DR. TOM STARK

DR. STARK – GETTING KIDS TO LISTEN
DR. SMITH – VARIABLE TORQUE PHILOSOPHY
DR. BAGDEN – AESTHETIC-DRIVEN RETENTION
AOA – FIXED MOLAR DISTALIZING APPLIANCES
MS. GARBO – HIRING AN OFFICE COORDINATOR
Dr. Stark, why did you choose life in a relatively small town?

Dr. Stark: For my wife, Cindy, and me, there is a tremendous number of positives to living in a small town. Ames has outstanding schools and wonderful churches. It supports our old-fashioned values and we have little crime. No community is completely immune from corrupting influences, but we feel that Ames gives us the best chance to help our four children grow into healthy, happy, well-adjusted, productive adults. Living in a small community also provides countless opportunities to develop deep and lasting friendships, to truly know our neighbors so we can watch out for each other, and to be involved in local leadership. I also enjoy a seven-minute commute to the office. The few negatives include the lack of extensive dining and shopping options and that of our four seasons, we sometimes concentrate on winter a bit too long.

CI: Tell us about your mentors.

Dr. Stark: Between October 2000 and May 2001, I lost my two heroes – my dad, Maurie Stark, and Dr. Bob Gaylord. They were two giants among their peers. Both were loving, gentle, unassuming and sim-
ply beautiful men. My dad and mom taught that honesty and living with integrity are paramount, no matter what the cost. Dad’s quiet, selfless, spiritual actions were so valuable in helping me develop my faith. His life was a continuous sterling example of putting family first, but still recognizing “to whom much has been given, much will be expected.”

Dr. Bob Gaylord, the patriarch of my Baylor orthodontic family, was also a giver and very much other-centered. Dad and Bob made everyone feel good about themselves because they were truly and genuinely interested. I believe those philosophies carry over very nicely into an orthodontic practice. Kids are incredibly perceptive. They can tell very quickly whether you are really interested in them. Sincere communication conveys, “I really care about you.”

CI: You put a lot of emphasis on effective communication and languaging in patient relationships. How do you define languaging?

Dr. Stark: Languaging is how we can best say what we want in a way to connect with people, build their self-esteem and, hopefully, touch their souls. We’d like to ensure that when they leave our office they feel good about themselves and about us. My staff and I use the One-Minute Manager approach. Find something to compliment the patient about, point out what isn’t working, encourage and review specific behaviors needed to be successful, then finish with another compliment to send them on their way.

CI: How about walking us through some languaging illustrations starting with the new patient interaction.

Dr. Stark: We use the initial phone call and follow-up mailings to both patients and parents to gather as much information as we can about their concerns, personal interests and expectations. Sometimes I hear staff members at conferences say, “But people are busy. They don’t want to take the time on the phone to tell us about their concerns and interests.” We find that if we tell prospective patients that spending 7-10 minutes on the initial call to review their concerns and expectations will make their consultation appointment more meaningful and efficient, they’ll usually take the time. If they don’t have this much time when they call (and we can usually pick up on this by the pace of their speech), we simply get the minimal information and let them go.

CI: And what about the initial exam?

Dr. Stark: When I enter the exam room for the initial consultation, my complete focus is on the patient (usually an adolescent). My treatment coordinator, Carla, introduces me as I reach out to shake the patient’s hand, saying, “Hi, I’m Tom Stark, Dr. Stark. It’s nice to meet you.” I don’t have a chart in my hand. I don’t say hello as I wash my hands and pull on gloves. I continually remind myself how I feel when I see a doctor for the first time. If the patient is a confident, self-assured teenager (what are the odds?), my focus will seem natural, but if this patient doesn’t want to be there or is shy or uncomfortable about his or her teeth, this individual attention will make a huge difference in their response to my staff and me – and that difference can last long into the relationship. I want the first impression to be that they (not just their parents) are our concern. Children aren’t often used to being treated that way by physicians and they notice the difference. And this in no way slights parents. Parents respond favorably to it. They want their child to be our focus.

I will then make a positive comment that
about their hair, clothes or handshake such as, “Hey, that’s a good-looking jersey you’ve got there. So you’re a fan of the Raiders, huh?” Then and only then will I turn to introduce myself to the parent. Throughout the exam, my complete focus is on the patient as I convey, “you are my primary concern.”

CI: Is it then that you transition into asking about their dental concerns?

Dr. Stark: Yes. Typically the first two dental questions I ask the patient are, “What do you think about your teeth?” and “Is there anything you’d like to see different about your teeth?” I then refer to my patient information form to note things listed and ask them questions about school, pets, activities and hobbies. I do this to put them at ease and begin to develop rapport. I love to tease the kids during this discussion. If a boy plays basketball, I’ll ask about his height and I always overguess. “So what are you up to now? About 6 foot 7 inches?” If they have an older sibling that I’ve treated, I might say, “Your sister has been bragging about you so much, I didn’t even think you were real. I thought you were too good to be true.” If they have a great relationship with their sibling, they laugh. If they have a competitive relationship with their sibling, they laugh even more.

FOLLOWUP QUESTIONS MAKE THE DIFFERENCE

We don’t just ask one question or make one comment when we greet our patients. We find that it’s the followup questions that demonstrate we’re truly interested in them. Here are some we developed at a staff meeting.

– Carla, Treatment Coordinator

• Do you have any brothers or sisters? Do they boss you around?
• What are you doing over break? Oh, that sounds like fun. Are you taking friends along?
• How long did it take you to get used to your braces? Does everybody love them?
• What’s your favorite TV show? Who’s your favorite character?
• Are you getting any presents for your birthday? What do you really hope to get?
• Compliment shoes, shirt, jeans, etc, and then ask where they got them. Have you bought any new CDs lately? Oh, is that one good?
• Hey, that’s a good-lookin’ haircut you’ve got there. How do you get it to stand up like that?*

SILLY QUESTIONS ARE PART OF THE FUN

Kids in the prime orthodontic ages love to banter back and forth. It helps them loosen up and smile and they usually want to join the fun. Many of the questions we use may be off the wall but they work. One trick is to ask one or two serious questions, followed by a silly one.

– Stacie, Clinical Assistant

• Do you have your holiday shopping done? What did you get me?
• Don’t you have a game Saturday? Can I catch it on ESPN?
• Did you drive here today? What kind of car do you drive? Have you hit anybody?
• Who’s going to take your senior pictures? Can I get an autographed copy?
• You have a toothbrush? You know which end goes in your mouth?
• Do you have any homework today? Can you get your mom to do it for you?
• What did you get me for my birthday?
• How has your expander been? You know it’s supposed to make your brain bigger. Do you think you might know more than your teachers?
• How many boyfriends/girlfriends do you have? Are you getting engaged? Will you invite me to the wedding?
CI: Tom, I notice that you often comment on a young man's physical prowess that, let us say, hasn't manifested itself yet.

Dr. Stark: So you caught that? Yes, guys always want to be bigger than they are. It’s a guy thing and the boys get a kick out of it. As soon as I notice a change in a kid who’s been working out, I might say, “Look at those guns. You’re really bulking up.”

CI: You know, we’ve talked mostly about what you do, but I noticed something you don’t do that’s interesting. You don’t draw a relationship between any patient’s dental or facial asymmetry and their parents even though the genetic similarity is evident.

Dr. Stark: Good observation. Yes, I purposely never mention obvious family heredity. People don’t usually see their own or a family member’s retrognathic chin or gummy smile unless it’s pointed out, yet once it’s pointed out, they’ll never not see it. And I don’t want a parent to focus on any of their physical shortcomings. If, however, a parent mentions that Susie got her recessive chin from her mom, I might say, “Well, hey, she also got her brains and beauty from her. At least this dental issue is fixable.”

CI: How important is languaging with noncompliant patients?

