, Dr. White has many professional accomplishments. He is a diplomate of the American Board of Orthodontists and a fellow in the American College of Dentists. He is past president of the Rocky Mountain Society of Orthodontists, the New Mexico Orthodontic Society and the Texas Tweed Study Group. He serves as manuscript reviewer for the American Journal of Orthodontics, is technology and new product editor for the World Journal of Orthodontics, a contributing editor for the Orthodontic CyberJournal, and editor of the Dallas County Dental Society publication, Dateline. As editor of The Rocky Mountain Orthodontic Newsletter, Dr. White received the International College of Dentists Golden Scroll Award for the most improved dental journal in dental literature.

Dr. White has contributed more than 100 original articles to dental literature and has presented lectures to orthodontic societies, universities and study clubs in over 35 countries. He was the first director of the University of Texas Health Science Center in San Antonio Orthodontic Residency Program. He currently practices orthodontics in DeSoto, Texas. So welcome, Larry. We know that with your record of achievement, Clinical Impressions will continue to thrive under your able guidance.

Best regards,

Dan Even
President, Ormco Corporation

In Pursuit of Excellence

Larry W. White, DMD, MSD
Editor, Clinical Impressions
Dallas, Texas

Any advantage I bring to editing an orthodontic manufacturer’s journal owes itself to my daily engagement in clinical practice where I see the results of diagnosis, treatment planning and therapy. As I transitioned from private practice to academic life and back to a private setting, I have had an unusual opportunity over the past six years to work with and for several orthodontists. I have concluded that, without exception, we all face the same problems; e.g., difficulty of correcting sagittal discrepancies, changing the behavior of noncompliant patients, eliminating bond failures, placating unreasonable parents and satisfying unhappy employees. As a famous politician once said, “I feel your pain.”

I intend to rely on this shared experience as I seek articles and clinical pearls that will reduce the frustrations, satisfy the needs, and fulfill the aspirations of clinicians who simply want to do their work better. You can help me with your feedback because that offers the only evidence of whether Clinical Impressions is performing according to its purpose.

Many years ago, W. Edwards Deming developed the concept of Total Quality Control that emphasized the delivery of consistently excellent goods and services by implementing his 14 Points. More than any other person, Deming is responsible for the emergence of Japan as an industrial colossus renowned for her excellent products. By the time I got around to taking his seminars, Dr. Deming was 92, but he still had plenty of energy and enthusiasm for the subject of quality and how to achieve it consistently. We
no longer hear as much about Deming’s 14 Points, mainly because they have become such a part of the DNA of successful companies, they no longer require special courses. A few of those points have particular relevance and form the basis of his specific philosophy. I would like to share them with you.

1. **Quality is defined by the customer.** Deming said, “A satisfied customer is not enough. Business is built on the loyal customer, one who comes back and brings a friend.” Ultimately, management must anticipate whole new product categories the customer has never contemplated. For Ormco, that means envisioning, developing and marketing systems that will benefit orthodontists even though they haven’t yet asked for them.

Deming would repeatedly remind audiences that the average customer has never led an advance in the production of any good or service. No customer asked for electricity, the automobile, the camera, pneumatic tires, or the copying machine (or even the preadjusted orthodontic appliance). Real improvements must come from innovators working hand-in-glove with companies as committed as they are to improving products and services that customers will eagerly endorse.

2. **Understand and reduce variation in every process.** Deming considered variation the prime enemy of quality and felt that predictability was the cardinal virtue of any process. Mixing systems and brackets because of price advantage only increases variation and mitigates against consistent quality. Deming felt price had no meaning without a measure of the quality being purchased. Orthodontists who continually look for companies that will compete for their business on price alone will often find themselves at cross purposes with the production of excellent treatment. They would do well to work closely with companies they trust to deliver innovative and quality products and forget about the pennies they might save with a cheaper product.

3. **Change and improvement must be continual and all-encompassing and involve everyone; i.e., employees, management and outside suppliers.** The Japanese word for such a concept is kaizen. Deming often said that time alone will bring change, but continual improvement for every strategy, product and process in an organization has to have the active commitment of everyone. This premise has special relevance for orthodontists because although they can control themselves and their office personnel to some extent, they must depend entirely on orthodontic manufacturers for the instruments and systems they employ.

Ormco has committed itself to seeking alignments with the most innovative orthodontists in the world to bring clinicians and their patients products and services that can consistently produce excellent results. They make training in these systems readily available and easily obtainable by sponsoring seminars all over the world. As orthodontists seek to deliver consistently excellent therapy to their patients, they realize the need for a partnership with a company that shares that commitment. Ormco intends to be that kind of company for those doctors who seek the best.

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**In Memoriam: Dr. Ronald H. Roth**

Dr. Ron Roth, world-renowned orthodontic educator and clinician, died January 23, 2005. Dr. Roth served as adjunct and clinical professor of orthodontics at several universities and was a founder and director of the Roth/Williams Center for Functional Occlusion.

Dr. Roth’s passion for uniting facial esthetics, mechanics and function into a diagnostic regimen will remain his lasting legacy and serve as inspiration for those who now pick up the torch he lighted with his sagacity and curiosity. We wish to recognize Dr. Roth’s numerous contributions to the orthodontic profession and extend our deepest condolences to his family and loved ones.
Dr. Alan Bagden has been involved with the development of Damon System™ protocols since 2000, is coauthor of the Damon Workbook and has lectured extensively addressing groups of doctors in seminars in the U.S. and abroad. Clinicians using the System, as well as those contemplating its use, appreciate the insights to treatment mechanics he offers. From these presentations Dr. Larry White drew the questions for this interview.

Dr. White: Alan, what first prompted you to consider employing the Damon System?

Dr. Bagden: When I first saw Dwight Damon’s treated case photos, I thought they were too good to be true. I was skeptical whether it was really possible to treat patients so quickly, with so few extractions and without rapid palatal expanders. Eager to compare results from the Damon System with traditional brackets, I performed a tightly controlled split-mouth study of ten individuals with Damon brackets on one side of the mouth and traditional brackets on the other. What I found completely dispelled my skepticism. The Damon side moved teeth twice as fast as the traditional side. I decided to immerse myself with everything I could to learn more about the System, and to begin using the system on more and more patients. Within a few months, the results I saw for myself made my decision clear. This is a better way to do orthodontics.

Dr. White: You were using a conventional .018 slot bracket before converting to the Damon System, which at the time came only in an .022 slot. I’m curious about the reason you didn’t switch to the Damon .018 when it became available.

Dr. Bagden: Initial tooth movement in the Damon System is accomplished with small, light wires. I like this philosophy and, in fact, have always been an advocate of light forces. For some reason, however, I had bought into the idea that forces delivered through a small slot would be lower than those delivered through a larger one. Upon closer analysis, I learned that this is not the case. Less force is delivered with less binding and friction in an .022 slot than in an .018 slot. In a passive system, the wire-to-lumen ratio is key. And with the reduced friction and binding that results from the large lumen-to-wire ratio, teeth level and align with far more efficiency and much less force than conventionally ligated brackets. The
System is not forcing teeth into new positions, but rather allowing for a more-naturally fostered physiological adaptation.

**Dr. White:** So it is the light-force philosophy that dictates the recommended protocol for starting cases with an .014 round Copper Ni-Ti wire, right?

**Dr. Bagden:** Yes, the Damon System philosophy is predicated on light forces and minimal friction and binding. To initiate physiologically determined tooth movement, it is essential to start each case with light biologically sensible forces. Nothing larger than an .014 round Damon Copper Ni-Ti® is recommended for the initial wire. Even if there is minimal crowding, we start with this light round wire in order to gently stimulate biological cellular activity, which in turn initiates tooth movement. The challenge for most orthodontists is avoiding the temptation to use larger wires too soon.

