Meet Dr. Tom Pitts

Dr. David Herman’s Building Blocks for Sustainable Marketing

SAP™ Bracket Placement

H4 GO™ Aesthetic Self-Ligating Bracket System

education | community | collaboration
Dear Doctor and Staff:

As I promised a few months ago, I am very pleased to offer you the 2nd issue of Pitts’ Protocol. Each and every year we do our best to grow and improve as a company and this year has been an exceptional one for us. By working hand in hand with Orthodontists, we have made great strides in broadening our product offerings and resources for you. In this issue of the Protocol, Dr. Thomas Pitts, the Clinical Editorial Director, will introduce you to an “Active Early” approach to Case Management and the second part of Smile Arc Protection for indirect bonding. Also in this issue, Dr. David Herman of Four Corners Orthodontics has provided us an article about how he markets his H4 practice. So enjoy this issue, as the next issue of the Protocol is already in the works and I am sure you will be eager to see it.

Ortho Classic have been designing and manufacturing orthodontic products in America for over 24 years and developed the technology that allows us to produce some of the highest quality and consistent brackets possible. At Ortho Classic we are committed to consistent incremental improvements in our H4™ existing products and meaningful innovation. This year alone, we have introduced H4 GO™, a wonderful aesthetic alternative that really performs, the H4™ Buccal Tubes, and the Pitts’ Standard and Broad arch forms for our H4™ system. We will continue to adhere to our “customer-first” philosophy, working tirelessly to provide superior products and services that consistently surpass market expectations and excel on the world stage.

Please join us on our journey to the future, and accept our appreciation for your kindness and on-going support. Once again, we at Ortho Classic would like to thank you for your continued loyalty and business.

Rolf Hagelganz
Ortho Classic President

© 2015 Ortho Classic. All rights reserved.
No portion can be reproduced without the expressed written consent of Ortho Classic
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Dr. Tom Pitts</td>
</tr>
<tr>
<td></td>
<td>Find Dr. Pitts’ passion in orthodontics</td>
</tr>
<tr>
<td>8</td>
<td>Active Early</td>
</tr>
<tr>
<td></td>
<td>Active Early Principles by Drs. Tom Pitts and Duncan Brown</td>
</tr>
<tr>
<td>16</td>
<td>H4 GO™ Aesthetic Self-Ligating</td>
</tr>
<tr>
<td></td>
<td>Feature and benefits of the H4 Go™ Aesthetic Self-Ligating Bracket System</td>
</tr>
<tr>
<td>20</td>
<td>SAP™</td>
</tr>
<tr>
<td></td>
<td>Part 2 of Smile Arc Protection (SAP)</td>
</tr>
<tr>
<td>26</td>
<td>Dr. David Herman</td>
</tr>
<tr>
<td></td>
<td>Building blocks for sustainable marketing</td>
</tr>
</tbody>
</table>
Dr. Thomas Pitts D.D.S., M.Sc.D.

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

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. David Herman D.D.S., M.S., M.P.H.

Dr. David Herman is credited with having one of the largest single office practices in the United States. He is known for being years ahead of the curve—foreseeing industry changes and adapting with success. Dr. Herman was one of the pioneers in implementing same-day starts, passive self-ligation, staff-driven management and adding dental and hygiene departments to an orthodontic practice. Professionals from all over the United States come to observe Dr. Herman’s staff-driven management concept and see the success of his marketing campaign that brings in patients from more than two hours away.

Dr. Tomas Castellanos Arteaga D.D.S., M.Sc.D.

Dr. Tomas Castellanos is an international speaker and certified educator. Dr. Castellanos has been the coordinator of research with important works, which have developed new orthodontic and surgical techniques, that speed up the treatment time and provide striking functional and aesthetic results. He has his professional practice as an orthodontist in Colombia.

His progressive treatment planning and focus on facial aesthetics has created a highly successful name for himself early in his career.
Innovating Innovation

Introducing the Complete H4™ Self-Ligating Suite
Dr. Thomas Pitts  

WHAT IS YOUR PASSION IN ORTHODONTICS?

My biggest passion is creating the highest and best smile and facial esthetics possible for any given patient, without compromising the functional occlusion.

Many Orthodontists are challenged in controlling the axial inclination of the anterior teeth, sometimes having to accept proclined anteriors to avoid extractions. Working with OC’s engineers, we have been able to develop a bracket system with slot dimensions and tolerances that go a long ways to improving the problem. When combined with “Active Early” case management approaches, a world of new opportunities are available.

We will continue to develop both the appliance and the concepts to make your lives in clinical practice easier, and excellence in treatment results more predictable.

In the next few months, Ortho Country, a working practice as well as Ortho Classic’s educational and research & development center in McMinnville, Oregon will be up and running. This will allow us to run training programs in a hands-on and intimate setting. I look forward to seeing you there.
“Due to the quality manufacturing, tightened tolerances and slot dimensions, I now have less bends in my wires for detailing and finishing. Ortho Classic is really setting itself apart from other manufacturing and supply companies, and doing it with lower pricing.”

- Dr. Thomas Pitts
Introduction: I have been extremely fortunate to have traveled broadly in teaching orthodontics throughout my career. One of the aspects that seems to create a great deal of confusion among orthodontists around the world is the relationship between the means of using a “straight wire” appliance to align teeth and the contemporary clinical goals of excellence in both esthetics and occlusion.

Every orthodontist is familiar with the brilliant article by Andrews¹, which introduced the basis of “straight wire” theory, which has dominated our profession for the last 40 years. Building tip, torque, and in/out into the bracket as a means of avoiding adverse “wagon wheel” effects of wire bending is the premise of every modern orthodontic appliance, and to this day, I use pre-adjusted appliances for this reason.

