

Oral Appliance Therapy for Snoring and Obstructive Sleep Apnoea

A guide for patients

Of every 10 Australians older than 40, seven are likely to snore at some time. Snoring can cause significant medical problems. For many people, snoring may indicate a more serious medical condition called obstructive sleep apnoea (ap-NEE-ah).

Obstructive sleep apnoea may lead to heart disease, diabetes, an increase in blood pressure, or a life-threatening event such as stroke or heart attack. All people who snore should be tested for obstructive sleep apnoea.

Obstructive sleep apnoea can cause interruptions to breathing many times during the night, each episode lasting from 10 seconds up to two minutes. A person is considered to have sleep apnoea if there are more than five partial or complete obstructions per hour of sleep.

The apnoeic episode ends when the person wakes up briefly. Usually, the person has no awareness of these brief episodes at the time but finds that sleep is not refreshing.

The use of specialised mouthpieces known as oral appliances can be an effective method of treating snoring and obstructive sleep apnoea. These are fitted by dentists (who are trained in their use), in cooperation with respiratory and sleep physicians.

Causes of snoring and obstructive sleep apnoea

During normal breathing, air is drawn through the nose and past soft tissues at the back of the throat. These tissues include the uvula, the soft palate and the tongue, as shown in the figures (right).

During waking hours, airways are held open by the tone of the muscles around them. During sleep, these muscles relax. In some people, the soft tissues may relax too much (or "collapse"), leading to obstruction of the airways.

In an attempt to overcome the obstruction, the person breathes harder, using the chest wall muscles and diaphragm. But the harder the person tries to breathe, the more the walls of the

airway collapse; this is similar to trying to suck through a straw that collapses as the effort to withdraw liquid is increased.

The obstruction to airflow may be partial or complete. If airflow is interrupted by at least 50% for more than 10 seconds, the condition is known as apnoeic or hypopnoeic episodes.

Oral appliance therapy uses a dental device fitted in the mouth to prevent the airways from collapsing during sleep. This is usually achieved by holding the jaw forward.

Symptoms and signs of obstructive sleep apnoea

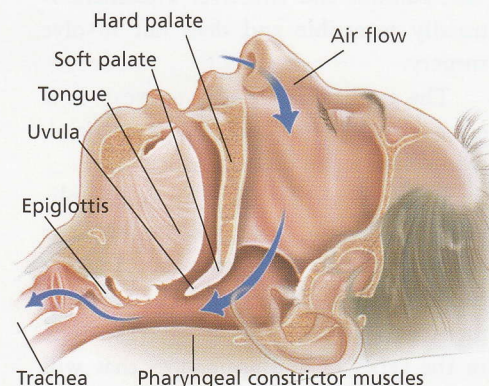
People with obstructive sleep apnoea almost always snore loudly and can have other symptoms, which may include:

- tiredness on waking
- excessive daytime sleepiness
- choking or gasping during sleep
- sore, dry throat on waking
- morning headache
- poor concentration
- memory deterioration
- decreased sex drive or impotence
- personality changes that may include irritability
- decrease in job performance
- anxiety or depression.

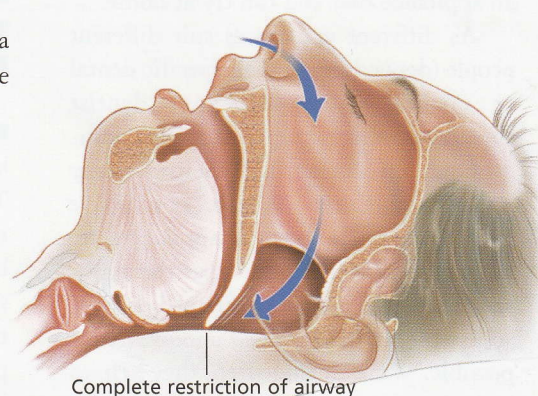
Diagnosis and assessment of obstructive sleep apnoea

Diagnosis of the cause of sleep apnoea is crucial so that the most effective treatment can be offered. People who snore should be assessed in a sleep disorder clinic before any treatment starts.

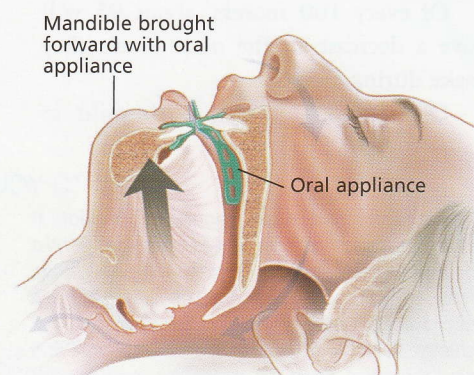
As many different problems can cause symptoms, this assessment may involve specialists with expertise in various areas, including dentistry, respiratory medicine, ear-nose-throat surgery and neurology. Assessment by a sleep disorder clinic will often involve the monitoring of sleep patterns overnight in a hospital or at home.



During sleep, the pharyngeal constrictor muscles (at the back of the throat that control the tongue and soft palate) normally keep the airway open and unrestricted.



During sleep, these muscles can relax too much, causing the airway to become restricted. This results in snoring and laboured breathing. The muscles can relax so much that the back of the throat comes into contact with the soft palate and uvula. This restricts the airway completely and breathing stops. This condition is called obstructive sleep apnoea.