**Dr. White:** Isn't there a new .013 round Damon Copper Ni-Ti wire now available?

**Dr. Bagden:** Yes. This lighter force wire is particularly useful with extremely crowded dentitions, periodontally compromised patients or those who have unusual sensitivity (Figure 1). I estimate using the .013 dimension as the initial wire in about 10-15% of my cases.

**Dr. White:** So I’d never want to begin a case with a wire larger than an .014 Copper Ni-Ti?

**Dr. Bagden:** Never. Whether a case is minimally or extremely crowded, .013 or .014 Copper Ni-Ti are the only wires of choice. This is a paradigm shift for many practitioners and I cannot emphasize its importance enough.

**Dr. White:** Explain the process of posterior transverse arch adaptation and how it helps resolve crowding in most dentitions without extractions, molar distalization or rapid palatal expansion.

**Dr. Bagden:** Our research indicates that when forces are not excessive and molars or bicuspids are not bound together with TPAs or lingual arches, etc., we see what Dwight calls posterior transverse arch adaptation. The additional arch width that is gained by this process produces the space required to resolve most crowded dentitions without extractions, molar distalization or rapid palatal expansion (Figures 2a-g). The positive effect on the midface is dramatic. Smiles are broader, midfaces are fuller and esthetics are ultimately improved. Dr. Tom Pitts calls this phenomenon a patient-centered term, “the magic of the midface.”

**Dr. White:** So clinicians who think of passive self-ligation as simply a way to make archwire changes more efficient and ask whether they need to change their mechanics to use Damon are missing its greatest benefits, wouldn’t you say?

**Dr. Bagden:** Yes, I would. The Damon System is just that – a system. The simple mechanics prescribed for the Damon System (what we refer to as the established protocols) have been designed to help us capitalize on all the benefits it has to offer. Using it as a bracket and not a system is like having an advanced Global Positioning System (GPS) in your car and pulling to the side of the road to use a printed map. Like learning GPS navigation, adopting Damon mechanics takes a bit of discipline, but once you get the hang of it and, moreover, learn to trust it, you can achieve superior results with far fewer appliances, fewer extractions and with more efficiency than you have ever thought possible.
**Dr. White:** What specifically do you mean when you say you’re using fewer appliances with the Damon System?

**Dr. Bagden:** One of the things that I get most excited about with the Damon System (and I know my patients and staff love this, too) is the posterior transverse arch adaptation we get without the use of rapid palatal expanders or W-arches (Figures 3a-c). I’ve seen up to 14 mm of width gain without an RPE.

In addition, the anchorage demands of the Damon System are far lower than with conventional systems; thus, we have been able to nearly abandon the use of transpalatal arches (TPAs) and Nance-holding arches. In fact, using them is a hindrance. One of the biggest mistakes I see clinicians make is binding molars together with TPAs and lingual arches, etc., which precludes the posterior transverse arch adaptation. The posterior transverse arch adaptation must not be inhibited by any of these appliances. We have also nearly eliminated compliance-sensitive functional appliances such as Twin Blocks or activators and I rarely ever need headgear. The one appliance that I now use more frequently is the Flip-Lock Herbst*, which actually gives a Frankel-type effect with the rods acting as buccal shields. The most recent designs are fast and effective. All in all, the tremendous reduction in the number and types of appliances we use has made my practice far more efficient than ever before.

**Dr. White:** I’ve heard you state that you don’t extract for space, only for the face. Could you explain that?

**Dr. Bagden:** The posterior transverse arch adaptation that we get with the Damon System almost always produces enough space to resolve crowding, even in extremely crowded dentitions. I now use profiles and lip musculature – soft-tissue criteria rather than hard-tissue analysis – as my guides in determining between extraction and nonextraction therapy (Figures 4a-b). I find using the Ricketts E-plane is particularly helpful in making these decisions. If extractions will help the profile of the patient (such as in bimaxillary protrusive cases) or extractions are needed for tooth-size irregularities, missing teeth, etc., then we’ll extract. Facial esthetics is the primary determining factor.

**Dr. White:** How would you describe the quality of the results you’re experiencing with the passive Damon System?

**Dr. Bagden:** The goal is always to deliver the highest quality care. The Damon System allows me to do that by getting cases to a place where we can detail them to a beautiful finish faster than any other system. I quantify it this way: 80% of my cases are 80% complete in 8 months (Case 1). This phenomenon gives the body ample time to reorganize itself and to allow the system to deliver the things we associate with the highest quality result: e.g., root parallelism, proper contacts, appropriate intercuspation, midline correction and proper torque.

*Herbst is a registered trademark of Dentaurum, Inc.*
CENTRIC OCCLUSION ILLUSTRATES ANTERIOR CROSSBITE.

CENTRIC RELATION

MAXILLARY ARCH FULLY BONDED. GELB APPLIANCE USED IN MANDIBLE TO DISARTICULATE THE JAWS AND CORRECT THE ANTERIOR CROSSBITE.

80% COMPLETE IN 8 MONTHS.
Dr. White: What about adult periodontal cases?

Dr. Bagden: As dramatic as it may sound, I have actually seen periodontal situations improve in the non-extraction Damon cases. By not having to move teeth great distances – as is done in extraction cases – and by maintaining incisor and canine positions, an experienced Damon practitioner can comfortably treat adult periodontal patients to great success (Case 2).

Dr. White: Do you have any specific protocol for placing Damon brackets?

Dr. Bagden: Accurate bracket placement is essential for good orthodontics and this is as true with the Damon System as it is with any other appliance. The new Damon 3 (D3) brackets are easier to position than their predecessors (Figure 5). The rhomboid shape of the D3 bracket, combined with its water-soluble Face Paint®, provides the visual cues and bracket-to-tooth contrast we need to place the brackets quickly and accurately. For the most part, positioning is the same as for an Orthos® bracket; however, I still tend to place all canine brackets about 1 mm mesial to the crown-long axis of the tooth in order to achieve the desired contact point between the laterals and canines (Figure 6). With the traditional Damon 2 brackets, I follow the same dictate with the canines, although using the bracket pad rather than the bracket itself as the guide to placement.

Dr. White: With the rapid alignment you see in the initial stage of treatment, I assume the use of archwire stops is important.

Dr. Bagden: Certainly. With so little friction in the system, initial wires are prone to shift from one side to the other. To prevent this shifting, we had been using composite or crimpable stops. Ormco has recently introduced Damon Copper Ni-Ti with stops preloaded.

Figure 6. To achieve the desired contact point between the laterals and canines, place all canine brackets at the height of contour, which is about 1 mm mesial to the crown-long axis of the tooth. The bracket on the patient’s right canine is placed correctly; the left, incorrectly.

Dr. White: What is the protocol for placing these preloaded stops?

Dr. Bagden: The stops are temporarily held in place with a sticky wax. Simply move them into the correct position, usually at the midline, and crimp them into place with a wire-bending plier.

Crimpable stops should be used on all Copper Ni-Ti wires – both round and rectangular – and should be positioned anterior to the crowding. In other words, place the stop in order to maximize the ability of the teeth to move into their desired positions without the stop adversely influencing tooth movement.

