Ortho Tribune

The World's Orthodontic Newspaper · U.S. Edition

WINTER 2012 — Vol. 7, No. 6 www.ortho-tribune.com

A review of the Original Combination Technique and Philosophy

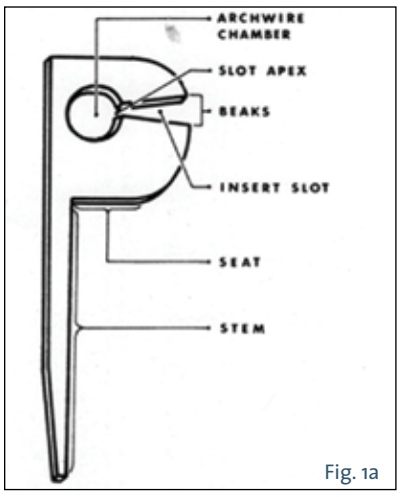


Fig. 1a

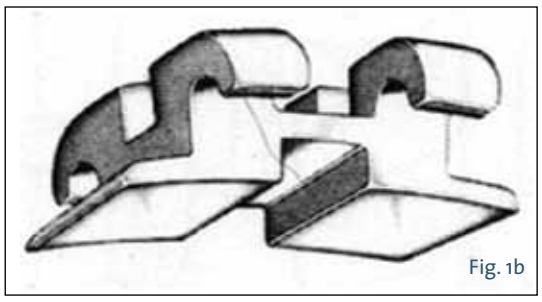


Fig. 1b

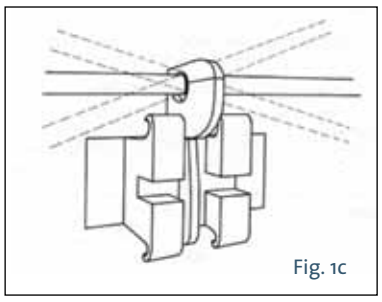


Fig. 1c

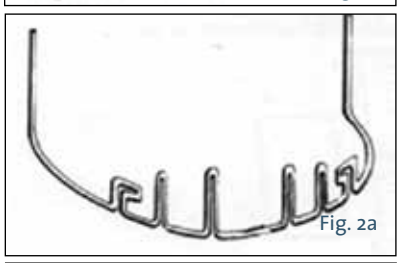


Fig. 2a

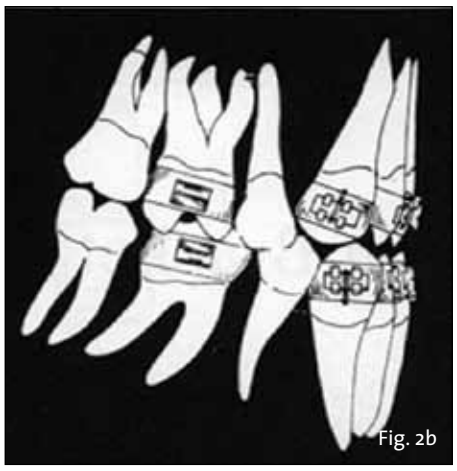


Fig. 2b

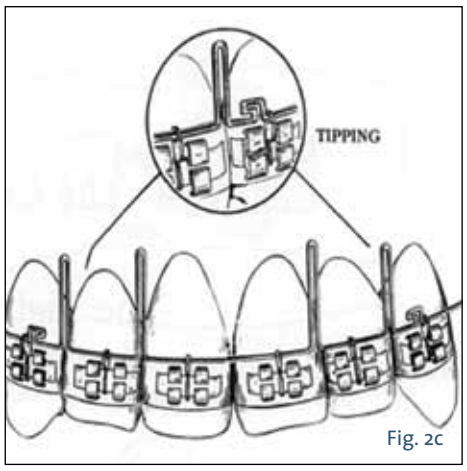


Fig. 2c

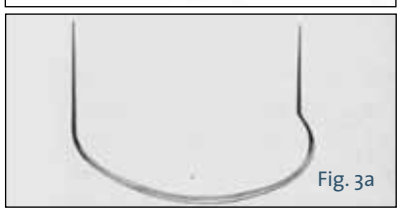


Fig. 3a

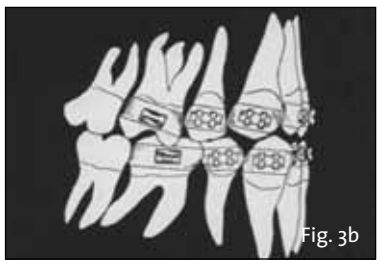


Fig. 3b

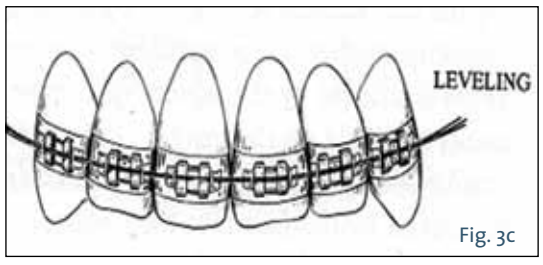


Fig. 3c

Photos/From Fogel and Magill's 'The Combination Technique in Orthodontic Practice.'

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

During the 1960s, when the Begg lightwire and the Tweed edgewise were the mainstream techniques of orthodontic therapy, Dr. Maxwell Fogel and Dr. Jack Magill introduced their "Combination Technique" (Fogel & Magill, 1969).

The Combination Technique's philosophy was based on combining the positive and significant attributes of Begg lightwire and Tweed edgewise techniques to produce a system that corrected malocclusions quickly and easily for the orthodontist, with much less pain and a shorter period of time for the patient, while producing American Board of Orthodontics quality, standards and results.

Outline of the Combination Technique

Stage I: Light-wire phase (Tipping)

1. Reduce protrusion
2. Un-crowd incisors
3. Open the bite (restore vertical dimension)
4. Class I molars and cuspids
5. Begin closing extraction spaces
6. Upright mandibular incisors

▸ See COMBINATION, page 3

Sobler Orthodontics: Father-son team serves N.Y.

By Sierra Rendon, Managing Editor

Father-son duo Dr. Terry Sobler and his son, Dr. Ian Sobler, together make up Sobler Orthodontics, which has been providing family-friendly orthodontics in New York for more than 35 years.

"We've been doing it together for five years," Dr. Ian Sobler said. "We work well together; and I learn a lot from him."

