

THE PROTOCOL™



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Challenges

My Orthodontic Journey

CONTRIBUTORS



Dr. Thomas Pitts D.D.S., M.Sc.D.

Ortho Country Orthodontics

Dr. Pitts is a world renowned lecturer and clinician. He is highly recognized for his continued teaching of orthodontic finishing and clinical excellence. Dr. Pitts is an associate clinical professor at the University of the Pacific and founder of the well-respected Pitts Progressive Study Club.

Dr. Pitts has been published in multiple journals and clinical publications. He has been actively teaching the orthodontic community in a variety of settings both nationally and internationally since 1986.



Dr. Duncan Brown B.Sc., D.D.S., D. Ortho

Smile Zone Orthodontics

Dr. Duncan Brown is a highly regarded international speaker and educator in passive ligation bracket systems. Dr. Brown teaches regularly at the University of Alberta and University of Manitoba and is also a Kodak/Carestream Dental speaker and consultant.

Dr. Brown has made large contributions to the orthodontic community from creating effective hygiene programs for patients, to the G&H Pre-Torqued Archwire series and much more!



Dr. Rael Bernstein D.D.S., M.S.

WOW Smiles

Dr. Bernstein is accredited with having one of the nation's fastest growing start-up private practices in a highly competitive part of California over the last decade. He is known for relentlessly implementing many ideas and strategies learned from within and without the profession. His team is dedicated to clinical excellence, customer service, business development and community outreach. He believes that our profession is changing at an alarming rate and has been working hard to stay ahead of the curve.



Hank Barton

Forest Dental - President

Hank Barton is the president of Forest Dental in Hillsboro, Oregon. His appreciation of classic cars has clearly translated to the amazing design aesthetics and quality of Forest Dental's dental chairs. Forest Dental is considered one of North America's fastest growing dental equipment manufacturers.



Lisa Bumbernick

Carestream

Lisa Bumbernick has served in the dental and orthodontic arena since 1985. Many of these years, she served as an orthodontic assistant and treatment coordinator, learning the business inside out. Lisa joined the Carestream Dental training team in 2004 so she could share her knowledge with others. She enjoys traveling to new places, meeting new people, and getting involved in the community.

THE PROTOCOL™

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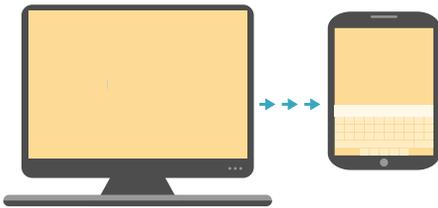
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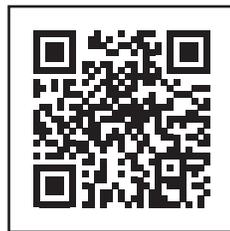


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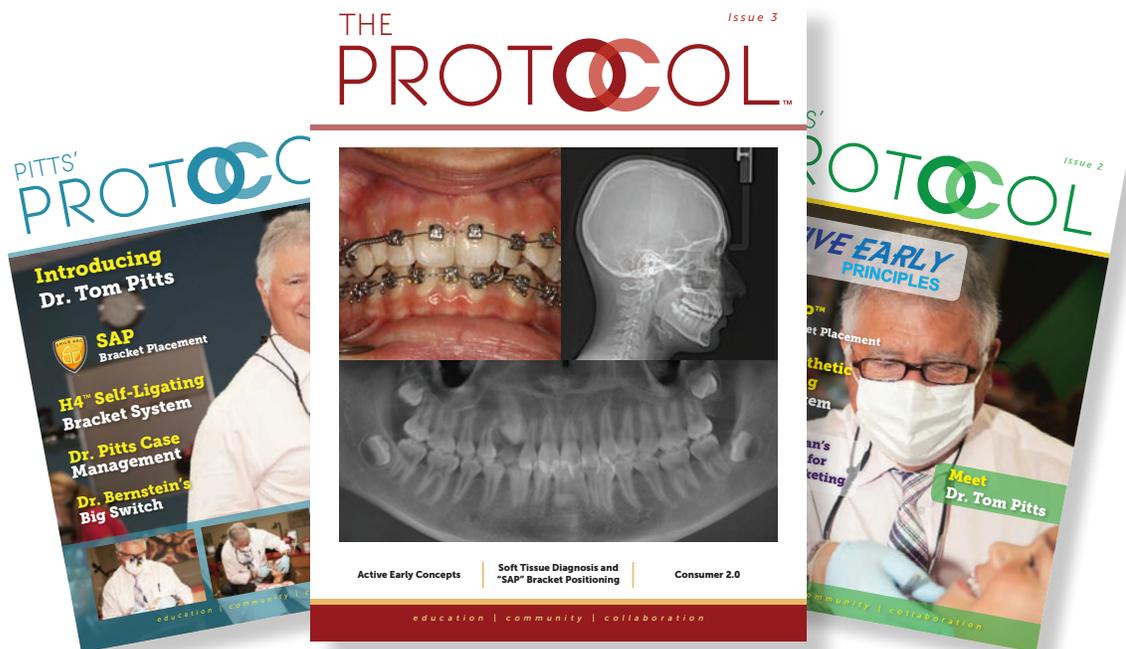


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PRACTICE SPOTLIGHT

WOW!
SMILES



What Does Your Practice Stand For?

I think one of the most important questions any orthodontist should ask himself is 'What does my practice stand for?' Sure you straighten smiles, you boost confidence, you "fix" people... but how you go about doing those things is just as important as the tasks themselves.

For me, it was one of the questions that defined my career as an orthodontist and business owner. Identifying my practice philosophy and instilling that philosophy in EVERY aspect of my practice was vital to the successes I've seen so far. Our core marketing messages are derived directly from this philosophy. From new patient phone calls to in-office care to the treatment technology we use, our philosophy is what guides our practice and every decision we make.

Currently, I own five practices in California with several new projects

on the horizon. With so many moving parts, it's easy to lose focus. For me, pinpointing my core strengths and treatment philosophy has saved me a lot of headaches and stress because at the end of the day, I know what I stand for, my team knows what we stand for, and most importantly my patients and their parents know what we stand for. Our practice philosophy is simply this: We believe in providing the most comfortable, efficient and non-invasive orthodontic treatment possible to achieve superior results for our patients.

In this simple statement, you can clearly see our practice is dedicated to our patients in every way. However, we all know actions speak louder than words. That statement sounds wonderful but if we didn't deliver that promise, we would fail.

By ingraining our treatment philosophy in every facet of my

practice, my team and I are able to deliver outstanding customer service and focus on what's truly best for our patients. As a result, our patients know that we have their very best interest in mind and that speaks volumes.

So I ask you as an orthodontist, a team member, a business owner... What do you stand for?



WE DO IT WITH WOW!



Practice Information

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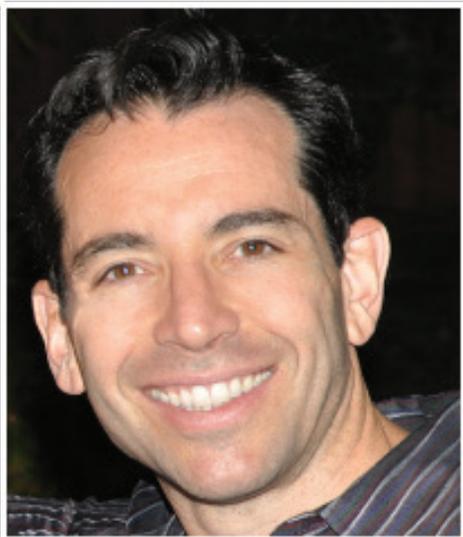
Social Media

Facebook:

www.facebook.com/BernsteinOrtho
www.facebook.com/WowMySmile

“Our team members are the Super Heroes and sometimes they even get to dress the part!”