PEARL: Placing a stop anterior to the crowding does not always mean placing it in the anterior. In bilaterally crowded situations, place the stop as close to the midline as possible (Figure 7); however, if the crowding is severe on one side of the mouth and minimal on the other, I usually place the stop in the buccal segment of the lightly crowded side in order to keep the stop as far away from the primary crowding as possible (Figure 8). Doing so allows more available wire to correct the crowding.
Adult male, 44 years old, presented with severely compromised periodontal tissue in both arches. There was little tissue on the labial surface of the mandibular left central. Conventional treatment would have suggested extraction of this incisor.

The case treated to an excellent result with very light forces and without extractions. The patient’s periodontal status maintained in several areas and significantly improved in others. Both the patient and his periodontist were pleased with the result.
Dr. White: Please review the phases of treatment.

Dr. Bagden: There are three phases of treatment and, for most cases, a simple four-wire sequence.

• Start all cases with an archwire no larger than an .014 Copper Ni-Ti.
• Transition to an .014 x .025 Copper Ni-Ti (upper and lower arches).
• Transition to an .018 x .025 Copper Ni-Ti (upper and lower arches).
• Finish in an .019 x .025 stainless steel archwire in the upper arch and an .016 x .025 archwire in the lower arch.

Figure 9 depicts the three phases of treatment. Case 3 represents a patient at the end of each phase. The timing of each phase is as important as wire selection. Take special note of the guideposts for transitioning from one phase to the next.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Archwire</th>
<th>Objective</th>
<th>Duration</th>
<th>Appt. Intervals</th>
<th>Interval Comments</th>
<th>General Comments</th>
<th>Guidepost for Next Phase</th>
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<tbody>
<tr>
<td>I. Initial Light-Wire Phase</td>
<td>Damon Copper Ni-Ti .014 (U/L)</td>
<td>• Level and align. • Initiate arch development. • Resolve 90% of rotations.</td>
<td>10-20 Weeks</td>
<td>10 Weeks</td>
<td>If we have a reason to see the patient more frequently, we remove the wires, have him/her brush and we replace the same wire. Note: Always check the wire for permanent deformation and place a new one if necessary.</td>
<td>Always place stops anterior to the crowding (usually at the midline). In deep-bite cases, we use either bite turbos or posterior composite buildup to (a) keep the lower arch brackets out of occlusion; and (b) disocclude the arches to allow greater freedom of movement.</td>
<td>The case is ready for Phase II when 90% of rotations are resolved (10 - 20 weeks). Do not rush to Phase II too soon.</td>
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<td>May need .013 (U/L), depending on severity of malocclusion</td>
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<td>II. High-Tech Edgewise (Two Wires)</td>
<td>Damon Copper Ni-Ti .014 x .025 (U/L)</td>
<td>• Complete leveling and aligning. • Resolve remaining rotations. • Begin torque control and anterior space consolidation. • Continue arch development (without the assistance of RPEs or W-arches).</td>
<td>10-20 Weeks</td>
<td>8 Weeks</td>
<td>We typically use power chain to consolidate space during this phase. Because chain degrades rapidly and attracts plaque, we see our patients more frequently during this phase.</td>
<td>It is important to take a Panorex at this stage and to reposition brackets as necessary.</td>
<td>The case is ready for Phase III when all the brackets and teeth are aligned. It should be possible to insert the stainless steel wires passively. If not, the case is not ready for Phase III archwires.</td>
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<td>Followed by .018 x .025 (U/L)</td>
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<td></td>
<td>In deep-bite, div. 2 cases, we often use .017 x .025 or .019 x .025 Damon reverse curve Ni-Ti.</td>
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<td>III. Major Mechanics &amp; Finishing</td>
<td>Posted stainless steel .019 x .025 (Upper) ,016 x .025 (Lower)</td>
<td>• Finish torque control. • Consolidate posterior space. • Make buccal/lingual and A/P adjustments. • Coordinate patient-specific arch form.</td>
<td>20-40 Weeks</td>
<td>6 Weeks (Major Mechanics)</td>
<td>Since the efficiency of elastics in low-force/low-friction mechanics is so great, a case can overcorrect if the appointment interval is allowed to extend longer than 6 weeks.</td>
<td>For moderate bends and torque, we use edgewise .017 x .025 or .019 x .025 TMA®. For additional posterior lateral width, we may expand the wire slightly as necessary. For stainless steel wires, we typically copy the upper arch form from the lower. Once all spaces are closed, use elastic chain or ligature wire to ligate the anteriors together and tiebacks to avoid reopening space.</td>
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Figure 9. Damon Wire Sequence: Nonextraction treatment with mild to moderate crowding.
CASE 3

PHASES OF TREATMENT

Male, 14 years 6 months old, presented with a concave facial profile, prominent nose and chin and lack of lateral facial support. Severe lack of length and width in both arches. Upper and lower incisors tipped lingually. Upper incisors overerupted and in retrusive position relative to mandible. High, labially blocked upper canines with minimal tissue covering upper and lower canines.

END OF PHASE I – UPPER AND LOWER

DURATION 10 WEEKS: REMOVED .016 x .025 NI-TI. PLACED .019 x .025 SS.

END OF PHASE II – UPPER

DURATION 10 WEEKS: REMOVED .014 x .025 NI-TI. PLACED .016 x .025 NI-TI.

DURATION 20 WEEKS: REMOVED .014 NI-TI. PLACED .014 x .025 NI-TI.

DURATION 22 WEEKS: REMOVED .014 x .025 NI-TI. PLACED .016 x .025 SS.

END OF PHASE II – LOWER

DURATION 10 WEEKS: REMOVED .014 x .025 NI-TI. PLACED .016 x .025 NI-TI.

DURATION 10 WEEKS: REMOVED .014 x .025 NI-TI. PLACED .016 x .025 NI-TI.

DURATION 22 WEEKS: REMOVED .014 x .025 NI-TI. PLACED .016 x .025 SS.

POSTTREATMENT

Total Treatment Time: 14 months 2 weeks.
Dr. White: What role do tiebacks play in Damon mechanics?

Dr. Bagden: Due to light forces working with the biology of the body, the Damon System is especially efficient in creating space. Once we’ve leveled, aligned and resolved the rotations, we use tiebacks to avoid opening unwanted excess space. Several companies make tieback modules. Ormco has just introduced a new design that I like because it’s flat and, therefore, more comfortable for our patients. Place the tieback around the hook on the archwire and back to the hook on the first or second molar (Figure 10). To prevent tissue irritation, direct the tieback module occlusally to the premolar brackets except in situations of lateral open bites where doing so would impede the ability to close the bite.

Dr. White: Could you explain how you incorporate blocked-out cuspids into the space created by the posterior arch adaptation with minimal need for extraoral appliances or intraoral anchorage and without having the anteriors flare forward.

Dr. Bagden: With light forces in a passive system, the posterior transverse arch adaptation results from interplay among the tongue, the alignment forces and the resistant lip musculature. Working in conjunction, they encourage the teeth to follow the path of least resistance, which is posterolaterally.

For an adolescent whose profile we wish to maintain, we construct a 2x4 appliance using a compressed Ni-Ti coil spring extended from the laterals to the first molars (Case 4). The Ni-Ti coil spring creates a Frankel effect. The key here is the amount of activation. If the coil spring is activated too strongly, the wire will bow, the cheeks will counter the force and the anteriors will flare. Activating the spring 1x to 1.5x the width of a bracket is adequate. With the resultant relaxed arch form (see the placement of the 2x4 appliance in the upper occlusal images of Case 4), the lips and muscles of the face maintain the AP position of the incisors.

Dr. White: What about a patient with a flat profile?

Dr. Bagden: If the patient has a flat profile and the objective is to bring the anterior teeth forward to provide greater anterior lip support, incorporate all the teeth together on the archwire for a net anterior movement effect (Figure 11). Refer to Figure 4 for the pre- and posttreatment profile photographs of this patient.

