

ORAL APPLIANCES FOR SLEEP APNEA



Severe sleep apnea is a common condition affecting about 5% of adults however mild to moderate forms occur in 20% of adults. In sleep apnea the airway in your throat that leads from the nose and mouth to the lungs collapses when you fall asleep and muscles relax. If the collapse is severe enough it causes an apnea (absence of breath). If it is a partial collapse it usually causes snoring. A person with severe sleep apnea may have hundreds of these events each night which results in lack of oxygen to the body's vital organs and disrupted sleep. Long term consequences are high blood pressure and an increased risk of heart attack or stroke and, of course, sleepiness.

There are many treatments that have been tried for sleep apnea. While CPAP (Continuous Positive Airway Pressure) is probably the most effective for patients with severe sleep apnea, it is not well-tolerated by some people. Unfortunately a number of people with sleep apnea do not tolerate CPAP and turn to other treatments such as surgery to the airway or an oral appliance.

Oral appliances are also called mandibular advancement splints (MAS) or mandibular advancement devices (MAD) and there are many types, not all of which are equally effective. The usual oral appliance consists of a "mouth guard" fitted to both the top teeth and the bottom teeth and then joined together in such a way that the bottom teeth end up in front of the top teeth. In most people, pushing the bottom jaw forward opens up the airway and supports it so that it is less likely to collapse, in this way helping to reduce either the number or severity of the apnea events. For most people, advancing the jaw by about 10mm is enough to make a difference but this amount may need to be adjusted if it is not effective or if you find it too uncomfortable. There are other types of oral appliances including tongue retaining devices but mandibular advancement splints are the most commonly used and most effective.

How do oral appliances compare with CPAP? The view of sleep apnea experts is that oral appliances are not as effective as CPAP in severe sleep apnea but this is an area of active research. Oral appliances that fit in the mouth and hold the bottom jaw forward will reduce the severity of sleep apnea and are generally the first-line treatment option in patients with mild-moderate sleep apnea but require an experienced dentist to fit and monitor their effects. Oral appliances are considered successful if they reduce the number of apnea events by at least 50% and if the number of events remaining is less than 20 each hour. This amount of treatment success is not comparable to daily regular use of CPAP where in most people the number of events is reduced to less than 5 each hour but it may be enough to help with the symptoms and risk factors associated with sleep apnea and may well be better than using CPAP only intermittently. If despite everyone's best efforts, you cannot use CPAP all night, use of an oral appliance is a reasonable alternative.

Are oral appliances comfortable? A properly fitted oral appliance should not cause lasting discomfort to your teeth or gums. Pushing the bottom jaw forward is inevitably a little uncomfortable and around 40% of people report some discomfort. The main problems experienced are in the area where the jaw pivots, called the temporomandibular joint. This is a bony structure in front of your ear. Prolonged protrusion of the jaw may cause this to ache but if the device is fitted correctly, any ache should soon disappear when you take the appliance out in the morning. It may be important to do some jaw exercises in the morning after use. Other problems reported by some people are tooth tenderness and excessive saliva formation. However, many people find that an oral appliance is both more comfortable and more convenient than CPAP.

Do oral appliances work for everyone? Everyone is different and everyone has different shaped faces and different airways. Although oral appliances will work to some extent for most people, their success is variable and the fitting by an experienced dentist and subsequent assessment of success should always be undertaken with the guidance of a sleep physician or a dentist who specialises in the use of oral appliances to treat sleep apnea. It may be necessary to have another sleep study with your oral appliance in place to check on its success. Although your sleep specialist cannot be certain, there are a number of pointers to when an oral appliance has a good or bad chance of success.

The following are bad pointers to treatment success:

- If you have no teeth or very poor dental structure it may be impossible to make a successful device.
- If you have a very stiff jaw joint, you may not be able to achieve the necessary advancement.
- If you are very overweight then an oral appliance is less likely to be successful and CPAP is the better choice
- If you have very severe sleep apnea even reducing the number of events by 50% may not be enough to help with your symptoms or risk factors. Daily CPAP is preferred.
- If you have a more complicated form of sleep apnea, such a central sleep apnea which can occur more commonly in people with heart failure or a stroke, an oral appliance will almost certainly not work. Your sleep specialist will be the best person to advise on this.

The following are good pointers to treatment success:

- If your sleep apnea is mild or moderate in severity, perhaps with 20 or 30 events per hour then an oral appliance might be a good alternative to CPAP.
- If your sleep apnea is a lot better when you lie on your side rather than your back there is a suggestion that an oral appliance could be successful.
- If you have a bottom jaw that tends to recede a little, this can cause sleep apnea and may be the ideal shaped face for an oral appliance to be successful.

How to obtain an oral appliance. The best way to get appropriate treatment for sleep apnea is to obtain a referral from your GP to a sleep specialist who will assess your sleep apnea and all the factors that might impact on treatment and advise on the appropriate course of action. This will probably involve a sleep study, either in a sleep laboratory or possibly at home. Depending on the results of the study and symptoms, a sleep specialist may advise a trial of CPAP because it is potentially very effective. If the sleep apnea is not severe or you can't use CPAP, the specialist will consider a referral to a dentist who specializes in oral appliances. Some people are sometimes referred directly to dentists from their GP or another specialist. Most dentists prefer that you have tried CPAP before committing to an oral appliance.

There are a number of different appliances on the market in Australia and your dentist will advise on the most appropriate for you. The fitting of the appliance generally requires an impression of your teeth to be taken before the appliance is customized to your jaw. The dentist will then adjust it to get the most advancement possible without causing discomfort. The whole process may take a couple of weeks and the overall cost of the device varies but in most cases is around \$1000-\$1500 with some health insurance funds providing rebates. Once made for you there is no way that the appliance can be returned or used for anyone else so it is best to be sure that everything is done correctly.

Oral appliances from the Internet or Pharmacist. A number of cheaper appliances are available for purchase over the counter or from the internet. These cannot be recommended. It is very important that the device that you are going to use for a long period of time to treat a serious medical problem is properly manufactured and that it works for you. Proving that it works may require a sleep study to be repeated. Appropriate long-term follow-up with your dentist or sleep specialist is also strongly recommended.

Oral appliances for snoring: If your problem is not sleep apnea, but just that you snore, and snoring is causing distress to you or your family, an oral appliance may be a solution. An oral appliance, properly fitted, is usually quite effective in stopping or reducing snoring. Whilst snoring may seem like a less important medical condition it is still important to have it managed properly because it may be a pointer to more serious sleep apnea.

Ongoing care. It is important to look after your oral appliance to get the maximum life out of the device and ensure that it works effectively. It should be washed daily and brushed with a soft toothbrush and mild toothpaste. Take particular care that any crevices or fittings are clean. Leave it out to dry completely. Make sure it is kept well out of the reach of children or pets because there are many examples where dogs have chewed an oral appliance. If you think your appliance is not working so well, either because you are starting to snore again, or you feel tired in the daytime, it is important to go and get it checked out. Depending on the type of appliance, your dentist may simply be able to adjust it. Some people find that the oral appliance comes out during the night. This may be a sign that it does not fit properly and a trip to your dentist is required.

DISCLAIMER - Information provided in this fact sheet is general in content and should not be seen as a substitute for professional medical advice. Concerns over sleep or other medical conditions should be discussed with your family doctor.