

A “Smart” Take on Orthodontics



Nathan E. Thomas, DDS, MS

Dr. Thomas received his DDS degree at the University of Nebraska Medical Center. He completed his Orthodontics specialty at the State University of New York at Buffalo. He also has a Masters in Nutrition and BSEd in Exercise Science from the University of Nebraska, Lincoln.

Dr. Thomas is an ABO Certified Orthodontist practicing in Bridgman, Michigan. He is a member of the AAO, ABO and Great Lakes Association of Orthodontists.

Noise – all of the things that distract us from being orthodontists. Unfortunately, many orthodontists are caught up in the noise. I hear a lot of colleagues complain about the current environment today in orthodontics, but choose to look away from the source of the problem that led to our present challenges.

There is often a sense that, in order to compete, it is necessary to cut the time spent on some aspects of treatment, when in fact it is the core fundamentals that separate us from any other dental professional or company that attempts to provide orthodontic care. The key aspects I am referring to are diagnosis and treatment planning. Instead of focusing on these fundamentals and long-term strategies, there is a reactionary temptation to focus on money and short-term strategies that often involve abandoning the time required for good diagnosis and treatment planning in favor of more appointments per day and more starts per year. In this competitive environment, efficiency and time savings are important, but cannot be maximized without thorough diagnosis and treatment planning. Proper planning, paired with

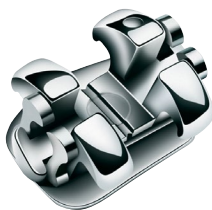
a system designed for efficiency, will yield time savings throughout the remaining stages of treatment, allowing for more patient volume without sacrificing quality.

Solutions that maintain orthodontic integrity while avoiding unnecessary additional appointments that impede starting orthodontic treatment do exist. My life experiences and previous education have taught me to stop and look around before moving forward. After observing our profession's history and the great orthodontists today, the common theme I have found is an emphasis on the patient. Focusing further on the patient, we can affect them physically, emotionally, or spiritually. As an orthodontist, we tend to dwell in the first two aspects. I argue that many of the current problems in our profession will diminish if we maintain a focus on the patient with proper diagnosis and treatment planning, providing great customer service, and emphasizing efficiency. In this article, I plan to discuss a few ways to stand out from the pack and provide excellent orthodontic outcomes as efficiently as possible.

Unfortunately, there are quite a few orthodontists who have categorically decided to regard clear aligner therapy as inferior to braces. Clear aligners CAN produce orthodontic results similar to braces (and better in some instances) in a similar amount of time or less. On the other end of the spectrum are the orthodontists that speak negatively about braces and carry on about the longer treatment time in braces compared to clear aligners. Orthodontists who prefer braces can compete with aligners in both quality of finish and treatment time simultaneously. In order to compete with clear aligners, orthodontists have to stop their blind allegiances to their brackets and their cost. If you were given a bracket that costs \$15 per bracket, but it helped play a role in reducing the total number of patient visits by three visits or more, would you switch? If your answer is no, then you are bending over to pick up pennies while dollars are flying over your head.

Aligners are a fully customized appliance. In order to compete with clear aligners, braces cannot be used as they are currently in a large number of orthodontic offices. Braces in these offices are a generic appliance, using a singular prescription, despite the fact that patients present with a broad spectrum of issues. In the end, additional time must be spent to increase or reduce tooth movements because the standard prescription cannot successfully express the needed movements in patient populations outside of the peak of the bell curve without manual modifications to the archwire. Dr. Anoop Sondhi has spent much of his career speaking about clinical efficiency and, in particular, about VPO (variable prescription orthodontics). This is a way of turning braces into a semi-customized appliance. Since braces are limited to a set number of prescriptions and cannot control movements in all three planes of space from the start, the best braces can be is a semi-customized appliance. An additional way to make up for this limitation and reduce inefficiencies is to utilize indirect bonding.

The technology of the bracket has evolved much more than what they commonly teach in residency. There are clear advantages to self-ligation technology, but with so many brackets on the market possessing this feature, how do you make a purchase decision? My advice is to stop, clear your mind of all your biases, and think biomechanics. I studied hard in school to become an orthodontist and I preferred to use a bracket that allowed me to utilize my training as an orthodontist. I did not want to be handcuffed by my bracket biomechanically and limit my treatment options for my patients. This is how I arrived at my decision to use the 3M™ SmartClip™ Self-Ligating Bracket by 3M right out of residency, despite never using the bracket previously.



Durability

No door to break or get stuck. In the past four years in private practice I have had four clips TOTAL that have broken off (three on the ceramic bracket and one on the metal). In the event that this happens, the bracket simply becomes a ligated bracket, and does not require replacement, thereby, saving treatment time and cost.

