



# **SLEEP DISORDERS AUSTRALIA**

Information about sleep disorders  
and where you can find  
help and support.



SDA

**11<sup>TH</sup> EDITION**

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## Sleep Disorders Australia

[www.sleepoz.org.au](http://www.sleepoz.org.au)

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### DISCLAIMER

Information provided in this booklet is general in content and should not be seen as a substitute for professional medical advice. Concerns about sleep problems or other medical conditions should be discussed with your family doctor.

## SDA BRANCHES

### New South Wales

02 9990 3514

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### South Australia

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1800 813 629 (Country)

### Victoria

0411 157 542

### Tasmania

0403 276 742

### Western Australia

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### Second Hand CPAP Machines

The SDA website carries advertisements for second hand CPAP machines for private sale. If you can't afford a new machine, you might find a solution here. Please note that all second hand CPAP machines should be serviced and calibrated to your prescription by an authorised dealer before use.

## Message from the Board

Sleep Disorders Australia (SDA) is a voluntary Not for Profit organisation that was established in 1994 from the amalgamation of the various State groups dealing mostly with sleep apnea. In 1985 the treatment of sleep apnea took a great leap forward with the development of CPAP for home use by Australian sleep researcher Dr Colin Sullivan. There were two sleep support groups in Australia at that time. In NSW, the Sleep Apnea Research Association (SARA) was formed with the support of the Sleep Disorders Unit of Royal Prince Alfred Hospital, and in South Australia, Apnea Incorporated was formed with the assistance of the Royal Adelaide Hospital Sleep Clinic.

SDA now provides information and offers support and assistance to people and their families who are living with a range of sleep disorders. SDA advocates for the needs of people with sleep disorders and raises awareness of sleep disorders and the significance they can have on the lives of those affected by them. We also provide support and education with regards to the prevention

and treatment of sleep disorders. We work with a range of sleep health professionals, organisations, research centres and peak bodies.

It is our mission to serve the interests of all people affected by sleep disorders. To raise awareness of sleep disorders and their significance and to encourage and support the prevention and treatment of sleep disorders. To enable us to reach our goals to the best of our ability we need a broad membership base to help us better understand what those 'interests' are. Therefore, becoming a member of SDA will not only allow us to continue to do the work we do, it will give you the opportunity to have your voice heard.

SDA does not receive funding, we rely on memberships and donations to help fund the work we do. Members are important to SDA. In return for their loyalty and support, we listen to their concerns and suggestions. Please join us and help us make a difference in the lives of those affected by sleep disorders.

### SLEEP DISORDERS AUSTRALIA DIRECTORS

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# Application For Membership

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ADDRESS			
STATE:		POSTCODE:	
PHONE: (H)	(W)	(Mob)	
OCCUPATION:		DOB:	
EMAIL:			
I hereby apply to become a member of Sleep Disorders Australia. As a member, I agree to be bound by the rules of Sleep Disorders Australia.			
SIGNATURE:		DATE:	

MEMBERSHIP FEES (GST INCLUDED)		
One Year Subscription	\$25	\$
Three Year Subscription	\$67	\$
Five Year Subscription	\$112	\$

DONATION – I would like to make a donation to assist the work of Sleep Disorders Australia		
Donation to the work of SDA - National		\$
Donation to the work of SDA - My Branch		\$
All donations of \$2.00 and over are tax deductible	<b>TOTAL PAYMENT</b>	<b>\$</b>

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MEMBER ELECTIONS Please CIRCLE your preferences
1. Register my membership with: SDA National or NSW, QLD, SA, TAS, VIC, WA Branch of SDA.
2. To enable SDA to better focus delivery of our services, please indicate areas of interest to you. - You may circle more than one. <b>Sleep Apnea (Adult)</b> or <b>Sleep Apnea (Child)</b> , <b>Restless Legs Syndrome (RLS)</b> , <b>Insomnia</b> , <b>Narcolepsy</b> , <b>Idiopathic Hypersomnia</b> , <b>Circadian Rhythm Disorders</b> eg; <b>Delayed Sleep Phase Syndrome</b> Other (specify) _____
3. I am willing to offer my support in the areas of: <b>Committee Work</b> , <b>Seminars/workshops</b> , <b>Fundraising</b> , <b>Education</b> , <b>Support</b> , <b>Administration</b> , <b>Media/Publicity</b> .

Please complete all details on this form and forward to either email or postal address:  
 treasurer@sleepoz.org.au OR Sleep Disorders Australia, PO Box 5278 Algester Qld 4115

# Join Sleep Disorders Australia

SDA needs members to enable us to continue to offer advice and support to people who suffer from sleep disorders. We would be delighted if you would consider joining and/or making a charitable donation to SDA.

Membership is available to all sufferers, members of their family, medical professionals, and any member of the public who has an interest in the area of sleep disorders. Join Sleep Disorders Australia and help us make a difference for all those affected by sleep disorders.

## WHAT YOUR MEMBERSHIP WILL HELP US DO:

### Support - Advocacy – Awareness – Education

- Provide free presentations to the public and specific interest groups.
- Branch meetings and other local get togethers where people with sleep disorders and their family and friends can meet others and get involved with local activities and events.
- Participate as consumer health advocates and patient representatives on clinical trial networks and related committees.
- Provide support and information to research centres and the Australasian Sleep Association on clinical trials and policy matters.
- Provide public and private Sleep Clinics and sleep specialists free information booklets including a range of factsheets for patients and the public.
- Participation in awareness initiatives including World Sleep Day, Sleep Awareness Week and various individual sleep disorder awareness events, including Sleep Apnea Awareness Day.
- Maintain a website that includes a list of sleep clinics by State, information about health funds and other rebates for PAP users, as well as a range of factsheets and other information that can be downloaded and shared.
- Social Media channels including Facebook and Twitter.
- Facebook support group.

- Member Newsletter.
- Support by telephone, mail and e-mail. We give non-medical advice to people about sleep disorders, including how to get diagnosed and available treatments. We also answer other inquiries and send out information brochures and factsheets.
- CPAP Buddy Program – A buddy program is maintained in all states to put new CPAP users in contact with more experienced users, for advice and encouragement during the difficult period of initial treatment. See our website for more details.
- Free second hand PAP machine advertising on our website for all members. Non members are also welcome to advertise.