Meet Our Orthodontist

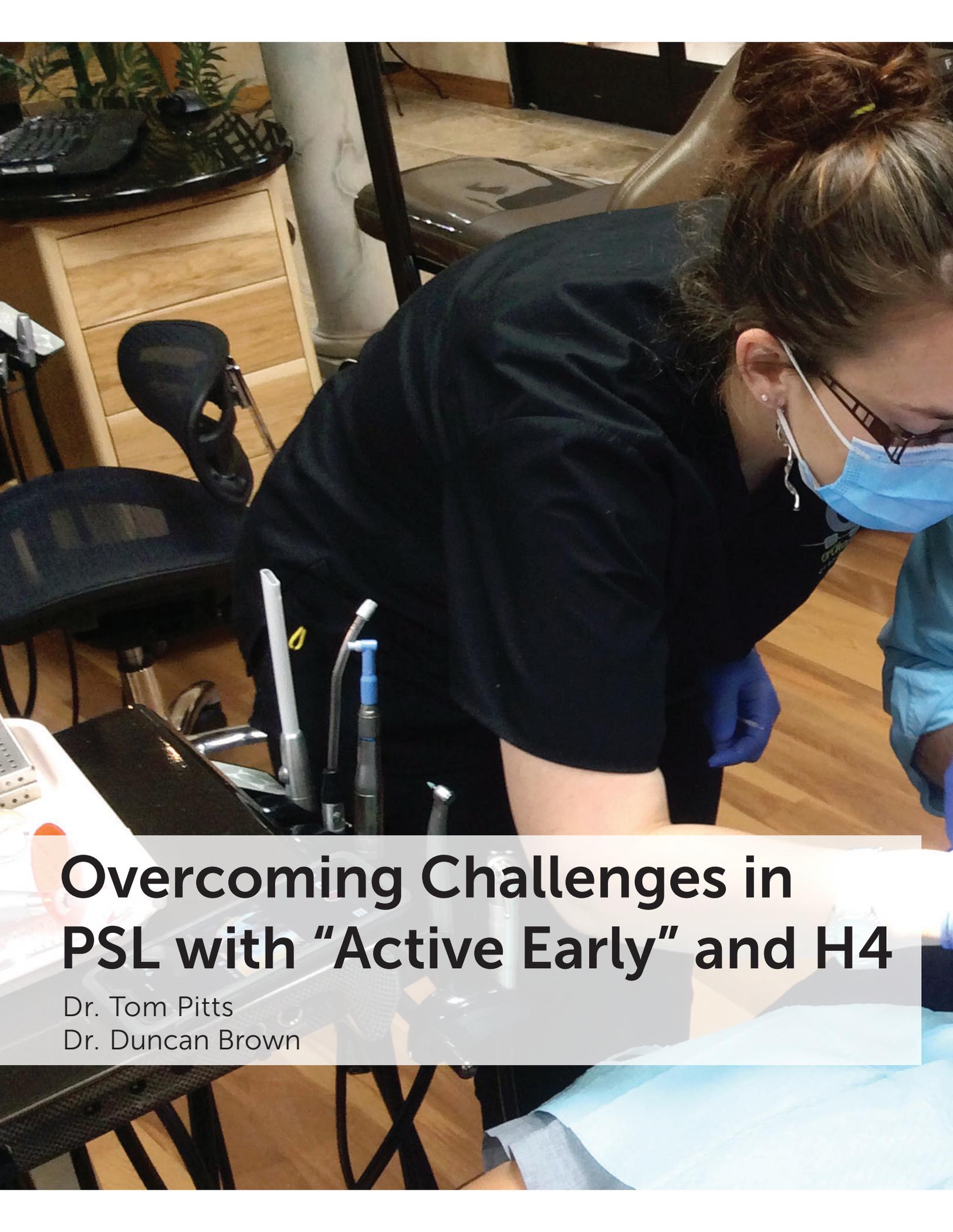


Rael Bernstein, DDS, MS

Born and raised in South Africa, Dr. Rael Bernstein attended the prestigious Wits Dental School where he finished at the top of his class. He then went on to complete his orthodontic specialty residency at the State University of New York at Buffalo. Following his residency, Dr. Bernstein accepted a fellowship position at the University where he became a clinical assistant professor in the orthodontic department. He then moved to Santa Rosa, California where he opened the first Bernstein Orthodontics practice. Dr. Bernstein now owns and operates 5 orthodontic practices in California with more locations on the horizon.

Dr. Bernstein is committed to excellence in orthodontics. He regularly attends industry meetings and gives lectures on the latest orthodontic technologies available.

In his spare time, Dr. Bernstein enjoys racing go-karts, working out, snowboarding and devoting himself to his wife and two daughters.



Overcoming Challenges in PSL with "Active Early" and H4

Dr. Tom Pitts
Dr. Duncan Brown



“Everything should be made as simple as possible but no simpler”

- Albert Einstein

Introduction

As orthodontic clinical procedures and esthetic preferences continue to evolve, the clinical approaches that we rely on today are quite different than those frequently used by earlier generations of orthodontists¹. Frequency of four bicuspid extraction has diminished with greater acceptance of non-extraction and has been gaining in popularity as fuller lips, broader smiles, and greater enamel display becomes esthetically more desirable (Figure 1,2,3). Most of the fixed appliances today have their torque values based on extraction cases and class II correction with maximum anchorage.

Virtually every orthodontist that practices today uses some variant of the "straight wire appliance", a concept that has dominated our profession since Larry Andrews' breakthrough article² led to its development in the 1970's. Mechanical limitations are inherent in the theory in terms of the potential for torque expression⁴. Inaccurate bracket placement, variation in tooth structure and tooth facial morphology, variations in the maxilla/mandible skeletal relationships, tissue rebound, mechanical deficiencies in the appliances³, and variable threshold of biological activation are all factors that can affect torque expression. Refinements to the straight wire appliance in the last twenty years have largely focused on minor 3rd order adjustments with the goal of attaining greater predictability of desired 3rd order movements during treatment. The pivotal point is that appliance and treatment techniques must combine to provide forces in a wanted direction to create a positive effect on tooth movement⁴.

Each orthodontist chooses an appliance system believing that it will help to attain good results. Unfortunately, limitations in the manufacturing processes combined with strongly held misconceptions derived from "straight wire theory" make case management more difficult. Too often, good clinical results are attained "in spite of the technology used, not because of it".

Today I would like to briefly examine the role of the appliance, some widely held case management approaches, and suggest a few simple strategies that can make treatment more efficient, more consistent, and improve the quality of the end result. **Far too many treatment outcomes today have excessive upper incisor proclination.**



Figure 1: Contemporary macro-esthetic standards include full lips, broad smiles, good enamel display - Courtesy Duncan Brown 2014



Figure 2: Contemporary mini-esthetic standards include broad smiles, consonant smile arcs, optimal axial inclination - Courtesy Duncan Brown 2014



Figure 3: Contemporary micro-esthetic standards include "white and pink" tissues optimized for esthetics and functional health - Courtesy Duncan Brown 2014

How Ligation Method Fits into this Context

While there has been much debate on the relative merits of ASL (Active Self-Ligating), PSL (Passive Self-Ligating), and Traditional Ligation, these principles that we talk about today apply to all fixed orthodontic appliances regardless of ligation type. The fact is that the “best orthodontic results are produced by the best case managers regardless of the appliances they use”.

I have used self-ligating appliances almost exclusively for the last 15 years. I prefer this ligation method for a number of reasons:

I also prefer “passive” ligation, but realized long ago that manufacturing accurate manufacturing tolerances are paramount.

