Chairside PERSPECTIVE

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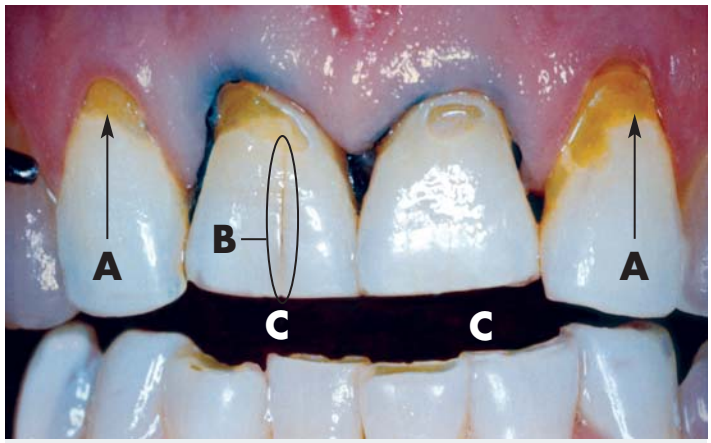
Extra Comfort Bite Splints™

The next generation of occlusal therapy

As general dentists, we are involved primarily with only three major diseases or conditions: dental caries, periodontal disease and occlusal conditions. The majority of general dental practices tend to revolve around the restoration and replacement of existing restorations for teeth affected by caries. Periodontal disease therapy is typically provided by periodontists and the hygienists employed in general dental practices.

This issue of Chairside Perspective will address the often ignored area of occlusal conditions. It is my intention to prove to you that usually conservative treatment of these conditions can be rewarding for you and your patient. Surprisingly, when viewed on a unit by unit basis, a bite splint often can be more profitable than even a crown.The key to delivering bite splints in an effective manner is to use a material that requires little to no adjustments while providing maximum comfort to the patient. A material that fits both of these requirements is the new Erkoloc Pro used to fabricate the Extra Comfort



Identifying the signs of bruxing and clenching

A. Teeth 7 & 10 have cervical abfraction lesions thought to have been caused by bruxism.

B. The vertical fracture on tooth 8 may have been caused by clenching.

C. Advanced wear of the incisal edges on the upper and lower anterior teeth is due to bruxism.

Specifications

- Soft inner layer of 1mm of urethane provides ideal comfort
- Hard outer layer of co-polyester provides maximum durability
- Prelaminated layers ensure uniform adaptation
- State of the art vacuum thermoforming provides superb retention

Indications

- Bruxing & clenching patients
- Symptomatic TMD patients
- Pre & Post restorative patients
- Periodontal stabilization

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Bite Splint. The hard material on the outside increases longevity and aids in excursive movement, while the soft inner layer aids in fit, comfort, and prolongs its usefulness.

At a state of the art industry dental conference, Dr. Gordon Christensen remarked that there are between 500 to 1000 bite splints waiting to be made in every dental office. He estimates that one-third of the population either brux or clench their teeth, resulting in tooth damage (Figures 1 & 2).

He also states that "If a dentists merely 'watches' patients as they wear their teeth down, he or she is practicing supervised neglect and contributing to continued tooth destruction." Bruxism is most commonly defined as the non-purposeful grinding of teeth in eccentric positions that eventually removes canine rise, incisal guidance, and posterior tooth cusp tips. Most bruxism takes place at night, although patients tend to deny this habit. As a result of their advanced tooth wear, most bruxers have a group function occlusion. The end result of bruxism is usually highly worn teeth, with a relatively flat plane of occlusion, and a group function occlusion in the dentition. If left untreated, many of these patients have unsightly and mutilated dentition by the age of 40.

Clenching is typically defined as the non-purposeful closing of teeth in centric occlusion. Clenchers are also more active at night, but you may notice them clench at any time by observing their bulging, strongly developed masseter and temporalis muscles in action. Typically, clenchers accentuate and deepen centric occlusion tooth contacts. They tend to have steep canine rise, incisal guidance, and posterior tooth cusp tips.

Figure 1 - Advanced wear of the incisal third of the anterior teeth due to parafunctional habits.

Figure 2 - Clenching, also known as centric bruxing, can lead to the type of wear shown on the first molar.

Figure 3 - Using the alginate manufacturers instructions for proper water and powder ratio, take impressions of upper and lower arches.

Figure 4 - After diagnosis of bruxism, ins-truct the patient to close into centric relation to verify midline po-sition and bite.

Figure 5 - Using base plate wax that is approximately 5m thick and softened in warm water, press wax onto molars.

Figure 6 - Instruct patient to close into wax slowly until a desired opening of 3mm is achieved in the posterior area.

Figure 7 - Inject bite registration material between anterior teeth and guide patient into an open bite registration.

Figure 8 - After wax has hardened, leave in place and inject bite registration material over wax and posterior teeth.

