Ortho Tribune

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Help give low-income kids, teens a better smile

By Fred Michmershuizen, Online Editor

Smiles Change Lives (SCL), a nationwide program that provides access to orthodontic treatment for children from low-income families, is expanding its service areas into new states and regions. The program, which is supported by 3M, is seeking low-income children and teenagers, ages 11–18, with severely crooked teeth and misaligned jaws.

SCL's growth is possible because of the efforts of dedicated orthodontists who are working to establish SCL programs in their communities and who agree to treat qualified, motivated SCL patients in their offices.

"I've been so pleased with this program," said Dr. Randall Markarian of St. Louis, an SCL program leader. "Every SCL patient assigned to my practice has been a pleasure. I've had moms in my office in tears when I put their child's braces on. With SCL, I know that I'm helping the kids who need me the most."

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Rotated teeth — effective ortho treatment utilizing the lingual technique

By Rubens Demicheri, DDS, MD

Today, more and more adults seek orthodontic treatment. In the realm of orthodontic therapy, the lingual technique has steadily expanded.[1,2] The biomechanical principles to move teeth are independent whether the brackets are bonded on the labial or lingual. Nevertheless, there are differences with the force action and jacking position.

For some tooth movements with the lingual (in principle, also for labial) technique, the position of a bracket's slot has a critical influence regarding the effectiveness of orthodontic treatment.

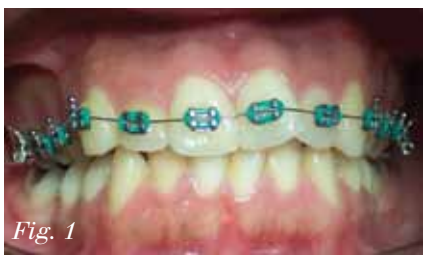

Fig. 1

Fig. 2

As in labial orthodontics, leveling is perhaps the most important task. It must be achieved with light forces quickly, accurately and effectively.

Leveling requirements:

- vertical movement,
- in–out movement or buccal–palatal movement,
- angulation movement,
- rotation.

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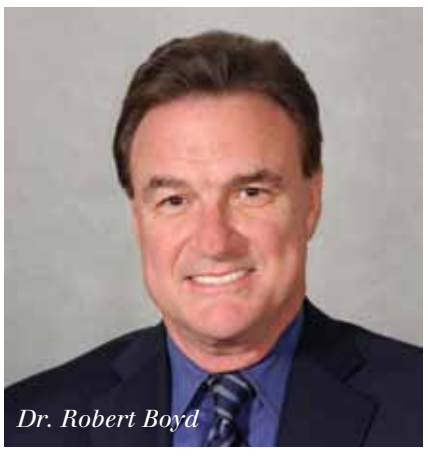
Fig. 1: Start of treatment (July 2007).
Fig. 2: Progress of leveling (October 2007).

OT Study Club explores periodontal health

Dr. Robert Boyd will present Webinar on Jan. 21

Recent literature indicates that small but significant overall periodontal liability occurs with fixed appliances during orthodontic treatment. However, studies also point out these problems can be overcome almost completely with the use of established preventative dentistry measures employed before, during and after treatment.



Dr. Robert Boyd

At 7 p.m. (EST) on Jan. 21, Dr. Robert L. Boyd, chairman of the Department of Orthodontics at the Arthur A. Dugoni School of Dentistry of the University of the Pacific in San Francisco, will discuss these matters in his OT Study Club Webinar, "Improving Periodontal Health Through Orthodontic Treatment."

Boyd, who holds degrees in both orthodontics and periodontics, will present a review of currently available oral-health products for orthodontic patients evaluated in light of FDA and ADA approvals for claims. He will use this information and also review the current dental literature to determine what toothpaste, toothbrushes, rinses and other plaque-removal aids have been shown to be the most efficient and effective for orthodontic patients with fixed appliances.

The Webinar, sponsored by Procter & Gamble, will last 60 minutes with a 30-minute question-and-answer session at the end. The course is free, and you can register at *OTStudyClub.com*. Attendees will earn one C.E. credit. For more information, contact Julia Wehkamp at *julia.wehkamp@dtstudyclub.com*. OT

Orthodontic education needs 'fresh young blood'

By Dennis J. Tartakow, DMD, MEd, PhD, Editor in Chief

Orthodontic education may be in a state of flux with a daunting outlook for the future. Recruitment, retention and increased faculty vacancies of full-time, board-certified faculty members in postgraduate orthodontic programs are issues of critical importance when perceived through the lens of educational leadership and social justice.

Historically, these issues have been emergent problems in dental education since the early 1990s; they have the potential of impacting people, communities and society as well.

For more than two decades, orthodontic programs have been losing full-time faculty members without new orthodontists filling their positions. Prior to 1990, there was neither concern for the future of academic orthodontics nor worry that these issues would ever materialize; most postgraduate orthodontic programs were not in short supply of full-time faculty members. However, since the 1990s, increased apprehension for the future of academic orthodontics has surfaced regarding these unfilled position vacancies across the country.

'If education and research can become a reasonable choice to compete with clinical practice as a career option, the specialty will maintain its high standards.'