- **Initial Bracket Engagement:** With self-ligating brackets, consistent ligation is assured. Once the slide is closed, engagement of the wire/bracket interface is as good as it is going to get. This increases efficiency.
 - **Improved Hygiene:** Elimination of either steel ligature “pigtailed” or elastomeric ties is an asset in terms of improving hygienic outcomes⁵. A disciplined hygiene control program will help ensure beautiful results.
 - **Faster Wire Changes:** It is very easy to engage wires in a PSL mechanism, so that wire changes can be done very quickly and efficiently.
 - **Quick Out of the Gate:** Orthodontists around the world have found PSL to be very quick out of the gate in terms of unravelling and crowding but difficult down the stretch, where rotations and torsional control are difficult, often taking longer to achieve excellent finishing. We have changed the slot geometry in the H4 appliance in order to address the typical PSL difficulties and reduce treatment time by several months⁷.
 - **Easier Arch Development and Open Bite Closure:** We find that arch development and early mechanics in cases with proclination, crowding, or class III are most easily managed with appliances that have minimal resistance to sliding (RTS). We like the H4 PSL for this.
-

Studies demonstrate that PSL mechanisms display less RTS than either ASL or traditional ligated systems in round wires. This has led to marketing claims made by some companies that the PSL mechanism would translate to: improved treatment outcomes, shorter treatment times, and fewer treatment appointments. None of these companies have the necessary rigorous clinical research to support these potential benefits.

I use the H4 bracket, a more precise “straight wire” PSL appliance that incorporates a number of unique features in a high quality appliance, at a great price point. Over the years, I have developed a case management strategy that is being called “Active Early”, which leverages the unique features of the H4 appliance, overcomes many misconceptions imposed by rigid adherence to “straight wire theory”, and addresses the shortcomings common in other PSL brackets.

In PSL, engagement of the wire and slot is entirely dependent on the mechanism rather than on elastomeric ties or steel ligature ties, so it is of paramount importance that the manufacturing tolerances are precise to ensure predictable performance of the appliance. **Too much “slop” in the bracket slot leads to difficulty in rotations and torque expression in the anterior region.**

“The combination of H4 brackets and Pitts Broad AW’s in “Active Early” case management protocols provides “3D control” earlier in treatment than has been possible with any other system!”
-Tom Pitts

Manufacturing Tolerances Matter

Early literature on the potential for torsion created in the appliance was based on theoretical mathematical models. When conclusions derived from this process are applied clinically, the results are frequently disappointing and there are a number of reasons for this.

As clinicians are primarily concerned with torque expression, the ability of the appliance to generate appropriate forces and moments is of primary importance, even after patient specific factors are taken into account. Basic scientific research into manufacturing tolerances of both the brackets and wires have discovered several important facts that have direct clinical application:

- **There is No True Straight Wire Appliance, Even When Using Digital Setup:** Very rarely can a case be finished with excellence without wire adjustments (Figure 5).
- **Many Orthodontic Slots Are Very Inconsistent:** Many have rounded corners, slot walls that are not parallel, rounded internal line angles, variable slot taper, slot dimensions that are oversized up to 27%⁹. This variation effects generation of torsion developed within the slot as well as rotational control.
- **Orthodontic Brackets Are Not Rigid:** Deformation occurs in an elastic (returns to original shape after torsion is removed) or plastic (permanent deformation) manner when torsion is applied. These deformations can and do occur within torsion ranges commonly applied in clinical practice¹⁰, effecting torsional expression.
- **Orthodontic Wires Are Variable:** Actual cross sectional geometry and varying material properties effect torsional stiffness and therefore torque expression¹¹. The clinical relevance of this research is that even at 25 degrees of twist (a clinically significant twist), insufficient torsion may be created effectively to change the axial inclination of teeth.
- **Corner Radius of Wires Are Remarkably Variable:** The angle of engagement is dependent on the corners of the wires engaging the super and inferior walls of the slot. The edge bevel contribution to engagement angle can range from .2 to 13 degrees depending on the bracket/wire combinations¹². The worst performer in this regard is found in certain beta titanium wires, which is generally favored for increasing torsion through wire bending.

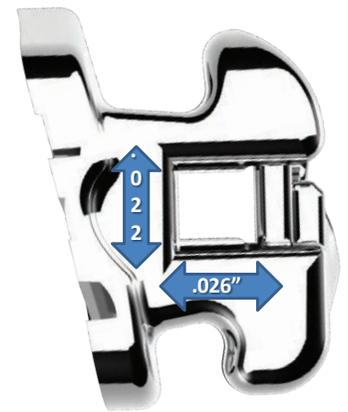


Figure 4

H4 Slot Dimension
 .022" x .0260" +/- .001"

↑ Slot Depth ↑ Tolerance

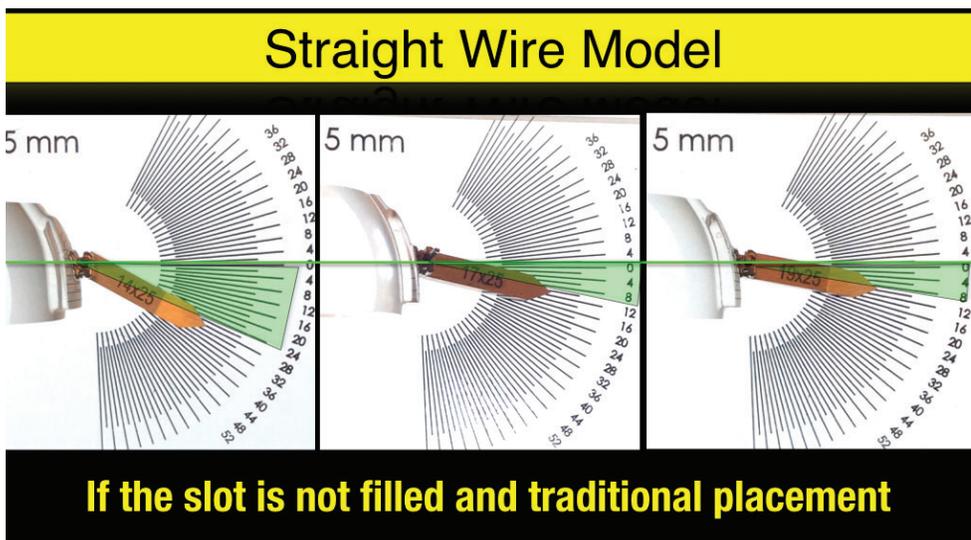


Figure 5: Too proclined incisors with familiar wire progressions and bracket slot positioned as suggested in "Straight Wire" theory, torsion is unlikely to be developed within the slot

THE RIGHT SOLUTION -

TIRED OF OVERPAYING FOR PRODUCTS THAT UNDERPERFORM?



.021 x .025 Wire

Having Issues Expressing Torque?

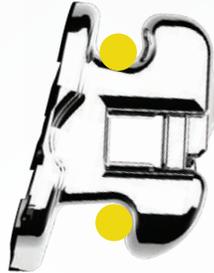
The slot of the H4 bracket provides the tightest tolerances in the industry at +/- .001", a huge improvement over the industry standard of +/- .003". This translates into a bracket that will provide reliable and predictable results for each and every case, reducing the amount of "finishing" work that needs to be done.

Problems With Rotational Control?

With passive self-ligation tighter tolerances are needed to control rotations.

Profile too High?

The H4 bracket has one of the lowest profiles in the industry. Lower than clip brackets and most PSLs.



Trouble Applying Power Chain or Elastics?

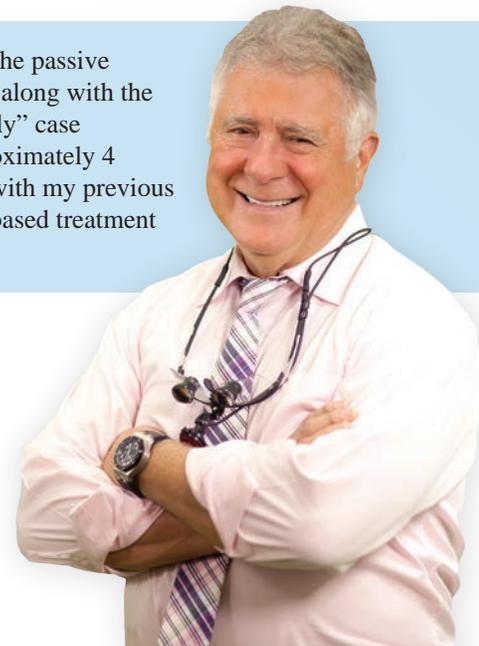
The H4 brackets provide large under tie-wing clearance making ligation a breeze with support for early elastics, ligatures, metal ligatures, and power chain.



