

Driving and your health - Think about it!

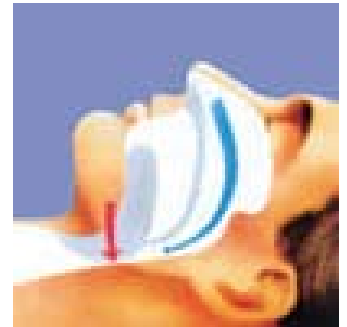


Information Supplement: Obstructive Sleep Apnoea

1. What is obstructive sleep apnoea?

People who suffer from Obstructive Sleep Apnoea (OSA) slow or stop breathing for short periods while sleeping. This can happen many times during the night. It results in poor sleep with excessive sleepiness during the day. Because these events occur during sleep, a person suffering from OSA is often the last one to know what is happening.

In deep sleep, the muscles of the throat relax. Normally this doesn't cause any problems with breathing. In OSA, however, complete relaxation of the throat muscles causes blockage of the upper airway at the back of the tongue (see picture). Normal breathing then slows or stops completely. Such an episode is called an **apnoea**. During an apnoea, people with OSA make constant efforts to breathe against their blocked airway until the blood oxygen level begins to fall. The brain then needs to arouse the person from deep relaxed sleep so that the muscle tone returns, the upper airway then opens and breathing begins again. Unfortunately, when a person with OSA falls back into deep sleep, the muscles again relax and the cycle repeats itself again and again overnight.



OSA (Source - Mayo Healthcare)

In OSA, the apnoeas can last for 10 or more seconds and the cycle of apnoeas and broken sleep is repeated hundreds of times per night in severe cases. Most sufferers are unaware of their disrupted sleep but awaken unrefreshed, feeling tired and in need of further refreshing sleep.

2. Who gets obstructive sleep apnoea?



Whilst OSA is more common in overweight middle-aged males who snore, it can also affect females, although female hormones and a difference in throat structures may protect women until the menopause. Narrowing of the back of the throat and the upper airway can also contribute to the risk of getting OSA, even in people who are not overweight or middle-aged. In such people, a blocked nose, a small jaw, enlarged tongue, big tonsils, and uvula help to block the upper airway in deep sleep, making OSA more likely to occur. Several of these problems can be present in any person at the same time.

The use of alcohol, sleeping tablets and tranquillisers prior to sleep help to relax the upper airway muscles and make OSA worse. Alcohol can also reduce the brain's response to an apnoea which in turn leads to longer and more severe apnoeas in people who would otherwise only have mild OSA and who would otherwise only snore.

Most people with OSA snore loudly and breathing during sleep may be laboured and noisy. Sleeping partners may report multiple apnoeas lasting up to 90 seconds which often end in deep gasping and loud snorting. Sufferers may report waking for short periods after struggling for breath. Symptoms are often worse when lying on the back in deepest sleep.



3. What are the symptoms of obstructive sleep apnoea?

Although a person with OSA may not be aware of the many arousals from deep sleep, they suffer from poor quality sleep in spite of long periods of time spent in bed. Such people wake feeling that they haven't had a full refreshing night's sleep. They report difficulty maintaining concentration during the day, have a poor memory, and suffer from excessive daytime sleepiness.

At first an OSA sufferer may be sleepy only when seated and relaxed, eg watching TV, but eventually sleepiness becomes so severe that car accidents and accidents in the workplace occur.

Other symptoms of OSA include morning headache, depression, short temper, grumpiness, personality change, and loss of interest in sex with impotence in males.



4. What other problems can develop from obstructive sleep apnoea?



OSA can be life-threatening. It is a risk factor for high blood pressure, heart attack, heart failure, and stroke. All these conditions occur more frequently in people with OSA.

OSA associated poor concentration and daytime sleepiness have been associated with an increased risk of accidents in the workplace and on the road. Motorcar accidents have been shown to be up to 5 times more common in people with OSA than in other people.

5. How is obstructive sleep apnoea assessed?

In a person suspected of having OSA, their doctor will need to ask questions about waking and sleeping habits. Reports from the sleeping partner or household member about any apnoeas are extremely helpful.

Referral to a sleep disorders centre for an overnight sleep study is needed for the diagnosis of OSA to be made and its severity measured.

During a sleep study, sleep quality and breathing are measured by a computer overnight while the person sleeps. Small coin-sized electrodes are taped to special points on the scalp, face, chest and legs. Chest and stomach wall movements are also measured and a special sensor placed on the upper lip measures airflow. The oxygen level in the blood is assessed by a device placed on the finger or the ear-lobe. None of these procedures are uncomfortable so they don't interfere with sleep.

More than one overnight study may be needed. The first is to measure what is going on, and the second is to start off treatment if needed.