As with all great ideas, “Straight Wire” theory has some recognized limitations. Thomas Creekmore and Randy Kunik provided a good summary of these: inaccurate bracket placement, variation in tooth structure and tooth facial morphology, variations in the maxilla/mandible skeletal relationships, tissue rebound, mechanically deficiencies in the appliances², and variable threshold of biological activation, to name a few. The combination of all these factors reduces the ability of the clinician to rely strictly on the appliance to guarantee an excellent occlusal result, with an even less likelihood of reaching superior esthetic goals.

For me, there are three significant considerations of straight wire theory as it applies to using a contemporary PSL appliances in esthetics based treatment:

• The first of these is revolves around the core straight wire principle that the wire plane parallel to the occlusal plane is a requisite for excellent occlusions. It is not, and failure to adjust bracket position to meet esthetic need can result in esthetic decline³ in many patients. The contemporary Orthodontist needs expand his/her diagnostic and mechanical understandings beyond reliance on improved “straight wire” appliances to attain superior esthetic results. David Sarver has led the charge on the impact on esthetics of orthodontic treatment mechanics⁴ where the vertical position of the upper incisor is the prime diagnostic criteria in developing superior esthetics in orthodontics, and I agree with this concept.

• The second involves the misconception that incremental increases in arch wires size is an effective means of controlling axial inclination. It is not, and failure to appreciate how to control axial inclination results in frustration in many orthodontists when reliance on “the treatment built into the appliance” fails to deliver.

• The third limitation involves the lack of appreciation of the pivotal role of case management in attaining superior aesthetic and occlusal results. The best orthodontic results are attained by the best case managers, regardless of the appliances they use.

Today I would like to explore briefly the elements that are within the control of the Orthodontist: bracket position, appropriate use of pre-adjusted appliances, and arch form as they relate to esthetic outcomes.
Bracket Position as it effects Contemporary Esthetic Goals:

For many years, I have been teaching the “Top 10 Esthetic Factors” that can be impacted by orthodontic mechanics. These were recently published in a SIDO article, so this article will deal more specifically with bracket position, bracket selection, and arch form as it relates to these four factors:

- **Idealized inclination of the upper incisors and canines:** Patients are more sensitive to adverse changes in axial inclination than to changes in A/P position.
- **Idealized smile arc:** Idealized smile arcs are more attractive especially in women.
- **Incisal and Gingival display:** Some gingival display, and full enamel display is appropriate in a “posed” smile.
- **Wide arch width, particularly in the molars:** Smiles with small buccal corridors are more aesthetic, in both men and women.

Placing anterior brackets in a more gingival position improves enamel and gingival display by adjusting the vertical position of the upper incisors and cuspid relative to the upper posteriors. (Figure 1, 2, 3). Lower posterior brackets are placed in a more gingival position to avoid the occlusion, and the lower anterior bracket more incisally to intrude the lower anteriors and optimize overbite (Figure 4,5).

This approach to bracket placement has come to be called the “SAP Smile Arc Protection” approach. The specifics of this approach have been published several times, so rather than review those details again, I will cover the positive impact esthetics that SAP produces.

- **“Positive and negative” coronoplasty** is very important. Patients today want beautiful faces, beautiful smiles, and beautiful teeth. Teeth need to be “optimized” for shape and contour. When done prior to bonding, esthetic re-contouring 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 in tipping mechanics. Prior to bonding, we encourage softening the cusp tips of the cuspids and first bicuspids, normalizing facial irregularities, and optimize length/width ratios of the upper anterior teeth. Other microesthetic aspects of contact point length, appropriate embrasure spaces, and slenderizing for tooth size discrepancies are accomplished after the anteriors are aligned. Centric stop adjustments are made during the finishing stages of treatment. All surfaces that have been adjusted are smoothed with a white stone, and black rubber tips in a high speed hand piece.

**SAP Bracket Positioning:**

- **“SAP Bracket Position” as a tool in gaining optimal esthetics.** Straight wire theory is based on occlusal results but great occlusal results do not always provide great esthetic results. Bracket position must be individualized to patient esthetic need. In patients with “flat” occlusal planes or those requiring increased enamel display, the progression of the wire plane created by bracket position must increase to develop the smile arc by extrusion of the upper incisors relative to the upper bicuspids. In patients with normal occlusal planes a more modest progression in the wire plane is advisable to protect the smile.
arc as the upper arch broadens with treatment. Orthodontists tend to focus on intrusion of the upper anterior teeth in deep bite cases with steep occlusal planes, and excessive enamel display which can lead to esthetic decline. A modest progression in 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 increased “overlevelling” of the lower arch to maintain optimal overbite through bracket position.

**Bracket Torque as it effects Contemporary Esthetic Goals:**

- **Realistic Expectations and Straight Wire Theory:** In straight wire theory, control of first, second, and third order tooth movement is described as being achieved by incremental increases in arch wire size and placement of the bracket slot at FA. It is required to gain optimal torque expression relative to the occlusal plane using arch wires that “fill up the slot”\(^{18}\). The recognition of the limitations of “straight wire theory” has become relatively common, with the conclusion that, “we need to raise the need for a re-evaluation of the theories of the straight-wire appliance in orthodontics.”\(^{19}\)

Few orthodontists fill the slot, so that the prescription “built into” the bracket is seldom expressed. Actual torque expression then is the result of many factors: bracket design, wire/slot play (engagement angle) mode of ligation, bracket deformation on loading, wire stiffness, magnitude of wire torsion, corner radius, initial tooth position, bracket position, and tooth anatomy\(^{20}\). The combination of these effects makes creating torsion within the appliance difficult when relying on incremental increases in wire size, without bending wire (Figure 7) using traditional bracket positions. This is especially problematic in non-extraction, crowded cases where incisor flaring created during the tipping phases of treatment is very difficult to recover later.

**“Today’s Orthodontist practices at the intersection of art and technology. The challenge of applying appropriate levels of technology to an artistic end result is the art of case management.”**

The best case managers have a sound understanding of the technology they apply on a daily basis.

Fortunately in the “SAP\(^{10}\)” - Smile Arc Protection - approach, with bracket placement guided by esthetic requirements, benefits arise in the area of third order control.