Problems With Your Hooks?

H4 hooks are fully integrated into the bracket and are available in custom configuration on the 3's, 4's, and 5's with no extra charge.

"I've found with the decreased slot depth of the passive self-ligating H4 bracket from Ortho Classic, along with the tightened slot tolerances, plus my "active early" case management strategies, that I'm saving approximately 4 months of treatment, over what I was doing with my previous PSL bracket. I still want a beautiful esthetic based treatment with great occlusion." - **Dr. Tom Pitts**



H4 SELF-LIGATING BRACKET

More Efficient | More Predictable | Less Chair Time | More Profitable



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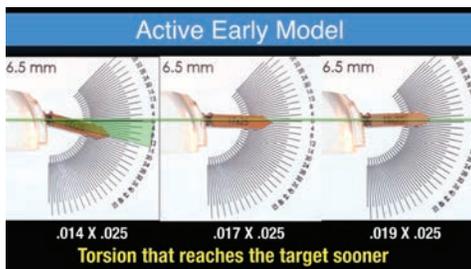


Figure 6: With familiar wire progressions and bracket slot positioned as suggested in "Active Early" approach, torsion within the slot is developed earlier in the treatment cycle.

Popular "low" torque brackets are not low enough to do the job.



Figure 7: Positive effects of "White and Pink" tissue optimization prior to bonding. Courtesy Nimet Guiga and Duncan Brown.

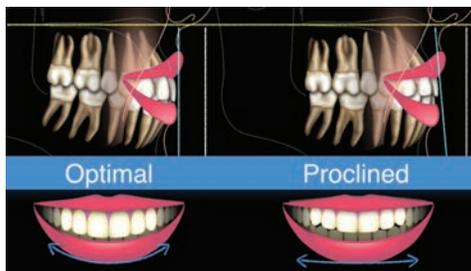


Figure 8: Although the upper incisor inclination to occlusal plane is the same, esthetic presentation is effected by cant of the occlusal plane - adapted from Rungsi Tavarungkul 2012

Reducing Challenges of Appliance Manufacturing & Common Clinical Practices

We favor the H4 appliance from Ortho Classic for a number of reasons. OC has a MIM manufacturing process with tolerances that are much tighter for more predictable performance, dense metallurgy minimizing deformation, a rigid slide, and reduced slot depth. These factors improve rotational control while reducing the engagement angle for torsional control early in the treatment cycle, when using familiar wire progressions when the bracket is upright (Figure 6).

Today, I want to initiate wanted forces and moments within the appliance as early in treatment as possible. We use SAP¹⁸ bracket position to adjust the vertical position of the incisors for smile arc an enamel display, and invert groups of brackets ("flipped and flocked") as needed to activate torsion in the appliance sooner. We adopt arch wire progressions and profiles that control axial inclination earlier in treatment. We adopt arch forms that develop the posterior segments of the arches sooner, "ELSE" (Early Light Short Elastics) to control forces and moments, and appropriate disarticulation to encourage specific tooth movements. This has become known as an "Active Early" approach to case management.

An "Active Early" Approach

One of the distinguishing features of the "Active Early" approach is adapting to "slop" that is present in all straight wires appliance slots. In this approach a good deal of control is available through a number of clinical opportunities when using non-adjustable wires. Most notable among them are:

- Optimize "White and Pink" tissue contour prior to bonding:** Patients today want beautiful faces, beautiful smiles, and beautiful teeth; meaning teeth and tissues need to be "optimized" for shape and contour. Prior to bonding, hard tissue recontouring improves the ability to place brackets in the appropriate location to maximize the smile arc, optimize axial inclination, and control 1st and 2nd order changes during tipping or early torsion mechanics. All surfaces that have been adjusted are smoothed with a white stone and black rubber tip using a high speed hand piece. Soft tissue revision using diode lasers are very useful in optimizing bracket position for smile arc enhancement (Figure 7).
- Patient Specific SAP Bracket positioning:** We reject the theory that the bracket slot has to be positioned in the middle of the crown. Bracket position is individualized to meet each patient's **esthetic** need. **Many patients need more enamel display upon smiling.** I like to enhance or preserve the "smile arc" on all patients. This requires the divergence of the upper wire plane, created by bracket position, and must increase anteriorly to develop the smile arc by extruding the upper incisors relative to the upper bicuspids. A divergence is still advised in deep bite cases to avoid excessive reduction in smile arc with reduction in overbite. It is important to remember that large bracket progressions in the upper arch must be compensated for by over-leveling the lower arch to establish optimum overbite relationships. A number of articles on the SAP technique have been published in recent years and SAP bracket positioning is now being employed regularly around the world^{19,20} (Figure 8,9,10).

Don't believe the mythology that SAP hurts the bracket slot torque. Torques changes in SAP positions are actually an advantage in a high percentage of non-extraction cases. Being closer to the center of resistance of the root provides more control. Most of my non-extraction cases required lowered torque, so we "flip" many upper anteriors in cases of crowding, class III, and proclination as needed (Figure 11).

- **Torque Selection:** With the worldwide tendency to treat more cases without extractions, the control of proclination of the upper anterior teeth has become a greater challenge. Correction of pre-existing crowding and proclination, associated with relief of crowding during traditional round wire mechanics, or incisor proclination associated class III (in the upper arch) elastics is particularly problematic. The challenge for many non-extraction cases has been in getting enough lingual crown torsion without having to resort to complex wire bending and torquing springs to attain esthetic results.

- **Inverting or Flipping Brackets For Flared Upper Incisors:** Rather than resorting to a constellation of "variable torque" prescriptions, **inverting standard torque anterior brackets** builds sufficient lingual crown torsion into the appliance using a flat wire (Figure 11). The H4 appliance Rx is much better in this regard, predictable when upright, and appropriate when flipped providing greater lingual crown torque to the central when uprighting of the upper anteriors is required. The single H4 Rx then provides torque combinations suiting the majority of cases with a minimum of wire adjustments. For the clinician primarily concerned with torque expression, it matters solely when/if torsion is developed within the slot during commonly used arch wire progressions, and "flipping" brackets for proclined upper incisors, ensures that torsion is present in the slot from the outset of dimensional wires. We are teaching orthodontists how and when to "flip" brackets (Figure 11).

- **ELSE (Elastics, Light, Short and Early):** I have advocated use of light elastics from the first appointment for the past 20 years, especially when using PSL mechanics. Sabrina Huang, from Taiwan, suggested the ELSE acronym some years ago, and I continue to describe the technique in those terms. The use of ELSE (no more than 2.5 oz.) increases the efficiency of treatment dramatically by maximizing "wanted" tooth movements in all dimensions, and minimizing or mitigating "unwanted" tooth movements early during the tipping or early torsional phases of treatment (Figure 12,13). Patient cooperation is critical, and reinforcing early progress through "every appointment" photography is very useful. ELSE can minimize "round tripping" on non-extraction cases, and facilitates moving disarticulated teeth with very light forces.

- **Appropriate Disarticulation:** The use of OG's (occlusal guides) to adjust the occlusal plane and maximize wanted and minimize unwanted tooth movements is a important "Active Early" contributor. Teeth move readily with lighter forces when disarticulated. It is very important that OG's are positioned strategically to erupt or intrude the appropriate teeth to improve esthetics and function. We'll be talking about OG's in a later issue of the Protocol.