Dr. Stark: I think the most important thing to remember is that we often don’t know where a child is coming from. Maybe they’re not wearing elastics or brushing regularly simply due to irresponsibility or lack of interest, but there may be family or personal problems that interfere with the patient’s ability to cooperate consistently. I don’t want to verbally beat the kids up or fuss too much. I’d rather treat them like adults. In most cases, I tell the patient that this conversation is just between us…and it is.

I won’t mention the issue to the parents unless we’ve had this same conversation several times in a row and then I convey that I’m going to speak with the parent.

Let’s say that elastic wear is the issue. If I ask if they’re wearing them daily, I’m setting them up to fib. Instead, I’ll under-guess the amount of wear, “Are you wearing your elastics at least once a month?” Typically they’ll respond honestly with, “Oh no, at least twice a week.” Once I know where we stand, I might say, “If you can wear your elastics 20 hours a day for just three months, we’ll schedule getting them off. Can you do that for me? We can’t wait to see your new smile.” The patient and I now have a shared commitment. They can see the light at the end of the tunnel, and they leave my office feeling good about themselves.

CI: But sometimes you take it further.

Dr. Stark: Yes, with some kids, I know I need to joke around more to get them engaged, so I continue, “You know, we really like having you around here and if you want to continue to wear your braces when you go to college, we’d be more than happy to see you. And hey, if you’re still with us after college, we’ll come to your wedding. We’d love to get to know your wife. Or we could extract teeth now. The needle only hurts going in and you could probably be off school for a while.” By that time, I’m really hamming it up and they’re laughing. “And there’s always jaw surgery. We’d even come see you in the hospital. I hear that packaged soup is mighty tasty. Of course, you’d miss...
Besides his main office in Ames, Dr. Stark maintains a satellite office in Boone, Iowa. He received his D.D.S from the University of Iowa College of Dentistry and orthodontic degree from Baylor College of Dentistry’s Department of Orthodontics. His research thesis won the AAO’s Milo Hellman Award of Special Merit in 1986. Dr. Stark participates in numerous community organizations, including Rotary Club and United Way. He and his wife, Cindy, have four children: Emily, 17; John, 15; Steve, 11 and Mike, 8. In addition to traveling with Cindy and enjoying the children’s many activities, he likes hunting upland game, waterskiing and fly fishing.

out on a few ballgames.” It’s then that I stop and bring the discussion back to reality. “Given those alternatives, wearing your elastics 20 hours a day sounds pretty doable, doesn’t it? (It’s important to be specific about the number of hours.) But it’s up to you. You’ve put in so much effort, I’d just hate to see all that energy go to waste if we can’t get your jaws lined up. But you’re in charge. I’ll know your decision by the way you look next time you’re in.” And we all know that this is as much as we can do.

**Cl:** What orthodontists have had an influence in developing your communication and languaging style?

**Dr. Stark:** Dr. Moody Alexander, my chairman at Baylor – who gave me the chance to be a part of this incredible profession – is a Zen Master of languaging. My “attitude of gratitude” comes straight from Moody. Dr. Tom Pitts was also invaluable in helping me to gain control of my practice and in recognizing and celebrating the daily joy inherent in orthodontics.

**Cl:** I know you’re an avid reader and you mentioned that one of the books that influenced you most is Hyrum Smith’s *The 10 Natural Laws of Successful Time and Life Management*.

**Dr. Stark:** Yes. Smith conveys a deeply moving strategy dedicated to identifying one’s core governing values, then living in accordance with them. That means doing the most important things first during the day and the necessary things second. If you consistently allocate your effort and attention to what you value most (to your highest priorities) you will be rewarded with a most precious gift – peace of mind. I don’t want a big practice. I want to control it instead of it controlling me. And above all, I want to be a good husband to Cindy and a good father to our children. Another high priority is to look for ways to give back. The opportunities are all around us, but often only become apparent once we have made a conscious decision to be generous. The list could be infinite, but a few ideas come quickly to mind:

- Become involved in organized orthodontics. Leadership isn’t about brilliance, it’s about willingness.
- Waive the balance of your fee if the bread-winning parent of one of your patients dies.
- Treat some state-aid cases.
- Contact the President’s Student Service Scholarships at (888) 275-5018 or www.student-service-awards.org regarding their $500 matching grants scholarships for high school students.
- Mentor a young orthodontist.
- Choose to be quietly generous with your family, staff, patients and worthy charitable causes.

**Cl:** What would be some of your own advice to a young orthodontic resident about to enter practice?

**Dr. Stark:** You know, it would be simple, timeless stuff. Professionally, I would encourage my young orthodontist friend to set goals, maintain the highest ethics, establish your priorities, honor your commitments, act with integrity, use words to build people up, love the unlovable and choose to be generous. On the personal side, my admonitions would most certainly include love your spouse, hug your kids, say your prayers, listen from within, seek wisdom, have fun, be gracious, laugh at yourself, and, finally, truly cherish the simple everyday magic of living.

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**TOM’S TOP TEXTS**

- *The 10 Natural Laws of Successful Time and Life Management* – Hyrum W. Smith
- *The Prayer of Jabez* – Bruce Wilkinson
- *There’s a Spiritual Solution to Every Problem* – Wayne Dyer
- *Slowing Down to the Speed of Life* – Richard Carlson and Joseph Bailey
- *Tuesdays with Morrie* – Mitch Albom
- *Joshua* – Joseph Girzone
- *Journey to Center* – Thomas Crum
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During my university training in orthodontics, I was introduced to many appliance prescriptions and protocols. Like most young graduates beginning a practice, I selected a single straight-wire appliance system that incorporated preadjusted tip, torque and in-out values designed to correct typical orthodontic challenges. As I increased my clinical knowledge and learned ideas from other authorities, it became apparent that a single appliance prescription and/or technique was inadequate to fulfill the needs of every patient. Even the original Orthos™ prescription (which I began using in 1994) that usually produces excellent nonextraction results would still occasionally result in inconsistent torque values in some nonextraction cases and most extraction cases, particularly in the anteriors (both arches) and the final anterior occlusion.

Because of this fact, I began customizing my Orthos prescription by choosing brackets of both higher and lower torque values from the original Orthos and Mini Diamond appliance systems to give me greater versatility. I refer to this philosophy of treatment as Variable Torque Orthodontics and have worked with Ormco engineers to augment the .022 Orthos prescription with a variety of additional torque values that will allow orthodontists to easily implement the principles of this philosophy.

Having the appropriate additional torques in a fully integrated appliance like Orthos not only makes the Variable Torque Orthodontics concept simple to implement, but it also provides all the additional benefits that this premiere appliance offers. It will soon be possible to choose from a plethora of torque values from within the Orthos family to effect a greater variety for different case needs. I believe that, in lieu of a patient-specific appliance, we need to employ such a philosophy, thereby refining current preadjusted systems for more accuracy and effectiveness. While I use Orthos, the variable torque concept is suitable for treatment with any appliance system that has the appropriate torque values within its prescription. The purpose of this article is to introduce a rationale for using differential torque values to address various case requirements and provide a framework of various torque systems, thereby increasing treatment effectiveness and efficiency.

The Foundation for a Variable Torque System

As most of you know, Craig Andreiko, DDS, MS, orthodontist and engineer, calculated the geometries and arch form for the original Orthos prescription from research he derived by laser-mapping human dental anatomy and then reverse engineering the geometries to produce the data points he found. Original Orthos was derived from this research and is still the only preadjusted appliance based on human dental anatomy.

Bios is the high-torque version of Orthos. Dr. Jim Hilgers calculated its torque values to reflect the mechanical demands of the Bioprogressive treatment regimen which, like other treatment philosophies, suggests early torque control with small rectangular and square wires. Its torque values – higher than original Orthos – are very close to the torque values I like for my high-torque needs. Before Ormco began augmenting Bios with higher-torque brackets in the .022 slot, Bios brackets were available only in an .018 slot. I treat with an .022 slot, so Bios hasn’t been suitable for my needs. The additional brackets Ormco augmented to the Orthos prescription now satisfies most of my variable torque needs.