Dr. Terry Sobler has been practicing for more than 40 years. Despite — or because of – these four decades, the So-



Dr. Terry Sobler, left, and Dr. Ian Sobler.
Photo/Provided by Sobler Orthodontics

▸ See SOBLER, page 8

What is pragmatic research?

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

As my last two editorials concentrated on research, it would be fitting to present another research matter known as pragmatic research, which is certainly not new but essential and practical to life and research. A research problem must be examined through various social science theories in order to structure the interpretive lens of the post-modern perspective for classification of those factors that serve all individuals, including disadvantaged and excluded individuals of different races, cultures and genders. The focus of this dialogue deals with changing ways of thinking, rather than expecting action-based thoughts based on these changes. Conditions in the world determine the basis of knowledge and are centered upon the perspectives of gender, class, race and other group affiliations.

In the beginning of the 20th century, one the most influential philosophies in America was pragmatism, which has influenced the study of law, education, political and social theory, art and science. The pragmatic research philosophy encompassed six fundamental theses. It was, however, doubtful that any one scholar would have subscribed to all of them. Varying interpretations even on points of agreement would temper the major Pragmatists. The six hypotheses and methodologies of pragmatism were:

1. Idealism and evolutionary theory, emphasizing the "plastic" nature of reality and the practical function of knowledge as an instrument for adapting to reality and controlling it.

2. Critical Empiricism, highlighting the priority of actual experience over fixed principles and a priori reasoning in critical investigation.

3. Experimental or practical consequences, resulting from the use, application, or entertainment of the notion.

4. The process of verification, underscoring a proposition, or the successful working of an idea. Crudely, truth is "what works."

5. The functional character of ideas and behaviors, interpreting ideas as instruments and plans of action.

6., The formation of concepts, hypotheses, theories and justification, accentuating reality motivated and justified by efficacy and utility in serving interests and needs critical to maximum usefulness and purpose.

There are four paradigms of pragmatic research (postpositivism, constructivist, participatory and pragmatism) that provide special and different prospective on the practice of this research. The basic set of beliefs (the paradigm or worldview) that I chose to guide my own dissertation titled, "An Analysis of Factors that Align with Faculty Vacancies in Orthodontic Education," was pragmatic research. Although there are many forms of pragmatism, the focus centered upon outcomes, actions, situations and consequences of discovery rather than the forerunner or precursor of the situation. Instead of concentrating on the methodology, the important concern to this researcher was the problem being studied and the questions asked regarding the problem. There are important aspects regarding how pragmatism creates the design of a proposed research study; these features:

1. are not dedicated to any one philosophical system of reality.

2. provide researchers the freedom to chose the methods, techniques, and procedures of research that best meet his or her needs and purposes.

3. do not see the world as an absolute unity, or only one way; rather the pragmatist views research as mixed methods researchers, who view many approaches to collecting and analyzing data – both qualitatively or quantitatively.

4. allow for truth to be reported as what works at the time rather than as a duel between reality that is independent of the mind or reality that is within the mind.

5. permit the researcher to discover "what" and "how" rather than to research based upon intended consequences.

• suggest that research occurs in social, historical, political, or other context.

• encourage the belief of an external world independent of the mind as well as those within the mind and implies that researchers stop asking questions about reality and laws of nature.

Often times, these conditions are negative and occur in the presence of hierarchies, power and control by individuals of the hierarchy setting. Thus, honest examination of that which is concealed (such as domination, opposition, inconsistency and contradictions) must be identified. Such discussions will therefore address the grounded theories that draw upon researchers studying turning points of problematic situations in which transitional periods occur. Confrontation of centrality regarding media-created realities are also addressed and sometimes further advanced through informational technology, such as the Internet.

This interpretive stance of *post-modern perspectives* shape the participants selected for a study in order for them to explore the issues, develop the modes of data collection and contemplate the use of the study as follows:

1. Participants address and examine that which is concealed as domination, opposition, inconsistency and contradictions that must be brought to the surface.

2. Interview questions address the presence of hierarchies, power and control by individuals of the hierarchy setting.

3. Collection of data is served and carried out by the researcher.

4. Results of the study can be documented in peer-reviewed articles, jour-

▸ See RESEARCH page 6

Image courtesy of Dr. Earl Broker.

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 Sierra Rendon at *s.rendon@dental-tribune .com.*

Tell us what you think!

Do you have general comments or criticism you would like to share? Is there a particular topic you would like to see articles about in Ortho Tribune? Let us know by emailing *feedback@dentaltribune. com.* We look forward to hearing from you! If you would like to make any change to your subscription (name, address or to opt out) please send us an email at *database@dental-tribune.com* and be sure to include which publication you are referring to. Also, please note that subscription changes can take up to 6 weeks to process.

ORTHO TRIBUNE

PUBLISHER & CHAIRMAN
Torsten Oemus *t.oemus@dental-tribune.com*

CHIEF OPERATING OFFICER
Eric Seid *e.seid@dental-tribune.com*

GROUP EDITOR
Robin Goodman *r.goodman@dental-tribune.com*

EDITOR IN CHIEF ORTHO TRIBUNE
Prof. Dennis Tartakow
d.tartakow@dental-tribune.com

INTERNATIONAL EDITOR ORTHO TRIBUNE
Dr. Reiner Oemus *r.oemus@dental-tribune.com*

MANAGING EDITOR ORTHO TRIBUNE
Sierra Rendon *s.rendon@dental-tribune.com*

MANAGING EDITOR SHOW DAILIES
Kristine Colker *k.colker@dental-tribune.com*

MANAGING EDITOR
Fred Michmershuizen
f.michmershuizen@dental-tribune.com

MANAGING EDITOR
Robert Selleck, *r.selleck@dental-tribune.com*

PRODUCT/ACCOUNT MANAGER
Charles Serra *c.serra@dental-tribune.com*

PRODUCT/ACCOUNT MANAGER
Humberto Estrada *h.estrada@dental-tribune.com*

PRODUCT/ACCOUNT MANAGER
Mara Zimmerman *m.zimmerman@dental-tribune.com*

MARKETING DIRECTOR
Anna Wlodarczyk-Kataoka
a.wlodarczyk@dental-tribune.com

C.E. DIRECTOR
Christiane Ferret *c.ferret@dtstudyclub.com*

Tribune America, LLC
116 West 23rd Street, Suite 500
New York, NY 10011
Phone (212) 244-7181
Fax (212) 244-7185

Published by Tribune America

◂ COMBINATION, Page 1

7. Cephalometric X-ray to check uprighting of the mandibular incisors

Stage II: Bracket alignment phase (Leveling)