Besides the natural progression of age, sickness or retirement, there are reasons why many seasoned faculty members are leaving academics for clinical practice; it has to do with money and economics. Newly graduated orthodontists have been groomed to replace older, retiring faculty members but not many choose academe over clinical practice; they have tremendous financial debts from years of education that just about precludes consideration for a career in education.

In addition to, and as a result of, these problems facing the specialty of orthodontics, there are social justice implications of virtue ethics and community obligation that may begin to emerge. The most important of these human rights possibilities include: (a) poorly trained orthodontic graduates who may not serve the public with the expertise that is expected, (b) reduced dental services currently provided to the community from dental school clinics and off-campus outreach facilities, and (c) diminished health care for individuals who rely upon universities and hospitals for their personal medical and dental needs.

Orthodontic education is in need of addressing full-time faculty shortages with "fresh young blood" — it is a dilemma that resonates with inadequacies and consequences. Student financial obligations make it difficult, if not impossible, to attract young doctors to consider a career in education; the salary differential alone makes academe a non-competitive issue with clinical practice taking into consideration debt service, starting a family, beginning life after school, etc.

Survival of the specialty is at stake. Transformative thinking and decision-making is most important for safeguarding tomorrow's orthodontists and orthodontic leaders.

The AAO leadership is taking the attitude of carpe diem — seize the day — and making the changes that are necessary for reducing full-time faculty vacancy positions.

If education and research can become a reasonable choice to compete with clinical practice as a career option, the specialty will maintain its high standards and continue to graduate well-educated orthodontists — the essence of a force for change. OT

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According to SCL, families who turn to it for assistance cannot afford the average cost of braces for their children. With the current economic downturn, more families now qualify for SCL due to a change in the program's financial guidelines, which include a broader spectrum of low-income families.

SCL is actively seeking qualified applicants in Missouri, Minnesota, Kentucky, Virginia, Florida, San Diego, Colorado, North Carolina, Massachusetts, Wisconsin, New Jersey, Illinois, Philadelphia, Kansas, Texas and Long Island, N.Y. SCL plans to expand into more states and regions in 2010.

The organization was founded in 1997, and since then it has assisted more than 1,200 patients. Orthodontists who wish to get involved or get more information are invited to contact the organization at (888) 900-3554, *info@smileschangelives.org*, *www.smileschangelives.org*. OT

OT Corrections

Ortho Tribune strives to maintain the utmost accuracy in its news and clinical reports. If you find a factual error or content that requires clarification, please report the details to Managing Editor Kristine Colker at *k.colker@dental-tribune.com*.

Image courtesy of Dr. Earl Broker.

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BPA WORLDWIDE BUSINESS

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OT Editorial Advisory Board

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Leveling mechanics is due to the application of:
- adequate inter bracket distance,
- light and elastic force,
- preformed memory arch wire.

One of the advantages of nickel titanium (NiTi) and super elastic arch wire is that we can fill the bracket slot earlier during the course of the treatment plan.

In lingual orthodontics compared to labial orthodontics, rotational movement to level a single rotated tooth is not easy to achieve.[3]

There are several points to consider.

Movement mechanics of a rotated tooth

The only force system that can produce pure rotation (a moment with no net force) is a couple, which is two equal and opposite and parallel forces, but non-collinear.[4]

The rotational movement depends on the moment of the forces. The moment of the force is equal to the magnitude of the force applied, multiplied by the perpendicular distance of the line of action to the center of resistance.

These forces applied to the tooth should produce efficient rotation. However, in buccal orthodontics, rotation movement of rotated teeth can be accomplished even without an exact application of this force system.

Memory-shaped pre-formed arches in large cross-sections, filling the slot of the bracket, have good control of the tooth movement and can perform this task within a short amount of time.

In labial orthodontics, leveling seems to be easier and can be resolved in less time. Reference the clinical case (Figs. 1 and 2).

In the lingual technique, the arch wire could move the teeth in the lingual direction.[5] That is the reason why some movements are difficult to achieve, as they are in the labial technique.

The problems are:
- During the rotational movement, teeth are moved lingually into a shorter length of the arch, with less space for movement (Fig. 3).
- The small size of the arch and subsequent short inter-bracket distance (Fig. 4).
- Less control of the arch in the bracket slot.

The short inter-bracket distance necessarily means that any moment produced across a given bracket will be decreased due to the short lever-arm to the center of rotation.

This is more significant in the mandible dental arch because it is more constricted than the maxillary and the incisor mesial-distal width, which is less than the maxillary incisors (Fig. 4b).[5]

Depending on the available space for de-rotation, it can be necessary to open space as the first step. The second step is the de-rotation.

Slot position

If we consider de-rotation as an isolated step, then we know the power applied works on the horizontal plane. In principle, by all brackets with horizontal slots, the arch wire can slip off (Fig. 5). Two factors can avoid this problem.

The ligature holds the arch wire into the slot. This effect can support the force direction.[6]

But this effect can be eliminated if the force direction pulls the arch wire out of the slot. This can happen very frequently with the lingual technique.

Using light forces and also small diameter arches make it more difficult and almost impossible to de-rotate a rotated tooth at the moment of leveling.

