



## *Nightguards, Splints, and Orthotics*

Nightguards, splints, and orthotics are three different oral appliances that are regularly used to support and protect the jaw joints, muscles, and teeth through various structural conditions and injuries.

To the untrained eye, these three appliances may look virtually the same, but the functional differences in the mouth are significant. While it is true that a nightguard may sometimes be converted into a splint or an orthotic (and vice versa), the individual appliances themselves are not interchangeable and should never be used for a different purpose without the supervision and approval of a knowledgeable neuromuscular dentist.

Let's take a look a closer look at how each appliance is constructed, what its primary uses are, and the kinds of problems that can develop when you use a specific appliance for another purpose.

### **Nightguards**

Of all three appliances in this category, the nightguard is the simplest in construction and in function. A nightguard is for those patients who have long-term, unconscious clenching and grinding habits during sleep. Over time, these habits can lead to severe tooth wear and fractures, compressed jaw joints that pop and ache, as well as facial pain and headaches. The nightguard does not always cure the clenching and grinding, but it does protect the teeth, joints, and muscles from further damage. A nightguard can also eliminate facial pain, joint pain, and headaches for patients whose primary trigger is nighttime clenching and grinding.



## **Nightguards (cont'd)**

### *Primary Use Of A Nightguard:*

To protect the teeth, joints, and muscles from the strain and damage associated with unconscious clenching and grinding habits during sleep.

### *How Nightguards Are Made:*

In order to best protect the joints and muscles during clenching, the biting surface of a nightguard will often be designed to encourage your lower jaw to sit in a more relaxed and slightly forward position. Vertical support is not a nightguard's primary function, and while a small amount of vertical space will protect the jaw joints from compression, providing too much vertical support when it is not needed may cause other problems to develop.

### *Possible Secondary Uses of a Nightguard:*

Nightguards are not designed for regular daytime use. However, your providing dentist may recommend that you wear the nightguard during some specific daytime activities where clenching and grinding habits may be difficult to break. Some of these activities may include weightlifting or working out, driving in heavy traffic, engaging in any highly focused hand work such as sewing or embroidery, working or studying under a tight deadline, etc.

### *Nightguards Are Not Suitable For:*

Chronic daytime clenching and grinding is a habit that most of us can break once we become aware of the problem, and should not be controlled with a nightguard. Any daytime use of your nightguard should be approved by your providing dentist in advance and limited to specific, short-duration activities. Unless your dentist has specifically told you to wear your nightguard all day and all night, do not do so. If your joints and muscles need that kind of support, another appliance may be better suited to your needs. If you do not need that kind of support, wearing your nightguard all the time may actually do more harm than good.

## **Splints**

There are many ways that the jaw joints, facial muscles, and ligaments can experience an injury. Any time the head whips in any direction, the lower jaw tends to whip in an equal and opposite direction. Just as the muscles and ligaments of the neck become overstretched and extremely tender following a whiplash injury, the muscles and ligaments of the jaw may also experience a similar injury. This can happen with a car accident, sports injury, or even a roller coaster ride.

It is difficult to support the jaw joints properly when the muscles and ligaments are injured in this way. A splint provides 24-hour support to the joints and limits compression as the soft tissues heal, reducing pain and further injury. In some cases, a patient may even eat with a splint for a short period of time. In most cases, patients are slowly able to wean off of daytime use of the splint over a period of a few months. Depending on the injury, nighttime support may be recommended indefinitely at which point the splint would be converted into a nightguard.

### *Primary Use of a Splint:*

To support the joints and muscles during the healing phase following an injury (especially whiplash), or to calm myofascial inflammation. Splints are not generally for treating more severe actual joint injuries.

### *How Splints Are Made:*

A splint generally provides much more vertical support than a nightguard does. The biting surface may also initially be designed to encourage the lower jaw to be much further forward than a nightguard would. As the muscles and ligaments heal over time, however, that much vertical support and forward movement may no longer be necessary. Regular appointments with the providing dentist will often include reducing vertical support and changing the biting surface of the splint in small increments as the soft tissues heal and become stronger.



## **Splints (cont'd)**

### *Possible Secondary Uses of a Splint:*

A splint should never be used for any other purpose than to heal after a jaw injury under the full supervision of a qualified neuromuscular dentist. Splints are specifically designed for short-term, full-time use and the positioning of the splint is specific to the injury. Even if you have an old splint, and you experience a subsequent jaw injury, do not use your old splint unless you are specifically directed by a qualified neuromuscular dentist to do so.

### *Splints Are Not Suitable For:*

Splints should not be worn for a period longer than 6 to 8 months, unless they have been converted into another type of appliance. If you are unable to heal during that time period, the damage to your joints and bite may require more extensive treatment. In some cases, orthodontic or restorative treatment may be necessary to fully stabilize the bite and support the joints. At this point, the splint may be modified into an orthotic using computerized diagnostic equipment in order to determine the best bite position for joint and muscle function.

## **Orthotics**

An orthotic appliance is the most specialized appliance of this group. Unlike a nightguard or a splint, an orthotic is generally designed to help facilitate a permanent change to the bite. There are many reasons that a person's bite may no longer function correctly or support the joints and muscles properly. Injuries, missing teeth, severely worn teeth, crowding, and other congenital conditions may make it necessary to move or restore the teeth into a better, more functional position. Even though the body may need this change, though, it is never a good idea to just force the jaw into a new position without some time for the muscles to adjust. The orthotic allows for a slow transition into the new position so that the muscles and joints can stabilize as much as possible before restoring the bite permanently into a new position.



## **Orthotics (cont'd)**

### *Primary Use of an Orthotic:*

Temporary repositioning of the bite in preparation for more permanent changes to stabilize the joints, bite, and muscles. Orthotics may also be used to heal and stabilize severely damaged temporomandibular joints. An example of this would be a joint that locks, severely limiting the range of motion.

### *How Orthotics Are Made:*

When changing the position of a patient's bite permanently, it is very important to determine where ideal function might be. Using sophisticated computerized diagnostics, a neuromuscular dentist will track the current dysfunction of the bite and determine where the most functional new position might be. The orthotic is then made to provide the specific vertical support and positioning determined to be the most ideal during the initial diagnostics. Over a period of months, this position is continually refined as the joints and muscles adjust and heal. When the patient experiences several months of stable, pain-free function with the orthotic, the permanent changes to the bite may then be made.

### *Possible Secondary Uses of an Orthotic:*

It is rare for an orthotic to be used for another purpose other than to facilitate a bite change. In some cases after a few months, a patient may be able to wean off the orthotic during the day and successfully manage function and pain with nighttime use only. At this point, the orthotic would be converted into a nightguard that may be closer to the patient's current bite positioning in order to preserve the current balance.

### *Orthotics Are Not Suitable For:*

An orthotic is not meant for longterm use. In some cases, permanent restorative dentistry may not be possible to stabilize the bite. If an appliance is to be used as a substitute for permanent changes to the bite, a lower partial overlay is often a more durable option and may be recommended as an alternative.