- **SAP\(^{10}\) bracket positions are more effective in management of axial inclination early in treatment.** This is true during the tipping phases of treatment. Early in treatment, incisor extrusion creates a retroclining movement that helps control proclination as crowding unravels, when supported by ELSE (early light short elastics) and proper disarticulation buttons. Case Management is the key early in treatment, with needed torsion created by wire plane and disarticulation and supported by early elastics.

---

**Figure 6:** Impact of Head Position on Smile Arc - as the smile arc changes with head position, I use NHP (Natural Head Position) as the reference plane for aesthetic based treatment.
Figure 7: Incremental increases in arch wire fail to provide lingual crown torsion when the slot is not filled.

Figure 8: SAP bracket positions decrease the angle of engagement, thereby improving control of axial inclination in dimensional wires.

Figure 9: Even with extreme SAP positions, it is unlikely to develop excessive torsion within the slot, with common arch wire progressions.

Figure 10: "Flipping" the brackets, reduces the angle of engagement further, allowing torsional couple to be developed in light dimensional wires.

Figure 11: Increased AW sizes in "flipped" brackets produce torsional couples within the slot to effectively upright teeth.
• Other key case management principles: ELSE, disarticulation, and AW progression are more effective. When using SAP\textsuperscript{10} bracket positions, improvements in esthetic and functional occlusions occur in the first few appointments. Patients notice these changes, and we encourage the use of “every patient/every appointment photography” as a means of validating the mechanical setup and the progress of treatment.

• SAP\textsuperscript{10} bracket positions are more effective in management of axial inclination during the torsional phase of treatment. This attribute is a key contributor to a case management philosophy that allows changes in both transverse and axial inclination far earlier in the treatment cycle that traditional straight wire treatment would allow. There are other aspects to this “active early” approach which will be appearing in the next few months for those who are interested, but briefly:

• SAP\textsuperscript{10} bracket placements reduces the angle of engagement by reducing the torque designed into the Rx, which is advantageous in cases with proclined teeth, crowded upper anteriors, or to recover proclination occurring as a result of relief of crowding (Figure 8). By applying active torsion within the appliance sooner, with lighter forces, treatment has the potential to be both more efficient and more comfortable for the patient.

The “10 tooth smile” is touted as representing an esthetic ideal. There are however many excellent students of dental esthetics that prefer a “12 tooth smile” esthetically, and I agree with them.

• Secure Force Application: Even with very large SAP\textsuperscript{10} progressions, application of excessive torsion through incremental increases in wire size is unlikely using commonly employed AW sequences (Figure 9).

I have been an advocate of the PSL bracket system for the last 15 years of my career. I utilize Ortho Classic’s H4 bracket exclusively, and have been very pleased with the performance of the appliance. The familiar Rx (12/8/7) in the upper anteriors, solid gate, .026 depth slot, combined with utilization of “Pitts Standard” and Pitts Broad* arch forms has increased efficiency tremendously.

Choosing the right torque bracket or groups of brackets can minimize arch wire adjustments in finishing, but the development of “variable torque” appliances has complicated this relatively simple concept. Rather than picking a bracket torque from a constellation of variable torque Rx’s on a tooth by tooth basis, torque selection has been simplified in the “active early” approach to reduce the arch wire adjustments in finishing.

With North American patients seeking broader smiles and fuller lips, treatment has trended towards avoiding bicuspid extractions to achieve that goal, frequently with the adverse side effect of proclined upper anteriors, which is difficult to recover, and not desirable esthetically.

Bracket inversion as a means controlling axial inclination:

Inverting brackets (“flipped”) as a means of creating more lingual crown torsion has been a common case management practice for years, usually as applied to controlling single teeth. Earl Johnson\textsuperscript{21} provided a very nice summary of using this approach as it is applied to controlling axial inclination of upper lateral incisors. Some companies advocate using “low torque” prescriptions as a means of uprighting proclined teeth, but the reality is that the torque selections involved are frequently not sufficiently negative to accomplish that task. Research indicates that torsion of 20 to 25° between the bracket slot and arch wires (19X25) are required to create the requisite forces\textsuperscript{22}, and this is very close to that attained with “flipped” brackets placed at SAP positions, utilizing commonly used wire sequences (Figure 11).

One of the strategies used in an “active early” approach is to invert (“flip”) groups of upper anterior brackets as a means of creating lingual crown torsion earlier in the treatment cycle. This technique dramatically reduces “slop” within the bracket wire interface by lowering the angle of engagement at the outset (Figure 10) and applies active lingual crown torsion with incremental increases in arch wire size (Figure 11). One of the critical aspects of this approach is that in the inverted or “flipped” Rx, more lingual crown torsion must be applied to the central than the lateral incisor, due to root size, allowing uprighting of the teeth with minimal adjustment to the wire in finishing. Again the H4 Rx provides appropriate torque when “flipped” (-12/-8) for uprighting proclined teeth, compensating for proclination created during unravelling of crowding, or counteracting the effects of class III mechanics. (Figures 12 to 18)

It has been suggested that when applying “single tooth” activation by “flipping” individual brackets requires that the bracket be uprighted or the wire adjusted once an ideal inclination is achieved\textsuperscript{18}, which is one of the reasons that I suggest “flipping” brackets in groups to activate the appliance. In crowded cases it is desirable to “flip” the upper cuspid bracket to avoid “paddling” of the cuspid with arch development, relief of anterior crowding, or to compensate for the adverse effects of localized torsion in the appliance. In this approach, with the four incisors and cuspids “flipped”, all the anteriors have negative torque (“flocked”), allowing uprighting of the anterior segment with an unbent wire.
One of the reasons I have adopted the Ortho Classic’s H4 bracket system is that combination of upright and inverted H4 brackets provides a good variety of torques to choose from, that are applicable in most situations (Figure 12), with a minimal inventory cost to the practice.