### To join SDA or to make a donation:

You can join SDA and donate via our website [sleepoz.org.au](http://sleepoz.org.au). You can also complete the form on the opposite page and mail it to:

**Sleep Disorders Australia**  
 PO Box 5278 Algester Qld 4115

Other payment options include:

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 BSB 062 240 Account No. 10018178  
**PayPal:** [treasurer@sleepoz.org.au](mailto:treasurer@sleepoz.org.au)

Please use your surname as the payment reference.

SDA is endorsed by the ATO as an income tax exempt charity and has endorsement as a Deductible Gift Recipient. All donations \$2 and over are tax deductible.

# Excessive Daytime Sleepiness – Finding the Cause

Excessive daytime sleepiness has a significant impact on quality of life. People with daytime sleepiness struggle with social, academic and work demands, they are at risk of motor vehicle and workplace accidents and generally have poorer health than comparable adults.

Accurate diagnosis is important, not only because of the negative impacts of sleepiness and its root causes on health and social function but because excessive sleepiness is generally remediable with appropriate treatment. The list of possible causes of excessive daytime sleepiness spans virtually every major area of medicine, neurology and psychiatry. A clear, detailed history is invaluable in negotiating these numerous diagnostic considerations.

Following is a list of known causes and routine tests to assist patients and doctors when considering the cause of excessive daytime sleepiness.

Please note: there are numerous possible causes, this is by no means a complete list. It is only intended as a guide to assist you and your doctor find the cause of your excessive daytime sleepiness.

CAUSES OF DAYTIME SLEEPINESS	
<b>Sleep Disorders</b>	
Behavioural sleep deprivation	The most common cause of daytime sleepiness is insufficient sleep/poor sleep hygiene.
Sleep-related breathing disorders	Sleep apnea. Residual sleepiness in treated obstructive sleep apnea. Upper Airway Resistance Syndrome.
Other sleep disorders	Includes circadian rhythm sleep disorders (Delayed Sleep Phase Syndrome, shift work disorder), REM Sleep Behaviour Disorder and other Parasomnias, Post-traumatic hypersomnia (following head trauma or illness) Insomnia, Narcolepsy. Also sleep-related movement disorders (Periodic Limb Movement Disorder, Restless Legs Syndrome).
<b>Psychiatric</b>	
Mental health conditions	Mental health conditions Including Depression, Anxiety, Bipolar Disorder.
Medication effects	Includes prescription, non-prescription, and drugs of abuse. *refer to list of medications on the right.
<b>Medical conditions</b>	
Including head trauma, stroke, cancer, inflammatory conditions, encephalitis, neurodegenerative conditions (eg: Parkinson Disease, myotonic dystrophy etc), Chronic Fatigue Syndrome, Fibromyalgia, Hypothyroidism (Hashimotos), Ehlers-Danlos Syndrome, Arnold-Chiari Malformation, Multiple Sclerosis. Other medical conditions that are associated with sleep fragmentation can result in daytime sleepiness, including: arthritis, spondylosis, chronic pain of any nature, nocturnal angina, epilepsy, asthma, chronic obstructive pulmonary disease, alcoholism, urinary dysfunction and gastrointestinal disorders (e.g. peptic ulcer disease), gastro-oesophageal reflux and irritable bowel syndrome	

**Other considerations**  
Hypersomnia that develops after a viral infection including mononucleosis (glandular fever/mono), or Guillain-Barre syndrome. Patients may experience fatigue and hypersomnolence and can sleep most of the 24-hour day. The outcome tends to be favourable; however, the resolution may take months or even years.  
Long sleepers, also called “healthy hypersomniacs,” are people who require more sleep at night than normal. They may be misdiagnosed with idiopathic hypersomnia because of extremely long sleep episodes at night. These subjects are normally alert, however, once they have obtained their required amount of sleep.

## MEDICATION CLASSES COMMONLY ASSOCIATED WITH DAYTIME SLEEPINESS

- Alpha-adrenergic blocking agents
- Anticonvulsants (e.g., hydantoin, succinimides)
- Antidepressants (monoamine oxidase inhibitors, tricyclics, selective serotonin reuptake inhibitors)
- Antidiarrhea agents
- Antiemetics
- Antihistamines
- Antimuscarinics and antispasmodics
- Antiparkinsonian agents
- Antipsychotics
- Antitussives
- Barbiturates
- Benzodiazepines, other GABA-aminobutyric acid affecting agents, and other anxiolytics
- Beta-adrenergic blocking agents
- Genitourinary smooth muscle relaxants
- Opiate agonists and partial opiate agonists
- Skeletal muscle relaxants

## ROUTINE TESTS TO CONSIDER FOR CAUSES OF DAYTIME SLEEPINESS

- Thyroid tests should include: TSH, Free T3 (FT3), Free T4 (FT4), Reverse T3 (rT3), and thyroid antibodies for Hashimoto's Thyroiditis
- Nutrient deficiencies including vitamin D (25-Hydroxy), B12 and serum folate, magnesium, zinc, iodine and selenium

- Iron studies: Iron, TIBC, %Sat, Ferritin
  - Carnitine panel: free, total, esterified, esterified/free
  - C-Reactive Protein
  - Complete Blood Count
  - Complete Metabolic Panel (glucose, sodium, creatinine, etc)
- Cortisol (preferably 8 am spot cortisol or 24-hr urinary cortisol)



# Sleep Apnea

Sleep apnea occurs when the airway in the throat collapses during sleep. A person with severe sleep apnea may have hundreds of these episodes throughout the night, disrupting their sleep and reducing oxygen supply to vital organs. Severe sleep apnea is a common condition affecting about 5% of adults however mild to moderate forms occur in 20% of adults. Fortunately, effective treatment is available and once treated the person with sleep apnea leads a normal healthy life.

**The symptoms of sleep apnea.** People with sleep apnea usually snore loudly and have restless sleep. Often these symptoms are not noticed by the person with sleep apnea but by their partner. The partner may also notice pauses in breathing lasting between 10 seconds and a minute. Each pause typically ends with a very deep gasping or snoring noise and a brief awakening as the person struggles to breathe. As a result of the problems during sleep, the person with sleep apnea may be very sleepy in the day and wake in the morning feeling unrefreshed. As the day progresses the lack of sleep may take its toll and they struggle to stay awake. In passive situations, such as watching TV, this may not be a problem but it can affect the person's ability to concentrate and function at work. It can be extremely dangerous if it occurs while driving. Other symptoms which can occur in untreated sleep apnea are sore throats, chronic cough, depression, apathy, irritability, reduced libido, loss of memory and concentration and increased frequency of urination at night.