Contingent on the various force

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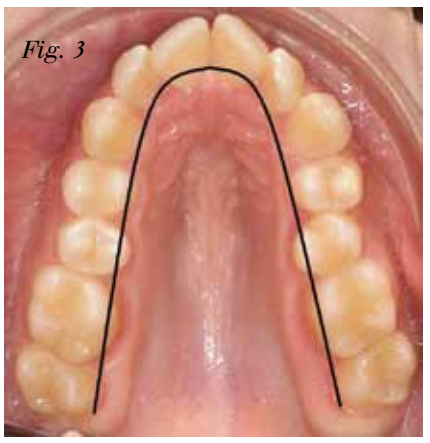

Fig. 3 (above): Rotated teeth move lingually into the shorter length of the arch, with less space for movement.

Fig. 4a

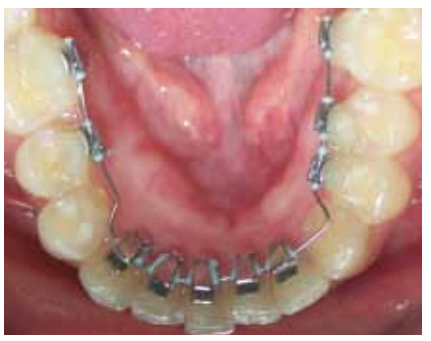

Fig. 4b

Figs. 4a, 4b (right): The inter-bracket distance is short with the lingual technique, especially in the lower jaw (b).

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action and jacking position of a labial or a lingual arch wire, the position of the bracket slot has different consequences. The horizontal slot makes fewer problems in labial, as in lingual, technique.

Today, the majority of the lingual brackets in the market offer horizontal slots. With this particular orientation of the slot, only the ligature contains the arch. Thus, the points of the applying forces are not firm when elastic ligature is used, even with steel ligation and full engagement of the arch wire in the bracket slot.

Even slight rotations of the tooth are difficult to be solved completely in this way with stainless steel ligature. The use of copper-nickel titanium arch wires will slightly increase the effectiveness because the arch has a tendency of sliding out of the lingual slot.

What is the solution? For de-rotation, the slot needs to be close to force direction (Fig. 6). In principle, a tube would solve all problems. However, to use tubes on all teeth makes it impossible to insert the wire.

When the leveling stage requires de-rotation of a single tooth, the vertical slot is an alternative. During de-rotation, the arch wire is in contact with the bracket body or metallic framework (Figs. 6, 7 and 9). Therefore, the power from the arch wire will transfer completely to the tooth.

However, a vertical slot instead of a horizontal slot is also not enough because some of the movements in this stage (leveling) might be affected, and it may not be very efficient with this orientation of the slot. For example, any vertical movements, especially intrusion movements, are difficult with a vertical slot. In principle, this is the same problem with a horizontal slot and de-rotation as described.

The clever solution

To find a satisfactory reply for the outlined problems, an ideal lingual bracket would need a vertical and a horizontal slot. This is a technical challenge because, on one hand, lingual brackets need to be small in all directions.[7] On the other hand, they should have many features. A good compromise is the magic® lingual bracket system.*

For front teeth, magic brackets have a horizontal slot (Fig. 8), but the insertion of the arch wire is vertical.[8] When the arch wire is in position, it is held into the horizontal slot and cannot slide in the direction of the force because the metal wall of the bracket body does not allow it (Fig. 9).

This special design will achieve most of the movements that de-rotation requires and is effective in realizing the necessary vertical, in–out and angulations movements that leveling requires. In the posterior teeth, the situation is identical because of the vertical slot design of the brackets (Fig. 7).

These are the advantages of a vertical slot (not only for lingual brackets): better torque control, rotation and “en-masse” retraction (Fig. 10). Additionally the arch wire is easy to insert because there is a direct view into the slot.

Effective control with rotation and torque require brackets with a long mesial-distal distance (Fig. 11).[9]

Naturally, the issues of a short inter-bracket distance can be solved or minimized with the use of memory-shaped arch wires and, especially, super elastic arches.

In order to accomplish those movements effectively, it is important to consider indirect bonding to place and position lingual brackets. Indirect bonding significantly reduces rotation deviation with irregular proximal contact points.[10]

Conclusion

In comparison to labial orthodontics, rotational movement is difficult to achieve in lingual orthodontics. There are many reasons for this, but one of the most important is the use of brackets designed with a horizontal slot.

