



Sleep disturbances:
**MANAGING
PARASOMNIAS**
in general practice



Parasomnias are a broad group of disorders associated with unusual behaviour when sleeping, and at sleep onset and waking. The distinct conditions that make up the spectrum of parasomnias are classified predominantly into rapid eye movement (REM) and non-REM parasomnias, based on when they occur during sleep. Most people do not seek medical attention for sleep disorders, and many parasomnias cease over time, but for those people who do present to primary care, treatment options include environmental, psychological, physiological and, in severe cases, pharmacological management.

What are parasomnias?

A sleep disorder is defined as the medical dysfunction of an individual's sleep pattern. Parasomnias are a sub-category of sleep disorder. They involve abnormal and unnatural movements, behaviours, emotions, perceptions and dreams that occur while falling asleep, during sleep, between sleep stages or upon waking.

Most people experience a parasomnia during their lifetime. A large Canadian study found that 88% of children manifested at least one parasomnia between age five months and six years.¹ The incidence of parasomnias begins to decline after age 25 years. Almost all adults who experience parasomnias report a history of parasomnias during childhood.²

The term parasomnia refers to a large number of individual conditions, each with a different aetiology and epidemiology. In general, parasomnias can occur during non-rapid eye

movement (non-REM) and rapid eye movement (REM) sleep and are grouped based on the stage of sleep in which they occur (see "The architecture of sleep"). The most common non-REM parasomnias are bruxism (teeth grinding), somnambulism (sleep walking), confusional arousals and sleep terrors. These generally occur in the first third of the night, when non-REM sleep is deepest. The most common REM parasomnias are nightmares, REM behaviour disorder and recurrent sleep paralysis.

General principles for managing a parasomnia

Management of parasomnias consists of identifying and resolving any underlying causes, providing reassurance and advice on optimal sleeping practices (sleep hygiene), and where necessary, modification of the sleeping environment. In severe cases, pharmacological treatment may be considered.

Exclusion of underlying causes may include investigation of:^{3,4}

- Use of medicines with CNS-related adverse effects, e.g. sedative hypnotics, SSRIs, beta-blockers and tricyclic antidepressants
- Use of non-pharmacological drugs with CNS-related adverse effects, e.g. caffeine, nicotine, alcohol, illicit drugs
- Anxiety or stress
- Depression or other mental illness
- Dementia or confusion in older people
- Other sleep disorders, e.g. restless leg syndrome, sleep apnoea, narcolepsy

Reassurance that parasomnias are common, usually without any specific cause and generally resolve over time may be

helpful. Household members should be advised that during parasomnia episodes, the person should not be woken as this may increase disturbance or lead to violent behaviour.³ If they have left their bed, the person should be gently redirected back to bed without waking, or if there is a history of violence, observed but left alone.

Sleep hygiene is the term used to describe a set of structured practices and habits that can help to maximise the quality and duration of sleep, and therefore minimise the occurrence of parasomnias. Sleep hygiene advice includes:⁵

- Go to bed when sleepy, and get up at the same time each day
- Avoid daytime napping (except in young children), especially after 2 pm
- Avoid excessive light exposure prior to bed, e.g. computer screens, cell phones
- Ensure that sleep and sex are the only uses of the bed
- Get regular exercise, ideally mid to late afternoon
- Limit caffeine, alcohol and tobacco intake, particularly at night
- Have a hot drink, e.g. milk, prior to bed
- Avoid doing school-work or work prior to bed

- Get out of bed if sleep onset does not occur within 20 minutes, perform a relaxing activity such as listening to music or reading for a short time and then return to bed

Making the sleep environment safe may be necessary if the parasomnia behaviour involves leaving the bed. For example, place locks on second story windows, remove furniture, including mats and electrical cords, from around the bed, secure dangerous items such as knives or matches and secure exits to prevent wandering.

Scheduled waking may help to reduce the incidence of episodes of non-REM parasomnias such as somnambulism (sleep walking). The patient is gently and briefly woken 15 – 30 minutes prior to the normal episode time.^{5,6} The procedure is repeated nightly for up to one month, and then a trial without waking is done to assess whether there is a continued response.