**Sleep apnea affects families.** Snoring and apnea can be extremely irritating and disrupt the sleep of the bed partner. These problems can aggravate, or become a focus for, marital disharmony and family stress. It is made worse by the unexplained sleepiness and

lack of interest in family life of the person with apnea.

Sleep apnea is associated with heart attacks and stroke. There is strong evidence that people with moderate to severe sleep apnea die prematurely. If you have sleep apnea you are more likely to have cardiovascular disease than someone without sleep apnea. Towards the end of each apnea cycle blood pressure may rise substantially and the heart beat becomes irregular. This may lead to high blood pressure (hypertension). If you are overweight you may also be at risk of diabetes and have high cholesterol. Taken together these risk factors result in an increased chance of the person having a heart attack or a stroke.

Sleep apnea causes motor vehicle accidents. Research has shown that people with sleep apnea are at least 4 times as likely to have a motor vehicle accident. Their performance is noticeably worse as the disrupted night-time sleep leads to a reduced ability to concentrate and increased chance of falling asleep at the wheel. When sleep apnea occurs in people who have occupations involving operating machinery or transport this can be a lethal combination.

**What causes sleep apnea?** There are two types of apnea obstructive apnea and central apnea. Obstructive apnea is much more common and is the result of obstruction of the airway leading from the nose or mouth to the lungs. The obstruction is usually the result of a narrowed airway which becomes partly or completely blocked when the muscles around the airway relax during sleep. Central apnea is rare and results when the signals from the brain to regulate breathing are disrupted in some way.

**Who gets sleep apnea?** Sleep apnea can occur at any age. In childhood apnea is

commonly the result of enlarged tonsils or adenoids or of some cranio-facial abnormality or severe obesity. In adulthood sleep apnea becomes more common in middle age and is more common in men than in women, although after menopause women may be at increased risk. Sleep apnea is often associated with being overweight, particularly with excess fatty tissue around the neck. In people who are not overweight, it is likely that they have been born with a narrow airway or facial structure which leads to a narrow airway. Almost everyone who has obstructive sleep apnea snores as snoring is also the result of narrow or floppy upper airways.

**How is sleep apnea diagnosed?** Signs and symptoms such as snoring, obesity, observed apnea and sleepiness in the day may suggest that a person has sleep apnea but the best way to be really sure is with an overnight sleep study. In the sleep study the patient is wired up and attached to computers which measure their sleep, their breathing and oxygen levels. Everyone experiences a small amount of disruption to breathing during sleep but someone with severe sleep apnea may have over 30-40 of these events per hour.

**How is sleep apnea treated?** The treatment of choice for severe sleep apnea is called nasal continuous positive airway pressure or CPAP. This consists of a pump that blows air through a mask worn over the nose. CPAP only needs to be used during sleep and if used by the patient the treatment reduces sleepiness and improves mood. The noise of the machine is generally much less obtrusive than the snoring that preceded it. 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. Surgical treatments are improving but it is important to find a surgeon who specializes in sleep apnea surgery. There is no effective drug for treating sleep apnea although a number have been tried. A number of other treatments have been marketed including devices to avoid sleeping on your back and nasal valves. These may help some people but it is very important that any treatment you undertake is supervised by a sleep physician and that if necessary a repeat sleep study is conducted to check the effectiveness. If your sleep apnea is not effectively treated you will remain at risk of problems related to sleepiness including workplace and motor vehicle accidents.

## SLEEP APNEA AND OBESITY

In many people sleep apnea results from being overweight. If this is the case, losing weight may help or even cure the apnea but before stopping CPAP treatment you should consult your sleep physician. In any case, losing weight may be the most important thing that you can do to reduce cardiovascular disease such as high blood pressure and diabetes.

## THINGS TO AVOID IF YOU HAVE SLEEP APNEA

There are some things that make apnea worse and even if you are on CPAP treatment, should be avoided. Alcohol relaxes muscles and may worsen apnea as may sleeping tablets which depress the drive to breathe. It is advisable to try and maintain a regular sleeping pattern. Other things that disrupt sleep such as caffeine and eating late at night should also be avoided.

# Treatments for Sleep Apnea

## CPAP OR CONTINUOUS POSITIVE AIRWAY PRESSURE

CPAP is a very simple mechanical aid to help keep the airway open. CPAP prevents the airway closing by keeping a positive pressure inside the airway, a bit like blowing up a bicycle inner-tube that has become deflated. This pressure is created by blowing air through the nose and into the upper airways. This pressure is applied continuously throughout the night to prevent the airways closing. Hence the name: Continuous Positive Airway Pressure.

### How is the pressure applied to the airway?

The most commonly used method for applying the pressure is by the use of a soft mask that is shaped to seal against the face or into the nose. Masks may fit over the nose or both nose and mouth (called full face masks). Getting a satisfactory fit of the mask to the face is the most difficult part of CPAP treatment. Although masks have improved dramatically over the years, a number of people still have difficulty adapting to them and it is really important that you find the mask that suits you best.

Some air may escape through the mouth, but if it is kept closed a satisfactory seal can be obtained. Air leaking through the mouth is called a "mouth leak" and is uncomfortable for the CPAP user. Full face masks may be used to assist with a mouth leak. Chin straps used to hold the mouth closed may also help.

**What are the main side effects of CPAP treatment?** CPAP is a very safe treatment with few serious side effects. The most common is nasal irritation due to the air blowing into the nose. A mouth leak makes this nasal irritation much worse. CPAP users sometimes complain of cold, painful or stuffy noses. Other side effects are associated with the mask rubbing on the nose or with air blowing into the eyes from a poorly fitting mask.

**How long does CPAP take to work?** CPAP works immediately in stopping your sleep apnea. Some people notice immediate improvement in their daytime symptoms, such as tiredness, but others find it takes some time to get used to CPAP and gain maximum benefit. If you feel that your CPAP is not working effectively you should return to your sleep specialist and get help.

### How long will I need to use CPAP?

Unfortunately CPAP does not cure sleep apnea; it simply controls the symptoms by keeping the airway open. If you stop using CPAP your airway will once again close and you will experience apnea.

**Do I need to use CPAP all night?** Almost as soon as you stop using CPAP you will start to have apneas and so whenever you are asleep you should use your CPAP. This means eight hours each night, seven days a week. Some people find this too tough but you should try and use it all the time. If it's not being used, it's not being effective. Recent studies show the more you use it the more benefit you gain.