Before we discuss in more detail what specific differential torque systems I recommend and why using differential torques is vital to our efficiency in achieving consistently superior results, we need to under-
stand what effect the interface between the archwire and the bracket slot has on torque control.

Wire Spin and Effective Torque

The two most popular bracket-slot systems are the .018 and .022. Regardless of the slot size, archwire progression is critical to the proper expression of a bracket’s built-in torque. To gain full expression of bracket geometries, many of us progress through a series of wires with increasing stiffness and size. Often we start with flexible round wires to correct rotations and begin the leveling process, then move into square and rectangular wires to express torque. The amount of torque expressed (effective wire torque) is based upon the wire-slot interface. Because all archwires are smaller than the bracket slot, each will have a certain degree of spin in the slot (Figure 1).

It is essential to understand the effect of wire spin when you’re selecting an archwire or initiating a particular treatment protocol such as arch expansion or space closure. Figure 2 delineates the degree of wire spin for the more popular wire sizes in .018 and .022 brackets of various torques. The torque you derive from a bracket (effective wire torque) is the difference between the degree of torque built into the bracket and the degree of play or spin of the wire in the slot. If an archwire has more play or spin than the torque built into the bracket, no effective torque will be expressed.

For example, in terms of torque, an .016 x .022 archwire is ineffectual in an .022 slot bracket with +22° of torque, while the same wire in the same torque bracket in an .018 system produces approximately +12.7° of effective torque. Understanding the wire-slot dynamic in combination with an appliance system that affords you only one or very few torque values per tooth explains why using only one prescrip-

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**WIRE-SLOT INTERFACE**

![Degree of Wire Spin](image)

Figure 1. Because all archwires are smaller than the bracket slot, each will have a certain degree of play or spin in the slot.

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<tr>
<th>EFFECTIVE TORQUE – .018 SLOT</th>
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<td>Wire Size</td>
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<th>EFFECTIVE TORQUE – .022 SLOT</th>
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Figures 2a (top) and 2b (bottom). The torque you derive from a bracket (effective wire torque) is the difference between the torque built into the bracket and degree of play or spin of the wire in the slot.
In fact, I always recommend erring on the side of higher or lower torque, depending on the direction you want to go.

Redracketing usually means reducing wire size, adding time to treatment, and we all know how difficult it is to add the same amount of torque consistently from archwire to archwire. Torquing wires is also poor use of doctor time. The earlier you begin torque control, the less detailing you need to do. In fact, I always recommend erring on the side of higher or lower torque, depending on the direction you want to go. You don’t have to fill the slot, yet you have the option of doing so if you need the additional torque. Choosing appropriate torque values as opposed to relying on wires to do all the work simplifies mechanics and puts you in greater control of your treatment.

The Impact of Torque on Results

Now let’s look at the torque differences among some of the more popular prescriptions available to the profession. As you can see from Figure 3, there is tremendous variation among prescriptions. As important is the fact that each has only one torque value for each of the maxillary anterior teeth. I feel that, because they are the most important to control for optimal smile aesthetics, maxillary anterior teeth require more alternatives. Dr. David Sarver’s discussion of the Smile Arc1 delineates the importance of maxillary anterior tooth positioning as a major determinant of pleasing smile aesthetics (Figure 4). My treatment goals are likewise built around obtaining proper vertical exposure of the maxillary incisors both at rest and upon full smiling (Figure 5). Not establishing these treatment goals usually delivers less than desirable smile aesthetics.

Maxillary incisor bracket torques of $+7^\circ$ and $+12^\circ$ found in a number of today’s popular prescriptions are suitable for many nonextraction cases with moderate to severe crowding but are inadequate for extraction cases or those subjected to significant Class II mechanics. Both Class II elastics and Herbst* therapy tend to retract and extrude the maxillary anterior teeth. If directional changes are needed to enhance incisor position, it’s essential to counteract them with the appropriate appliance prescriptions and mechanics.

I have found that to gain optimal maxillary canine torque, managing the mandibular canine torque is essential. Many prescriptions place considerable lingual crown torque in the mandibular canines (Figure 6). If the mandibular canines have too much lingual crown torque, the maxillary canines will need a commensurate amount of lingual crown torque to gain proper coupling for acceptable anterior guidance. I personally prefer the maxillary canines to be more upright rather than tipped lingually. Lingual tipping tends to produce a narrow arch form. More upright mandibular canines allow more labial crown tip to the maxillary canines, producing a broader smile (Figure 7). Too much labial crown tip causes labial tipping and gives the smile a “fanned out” look. For these reasons, I prefer mandibular canine torques ranging from $-2^\circ$ to $+7^\circ$, depending on the demands of the case. A torque differential of approximately $+10^\circ$ between the mandibu-

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<th>TORQUE COMPARISONS OF VARIOUS APPLIANCE PRESCRIPTIONS</th>
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<tr>
<td><strong>Roth</strong></td>
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<td>Mx Central Incisors</td>
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Figure 3.

Figure 4. For pleasing smile aesthetics, the arc of the teeth should follow the curve of the lower lip.

Figure 5.

Figure 6. Many prescriptions place considerable lingual crown torque in the mandibular canines, necessitating a commensurate lingual crown torque to the maxillary canines.

TREATMENT GOALS AND ASSUMPTIONS: PROPER VERTICAL EXPOSURE OF UPPER INCISORS

- Incisor A-P positioning is critical to proper lip support.
- Incisors and canines should form an arc that parallels the curvature of the lower lip.
- The anterior teeth must have proper post-treatment torque for appropriate canine coupling and functional interdigitation of the posterior teeth.
- The vertical positioning of the incisors can be controlled by proper initial placement of the brackets.
- Mechanics have to be tailored to prevent unwanted movements of the incisors during treatment.

* Herbst is a registered trademark of Dentaurum, Inc.
lar canines and incisors helps maintain the interdental contacts (Figure 8).

**A System of Variable Torques**

To improve the entire orthodontic process, we use the Variable Torque Orthodontics (VTO) philosophy. As I mentioned before, we use Orthos but the VTO concept is suitable for any appliance system with applicable torques.

I use three basic VTO prescription systems: Low Torque (LT), Standard Torque (ST) and High Torque (HT) (Figure 9). Each prescription system has specific applications (Figure 10). The LT system counteracts the typical labial tipping seen with arch expansion to correct moderate to severe crowding. Also, using lower torque brackets on the mandibular anterior teeth reduces the labial tipping associated with extensive Class II elastic wear or Herbst therapy. Remember, we’re looking for the resulting torque after taking into account wire spin. The ST system is used for mildly to moderately crowded cases or for mild to moderate space closure when initial tooth position is good. The HT system is indicated for most extraction cases or where distal movement is being directed to the maxillary arch with headgear, Herbst therapy or Class II elastics.

I recommend that you make a careful evaluation of your patient’s records and familial growth patterns, etc., to establish a visual treatment objective. Then, considering the original position of the teeth and taking into account wire spin, effective torque and the directional pull of any mechanics you intend to use, select the most appropriate torque combinations from the three systems (Low Torque, Standard Torque and High Torque). Because torque demands may be different for each arch, it is sometimes necessary to select a Low Torque for the upper arch and a High Torque for the lower arch. For example, you may have a case where you plan to remove one mandibular incisor and treat the maxillary arch nonextraction. In such a case, you may want to prevent any maxillary incisor labial tipping, while minimizing mandibular incisor lingual tipping. Using Low Torque on the maxillary anterior teeth and High Torque on the mandibular incisors may yield a better fit of the anterior teeth.