Pharmacological treatment (Table 1) may be considered when parasomnias become frequent, cause extreme anxiety or there is potential for harm to the person or household members. The use of medicines to treat parasomnias is complex and rarely evidence based.⁴ There are no medicines currently approved

Table 1: Pharmacological treatment options for parasomnias in adults

Medicine group	Medicine and dose	Comments
Benzodiazepines	Clonazepam 1 mg daily, prior to sleeping, titrated up if required. ⁴	Clonazepam is the first-line choice as it has the strongest evidence base and a well known risk profile; however, it may be no more effective than any other benzodiazepine. ^{6,7}
Tricyclic antidepressants	Amitriptyline or nortriptyline, 10 mg daily prior to sleeping, titrated up if required. ⁴	If benzodiazepines are not effective or not tolerated, tricyclic antidepressants can be trialled.
Melatonin	Melatonin 2 – 12 mg daily, several hours prior to sleeping. ⁷	An alternative first-line treatment for REM parasomnias. Where patients have a risk of falls, melatonin should be used in preference to clonazepam. Patients should be started on 2 – 3 mg and titrated up if required. Melatonin is not subsidised, therefore the cost should be discussed with the patient before prescribing. Melatonin is supplied under Section 29, therefore availability may vary, check with your local pharmacy.

for use for parasomnias in New Zealand. Medicine should only be prescribed after exclusion of reversible underlying causes and all non-pharmacological options have been trialled.⁶ Pharmacological treatment is rarely recommended for children with parasomnias, and at present, the evidence is limited.⁵ Where pharmacological treatment is considered for a child, it should be discussed first with a paediatrician, sleep physician or psychiatrist.

Psychotherapy, particularly relaxation and cognitive behaviour therapy, where available, may be useful for some people with parasomnias.⁶

Referral to a sleep physician is recommended if treatment is ineffective, the risk of harm is significant, the symptoms are atypical or the diagnosis is unclear.

Non-REM parasomnias

Somnambulism

Somnambulism (sleep walking) is a series of behaviours that occur during sleep, such as changes in body position, gesturing with the hand, playing with the sheets, sitting up in bed or resting on the knees. These behaviours usually culminate in the person leaving the bed and moving around with an altered state of consciousness and impaired judgment, while still sleeping. Behaviours are often complex, co-ordinated and semi-purposeful, such as getting dressed or rearranging furniture. Rarer reports have described people driving, using firearms and performing physical assaults.³

During episodes of somnambulism the person may be communicative, and is often receptive to commands.² Episodes

The architecture of sleep

Sleep occurs in a complex cycle, which is essential for physiological regulation, function and overall health. An individual's sleep architecture, i.e. the structure and pattern of their sleep, can have a significant effect on their quality of life, day-time function and health.

The 24-hour sleep cycle is divided into three broad stages; non-rapid eye movement (non-REM), rapid eye movement (REM)

and wakefulness. Sleep duration is the total time in a 24 hour period that a person sleeps, and is divided into non-REM and REM sleep stages (Figure 1). Non-REM sleep is further divided into stages, with "deepest" sleep occurring in Stage Four.

Quality of sleep is dependent on sleep duration, along with time of sleep onset and length of time spent in each stage of sleep.