**What is a ramp?** Most CPAP machines have a feature that allows you to start with a lower pressure which increases over a set period until your required pressure is reached. This is a feature to make CPAP more comfortable for you.

**What is humidification?** Most CPAP machines have an optional humidifier, which warms and adds moisture to the air. This makes breathing more comfortable for many people and can help to prevent mouth leaks.

## OTHER TREATMENT OPTIONS

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 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

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.

### 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 as 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.

### 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.

**For more information visit our website [sleepoz.org.au](http://sleepoz.org.au)**

# Insomnia

**Insomnia** is a common and distressing difficulty in falling asleep, going back to sleep, or waking too early.

**Causes of Insomnia.** There are many different causes of insomnia. Some medical conditions may cause insomnia, particularly pain, chronic respiratory problems, or other sleep disorders. Some medications such as blood pressure tablets or asthma medication, as well as substances like caffeine (coffee), nicotine (smoking) and alcohol, may trigger insomnia or make it worse. Psychiatric conditions such as depression and anxiety are common in insomnia and may cause insomnia. Other precipitating factors for insomnia include illness, loss, death of a family member/friend, financial stresses, and work and relationship issues. Even when these triggers are no longer present or reduced at least to some extent, the insomnia can continue. Insomnia can be a vicious cycle, in that the more you worry about not sleeping, the harder it is to get to sleep.

**Insomnia Treatments.** Just as there are many causes for insomnia, there are many treatments. In most people, the insomnia will get better by itself. If insomnia persists, the best treatment is Cognitive Behaviour Therapy (CBT)

provided either individually or in a group by a psychologist or even on line through specific programs. A psychologist can help you to re-schedule your sleep and wake times, improve your sleep habits, improve stress management, and control unwanted thoughts and worries about your sleep. Information and education about sleep habits and expectations form part of most CBT programs.

The main goal of any treatment for insomnia is to break the vicious cycle that keeps the insomnia going. Attention to simple things such as getting up at the same time, going to bed only when sleepy and comfortable, reducing caffeine and alcohol, getting enough exercise, minimizing light exposure and having some fun can help you to sleep. Ask your GP for a referral to a psychologist. A certain number of sessions with a sleep psychologist are subsidised by Medicare.

**Cognitive Behavioural Therapy (CBT)**  
Treatment is about making both behavioural (doing) and cognitive (thinking) changes to your life and sleep. They are not easy but they work!  
TRY:

- Reducing the time you spend in bed to match the time you sleep (is called sleep restriction). Many people compensate for poor sleep by spending more time in bed, to give themselves more time to fall asleep or go back to sleep. Unfortunately, this behaviour leads to even worse sleep. Choose and keep the same getting up time no matter what your sleep has been like the night before – this will help to re set your brain clock on a daily basis.
- Getting up and going to another room if you are unable to go to sleep or go back to sleep within around 15 minutes. Read or listen to music in dim light. When you are feeling less tense and more comfortable go back to bed and see if you can “let go” and

let sleep happen. You MAY need to do this a number of times a night and for a number of nights to get your sleep back into a better pattern. Then let bed be a place where you go to when you are feeling comfortable and sleepy not a place where you are trying hard to go to sleep or are awake tossing and turning and worrying.

- If there is an underlying medical or mood condition, such as depression, get some help from your GP which will also reduce some of the insomnia symptoms. Psychological assistance with stress management, relaxation and controlling thoughts are key factors in “retraining in sleep” as can attention to simple environmental factors (comfortable mattress, being too hot, too cold, wearing earplugs because of noise). Information and education about sleep and expectations about sleep will help you to understand what you can do yourself to improve your sleep. Collectively these

factors outlined help in promoting healthy sleep. Recent research has shown that these treatments together increase deep sleep more than sleeping tablets alone.

**Sleeping Medication.** Sleeping tablets may be prescribed for short-term insomnia but may lose their effect after a few weeks. Stopping sleeping medication may result in a few nights of much worse sleep which is called rebound insomnia. It is therefore better to gradually reduce sleeping tablet use rather than stop abruptly. Make sure the risks and benefits of sleeping medications are fully discussed with your doctor.

**Starting Treatment.** See your family doctor first to discuss your sleeping difficulties.

Your doctor can then undertake a proper assessment, initiate treatment or refer you to a sleep disorders clinics, sleep specialist or to a sleep psychologist.





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# Glossary of Sleep Terms

**APNEA** (or APNOEA) – Absence breath during sleep.

**APNEA HYPOPNEA INDEX (AHI)** This combines the number of apneas and levels of hypopnea and is used to classify the severity of sleep apnea (mild 5-15, moderate 16-30, and severe greater than 30).

**AROUSAL** Awakening, total or partial, usually noted by looking at the EEG.

**BRUXISM** teeth grinding or jaw clenching during sleep. Like other sleep-related movement disorders, bruxism is characterized by involuntary, unconscious movement during sleep.”

**CARBON DIOXIDE** The gas which the lungs remove from the blood. Abnormally high levels of carbon dioxide can build up in more severe forms of sleep apnea.

**CATAPLEXY** sudden muscle weakness associated with narcolepsy. It is often triggered by emotions such as anger, surprise, and laughter. People that experience cataplexy are not asleep and they are fully conscious, they just can't move.

**CIRCADIAN RHYTHM** Biological rhythms which oscillate over a 24 hour period. (Disrupted by jet lag.) and they are fully conscious, they just can't move.

**CIRCADIAN RHYTHM SLEEP DISORDERS** are a group of sleep disorders that affect the timing of sleep, characterised by an inability to sleep and/or wake at normal or appropriate times due to the dictates of the individual's biological or circadian clock.

**CO2** Abbreviation for carbon dioxide.

**COGNITIVE BEHAVIOURAL THERAPY (CBT)** this therapy includes interventions that are meant to help people with insomnia

identify and correct inappropriate thoughts and beliefs that may contribute to their sleep problems.

**CPAP** Continuous Positive Airways Pressure – Treatment for sleep apnea. CPAP patients wear a face mask connected to a machine that forces air into the nasal passages to keep the upper air passages open during sleep, preventing apnea and allowing normal breathing to occur.

**DELTA SLEEP** See Slow Wave Sleep.

**ECG** – ElectroCardioGram – Tracing of the heart's electrical activity which can indicate abnormalities in heart size, function and blood supply. (or EKG in US)

**ECHOCARDIOGRAM** Test using sound waves which are “bounced” off the heart and can clearly show abnormalities of the heart valves and walls.