Arch Form as it effects Contemporary Esthetic Goals:

The “10 tooth smile” is touted as representing an esthetic ideal. There are however many excellent students of dental esthetics that prefer a “12 tooth smile” esthetically, and I agree with them. Arch form is directly related to the shape of the wire used, not to the bracket system an orthodontist decides to use. With this in mind, I do not use “standard arch blanks” but shape bendable arch wire to optimize posterior arch development for esthetics. Careful assessment at each appointment, with palpation of the buccal and lingual alveolar processes is required to ensure that the patient’s “biological availability” is not compromised.

I have always been challenged by arch forms that are too flat anteriorly, too broad through the cuspids and first bicuspid, and too narrow through the second bicuspid and molars. I have found all commonly used arch forms to be inadequate in terms of width in the posterior sections, where transverse arch development provides significant advantages from an esthetic perspective. Wider arches posteriorly also provides the opportunity to gain space and relieve crowding, which is very useful in non-extraction cases.

Fortunately two companies now produce arch forms that mimic this shape; Ortho Classic’s Pitts Standard and Pitts Broad arch forms, and G&H Wires DYB V3 arch forms both function well. Because research has shown that as much posterior arch development occurs in round wires as occurs in dimensional arch wires, both these suites have round, square, and rectangular wires in the same arch form. This feature facilitates an “active early” approach to transverse arch development with a greater degree of torsion control whether using familiar wire progressions or square wire progressions when using Ortho Classic’s H4 appliance.
Where unadjusted nickel-titanium or beta-titanium arches do not have optimized axial inclination, the practitioner can use shapeable beta-titanium arch wires or stiffer stainless steel to efficiently correct remaining aberrant torque situations.

Summary and the Role of Case Management:

I have always been a teacher. During my career I have concentrated on the development of improved simplified “case management” practices, combined with a sound understanding of the impact of varying bracket position, bracket torque and use of modern arch wires forms to assist the orthodontist in creating an artistic end result. Applying these principles will make case management more efficient, and improve the quality of your end results.

Today, I choose to activate the appliance as early as possible, using the SAP bracket position to adjust vertical position of the incisors, inverting groups of brackets to activate the appliance, selecting arch wire progressions that control axial inclination early in treatment, and using arch forms that develop the posterior segments of the arches sooner. We will be sharing more on the “active early” approach in the coming months, so stay tuned!

Until next time........
Our goal in teaching continues to be to improve esthetic and functional outcomes, while simplifying treatment mechanics and improving predictability, and efficiency. Combining the "14 Keys of Pitts Case Management", an “Active early” approach to treatment, and superior OC H4 self-ligating brackets with Pitt’s Broad Arch Forms has gone a long ways to achieving those ends.

5. Pitts, T. Begin with the end in mind and finish with beauty: SIDO Published online: 29/05/2014, 39-46
7. Ker et al - Esthetics and smile characteristics from the layperson’s perspective, JADA, Vol 139, 1319-1327
8. Sarver - The importance of incisor positioning in the aesthetic smile: the smile arc, Am J Orthod Dentofacial Orthop 2001; 120:96-111
10. Term courtesy Duncan Brown
23. Martin - Goal Oriented Treatment, SIDO 2013: 4-11
**H4 GO™ FEATURES & BENEFITS**

The H4 GO™ is a low-friction, light force orthodontic solution that delivers healthy tooth movement with optimal control. The contours of the slide and smooth rounded edges increase patient comfort. The H4 GO™ has all the great features of the H4™ Self-Ligating Bracket in aesthetic!

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Hooks</td>
<td>Available on 3’s, 4’s, and 5’s for no extra charge.</td>
</tr>
<tr>
<td>Smooth, Rounded Edges</td>
<td>For patient comfort.</td>
</tr>
<tr>
<td>Patent Pending Door</td>
<td>Slides into both open and closed positions. Rounded contours create hygienic doors that repel plaque.</td>
</tr>
<tr>
<td>Large Under Tie-Wing Clearance</td>
<td>For easy ligation to support early elastics, ligatures, metal ligatures, and power chain.</td>
</tr>
<tr>
<td>Fracture &amp; Stain Resistant</td>
<td>Hybrid Resin™ material holds up to common patient abuse.</td>
</tr>
<tr>
<td>One Piece Base</td>
<td>Designed for optimum pad-to-tooth fit and bond strength.</td>
</tr>
<tr>
<td>Slot is Passive</td>
<td>In initial stages. Full-sized wires will make 3-4 wall contact.</td>
</tr>
<tr>
<td>Better Sliding Mechanics</td>
<td>Smooth material provides less sliding friction than stainless steel.</td>
</tr>
<tr>
<td>Treadlok® Base</td>
<td>Patent pending base provides superior surface area for greater bond strength.</td>
</tr>
<tr>
<td>Compound Contour</td>
<td>Torque-in-base.</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>One Piece Base</td>
<td>One piece base/bracket design for optimum pad-to-tooth fit and bond strength.</td>
</tr>
<tr>
<td>Stronger Bond</td>
<td>Channels allow air to escape, creating a stronger and more conformed bond.</td>
</tr>
<tr>
<td>Deep Channels</td>
<td>Deep channels provide increased surface area for easier application and improved stability.</td>
</tr>
<tr>
<td>Enhanced Anatomy Fit</td>
<td>Enhanced bicuspid base curvature creates superior pre-molar anatomy fit.</td>
</tr>
<tr>
<td>Compound Contour</td>
<td>Torque-in-base.</td>
</tr>
<tr>
<td>Treadlok® Base</td>
<td>Tread pattern provides reinforced channels for multi-directional sheering protection.</td>
</tr>
<tr>
<td>Reduced Clean-Up</td>
<td>Improved Treadlok® guards minimize “flash” for easier adhesive clean-up.</td>
</tr>
</tbody>
</table>

**TREADLOK® FEATURES & BENEFITS**

Our patent pending Treadlok® base features the latest in bracket bonding technology. The tread-like pattern creates a bond that holds up better to sheering forces. By utilizing the Treadlok® pattern, our brackets adhere more easily, and with a stronger bond, minimizing bond failures.
Dr. Tomás Castellanos and Thomas Pitts introduce placement of brackets based on the effect upon the smile arc

Part 2 of 2 Continued from Pitts’ Protocol Issue 1
The present article introduces a new table to guide vertical placement of brackets, based on the smile arc effect — therefore, the table is named Guide Position Smile-Arc (GPS-A) (Images 1 & 2).