1. Level and align maxillary and mandibular arches
2. Closure of extraction spaces
3. Preliminary uprighting of cuspids and bicuspids
4. Preliminary correction of rotations
5. Preliminary correction of axial positions

Stage III: Edgewise phase (Uprighting)

1. Detailed axial positioning of all teeth
2. Lingual root torque for labial axial inclination of the maxillary incisors
3. Root paralleling in extraction areas
4. Desired uprighting of molars
5. Artistic positioning of incisor segments
6. Complete correction of rotations
7. Residual space closure

Retention

Two years — indefinite

Overview of the Combination Technique philosophy

The Combination Technique incorporated three stages of appliance therapy:

Stage I

The initial stage was called the light-wire or tipping phase, employing 0.014, 0.016 and 0.018 round wires, which required approximately four to eight months to achieve desired results. This first phase employed Dr. Raymond Begg's concept of light, continuous forces to uncrowd anterior teeth, open the bite (restore vertical dimension), reduce the protrusion, begin closing extraction spaces and uprighting mandibular incisors, all without straining the posterior anchorage unit.

The Begg philosophy and mechanotherapy produced light, physiologic forces through the use of one-point contact, free-sliding, non-binding and continuously moving teeth that were connected to the archwire (Begg, 1961). Fogel and Magill created this appliance by uniting the light-wire vertical insert pin (Fig. 1a) with the widely spaced twin edgewise bracket (Fig. 2b) into a single appliance unit (Fig. 1c).

The joining together of these two attachments enabled the development of a system for controlled light-wire therapy in the first stage of the Combination Technique. (All figures are from Fogel and Magill's "The Combination Technique in Orthodontic Practice.")

During Stage I (light-wire and tipping), a single light archwire with multiple loops and hooks was snapped into the vertical insert pins to produce simple tipping of the incisors, placing them in harmony with and upright over the apical base (Figs. 2a, 2b). This included correction of overjet, overbite and jaw relationships by means of controlled anchorage through the use of differential inter- and intra-arch elastic forces.

Stage II

The second stage was the called the leveling phase, employing a multi-stranded

▸ See COMBINATION, page 4

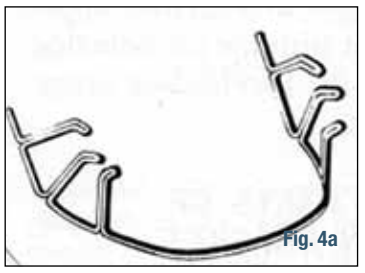


Fig. 4a

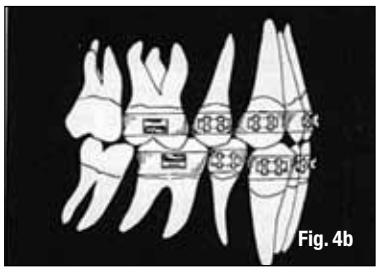


Fig. 4b

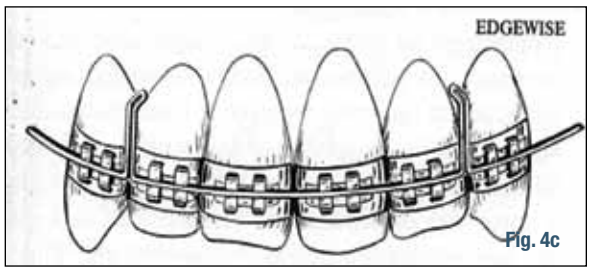


Fig. 4c

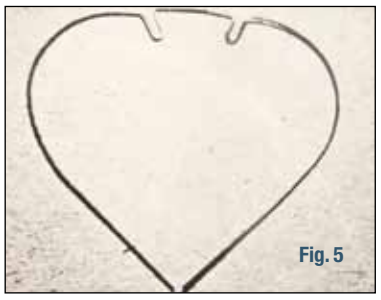


Fig. 5

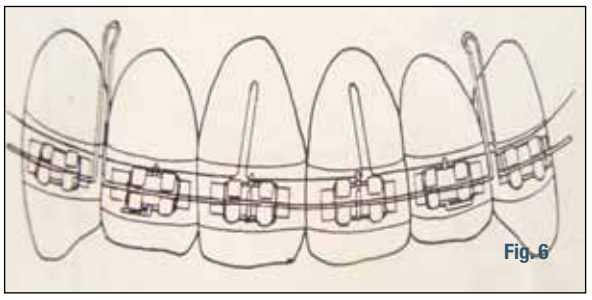


Fig. 6

◂ COMBINATION, Page 3

light wire, which was later replaced by 0.014, 0.016 and 0.018 round flexible wires, ligated into the edgewise brackets, requiring approximately three to four months to achieve the desired results. This second phase included leveling and aligning maxillary and mandibular arches, closing extraction spaces, uprighting cuspids and bicuspids and correcting rotations of all teeth.

During Stage II (bracket alignment and leveling), a multi-stranded light-wire (Figs. 3a, 3b) was used to create controlled general alignment of all teeth, including leveling, correction of rotations, preliminary correction of axial positions, continued overbite correction and establishment of general arch form. Stage II prepared the brackets for the edgewise phase.

Stage III

The third stage was the called the edgewise phase, employing 0.016 x 0.016 square wires, followed by 0.017 x 0.025 rectangular wires, also ligated into the edgewise brackets and taking approximately six to 12 months to achieve results. This third phase included detailed positioning, proper uprighting and ideal axial inclinations of all teeth. The Combination Technique was excellent for treating extraction cases and difficult malocclusions, as well as being very capable of obtaining outstanding results in non-extraction cases.

During Stage III (edgewise), the rectangular archwire (Figs. 4a–4c) was used to achieve ideal arch form and detailed axial positioning of both the crowns and roots of all teeth.

This included: (a) root paralleling of teeth adjacent to the extraction areas, (b) uprighting of molar teeth, (c) artistic positioning of the incisor segments, (d) continued overbite correction if necessary, (e) final closing of residual extraction spaces, and (f) lingual root torque for labial axial inclination of the maxillary incisors.

Torquing auxiliary

During the correction of many severe malocclusions, the maxillary incisors required root torque as a result of lingual crown tipping. In order to accomplish incisor root torquing, an auxiliary wire was employed similar to that used by Begg during Stage III. The torquing auxiliary (Fig. 5) was an 0.014 wire constructed with two loops in the same plane as the archwire, which when snapped into the insert pins placed the loops onto the maxillary central incisors slightly subgingival. After snapping the torquing auxiliary into the insert pins anteriorly (Fig. 6), it was cinched behind the molar tubes posteriorly.