6. How is obstructive sleep apnoea treated?



The chosen form of treatment depends on the severity of OSA.

General Guidelines

In an overweight person, **weight loss is an important part of treatment**. Even a small loss of weight can lead to improvement in symptoms of OSA.

Avoiding alcohol up to 2 hours before going to sleep and not using any sleeping tablets or tranquillisers can also be of help.

Nasal obstruction may respond to nasal decongestant or anti-allergy nasal sprays and **smoking cessation**.

Because OSA can be positional in some cases, try to sleep more upright and it may be helpful to **avoid sleeping on the back**. Positioning devices such as special pillows, rubber wedges and tennis balls attached to pyjama backs encourage sleeping on the side but are of limited value in very severe OSA.

Specific Treatments

Continuous positive airway pressure (CPAP):

A CPAP pump is the commonest treatment for OSA and is very effective in many cases. A CPAP pump delivers air at low pressure to the upper airways via a plastic tube attached to a close-fitting nose mask. It is worn during sleep and acts by keeping the upper airway open during deep sleep with air delivered at a positive pressure. This form of treatment is ideal for moderate to severe OSA. It prevents disrupted sleep, improves sleep quality, reduces daytime sleepiness, and abolishes snoring.

Warming the air with special humidification units attached to the CPAP pump may make CPAP more tolerable. Newer CPAP units that vary their pressure across the night are now available and may give help in some patients who have trouble tolerating standard CPAP pressures. Trialing either of these options should be discussed with your sleep disorder specialist beforehand.

The amount of CPAP pressure needed in each person with OSA usually requires a second overnight study in a sleep disorders centre. This study is needed to determine the correct setting for CPAP pressure. After the correct pressure has been determined, a CPAP machine can be purchased or rented. In some states there may be a subsidy for CPAP treatment, and some health insurance companies may assist with the cost of a machine.



CPAP pump (Source - ResMed)



Other non-surgical treatments: Following assessment by a sleep disorder specialist, individually designed mouth splints made by dentists may help patients with snoring and apnoea. By holding the jaw forward in relation to the upper teeth, these **mandibular advancement splints** worn during sleep can reduce the severity of snoring and apnoea in selected patients with healthy teeth. Another type of treatment is the expansion of the maxilla (the bone which the upper teeth are connected) with specially designed "mouth plates" may help patients who have a narrow maxilla. In such patients the narrow maxilla is thought to predispose to snoring, particularly in the young. In either case close cooperation between a sleep disorder specialist and a dentist is recommended.



Surgery: Surgery to the upper airway may ease some of the physical problems that help to block the airway during sleep. These operations include:

1. **Removal of tonsils and adenoids** - this is far more common in children than adults and can have excellent results.
2. **Nasal surgery to improve nasal airflow** - this includes removal of nasal polyps, reduction of swollen turbinates and correction of a deviated nasal septum. Such operations improve nasal airflow and enable nasal CPAP to work more efficiently.
3. **Uvulopalatopharyngoplasty (UPPP)** - this involves removal of excess tissue at the back of the throat which may contribute to upper airway obstruction during sleep. A surgical scalpel or a laser may be used. There is no doubt that a UPPP helps snoring in people without OSA. Unfortunately, UPPP rarely cures OSA, and it is very difficult to predict those patients with OSA who will be helped by it as most of the upper airway obstruction occurs behind the tongue. Thus in many patients with OSA who have a UPPP, snoring is improved, but without a repeat post-operative sleep study, sleep disruption, including apnoeas and falls in blood oxygen can continue undetected. If UPPP is unsuccessful however, this does not prevent nasal CPAP from being used subsequently.
4. **Tracheostomy** - this is an operation that creates a hole in the windpipe to overcome upper airway obstruction. It is rarely performed for OSA these days.
5. **Corrective surgery for the jaw or roof of mouth, including jaw advancement** - small jaw bones or other deformities occur in a very small group of patients.

7. What is it like using a CPAP machine?

Many people with OSA who begin treatment with CPAP report that they haven't slept so well for years. They state that they feel 'normal' again. Many are astounded at the improvement in their day-to-day lives.

At first the use of a CPAP mask produces an unusual sensation when breathing out. It feels as if there is too much pressure stopping breathing. This sensation soon wears off. During the first week, nasal stuffiness and sneezing may occur, especially in colder weather. It often improves with warming the bedroom at night or using a humidifier with the CPAP machine. Occasionally an air leak from the nasal mask can irritate the eyes and air leak through the mouth can cause a dry mouth. A chin strap may be needed to overcome this problem. Staff in sleep disorder centres throughout the country can assist when problems occur.

Please Note: This information is intended by The Australian Lung Foundation to be used as a guide only and is not an authoritative statement. Please consult your family doctor or specialist respiratory physician if you have further questions relating to the information provided here.