**Table suggested for vertical placement of brackets**

**Rationale**

The table presented (Figures 3 and 4) is based upon a great number of clinical studies and measurements taken on plaster casts and digital models from patients treated by the team of Drs. Tom Pitts and Tomás Castellanos. Its versatility and efficacy will be the subject of other articles presenting cases successfully treated applying this table.

The table facilitates the vertical placement of brackets in positions that result in adequate smile curves, as well as mutually protected occlusions.

It takes into account occlusal morphology, such as the angle of the articular eminence that is more vertical in dolichocephalic subjects than in mesocephalic or brachycephalic patients. In dolicocephalic patients as compared to brachycephalic, the molar cusps are higher, and fossae are deeper; anterior teeth clinical crowns are longer in a cervico-incisal direction. All these characteristics indicate that more overbite is necessary to disocclude posterior teeth in eccentric movements.

Also when considering the incisal-smile arc relationship, clinicians must extrude the upper incisors in flat smile cases or maintain the incisal smile arc when it is esthetically adequate.

For a functionally adequate occlusion and esthetic smile curvature, a divergence must be kept between the occluso-gingival position of the slot with occlusal cusps or incisal edges, measured in mm, from the second molar tube all the way to the maxillary central incisor.

This divergence is important as well, considering that the difference in mm between the slot height of the central incisor and the height in mm from the second molar tube gives an idea of the amount of overbite one will obtain at the end of treatment. It also affects the occlusal plane cant.

The final overbite of any deep bite or open bite also depends on elastics, dis-articulation buttons, mini-screws, and other auxiliary elements that potentiate the expression of the bracket’s torque. Of course, mini-screws can also help enhance the maxillary incisor position by intruding the mandibular incisors when needed.

The transition point between the anterior and posterior dental segments additionally establishes the track of the smile arc, and therefore, the positioning for the whole dental arch should be planned taking this point as a clue.

When the maxillary incisors are further extruded to enhance the smile curve and enamel display, a deeper bite can be produced by increasing the overbite. To avoid this effect, the table introduces a compensation in the position of the slot of mandibular canine-to-canine brackets.

**Table:**

<table>
<thead>
<tr>
<th>Slot Height (mm)</th>
<th>High</th>
<th>Average</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>2.0</td>
<td>3.5</td>
<td>2.5</td>
</tr>
<tr>
<td>6</td>
<td>4.0</td>
<td>4.5</td>
<td>4.0</td>
</tr>
<tr>
<td>5</td>
<td>5.0</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td>4</td>
<td>5.5</td>
<td>5.5</td>
<td>4.5</td>
</tr>
<tr>
<td>3</td>
<td>6.0</td>
<td>6.0</td>
<td>5.0</td>
</tr>
<tr>
<td>2</td>
<td>5.5</td>
<td>5.5</td>
<td>4.5</td>
</tr>
<tr>
<td>1</td>
<td>6.0</td>
<td>5.5</td>
<td>5.0</td>
</tr>
</tbody>
</table>

**Figure 2:** MBT™ Versatile+ Appliance Bracket placement guide. MBT™ is a registered trademark of 3M Unitek. Table is used as reference and does not imply any affiliation with or endorsement by them.
Instructions to Use the Table
(Figures 3 and 4)

Previous to using the table, some patients require a recontouring to provide basic ideal morphology to each tooth. This amelplastic procedure is based in the study of plaster models and removes only the necessary minimum dental enamel.

The ameloplasty includes pronounced marginal ridges on the lingual surfaces, of incisors' angles and incisal ridges, as well as irregular vestibular surfaces. Irregular vestibular surfaces prevent an optimum placement of brackets, which control rotations and torque.

In most cases, canines require re-contouring to improve their role in the smile arc. This process does not interfere with their functional role of canine disclusion.

Gingival margins are very important for anterior esthetics. Sometimes clinicians need to perform initial gingivoplasties with laser, electro-surgery, or any other similar technique.

It is important to provide the right morphology, but clinicians should not re-contour all hard and soft tissues, since leaving small discrepancies until the end of treatment allows for final detailing when the teeth have the best possible position.

When teeth have fractures or abnormal wear, the teeth should be reconstructed prior to bracket bonding, in order to assure the ideal dental anatomy. Clinicians should communicate this to the patient, since future restorations may be necessary.

If the maxillary molars present high and pronounced mesopalatal cusps, they should receive recontouring to avoid interferences or early contacts. The same applies to the lingual cusps of the premolars.

After obtaining the ideal dental morphology, the heights for bracket bonding in the maxillary arch are selected as follows:

1. Measure the length of the maxillary canine crown, from the cusp tip to the gingival margin (after reconstruction, recontouring, or gingivoplasty).

2. Find this measurement in the column headings of Table GPS-A.

3. Find the measurement in the row headings of Table GPS-A.

4. The tooth position is indicated in the corresponding cell in Table GPS-A.

5. Repeat this process for each maxillary tooth.

6. Figures 3 and 4: Tables GPS-A lower and upper

<table>
<thead>
<tr>
<th>GUIDE TO POSITION SMILE-ARC</th>
<th>GUIDE TO POSITION SMILE-ARC</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOM X TOM - LOWER</td>
<td>TOM X TOM - UPPER</td>
</tr>
<tr>
<td>GPS-A</td>
<td>GPS-A</td>
</tr>
<tr>
<td>11 mm</td>
<td>11 mm</td>
</tr>
<tr>
<td>10 mm.</td>
<td>10 mm.</td>
</tr>
<tr>
<td>9 mm.</td>
<td>9 mm.</td>
</tr>
<tr>
<td>8 mm.</td>
<td>8 mm.</td>
</tr>
</tbody>
</table>

TOM x TOM is a table that studied and designed by Dr. Tomas Castellanos, based in “Smile Arc Protection” - Dr. Tom Pitts - All rights reserved.