This torquing auxiliary was used in addition to the main edgewise wire, which had been ligated into the horizontal slot of the widely spaced twin edgewise bracket to carry out the desired objectives of Stage III as well as providing anchorage and stability during the torquing procedure. The torquing auxiliary forces produced approximately one degree of lingual root movement per month. This was substantiated by cephalometric and visual examination.

Example of the Combination Technique in a severe malocclusion

Treatment of a Class II, Division I severe maxillary protrusion and deep overbite is shown, using maxillary first and mandibular second bicuspid extractions (Figs. 7a–7j).


Fig. 7a


Fig. 7b


Fig. 7c


Fig. 7d


Fig. 7e


Fig. 7f

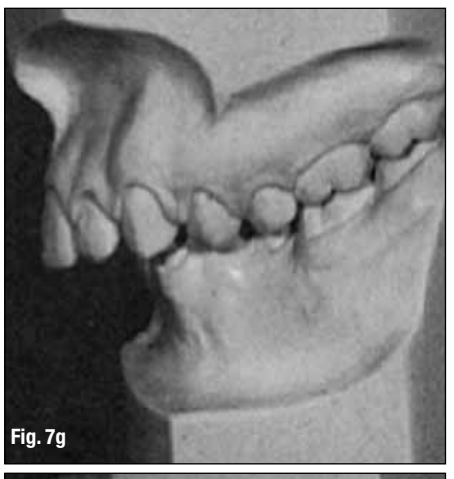


Fig. 7g

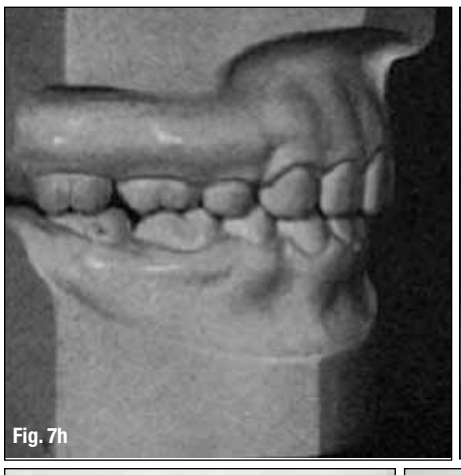


Fig. 7h

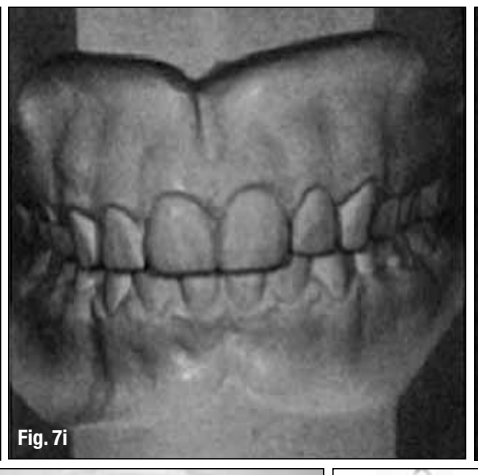


Fig. 7i

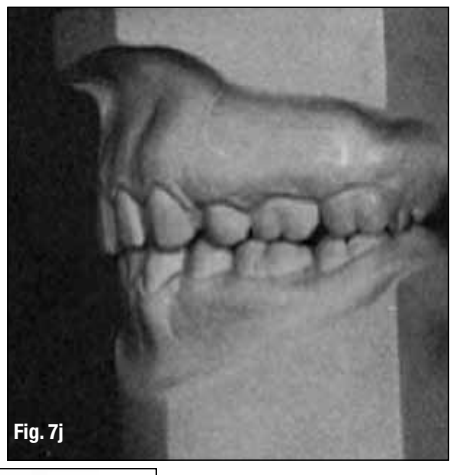


Fig. 7j


Fig. 8a

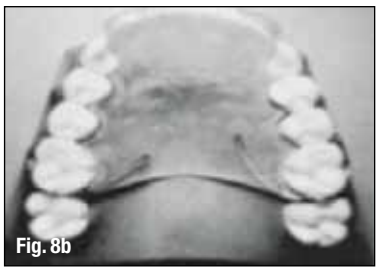


Fig. 8b

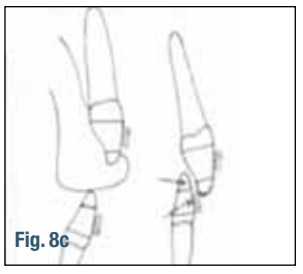


Fig. 8c

The objectives of Stage I were to achieve: (a) reduction of the protrusion (edge-to-edge incisor relation), (b) bite opening (molar uprighting and incisor intrusion), (c) incisor uncrowding and (d) Class I cuspid and molar relationships.

Stage II — Leveling with a multi-strand light-wire stage (Figs. 10a–10c).

The objectives of Stage II were to achieve: (a) leveling and aligning of all brackets for edgewise archwire placement, (b) preliminary uprighting of cuspids and bicuspids, (c) correction of rotations and labiolingual malpositions, (d) continued bite opening, and (e) arch symmetry.

Combination Technique mechanics

Stage I — Single strand light-wire stage (Figs. 9a–9c).

The advantages of the multiple leveling appliance when compared to the single strand wire included a longer range of action, better resistance for distortion, increased flexibility, gentler forces and less fatigue.

Stage III — Edgewise stage (Figs. 11a–11c).

The objectives of Stage III were to achieve: (a) a stable anchorage for Class II elastics, (b) correct axial inclinations, (c) root paralleling in extraction areas, (d) uprighting of the molars and bicuspids, (e) ideal arch form, (f) continued overbite correction and (f) final closure of residual spaces.

Summary

Historically, Dr. Maxwell Fogel and Dr. Jack Magill believed that the unification of the Begg light-wire and the Tweed edgewise philosophies produced an ideal milieu for (a) universal action and controlled tooth movement in all directions; (b) automatic, self-acting appliances, with a long span of action, a few adjustment periods; and (c) simple, uniform design, painless and compatible with the tissues surrounding the teeth.

According to Fogel and Magill (1972), anchorage was the focal point in successful treatment; gentle, free tipping movements of the canines in a distal direction into the extraction spaces imposed less stress on the anchor units than did bodily distal of the solidly embedded teeth. For many years, tipping movements for anchorage preservation was looked upon with great skepticism.