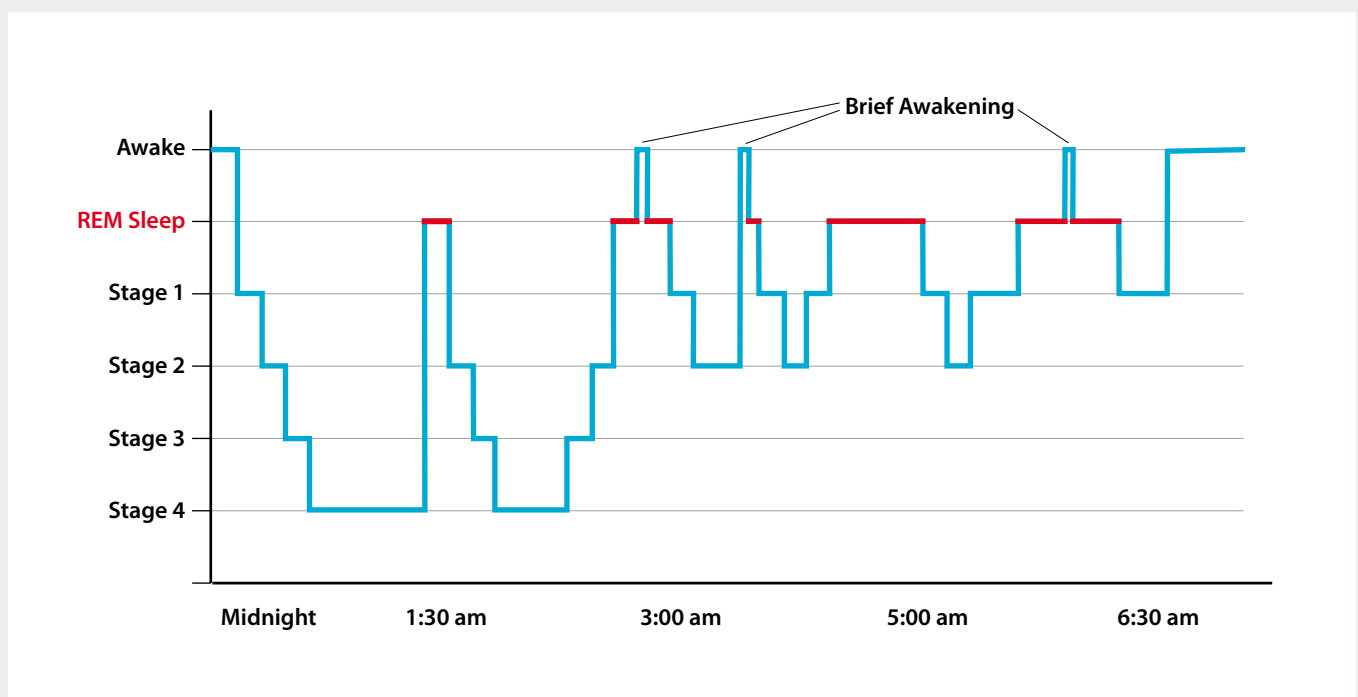


Figure 1: Human sleep architecture, showing deep sleep (Stage 4) early in the night and multiple REM stages

may last for more than 30 minutes, and usually end with the person returning to bed and resuming normal sleep.

Somnambulism occurs in up to 17% of children,⁸ and between 1 – 4% of adults.⁶ There is evidence that a genetic component (HLA gene DQB1) may contribute in some cases.⁶

Treatment:

Identify and eliminate any underlying trigger, most commonly stress, fatigue or febrile illness,⁹ and medicines that are known to cause sleep walking, e.g. zopiclone or antihistamines.¹⁰ Intervention includes advice on sleep hygiene and changes to the sleep environment to make it safer. Consider a trial of scheduled waking (Page 18).

Where there is a risk of harm to the person or household members, pharmacological intervention with benzodiazepines or tricyclic antidepressants may be considered in adults.

Confusional arousals

Confusional arousals are partial awakenings with impaired consciousness and memory, that can occur during deep sleep or upon attempted waking.¹¹ Episodes typically last less than five minutes, and in adults may be accompanied with unusual, violent or sexual behaviours and vocalisations.³ In adults, confusional arousals may be an indication of depression or other mental illness.¹²

Confusional arousals have a population prevalence of approximately 3%, with no reported differences between genders.⁶

Treatment:

Identify and manage any underlying cause such as sleep apnoea, periodic limb movements in sleep or a mental illness. Provide advice on sleep hygiene. Rarely, pharmacological intervention with benzodiazepines or tricyclic antidepressants can be considered in adults.

Confusional arousals which occur in children are not of clinical concern and generally do not require further investigation.