Figure 5: Accurate measurement for each tooth with digital gauge (Mitutoyo™ Super-Caliper Solar-Powered Series 500 — Digital Caliper at www.amazon.com)

Figure 6: The second step is to find the maxillary canine crown length and then the positions of the other maxillary teeth
3. Select in a similar way the height to bond brackets for mandibular teeth: a) measure the length of the crown of the mandibular canine, from cusp tip to gingival margin (after reconstruction, recontouring, and gingivolpasty); b) find this number in the column of the table GPS-A (Guide Position Smile-Arc lower), and choose the number in the adjacent row. This number indicates the position for bonding each bracket in the mandibular area (Figure 7).

Specific Considerations
The maxillary second molars must always be intruded. Its tubes are always positioned to slightly intrude these teeth to provide a negative coronal inclination and avoid functional interferences.

The discrepancy between maxillary incisors and the maxillary lateral incisor must be kept between 0.5 mm and 1 mm to allow the movement of the mandibular canine during protrusive excursions and, additionally, to improve the smile arc.

Longer incisors require a larger height difference. For those situations, the table includes two additional options.

At the level of the mandibular molars, it is important to maintain an occlusal plane that grants correct coupling with the antagonist teeth.

Individualization of the table for cases treated with premolar extraction
Today’s effective mechanics, combining the use of mini-screws with passive self-ligation appliances for en masse movement toward the place of molar extraction, has reduced the frequency of patients treated with premolar extractions. But when the orthodontist decides that it offers the best option, the table may be individualized. To do this, the anterior segment is managed as conventionally indicated in the GPS-A table, but the discrepancy between premolar and canine for every case will be 0.5 mm, and the discrepancy between premolar and molar will be 1.0 mm in every case, to avoid interferences and inadequate steps in these segments.

Use of the positioner for vertical placement of each bracket
The positioning gauge that measures the height to bond the brackets is placed in a slightly different way, depending on the segment of dental arch that is being considered.

We suggest for incisor, canine, and premolar regions to use the calibrator placed at 90º respect to the tangent of the middle zone. For the molar region, it is suggested to place it parallel to the occlusal surface of each molar (tracing an imaginary line between the buccal and the lingual cusps of each molar).

Advantages derived from the use of this table
- A reduction of errors in positioning, which can be avoided, due to better precision.
- Reproducibility, and predictability of the bracket bonding.
- It allows a practical, standardized bonding procedure.
- Avoids bracket repositioning and/or the introduction of excessive corrective wire bends.
- Reduces chair time and unnecessary discomfort to the patient.
- Saving months of treatment, it becomes an effective tool to motivate patients.
- Allows better control of torque values.

In general, this technique allows the orthodontist to obtain adequate occlusion and an esthetic smile.
Author’s Comments

“With more Orthodontists developing skills at indirect bonding, we believe that the “SAP protection for protocol for indirect bonding” will greatly improve consistency of esthetic results, while still capitalizing on the doctor time savings associated with the indirect technique.”

Dr. Tom Pitts

Dr. Tomas Castellanos

THE ONE COURSE EVERYONE SHOULD ATTEND

Dr. Pitts’ Masters Continuum is a 4-module course focusing on treatment efficiency and advanced finishing techniques. These sessions provide the most recent, up-to-date knowledge and skills to enhance your self-ligation system. You will learn advanced treatment planning principles for all phases of treatment. This program is the key to mastering your self-ligation treatment mechanics and finishing proficiency.

A 2 year comprehensive continuum in the fine art of advanced orthodontics.

Become part of a great lifetime learning network!

WWW.ORTHOEVOlVE.COM

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.

Contact Us Today: 755-720-7222 or Visit Us Online: www.orthoevolve.com
Many of us share in this frustration. This orthodontist went on to state “Ultimately the only cure for this problem is consumer/patient education.” While I agree with this orthodontist that education is the solution, I believe the solution begins with training orthodontists on effective and ethical marketing practices. It is easier to train orthodontists on how to effectively compete against less sophisticated marketing activities than attempting to change public opinion on a subject most of the public has little interest in learning about. There has been a large paradigm shift in what marketing strategies work. Many of the strategies used in the last decade no longer work. However, many practices are still being advised to use these outdated strategies.

My Story
My practice is located in a rural region of the United States known as the ‘Four Corners.’ My practice is in the city of Farmington, NM (127,000 residents in the county) and my location is close to the borders of Arizona, Utah and Colorado. There are five other orthodontic practices in Farmington. My practice is known for “creating wide beautiful smiles without taking out teeth.” This is my promise to the public that I have lived up to for more than 10 years. I use and market H4 bracket technology. This technology has allowed me to treat 97% of my patients without extractions. This reputation has helped me to thrive as one of the largest single office, single orthodontist practices in the United States. I treat more patients outside of my county than within, as our marketing reach extends in a 180 mile radius of the practice. It is very common for my patients to drive past other orthodontic offices while making the 2-4 hour trip to my office.
I have a 6,500 square foot practice with 16 orthodontic chairs, a dental hygiene department with four operatories, and a dental department with two operatories. While I am not a referral-based practice, I remain friends with my local dentists and stay active with the local dental society. I still really appreciate referrals from my colleagues, but I do not depend on them. I have 31 staff members and describe my management style as ‘staff driven.’

In the following sections I will discuss the marketing concepts and approach that worked for my practice. I am sensitive to others telling me the way things should be done and claiming that he or she has it all figured out. I will confess that I do not have it all figured out, but anticipating change and having a process in place to handle change is something I do claim to have down pretty well.