The widely spaced twin edgewise bracket, as suggested by Dr. Brainerd Swain in 1949, was used to solve the problem of paralleling roots when closing extraction spaces. As Dr. Cecil Steiner succinctly stated: "A single arch wire of uniform standard design and size cannot serve with equal efficiency for the various purposes necessary" (Fogel & Magill 1972). It follows that different types of appliance units require appropriate construction and design so that a variety of wire sizes may be used for proficient and controlled performances effecting an assortment of significant assignments.

Fogel and Magill combined the twin edgewise bracket with a vertically placed insert pin to produce a natural union as a receptacle for both pliable light-wires and rectangular wires simultaneously. The Combination Technique's single ap-

pliance receptacle offered the ability to achieve the desired treatment procedures and objectives. Their goal was to produce a technique that would correct average as well as severe malocclusions with better results in less time and with greater ease.

This original Combination Technique incorporated a system for moving teeth whereby the teeth remained in place as a result of the equilibrium that existed among the oral musculature including the lips, tongue and the muscles of mastication. Axial correction of root angulations was no longer a problem.

Positioning the mandibular incisors over the basal bone enhanced anchorage potentialities and helped to achieve a more functional and stable occlusion. Any force that disrupted this equilibrium created an environment for the teeth to move. When a very light resilient wire is ligated into a crowded dentition, the wire attempts returning to the original shape. If the wire is tied tightly to the teeth, forces are transmitted reciprocally between the individual teeth in the arch. Any extraneous forces are controlled as a result of the anchorage unit.

During the late 1970s, Fogel and Magill introduced a second-generation combination bracket, which featured a double self-ligating attachment bracket to facilitate wire insertion.

It was called the "Modular Self-Locking Appliance System: Variation of the Combination Technique." The success of this bracket was hindered by the deficiencies in the metallurgy technology.

The locking mechanism fatigued after several adjustments. The availability of light memory wires had not yet appeared, necessitating more frequent wire changes.

Still, the concept was sound. The Combination Technique was used well into the 1990s and was modified by many of its proponents. During the 1990s, most orthodontists employed some form of light-wire edgewise technique with preangulated and pre–torqued brackets.

Ligatureless Edgewise brackets first appeared in the 1930s with the Russell Lock appliance (Sathler et al 2011), which was an attempt to improve the clinical effectiveness for moving teeth while reducing the time required to ligate a wire into the brackets.

Numerous articles regarding self-ligating orthodontic brackets can be found in the literature (Self-ligating brackets, 2012), with more than 20 original patents for new self-ligating brackets; some have gone by the wayside and some have lasted the test of time. Sathler et al (2011) provided an excellent review of the literature regarding self-ligating brackets used in orthodontics.

It is interesting to note that many articles describe self-ligating brackets as either the new buzzword or as a faster and more efficient method of tooth movement in orthodontic treatment.

However, in reality the self-ligating bracket has prevailed since the 1930s. It has been more than 50 years since Dr. Raymond Begg introduced his "Light Arch Wire Technique" in the late 1950s (Begg 1961), and Fogel and Magill introduced their Combination Technique in the late 1960s (Fogel & Magill 1969), yet

▸ See COMBINATION, page 6


Fig. 9a


Fig. 9b

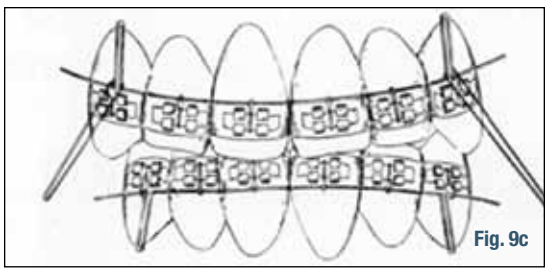


Fig. 9c

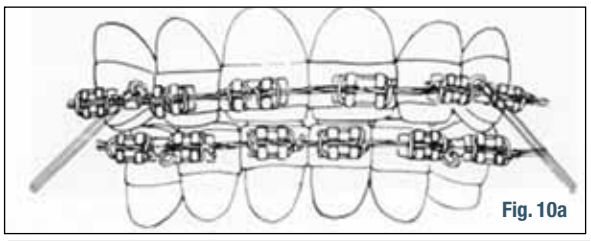


Fig. 10a

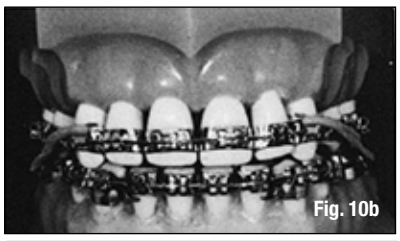


Fig. 10b

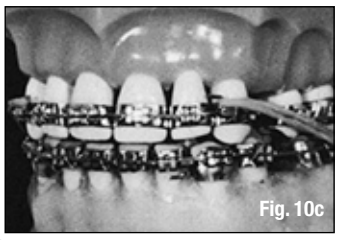


Fig. 10c

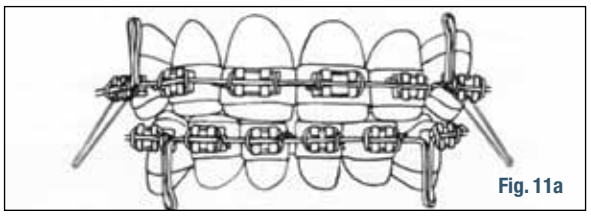


Fig. 11a


Fig. 11b


Fig. 11c

Tooth positioning appliances: an orthodontist's experience

By Barry Raphael, DMD

I've been actively involved with early treatment ever since I first saw Jim McNamara in the early 1980s. Since that time, I've seen a lot of theories and "systems" come and go. As a specialist with a university training that taught me 14 different treatment styles (University of Pennsylvania, DMD, 1978, and Fairleigh Dickinson University, orthodontics, 1983) I've become accustomed to evaluating different ideas, both clinical and research-based and offering my patients the best of all the options available.

I keep my mind open to new ideas but am always skeptical of the "quick-fix" solutions to age-old problems. However, though I think research is the key to establishing a real understanding of issues, evidence-based dentistry or evidence-based orthodontics just cannot keep up with clinical innovations and, thus, our experience and judgment is tested on a daily basis.

For years, I wondered about the claims being made about tooth-guidance appliances and whether there was really a place for this type of appliance in my practice.

