

# Oral Appliance Therapy for Snoring and Obstructive Sleep Apnoea

A guide for patients

**O**f every 10 Australian adults, two will experience snoring during their lifetime. Snoring usually causes no significant medical problem.

However, for some people, it may indicate a more serious medical condition called obstructive sleep apnoea (ap-NEE-ah).

Obstructive sleep apnoea may lead to heart disease or 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 by a respiratory sleep-disorder physician.

Obstructive sleep apnoea can cause interruptions to breathing many times during the night, each episode lasting from 10 seconds 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 apnoea episode ends when the person wakes up briefly; most of the time, the person does not awaken. 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 or sleep-disorder 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 which collapses as the effort to withdraw liquid is increased.

The obstruction may be partial or complete. If breathing is absent for more than 10 seconds, the condition is known as apnoea.

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

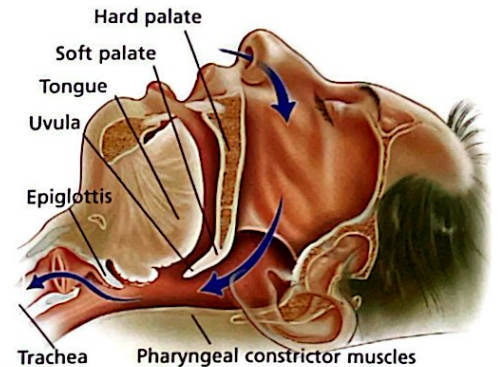
People who have obstructive sleep apnoea almost always snore loudly and usually have other symptoms, including:

- ❖ 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.

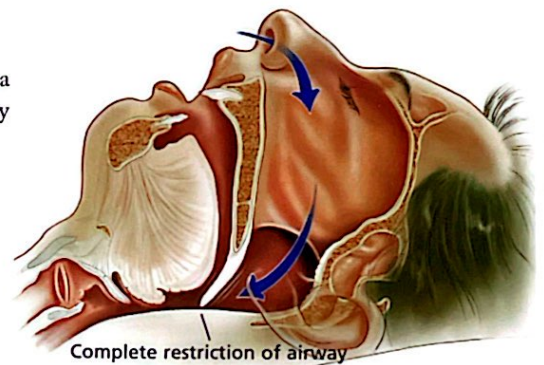
## Diagnosis and assessment of obstructive sleep apnoea

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.

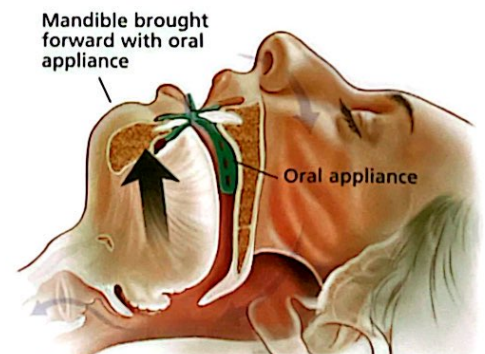
As many different problems can cause symptoms, this assessment may involve specialists with expertise in various areas, including dentistry, respiratory medicine, ear-nose-throat surgery, neurology and speech pathology. Assessment in a sleep disorder clinic will often involve the monitoring of sleep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



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

**S**nororing and obstructive sleep apnoea may be treated using oral appliances, nasal continuous positive airway pressure (nasal 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-disorder 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), you may need more than one visit to decide on the right appliance for you.

Oral appliances have helped many people who snore or have obstructive sleep apnoea. The types of appliances are numerous. 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.

Some appliances use a combination of these three methods.

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.

### TALK TO YOUR DENTIST

This pamphlet is intended to provide you with 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. Read all of this pamphlet carefully. Technical terms are used that may require further explanation. Give your dentist your complete medical and dental history. Write down any 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, or anything else, ask your dentist.

This pamphlet should only be used in consultation with your dentist.

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 or nasal CPAP.

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 dentures.

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

### Side effects of Oral Appliance Therapy

- Discomfort around the teeth or jaw.
- Dry mouth.
- Excessive salivation.
- Irritation to the soft tissues of the mouth.
- Significant discomfort of the jaw joint.
- Irregularities or changes to the bite (occlusion). These may be temporary and minor, or may be significant. About two or three out of every 10 people receiving treatment may have permanent changes to bite, depending on the type of device and the length of time they have worn the appliance. People who have had orthodontic treatment may be more likely to get rapid changes to bite.

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 regularly during the first 12 months of treatment to check for any problems with occlusion or other side effects. There may be other side effects that are not listed.

### COSTS OF TREATMENT

Your dentist can provide you with an estimate of the costs involved 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.

Costs will vary according to the extent of treatment. As the treatment and outcome may become different from what was first proposed, the final account may be different from the original estimate. It is best to discuss costs before and during treatment, rather than afterwards.

## 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.

## Nasal Continuous Positive Airway Pressure (CPAP)

CPAP involves wearing a mask over the nose at night that delivers air under pressure via a quiet pump. This gently forces the airways open during sleep. This is generally used for patients with moderate to severe apnoea or for patients with heart or lung disease.

## Surgery

Several different surgical procedures can be used, including surgery:

- to open breathing passages in the nose
- to remove tonsils
- occasionally to remove some excess tissue at the back of the throat
- to reduce tongue size
- to bring the upper or lower jaw forward
- to 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
- taking regular exercise
- avoiding alcohol or medications that may increase drowsiness
- sleeping on the side rather than on the back.