Sleep terrors

Sleep or night terrors are one of the most extreme and upsetting forms of parasomnia. Sleep terrors are characterised by intense fear, motor agitation, vocalisation and high levels of autonomic activity, e.g. profuse sweating, mydriasis, tachycardia and tachypnoea.² Episodes generally last no more than two to three minutes, and end with either spontaneous return to normal sleep or waking with no memory of the incident.²

Sleep terrors occur in approximately 6.5% of children and <1% of adults, with no reported differences between genders.⁶ It is not known what causes sleep terrors but they are rarely associated with any significant psychological illness.^{6, 13}

Treatment:

Identify and manage any potential underlying triggers, e.g. fatigue, stress, anxiety or febrile illness. Where a trigger cannot be identified provide reassurance and advice on good sleep hygiene. A trial of scheduled waking may be useful.

Sleep talking

Sleep talking (somniloquy) is very common, particularly in children. It can occur in both REM and non-REM phases of sleep. Vocalisations may be loud, and range from simple sounds to complex speeches. In most people sleep talking is benign and not associated with serious psychopathology or any underlying issue.¹⁰ However, sleep talking can be upsetting or disruptive for a bed

partner. Febrile illness can increase the likelihood of sleep talking. Stress management and relaxation techniques prior to bedtime may be helpful to reduce sleep talking.

At least some form of vocalisation is seen in most other parasomnias, therefore it is important to distinguish between simple sleep talking, and vocalisation accompanied by features of another parasomnia.

Bruxism

Bruxism (teeth grinding) is a common movement disorder in which a person grinds or clenches their teeth repetitively while asleep.¹² Signs and symptoms include abnormal wear of the teeth, periodontal tissue damage and pain.

Bruxism is most often reported in adults, with a prevalence of approximately 20%, and no difference between genders.¹⁴

Bruxism occurs in 14% – 18% of children, although most infants exhibit some teeth grinding behaviours soon after incisor eruption.¹³ There is an increased prevalence of bruxism among children with cerebral palsy and intellectual disabilities.¹²

Treatment:

Referral to a dentist is required where bruxism is causing significant wear to teeth.¹⁴

As stress may be a contributing factor, potential causes should be explored and eliminated where possible.¹³

Provide advice on sleep hygiene. Occlusal splints or devices may be trialled, but evidence suggests that they only temporarily reduce bruxism, without addressing the cause or reducing long-term recurrence.¹⁴ Occlusal splints should not be used by children. Physiotherapy can be useful for resulting jaw or muscle pain and fatigue. Jaw muscles can be stretched by opening the mouth wide, and repeating this movement ten times, twice daily.¹⁴ Generally, pharmacological management of bruxism is not indicated.¹⁴

REM parasomnias

Nightmares

Nightmares are the most common REM parasomnia. They are defined as recurrent episodes of awakening from sleep or naps with detailed recall of dreams involving distressing or life threatening events. There is no confusion on waking. There is often a significant impact on the person's waking state, reduced daytime function and reluctance to return to sleep. Awakenings generally occur during the second half of the sleep period. Recurrent dreams are often associated with some underlying psychopathology such as post traumatic nightmares.

Diagnostic criteria and definitions differ in the literature and prevalence is difficult to quantify, but it is estimated that recurrent, problematic nightmares occur in 4 – 8% of people.¹⁷

Stranger than fiction: sleep sex and midnight snacks

Sleep sex (sexsomnia) is a rare variant of somnambulism in which a sleeping person engages in sexual activities while in non-REM sleep.¹⁵ Behaviours include vocalisation, complex sexual activities and sexual violence.¹⁵ The disorder is rare, and prevalence is unknown.

Sleep-related eating disorder is a parasomnia, also related to somnambulism, in which a sleeping person involuntarily eats and drinks. Sleep eating behaviour is more common than sleep sex, with a lifetime prevalence of approximately 5%.¹⁶ There is an increased prevalence of sleep-related eating disorder among people who have an identified eating disorder, and it is often observed in patients hospitalised for eating disorders.¹⁶ Women are more likely to report sleep eating than men.