- **Arch Width and Arch form:** Using Pitts Broad arch forms allows early development of arch width in the areas where the esthetic benefit is the greatest. It has never made sense to me to start with arch wire forms that are narrower than the case needs to finish esthetically. Working with Ortho Classic, we have created a full suite of arch wires that

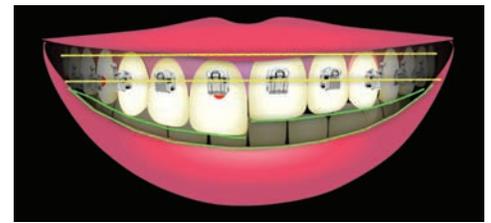


Figure 9: SAP versus Traditional bracket position - failure to adjust the bracket position to meet esthetic needs can result in flattening of the smile arc and esthetic decline



Figure 10: Wire plane and upper occlusal plane are not necessarily parallel in patients with good esthetics and sound functional occlusions - Courtesy Duncan Brown 2015

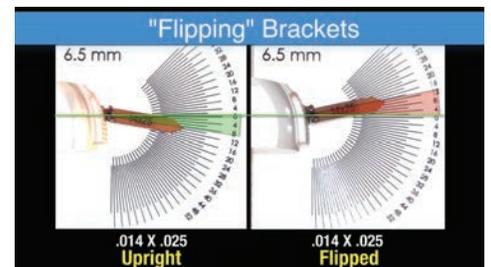


Figure 11 - Effect of "flipping" an anterior bracket is to place an effective degree of lingual crown torsion in the appliance



Figure 12: Excellent control of tooth position, and esthetic improvement using "Active Early" principles of recontouring, SAP bracket placement, disarticulation and ELSE- Courtesy of Nimet Guiga 2015



Figure 13: Excellent control of tooth position, and esthetic improvement using "Active Early" principles of recontouring, SAP bracket placement, disarticulation and ELSE- Courtesy of Duncan Brown 2014



i2 Leash for control of axial inclination

Figure 14: i2 torquing powerchain for torsional control early in treatment - Courtesy of Nimet Guiga 2015

develop the arches transversely from the outset to an esthetically pleasing arch form (Pitts Standard, Pitts Broad) (Figure 13), where research has shown that a great amounts of transverse development occurs²¹. It is very important and optimal inclination of the buccal segments is attained for ideal esthetics and occlusal function, and this is assessed at each appointment. Lifelong retention is a part of this strategy.

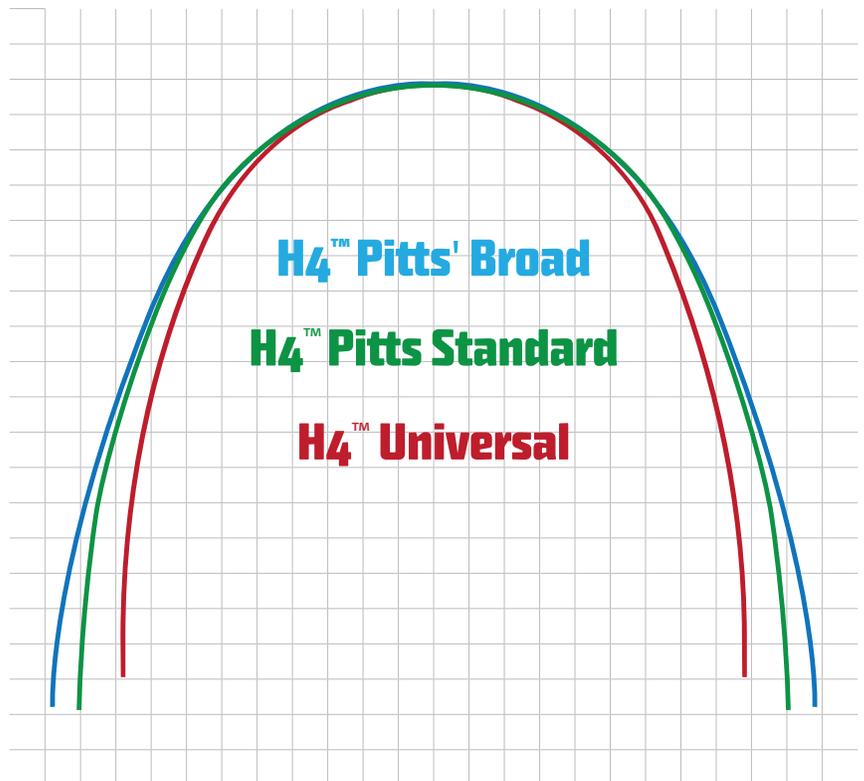
- **Torquing Power Chains:**

In order to help early torque control, i2, i3 torquing powerchains are used as a tool of controlling axial inclination early in treatment. Incisal torquing elastomeric chain to minimize unwanted tipping of teeth during the relief of crowding is proving very helpful, especially in cases where the anterior brackets have not been "flipped" (Figure 14). Dr. Guiga introduced us to this concept, which has helped significantly in torque control early in cases after the 20X20 TA Niti is placed (Figure 14).

- **Square Wire Early:**

We have developed a wire progression approach that allows the orthodontist to initiate control of axial inclination through torsion developed within the slot much earlier in treatment than was previously possible. Using 020X020 TA Niti wires allows torsion within the slot to be initiated early, frequently by the 2nd or 3rd appointment. "Square Wire" finishing on many cases provides a simple, effective and efficient means of attaining esthetic results.

Look for more innovations in the near future to further improve this approach.



Pitts Broad (blue), H4 Standard (green), H4 Universal (red) arch forms - broader arch forms produce broader arches and broader smiles - Courtesy Tom Pitts 2013

Summary and Case Management Considerations

We see efficient esthetic treatment by these active early protocols:

- Combining the SAP bracket position to adjust vertical position of the incisors.
- Selecting arch wire progressions that control axial inclination early in treatment through using Pitts Wide arch forms that develop the posterior segments of the arches sooner
- Shortening the depth of the bracket slot.
- Using ELSE and appropriate disarticulation to encourage "wanted" tooth movements.

The H4 appliance makes a quantum leap for treatment. The ability to "flip" anterior brackets as a part of the "Active Early" approach, in combination with the precision and dependable prescription (Figures 15 - 21) solves issues orthodontists have traditionally struggled with in most PSL appliances. With Ortho Classic, we are continuing to refine the H4 appliance, as the "Active Early" protocols continue to evolve.

In the upcoming issues of The Protocol, we will explore other parameters of "Active Early". Stay tuned, it will be exciting.

Until next time.....



Figure 15: Initial Records - Courtesy Duncan Brown 2015



Figure 16: Excellent control early in treatment using "Active Early" case management protocols; SAP bracket placement, "flipped" slots 2x2.- Courtesy Duncan Brown 2015



Figure 17: Excellent control early in treatment using "Active Early" case management protocols; SAP bracket placement, "flipped and flocked" upper anteriors, "flipped" lower anteriors, ELSE and disarticulation - Courtesy Duncan Brown 2015

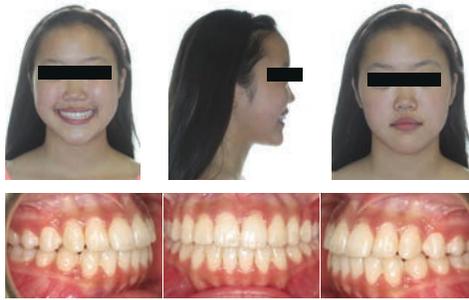


Figure 18: Very nice esthetic change efficiently attained- Courtesy Duncan Brown 2015

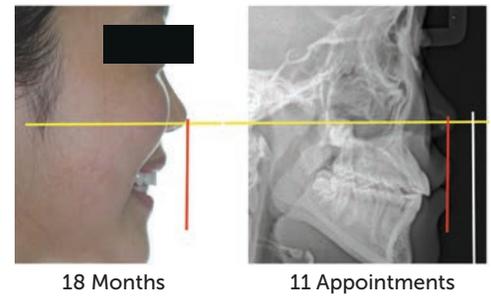


Figure 19: Optimized upper incisor position- Courtesy Duncan Brown 2015

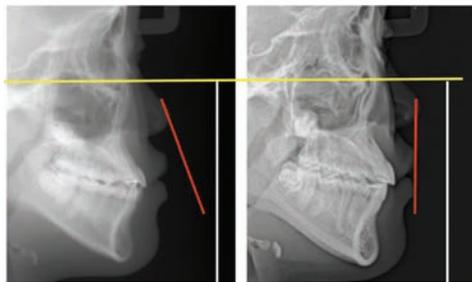


Figure 20: Uprighted upper incisor with "Active Early" protocols- Courtesy Duncan Brown 2015