Dr. White: What kind of patients should one treat while learning the Damon System?

Dr. Bagden: I have found that the best method to ensure success with the System – once you’ve made the decision to incorporate the Damon System into your practice – is to start every case with it. Practitioners who select certain cases on which to try the System often have a longer learning curve. I advise orthodontists not to be Damon dabblers. Pick a date and from then on start all patients with the Damon System.

Dr. White: How do I encourage patients who only want esthetic appliances to use the Damon System?

Dr. Bagden: Once you are convinced of the value of the Damon System, this question is easily managed. The results I can deliver with it are far superior to anything I can offer with ceramics or aligner-type treatments. I simply educate my patients about the virtues of the Damon System: faster treatment, fewer appointments, little discomfort and most importantly, superior midface esthetics. Once I review these advantages, it is extremely rare that a patient has further objections. Since changing to the Damon System, my patient starts have grown dramatically.

Dr. White: Alan, thank you for your insights into the mechanics of the Damon System – insights that can assist clinicians in maximizing its potential benefits.

Dr. Bagden: Thank you for this opportunity. My hope is that these few brief explanations will assist doctors using the Damon System in capitalizing on its full potential. I also hope that through my words, those contemplating the System will make the transition. It can change your practice life, making your days less stressful and your results more satisfying.
BYPASSING MECHANICS

For an adolescent, I construct a 2x4 appliance using Ni-Ti coil springs connected from the laterals to the molars with an activation of 1-1.5x bracket width. No need for additional anchorage if activation is light. Lips and muscles of the face maintain incisor position while the coil springs foster posterior transverse arch adaptation to create adequate arch length for full-arch alignment.

POSTTREATMENT

The canines erupted into the space that the 2x4 appliance provided. Incisor position was maintained without use of intra- or extraoral anchorage.
Dr. Michael Swartz has spent more than 38 years in the dental field as a dental technician, dental materials research chemist, general practitioner, director of research and development at Ormco, practicing orthodontist and worldwide lecturer. He has been instrumental in the development of composite restorative materials, pit and fissure sealants, enamel bonding and orthodontic bonding applications. After earning his D.D.S. from the University of Southern California School of Dentistry, Dr. Swartz maintained a private, general dental practice while serving as the director of research and development at Ormco. Later he returned to school at the University of California, San Francisco to obtain his postdoctorate orthodontic certificate and then maintained a private practice in Encino, California. Dr. Swartz is currently director of clinical affairs at Ormco, with an intramural specialty practice. He has given over 400 presentations around the world and been published extensively in both clinical and research journals.

Ormco introduced Ortho Solo™ in 2000 as an orthodontic bonding primer resin for use with conventional acid-etch enamel bonding; however, it has a much older history. Ortho Solo is slightly modified for orthodontic bonding from its sister product, OptiBond® Solo Plus™ from Kerr (the sister division to Ormco, Sybron Dental Specialties). In restorative dentistry it is referred to as a sixth-generation bonding resin. It is based on the hydrophilic acrylic HEMA (hydroxyethyl methacrylate) and is used in general dentistry for bonding to dentin and enamel. It contains BIS-GMA, the high molecular-weight resin that is the basis for most composite resin systems, and methacrylated phosphoric acid ester, the active monomer in self-etch primer systems. Ortho Solo also contains a small amount of submicron silica filler, which imparts additional strength and viscosity control.

**Mechanism of Ortho Solo Action**

When applied to etched enamel, the low-viscosity resin flows readily into the microporosity created by the etch. Being more hydrophilic, it polymerizes in the presence of the slight amount of water remaining in the etched enamel. However, the etched enamel must be well rinsed, free of saliva contamination, and thoroughly dried. Ortho Solo, or any other resin, does not remove deposited pellicle (biofilm). Polymerization occurs by exposure to the curing light and/or by contact and copolymerization with the paste on the bracket, either light-cured or self-cured. The retention to the enamel is obtained by a combination of the mechanical interlocking of the resin tags into the etched enamel as well as some chemical union between the calcium ions in the enamel and the phosphorylated methacrylate resin. A slight amount of ethanol helps to wet the surface and absorb any water present.

**Bond-Strength Studies**

Not much has been published on Ortho Solo until recently. Many of the more-recent publications on in-vitro bond-strength studies have used 3M Unitek’s Transbond™ MIP or Transbond Plus. How does Ortho Solo stack up in bond strength?

In a study conducted in Brazil, the shear bond strength of several bonding resin combinations was compared, including Transbond, Ormco’s Enlight® and Enlight with Ortho Solo. A sample of 12 extracted human bicuspids were used for each test group. The teeth were etched for 30 seconds with 37% phosphoric acid, rinsed for 20 seconds and then dried for 15 seconds before applying the various resin combinations. The same type of bicuspid metal bracket was used in bonding all the specimens.

Group 1 included Transbond XT™ with Transbond XT Primer (3M Unitek). Group 2 included the combination of Transbond XT with Ortho Solo. Group 3 included Enlight with Fluorobond sealant (Ormco). Group 4 included Enlight with Ortho Solo primer (Ormco).

**Ortho Solo™ Universal Bond Enhancer**

1. Orthodontic universal primer
2. Use conditioner on enamel for 30 seconds
3. Place conditioner on teeth (1 second per tooth)

**Technique Guide**
The specimens were exposed to a curing light for 40 seconds (400 mW/cm). The specimens were stored for 48 hours prior to testing. The brackets were loaded in shear at 0.5 mm/min until failure.

The authors concluded that, “The use of the hydrophilic adhesive, Ortho Solo, provided a significant increase in adhesion strength when compared with the other materials that were analyzed. Although all the materials tested have shown clinically adequate bond strength, it may be noted that the addition of hydrophilic Ortho Solo primer yielded significantly higher bond strengths.”

A second study appears to support these findings. The study involved the shear strength testing of 120 specimens divided into four groups of 30 each. Bicuspid brackets (Orthos #455-1411 from Ormco) were bonded to extracted human bicuspid teeth. The bonding paste used was Transbond XT, which was combined with Transbond XT Primer, Transbond Plus Self-Etch Primer, Ortho Solo under dry conditions, and Ortho Solo with saliva contamination prior to the application of the Ortho Solo primer. The bonding materials were exposed to the Optilux 501 (Demetron) curing light for 10 seconds. The specimens were tested to failure on an Instron 5567 at a loading speed of 0.5 mm/min. After testing, the tooth surface was viewed at 30x magnification and the amount of remaining adhesive was graded.

The results indicated that the combination Transbond XT with Ortho Solo bonded to dry etched enamel had a significantly higher (p<0.05) mean bond strength (16.0 ±3.7 MPa) compared with the other 3 groups. Transbond XT with XT Primer (13.7 ±3.7 MPa), Transbond Plus SEP (13.3 ±3.1 MPa) and Ortho Solo with saliva contamination (13.5 ±3.1 MPa) were not statistically different from each other (ANOVA and Kruskal-Wallis analysis).

A load-to-failure survival analysis plot (Kaplan-Meier) indicates that Ortho Solo (dry) would survive longer than the other 3 groups. A pair-wise comparison analysis (Kruskal-Wallis) indicated that the mean ARI score for Transbond Plus SEP was significantly lower (less adhesive on the enamel) than the other 3 groups (p<0.0001).

The author concluded that, “Ortho Solo used in dry conditions produced a significantly higher mean and fifth percentile bond strength compared with the other 3 groups. Even with total saliva contamination, Ortho Solo performed at least as well as the other primers used in a dry state.”