The airway is open with the oral appliance in place.

Treatment of snoring and obstructive sleep apnoea

Snoring and obstructive sleep apnoea may be treated using oral appliances, continuous positive airway pressure (CPAP), or surgery.

Oral Appliance Therapy

The treatment of snoring or obstructive sleep apnoea with an oral appliance is safe, painless and effective. Treatment is usually reversible and does not involve surgery.

The appliances are easy to wear. It is often possible to speak, yawn or drink while wearing an oral appliance.

Dentists with training in oral appliance therapy can treat obstructive sleep apnoea and troublesome snoring in cooperation with respiratory or sleep physicians. These dentists have expertise in the types of oral appliances that will best suit your needs.

Following an assessment of your mouth and teeth, which may include analysis of X-ray films and the use of dental moulds, your dentist will fit you with an appliance that you can try at home.

As different appliances suit different people (depending on their specific dental or medical condition), your dentist should have several types to choose from.

Oral appliances have helped many people who snore or have obstructive sleep apnoea. The types of appliances are numerous. It is important that the appliance is custom made by a trained dentist, adjustable, and as thin and unobtrusive as possible. Worn during sleep, they help to keep the airway open by:

- bringing the jaw forward, or
- lifting up the soft palate, or
- holding the tongue forward.

The dentist will review the appliance regularly to make sure it is working satisfactorily and that you are happy with it. This fitting and assessment may take some weeks to complete.

Of every 100 snorers, about 95 will have a decrease in the noise levels they make during sleep.

Of every 100 people with mild to

moderate obstructive sleep apnoea, about 80 will have either good or excellent results while using an appliance.

An appliance may be used alone or in conjunction with other treatments such as surgery, CPAP or positional therapy.

As the appliances are small and light, they are easy to carry during travel. If an oral appliance is cleaned and stored correctly, it should last for years.

Oral appliance therapy may be unsuitable for some patients with:

- a pre-existing disorder of the jaw joint (temporomandibular joint or TMJ)
- severe untreated gum disease or dental decay
- full upper and lower dentures.

If you have any of these, your dentist will advise you if oral appliance therapy is suitable for you.

Possible side effects

The following possible side effects are usually minor and last only a few days:

- discomfort around the teeth or jaw
- dry mouth
- excessive salivation
- irritation to the soft tissues of the mouth
- discomfort of the jaw joint.

Irregularities or changes to the bite (occlusion):

These may be temporary and minor, or may be significant. Changes to bite can be permanent and can depend on factors such as the design of the appliance and the length of time it has been worn. The patient should weigh up the risks of snoring and obstructive sleep apnoea against the risks of changes to bite. For most people, a change in bite is not annoying. It is not a risk to oral health and does not require further dental treatment. You will need to see your dentist for regular check-ups to assess any problems with occlusion or other side effects. There may be other side effects not listed above.

Continuous Positive Airway Pressure (CPAP)

CPAP involves wearing a mask over the face or nose at night that delivers air

THREE TYPES OF APNOEA

OBSTRUCTIVE APNOEA

This is due to an obstruction of the upper airways. Obstructive apnoea is commonly caused by the collapse of the muscles around the throat and tongue. When associated with snoring, it is a more advanced and serious condition.

CENTRAL APNOEA

This occurs when the part of the brain that controls breathing "forgets" to send messages down to the breathing muscles, so breathing stops. This is usually not associated with snoring.

MIXED APNOEA

This is a combination of central apnoea and obstructive apnoea. Snoring is usually present in mixed apnoea.

under pressure via a quiet pump. This gently forces the airways open during sleep. This is generally used more for patients with severe sleep apnoea or for patients with a history of heart disease, high blood pressure or diabetes.

Surgery

Several different surgical procedures can be used, including surgery to:

- open breathing passages in the nose
- remove tonsils
- remove some excess tissue at the back of the throat
- reduce tongue size
- bring the upper or lower jaw forward
- pull the tongue muscles forward.

As discomfort or complications may occur, careful discussion with a surgeon is necessary before a decision about surgery is made.

Other methods of relief

Symptoms may be reduced by:

- loss of excess body weight
- regular exercise
- avoiding alcohol or medications that may increase drowsiness
- sleeping on the side rather than on the back.

TALK TO YOUR DENTIST

This pamphlet provides general information. It is not a substitute for advice from your dentist or a physician, and does not contain all known facts about snoring, obstructive sleep apnoea and oral appliance therapy. This information will change with time, due to clinical research and new therapies. Read this pamphlet carefully, and save it for reference. Terms are used that may require further explanation by your dentist. Give your dentist your complete medical and dental history. Write down questions you want to ask.

Your dentist will be pleased to answer them. If you are not sure about the benefits, risks and limitations of treatment, ask your dentist. Use this pamphlet only in consultation with your dentist.

Costs of Treatment: Your dentist can provide an estimate of the costs in having an oral appliance fitted. These costs will not include assessment or treatment in a sleep disorder clinic. Your health fund will advise you about which costs are rebateable. It is best to discuss costs before treatment, rather than afterwards.

YOUR DENTIST