I started to see things differently after seeking a solution to one of the many vexing problems I encounter with fixed appliance therapy every single day: namely, closing open bites. It all started when I had a run of lateral open bites with tongue thrusts that resisted vertical elastics, spurs and everything else I could throw at them. You know the ones when you're just about to finish up, and the bite just won't settle down. And getting these cases referred out for the oral myology they need doesn't always happen. I now have a certified oral myologist in my practice.

What caught my eye about tooth-guidance appliances when I first read about them was the fact that they were not solely aimed at influencing the teeth, but that they were focusing on the musculature.

Photos/Provided by Dr. Barry Raphael

Case 1

This patient presented in my practice at the age of 10 with severe crowding. Treatment involved the use of an upper Farrell Bent Wire System (BWS) combined with MRC's Soft Pre-Orthodontic (T4K) appliance (Figs. 1a, 1b).

The patient also took part in Trainer Activities to improve oral habits. After a period of 11 months, the BWS was removed and the hard T4K was used. Treatment continues and will use the Myobrace to finish the case (Figs. 2a, 2b).

Case 2

This patient entered my clinic at nine years of age with a Class II Division 1, bimaxil-

▸ See POSITIONING, page 7

◂ COMBINATION, Page 5

seldom are they cited in articles, reference lists or bibliographic lists for self-ligating brackets.

As John F. Kennedy (1963) so adroitly stated, "A man may die, nations may rise and fall, but an idea lives on … we must find time to stop and thank the people who make a difference in our lives."

References

1) Begg, R. (1961). Light arch wire technique. American Journal of Orthodontics; 47(1): pp. 30–48.
2) Fogel M. and Magill J. (June 1969). A fundamental re-appraisal of popular techniques with a collective approach toward appliance therapy. American Journal of Orthodontics; 55(6):705–713.
3) Fogel M. and Magill J. (July 1970). Retrospective on progressive dentofacial changes after treatment and retention. Journal of Clinical Orthododontics; 4(7):407–417.
4) Fogel M. and Magill J. (1972). The Combination Technique in orthodontic practice. J.B. Lippincott Co: Philadelphia, PA.
5) Fogel M. and Magill J. (Sept 1976). The modular self-locking appliance system — A variation in the Combination Technique (Part 1): Journal of Clinical Orthododontics; 10(9):653–660.
6) Fogel M. and Magill J. (Oct 1976). The modular self-locking appliance system — A variation in the Combination Technique (Part 2): Journal of Clinical Orthododontics; 10(10):728–741.
7) Fogel M. & Magill J. (Nov 1976). The modular self-locking appliance system — A variation in the Combination Technique (Part 3): Journal of Clinical Orthododontics; 10(11):826–835.
8) Fogel M. and Magill J. (Dec 1976). The modular self-locking appliance system — A variation in the Combination Technique (Part 4): Journal of Clinical Orthododontics; 10(12):906–917.
9) Fogel M. and Magill J. (Jan 1977). The modular self-locking appliance system — A variation in the Combination Technique (Part 5): Journal of Clinical Orthododontics; 11(1):51–59.
10) Fogel M. and Magill J. (1982). Begg and straight wire: a combination approach to treatment" American Journal of Orthodontics; 81(3):253.
11) John F. Kennedy. (1963). Quotations by President John F. Kennedy. *www.goodreads.com/author/quotes/3047.* John_F_Kennedy
12) Messinger, S. & Tartakow, G. (2008). Combination Technique 1976 vs. 2008 utilizing Leone's revolutionary slide™ 'no-friction' ligature — Part I, Ortho Tribune, New York City: (3) 2/3, p 8–9.
13) Messinger, S. & Tartakow, G. (2008). Combination Technique 1976 vs. 2008 utilizing Leone's revolutionary slide™ 'no friction' ligature — Part II, Ortho Tribune, New York City: (3) 4, p 22.
14) Sathler, R., Silva, R., Janson, G., Cabral, N., Branco, C., & Zanda, M. (2011). Demystifying self-ligating brackets. Dental Press Journal of Orthodontics; 16(2): 50.e1–8.
15) Self-ligating brackets. (2012). *http://scholar.google.com/scholar?q=Self-ligating+orthodontic+brackets&hl=en&as_sdt=0&as_vis=1&oi=scholart&sa=X&ei=AB1TT8iolMeViALW8YQ&ved=0CEIQgQMwAA*

About the author

DENNIS J. TARTAKOW, editor in chief of Ortho Tribune, practiced orthodontics, temporomandibular joint (TMJ) disorders and orofacial pain therapy in Palm Beach, Fla., and now resides in Marina del Rey, Calif. Tartakow is a consultant in orthodontics, TMJ disorders, orofacial pain, practice management and health-care administration. He counsels pre- and postgraduate students, orthodontists and health-care practitioners and has provided expert testimony in numerous orthodontic, TMJ and medico-legal litigation cases. His professional accomplishments include being a diplomate of the American Board of Orthodontics; a diplomate of the American Board of Special Care Dentistry; and a certified dental editor. He is clinical associate professor and former director of the TMD section, postgraduate orthodontic department, Nova Southeastern University, College of Dental Medicine, Fort Lauderdale, Fla.; senior attending, postgraduate orthodontic section, Albert Einstein Medical Center, The Maxwell S. Fogel Department of Dental Medicine, Philadelphia; and clinical associate professor, orthodontic department, craniofacial sciences and therapeutics, University of Southern California, School of Dentistry, Los Angeles; former primary adjunct professor, the Union Institute and University, Graduate College, North Miami Beach, Fla.; and Research Council member of the J. Paul Getty Research Institute and Library, Los Angeles.

◂ RESEARCH, Page 2

nals and textbooks.

As a pragmatist and realist, I see the worldview of a research question for allowing the researcher to be open to (a) multiple methods of data collection, such as qualitative and quantitative sources; (b) focus on practical implications of research; and (c) emphasize the importance of conducting research that best addresses the research problem.

When exploring a pragmatic research problem from the most relative aspects of our social environment, postmodern perspectives must be addressed and interspersed with racial, gender and ethnic considerations.

As ADEA Executive Director Richard W. Valachovic stated in a monthly newsletter, we must ensure that all graduating dental students glean an appreciation for accessing and applying the knowledge research provides and the value of research.

References

1) Dewey, J. (2005). The Quest for Certainty: A Study of the Relation of Knowledge And Action. Kessinger Publishing.
2) Tartakow, D. (2010). An analysis of factors that align with faculty vacancies in orthodontic education. Dissertation Abstracts, University of Michigan. Ann Arbor, MI.
3) Thayer, H.S. (1968) Meaning and Action: A Critical History of Pragmatism. The Bobbs-Merrill Company, Inc.