Dr. Christensen feels the solution to both of these conditions is a bite splint worn at night, as well as, during periods of psychological stress, in the daytime. In his 40 years of practice, he estimates that 80% of TMD cases have been muscular in nature and have responded well to bite splint therapy, and subsequent occlusal equilibration.

The first step to great fitting splints is taking accurate impressions (Figure 3). To achieve this use comfortably fitting trays that do not bind the patient. If you plan to pour the models an alginate, following the proper powder-to-liquid ratio is the material of choice. To ensure that the impressions accurately capture the occlusal surfaces of the teeth, spread some alginate with your finger onto the occlusal surfaces of the teeth prior to seating the impression tray. If you plan to have the laboratory pour the impressions, it is best to use a vinylpoly siloxane material, rather than risking distortion with alginate.

While a bite registration is not necessary to construct a bite splint, the best fitting splints are constructed using

an open, or construction bite. This is a different bite than we are used to taking for restorative cases, in which the patient is instructed to bite all the way down into maximum intercuspation. In a construction bite, the patient is instructed to bite together until they reach a predetermined vertical opening, at which time they are instructed to stop biting together. Rather than arbitrarily opening a patient's bite on an articulator to compensate for the thickness of the splint, the construction bite gives the laboratory the patients actual interarch relationship when opened to a predetermined vertical opening, such as 3mm in the posterior region. A 3mm opening in the posterior region roughly translates to a 6mm opening in the anterior region, which is easier to measure while doing a construction bite.

So, if a patient has 4mm of vertical overbite on the anterior teeth, you would instruct them to bite until there was a 2mm open bite between their anterior teeth, which would translate to 3mm of opening in the posterior. Figure 4 shows the patient's bite with the amount of overbite being checked. Figure 5 shows the softened baseplate wax blocks placed on the posterior teeth. The patient is instructed to close into the softened blocks until the predetermined vertical dimension is reached (Figure 6). I have found that baseplate wax works better than bite registration material because it offers more resistance to the patient and allows them to stop closing more predictably than with a fluffy consistency bite registration material. Once the wax has hardened and the bite has been rechecked, bite registration is added on top of the wax blocks and in the anterior region to provide a tripod bite registration for the laboratory (Figures 7 & 8). Figure 9 shows what the three sections of bite registration should look like when removed from the mouth. The models or the impressions, along with the bite registrations and the prescription requesting an Extra Comfort Bite Splint, with either flat plane occlusion or anterior guidance, are forwarded to the laboratory (Figures 10 & 11).

As a result of the Extra Comfort Splints hard/soft technology, you should expect there to be no adjustments necessary to seat the splint, and perhaps just a minor adjustment to the bite (Figures 13 & 14). Unlike when delivering hard bite splints where the patient often winced when the splint was being placed for the first time, the patient is often able to place the Extra Comfort Bite Splint for the first time by themselves, with no discomfort or feeling that their teeth are being forced out of position. As with most thermoformed materials patients should be warned not to place their bite splints in mouthwash that contains alcohol (Figure 15). In the next issue of Chairside Perspective we will discuss fabricating splints in office using the Erkoform RVE system (Figure 16).

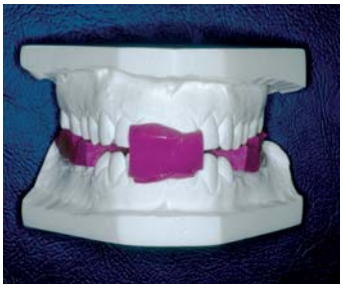

Figure 9 - Upper and lower models with bite mounted. Note the open bite between anterior teeth.

Figure 10 - Upper & lower models with construction bites.

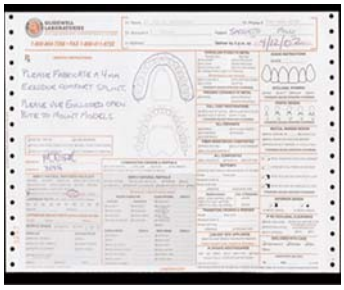

Figure 11 - Completed Rx for an Extra Comfort Bite Splint™. The standard thickness for these splints is 4mm.

Figure 12 - After thermoforming, the splint is trimmed and polished with carbide burs, felt wheels and acrylic polish.

Figure 13 - Seat the splint and evaluate fit, retention and occlusion. Adjust with carbide bur and polish if necessary.

Figure 14 - After completely seating splint, check bite with marking tape to identify any premature occlusion.

Figure 15 - Instruct patient to care for their splint by rinsing with water after every use and storing dry.

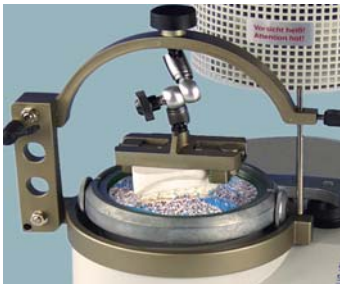

Figure 16 - The upper or lower model is used in the Erkoform-RVE to thermoform the splint and create a flat bite table.