Precision

This is a part of 3M's DNA. Other bracket systems have undergone study and large tolerance ranges have been discovered. Yes, most of us do not fill our bracket slots, but these wide tolerances add additional slop in the bracket and produce greater under expression. However, this under expression is difficult to predict and is considerably variable among brackets. Ultimately, this translates to additional treatment time to manually accommodate for these inaccuracies. 3M's reputation for high quality is visible with the SmartClip bracket, as the consistent and predictable movement I get speaks to the precision in the system's tolerances.

Mechanical advantages related to design

A maximized bracket width helps to provide control over dental rotations. The already wide bracket has clips that hold the wire at the outermost perimeter of the bracket in addition to extensions where the wings are attached to the bracket, increasing the width even further. This translates to superior rotation correction. Treating over 200 cases with another popular self-ligating system, I have experienced firsthand how poorly a bracket can perform when its width is decreased. I have heard similar stories of frustration from prominent, large volume orthodontists trying to finish cases with this bracket system. The technology of a bracket should work FOR you, not AGAINST you.

With SmartClip, I am able to alter inter-bracket distances to reduce excess forces and unwanted side effects while maintaining my original placement of the bracket and avoid wasteful repositioning later (Figure 1).

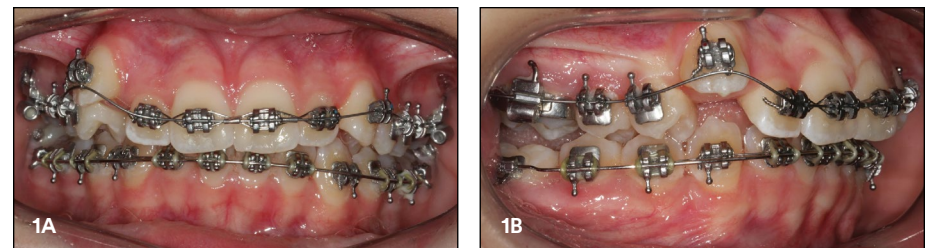


Figure 1A-B

One of the largest inefficiencies with braces is the time spent correcting side effects. Leveling severely displaced teeth becomes much more predictable and simple when using the ability of the SmartClip bracket to selectively engage one or both wings. This can be further enhanced utilizing tandem wires and using one of the archwires as an arch stabilizer and bypassing the severely malpositioned tooth (Figures 2 and 3).



Figure 2

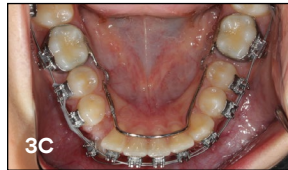


Figure 3A-C

Another frustration with other brackets is severe rotations because they prevent archwire engagement into the brackets from the start to begin the derotation process and require more involved and time-consuming methods to move the teeth to a point where the archwire can be engaged. Using SmartClip brackets and an open coil spring with a bracket to a bracket-and-a-half activation on the initial archwire has proven to be the most simple and efficient method (Figure 4). Since brackets with doors are essentially a single wing bracket, it is impossible to ligate the wire to utilize this technique. A standard twin bracket can work with this technique but ligating a single wing in such a severely rotated position with the open coil spring trying to expand is time-consuming and technically challenging. The simplicity of compressing the spring with an archwire director and pressing the archwire into the wing that is accessible is unmatched by other self-ligating brackets with doors.

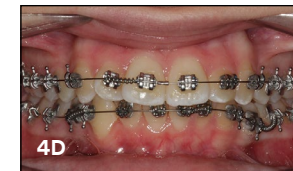
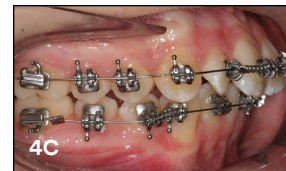


Figure 4A-E: Deep bites like this scare many orthodontists but is quite easy with VPO and 3M™ SmartClip™ SL3 Brackets.

Mechanical treatment method diversity

SmartClip can incorporate all methods seamlessly – Segmental, sliding, non-sliding, tandem wire, overlay wires, auxiliary wires. Some of these methods cannot be performed with a door present. The advantages of the tandem wire method are maximum efficiency without compromising quality of finish. Tandem wires used with the SmartClip bracket can reduce the number of wires necessary to correct a case by doing more with each wire. After eight weeks when the second wire was added to create tandem wires, all aspects of tooth movement are corrected except torque. Other methods require more wires and do less movement per wire. The patient shown in Figures 5, 6, and 7, underwent Class II correction with the 3M™ Forsus™ appliance and SmartClip brackets using a VPO prescription of high torque on the upper 3-3 and lower torque on the lower 3-3. Utilizing this method of practice saved me from placing additional torque into her archwires, which would have added additional months onto her treatment.