**INDICATIONS**

**Low-Torque**
- In nonextraction cases with moderate to severe crowding
- To upright proclined incisors
- For palatally impacted canines
- With reverse facemask therapy
- To prevent lower incisor proclination when using the Herbst, MARA or extensive Class II elastic therapy

**Standard-Torque**
- In nonextraction cases with mild to moderate crowding with normal incisor and canine position
- In nonextraction cases for small space closure when teeth are in relatively good position

**High-Torque**
- In extraction cases
- When using headgear, Herbst, MARA or Class II elastics
- Lower incisor extraction cases (mandibular incisor brackets)

**VARIABLE TORQUE PRESCRIPTIONS**

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<th>Low Torque</th>
<th>Standard Torque</th>
<th>High Torque</th>
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<tr>
<td>Mx Central Incisors</td>
<td>+7°</td>
<td>+15°</td>
<td>+22°</td>
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<tr>
<td>Mx Lateral Incisors</td>
<td>+3°</td>
<td>+9°</td>
<td>+14°</td>
</tr>
<tr>
<td>Mx Canines</td>
<td>-7°</td>
<td>0°</td>
<td>+7°</td>
</tr>
<tr>
<td>Md Incisors</td>
<td>-10°</td>
<td>-5°</td>
<td>+3°</td>
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<tr>
<td>Md Canines</td>
<td>-2°</td>
<td>+7°</td>
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Remember, although the system is organized by arch, you can also select specific bracket torques for individual teeth. For example, you may be using the High Torque (HT) prescription on the maxilla, but choose a Low Torque (LT) bracket for a specific tooth in that arch because you need less lingual root torque there.

Remember, although the system is organized by arch, you can also select specific bracket torques for individual teeth. For example, you may be using the High Torque (HT) prescription on the maxilla, but choose a Low Torque (LT) bracket for a specific tooth in that arch because you need less lingual root torque there. Again, the question is: what is the original tooth position and the resulting torque you want. The challenge is to make the selection based upon the individual needs of the patient tempered with your understanding of mechanics and orofacial aesthetics.

Now that we have a better understanding of the archwire-slot interface, we can base our archwire selections on the desired posttreatment tooth positions. My typical archwire sequence for nonextraction and extraction cases is as follows:

**TYPICAL ARCHWIRE SEQUENCE**

**VARIABLE TORQUE ORTHOS/.022 SLOT**

**Nonextraction**

- .016 Ni-Ti or .020 x .020 Copper Ni-Ti
- .019 x .025 Copper Ni-Ti
- .019 x .025 TMA® or .021 x .025 TMA (depending on the degree of final torque needed for the anterior teeth)

**Extraction**

- .016 Ni-Ti or .020 x .020 Copper Ni-Ti
- .019 x .025 Copper Ni-Ti
- .019 x .025 TMA® or .021 x .025 TMA (no large spaces are closed on these wires)
- .019 x .025 or .021 x .025 stainless steel (for space closure) .021 x .025 TMA or Copper Ni-Ti (depending on the degree of final torque needed for the anterior teeth and to allow final settling)

Let’s discuss a hypothetical nonextraction protocol taking into consideration the various torque prescriptions found in Variable Torque Orthodontics and the appropriate archwire regimen. Suppose you have a patient with moderate to severe crowding. You select the .022 Standard Torque (ST) prescription. The severity of the crowding precluded placing an .020 x .020 Copper Ni-Ti wire in the maxilla, so you place an .016 round Ni-Ti. As the arch begins to expand, the teeth begin to tip labially. The question is whether your primary objective is to tip the teeth labially or to maintain tooth position. If you want to maintain tooth position, it’s necessary to select a sequence of archwires that reduces labial tipping and maintains torque. We also know that it takes considerable time and effort to gain torque control. Teeth initially tend to tip labially and then later need to be uprighted.

With today’s sophisticated archwires, such as Copper Ni-Ti and TMA, it’s easier to introduce torque earlier in treatment. Selecting bracket torques that reduce labial tipping further enhances our control and efficiency. In such a case, low torque rather than standard torque brackets (e.g., from the Low Torque [LT] versus the Standard Torque [ST] prescription in Variable Torque Orthos) would produce a better final occlusion with less effort and time.

Extending this thought process to other protocols can help improve their final outcomes as well. Because of the lingual movement of anterior teeth during treatment, extraction cases typically need additional lingual root torque. The question is whether the objective is to maintain the torque of the anterior teeth or allow lingual crown tipping to reduce protrusion. A careful evaluation of the diagnostic information from the lateral head film and orofacial findings usually provides the answer. With an understanding of wire spin and prescription selection, you can select the appropriate system.

**Deficiencies of One-Torque Prescriptions**

Many of us are continually evaluating our finished cases to learn how to improve the orthodontic process. For this case (opposite page), I used the original Orthos prescription with my typical archwire sequence for nonextraction cases. When viewing the original malocclusion, the final position of the teeth is understandable. While the result is acceptable, it has mild labial tipping of the anterior teeth. Because there was both mild crowding and labial displacement of the canines in the maxillary arch pretreatment, the Lower Torque (LT) prescription would have yielded less labial tipping. It was acceptable to use the original Orthos prescription in the mandibular arch.

After evaluating the final outcomes of my extraction cases, using the original Orthos prescription and doing en-mass space closure with an .019 x .025 stainless steel archwire, I found the resulting torque usually inadequate. Typically, the incisors are too upright and the canine crowns are tipped lingually. Often the canines are in an end-to-end relationship (mild Class II). One solu-
tion is to close the spaces using an .021 x .025 stainless steel wire. For those of us who use sliding mechanics for space closure, doing so may produce unwanted friction in the posterior segments, which slows the closing process. Doctors using closing loops could use full-sized wires to possibly achieve the necessary torque. One of the most common mistakes we make is to begin space closure on archwires that lack sufficient stiffness to counter bowing (Figure 11). While it’s possible to close small spaces using Copper Ni-Ti and TMA, I recommend closing large spaces with rectangular stainless steel wires such as .017 x .025 in an .018 slot or .019 x .025 in an .022 slot. As I mentioned before, using sliding mechanics may necessitate using a small wire that produces less friction but offers less torque control; thus, selecting higher torque brackets (e.g., from the High Torque [HT] prescription) provides the additional torque control to maintain the inclination of the anterior teeth.

Remember, it’s always better to build extra torque into your system. If you have exhausted the largest wires and still have inadequate torque, what can you do? You either have to add torque to the archwire or rebond the case with higher-torque brackets. Which is more efficient and effective? Once you’ve lost torque, regaining proper tooth position is very time-consuming and costly to the patient and the practice. My philosophy has always been to keep control of the teeth during every phase of the orthodontic process. Mistakes made during treatment only increase patient visits, reduce patient confidence and increase office overhead.

**Conclusion**

The profession owes much to its pioneers, Drs. Larry Andrews, Wick Alexander and Ron Roth, to name a few. They were integral to the development of appliance systems and protocols that have advanced clinical orthodontics to where it is today. Utilizing the simple idea of Variable Torque Orthodontics with an understanding of the wire-slot interface and effective torque further refines the orthodontic process. Through it we can improve efficiency and effectiveness. It is my hope that this concept will continue to evolve until we are able to provide custom appliances specifically engineered for the individual needs of every patient. Until then, expanding torque prescriptions in a fully integrated appliance system is the next best approach.

CASE

**PRETREATMENT**

Pretreatment mild maxillary crowding and labial tipping of the canines necessitates a maxillary appliance with lower incisor and canine torque values.

**POSTTREATMENT**

The finished case, while acceptable, has too much labial crown torque to the maxillary canines. A lower torque prescription would have yielded less labial tipping.


If you’re interested in putting the Variable Torque Orthodontics philosophy to work in your practice, ask your Ormco representative about the additional torque values available in the Orthos appliance system.
A patient’s adherence to retention is of paramount importance in order to stabilize the teeth, bone and surrounding tissues once we remove a patient’s orthodontic appliances. With retention, another crucial period of treatment actually begins. A retention appliance, however, has traditionally not been aesthetically desirable to a patient; hence, the benefits of retention that we extol are often overshadowed by the unappealing aspect of an unattractive metal labial wire. The QCM retainer – with its clear plastic retainer bow – changes that, offering a new approach to cosmetic-oriented retention.