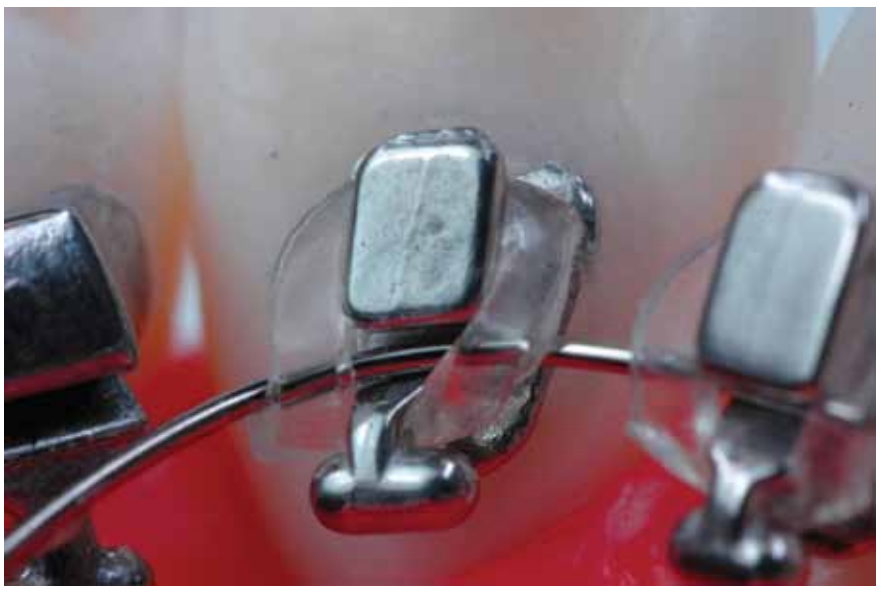

Fig. 5: With an open lingual horizontal slot, the arch wire can slip off the bracket.

Fig. 6: The closed lingual horizontal slot with a vertical entrance provides excellent rotational control. (Photo/Dentaurum)

Fig. 9a

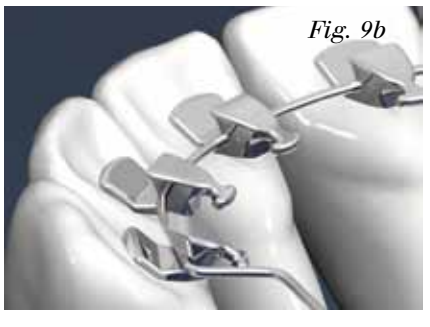

Fig. 9b

Figs. 9a, 9b: The arch wire cannot slip off during tooth rotation. (Photos/Dentaurum)

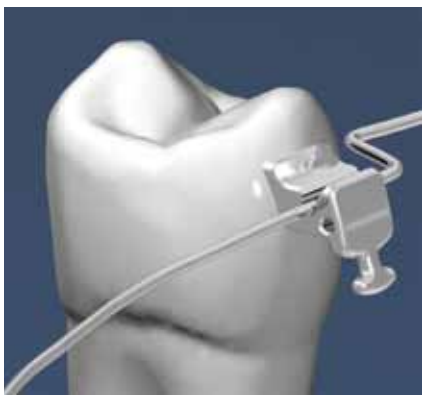

Fig. 7: Magic brackets provide a vertical slot for the posterior teeth. (Photo/Dentaurum)

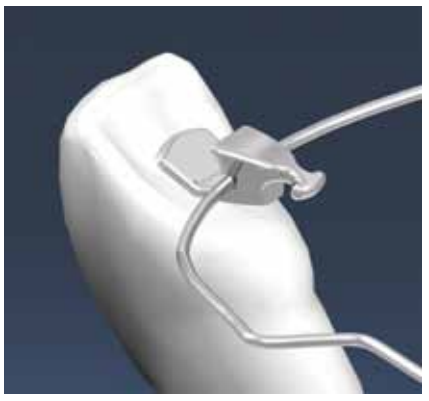

Fig. 8: Magic brackets provide a vertical entrance for the anterior teeth. (Photo/Dentaurum)

The results of this design specific to de-rotation of a single tooth, or a group of teeth, are very poor and require a lot of time.

Magic lingual brackets are designed with a special slot. In these brackets the arch wire will not disengage the slot, and the leveling forces are very effective in achieving all the movements efficiently. OT

** (Dentaurum, Turnstr. 31, 75228 Ispringen, Germany;* www.dentaurum.de*)*

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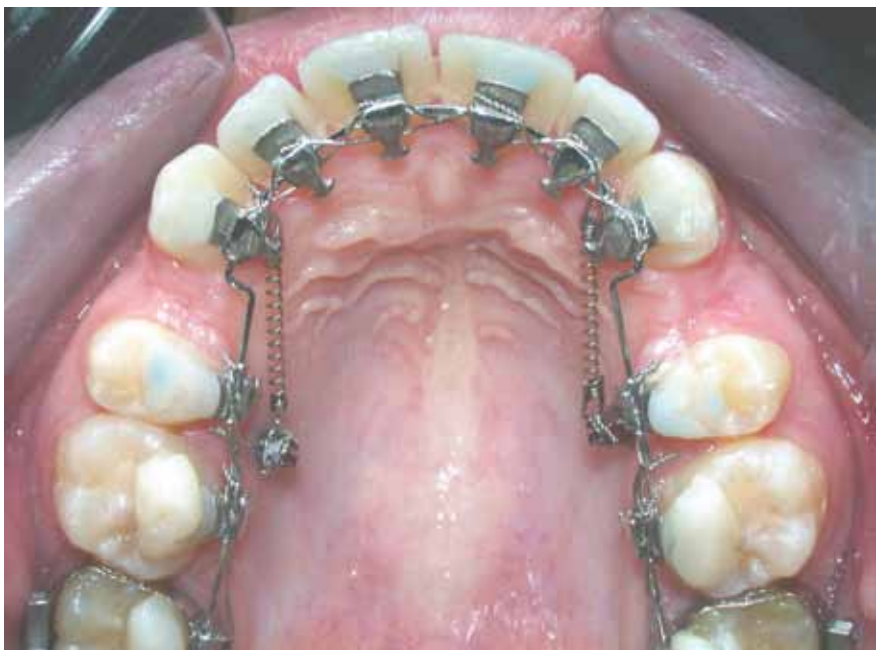