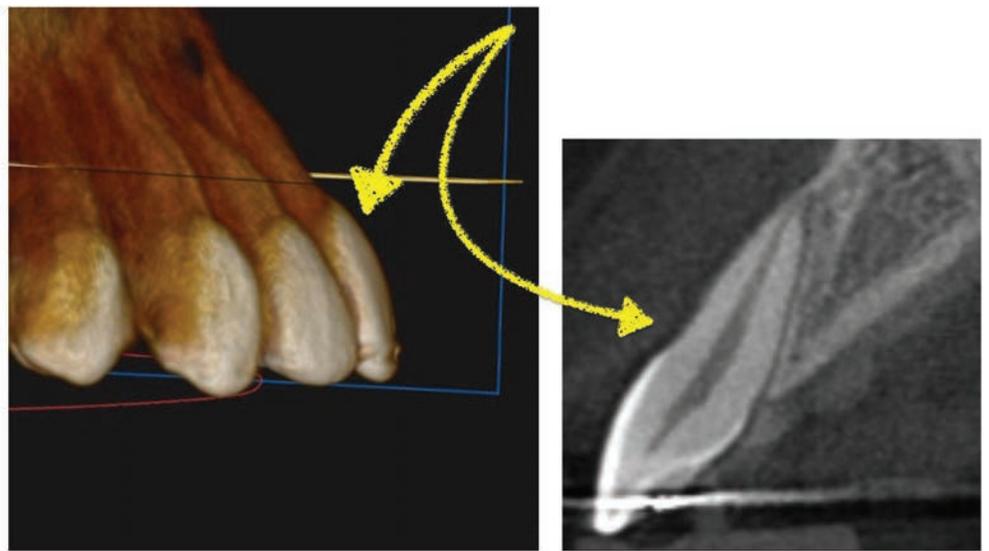


Figure 21: Post treatment CBCT confirming presence of buccal plate - Courtesy Duncan Brown 2015

Author's Comments



Dr. Tom Pitts



Dr. Duncan Brown

"Our goal in teaching is to improve esthetic and functional outcomes, while simplifying treatment mechanics and improving predictability, and efficiency. Working alongside Ortho Classic we will be introducing more innovative technology and approaches to simplify your mechanics, while providing effective solutions to clinical problems that are also efficient."

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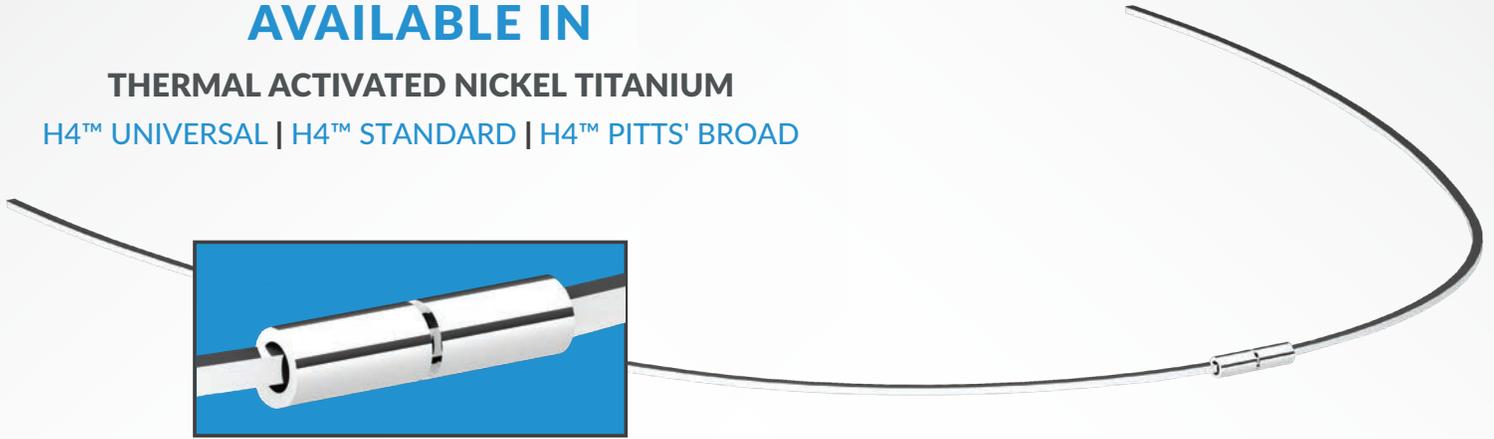


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10 PACK	INCHES	MM	H4™ UNIVERSAL (PRE-STOPPED)	H4™ STANDARD (PRE-STOPPED)	H4™ PITTS' BROAD (PRE-STOPPED)
	.014	.36	--	--	320.0401
	.016	.41	320.0382	320.0432	320.0402
	.018	.46	320.0383	320.0433	320.0403
	.020	.51	--	320.0440	320.0410
	.018 x .018	.46 x .46	--	320.0442	320.0412
	.020 x .020	.51 x .51	320.0389	320.0439	320.0409
	.014 x .025 (Extraction)	.36 x .64	320.0384	320.0434	320.0404
	.016 x .025 (Extraction)	.41 x .64	320.0385	320.0435	320.0405
	.018 x .025 (Extraction)	.46 x .64	320.0387	320.0437	320.0407
	.019 x .025	.48 x .64	320.0388	320.0438	320.0408
.021 x .025	.53 x .64	--	320.0441	320.0411	

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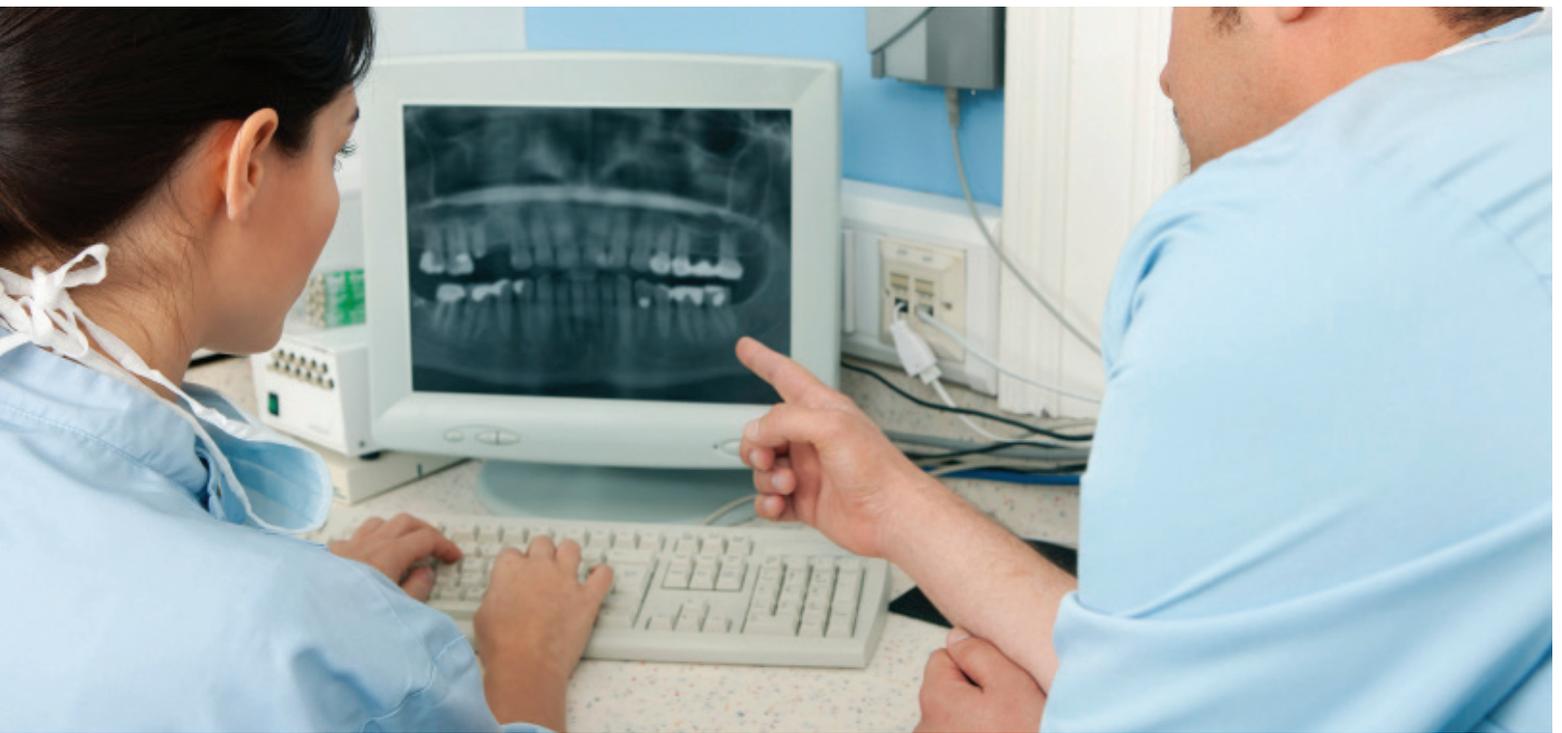
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My Journey to the Orthodontic Industry

