Class II Posterior Composite: Reproducing the Durability by Dr Todd Snyder

One of the most common dental office procedures performed daily is the posterior bonded tooth-colored composite resin. This frequent restorative technique is already extremely complicated with all of the steps that go into the proper utilization and placement of restorative materials. However, when the cavity extends interproximally, the preparation design often requires the use of a matrix system to recreate the interproximal surface against the adjacent tooth and to contain the restorative material during placement until such time that it becomes solidified. Surprisingly, many practitioners still do not feel confident in their ability to consistently create good interproximal contacts from modern tooth-colored direct restorations. Many different types of devices, tools and materials have been created to help dentists achieve the ideal interproximal contact when using composite resin and glass ionomer restorative materials.

Many practitioners have not embraced some of the modern tools that can alleviate their concerns such that a good contact and contour can be achieved consistently. Rather than implement newer devices, some practitioners still try to accomplish the arduous task with traditional tofflemire matrix band systems and modern variations of the tofflemire system. Although any system can work depending on the type of preparation design and situation that is presented to the practitioner, a more consistent approach is available. Traditional tofflemire matrix systems are still necessary for the occasional mesial or distal surface of a tooth when no adjacent tooth is present or for the placement of large core buildups that do not necessitate a contact due to an indirect restoration being placed. The most common error found when it comes to trying to obtain a tight interproximal contact is partly due to not implementing a modern restorative sectional ring and matrix device such as the Palodent V3 Sectional Matrix System.

The use of tofflemire bands cannot create the true anatomical shape and contour of a tooth when using modern tooth colored direct restorative materials. Typically, the final appearance of the composite when using a tofflemire system will have a very flat profile from the gingival margin to the occlusal-proximal cavosurface contrasted with the typical convex appearance of the interproximal contact. (Figure 1.1)
When using a curved or dead-soft tofflemire band, a slightly better anatomical shape can be achieved compared to traditional tofflemire bands, however the contact will typically not be tight enough due to a lack of tooth displacement. Control of the placement and tightness of the contact against the adjacent tooth is difficult and simple wedging does not provide enough displacement of teeth to offer consistent results. Additionally, the contact point when using the tofflemire band is typically at the occlusal surface such that any adjustments made to occlusion can often strip away the small light contact, which creates an open contact. (Figure 1.2)

The most modern alternative to the tofflemire is the Palodent V3 sectional matrix system. The Palodent V3 Ring is made of a NITI metal wire with two glass-fiber reinforced V-shaped plastic feet often referred to as tines. This newer system offers many distinct advantages to its predecessor. The NITI metal ring offers outstanding spring strength and memory delivering a flatter force curve that offers optimum force across a wide range of posterior embrasures. This NITI metal has a substantially longer lifespan with a more consistent tooth displacement for reliable tight contacts. The glass- fiber reinforced plastic tines are "V" shaped to hold the wedge precisely between the teeth compared to the traditional ring systems that necessitated the small tines were placed on only one side of the wedge or occasionally on top of the wedge. (Figure 2)
Even the wedges that are used with the system have been modified such that they follow the root contour as well as the gum and bone contours. The wedge holds the matrix firmly in place against the gingival margin while at the same time causing the least amount of damage to the surrounding tissue. The Palodent V3 matrix is held firmly against the gingival floor of the preparation to achieve a good seal so that excess material is not extruded, requiring additional clean up to remove flash. The Palodent V3 Ring does not interfere or displace the wedge unlike previous sectional ring systems.

The Palodent V3 Sectional Matrix System is comprised of two different rings: a Universal Ring (Figure 3.1) which is light blue and a Narrow Ring (Figure 3.2) that is dark blue. The narrow dark blue ring has tines that are closer together and exert up to 4kgs of separating force which is ideal for premolars.

There are multiple matrix sizes, 5-EZ Coated matrices which are color coded and 5-non coated metal matrices. The matrix sizes range from 3.5mm-7.5mm. The 6.5mm and 7.5mm feature subgingival tabs to handle deep restorations. There are also 3 color-coded wedge sizes: dark blue being the smallest wedge, medium blue is medium- sized and the light blue wedge is the largest in the system. Pin Tweezers are included with the system to simplify the process of placing the wedges and matrices. The unique pin tweezers utilize the various holes on the WedgeGuards, wedges and matrices to hold them tightly for easy placement and removal. WedgeGuards are essentially the wedge coupled with a removable metal shield designed to protect the adjacent tooth from iatrogenic trauma during cavity prep. The guard is detached after preparation leaving just the wedge in place. WedgeGuard sizes are offered in the same 3 standard sizes as the wedges.
Palodent V3 EZ Coat matrices are comprised of thin metal bands featuring a non-stick coating and greater curvature as well as a very pronounced marginal ridge—helping to create that ideal anatomy. The implementation of the EZ-coat band in the restoration in (Figures 4.1, 4.2, 4.3) illustrates the creation of proper contour.

The pre-contoured shape allows for creation of an ideal facial to lingual convexity like natural teeth. Additionally, the contour of the matrix from the gingival margin to the occlusal surface is ideally created to position the interproximal contact in the middle to incisal third of the adjacent tooth. The natural tooth contour that is created mimics the same appearance of a natural tooth with the creation of ideal contact positions and contour. The occlusal, gingival, buccal and lingual embrasure spaces are all fabricated very easily; often with minimal to no flash.

The interproximal composite restoration can be a very difficult procedure to do correctly, but with the right tools it can actually be consistently easy. Too often dentists try to implement traditional tools and techniques, which may work on occasion, but provide many challenges and limitations—making an already difficult procedure even more demanding and time consuming. The Palodent V3 Matrix System provides the ability to routinely create a good contact with proper contour. This system offers the reproducibility that has been lacking in many systems, such that many dentists can finally have the confidence to obtain a good anatomical restoration with excellent contacts.

Dr. Todd Snyder received his doctorate at the UCLA School of Dentistry and has trained at the F.A.C.E. institute. He is an Accredited Member of the American Academy of Cosmetic Dentistry and is a member of Catapult Education’s Speakers Bureau. Dr. Snyder was on the faculty at U.C.L.A. where he created and co-directed the first two-year graduate program in Aesthetic and Cosmetic Restorative Dentistry. In addition to lecturing internationally he has authored numerous articles in publications around the world. Dr Snyder has a private practice focused on cosmetic dentistry in Laguna Niguel, CA.