Fig. 10a: Mini-screws (tomas®-pin, Dentaurum) provide efficient en-masse retraction. (Photos/Dr. Papadia and Dr. Isaza Penco, Italy)

Fig. 10b: Intra-year the space is nearly closed.

Fig. 11: For rotation and torque, brackets with a long mesial-distal distance are the best choice. (Photo/ Dentaurum)

OT About the author

Dr. Rubens Demicheri received his DDS in 1983 from the Universidad de la República (UDELAR) in Uruguay and then went on to complete his postgraduate studies at Nagasaki University in Japan. Demicheri has been an associate professor in the Department of Pediatric Dentistry at UDELAR, a visiting lecturer at the University of Alfonso X el Sabio in Spain and a lecturer on lingual orthodontics in South America and Europe. Contact him by e-mail at *demicheri@odon.edu.uy*.

A new year and a new mission

By Scarlett Thomas, President,
Orthodontic Management Solutions

As we approach the New Year, it's important to take the time to evaluate where you currently are as a business, where you want to be as a business and how you plan on achieving these goals.

In order for your orthodontic practice to be successful, you have to have a clear mission that informs the general public about why it would be beneficial to do business with you. Having a mission statement is essential, as it will represent your vision of how you would like to be seen by your patients.

Although a mission statement and a company description are separate concepts, they often are combined. Why? Because your mission statement expresses your philosophy, motivation and goals with regard to your business. Your company description, in contrast, presents your ideas and concepts. They are equally important.

In addition, an ideal mission statement should be inspiring to employees. The statement brings a certain focus to the staff members as the purpose of their work becomes clearer and they are able to see the value of their contribution. Few things in life are as fulfilling as the knowledge that you are contributing something greater than yourself. The mission statement should allow each employee to see his or her own personal role in the orthodontic practice.

Patients will be reassured when they are exposed to the mission statement as they will be able to see the practice is committed to their purpose. Patients can also sometimes form a connection with the practice if the values outlined are ones they share. People like to work with others who they like and agree with; it's a natural human instinct.

When you sit down to write your mission statement, there are several things you should keep in mind.

First, who are your patients and what are their needs and desires? Second, how do you fulfill those needs and desires? What values do you currently have? What values do you want to have? Are you all working together with a similar purpose or are employees of the practice constantly veering off course?

A mission statement is best written in collaboration. All staff members should sit down and talk about their thoughts and how they want to represent the practice to the public. Ideas should be brainstormed among everyone and then voted on.

Most companies display their mission statements on their Web sites; some have their mission statements incorporated into their logos, ads and stationary. You may want to visit a variety of Web sites and read the mission statements of different companies, particularly those in the orthodontic field.

After you've brainstormed all your ideas, write them on a chalkboard and play with them. Combine and try out different phrases. Say them out loud. When working in a group, maintain the guideline of accepting, not rejecting, all suggestions. After all the suggestions have been noted, take a break.

The final refinement of your mission statement may not be achieved immediately. Give yourself time to contemplate a few ideas before you finalize it. And remember, your mission statement need not and should not be regarded as forever final. Depending on changes in your business, trends and any unexpected shifts in the economy, you may want to modify your mission statement at some point in your career.

To learn more regarding mission statements or other management-related topics, register for an upcoming Webinar at *orthoconsulting.com*. Registration can be found under events and seminars. OT

OT About the author

Scarlett Thomas is an orthodontic practice consultant who has been in the field for more than 23 years, specializing in case acceptance, team building, office management and marketing. As a speaker and practice consultant, she has an exceptional talent to inform, motivate and excite.