Note: It’s recommended that Ortho Solo be applied to only clean, dry, etched enamel. Attempting to bond to wet or saliva-contaminated etched enamel introduces uncontrolled variables and the deposition of salivary pellicle (biofilm), which can lead to bond failures.

Using Ortho Solo for Bonding to Other Acrylic Surfaces
Ortho Solo is also an excellent material for bonding to previously polymerized acrylic resins. It serves to wet and copolymerize with other acrylics. The surface (acrylic crowns, composite buildups or acrylic veneers) must first be prepared by lightly grinding or sandblasting the bonding area. This step will remove...
any surface contamination and expose the sites for the Ortho Solo to react with. A thin coat of Ortho Solo applied to the prepared acrylic surface will then unite the bracket with its bonding paste to the previous acrylic.

**Using Ortho Solo with No-Mix Systems**

While Ortho Solo may be used with any other acrylic resin-based bonding material, it does not replace the activator in the no-mix type materials, like System 1+®. The activator (liquid portion of the no-mix system) contains the polymerization accelerator that reacts with the paste. Ortho Solo does not serve this function. If you wish to use Ortho Solo in conjunction with a no-mix material, you must still apply the activator over the Ortho Solo as well as to the base of the bracket.

**REFERENCES**


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**Resolving a PowerPoint GLITCH**

**Michael L. Swartz, DDS, Orange, California**

You’ve been working for hours refining your Microsoft PowerPoint® presentation. You’ve inserted photographs and carefully cropped and adjusted brightness and color. You’ve been diligent in saving your work every ten minutes and now you shut down your computer for the evening. The next day you turn on the computer, open your saved PowerPoint presentation and…oh no! All the photographs are in the wrong place or you got the dreaded black frame with a red X.

You can prevent this glitch from happening by adjusting a setting in PowerPoint.

- Click on **Tools** in the menu toolbar.
- In the **Tools** menu, select **Options**.
- When the **Options** box appears, select the **Save** tab.
- Uncheck **Allow fast saves**.

The **Allow fast saves** option, when active (checked), saves only those changes made from the previous saved version. The advantage of this is faster saves to the hard disk. The disadvantage is that it can screw up everything!

---

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* 100 patients surveyed. Data on file.
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Treatment time: 19 months, 11 appointments

Pretreatment

Treatment time: 18 months, 11 appointments

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Treatment time: 19 months, 11 appointments
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Designed exclusively for the Damon System, the all-new Damon Tieback Modules are manufactured with the same fatigue-resistant material as Ormco’s popular Generation II Chain.

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- Available in two colors (gray and clear) to complement both Damon 2 and Damon 3 bracket systems

NEW! Damon™ Copper Ni-Ti® now with Preloaded Stops!

All Damon Copper Ni-Ti wires now feature preloaded stops to maintain archwire position and prevent unnecessary emergency appointments. The stops are made from Ormco’s newly developed “dead-soft” material, designed to be easy to crimp and to stay securely in place. The slim design is esthetic enough to use at the midline or wherever needed.

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The newest addition to the Damon Copper Ni-Ti series, this initial light round wire is specially designed for treating extremely crowded cases.

- Provides the optimal force required to begin unraveling severe malocclusions
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- Features preloaded stops to maintain archwire position and prevent unnecessary emergency appointments
When orthodontists discuss the need for treatment with patients, they necessarily focus on occlusal discrepancies that require treatment for the preservation of teeth. For the past century, occlusal goals have been defined in terms of the Angle paradigm; namely, Class I occlusion. If our only goal is a Class I occlusion, treatment can often be very efficient and even easy.

On the other hand, patients and parents are inclined to focus primarily on enhancement of appearance. If our only goal is lining up the “social six,” then treatment can also be very efficient and even easy. Contemporary orthodontic treatment should have a broader scope – occlusion and appearance.

Getting both excellent occlusion and excellent esthetics can, indeed, be quite difficult, but with the patient’s approval, it’s the goal to which we should all strive. To treat only the occlusion treats half the patient. To treat only for esthetics also treats half the patient. My contention is that if we put the same effort and thought into enhancing appearance as we have for decades focused almost entirely on occlusion, we begin to be able to offer to our orthodontic patients treatment that promotes well being on many levels, both functionally and esthetically.

Classification of Appearance and Esthetics

To encompass both function and esthetics, my colleagues and I developed a model we refer to as the Classification of Appearance and Esthetic Analysis. The Classification of Appearance and Esthetic Analysis is comprised of three components: Macro-, Mini- and Micro-esthetic divisions. Our functional goals of occlusion (Class I, OB, OJ, etc.) remain in place but are evaluated in the context of an expanded dentofacial analysis. This model provides a framework for systematic evaluation of the esthetic needs of each particular patient (Figure 1). It is a departure from the traditional approach to orthodontic diagnosis and treatment planning based almost exclusively on models and cephalometric numbers. Instead, it focuses the orthodontist on the clinical examination of the patient both at rest and smile animation and in all three physical dimensions. The emphasis is not so much on linear and angular norms but is on appropriate proportionality of facial features.
Components of the Classification of Appearance and Esthetic Analysis

1. **Macroesthetic** analysis encompasses the face in all three planes of space. Examples of macroesthetic appearance issues include a long face, a short face, lack of chin prominence, and other facial features.

2. **Minioesthetic** analysis focuses primarily on the smile framework and includes such assessments as gingival display on smile, inappropriate gingival heights and buccal corridors.

3. **Microesthetic** analysis includes assessment of tooth proportion in height and width, gingival shape and contour, black triangular holes and other dental attributes.

Expanding on Problem-Oriented Treatment Planning: Treatment Optimization

Breaking down the Classification System into its various components gives us a systematic and updated approach to problem-oriented treatment planning. In conventional problem-oriented treatment planning, orthodontists identify the patient’s functional and esthetic problems and develop a list of solutions to fix them. When clinicians focus solely on correcting problems, they sometimes overlook the patient’s positive attributes and in doing so, run the risk of adversely affecting facial esthetics. The classic example is the Class II patient with a normal midface and deficient mandible whose case, if defined solely in terms of the occlusal relationship, is considered well-treated through upper premolar extraction and retraction of the maxillary anterior teeth, although facial esthetics suffer overall. This treatment results in flattening of the upper lip, adversely affecting the nasolabial angle and resulting in the unflattering orthodontic look. It has implications in more than just the profile view and has been well-documented for reduced incisor display and flattening of the smile arc.

Figure 2 represents our contemporary orthodontic treatment-planning flowchart. In this updated version of problem-oriented treatment planning, we advocate examination of both negative and positive patient attributes. By identifying positive attributes, orthodontists might avoid adversely affecting them while correcting the negative ones. We term this approach Treatment Optimization, a term derived from computer terminology. When a computer’s hard drive crashes, the computer reboots and a little clock pops up to indicate that the computer is optimizing disc. This procedure means that the disc is being scanned, the corrupt files are being discarded and the good files are being maintained. In this new Treatment Optimization approach, we do the same thing: keep the good stuff and eliminate the bad.
The term “appearance” has a broader connotation in the Treatment Optimization approach than in conventional treatment planning in that it includes not only the smile but also the face in all three dimensions. Orthodontic treatment properly diagnosed, timed and delivered can have an enormous impact on not only the smile but also a patient’s overall appearance. Let’s consider a typical case in which the Treatment Optimization approach guides us in determining the treatment plan.

