

Oral appliance therapy for Obstructive Sleep Apnoea

The Benefits

Snoring

Many people who snore find a reduction in snoring on the first night they wear their mandibular anterior-positioning splint, however others may have to have the splint adjusted before they enjoy this benefit.

Tiredness and daytime sleepiness

Patients who have suffered from OSA have been sleeping poorly and therefore have built up a sleep deficit. It can take several nights of good quality sleep before they start to feel the benefit of restful sleep and start to feel you have more energy and wake up feeling refreshed.

Breathing

With the lower jaw and tongue moved forward opening up the posterior airway space, there is reduced resistance to the flow of air in to the lungs and back out. This allows better clearer breathing. As a result there should be a decrease in obstruction of the airway with resulting apnoea, and less gasping, choking and “arousals” causing a disturbance in sleep pattern.

Protection of teeth

Many patients who suffer from OSA also grind their teeth during sleep. This results in wear to the tooth surfaces that can flatten the cusps of the teeth over the years, it can fracture fillings and damage the teeth resulting a root fractures. The OSA oral appliance will also help protect the teeth from damage.

Adapting to wearing an oral appliance

The mouth is sensitive and an appliance may feel obtrusive when first worn. It may initially delay you falling asleep and therefore you may find it necessary to take it out during the night. However even if you start off sleeping with the appliance for only a couple of hours, that is going to provide you with better quality sleep for the couple of hours it is worn and you may start to reduce your sleep deficit. As you wear the appliance for longer so you will enjoy greater benefits.

Adjustment of the appliance

Generally the appliance is set so that your lower jaw is brought forward by about 60% of the possible total range of forward movement of the jaw. In some people this is sufficient but others need it brought further forward (up to 70-85% of the forward range of jaw movement) before they start to enjoy the benefits of eliminating the obstruction to their breathing.

For those patients who snore but do not suffer OSA, generally your partner will tell you if the appliance is being successful as they will be enjoying some good quality sleep themselves. If you still snore they will tell you.

For patients who snore and suffer OSA, it is common to find that the snoring stops but the OSA continues. Either witnessed apnoea by your partner or continued tiredness and poor concentration will alert you to the fact that OSA is still taking place. In this case, even though you may no longer snore, you will need the appliance adjusted forward further.

Future dental treatment

The appliance adapts to the tooth surfaces with great accuracy and therefore if the tooth surface is filled and the filling surface has a different contour to the initial tooth surface, the appliance will no longer fit as well and may not seat correctly on the teeth. If this is the case the appliance will need modification by your dentist or by the dentist providing your appliance.

Follow up by Sleep Physician

Once the appliance has been worn for a time, it may be worthwhile to return to the sleep physician for review and to have a second sleep study done to accurately assess the degree of relief of the OSA to ensure you are getting the most out of wearing your appliance. This study may on the other hand indicate the need for further anterior jaw positioning.

Temporary side effects of oral appliance therapy

Generally the temporary side effects only occur in the initial stages of introduction of the OSA appliance to a patient. Once the appliance has been correctly adjusted, it is unlikely that these problems will develop.

Increased saliva

In response to introducing a foreign body into the mouth, the body responds by producing saliva as a simple reflex. This is usually only temporary lasting for the first week or two and then gradually your body will accept the appliance as normal and not be fooled into thinking it is food.

Jaw discomfort

If any tooth or jaw pain is experienced, there should be no further anterior positioning of the jaw hence the appliance must not be adjusted further. Such discomfort occurs if the initial anterior positioning is too much for the joints to tolerate. Usually, after a delay of a week or two, the discomfort resolves and if further anterior adjustment is required it must be performed only in very small increments.

Some patients experience the jaw discomfort that then continues after waking for some time or even becomes a constant feature. This indicates that the appliance must not be used again until your dentist can see you. It may be sufficient to withhold appliance therapy for a period of time and then start again with the jaw position less far forward. However, in severe cases, it may even become necessary to provide either an NTI or Michigan splint to relieve the symptoms.

Additional medication may be required for a few patients. This usually consists of anti-inflammatory drugs and in extremely severe cases, the further use of muscle relaxants may be required.

Jaw clenching

Some people experience the development of habitual clenching of the teeth. This often resolves spontaneously but if it continues, the appliance may have to be adjusted back a little until clenching ceases. In patients for whom this habit is difficult to break, then an NTI splint may have to be provided and used at night until the habit ceases and then the patient can return to the OSA appliance with gradual re-introduction after reducing the anterior positioning first. If further anterior positioning is required it must be titrated very slowly.

Tooth discomfort

It is common and of no clinical significance for minor tooth discomfort to be experienced on introduction of any oral appliance. It is normally felt when removing the appliance after sleep but should normally disappear within 15-30 minutes. After a few days this should gradually cease. If the tooth discomfort continues, the appliance will need to be adjusted by trimming the acrylic slightly. Do not try this yourself!

Removal of the appliance during sleep

Patients sometimes remove the appliance in their sleep with no memory of doing so. They may assume the appliance is loose but this is rarely the case. As you get used to wearing the appliance you will accept it in the mouth and gradually stop removing it.

Temporary minor change in tooth position

When you first remove the appliance in the morning and close your teeth together you may find the teeth don't meet exactly as they did before. By the time you have had breakfast the teeth will have returned to their normal relationship and you will not be aware of the tooth having moved. This is very common and normal. If your teeth take a little longer to return to normal position try chewing some sugar-free gum for 10 minutes and you will find the action of the teeth chewing against each other will help restore their original positions.

Maintenance and home care

1. Always clean your teeth well before fitting your appliance at night.
2. In the morning brush all surfaces of the appliance with a toothbrush and a cream soap, not tooth paste.
3. You should soak your appliance in a cold solution of baby bottle cleaner twice a week to minimise the growth of bacteria and fungus on the acrylic appliance.
4. When storing the appliance during the day, place it in a container open to the air. Ensure it is placed out of direct sunlight and away from all heat sources.
5. Keep the appliance well away from dogs. They love to chew them and replacement is expensive.

Long-term treatment

It is important that you treat the appliance with care. Remember, if you have any concerns you can call us and we can see you but always remember to bring the appliance with you.

It is important that you should be reviewed every year to check the appliance carefully and also to check the fit on your teeth.

If you feel that your bite has changed but does not return to normal call us and we will see you.

Some patients may find snoring or OSA returns as the condition can be progressive and with weight gain especially, the appliance may need to be adjusted further forward as time passes.