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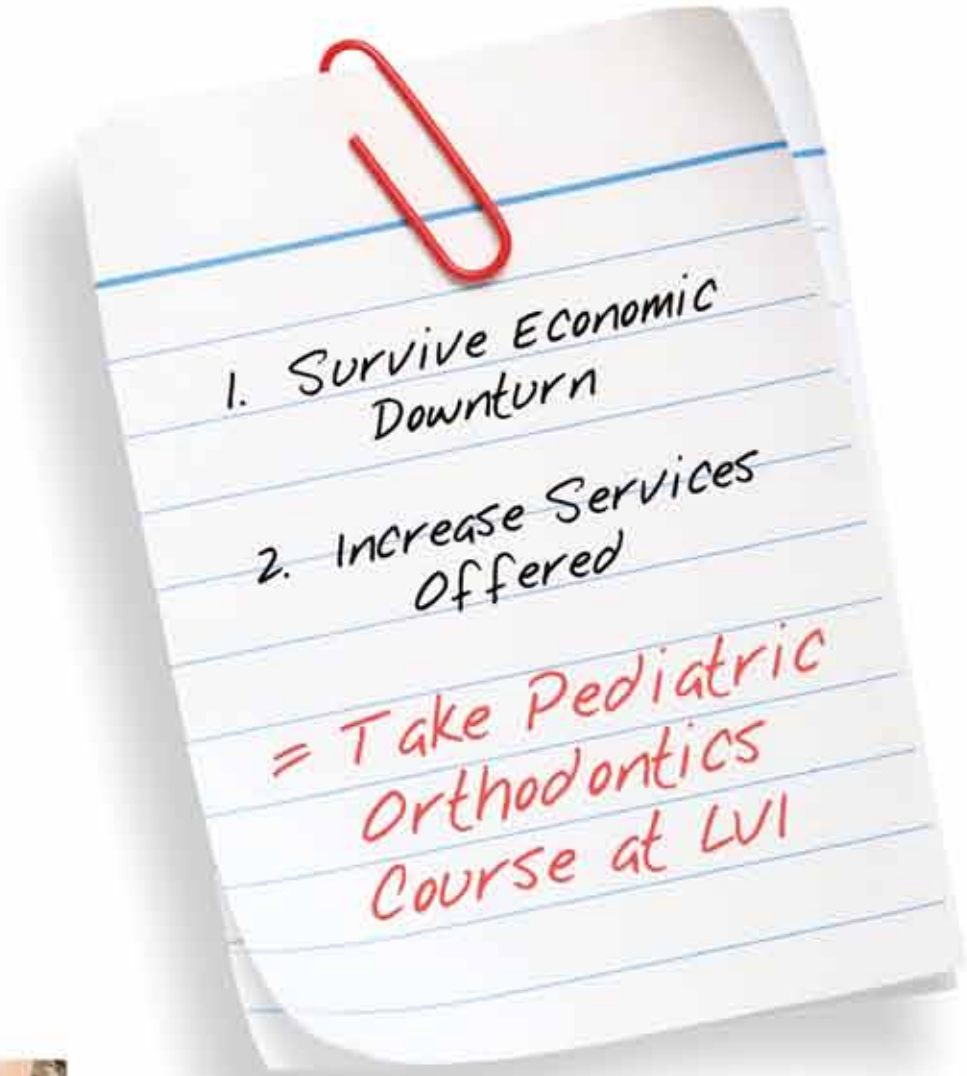

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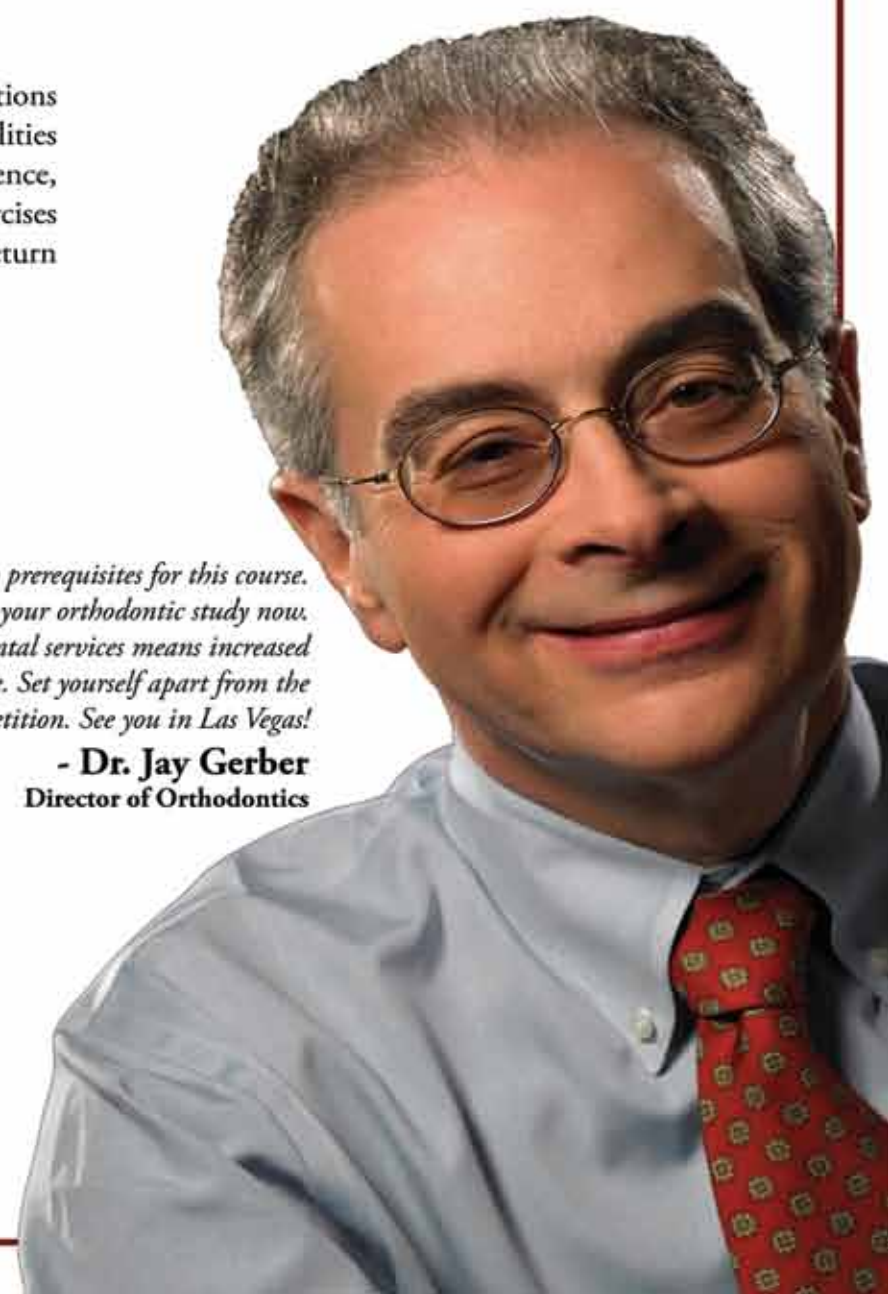