**EDS** Excessive Daytime Sleepiness - is a symptom experienced by people with sleep disorders. “

**EEG** ElectroEncephaloGram – Tracing of the electrical activity of different parts of the brain. It can be used to diagnose epilepsy but can also be used to work out which stage of sleep a person is in.

**EPWORTH SLEEPINESS SCALE (ESS)** is a scale intended to measure daytime sleepiness as perceived by patients from the subjective answers of a very short questionnaire.

**HEART SCAN** A scan using a very safe nuclear isotope to work out how well the heart is functioning. In sleep apnea the right side of the heart is sometimes affected and this scan allows assessment of severity and progress of heart failure post treatment.

**HOLTER MONITOR** A continuous ECG

usually worn for 24 hours to assess any heart rhythm disturbances.

**HYPERSOMNIA** Excessive sleep. Hypersomnia is not a disorder itself it is a symptom that can have many different causes.

**HYPOPNEA** Shallow breathing leading to low levels of oxygen in the blood.

**IDIOPATHIC HYPERSOMNIA** Sometimes referred to as Idiopathic Hypersomnolence. This is a debilitating neurological sleep/wake disorder without an obvious cause, where people lose cognitive ability, sleep excessively, and yet still crave sleep above all else.

**MANDIBULAR SPLINT** Also known as Mandibular Advancement Device – a mouth guard worn at night to reposition the jaw in an effort to enlarge the airway space.

**MSLT** (Multiple Sleep Latency Test) – tests for excessive daytime sleepiness by measuring how quickly you fall asleep in a quiet environment during the day. Patients are given 4-5 opportunities to nap at regular intervals. The MSLT is carried out in a sleep lab and immediately follows a night time sleep study.

**NARCOLEPSY** – is an uncommon but very debilitating neurological sleep disorder. It may or may not include cataplexy. Usually the most worrying aspect of narcolepsy for the sufferer is uncontrollable sleepiness during the day.

**NASOPHARYNGOSCOPY** Test using a fibre-optic scope to view the upper throat.

**NIGHT TERRORS** – The sudden arousal from slow wave sleep with a sense of extreme fear or imminent death. Related to sleep walking.

**NOCTURIA** – The need to get up to urinate in the middle of the night.

**NREM SLEEP Non-Rapid Eye Movement Sleep** One of the two basic states of sleep; consists of stages 1, 2 (light sleep) and 3, 4 (deep sleep).

**PARASOMNIAS** Abnormal behaviors during sleep that interrupt sleep and can result in injury, insomnia, and/or excessive daytime sleepiness.

**PERIODIC LIMB MOVEMENT DISORDER (PLMD)** or periodic limb movements in sleep (PLMS), previously known as nocturnal myoclonus, is a sleep disorder where a person moves their limbs involuntarily during sleep, causing disturbed sleep and daytime sleepiness. PLMD should not be confused with restless legs syndrome (RLS).

**PSG (POLYSOMNOGRAPHY)** A test that records aspects of sleep (for example, the amount of NREM and REM sleep, number of arousals) and a variety of body functions during sleep, including breathing patterns, heart rhythms, and limb movements.

**REM** Rapid Eye Movement – the stage of sleep when we dream. The body is paralysed and snoring and sleep apnea are at their worst.

**RLS** – Restless Legs Syndrome – Condition where legs are uncomfortable unless moved. It can severely disturb sleep and cause insomnia and excessive daytime sleepiness.

**SLOW WAVE SLEEP** – A deep stage of sleep often missed by patients with sleep apnea due to the disruption of sleep.

**UPPP** (UvuloPalatoPharyngoPlasty) – An operation to treat snoring and mild sleep apnea. It involves removing part of the soft palate at the back of the throat.



## Narcolepsy

Narcolepsy is an uncommon but very debilitating neurological sleep disorder. Usually the most worrying aspect of narcolepsy for the sufferer is uncontrollable sleepiness during the day.

### SYMPTOMS

Narcolepsy is characterised by a combination of symptoms. Sufferers differ in the combination and severity of these symptoms, but they are generally:

- Drowsiness during the day - which results in an irresistible urge to sleep. Sometimes sleepiness occurs so suddenly and with such overwhelming power that it is referred to as a "sleep attack". These "sleep attacks" may be as short as one minute or as long as an hour. The sufferer usually wakes up feeling refreshed and may then be alert for another hour or more.
- Cataplexy - where the narcoleptic experiences a sudden loss of muscle function. In severe instances the cataplexy may result in a collapse, although the person remains conscious throughout the episode. In less severe forms it may show as just a weakness in the knees, jaw or facial muscle droop. The cataplectic attack may last from a few seconds to a few minutes and is usually triggered by a sudden emotional reaction such as laughter, anger or fear.
- Sleep paralysis - happens on waking from sleep. Although the person is not fully awake they are aware of the paralysis and are unable to move any part of the body except perhaps the eyes. Eventually, after as long as ten minutes, they wake up fully and the paralysis resolves. This can be extremely frightening. Sleep paralysis is not restricted to people with narcolepsy - about 15% of the population may also experience it.
- Hallucinations - usually occur when the

person is drowsy and about to fall asleep and may occur as abstract forms, for example coloured shapes, or be in the form of a person or animal. The sufferer may also hear things or feel things such as being lifted off the bed.

- Disturbed night-time sleep - The usual night-time sleeping pattern is disrupted in the narcoleptic and they may suffer from an increased number of awakenings.

### WHAT CAUSES NARCOLEPSY?

Scientists believe that Type 1 Narcolepsy (Narcolepsy with cataplexy) is caused by a lack of the chemical known as hypocretin (also referred to as orexin) in the brain. Hypocretin is an important chemical for regulating wakefulness and rapid eye movement (REM) sleep. Type 2 Narcolepsy (without cataplexy) includes some of the same symptoms as Type 1 Narcolepsy, however, its cause is unknown.

### HOW IS NARCOLEPSY DIAGNOSED?

To be sure of the diagnosis doctors need to check that there isn't another condition that is causing the symptoms. This involves medical tests and a comprehensive medical history. A full sleep study that includes a polysomnogram (PSG) and a multiple sleep latency test (MSLT) is also done. The PSG is a nighttime test and a MSLT is the daytime component. During the MSLT patients are required to attempt to sleep at two hourly intervals throughout the day. The results of the sleep study combined with the medical tests and comprehensive medical history help doctors determine whether a patient has narcolepsy.