Marketing is a Planned Campaign, Not a Series of Events

I’ve read information and heard lectures that make marketing sound so simple—“just do these marketing activities and you are on your way.” Most orthodontic marketing is done as events and tactics that are loosely tied to one another—this approach rarely works. Orthodontic marketing today should be thought of as a comprehensive campaign.
A successful campaign takes time to develop and time to achieve momentum. Growth from this campaign can be slow and steady and also include periods of explosive growth. If you understand that marketing is a process that needs a plan rather than viewing marketing as a series of events, you will improve your chances of success.

Developing a successful marketing plan and implementing a marketing campaign is not simple—it takes research, planning and focus.

**PHASE 1: RESEARCH**

**SWOT Analysis**

SWOT stands for strengths, weaknesses, opportunity, threats. The analysis is used to evaluate your practice against the others. My staff reviews other practice’s marketing activities and after claims have been validated or invalidated, my staff and I compare our practice’s strengths and weaknesses with competition. This analysis lets us identify any opportunities and threats.

If your SWOT analysis results in the need to refine your campaign, I urge you to try and remain true to who you are and resist the temptation to consistently play against the competition. Competing on cost is one of the hardest areas to resist. I encourage you to market some of your messages about cost but on your terms. For me that means I do not play the “$$ off” coupon game. I am very willing to let a few of my competitor’s position themselves as the ‘low cost’ option. As a ‘place to go’ positioned practice my message on cost to the public is that my treatment is affordable. My staff and I believe that if we can get a prospective patient or parent to compare on cost the decision in our favor is predictable.

After conducting a SWOT analysis, my team discovered a common weakness among the competition. My team found that other offices offer vague information about their service fees. I understand that many consultants recommend this type of ‘vagueness’ to get potential patients in the door, but I disagree. Braces are huge financial commitment and many people simply want to know what to expect. Obviously an exact figure can’t be given over the phone, but you should at least provide a fee range and expectations for what will be collected at the patient’s first visit. This transparency is important because it allows you to not waste time catering to “shoppers” that are basing their decision solely on price. It’s also necessary to disclose your fee if you wish to perform same-day starts at your practice.
How Does the Public Perceive You?

Early on in the development of your marketing plan you should have a set of questions answered. You want to fully understand why someone would want to choose your practice over someone else’s practice. First, I recommend that you ask your staff, “What does the team think that the practice is known for?” Second, ask your staff, “What do we want to be known for?” Work with the team to minimize discrepancies between the answers of these two questions. Third, ask a sample of your existing patient population, “What are we known for and why did he or she choose your practice?” Once these questions are answered you can begin to develop a true story about the promises you are going to make in your marketing plan.

Work very hard on defining this story for it is the backbone of your plan. You may be surprised by some of the answers to the above questions. It may take a few attempts to reach a consensus with your team on your story and your promises. Staff belief in the story and staff commitment to delivering on the agreed upon promises is critical to the plan. If you have developed a quality team before the discussions begin this process progresses without negative side effects. If you attempt this discussion with a poorly developed team the end result is unpredictable. Once you have your story complete, it’s time to get the story and promises out to the public.
PHASE TWO: PLANNING

What’s Your Position?
Positioning is the start of establishing your brand. Positioning is how you want the public to perceive you when they hear about your practice. The three main positions in the orthodontic market are price, convenience, and ‘the place to go’ (PTG). You can be one or a hybrid of all three of these positions. While, most of us would claim that our practice is a hybrid of one or more of these positions, the public will usually identify the practice as being one.

When the public fails to distinguish between practices in a given market, it’s called commoditization. Think of gas stations—most of us go to the cheapest or most convenient location. Brand recognition is usually not the dominant factor used when choosing where to buy gas. If you are positioning your practice in the market by cost alone, you are to some extent using the commoditization factor. You want the public to have the belief that braces are all the same so people in the market for braces should go to the cheapest location. Fortunately, many of us do not want to be placed by the public into a commoditization category. That leads us to the ‘place to go’ market position. To achieve this position your practice needs to be viewed by the public as being very different than the rest of the market. Your goal is to have the public understand that your practice achieves different results from the competition and that the experience in your practice is noticeably different.

What Are Your Promises to the Public?
Once you decide on how you want to be positioned in the market, the next step is to decide what promises you want to make to the public. ‘Promise’ is the term I prefer to use rather than ‘marketing.’ I believe that as ethical healthcare providers we should view our marketing statements as promises—promises that should be kept and not just false claims. However, before you let the public know of these promises, you need to assess if you have the systems and staff that allow you to deliver on them. I often see practices marketing what they want to be, but in reality are not. Hence, these practices are not making a promise they are making a false claim. I call it ‘the disconnect.’ If you and your staff can not consistently deliver what is being promised, then the public coming to your office will notice ‘the disconnect.’ If you are positioning yourself as a PTG practice, you must minimize disconnect between what’s promised and what’s delivered.

Many orthodontists are better at system development than staff development. It has been said that a team is only as good as its leader. A high-functioning team has a low turnover rate, is self-disciplined, highly skilled and happy. The teammates are mutually supportive of each other and have superior skill in problem solving, conflict resolution, and communication. If you feel that your leadership skill sets need to reach a higher level there are many books and courses available to help you.
Phase Three: Focus

Focus on Benefits Not Features
Most of us tend to market features rather than benefits. It’s easier to create messages about features. However, the public responds much better to benefits than features. Features are things such as TADs, cone beam x-ray, hi-tech braces, etc. Benefits are what the feature does for the person receiving the goods or service. It’s safe to say that many of the features listed in ads and on websites do not resonate as a benefit to the public. Remember people are buying your smiles not your braces.