In the end, there are many areas of the practice where efficiency can be exploited to improve competitiveness without compromising quality and the orthodontic bracket is one. When you filter out all of the marketing, a bracket is nothing more than a handle on a tooth. I can achieve the same board-standard result with any bracket; but some brackets can do things easier than others or do more things at once.

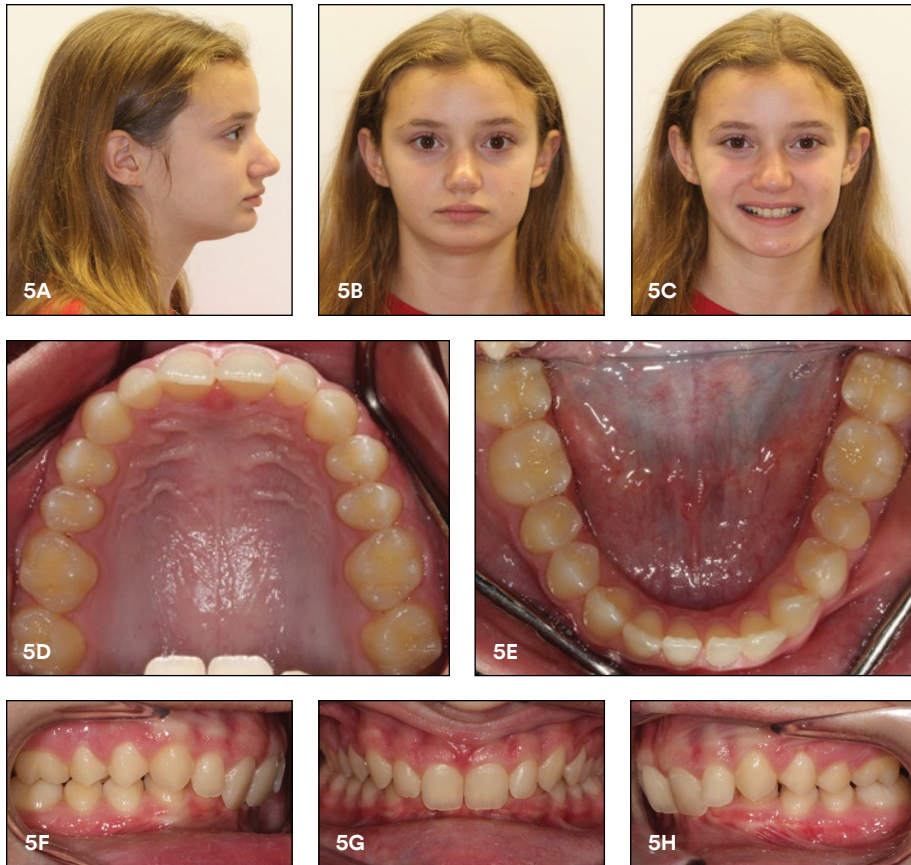


Figure 5A-H: Initial photos.

The SmartClip bracket exceeds other brackets by providing me, the orthodontist, with the flexibility to use my knowledge and training as I see fit. We spent a considerable amount of time (and money) to gain our knowledge and need to rely more on our expertise and less on outside forces that are trying to influence our decisions for their gain. I hope this article illustrates the importance of tuning out the noise and shifting focus to a long-term strategy that restores our profession and leads to a successful practice model emphasizing the patient through proper diagnosis and treatment planning, customer service, and efficiency.

Case photos provided by Dr. Nathan E. Thomas.



Figure 6A-H: Final photos.

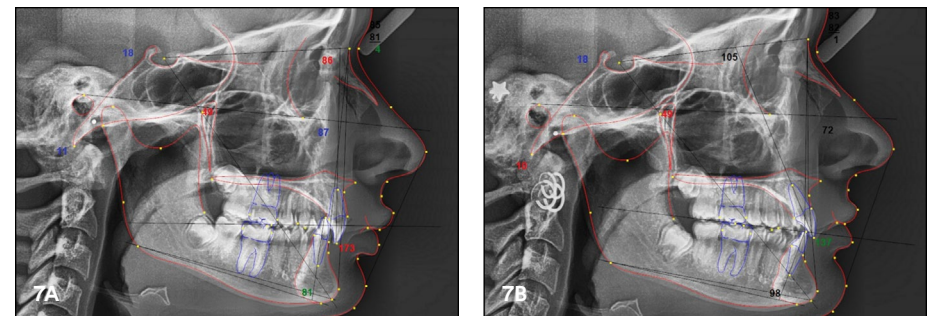


Figure 7A-B: Initial and final tracings.