Fig. 3a


Fig. 3b


Fig. 4a


Fig. 4b


Fig. 5a


Fig. 5b


Fig. 6a


Fig. 6b

'Every orthodontist knows the musculature is influential on growth and development.'

◂ POSITIONING, Page 6

lary retrusion. She had a narrow maxillary arch, lip entrapment under the excess over jet, deep anterior overbite and crowding of the lower anterior teeth. She had a forward head posture with habitual open mouth posture. Facial muscles were overactive on swallowing. She also has a low maxillary frenum and a midline diastema (Figs. 3a,3b).

After one year of treatment with an upper and lower BWS (six and four months, respectively), i2n trainer (for three months) and an i2 trainer (for six months), the malocclusion and the soft tissue dysfunctions were corrected. The bi-maxillary retrusive skeletal pattern and profile remains at this point, though much growth remains (Figs. 4a,4b).

Case 3

This patient presented in my clinic at age 7 with an adequate arch form but a deep overbite. This is a perfect case to show how a little interceptive treatment can go a long way to solving problems that would be harder to correct later on (Figs. 5a,5b).

The Soft T4K was used for four months, followed by the Hard T4K for three months longer, at which point the overbite was resolved. The Hard T4K was used for seven more months, at which point less intensive use of the Hard T4K was prescribed. The T4K was used to assist 10 minutes of daily trainer activities to improve poor oral habits during a period of 18 months, after which the use of the T4K was discontinued. The patient still performs posture exercises for the long term (Figs. 6a,6b).

Correcting deep overbites with fixed appliances can be difficult, requiring bite planes or turbos along with full strap ups. This case was essentially solved in the first four months and continued to improve thereafter. No other treatment is anticipated

Every orthodontist knows the musculature is influential on growth and development. For this, the evidence is clear. Angle[1] knew it. Alfred Rogers[2] knew it. Graber[3] knew it and raised holy hell about it. Straub[4] helped create a subspecialty around it. Harvold[5] showed us how critical airway is. The same Proffit[6] signed off on Tulloch's[7] work taught us about postural tongue position. Moss[8] and Enlow[9] showed us how it worked. Estuki Kondo's "Muscle Wins"[10] shows soft tissues and local factors to be critical in the development of malposition and malocclusion of the teeth.

▸ See POSITIONING, page 8

◂ POSITIONING, Page 7

The question that all these icons of our specialty raised is whether the soft tissues and skeletal structures of the mouth and face are indeed genetically determined, or if perhaps they are subject to the same environmental influences as all other bones and muscles of our body (Boyd 2012)[11]. Indeed, you can change the muscle mass of your biceps in two weeks just by stressing it with weights. Likewise, two weeks prone in a hospital bed can render them weak. Why can't the same apply to the muscles of the mouth?

We also know that bone responds to the forces that surround it, in both the functional and capsular matrices.[8] The action of the muscles certainly influences hard tissues.

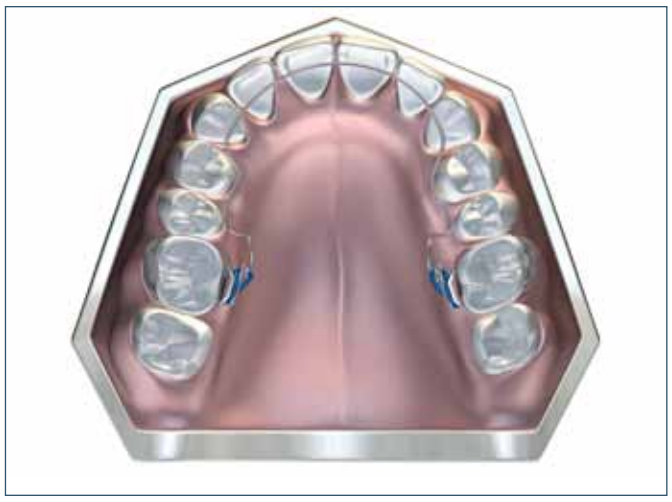
The capsular matrices of the mouth are constantly active: if we are not talking, eating, swallowing, laughing or drinking, we are certainly breathing. There is never a moment of non-activity of the oro-nasopharynx, and the way it is being used is reflected in how the structures that surround it grow. Again, muscle rules.

Isn't it likely that all relapse we deal with, both orthodontic and orthognathic, has less to do with the teeth than it does with the muscles that created the malformations in the first place? It seems so simple a concept, why is it still considered so radical a thought?

We can't say that muscles can't be trained. We teach the tongue and the masticatory muscles to speak a language, don't we? Why can't we teach muscles to swallow and posture properly, too? The tongue doesn't need to be pushing against the teeth, ruining all my good orthodontic work. I want to teach it to go up on the palate where it belongs during rest and swallowing.

Tooth positioning and myofunctional orthodontic appliances have provided me with a treatment modality that I can use in my office to train the musculature. Yes, these appliances do have the disadvantage of requiring cooperation. So do elastics. So do piano lessons and dance lessons and schoolwork for that matter. And sometimes we suffer the children. But when they comply, I am finding that controlling the musculature — getting the tongue away from the teeth and calming the lips and cheeks during swallowing and rest - has been a godsend for my orthodontics.

When it comes to early treatment, the same thinking applies. The muscles of the functional matrix are certainly active way before we ever get to see these kids. Tongue thrusts develop early. Mouth breathing — and all the allergies, asthma and URT infections that go with it — are present even in the very young. Can we say that it is having no effect on the growing osseous structures? Could the way the bones of the face form be free from their influence? With all that the evidence shows, it becomes impossible, even irresponsible, to overlook the potential that muscle has to influence the teeth and face.



At left, Farrell Bent Wire System (BWS). At right, pre-orthodontic trainer (T4K) by Myofunctional Research (Queensland, Australia).
Photos/Proviced by Myofunctional Research.

However, the question of how much of facial growth is genotype and how much is phenotype is indeed a legitimate one and is certainly open to debate. Personally, with my reading of the literature (Mew, 2004)[12] and what I've come to learn about musculature, I am leaning more toward the "phenotype" side than ever before. I think we are missing the point when we talk about the "growth and development" that we give so much lip service to. Instead, we should be talking about "growth, development and adaptation" with an emphasis on the latter element.

In my view, and in Tom Graber's view[3], the musculature is doing "early treatment" to the face whether we are there or not. And what we see by the time kids are "ready for braces" is the by-product of that muscular treatment.