Figures 3a-c represent the intraoral photographs of a 12-year-old patient referred for correction of her Class II deep bite. Like many cases we have all seen and treated, the case looks easy. Just put on the brackets, line up the teeth, throw on some Class II elastics and we’re home. Or is that the best approach? Remember, if we’re only treating her occlusion, this patient’s case is pretty straightforward, but if we’re treating her occlusion and her appearance, it gets a little more complicated.

In addressing the first problem, how to open the bite, there are four general treatment options to consider: (1) Extrude the posterior segment (via a bite plate, bite turbos, cervical headgear, reverse curve mandibular archwires and/or a functional appliance); (2) Intrude the maxillary incisors; (3) Intrude the mandibular incisors; (4) Flare the maxillary and/or mandibular incisors. How do we decide which method to use when any of them can effectively improve the depth of bite? There are two determinants: the first, facial height, a macroesthetic issue; the second, maxillary incisor display, a miniesthetic issue.

In patients with disproportionately short lower facial heights, we tend to open the bite with posterior dentoalveolar extrusion in order to increase facial height while attaining the functional goals. The second determinant is maxillary incisor display, with the patient’s age also being part of the formula. We recommend that in the miniesthetic examination, the following measurements be routinely obtained (the reason for which will be illustrated by this case):

1. Philtrum height
2. Commisure height
3. Incisor display at rest
4. Incisor display on smile
5. Incisor crown height
6. Smile arc relations

We have already determined that the patient has a deep overbite and that her bite can be treated a number of ways. The information missing in the decision process thus far is the patient’s facial dimensions and tooth-to-lip relationships. Figure 4a demonstrates the frontal resting relationships. Her lower facial height is normal, so extrusion mechanics to open the bite would not be desirable. On smile, she has excessive gingival display (Figure 4b).
The etiologies of a gummy smile are:
1. Vertical maxillary excess
2. Short philtrum height
3. Excessive smile curtain
4. Short anterior crown height
5. Uprighted or detorqued upper incisors

Her facial height was normal, the philtrum and commisure heights equal, smile curtain and incisor angulation normal, but her central incisors were less than 8 mm in height. The diagnosis, then, is clearly determined from the clinical examination rather than cephalometric measurements. Given that her gummy smile is a result of short clinical crown height, let’s determine how to correct the deep bite. Referring to the Treatment Optimization flowchart, let’s also examine what’s right about her smile. She has a consonant smile arc (Figure 5).

The consonance of the smile arc is an important feature to measure. Decreasing gingival display through maxillary incisor intrusion would open the bite and decrease the gumminess of her smile but would also negatively affect her consonant smile arc. Let’s determine how to correct the deep bite. Referring to the Treatment Optimization flowchart, let’s also examine what’s right about her smile. She has a consonant smile arc (Figure 5).

The consonance of the smile arc is an important feature to measure. Decreasing gingival display through maxillary incisor intrusion would open the bite and decrease the gumminess of her smile but would also negatively affect her consonant smile arc. We can create a computerized image of her after-treatment smile to be quantita-
tive in planning. Figure 6 illustrates calibration of the smile image with her crown height measured to be 7.52 mm on the image.

To determine how much improvement in the smile we can obtain with crown lengthening, we probe the sulcus of the upper centrals. In this case, the sulcular depth is over 3 mm. Using the calibrated image, we then measure the target crown height (Figure 7), determining that non-osseous crown lengthening is possible. An image showing the parents the smile design (Figure 8) is very useful in communicating the nuances of her treatment design.

To protect the smile arc, we design the orthodontic mechanics to open the bite through mandibular incisor intrusion. This means that bracket placement has to be planned in advance. Planning for the posterior segments and incisor brackets to be placed at the same vertical height, we level and stabilize the maxillary arch with a rectangular .017 x .025 Copper Ni-Ti® archwire while gently extruding the canines with an auxiliary .018 Copper Ni-Ti archwire so the anterior vertical display will not be changed. Note: We use .018 slot brackets. Figure 9a schematically illustrates bracket placement and archwire arrangement. Figure 9b demonstrates the appliances on the day of bonding.

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David Sarver, DMD, MS
October 6-8, 2005
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Macroesthetics – four-dimensional facial analysis and treatment planning in the soft-tissue paradigm

Miniesthetics – four-dimensional smile structure – frontal, oblique, sagittal and the fourth dimension of time

Microesthetics – cosmetic dentistry principles applied to orthodontics to finish cases to a higher level

Hands-on Implementation – digital treatment planning and communication, the utilization of soft-tissue lasers and strategic bracket placement
In eight weeks the canines had moved significantly (Figure 10). Once leveling was finished, the crowns were lengthened and the margins beveled with a soft-tissue diode laser (Figure 11). The occlusal relations were finished as shown in Figures 12a-c with the final smile relationship in Figure 13. Figures 14a-b reflect the patient’s pre- and posttreatment smile arc.

With the major advances we have made in orthodontic materials and methods in the last several years, we have an ever-increasing ability to address a patient’s overall facial appearance. That means improving their negative dental and facial attributes while protecting the positive ones. By employing the Treatment Optimization model in our diagnosis and treatment planning, we take the crucial first steps in broadening our idea for what constitutes a successful case result.

REFERENCES

The methods and procedures described in this article are considered the proprietary intellectual property of the Author. The Author has taken the appropriate steps, including the filing of patent application(s), to protect this intellectual property in both the United States and foreign jurisdictions.
Optimizing Bond Retention

Robert L. Waugh, DMD, MS
Athens, Georgia

For many years we have trained orthodontists to pay attention to the little things, citing that the most important step of any procedure is the one you are doing now! And now that my colleagues and I have established the Damon Training Center in conjunction with IntelliDENT Solutions, Inc., I often take calls from clinicians asking for input about cases and pearls for greater efficiency.

One of the many little things I believe important is the added step of placing a bonding enhancer/sealant like Ortho Solo™ to the bonding base of Damon™ 3 (D3) brackets prior to adding Enlight® light-cure adhesive to the base. This wetting step helps ensure that the bracket-to-resin bond strength is not compromised following bracket placement.

Applying Ortho Solo to the base of the bracket before adding the Enlight adhesive enhances the flow of adhesive into the microscopic undercuts of the D3 base.

Too much of a good thing, though, can adversely affect bond strength (Figure 1), so be careful to apply only a thin coat of Ortho Solo to the base of the bracket (Figure 2) before buttering the adhesive into it. Prior to applying the adhesive, I recommend a short blast of air to the thin layer of Ortho Solo on the bonding base as an appropriate remedy to minimize layer thickness.

Orthodontics is a series of little things that make up the whole. Any one compromise can affect the entire treatment outcome. The simple addition of a thin layer of Ortho Solo to the D3 base on initial placement goes a long way in saving time and money lost due to emergencies associated with bond failures.

Some Insight into IntelliDENT Solutions, Inc., Training

We founded IntelliDENT Solutions, Inc., as a research and education center dedicated to training dental teams in such topics as radiation safety, infection prevention and meeting the standards for OSHA and governmental agencies. We established the Damon Training Center with the Damon Implementation Course as IntelliDENT’s flagship offering in 2004. I am the senior faculty member. Our practice has several thousand patients currently in Damon System treatment, having completed treatment on thousands more. Each of the instructors teaching the Damon Implementation Course is an orthodontist whose practice is devoted to Damon treatment. Equally important are our Damon mentoring assistants who each possess at least three years’ Damon System experience. Each has been through the process of transitioning from another system and offers invaluable experience in training your staff. We look forward to seeing you at an upcoming Damon course.
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<td>Course 0503</td>
<td>Dr. Robert L. Waugh</td>
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<td>April 1-2</td>
<td>Course 0504</td>
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<td>April 8-9</td>
<td>Course 0505</td>
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<td>May 20-21</td>
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<td>June 10-11</td>
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2005

June 17-18 Course 0508
August 26-27 Course 0509
October 7-8 Course 0510
November 4-5 Course 0511
December 2-3 Course 0512

For an up-to-date listing of the courses, visit www.acteva.com/go/intelliDENT.