By Lisa Bumbernick

As a young girl, I often thought about entering the health care field. While initially interested in nursing, I volunteered as a Candy Striper at a local hospital. This was a worthwhile venture, but it didn't take long to realize this was not my calling.

Only after applying for a job as a dental assistant, was I informed that experience in this field would be required. Apparently I first needed to learn some basic things about dentistry for example, how many teeth are actually in the mouth, etc. It was then that I enrolled in a vocational college for Dental Assisting.

After many long nights of studying anatomy, terminology, radiology, and related dental skills, I finally was a bonafide dental assistant and X-ray certified. I graduated in December of 1985 and began an "unpaid" working internship, The Mall Dental Office. This was quite convenient as I could do my shopping right there as well as eat lunch at the food court. After the 160 hours was completed, I was hired. My first real dental job.

The mall job was an interesting venue, as there were as many walk in patients as there were scheduled patients. It was not uncommon for us to hold

shopping bags while the patient was in the chair for their impromptu visit. The procedures ranged from simple checkups, cleanings, fillings, root canals, and we even had an occasional emergency extraction.

After a short time, I had an opportunity to work with a productive office that specialized in prosthodontics. While this was a valuable learning experience in my new career, it may not have been the best fit for me, but I was getting to know what I did and did not prefer. It was then that I tried my hand with a Dentist who did mobile dentistry on the Navajo reservation in elementary school cafeterias using a mobile dental unit. It was not uncommon to extract and place as many as 60 stainless steel crowns in a single morning. Baby bottle tooth decay was not uncommon during those years. After a long stint in this arena, I moved on to a new venture, Cosmetic Dentistry. It was quite a contrast to the mobile dentistry, as now I was assisting on full mouth reconstruction, veneers, crown and bridge.



Lisa Bumbernick has served in the dental and orthodontic arena since 1985. Many of these years, she served as an orthodontic assistant and treatment coordinator, and she was able to learn the business inside out. Lisa joined the Carestream Dental training team in 2004 so that she could share her knowledge with others. She enjoys traveling to new places, meeting new people, and getting involved in the community.

In addition to advancements in dentistry, computers were coming on the scene. The former methods of record keeping such as pegboard and ledger card systems were beginning to be replaced with computer technology. Prior to computers, our daily duties had included using an actual typewriter for the schedule, dialing the phone for confirmation calls, hand addressing postcards and then licking postage stamps for appointment reminder cards. The early computer systems that were used in the dental office were not much more than a scheduling tool and simple bookkeeping system, but they were a welcome change.

Years later I myself became an orthodontic patient and discovered a newfound interest in the world of braces. I then transitioned from just a patient to a chairside assistant. I encountered many opportunities and was encouraged by the Orthodontist every step of the way. I strived to make my day to day job fulfilling and I felt that braces were the way. **Clearly the orthodontist was making a difference in patient lives by helping to improve their overall dental health. I was impacted by the results achieved by the orthodontist and how peoples' lives were being changed as well as improving their self esteem. The overall results left me with a deep love for what orthodontics can accomplish.** I finally realized I had discovered my niche. The timing was right in entering the orthodontic field, as technological advancements were being

made, and I was learning and growing along with them.

Before long, metal bands with hand welded lingual cleats as well as bands on every tooth gave way to newer technology that is still evolving. I enjoyed orthodontic chairside assisting for several years until the concept of specializing in patient and treatment coordinating came about. My assisting morphed into meeting new patients and parents to help make them feel as comfortable as possible, given the fact that they were "at the orthodontist".

Presenting treatment options for an overall more desirable dental affect was rewarding. It was a privilege to go to work each day at a job I loved. Another facet of this life was to attend social functions, study club meetings and let's not forget the office trips for continuing education. Those were some very fun.....eeerrrr, uuuuhhh I should say..... educational times!

Meeting with dental sales representatives was an in integral part of my job, which led to my thinking; could I be a successful sales person? I was, after all, "selling" treatment. I thought "why not give it a try"? I was moderately successful. Visiting dental offices allowed me to explore another side of the business. While this was a short lived chapter, it did allow me to build my presentation skills and also become more comfortable interacting in a variety of venues.

The time spent selling and traveling, coupled with all of my previous experience prepared me for my current endeavor; training practice management software and digital radiography. The majority of my time is spent as a trainer in a variety of dental facets. In addition to private practice, dental clinics and hospitals, I have also found myself in a veterinary teaching hospital (dogs and cats have dental needs too)! **Entering an orthodontic office as a software trainer, digital x-ray trainer and the roll of practice advisor, I am reminded of how fantastic Orthodontists are. It allows me to relive the experience that I had of positively impacting the lives of patients that entrust their care to the Orthodontist and their amazing staff. The opportunity to work with them and their teams reinforces the confidence that I have in their ability to change lives and elevate self esteem in such a positive manner.**

I occasionally engage in public speaking at orthodontic trade shows and conferences. Sharing my knowledge of the industry gives people something to take back home and put into place.

It seems that the old saying "time flies" really holds true for me as I am grateful for 30 years in the dental field. I am excited and encouraged for what lies ahead. I embrace the opportunity for continued learning, growth, and mentoring by my peers in the business.



The New Ortho Classic Domestic Sales Team

Jeff Tunnell

Vice President of Sales



Jeff Tunnell is Ortho Classic's new Vice President of Sales. In this role, he will lead all aspects of the domestic sales for Ortho Classic.

Jeff, brings over 20 years of sales leadership experience to Ortho Classic. He has worked with both Fortune 500 companies as well as several startup companies in medical device and the orthodontic space introducing new disruptive technology. Jeff has excellent team building leadership skills creating highly successful sales teams to drive rapid revenue growth.

"Jeff is an outstanding addition to our Ortho Classic team, as he brings a deep blend of both medical and dental sales management experience," said Rolf Hagelganz, CEO of Ortho Classic. "In his new role, Jeff will support Ortho Classic with aggressive growth strategies, which include increasing the sales force to better assist our expanding customer base and executing our sales and marketing plan."

Brent Coles- Territory Sales Manager



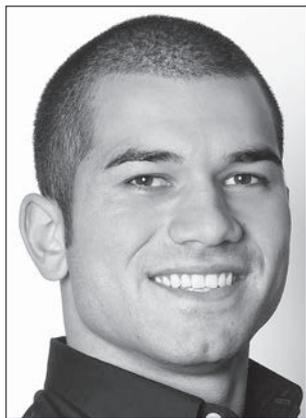
Territory 1

Alaska
Idaho
Montana
North Dakota
Oregon
South Dakota
Utah
Washington
Wyoming

801.628.8232 | brent.c@orthoclassic.com

Brent comes to Ortho Classic after spending 7 years in the hearing medical device industry introducing the first and only Extended Wear Hearing Device. Brent has a great passion for The Orthodontic Profession and has spent 15 successful years previous in Orthodontic Sales, Marketing and Training. Outside of work, Brent and his wife Susan are involved in the lives of their children and grandchildren. He also finds great enjoyment on the ski slopes and a good round of golf.