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Dr. Hardy's referral marketing creates record number of starts

By Kevin Johnson & Emily Ely

Dr. Brian Hardy has much to be happy about — he recently set a record for the most starts ever in a single month since he opened his practice nearly three years ago. Production is up 33 percent for the calendar year and was up 63 percent for the summer months. All of the practice's efforts are paying off with impressive dividends.

The first Total Ortho Success™ Practice Makeover winner and his team are delighted with this breakthrough success. One key reason for the jump in numbers is the result of implementing Levin Group's Science of Referral Marketing™.

One team member makes all the difference

Even before Dr. Hardy began his consulting programs with us, he knew his marketing efforts had not generated the results he wanted. As it turned out, Hardy Orthodontics needed to add one critical team member to its practice — a professional relations coordinator (PRC) — to realize its referral-marketing goals.

Shortly after beginning his practice makeover, Levin Group counseled Dr. Hardy to create a PRC position, and his referral-marketing efforts finally took off.

The PRC is crucial to making referral marketing successful. Most orthodontists do not have the time, knowledge or interest to implement or maintain a comprehensive referral-marketing program.

With a PRC, Dr. Hardy has a dedicated team member whose job is to focus on marketing, build the practice and dramatically increase referrals, allowing Dr. Hardy more time to concentrate on providing optimal orthodontic care.

The PRC runs 95 percent or more of the entire marketing program. Her responsibilities include creating the referral-marketing strategies, designating timelines to carry them out, implementing the strategies, tracking results and adding new strategies.

This individual's job is to continually find ways to increase referrals from patients and referring doctors using Levin Group's systematic method.

From left, Emily Ely, Kevin Johnson and Dr. Brian Hardy.

Levin Group
Total Ortho Success™
Practice
MAKEOVER

Referral marketing is an advanced science that will deliver a predictable result if it is implemented and carried out consistently using the appropriate systems. The PRC should be thought of as a professional who will need to learn the Science of Referral Marketing. With the right training and guidance, a PRC can help generate hundreds of new patient referrals every year.

Understanding referral marketing

The key to an excellent referral-marketing program is consistency. Levin Group recommended to Dr. Hardy that his practice design a multi-year marketing plan that consists of multiple ongoing strategies designed to boost referrals. He focused on:

- Maintaining his relationship with top-level referrers.
- Turning mid-level referrers into top-level referrers.
- Determining which low-level referrers are prospects for greater referrals and which are not.
- Developing referral sources from non-referring dentists who have the potential to begin referring.

Practices should carefully devise a marketing plan that will roll out over the course of a year. An ortho marketing plan, such as Dr. Hardy's, will likely include the following:

- Doctor lunches
- Shared hobbies (golf, sailing, etc.)
- Full-day seminars
- Other personal contacts
- Doctor visits/phone contacts
- Lunch-and-learns
- Community activities
- PRC visits/lunch for referring office
- Evening seminars
- Correspondence
- Fact sheets
- Food deliveries

To be completely successful, each of these contact opportunities must include well-produced support materials, including training scripts for the PRC and staff and professionally printed materials.

As strategies are implemented, orthodontists need to keep in mind that their competitors are aggressively marketing their ortho practices as well. Consequently, referral marketing needs to be consistent and of the highest quality to ensure the greatest return on investment.

In the competitive world of orthodontic practices where comparison shopping abounds, it's necessary to solidify the practice's referral base and expand it continuously. Referral marketing is the cornerstone of maintaining a steady flow of referrals.

The state of the practice

At Hardy Orthodontics, the practice is enjoying its new direction. The PRC's referral-marketing efforts have yielded the following impressive results:

- Converted two "B" offices (steady referrers) to "A" offices (top referrers); converted four "C" offices (occasional referrers) to "B" offices (steady referrers).
- Encouraged 16 new clinicians to send patients.
- Staged a patient picnic — the most well-attended marketing event in the practice's history.

As these results show, a strong referral-marketing program is a necessity, not an option. Orthodontic practices that consistently and effectively engage in referral marketing will become the production and profitability leaders in their area.