Friday – Saturday, 8:30 am – 5:00 pm each day

Course faculty includes Dr. Robert L. Waugh, assistant professor of orthodontics at the Medical College of Georgia, with 15 years in private practice in Athens, Georgia, and assistants from Waugh & Allen, Associates in Orthodontics.

To securely register online with a credit card, visit www.acteva.com/go/intelliDENT, or call to register at 800.297.8583. For more information, contact Dr. Rick Waters by phone at 706.208.0845 or by e-mail at intelliDENT@bellsouth.net or visit www.intellident.org/course.pdf.

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• The financial and practice management rewards of this revolutionary new system
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<tr>
<td>Mar 4-5, 2005</td>
<td>San Diego, CA</td>
<td>Sheraton Hotel &amp; Marina, 888.625.5144 or 619.291.2900</td>
<td>Dr. Dwight Damon</td>
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<tr>
<td>Mar 18-19, 2005</td>
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<td>May 6-7, 2005</td>
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<td>Aug 19-20, 2005</td>
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Quick-setting, single-paste, light-cure cement
Dr. Stephen Tracey received his D.D.S. and M.S. in orthodontics from Loma Linda University School of Dentistry. In addition to maintaining a busy orthodontic practice in Upland, California, Dr. Tracey is an internationally recognized lecturer, with past presentations made in 15 countries on six continents. He holds a United States patent for an orthodontic device, has published numerous articles in a variety of professional publications, and is well known for his expertise and involvement with aesthetic orthodontic treatment and emerging orthodontic technologies. His insatiable curiosity and passion for adventure have led him to such diverse places and situations as the jungles of the Amazon, the summit of Mt. Rainier and the finish line of the Ironman Triathlon in Kona, Hawaii.

When I started my practice years ago, I wanted to make sure that I was providing my patients the best care available. I set out to operate under the Golden Rule: treat my patients as I would want to be treated. This approach seemed reasonably noble and altruistic; however, as my practice grew, it occurred to me that as a professional, I could do better. The real magic happened when my staff and I started operating under the Platinum Rule – treating patients the way they want to be treated.

Although patients come through the door for my clinical expertise, what they ultimately come in for is to look beautiful, and they have specific expectations. This philosophical shift – from how we want to be treated to how they want to be treated – has made a big difference in my practice, helping me to better meet those expectations, not only with the treatment result but also throughout the treatment process.

Patients aren’t always quick to communicate when they’re not happy, and sometimes we don’t realize that unhappiness until they walk out the door at the end of treatment. So how do we find out what our patients really want? Simple – we ask them.

Patient surveys teach us a lot about our patients. They also convey that we care about them. We feel that it’s important to get their feedback at two critical points: immediately after patients start treatment and posttreatment. We survey patients three months post-treatment. Surveying at these junctures gives us two distinct perspectives. The first survey tells us what kind of image we portray well before a patient begins seeing results. It also tells us what they’re looking for in the process.

**Patient Survey Questions Early in Treatment**

Here is a sampling of the questions we ask. Notice that these questions are all open-ended to ensure the responses are honest. You may also want to have a section for general constructive feedback.

**What was your impression of the practice when you first walked into the reception area?**
**The clinical area? What did you think about Dr. Tracey? What did you think about the staff? What magazines do you like to read?**

**Patient Survey Questions Posttreatment**

The posttreatment survey tells us how patients like their smiles and our work. Here are a few sample questions you may want to add to a posttreatment survey.

**Did your treatment meet your expectations? If not, why?**
**Would you refer our practice to friends or family? If not, why?**

**Ceramic Bracket Patient Survey**

Surveys don’t always have to be about patient expectations or satisfaction. For example, I conducted a very interesting survey about bracket choices, which has irrevocably changed my outlook on product selection. For years I had used a variety of esthetic ceramic brackets, thinking that these brackets were mostly the same in terms of appearance, and that comfort and price were the determining factors. In the spirit of the Platinum Rule, I decided to put these ideas to the test.

My associate, Dr. Deborah Cook, and I polled 100 consecutive patients about which bracket they preferred for treatment. We offered Clarity™ (3M Corporation), Inspire ICE™ (Ormco) and for control purposes, a metal bracket. Patients were given unidentified bonded typodonts for each system and asked to choose one and explain why. I assumed the results would be mixed.

To my surprise, 96% of the 100 patients surveyed chose Inspire ICE. Overwhelmingly patients responded that ICE brackets were the clearest and the only choice for them. What this told me quite plainly is that patients care about their appearance not only after treatment but also during the process.

What also struck me was how different the outcome was from my own perception. What if I had switched to another system to save a little money? I
don’t think my patients would have refused treatment, but would they have had the same feeling of satisfaction? By asking them, I know they get what they want. That spells happy patients and happy patients spell referrals.

Of course, asking the right questions is only half the story. The most important thing about the Platinum Rule is responding to patient feedback with immediate action. Make changes and make them quickly. Post survey results and the changes you made in your newsletter if you publish one or in the reception area or send an e-mail or snail mail.

If you can react within the time patients are in care, they’re more likely to know you listened. They only truly know you listened if you tell them that you made the change in response to their feedback; otherwise, they may simply assume you were going to make the change anyway or, worse yet, they may not even notice that you made a change! If you’re going to go to all the trouble to make a change, you want to get mileage out of it. Ensuring patients know that you care about their needs makes them feel more like friends than patients. It also makes them feel that they are participants in their treatment, all of which I’ve found greatly enhances compliance and satisfaction. And satisfaction is what will separate you from the practice down the street.

For all who think they know what their patients want but have never asked, I encourage you to test your theories. Before I changed from the Golden Rule philosophy, I thought I had all the answers. It was only when I shifted to the Platinum Rule that I learned that what I didn’t know could help me.

“…I took the road less traveled by,
And that has made all the difference.”
– Robert Frost

### Ceramic Bracket Patient Survey

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<td>Male – 36%</td>
<td>(A) Clarity – 3%</td>
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<td>12 through 20 years – 53%</td>
<td>Female – 64%</td>
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Bracket A - Clarity™*
Bracket B - Inspire ICE™
Bracket C - Other

* Clarity™ is a trademark of 3M Corporation.
Research survey conducted by Drs. Stephen Tracey and Deborah Cook on 100 consecutive esthetic case patients.
Avoiding the Poking Archwire

Herzliya, Israel

Every orthodontist must eventually contend with archwires that extend beyond the molar tubes and subsequently irritate patients’ cheeks, cause painful ulcers and necessitate emergency visits. Aside from the discomfort, these preventable episodes inconvenience families and cause them to doubt our claims of running modern, sophisticated offices.

Orthodontists should consider overextended wires as an iatrogenic dilemma caused by inattention to the sliding behavior of super-elastic wires. Although orthodontists promote greater efficiency by seeing patients less often, they discover that extra appointments to care for emergency wire pokes jeopardize that quest (Figure 1).

Negative Consequences of Sliding Wire

A sliding archwire has numerous negative consequences.

• It permits the loss of the archwire midline.
• It produces uncoordinated archwires.
• It allows uncontrolled movements of molars when wires slide out of tubes.

Orthodontists have tried several strategies to deter such soft-tissue impingement – cinching back or turning down wires, using archwires with midline dimples and crimpable stops, or Guerin locks and acrylic beads – but each has inherent pitfalls.