So, to me, the debate over genotype or phenotype and the credibility of early treatment and the influence of the muscles begs the question: Am I going to stand by with benign neglect while the muscles are literally distorting this child's teeth, alveolus, maxilla and, yes, even face? Isn't that like saying, "We can't change people's behavior (diet and exercise), so let's just wait for them to have a heart attack and then argue about whether a bypass or stent is best" (like we argue about one-phase and two-phase therapies)?

It's a fallacious argument. The crooked teeth aren't the disease. Like a heart attack, they are merely symptomatic of a problem that has been festering for years. And just as physicians have a responsibility to teach their patients about the benefits of good diet and exercise (whether we listen or not), I believe we have a responsibility to teach our patients and parents about good and bad muscular habits and their affect on their precious children's faces. We are the physicians of the face, not just tooth mechanics. The periodontists know this. I think it is time we orthodontists learn this as well.

And once you learn this lesson, well, the teeth will guide themselves into place.

References

1) Angle Edward H. Treatment of Malocclusion of the Teeth. In: Philadelphia: S. S. White Dental Mfg. Co; 1907.
2) Rogers, Alfred, A Restatement of the Myofunctional Concept in Orthodontics, AJO, 1950, 36(11), 845-855. ; Rogers, Alfred, Simplifying Orthodontic Treatment, IntJOrtho, June, 1926, xii.
3) Graber, Thomas M., The 3 M's: Muscles, Malocclusion, and Malformation, AJO, 1963, 49(6), 418–450.
4) Straub, Walter., Malfunction of the Toungue, AJO, 1960, 46(6), 404–424 (The first of 3 installments).
5) Harvold, Egli, Primate experiments on oral respiration, 1981, 79(4), 359–372.
6) Proffit WR, Fields HW, Sarver DM. Contemporary Orthodontics, Fourth Edition, Mosby –Elsevier, 2005, chapter 2, pp. 27–39.
7) Tulloch, J.F.C, et.al., The effect of early intervention on skeletal pattern in Class II malocclusion: A randomized clinical trial, AJODO, 1997, 111(4), 391–400.
8) Moss, M and Salentijn, L, The primary role of functional matricies in facial growth. AJODO, 1969, 55(6), 566–577.
9) Enlow, D, and Moyers, R, Handbook of Facial Growth, Saunders, 1982.
10) Kondo, Estuko, Muscle Wins!: Treatment in Clinical Orthodontics : Muscle and Respiration Oriented Orthodontic Treatment and Long Term Occlusal Stability, DaehanNarae, 2008.
11) Boyd, Kevin, Darwinian Dentistry, An Evolutionary Perspective on the Etiology of Malocclusion, JAOS, 2011, Nov/Dec, 34–40.
12) Mew, John, The Postural Basis of Malocclusion, a philosophical overview, AJODO, 2004, 126(6), 729–738.

About the author

BARRY RAPHAEL, DMD, has practiced orthodontics for 27 years. During this time, he has benefited from all the advances that modern orthodontic treatment has to offer, including functional orthodontics and low-force, low-friction techniques. Although Raphael has been practicing orthodontics for almost three decades, he has only recently begun to recognize the benefits of myofunctional therapy in his practice. He also has first-hand experience with moving from a "tooth-centric" philosophy of orthodontic mechanotherapy to a "muscle-centric" philosophy of orofacial development. Raphael offers clinical insight into the changes he's made in his own practice and where he thinks orthodontic practice and education are heading. He may be contacted at *drbarry@alignmine.com*

◂ SOBLER, Page 1

blers aim to utilize the most up-to-date and advanced orthodontic technology, including the Roth/Williams method of treatment, laser dentistry, craniofacial treatments, lingual braces and cleft palate treatments.

One of Dr. Terry Sobler's highest honors came in 1981 when he became a diplomate of the American Board of Orthodontics. Less than 20 percent of practicing orthodontists have completed the rigorous requirements to become a diplomate of the ABO.

"He's definitely still in the mix, and he stays on top of things," Ian Sobler said. "He's not going anywhere. It's a nice blend of old school and new school."

Dr. Ian Sobler was awarded Align Technology's Invisalign Leader Award for having treated the most successful Invisalign cases and was the chief resident at New York University's orthodontics program.

Being involved in serving the community is another important component of Sobler Orthodontics.

Both Soblers are consultants for the Camp Jawonio Cranio-facial Anomalies Center and REFUAH health center.

"We treat most of the special needs patients in the county, focusing on cleft palates," Ian Sobler said. "We serve with Jawonio as the only orthodontists on that team. We donate our time there because we really believe that anyone can and should be treated."

Jawonio is a provider of lifespan services in the Hudson Valley for people with developmental disabilities, mental illness and chronic health needs. For more than 60 years, Jawonio has provided support and services for individuals with developmental disabilities and special needs throughout the lower Hudson Valley and Northern New Jersey.

In addition to their philanthropic efforts, the Soblers stay abreast of orthodontic trends and news in a number of organizations.

Dr. Terry Sobler is a member of the College of Diplomates of the American Board of Orthodontics, the American Association of Orthodontists, Northeastern Society of Orthodontists (NESO) and the New Conn Orthodontic Foundation. He has served as past president of the Rockland County Dental Society and former president of the New Conn. Orthodontic Foundation. He also serves as a clinical faculty member at NYU College of Dentistry, department of Orthodontics and Dento-facial Orthopedics, and is a consultant for the Montefiore Medical Center Cranio-facial Anomalies Center.

Dr. Ian Sobler is a consultant for Camp Jawanio Cranio-facial anomalies center and REFUAH health center. He is a member of the American Association of Orthodontists; the Northeastern Society of Orthodontists (NESO), new and young members committee; and the New Conn Orthodontic Foundation. He was the chief resident at NYU's orthodontics program.

Scenes from MASO

The Middle Atlantic Society of Orthodontists hosted its annual session at the Hilton Baltimore in September

The Middle Atlantic Society of Orthodontists' new member on its board of directors is Dr. Tarun (Ty) Saini from Maryland. He joins its existing directors: Dr. Doug Harte, Dr. Russell Sandman, Dr. Robert Penna, and Dr. Normand Boucher, as well as Dr. Lawrence Wang (president elect), Dr. Stephanie Steckel (secretary), Dr. Jean Asmar (treasurer), Dr. Robert Williams (editor), Dr. Nahid Maleki (MASO trustee) and Anita Field (executive director).

Photos by Gina Davison, Dental Tribune