### HOW IS NARCOLEPSY TREATED?

There is no cure for narcolepsy, however some of the symptoms can be managed with medicines and lifestyle changes. It may take some time to find the best treatment as not all medicines and lifestyle changes are appropriate for everyone.

## Idiopathic Hypersomnia

Idiopathic Hypersomnia (IH), sometimes referred to as Idiopathic Hypersomnolence, is a neurological sleep/wake disorder characterised by excessive sleep and daytime sleepiness. It is a debilitating condition often profoundly affecting work, education and relationships.

Most people can feel tired, fatigued and at times, excessively sleepy, particularly when they do not get enough sleep. However what sets people with IH apart, is that they experience extreme sleepiness despite getting adequate, or typically more than adequate, hours of sleep. Their sleep may be deep and uninterrupted, but it is not refreshing. Despite extraordinary amounts of good quality sleep people with IH are in an almost constant state of sleepiness.

### SYMPTOMS

The main symptoms of IH is excessive deep sleep and excessive daytime sleepiness. Despite adequate and often extraordinary amounts of good quality sleep (eg: 11 hours or more per night) people with IH still feel excessively sleepy during the day. Other symptoms typically include:

- Chronic excessive daytime sleepiness often resulting in long daytime naps.
- Long and unrefreshing naps. Naps are usually more than one hour long and are typically not refreshing.
- Extreme and prolonged difficulty awakening from sleep, confusion, disorientation, irritability and poor coordination, with an uncontrollable desire to go back to sleep. It can also be accompanied by automatic behaviour (performing tasks without consciously knowing it and not remembering you have done them eg: turning off alarm clocks or answering your phone). This is clinically known as "sleep drunkenness".

- Cognitive dysfunction (commonly referred to as 'brain fog'): problems with memory, automatic behaviour, concentration and attention.

Unlike in other sleep disorders, the sleep in patients with Idiopathic Hypersomnia is normal; there are no disturbances that can account for these symptoms.

### DIAGNOSIS

Diagnosing IH can be difficult as excessive daytime sleepiness can be caused by various disorders and/or conditions as well as numerous medications. A physical examination, medical tests and a comprehensive medical history are necessary to rule out all other possible causes, including insufficient sleep. Sleep studies involving a Polysomnography (PSG) followed immediately by a Multiple Sleep Latency Test (MSLT) are also carried out to exclude other sleep disorders such as sleep apnea.

### TREATMENT AND MANAGEMENT

There are no medications specifically for Idiopathic Hypersomnia. Medications used to treat Narcolepsy, including stimulants and wake-promoting medications, are prescribed to counter the daytime sleepiness, however there are no medications currently available that assist with cognitive dysfunction or extreme difficulty waking up and sleep drunkenness. Stimulant and wake-promoting medications can be helpful to relieve sleepiness for some patients, however they are rarely effective long term. Some people with IH find a combination of medication and lifestyle changes are helpful in managing their symptoms. Lifestyle changes can be difficult to initiate (and maintain) for people with chronic illness and may need the assistance of a specialist therapist.

**More information can be found at [www.hypersomnolenceaustralia.org.au](http://www.hypersomnolenceaustralia.org.au)**

## Circadian Rhythm Disorders

Circadian Rhythm Sleep Disorders are a group of sleep disorders that affect the timing of sleep, characterised by an inability to sleep and/or wake at normal or appropriate times due to the dictates of the individual's biological or circadian clock.

People with circadian rhythm sleep disorders are therefore unable to sleep and wake at the times required for normal work, school, and social needs, which can severely impact their quality of life.

### CIRCADIAN RHYTHM SLEEP DISORDERS INCLUDE:

#### Advanced Sleep-Wake Phase Syndrome - ASPS

Advanced sleep-wake phase syndrome involves a shift in the circadian rhythm that leads to a strong, sometimes irresistible need to fall asleep in the early evening, generally between 6 p.m. and 9 p.m., and wake up very early in the morning, generally between 2 a.m. and 5 a.m.

#### Delayed Sleep Phase Syndrome - DSPS:

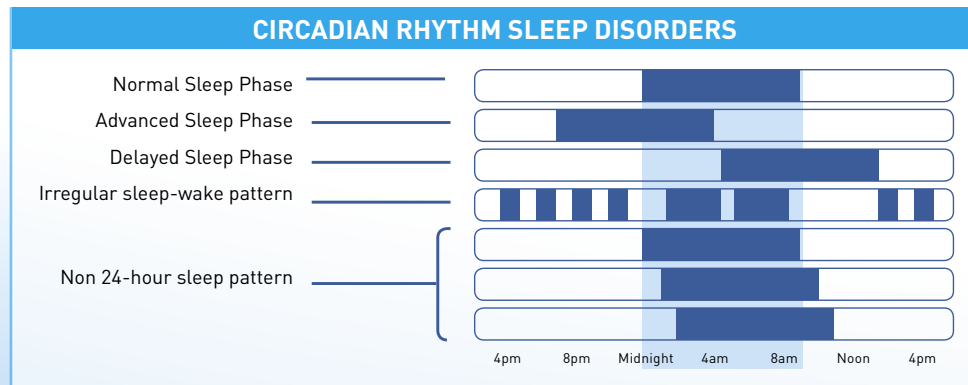
Delayed Sleep Phase Syndrome involves a shift in the circadian rhythm that is opposite to ASPS. People with DSPS are unable to fall asleep until very late at night and not wake up until much later in the day.

#### Irregular sleep-wake rhythm

Irregular sleep-wake rhythm is a rare form of circadian rhythm sleep disorder. It is characterised by numerous naps throughout a 24-hour period, no one main sleep episode that occurs at any time of day and irregularity from day to day. During the day, it may seem like they are sleepy because they nap so much. During the night, it may seem like they have insomnia because they are awake for long periods of time during the night. The total time asleep per 24 hours is normal for the person's age.

#### Non-24-hour Sleep-Wake Disorder

The sleep time of people who have Non-24-Hour Sleep-Wake Disorder shifts a little later every day. Sleep time and wake up time continue to move later and later every day. Every day, morning light and other behaviors reset the sleep-wake clock to a 24 hour schedule. Without light or if there is a fault with this clock resetting, people's sleep time will drift later and later. This is why many people who have Non-24-Hour Sleep-Wake Disorder are blind.