Most of us want to position ourselves in the forefront of today’s aesthetic market, providing patients with the newest and best. With the QCM retainer, we now have a natural segue from clear aesthetic brackets to clear aesthetic retention. Being able to offer traditional labial-bow retainers with an invisible flair has many practical applications.

• By providing an aesthetic alternative to the typical wire retainer, we can offer adolescents cosmetic-driven treatment through the retentive phase. Patients who object to treatment on the grounds that they would never be caught dead in a conventional Hawley will be encouraged by the fact that they have an aesthetic option.

• You can provide a practical adult retentive-phase alternative to clear aligners. Adults can now have the natural feel of tooth-to-tooth contact that a labial bow offers as opposed to the plastic-to-plastic contact of overlay aligners.

• Because labial-bow retainers allow the occlusion to settle, teeth are free to erupt into ideal intercuspal positions. Clear aligners that completely cover the teeth prevent the detailing of the fine points of occlusal contact, which prohibits an ideal final result.

• By utilizing the adjustment loop on the QCM wire, you can tighten the labial bow to close minute band spaces (Figure 1). Clear aligners don’t have this option and many adult patients who wear them aren’t afforded this aspect of final detailing.

• Patients will appreciate the soft feel of the QCM’s plastic labial bow rather than a stiff wire. The plastic labial bow eliminates the chance of a stiff metal labial bow abrading the labial surface of porcelain crowns (Figure 2).

(continued on page 16)
Introducing the L.E.Demetron 1. The first name in curing lights combines the latest technology with concentrated power and convenient portability for the highest level of performance ever in an LED light.

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**Delivery Pearl:** To assist in retention and to prevent overstressing the clear labial bow, I recommend including bicuspid clips on the palatal acrylic aspect of the retainer (Figures 3a and 3b). By doing so, the QCM retainer can be held tightly in place without the need for continual adjustment of the loops and bow (which, if done repeatedly, can cause premature breakage).

**Modification Pearl:** You may find it necessary to modify the QCM retainer under certain circumstances. It has been my experience that, on occasion, the distal end of the labial bow/wraparound wire, which extends beyond the maxillary second molar, can imbed in tissue, causing irritation and discomfort (Figure 4a). In these situations, I simply modify the design by placing Adams clasps on the first molars of the maxillary model and soldering the QCM wire to the clasps (Figure 4b). This adjustment precludes the “distal-wrap” so there is no possibility for tissue irritation. The labial bow can still be adjusted by squeezing the U-loop, thereby tightening the labial bow.

By adding an aesthetically pleasing treatment into the retentive phase, patients will be able to preserve the corrected alignment and bite while happily enjoying the smile they’ve worked so hard to achieve.

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**SMALL BUT MIGHTY**

**Ormco’s Short Stick Power “O”s**

**NOW IN A NEW CONVENIENT STORAGE SYSTEM**

Short Sticks are made from the same great material you love in Ormco “O”s packaged to accommodate single-patient use, avoiding cross contamination. Now there’s a new convenient way to store your Short Sticks with the Short Sticks Sectional Storage System. The storage system contains 24 sections (enough for each color) and comes with double-sided labels to mark each section by its corresponding Short Stick color and part number.

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For more information about Ormco’s power products, contact your local representative or call Customer Care at 800.854.1741. Put the power of Ormco’s superior products to work in your practice.
Here to Stay

Everything you’ve always wanted in a molar bond…reliability.

The new Titanium Orthos2 buccal tube combines the shock-absorbency and biocompatibility benefits of titanium with a revolutionary new design to give you a molar bond you can actually count on. It has a teardrop design on the lower arch to help keep it out of occlusion and a funneled slot opening that makes archwire engagement easy without adding size. A notch on the occlusal edge makes holding the buccal tube a cinch and aids initial placement on the tooth. No tie-wings and a hook that tilts away from the gingiva also make it comfortable for patients to wear. It’s the first Ormco buccal tube to feature an I.D. dot, compatible with the Orthos system.

And, we put it on the largest pad available to add surface area and increase bond strength.

So, throw away the super glue and forget all the tricks you’ve learned. This molar tube isn’t going anywhere. For more information on the Titanium Orthos2 buccal tube or to place an order, contact your local Ormco representative or Customer Care at (800) 854-1741. Visit us online at ormco.com.
In the past, patient cooperation had been a significant obstacle to overcome for successful molar distalization, an effective approach of treating Class II malocclusions with maxillary dentoalveolar protrusion. Today there are a variety of fixed options available that minimize or eliminate patient compliance. Laser welding and advances in wire technology have increased their efficiency and predictability. Molar distalizing appliances are designed around case factors such as age, facial type and muscular and tooth eruption patterns. Each appliance offers the clinician a different combination of features to assist in reaching specific treatment goals. In this article, four clinicians describe their appliance of choice for gaining predictable molar distalization, which requires little or no patient compliance.

Dr. Joe H. Mayes
Lubbock, Texas
The Penguin Pendulum fits well with my treatment philosophy of Simplified Treatment Mechanics (STM), which means correcting the width and the anteroposterior relationship and then placing brackets on Class I uncrowded cases. The Penguin design was developed to counteract “A” point movement and keep the upper incisors from advancing. (Other molar distalizing appliances allow as much as 2 mm of advancement.) I deliver this palate-borne appliance after expansion to correct all dental Class II malocclusions.

The Penguin has several unique characteristics. While comfortable, its thinness also fosters rapid adaptation and it can be used to maintain the expansion achieved earlier with a separate expansion appliance. The smooth acrylic swallowing trough is only 2-3 mm in thickness compared with thicknesses of up to 8-10 mm in other acrylic-style distalizing appliances. The second bicuspid are free to follow the molars and, because of the Penguin’s design, push distally as close to the curve of Spee as possible. The design of the spring coil also allows the arm to distalize the molar as parallel to the root as possible. In order to take advantage of the best anchorage in the palate, the Penguin doesn’t have an expansion screw. (The mid-palatal suture is the only place with approximately 1 mm of vertical cortical bone against which to push.) Finally, the springs are removable for easy adjustment.

The Penguin Pendulum counteracts “A” point movement and keeps upper incisors from advancing.

This case was an 11-year 4-month old male with an end-on Class II dental malocclusion on the left and full-step Class II on the right, blocked-out maxillary right cuspid. The treatment plan was to retract buccal segments first and then place full maxillary brackets. Penguin was removed at 19 weeks of treatment and replaced with a holding Nance appliance (as shown). The right molar was moved more distally due to the full step Class II.
Clinicians often make two common errors when using the Penguin. First, if you make the bend in the arm that inserts into the molar tube too long, it will embed the posterior part of the swallowing trough and cause irritation once the spring is engaged in the molar tube. Second, you can activate the springs too much. Springs should be activated at about a 45° angle to the distal. You should not use the Penguin on high-angle (dolichocephalic) or open-bite cases because the forces of occlusion are weaker in such cases.

Dr. Jerry Clark  
Greensboro, North Carolina

Molar distalizing appliances have evolved from bulky headgears to efficient and easy-to-use fixed intraoral appliances. During my six years of Distal Jet use, I’ve seen significant improvements to the lock, screw and activation mechanisms that set this appliance apart from the rest with enhanced visualization, access and patient comfort.

The Distal Jet offers several advantages. Because of its smooth, sleek profile, there’s very little, if any, opportunity for tissue impingement, and emergencies are minimal because patients rarely experience appliance breakage. Its design makes it easy to construct and cement in place. The Distal Jet moves teeth extremely fast and predictably. It can produce unilateral or bilateral distalization, while keeping molars upright, with virtually no tipping. When distalization is complete, it serves as a Nance appliance to hold the molars in place and maintain anchorage.