Treatments for sleep eating and sleep sex are similar to other types of parasomnias; identify any underlying causes, provide advice on sleep hygiene and make the sleep environment safe. Due to the rarity of sleep sex, little is known about the effectiveness of pharmacological treatment. Patients who do not respond to non-pharmacological intervention should be referred to a sleep physician or psychiatrist.⁶ People with a history of inappropriate sleep behaviours can be advised not to sleep with a partner, as the close proximity of another person may induce an episode.³



Treatment:

Treatment for recurrent nightmares usually involves cognitive behavioural therapies, including systematic desensitisation and relaxation techniques, and imagery rehearsal therapy.¹⁸ Referral to a psychologist may be required, particularly if dreams are related to a real life traumatic event.

REM sleep behaviour disorder

REM sleep behaviour disorder is the intermittent loss of REM-sleep muscle atonia (i.e. protective muscle paralysis), which results in acting out dreams. Common behaviours include punching, kicking, leaping and running from the bed during dream enactment.

Episodes usually occur after at least 90 minutes of sleep, once the person has entered REM sleep, and usually in the later one-third of the night. They may be very frequent, occurring up to four times per night, on consecutive nights.¹²

REM sleep behaviour disorder has a population prevalence of 0.5 – 2% and is most commonly seen in adult males, with

prevalence increasing with age.⁶ REM sleep behaviour disorder is more common in people with Parkinson’s disease and Lewy body dementia.¹⁹ In addition, people with idiopathic REM sleep behaviour disorder have a significantly increased risk of developing Parkinson’s disease and Lewy body dementia.²⁰

Treatment:

All patients with suspected REM behaviour disorder should ideally be referred for an overnight sleep study (polysomnography) in a sleep clinic.⁶ The priority for most publically funded sleep clinics is investigating patients with sleep apnoea, therefore patients with suspected parasomnias may have to be referred to a private sleep clinic. A detailed history should be taken to help exclude other diagnoses.

Making the sleeping environment safe is important for people with REM sleep behaviour disorder. As the risk of injury to the person and household members can be high, medicines are usually considered, along with standard sleep hygiene advice. Clonazepam and melatonin are the most commonly used medicines for REM sleep behaviour disorder (see Page 18 for recommended doses).

Table 2: The differentiation of parasomnias from nocturnal frontal lobe epilepsy^{22–24}

	Non-REM Parasomnia	REM Parasomnia	Frontal Lobe Seizures
Usual age at onset	Childhood	Older adults	Any age, most often between age 9 – 20 years
Gender bias	None	More common in males	May be more common in males
Occurrence during the night	First third	At least 90 minutes after sleep onset	Most frequently between 2 am and waking
Episodes per night	Usually one	One to several	Several
Episode duration	1-30 minutes	1-2 minutes	Seconds to one minute
Episode frequency	Sporadic	Sporadic	Almost nightly
Episode amnesia	Often total	Occasionally total	No amnesia
Stereotyped movement	Absent	Absent	Present
Autonomic activity	Present	Absent	Present
Evolution	Tend to disappear	Rare remission	May increase in frequency

Recurrent sleep paralysis

Sleep paralysis is a common condition where complete muscle atonia (i.e. paralysis) accompanied by feelings of intense fear is experienced in a conscious person (i.e. awake, not dreaming), at the transition from wakefulness to REM sleep or during waking from REM sleep.

Recurrent sleep paralysis has a life-time prevalence of approximately 10 – 20%, with as many as 50% of people experiencing an episode of sleep paralysis at least once.⁶ It is approximately twice as common in females as in males.⁶ It is associated with several risk factors, including narcolepsy, migraine, anxiety, obstructive sleep apnoea and exhaustion.

Treatment:

If episodes are frequent, ask about any history which may suggest signs of narcolepsy (see “Narcolepsy”). Assess for any other underlying cause such as migraine, anxiety, exhaustion or sleep apnoea. If no underlying cause is found, provide advice on good sleep hygiene and reassurance that the condition is not harmful and will cease with time.⁶ If episodes are persistent, severe or causing or worsening anxiety, the use of tricyclic antidepressants at bed-time may be beneficial (see Page 18 for recommended doses).

A diagnosis not to be missed: differentiating parasomnias from nocturnal frontal lobe epilepsy

In some people, the signs and symptoms of nocturnal frontal lobe epilepsy may mimic that of a parasomnia, therefore it is essential not to miss this diagnosis. Table 2 lists features that may help differentiate between non-REM and REM parasomnias and frontal lobe seizure.