## PLMD

**Periodic Limb Movement Disorder (PLMD)** is characterised by repetitive limb movements that only happen when you are asleep and occur repeatedly every 10 to 60 seconds. These movements usually involve the legs; however, the arms may also be involved in severe cases. They occur in periods lasting anywhere from a few minutes to several hours.

The PLMD patient is often identified by the bed-partner's complaints of being kicked. Abnormal limb movements result in daytime tiredness by causing periods of wakefulness during the night (called arousals) and disrupting the brain's sleep-patterns. The abnormal movements also prevent the brain from transitioning into stages of deep sleep, causing the sufferer to wake feeling tired and unrefreshed. PLMD is also often disruptive for the sufferer's bed partner.

PLMD occurs more commonly with advancing age. It affects 25% of people aged 50-60 and up to 44% of people 65 and older. PLMD can occur in conjunction with other sleep-disorders, such as narcolepsy, obstructive sleep apnea, or REM-behaviour disorders. As many as 80% of people with RLS also have PLMD and as they may have trouble both falling asleep and staying asleep, they usually suffer from fatigue or sleepiness during the day.

**Cause of PLMD** The exact cause of PLMD is still unknown. Scientists believe that the underlying mechanisms probably involve abnormal nerve transmission in parts of the nervous system that influence sensation, although studies have not revealed any consistent abnormalities.

**How is PLMD treated?** If PLMD is causing disrupted sleep and daytime symptoms, it may be necessary to treat the disorder. The same drugs that are used to treat RLS

may be used eg: dopaminergic medications, calcium channel blockers (Pregabalin and Gabapentin), opioids (such as codeine) and benzodiazepines (eg: Clonazepam, diazepam). These medications treat the symptoms of PLMD, and not the underlying cause. Consequently, they must be taken every evening before bed, otherwise the symptoms will return. Controlling caffeine intake, alcohol, and smoking may also help.



## SLEEP DISORDERS AUSTRALIA

SDA is a support organisation, run BY people with sleep disorders, FOR people with sleep disorders.

SDA is run by volunteers as a non-profit charity. We are the only national body in Australia that represents ALL sleep disorders and the people that are affected by them.

Help us to be more effective by becoming a member. The larger our membership base, the louder our voice.

Sleep disorders have a big impact on a person's life. As well as mood, energy levels and productivity, research shows that a lack of quality sleep is contributing to a variety of other health problems.

Please help us to make a difference. (Membership Form is on page 4.)

# Restless Legs Syndrome

RLS, also called Willis-Ekbom Disease, is a neurological movement disorder characterised by uncomfortable sensations in the legs or sometimes the arms, that results in the compelling urge to move the affected limbs. It occurs in both genders. Symptoms can begin at any age, but are more common and more severe in older people. As many as 7-10% of the population are affected, with varying degrees of intensity. There is no test for RLS, and there is usually nothing abnormal for a doctor to detect on examination.

## Symptoms

RLS Individuals describe the sensations as pulling, drawing, crawling, tingling, pins and needles, prickly, and painful. These sensations can occur when the person is at rest, such as at a desk, riding in a car, or watching a movie. They may also occur when the person lies down before sleep. People with RLS describe an irresistible urge to move their legs when the sensations occur. Usually, moving the legs, walking, rubbing or massaging the legs can bring relief, at least briefly. If the legs are not moved, they can twitch/jerk involuntarily. Symptoms are always worse in the evening, and make falling asleep very difficult. If sufferers do manage to fall asleep, leg movements may lead to frequent awakenings and chronic insomnia.

## How do I know if I have RLS?

- You have a strong urge to move your legs when sensations of crawling or tingling occur.
- Your symptoms occur when you are at rest, such as sitting or lying down.
- Your symptoms decrease when you move or massage the affected limbs.
- Symptoms are worse in the evening or when trying to sleep.
- Symptoms are not attributed to another medical condition like, nocturnal leg cramps, arthritis, peripheral neuropathy.

**Causes RLS? The cause is generally unknown, however, certain factors may be associated:-**

- RLS may be hereditary. There is 30-50% greater chance that you will develop RLS if your ancestors had it.
- RLS may occur during pregnancy, especially during the final trimester. The symptoms usually disappear after delivery.
- Low iron levels or anaemia may worsen symptoms. Low iron in the brain has been linked to RLS.
- Chronic diseases may lead to RLS, particularly kidney failure. Other diseases such as diabetes, rheumatoid arthritis, Parkinson's disease or damage to the nerves of the arms, hands, legs, or feet (i.e. peripheral neuropathy) may also be associated with RLS.
- High caffeine (coffee), sugar, alcohol intake and smoking may make RLS worse.
- Attention deficit hyperactivity disorder (ADHD) is common in children and adults with RLS.

**Treatments** If a cause such as anaemia can be identified, treating this may resolve the RLS. Otherwise, in mild cases, some people find that activities such as taking a hot bath, massaging the legs, using heat pads or ice packs, exercising, and eliminating caffeine help to alleviate symptoms. In more severe cases, medications are prescribed. Unfortunately, no one drug is effective for everyone with RLS, and a medication that is initially effective may lose its effectiveness with prolonged use. Symptoms tend to get worse over time, and it may be necessary to change medications to keep symptoms under control.

If you have concerns about RLS, you should discuss them with your family doctor.

# Related Risks

## SLEEP DISORDERS AND RELATED RISKS

Sleep disorders have been implicated as risk factors in a number of other health problems. Sleep deprivation, whether due to a reduced quantity of sleep or a disturbed quality of sleep, affects a variety of essential functions and hormone balances, and contributes to an increased risk of heart disease, high blood pressure, obesity and diabetes. It affects general mental functioning, in particular, daytime alertness, mood, memory functions, and decreased learning ability. There is some recent evidence that sleep deprivation also depresses the immune system which means the body is less able to fight off viruses and infections.

## HYPERTENSION (HIGH BLOOD PRESSURE)

Hypertension is a serious medical condition that adversely affects many systems in the body. It is a major cause of atherosclerosis (thickened artery walls) and may lead to blood clots and strokes. Hypertension can also lead to heart attacks, kidney disease, peripheral vascular disease and retinopathy. Research has shown that insomnia sufferers who regularly get less than 5 hours of sleep per night are at a high risk for hypertension, probably due to changes in hormone activity. People with untreated sleep apnea are also at risk for hypertension. This may be due to the overall lack of proper sleep, or it may be as a result of the extra blood flow needed after an apnea to compensate for low oxygen levels. Research has shown that when sleep apnea patients on maximum medical therapy patients are treated with CPAP, their blood pressure goes down, not only at night, but during the day as well.