When judging cases for Distal Jet use, consider the convexity of the profile and the amount of crowding present. Excellent candidates for the appliance include cases where (1) profile considerations encourage a nonextraction treatment approach, (2) a moderate amount of crowding (6 to 8 mm) exists, (3) molars are end-on or in a weak Class I relationship, (4) or Class II on one side and Class I on the other. Obviously you need to examine the lower arch to determine if sufficient space can be created to properly align teeth. If the patient is a solid Class II on both sides, the Distal Jet is probably not the appliance of choice. In such cases, I recommend considering extractions or using a Herbst appliance. It’s also important to correct molar rotations before distalization.

Adventures in Orthodontics Presents

The Mini Distalizing Appliance on DVD

by Dr. Jim Hilgers and Dr. Steve Tracey

In this edition of Adventures on DVD, Drs. Hilgers and Tracey introduce the latest addition to noncompliance therapy, the Mini Distalizing Appliance (MDA). They will take you through everything you need to know to add this clean, simple and versatile appliance to your orthodontic armamentarium.

- **Introduction.** History and rationale of noncompliance therapy and molar distalization. Introduction to the MDA.
- **Placement.** Cementsation of the appliance, bonding of fixed appliances and initial archwire placement.
- **Clinical Management.** All aspects of the practical application of the Mini Distalizing Appliance are discussed, including case selection and appointment-by-appointment clinical management recommendations.

To order, contact your local Ormco representation or call Customer Care at 800.854.1741 (Product #701-0236)
After molar distalization, it’s important not to lose the gain. I recommend slightly overcorrecting the molar relationship because some anchorage will be lost as the case is being treated. This loss will be magnified if second molars have erupted, so overcorrect the molar relationship in these situations even more. If the second bicuspids have erupted, band them rather than the first bicuspids to maintain as much anchorage as possible. Don’t try to do too much with this appliance. Consider extracting second molars in cases where maximum distalization is needed and third molars are in good position.

Dr. Mario Paz
Beverly Hills, California

The P-Rax can be customized for unilateral or bilateral distalization, plus expansion if needed. Its tube and bayonet mechanism fosters molar distalization in a controlled manner and its rigidity virtually precludes molar tipping. You effect exactly the amount of distalization the case requires by having the patient or parent manually control the turning of the screw – one complete turn two to three times per week. And the P-Rax has a number of design features that minimize anchorage loss: it uses bonded occlusal rests or bands on first and second bicuspids; it can employ second molars for anchorage if they’ve erupted; and it includes a Nance button.

After achieving Class II correction (with 1.5 – 2 mm of overcorrection recommended), remove the occlusal rests on the second bicuspids to allow distal drifting. Class II elastic mechanics and individual tooth distalization is recommended. Slow distalization is also recommended to avoid molar tipping and anterior anchorage loss. As with some other distalizing appliances, the P-Rax is contraindicated for patients with an open-bite tendency.

If the bond on the bicuspid occlusal rest fails, turn the screw back a couple of turns and rebind the occlusal rest. While the Compact RPE is designed to preclude the screw backing up inadvertently, you can manually turn it back without hurting it to recapture an occlusal rest and continue to expand the case as originally planned.

Dr. Stephen Tracey
Upland, California

Since its introduction over a decade ago, the Pendulum appliance has undergone numerous changes that have greatly improved patient comfort, ease of placement, enhanced stability and improved overall response. The Hilgers/Tracey Mini Distalizing Appliance (MDA) is the most recent version in this family of molar distalizers. A hybrid appliance that incorporates the best features of both the Pendulum and the Compact RPE, it is an excellent choice to expand the maxilla, distalize upper first molars, create room for erupting cuspids and unlock the anterior occlusion.

The MDA is unique in that its small, rigid design affords exceptional patient comfort without compromising effectiveness. As a tooth-born appliance (with no palatal coverage required), the problems of tissue impingement and hygiene are greatly reduced or eliminated.

One characteristic that simplifies placement of the MDA is the stabilizing wire that’s soldered from the upper first bicuspids to the upper first molars. The subsequent rigidity of the appliance improves overall expansion while rendering the preactivated .032 TMA distalizing springs passive during cementation and the expansion phase. You release the springs by severing the stabilizing wires with a high-speed crown-cutting bur. These preactivated springs can achieve the desired molar distalization in two to four months.

Anchorage for molar distalization is derived from the upper dentition, requiring placement of brackets at the time of appliance delivery. Sectional archwires extending from the midline to the second bicuspids allow the maxilla to separate. Once expansion is complete, place a continuous archwire from second bicuspids to second bicuspid while the molars are being distalized. Remove the appliance after molar overcorrection and stabilize it with an upper utility arch, then allow the upper buccal segments to free-float distally for several months while the lower arch is leveled and aligned in preparation to collect Class II elastics. You
can assist free-floating with elastomeric chain once Class II elastics can be worn. Patience during this critical juncture will help avoid anchorage loss.

As with all appliances, proper case selection is essential to ensure treatment success. The MDA should only be used in stronger muscular patterns where growth and subsequent mechanics can compensate for the transient bite opening that results from expansion and rapid molar distalization. Fortunately, approximately 65% of all Class II malocclusions fall into this category.

Now you’ve got a simple, cost-effective alternative for those prospective patients who would like minor adjustments to their incisors but who don’t want braces. It’s the AOA Red, White and Blue system of three active, nearly invisible, custom-made retainers worn in the easy-to-remember red, white and blue sequence. Made of clear, lightweight plastic, each retainer works to coax your patients’ teeth in small incremental movements, getting them progressively closer to the desired result. They’re comfortable to wear and easy to talk with. Simpler and less expensive than comparable treatment systems and with little chair time, flexible appointments and impressive results, Red, White and Blue offers an affordable option for patients who otherwise would probably never have treatment. For more information, including a detailed instructional brochure, or to order, call AOA at 800.262.5221 in Sturtevant, Wisconsin, or 800.826.2224 in Enfield, Connecticut.
Dr. Kyoto Takemoto has spoken and published extensively in Japan and abroad on orthopedics and lingual orthodontics. He is a member of the Japanese Orthodontic Society, American Association of Orthodontists, American Lingual Orthodontic Association and the Italian Society of Lingual Orthodontics. He is also an honorary member of the European Society of Lingual Orthodontics. Specialty certified by the Japanese Orthodontic Society, Dr. Takemoto completed his dental training at Tokyo Dental College in 1979 and his orthodontic training at Tokyo Medical-Dental University in 1981. He maintains a private practice limited to lingual orthodontics in Tokyo.

Dr. Giuseppe Scuzzo is a member of the Italian Society of Orthodontists, American Association of Orthodontists and American Lingual Orthodontic Association. He is also a past president of the Italian Lingual Orthodontic Association and European Society of Lingual Orthodontics. Dr. Scuzzo completed his medical degree in 1983 and dental degree in 1988 from Rome University with a postgraduate degree in lingual orthodontics from Cagliari University in 1993. He has been in private practice limited to orthodontics and lingual orthodontics since 1983 in Rome. Together with Dr. Takemoto, he gives courses in lingual orthodontics throughout the world.

It’s been interesting to watch the fluctuation in the popularity of lingual orthodontic treatment since it first came on the scene 30 years ago. Success initially eluded some orthodontists because they weren’t able to attain the same treatment results as with labial appliances. They experienced difficulty in bracket placement, wire bending and other techniques used in lingual, but as their experience and skill improved, so did laboratory procedures, producing better case results. In Japan, the aesthetic appliance market has been very strong with lingual having become the technique of choice for patients. Also, the number of orthodontists has increased more rapidly than the number of patients, making lingual important for practice differentiation. These factors have contributed to lingual enjoying a steady growth rate in Japan since the late 90s.