As Dr. Hardy and his staff moves into the final phase of their Total Ortho Success Management and Marketing Year 1 programs, they are:

- Brainstorming future referral events.
- Completing a new patient orientation packet designed to increase starts.
- Creating a new practice brochure that reflects the current practice mission and goals.

Join us in our next installment when we detail some of Dr. Hardy's end-of-year results and recap Hardy Orthodontics' year of consulting with Levin Group.

To jumpstart your own Total Ortho Success Practice Makeover, come experience Dr. Roger Levin's next Total Ortho Success Seminar on Jan. 28 and 29 in Las Vegas. Ortho Tribune readers are entitled to receive a 20 percent courtesy. To receive this courtesy, call (888) 973-0000 and mention "Ortho Tribune" or e-mail customerservice@levingroup.com *with "Ortho Tribune Courtesy" in the subject line.* OT

OT About the authors

Levin Group Senior Consultant ***Kevin Johnson*** has spent the last eight years working as a Levin Group orthodontic management and marketing consultant. He manages a team of consultants and is a frequent lecturer at the Levin Advanced Learning Institute. Johnson earned his degree from Towson University in 1996.

With many years of marketing experience, Levin Group Consultant ***Emily Ely*** joined Levin Group in 2005. Ely uses her unique knowledge and experience to provide marketing solutions for orthodontic practices. She earned her degree in business from Towson University.

Both Ely and Johnson are members of the Ortho Expert Team, a specialized group of consultants who are trained in the needs of orthodontic practices.

For more than two decades, Levin Group has been dedicated to improving the lives of orthodontists. Visit Levin Group at *www.levingrouportho.com*. Levin Group also can be reached at (888) 973-0000 and by e-mail at *customerservice@levingroup.com*.

The TRAINER System in the context of treating malocclusions

By German Ramirez-Yañez, DDS, MDSc, PhD

Part three

Another effect reported with the TRAINER System™ Appliances is transverse development of the dental arches. All the Frankel-like appliances, which have a buccal shield in their structure, move the cheeks away from the buccal aspect of the upper and lower posterior teeth. This action produces two effects on the craniomandibular system (CMS).

First, the presence of the buccal shields releases a force produced by the buccinators (muscles of the cheeks) on the buccal aspect of the posterior teeth, which normally is of about 2.7 g/cm^2, but can increase up to 20 g/cm^2 in patients with a digital sucking habit or tongue thrust.

In the same way, these buccal shields in the appliance release excessive force (up to 80 g/cm^2) that can be produced at the corner of the mouth on the cuspid teeth, which can be present in those patients with the same habits. Such a force tends to reduce the inter-canine distance, badly affecting the shape of the dental arches and crowding the dentition (Lindner and Hellsing 1991; Mew 2004).

Second, the presence of the buccal shields in the appliance stretches the buccinators and orbicularis oris (muscles of the lips), creating a tension zone at the area of insertion of those muscles.

As it has been extensively explained in the literature (most orthodontics and cranio-facial growth books), on the tension zone there is bone apposition (Frost 2004). Therefore, by creating a tension zone by stretching the muscles (buccinators and orbicularis) through the buccal shield in the appliance, there is an increase in bone apposition at the maxilla and mandible. The presence of the buccal shield at the anterior area of the mouth encourages the patient to produce a better lip seal, which will be explained later.

Be aware that this effect is higher in the MYOBRACE®. As explained in part two, one of the assets of the MYOBRACE is the inner-core embedded in the buccal shields. This inner-core provides more resistance to the appliance and counteracts the force released by the buccinators and orbicularis muscles when they are hyperactive.

The first effect referred to above permits that the force produced by the tongue on the lingual aspect of the posterior teeth (about 1 g/cm^2) stimulates the development of the dento-alveolar units of those teeth toward buccal. Due to this, there is no force counteracting in an opposite way as it has been neutralized by the presence of the buccal shields. In this way, transverse development is stimulated.

The other effect regarding creating a tension zone at the insertion area stimulates bone apposition at the borders of the mandible and maxilla, thus stimulating further development of the jaws with bone formation that will give more space for tooth alignment.

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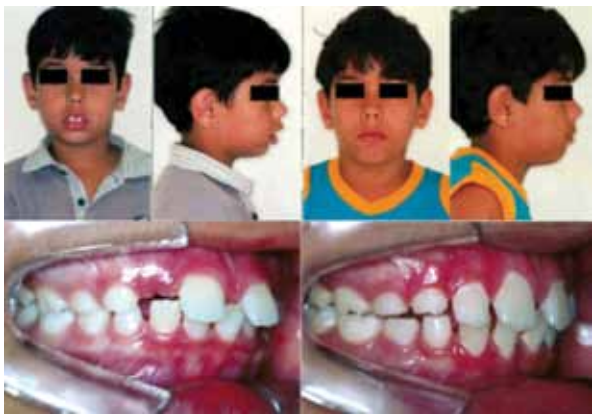

Fig. 4: Patient, age 7. In this case, there is also a mandibular advance and an improvement in the inclination of the upper incisors. Furthermore, a significant improvement in lip seal (right side) can be observed in this patient after treatment during 14 months with a TRAINER Appliance (T4K).