Self-ligation: The Future of Orthodontics

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Self-ligation – The Future of Orthodontics

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“Self-ligation is the future of orthodontics!” These words were spoken by Dr. Bill Proffit, former Chairman of the Department of Orthodontics at the University of North Carolina. A pretty strong statement, but I must say one with which I totally agree. Dr. Robert Keim, Editor of the Journal of Clinical Orthodontics, stated that the future of orthodontics will focus on three main areas: 3-D imaging to replace two dimensional cephalometry, self-ligating brackets, and micro-implants as endosseous anchorage. Over the years the basic design of the orthodontic bracket has evolved from the initial brackets used by Dr. Edward Angle, to the twin bracket, to the pre-angled/pre-torqued bracket designed by Dr. Larry Andrews, and now to the self-ligating pre-angled/pre-torqued bracket.

Scientific evidence, what’s available?

Unfortunately, at this time, there is very little hard scientific evidence available to justify many of the claims made by those advocating the use of self-ligating brackets. I strongly encourage the orthodontic scientific community to devise serious research studies to prove or disprove the efficacy of self-ligation. However, the well-designed scientific studies will take years to produce definitive, verifiable results. In the meantime, I believe those orthodontists who do not try self-ligation for themselves will be missing out on a major breakthrough in orthodontic bracket design. It is my opinion however, that one does not have to know exactly how birds are able to fly to realize that they are, in fact, capable of flight. Daily, I can watch and marvel at the beauty and grace in flight. Today, with fewer than 100% of orthodontists using self-ligating brackets, it is obvious that many of my colleagues have been unwilling to avail themselves of a magnificent step forward in the efficient treatment of our orthodontic cases. As a practicing orthodontist, I can utilize my own personal experience with self-ligation to draw conclusions as to the efficiency and effectiveness of the bracket. That is the reason I am writing this paper, to strongly encourage every orthodontist to take advantage of what I consider to be the newest and latest significant advancement in orthodontic bracket design, the self-ligating bracket.

What is the history of self-ligating brackets?

It may come as a surprise to you but the self-ligating brackets are not a new development in orthodontics. In the mid-1930s the Russell attachment was the first recorded attempt to reduce ligation time and enhance clinical efficiency. Some of the early self-ligating brackets were the Ormco Edgegolok (1972), Forestadent Mobil-Lock (1980), Orec SPEED (1983), and “A” Company’s Activa (1986). This effort to develop self-ligating orthodontic brackets is being fueled by a desire to create a bracket that will more efficiently and more effectively move teeth. That would create the benefits for our patients of quicker treatment, hopefully less discomfort in tooth movement, the need for fewer office visits and fewer archwire changes, while still producing quality treatment results.

Self-ligating brackets, what’s available today?

Today, practicing orthodontists have quite a few options to choose from, if they are interested in trying some type of self-ligating bracket. The SPEED bracket (Stute Industries, Canada) has been around the longest and has a small but devoted following of users. Probably the most popular self-ligating bracket in use today is the Damon bracket (Ormco) developed and promoted by Dr. Dwight Damon, Dwight is an extremely accomplished and gifted clinician, and he presents in his lectures some of the finest treatment results that I have ever seen demonstrated by a clinician. Untek has developed the Smart Clip bracket to compete in the self-ligation market. The Time bracket (American Orthodontics) is another self-ligating bracket that is available for our use. Most recently Class One Orthodontics has entered the self-ligation arena with their Camriene SLB bracket. GAC has produced the In-Ovation R bracket, and this is the bracket which I am now using in my practice.

Why do I use In-Ovation R?

I have tried many of the self-ligating brackets, and I have found the In-Ovation R bracket to provide the advantages that I was looking for in a bracket. Figure 1 includes many of the attributes I believe my colleagues are searching for in the design of the bracket that they want to use in their practices. Figures 2 provide a list of the reasons why I like In-Ovation R and use it as the bracket of choice in my practice.

I feel the people at GAC have listened carefully to practicing orthodontists and determined what orthodontists were looking for in the design of their self-ligating bracket. The brackets are available in .018 and .022, they are available in just about every torque and angulation you would desire, and the ins and outs are such that little or no archwire bending is required to effectively finish your cases. In the vast majority of cases...
What orthodontists desire in a bracket

- Efficient and effective tooth movement
- Accurate tooth alignment
- Ability to torque teeth individually
- Stays on tooth
- Easy to debond when desired
- Ease of wire ligation
- Minimum chair time to treat case

What makes In-Ovation R different from other brackets?

- Rhomboid-shaped base for
- Pad design fits tooth
- Torque in base design
- Available in almost any prescription
- Proper ins and outs
- Rotational control is superb
- Ease of wire ligation
- Minimum chair time to treat case
- Reliability of bracket and clip
- Fluoride treated slide mechanism
- Perfect width and size
- Tie wings accept ties and elastic chains
- Positive clip seating
- Strong and durable
- Bicuspid notch for easy clip opening
- Flexible clip design
- Active/Passive ligation
- Can use your own treatment mechanics

Enhancing your practice value with SL

The Staff
- Easier wire changes
- More patient interaction time
- Less stress – greater patient comfort
- Positive wire seating – eliminates guesswork
- Confidence in treatment
- Pride in quality of treatment

The Practice
- More doctor patient interaction time
- Chair time savings
- Greater consistency of treatment
- Quality of treatment results improved
- Profitability
- Easier to transition or sell practice

The In-Ovation Interactive System

Passive
- Allows free sliding of small, round wires for quicker leveling and aligning

Interactive
- As arch wire size increases, clip contacts the wire only if tooth is not correctly aligned

Active
- Provides control of rotations and torque expression during the third stage of treatment

Enhancing your practice value with SL

The Patients
- Reduced treatment time
- Patient’s time – shorter appointments
- Patient’s time – longer appointment intervals
- Easier and fewer wire changes
- Gentle wires
- Quality of treatment

Figures 1, 2, 3, 4, 5, 6
Case Study

I want to demonstrate one case that was successfully treated with In-Ovation R brackets. I know full well that one case does not really tell the whole story, since all of us can find excellent cases we have treated to demonstrate points we are trying to make. However, this is a very difficult case, and I believe I was able to achieve better results, in a shorter period of time, with fewer patient visits, with less discomfort to my patient, requiring less patient chair time by utilizing the In-Ovation R bracket than I could have by using my traditional edgewise brackets.

This is a 12 year 6 month old patient who presents with: a Class II, division 1 subdivision left malocclusion, a severe lateral open bite on the right side, tooth #4 is congenitally missing, tooth #A is still present and is ankylosed, tooth #7 has a large lingual cusp, the upper incisors are protrusive, and the midlines are off (Figure #7).

Treatment from start to finish took less than two years and as you will note in (Figure #8) we have: reduced the prominent lingual cusp of tooth #7, extracted tooth #A, closed the space created by the removal of tooth #A, corrected the midline discrepancy, closed the open bite while not creating a canted occlusal plane, created a highly esthetic smile line, and obtained an excellent occlusal relationship.

Finally!

If what Dr. Proffit said is true and self-ligation is the future of orthodontics, and I for one believe that it is, then I am even more convinced than ever that the In-Ovation R bracket is the self-ligating bracket of the future. After using the In-Ovation R bracket for over two and one-half years and having completed hundreds of cases I truly believe that this bracket allows me to provide the very finest treatment for my patients. I urge all my colleagues to try self-ligation. I urge them to try the self-ligating brackets that are available on the market today. I also feel that once you have you will come to the same conclusion at which I have arrived: The In-Ovation R bracket is the finest orthodontic bracket available on the market today.
References


Reprint Information