The Solution: The Strauss Distal Protector

Finding a solution to this predicament required dealing with the issue at its source – at the archwire terminations where they poke. The Strauss Distal Protector (SDP) provides a dependable, cost-effective alternative for confronting this difficulty (Figure 2). It is a simple, removable stainless-steel mechanism that slides over the tie-wings of a convertible molar tube and clips over its mesial margins. Extending distally from the molar tube, the SDP prevents ulcerations as the soft tissue drapes around its smooth, rounded edges.

The SDP offers several advantages.

• A distal opening in the mechanism allows clinicians to direct the wire distally and cinch it back.
• Its distal surface can act as an archwire stop.
• Its distal surface can act as a long archwire stop, which will advance the anterior teeth.
• It eliminates the need for omega loops.
• It decreases emergency appointments.
• It prevents the dislodgement of wires from the mesial opening of tubes.
• It maintains arch symmetry.
• It eliminates the need for cinch-backs, distal turn-downs and annealing ends of Ni-Ti® and TMA® wires.
• Clinicians can place and remove the mechanism easily.
• It doesn’t interfere with the opposing occlusion, brackets, tubes or auxiliaries.

This product can be ordered through our European offices, Ormodent and ACE.
SDP Placement and Removal

Assemble the SDP and bands or direct-bonded attachments prior to cementation in the mouth. Use Howe or Weingart pliers to grip the SDP (Figure 3a). Starting from the distal end of the tube, slide the two arms of the mechanism over the tie-wings of the convertible tube (Figure 3b). You will hear an audible click when the SDP fully engages the mesial surface of the tube, and it will not move distally. When the SDP is in position, it should fit either the pad or weld flange and should not slide forward or backward (Figures 4a-b). If you want to remove excess wire, the space between the distal end of the tube and the distal surface of the SDP will accommodate most distal-end cutters.

You will not need to remove the bands or bonded tubes in order to dislodge the SDP. By gripping the distal extension of the mechanism with Howe or Weingart pliers and gently wiggling, the SDP will come free. After removing an SDP, you should not attempt to reuse it, since the intraoral removal process distorts the arms and compromises its future usefulness.

Figures 5a-b demonstrate the SDP in use for the closure of an extraction site.

The SDP fits many orthodontic companies’ first molar tubes but are not compatible with Accent or Titanium Orthos tubes by Ormco. There are currently no mechanisms developed for second molar tubes. It comes in two varieties – a maxillary and a mandibular model.

Figures 5a. At the bonding appointment, the SDP was placed on the maxillary first molar tube. After inserting the archwire, the archwire was cut flush with the distal end of the tube.

Figure 5b. At the third appointment, the archwire has begun closing the extraction site and has expressed itself beyond the buccal tube. The SDP protected the soft tissue from the protruding wire.

This product can be ordered through our European offices, Ormodent and ACE.
### ORMCO Around the World - Course Schedule at a Glance

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<th>Location</th>
<th>Date(s)</th>
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<td>6/15</td>
<td>Buchholz &amp; Mayes</td>
<td>CBJ and Damon</td>
<td>Jacqueline Doon</td>
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<td>Bangkok, Thailand</td>
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<td>Damon Speakers</td>
<td>In-Office CBJ Course*</td>
<td>Samira Rami</td>
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<td>Introduction to the Damon System</td>
<td>Louis Campusano</td>
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<td>Formation Orthodontic Adulte - Lingual</td>
<td>Josiane Koskas</td>
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For a complete listing of domestic Damon System seminars, see page 29.
Clinicians have found that using an interarch retention splint and tongue trainer is the key element in successfully treating patients with mixed or permanent dentition who have had Class II correction (fixed or “on-the-archwire” Herbst, MARA, Class II springs, elastics) or were treated for severe posterior crossbites, lateral tongue thrusts, or Class II with severe muscle dysfunction (buccolingual coordination challenges). Thinner thermoformed materials not available a few years ago have made such appliances less bulky, more comfortable and more esthetic, resulting in higher patient compliance.

Dr. Dwight Damon has long advocated the use of the retention splint and attributes the low incidence of relapse in such cases to the splint phase of treatment. He suggests the following protocols after Class II treatment. Hold mixed dentition, first-phase patients in the Damon Retention Splint until they are ready for full appliances. In mixed dentition, the splint may need blocking out in areas of erupting permanent teeth. Hold permanent dentition patients in a slight edge-to-edge position. Instruct non-growing patients to wear the splint nightly for approximately 10 to 12 months or until growth is completed, if the patient is still growing. Have the patient wear the splint in conjunction with a lower 3-3 bonded wire placed at the debonding appointment. Dr. Damon feels an upper bonded wire is not usually required, except in patients who presented with a significant diastema or extreme malalignment. He does not have his splint patients use any method of retention during the day.

To achieve success with the Damon Retention Splint, it is critical to fabricate the appliance with minimal vertical opening posterior to anterior. It is also critical that the patient’s wax bite reflect the anterior teeth placed edge-to-edge but no further forward. A typical wax bite consists of three thin sheets of pink base-plate wax. AOA fabricates the Damon Retention Splint with a 1 mm (.040) thermoformed material. The anterior section of the appliance is opened mesial of the upper cuspid tips to provide an ample airway.
Advancing the mandible of a deep-bite curve of Spee patient using a standard MARA (Figure 1) creates a large posterior open bite that hampers the upper elbow from remaining engaged behind the lower arm. This situation renders the appliance ineffective. The reason Dr. Emile Herbst developed the Herbst®* appliance with a retention joint was his belief that if patients can disengage from vertical abutment surfaces, they will and treatment will fail.

The solution is to turn the lower arm upside down so that the loop angles upward at approximately 45 degrees rather than dropping down vertically from the perpendicular projection. This modification is called the MARA-U (Figure 2). It allows the loop to clear the upper teeth when the patient bites yet provides several more millimeters of vertical engagement between the lower arm and the upper elbow. It usually takes a little adjusting to get the torque of the upper elbow vertical arm balanced with the upward-projecting lower arm loop so that they collide when the patient tries to retract the lower jaw, but doing so is easily accomplished if you have the correct tools.

To adjust the torque of the upper elbow vertical arm, use the torquing tool that AOA provides to hold the horizontal leg of the elbow without nicking it while using the Weingart utility plier to bend the vertical leg of the elbow.

To adjust the lower arm, hold the crown between the jaws of a square-jawed lingual arch-forming plier by gripping the crown buccal surface directly over the archwire tube. With your other hand, use the Weingart plier to bend the lower arm loop buccally as desired. (AOA will do this for you unless you are ordering an e-MARA.) If the lower arm is soldered with the loop hanging down, it can still be bent upward by using this technique.

If you intend to use an RPE attached to the upper MARA-U crowns, expand the arch before placing any lower MARA-U crowns (with upper-directed loops) or else the lower MARA-U arms will interfere with the expansion. In some cases the upper-directed lower loops will abrade the ligatures that hold in the upper elbows.

The way to avoid this abrasion is to bend the free end of the elbow’s tieback ball-hook distally and curve it back anteriorally, creating a recess on the anterior surface of the free end of the ball-hook (see illustration above). This recess will harbor the ligature so that it cannot slip off or become abraded by the lower arm loop. If the horizontal leg of the upper elbow gets locked under the perpendicular leg of the lower arm, adjust it with a small-beak 3-prong plier.

Figures 3a-c demonstrate the MARA-U in use in a deep-bite curve of Spee patient. This modification has made treatment of such cases more efficient with excellent results.

*Herbst is a registered trademark of Dentaurum, Inc.