Evolution of Indirect Bonding for Lingual Orthodontics

The lingual surface of the teeth has a unique morphology that makes it difficult to place brackets in ideal positions. Indirect bonding has become the method to overcome these discrepancies by compensating for the required thickness between the bracket base and the tooth surface. Popular indirect bonding systems use silicon trays set up with the Torque Angulation Reference Guide (TARG) or Custom Lingual Arch Setup System (CLASS). While these systems have merit, a new technique – the Hiro Technique* – by Dr. Toshiaki Hino has proven to be a breakthrough in indirect bonding for lingual cases without the use of silicon trays. This technique differentiates itself from the others by simplifying the indirect procedure, for example, by eliminating the need for a second model. It consists of a setup model, individualized cores and an ideal archwire form (also used as a 3D replacement jig for rebonding).

Special Features of the HIRO TECHNIQUE

- No special tools or instruments are required.
- One set of models eliminates bracket transfer between models.
- Individual resin cores replace silicon trays (Figure 1).
- The small-size core provides accurate placement even in severely crowded cases.
- Full-size archwires are used for bracket placement.
- It simplifies laboratory procedures for in-office or outside lab and doctors who learn the technique.

*U.S. Patent No. 6,174,163 Bl.
Indirect Bonding Using the HIRO TECHNIQUE

1. Using a high-quality alginate or silicon material, take impressions of patient’s upper and lower arches. Make working models.

2. Prepare models in ideal occlusion. Include some overcorrection, depending on the degree of malocclusion. The quality of the setup models will affect treatment quality (Figure 2).

3. Manipulate an .018 x .025 stainless steel lingual archwire into an ideal arch form (which can also be used as the replacement jig). Place all the brackets on the archwire and secure with elastomers (Figure 3). Adjust the wire with a small curve for anterior segments and inset bends between cusps and first premolars, allowing part of the bracket base to touch the tooth surface. The rest of the space will be compensated for by applying resin to set the appropriate torque, in-out and rotation. Additional wire bending isn't needed. Note: This ideal archwire form is not used for treatment.

4. Apply Vaseline® to the surface of the model to foster easy core removal. Return the archwire to the model and hold it in place with utility wax applied distal to the lingual side of the second molar (Figures 4 and 5).

5. Use Ultra Band-Lok™, a glass ionomer cement, to make the resin cores. This blue light-cure cement provides easy identification, reduces work time, hardens quickly and is easy to remove. For anterior teeth, place enough cement to hold in place: cover the occlusal edge fully and half the height of the lingual surface, including a portion of the bracket and pad (Figure 6). This will provide enough strength to keep the resin core secure during the bonding procedure. To make the core for posterior teeth, apply cement on only the lingual surface to the occlusal plane — not on the labial surface. Light cure for 20 seconds per tooth (Figure 7). When the arch is complete, each bracket should have a light-cured resin core (Figure 8).

**Vaseline is a registered trademark of Chesebrough-Pond’s Inc.**

**Ultra Band-Lok is a trademark of Reliance Orthodontic Products, Inc.**
6. To remove the archwire, cut the elastomers on each bracket (Figure 9). With brackets and cores intact, gently separate the entire archwire from the model. Remove each bracket individually from the wire (Figure 10), temporarily replacing it on the appropriate tooth.

Apply a sealant to all bracket bases (Figure 11) and regular viscosity Enlight® adhesive onto the sealant (Figure 12). Return the bracket to the model and cure each bracket with Enlight for 20 seconds (Figure 13).

7. Remove the brackets from the model and cut the excess resin from around the bracket base (Figure 14). The brackets are now ready to be placed into the mouth (Figure 15). It’s helpful to write Palmer notations and draw vertical lines on the cores that show the center of the tooth for alignment.

8. Clean the tooth surface, etch, rinse and dry. Apply sealant to both bracket and lingual tooth surface (Figure 16). Place Enlight on the bracket and then place the bracket on the tooth (Figure 17). Light cure for 20 seconds (Figure 18).

9. After curing, remove the resin core by cutting with a high-speed handpiece. Remove any excess acrylic with a scaler.

10. Place the initial archwire (Figure 19).
CASE 1

PRETREATMENT
24-year-old female, Class I with crowding and bimaxillary protrusion. Dolichofacial pattern.

TREATMENT PLAN
Extract maxillary and mandibular first bicuspids. Use transpalatal arch with Class II elastics for maximum anchorage.

PROGRESS
Individualized cores were prepared and used to deliver lingual brackets. The initial archwire delivered at bonding was an .016 .025°C Copper Ni-Ti® in both arches. After three months both archwires were changed to an .017 x .017 .025°C Copper Ni-Ti for continued leveling.

At one month into treatment, leveling of the arches continued. After eight months, each archwire was changed to an .0175 x .0175 TMA® to establish torque.

At nine months into treatment, torque continued to be established. At ten months, the maxillary archwire was changed to an .017 x .025 TMA with T-Loop and the mandibular archwire was changed to an .016 x .022 stainless steel for en masse retraction.

At 11 months into treatment, en masse retraction continued.

At 20 months into treatment, both wires were changed to .016 TMA for detailing, which continued for four months.

POSTTREATMENT
After 24 months of treatment, appliances were removed, achieving good occlusion and an improved profile. Retention was started using the QCM clear retainer in the maxilla and a mandibular spring retainer 5-5.
CASE 2

PRETREATMENT
31-year-old female, Class 1 crowding with mandibular left second bicuspid impaction.

TREATMENT PLAN
Extract maxillary and mandibular first bicuspids. Extrude mandibular left impacted second bicuspid using sectional arch. Use transpalatal arch and Class II elastics for maximum anchorage.

PROGRESS
Individualized cores were prepared and used to deliver lingual brackets. The initial archwire delivered at bonding was an .016 25°C Copper Ni-Ti in both arches. After three months both archwires were changed to an .017 x .017 (35°C) Copper Ni-Ti for continued leveling. Partial cuspid retraction for unraveling anterior was completed by using power chain from the cuspid bracket to the loop between the canine and second bicuspid.

At one month into treatment, a bracket was placed on the maxillary left central. Using the individual core makes bonding easy and accurate even though one wasn’t prepared at the initial bonding. Extrusion of mandibular left second bicuspid was started.

At 11 months into treatment, en-masse retraction was started using an .017 x .025 TMA with “T” Loop for maxilla and an .016 x .022 stainless steel for mandible.

At 22 months into treatment, both archwires were changed to an .016 TMA for detailing and space closure.

POSTTREATMENT
After 28 months of treatment, appliances were removed, achieving acceptable occlusion. Retention was started using the QCM clear retainer in the maxilla and a spring retainer in the mandible.
ReBonding Method

1. Secure the ideal arch form setup with utility wax applied distal to the lingual side of the second molar. Make resin cores using Ultra Band-Lok for the occlusal surface of the first and second molars (Figure 20). Light cure each tooth for 20 seconds. The replacement jig is ready to be used for rebonding when needed.

2. With the replacement jig in place (Figure 21), put the bracket on the jig (Figure 22) and secure it with an elastomer. Check that it's in the correct position.

3. When the bracket position is determined, apply sealant (Figure 23) followed by Enlight adhesive (Figure 24) to the bracket base.

4. Return the jig to the model. Use Ultra Band-Lok to make a resin core (Figure 25) and light cure for 20 seconds (Figure 26). Bracket is ready to move to the patient’s mouth.

Indirect bonding of lingual cases can now be accomplished routinely. The Hiro Technique brings together simplified components that the lab or any clinician can master to achieve more accurate bracket placement, reduced placement and rebonding time and easier adjustments.

We would like to thank Dr. Toshiaki Hiro for his contributions in developing the lingual indirect bonding technique using the individual resin core system. It has assisted the orthodontic profession in simplifying a complex technique and providing practicable treatment mechanics.

– Drs. Kyoto Takemoto and Giuseppe Scuzzo
Adding the position of office manager can be an effective management tool for growing a practice. It affords you additional time to concentrate your attention on patient care and leadership. Creating this position also disturbs the status quo for both you and your staff. The successful transition depends on a number of things, two of which I’ll touch on here: (1) clarifying the role of the individual in the position, especially if you’re hiring from within; and (2) how you handle the selection process.