Kamal Ali- Territory Sales Manager



Territory 2

California
Hawaii
Reno

949.612.5537 | kamal.a@orthoclassic.com

Kamal has been with Ortho Classic for 3.5 years, 6 months as an inside sales rep., and 3 years in the Territory Sales Manager role. While Kamal is by far the youngest member of the sales team, he is the most "veteran" member, having the most experience with OC. Over his 3 years with the company he grew territory sales tenfold and is looking forward to continued success in 2016. Kamal graduated from the University of Oregon in 2011 with a B.S. in Business Administration with concentrations in Marketing and Finance. He is based in Southern California and enjoys life beachside in the sunshine.

Joey Breeland- Territory Sales Manager



Territory 3

Arkansas
Kansas
Oklahoma
Texas

971.237.3341 | joey.b@orthoclassic.com

Joey Breeland joined the team in the summer of 2014. Before Orthodontics, he had a successful career in Audiology and Optometry Sales. As a native Texan and graduate from the University of Texas, he is proud to represent Ortho Classic in his home region. Outside of work, Joey enjoys spending time with his wife Connelly and daughter Kate, as well as his friends and extended family in Austin, Texas.



Back Row, Left to Right: Francisco Bucio, Joey Breeland, Paul Morrison, Scott O'Neil, Jeff Tunnell, Guido Zucco, Raju George, Yudy
Middle Row, Left to Right: Brent Coles, Marty Graham, Tara Keliiheleua, Amanda Halbrook, Tom Pitts, Jessica Caldwell, Lance Lipscomb, Matt Mitchell, Mike Hendricks, Kamal Ali
Front Row, Left to Right: Jade Bachmeier, Blanca Zavala, Danielle Dean

Matt Mitchell - Territory Sales Manager



Territory 4
 Illinois
 Indiana
 Iowa
 Michigan
 Minnesota
 Missouri
 Wisconsin

312.804.1437 | matt.m@orthoclassic.com

For over 15 years, **Matt Mitchell** has been in outside sales, helping to launch products in the orthodontic and hearing industry. Matt is a Territory Sales Manager who has worked with large companies such as Align Technology, Ormco and Phonak. He has a depth of experience in orthodontic sales, account management and product launches. Matt holds a Bachelor's of Art Degree in Psychology from the Ohio State University. He currently resides in Oak Park with his wife Lisa and their 3 sons.

Marty Graham - Territory Sales Manager



Territory 5
 Alabama
 Florida
 Georgia
 Louisiana
 Mississippi
 Tennessee

205.410.6867 | marty.g@orthoclassic.com

Marty Graham has a B.S. degree in Business Administration from the University of Alabama and 24 years in the orthodontic field working for "A" Company, Align Technology, OrthoClear and Forestadent as a Territory Manager in the Southeast region. He is currently located in Birmingham, AL and covers the southeastern U.S. for Ortho Classic. He is married with one son, two daughters and one daughter-in-law.

Mike Hendricks - Territory Sales Manager



Territory 6
 Connecticut
 Maine
 Massachusetts
 New Hampshire
 New Jersey
 New York
 Ohio
 Pennsylvania
 Rhode Island
 Vermont

917.340.1651 | mike.h@orthoclassic.com

Mike's background has been with several medical device start-up companies across many sectors where he helped launch new devices into the marketplace. In addition to his robust medical device background, Mike started off his career at Dentsply and then spent several years in the Orthodontic industry where he helped bring new technologies to Orthodontists and their patients. Outside of work, Mike enjoys skiing, golfing and spending time with his wife Jill, their daughter Audrey (5) and son Carter (3).



Scott O'Neil - Territory Sales Manager



Territory 7
 Arizona
 Colorado
 Nebraska
 Nevada
 New Mexico

480.455.2801 | scott.o@orthoclassic.com

Scott O'Neil has an extensive and progressive amount of experience as a top sales representative for over 25 years in medical device sales, with a proven record for success. His skill set includes management, team-building, process implementation, and meeting/exceeding sales initiatives with the industry leaders in Orthodontics, Audiology, and Diabetes. Most importantly Scott has worked with many great companies in the orthodontics field, including; A-Company, Ormco, Align Technology, Orthoclear, SureSmile, Ortho-Accel and now Ortho Classic.

Paul Morrison - Territory Sales Manager



Territory 8
 Delaware
 Kentucky
 Maryland
 North Carolina
 South Carolina
 Virginia
 West Virginia

804.519.5231 | paul.m@orthoclassic.com

Paul Morrison joins our team from the Diabetes Industry where he helped Asante Solutions launch the Snap Insulin Pump Delivery System for Patients. In addition to his medical device background, Paul is a 14 year veteran in the Orthodontic Industry with a successful track record in sales attainment and sales training. Outside of work, Paul enjoys spending all of his time with his wife Maria and their two 13 year old daughters, Emma and Sally.

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2016 Schedule

DATE	EVENT	SPEAKER(S)	LOCATION	CONTACT
02/19/16	Join the Orthodontic Cosmetic Revolution	Dr. Tom Pitts Dr. Matt Bruner	Charlotte, NC	Paul Morrison 804-519-5231 paul.m@orthoclassic.com
02/26/16	Join the Orthodontic Cosmetic Revolution	Dr. Tom Pitts	Las Vegas, NV	Scott O'Neil 480-455-2801 scott.o@orthoclassic.com
03/25/16	Join the Orthodontic Cosmetic Revolution	Dr. Tom Pitts	Manhattan, NY	Mike Hendricks 917-340-1651 mike.h@orthoclassic.com
04/08/16	San Diego Study Club	Dr. Tom Pitts Dr. Duncan Brown	San Diego, CA	Kamal Ali 949-612-5537 kamal.a@orthoclassic.com
04/15/16 - 04/16/16	Join the Orthodontic Cosmetic Revolution	Dr. Tom Pitts Dr. Sabrina Huang	Dusseldorf, Germany	Lance Lipscomb 503-901-7434 lance@orthoclassic.com
07/22/16 - 07/23/16	Join the Orthodontic Cosmetic Revolution	Dr. Tom Pitts Dr. Duncan Brown	Australia	Lance Lipscomb 503-901-7434 lance@orthoclassic.com
08/19/16	Join the Orthodontic Cosmetic Revolution	Dr. Tom Pitts	Denver, CO	Scott O'Neil 480-455-2801 scott.o@orthoclassic.com
09/01/16 - 09/03/16	Pitts Masters Continuum Module 1 (2016-2017 Series)	Dr. Tom Pitts Dr. Duncan Brown	Portugal	775-720-7222 info@orthoevolve.com
09/12/16	Arizona Orthodontic Study Club (New Prospective Members Welcome)	Dr. Tom Pitts	Phoenix, AZ	Scott O'Neil 480-455-2801 scott.o@orthoclassic.com
09/23/16 - 09/24/16	2nd Annual Pinnacle	Dr. Tom Pitts, Dr. Tomas Castellanos, Dr. Duncan Brown, Dr. David Herman, Dr. Rael Bernstein, Dr. Jim Morrish, Dr. Michael McLaughlin, LeeAnn Peniche, & More!	Portland, OR	Jessica Caldwell 503-857-5989 jessica.c@worldclasstech.com
10/14/16	Join the Orthodontic Cosmetic Revolution	Dr. Tom Pitts Dr. Duncan Brown	Montreal, Canada	Amanda Halbrook 971-226-2269 amanda.h@orthoclassic.com
11/04/16	Join the Orthodontic Cosmetic Revolution	Dr. Tom Pitts	Salt Lake City, UT	Brent Coles 801-628-8232 brent.c@orthoclassic.com
12/09/16	Join the Orthodontic Cosmetic Revolution	Dr. Tom Pitts	Dallas, TX	Joey Breeland 971-237-3341 joey.b @orthoclassic.com



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Hank Barton, President Forest Dental



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