Frontal lobe epilepsy usually begins between age 9 – 20 years.²² Episodes are characterised by repetitive behaviours of short duration (often less than 30 seconds) and asymmetric, abnormal body movements, such as dystonic and dyskinetic postures.²³ Grimacing and vocalisation may be present.²² Tongue biting and urinary incontinence are rare, but their presence significantly increases the likelihood of a diagnosis of nocturnal seizures rather than a parasomnia.²⁴

Parasomnias, in contrast, appear from an earlier age in children, and in adults are usually preceded by a history of childhood parasomnias. Parasomnic episodes have a longer duration and, with the exception of REM behaviour disorder, rarely have same-night recurrence, and have a decreasing frequency or cessation after puberty for most people.

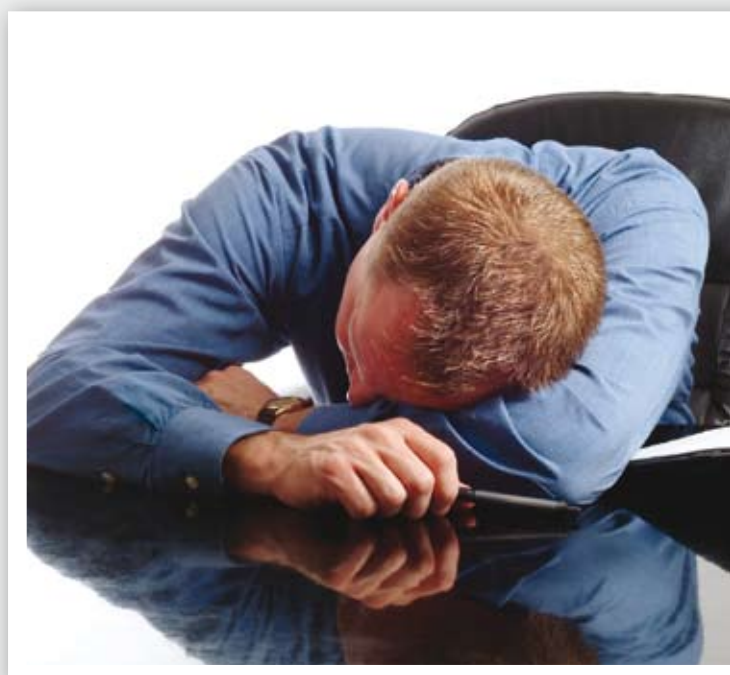
Narcolepsy

Narcolepsy is a sleep disorder characterised by excessive sleepiness and daytime sleep attacks. The cause of narcolepsy is unknown but it has been linked to reduced amounts of orexin, a protein in the brain (also known as hypocretin), and may be autoimmune or genetic (familial) in origin.²¹

Symptoms usually first occur between age 15 – 30 years, and include:²¹

- Periods of extreme drowsiness during the day, with a strong urge to sleep, often followed by a short “sleep attack” (lasting approximately 15 minutes)
- Visual and auditory hallucinations between sleep and wakefulness
- Sleep paralysis
- Cataplexy (sudden loss of muscle tone), which can be triggered by strong emotions, e.g. laughter or anger, usually lasting for less than 30 seconds, but in severe cases, paralysis may last for up to several minutes

A patient with suspected narcolepsy should be referred to a sleep specialist for further assessment, including a sleep study (polysomnography).



Sleep starts (hypnic jerks): weirdly normal

Some sleep disturbances and symptoms are a normal part of sleep. Hypnic jerks, commonly known as sleep starts, are non-periodic myoclonic movements, usually involving the lower limbs, which occur at sleep onset or waking. They may be described by patients as jerking or jolting movements or the sensation of falling just as they are about to fall asleep, often accompanied by a feeling of fright and brief tachycardia.¹²

Hypnic jerks are reported to affect 70% of adults, and are considered a normal part of sleep.⁶ There is usually no particular cause, although they have been linked to fatigue, stress, sleep deprivation, vigorous exercise and some stimulants, such as caffeine.

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