In most practices, staff members perceive the office manager in much the same way they do spouses who work in the practice – they’re neither fish nor fowl. While they’re officially staff, even if they’re hired from outside the practice, they’ve broken ranks, especially if the person hired is female. By virtue of accepting the position, they’ve declared loyalty to and alignment with you. "So what’s the problem with that?" you may ask. In an ideal situation, nothing. Here’s what happens in the real world.

The Real World of Promoting from Within

In the real world, when an existing staff member is promoted to office manager, the rest of the staff may exhibit jealousy and/or animosity. Unless you clearly communicate that the position has equal status with everyone else’s in the practice (which is what I recommend), most staff members will assume that the individual is above them in rank; hence, one reason for ill will. It’s essential for everyone to understand what the position description entails. Write the job description, post it and review it at a staff meeting to clarify the duties. And keep clarifying the duties; otherwise, you may end up with a lot of gray areas that sometimes you handle and sometimes the office manager handles. This process may seem laborious, but getting clarity will save you time and conflict.

I recommend that the position oversee specific administrative functions in the practice and act as your voice in explaining and upholding practice policies and procedures with decision-making authority in specific areas that you clearly define. The role should ease your administrative responsibilities and facilitate communication between you and your staff, opening your day for other possibilities. Of course, the duties of the position will vary from practice to practice and the responsibilities will hinge on staff already in place, such as treatment coordinator and financial coordinator. Duties include communicating office policies/procedures, scheduling staff reviews, coordinating new staff training, tracking staff CE credits, handling OSHA updates and acknowledging practice performance and milestones. Note the model Job Description on page 25.
Don’t Make This Mistake

One of my clients gives his staff the final say when hiring. Some tests would classify most of his staff as socializers who hold relationships in high priority and are strongly oriented toward feelings while scoring low for confrontation. The staff hired someone whom everyone liked to be financial secretary. Some time later, the accounts receivable started to escalate. They discovered that the individual was unable to manage collections. She was too sympathetic with delinquent patients and she had even made a partial payment for one. If the doctor and the staff had been acquainted with assessing an individual’s orientations in light of the job requirements using testing, the practice might have been spared an unfortunate hiring mistake.

What’s in a Name?

An effective way of clarifying the status issue is to change the title from office manager to office coordinator. The term manager implies a supervisory role and that the staff has an intermediate boss. Too often the manager will share this same misconception and many problems arise from this one factor alone.

How to Clarify Roles, Especially for Disputes

The staff needs to be assured that the office coordinator won’t be a barrier to their communication and relationship with you and that you will address any issues that can’t be resolved after protocol is followed. If a staff member has a dispute with the office coordinator about office policy, I recommend they go to you together to find resolution. For your part, you must ensure that you develop a protocol for handling such discussions (e.g., that the two individuals come together to address the issue without your having side discussions with them privately). Let’s say, for example, that a member of the clinical staff feels that the amount of the uniform allowance should be increased. The office coordinator is determined to maintain the budget you established. If, together, the two cannot negotiate an immediate solution, they would request a meeting with you.

How to Assess Practice Fit

Other critical factors in selecting the appropriate person to be office coordinator are the skills, talents and personality of the individual. To assess possible fit, many practices use personality testing, such as the Birkman Grid, Color Code, Personalysis and Myers-Briggs test. These tools provide an important foundation for assessing a person’s natural propensities (e.g., whether someone is detail oriented or a big-picture thinker, a socializer or introspective). Personality tests are excellent tools that can help you avoid putting someone in a position in which he or she will eventually fail. I recommend using these tests for potential hires if you take the time to learn to use them appropriately. If your staff is involved in making hiring decisions, they should understand how to use these tools as well. In fact, once they understand the benefit, they’ll become adept at analyzing whether the person is a fit for the job and they’ll have ways of evaluating the candidate other than simple likability (see boxed story).

The profile of an office coordinator includes being able to handle details, get along with different personalities and facilitate difficult conversations with staff and patients. While many people think that being able to manage difficult conversations is strictly a function of personality, I assure you that communication skills can be learned if the individual is committed to do so. If a candidate has all the talents you’re looking for and is only lacking specific communication skills, consider arranging for the individual to be coached in acquiring the required communication tools.

The person you select should have a clear understanding of and commitment to your practice vision. Your values are the operating principles by which the office coordinator is empowered to operate autonomously so this individual must share those values yet be able to make distinctions between policy and more flexible rules consistent with your mission.

When promoting from within, you may have a tendency to select the individual who has the most seniority. Doing so may not be the wisest decision.

Personality tests are excellent tools that can help you avoid putting someone in a position in which he or she will eventually fail.
Regardless of whom you choose, have a private meeting with each candidate not selected before you make the selection announcement. Acknowledge their loyalty and dedication, highlighting their talents and contributions, and tell them what you envision for their future. Let them know what your decision was based upon and request their support for staff unity.

**How to Dispel the Left Behind Feeling**

With the addition of an office coordinator, it’s important to dispel the staff’s mostly unspoken belief that there’s little opportunity for their advancement potential. In fact, adding the position should be viewed as a signal that the practice is a place in which to grow and that, most likely, there will be other career openings, such as clinical coordinator, treatment coordinator, front desk coordinator, etc. While the initial response may be an emotional one of feeling left behind, staff will let go of their fear once they believe this person’s promotion opens the door to others.

Hiring or promoting an office coordinator to be your “right arm” can be a challenging task. If you clearly communicate with the staff during the hiring process and define the position to avoid misperceptions, you can promote the position as a step forward and enjoy the benefits that some newfound freedom gives you.

Thanks to Dr. John R. “Bob” Smith and his staff from Winter Springs, Florida, for sharing this job description. You’ll note that their Office Coordinator handles some quasi-supervisory responsibilities (accompanying the doctor during performance reviews) but does not have full supervisory authority.

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**JOB DESCRIPTION - OFFICE COORDINATOR**

**JOB CLASSIFICATION:** Salaried

**PURPOSE OF POSITION:** Facilitates office operations and performs limited financial management. Communicates with doctor to ensure efficient practice site operations are maintained.

**REPORTING STRUCTURE:** The Office Coordinator will report to the doctor.

**AREAS OF RESPONSIBILITY INCLUDE (BUT NOT LIMITED TO):**

**A. ASSIST IN PERSONNEL ISSUES**
- Screens applicants and assists in the selection process
- Facilitates the development and revision of job descriptions and hiring requirements
- Accompanies doctor during performance reviews
- Submits office staff time cards for payroll processing bimonthly, verifying accuracy and completeness of employee time
- Maintains all vacation and other “days off” schedules
- Ensures trained personnel are scheduled to staff all positions during vacations, non-patient days and staff illness
- Facilitates office staff meetings at least monthly; reviews meeting minutes and distributes to staff and doctor

**B. DAILY OPERATIONS**
- Ensures office is opened and closed daily, according to office protocol
- Oversees and distributes the work activities and schedules in the practice site
- Facilitates revisions of the office procedures manual
- Oversees petty cash and change funds, balancing and accounting for the money daily and providing change when needed
- Ensures payment at the time of service policy is followed consistently
- Reviews daily report and ensures that the administrative staff has completed the daily close accurately
- Oversees all cash handling
- Reviews all account adjustments for accuracy and processes accordingly
- Authorizes payment for account payables and works with accountant and doctor on maintaining budgets

**EDUCATION:** High school degree required, college degree preferred

**SKILLS:** Management abilities, administrative abilities, orthodontic knowledge and computer background

**ATTRIBUTES:** Goal oriented, ability to organize, quick to action, persistent and thorough, diplomat and problem solver, and likes charts, graphs, figures and lists
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Alan Pollard, MDSc
Melbourne, Victoria, Australia

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