This holds true when the doctor markets himself or herself as a feature. It’s difficult to talk about yourself and how wonderful or great you are and turn that into a benefit to the patient without sounding arrogant. Anyone who puts themselves as a feature also fights the tendency to embellish the feature. It’s common to see orthodontists feature themselves as a “world-class orthodontist” or “quality above the rest.” Today it is easy for the public to fact check such claims. One just types in “world-class orthodontist” and the city to see what comes up. Not telling the truth or embellishing one’s accomplishments can create quite a buzz if called out by the public. One only has to look to the news anchor Brian Williams to understand the perils of that form of marketing.

Now, tie your features to benefits. What I love about marketing H4 technology is that is easy to showcase the benefits. “H4 braces” means nothing to the public as a feature. However, “H4 system of braces” tied to “wide beautiful smiles without extractions” is a message that resonates extremely well with the
Finding ways to express benefits from practice features is an activity that is best accomplished through group interaction. Finding a campaign that focuses on benefits and resonates well with the public and "has legs" is the real test.

**Use Your Website to Showcase the Practice’s Benefits**

Your website homepage is your practice’s introduction to the public. Don’t cram too much into your homepage. A homepage should be like the cover of a good book—a book people will want to open up and read. Have your homepage highlight what you are known for and include buttons that lead the user to more detailed information within the site. I find that having my bio page written from the prospective of a patient is best. Have a patient tell why he or she chose your practice for their care. Staff bios are also an opportunity to highlight the practice—have the staff member explain why they enjoy working at the practice in the bios. I also recommend a web page that contains your patient of the month treatment photos and before and after photos.

You should have someone monitoring data on how your website is viewed and how your competition’s websites are viewed. Your monitoring effort will tell you what pages are getting the most viewer time. Have it in your plan to refine your web site regularly. Use your data from your website evaluation process to drive your revisions.

Last, push yourself, your staff and your consultants to differentiate your web site from others in your market by taking chances to look unique. You can visit [www.Herman4Braces.com](http://www.Herman4Braces.com) to see my web-site and view my 2015 TV commercials.

**Branding is What the Public Perceives about You**

Many people are under the misconception that marketing a practice creates the brand. Branding is what the public thinks of you when they hear your message or name. The day you opened your practice is the day your branding process began. If you are branded something other than a ‘place to go’ practice changing your brand through marketing will take time. If you are not well branded the slate is clean and marketing can have a more profound impact on your brand. If your brand is what you want it to be, brand protection requires constant vigilance.

Those of us who live the story surrounding our PTG position have a much easier time protecting that brand than those practices not living the story. Practices telling a false story will receive a large number of unfavorable ratings, and these ratings will erode the public’s trust in their brand. Social media has definitely sped up the branding process. Many practices jump at activities to get their name out there such as car magnets, billboards, commercials, etc. This activity is worthwhile if it’s connected to your message. The main benefit of name recognition activities is to promote dialog. Ideally the promotion will result in someone talking about you and your brand and having the other person say, “I have heard of that orthodontist.” The goal from there is to then have these people engage in a positive conversation about your practice.
Focus on Making the Pie Bigger

When I opened up my practice in 1998 I wanted to make the market, or the “pie,” larger. I realized that it would be difficult as the new guy to carve out a piece of the existing small orthodontic market. So I started with targeting a radius of 120 miles. I marketed heavily in a town two hours away because the town was served by two orthodontists who came two days per month and required a large down payment. As the plan worked, the radius increased to 180-200 miles. The plan worked because I was able to identify what consumers in this market wanted but were not receiving from anyone.

Want to increase your market radius? Then you must understand the law of multiplicity. The law of multiplicity is about the development of micro markets outside of your normal target populations. Most of the time months go by with a few patients here and there responding to your marketing efforts. Then, there are periods where all of those efforts combine into 2-3 months of explosive growth and that growth expands you into other micro markets. Other micro markets that were not in your original plan. In the ‘bigger pie’ concept, these newly discovered micro markets are now on your radar and you just increased the size of your pie. The more you invest in micro markets and the longer you make that investment, the greater the growth.

When attempting to identify a micro market look at a specific ethnic group, a small rural town, a particular high school, etc. When I think of a micro market I relate it to a tribal affiliation. Most of us seek some form of tribal affiliation. Be it a sports team, product, service, school or town. Your goal for that target micro market is simple. When people in that market think of braces they think of your practice. You have a specific campaign for that micro market that differentiates you from other practices trying to get their attention. It is essential for your team to have a presence in the micro market—team members need to attend community events and seek out opportunities in the area so you are not relying solely on paid advertising efforts to grow this micro market.
Thanks and Gratitude

I hope you got something out of this snap shot of what goes on in the development and implementation of a marketing campaign. I would like to thank my director of marketing of 15 years Angela Weber from OrthoSynetics and her outstanding team for helping me develop and implement my practice’s marketing campaign. I have been using passive self-ligation since 2002 and H-4 technology since 2013. It is the united efforts of the OrthoSynetics team, Ortho Classic team and my Four Corner Orthodontics team that produced our 2015 marketing campaign.

FOUR CORNERS ORTHODONTICS & DENTAL
DR. DAVID HERMAN
DR. TODD WAHLIN GENERAL DENTIST

www.herman4braces.com
© 2015 Four Corners Orthodontics.
All rights reserved.

Author’s Comments

Dr. David Herman

It is my hope that this article will stimulate discussions on effective practice promotion. As a healthcare provider, I believe that maintaining the public’s trust in my practice is my top priority. In order to do this, I must consistently deliver on the promises I make to the public, invest in the further development of my staff’s skills, and always keep my staff’s wellbeing in mind when making decisions.
OrthoVend® Exclusive
Low Price per H4™ bracket

SIMPLIFIED INVENTORY MANAGEMENT

Contact us and ask how.

We Proudly Manufacture Our Products In U.S.A.
Contact Us: 866.752.0065 Or Visit Us Online: www.orthoclassic.com

Offer cannot be combined with any other offer, promotion, coupon, or special.
COME SEE OUR NEW ORTHODONTIC CLINIC

with Dr. Thomas R. Pitts D.D.S., M.S.D.

Miles of Smiles