## HEART DISEASE

Sleep apnea starves the body's vital organs of oxygen throughout the night. This puts a

strain on the heart as it tries to compensate. Researchers have found sleep apnea to be an independent risk for a variety of cardiovascular diseases, and an exacerbating factor in nocturnal angina in patients with coronary artery disease. When breathing recommences after an apnea the heart muscles are called on for greater exertion, just at a time when their own oxygen supply has been compromised. During recent research studies, when a group of patients with heart failure were tested in a sleep study, approximately half had severe undiagnosed sleep apnea. Research is ongoing, but it seems clear that people with moderate to severe sleep apnea have an increased risk for heart attack, vascular disease and pulmonary hypertension.

## OBESITY

Obesity contributes to sleep apnea, and sleep apnea contributes to obesity. In fact, most sleep disorders can contribute to obesity. Researchers have found that people who don't get enough sleep can develop increases in appetite and kilojoule intake. In a university study, they found that in the group getting less than 6 hours sleep per night, their levels of the hormone leptin fell, leading to a greater appetite. The same group also produced approximately 30% more insulin to maintain their normal blood sugar levels. Higher insulin levels are associated with higher levels of fat storage. As lack of sleep also results in tiredness and lowered activity rates, so obesity is encouraged on three fronts: higher kilojoules taken in, lower energy given out, and insulin stimulating fat storage. In the case of sleep apnea, the weight gain affects the fat in the neck, and the air passage collapses more easily, leading to a worsening of the sleep apnea, which leads to further increases in obesity, and a vicious cycle ensues.

## Related Risks Contin...

### DIABETES

Research has shown that short sleep duration has direct effects upon the risk of diabetes, independent of its influence upon body weight and blood pressure, and body weight and hypertension also act as partial contributors to diabetes. A study by scientists at the University of Chicago found that after restricting 11 healthy young adults to only four hours sleep for six consecutive nights, that their ability to process glucose had declined – in some cases to the level of diabetics. Other studies have shown that subjects who regularly slept 5 hours or less were twice as likely to develop diabetes over the 10 year follow-up, as those who slept 7 hours or more. Research statistics indicate that approximately 50% of men living with diabetes also have sleep apnea, and 50% of sleep apnea patients tested when attending a sleep clinic, were shown to have impaired glucose intolerance. Recent studies of young healthy males showed that sleep deprivation for only two nights increased insulin, increased ghrelin and decreased leptin, translating into decreased glucose tolerance and an increased appetite for carbohydrate-rich foods. One research article concluded that “If short sleep duration increases insulin resistance and decreases glucose tolerance, then interventions that increase the amount and improve the quality of sleep could serve as treatments and primary preventative measures for diabetes”.

### BRAIN FUNCTIONING

Studies have shown that normal humans require between 7 and 9 hours of sleep per night. There has been a lot of research looking at the effects of sleep deprivation on various brain functions. People asked to perform tasks after spending a night without sleep, had impaired abilities comparable to people under the influence of alcohol. A lack of sleep most notably impacts on attention

and working memory, which can have disastrous consequences in road accidents, operating machinery, forgetting about fire hazards, etc. People who are sleep deprived have impaired learning abilities, slower reaction times and poorer judgment. Severe sleep deprivation can lead to low mood, psychosis and hallucinations.

### SEXUAL FUNCTION

Sleep apnea has been shown to be associated with impaired sexual function for both men and women. Excessive tiredness can contribute to a low libido, as can a reduction in hormone levels such as testosterone, which can occur as a result of sleep apnea. Many factors can contribute to declining erectile function, one of which is untreated sleep apnea. This can be due to blood vessel walls not expanding as well as they should to allow for increased blood flow, or a decline in testosterone, or impaired night time erections due to broken sleep associated with sleep apnea. Treatment of sleep apnea using CPAP has been shown to improve erectile function in about half of men who have both sleep apnea and erectile dysfunction

People suffering from disorders with related risks should discuss with their doctors whether their sleep problems may be contributing to their other disorders. Treating your sleep problem may help to improve other conditions.

**SDA has a variety of  
Fact Sheets available that  
you can download from the  
SDA website at  
[www.sleepoz.org.au](http://www.sleepoz.org.au)**

## Sleepy Drivers Die

Insufficient sleep has significant consequences on health and well-being including serious injury and even death. A study by Deloitte Access Economics estimates more than one Australian will die every day, or 394 a year, from falling asleep at the wheel of a vehicle, or from industrial accidents, due to lack of sleep.

Many Australians don't realise that driving when sleep-deprived can be just as dangerous as driving while intoxicated by alcohol or drugs. Extreme tiredness brought about by not enough sleep puts drivers at a much higher risk of nodding off, however driver fatigue can also impair reaction time and decision making, which further increases the risk of being involved in an accident.

Australian research shows drivers who have had 17 hours of sleep deprivation face the same risk of a crash as a person who has a blood alcohol concentration of 0.05 g/100ml. To put that into an everyday scenario, if you woke up at 6am to go to work, then went out for dinner and were driving home at 11pm, that's 17 hours. You would therefore be twice as likely to have an accident as a person with a zero blood alcohol content who is not fatigued. When you consider that one in every five car accidents is related to fatigue, it amounts to a lot of harm caused by people not getting enough sleep.

### Signs of Drowsiness:

- Heavy eyelids, eyes closing, frequent blinking, or trouble focusing
- Trouble keeping your head up
- Drifting between lanes, hitting a shoulder
- Constant yawning, rubbing your eyes
- Daydreaming/wandering thoughts
- Difficulty concentrating on driving, missing exits or traffic signs



### Tips for Staying Safe on the Road:

- Make sure you have had plenty of sleep before you leave
- Be aware of the effects of medications you are taking (some may increase drowsiness)
- If you have to drive a long distance, share the driving with someone else
- Don't rush. It's better to arrive at your destination safe than on time
- Do not drink alcohol. Even very small amounts of alcohol will enhance drowsiness
- Avoid driving between 1am and 6am, this is a time when sleepiness is most intense
- Do not rely on short-term remedies to offset the feelings of fatigue e.g., turning up music, drinking coffee/energy drinks etc. If you feel tired or notice signs of drowsiness pull over and take a short power nap

If you are feeling sleepy, stop driving immediately. The only cure for sleepiness is sleep.

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