

Sleep and seizures – some facts

- Sleep deprivation is one of the most commonly reported seizure triggers by people with epilepsy
- Nocturnal (night-time) seizures, even if only brief can disrupt sleep and increase daytime drowsiness
- Drowsiness can increase the risk of daytime seizures for people who would normally only have seizures during sleep
- People with epilepsy who have sleep disturbances have a poorer quality of life, compared to those without sleep disturbances.
- Some antiseizure medications (ASMs) can contribute to sleeping difficulties or daytime drowsiness
- Nocturnal seizures may be misdiagnosed as a sleep disorder and vice versa
- Sleep apnoea is about twice as common in people with poorly controlled epilepsy than in the general population
- Treatment of a sleep disorder generally improves seizure control and quality of life
- Lastly, sleep disorders can exacerbate epilepsy and epilepsy can exacerbate certain sleep disorders

Why do nocturnal seizures occur?

Epileptic seizures are often strongly influenced by the sleep-wake cycle. It is thought the change of state during sleep impacts the brain activity linked with seizures (in people with epilepsy) because some seizures occur predominantly certain stages of sleep or upon awakening.

In wakefulness, our brain waves remain fairly constant, but during sleep there are many changes. Nocturnal seizures can be triggered by changes in the brain's electrical activity during the transition between different stages of sleep and awakening, and there are some dramatic changes on EEG during these sleep changes.

Sleep is either REM or non-REM, and further divided into stages:

- Non-REM Stages 1, 2, 3, and 4 and REM sleep.

Seizures don't seem to happen during REM sleep but may occur at other times during the sleep cycle.

Nocturnal seizures can also occur upon waking or arousal during the night.

Seizures that occur during sleep may also happen during an afternoon nap – they are not limited to night-time.



Sleep Stages

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Sleep onset, non-REM sleep	Non-REM sleep	Non-REM sleep	Non-REM sleep	REM sleep
Drowsiness/ light sleep, easily awoken This is when you start falling asleep and is usually brief.	Light sleep Your brain activity heart rate & breathing start to slow down. You begin to reach a state of total relaxation in preparation for deep sleep	Deep sleep begins Your brain waves further slow but there may still be short bursts of faster brain activity. If you were awoken during this stage, you would be groggy & confused, & find it difficult to focus at first	Deep sleep This is where you experience your deepest sleep of the night. Your brain is mostly slow wave activity, & it's difficult to wake someone up when they are in this stage	"Active" sleep, when you dream Your blood flow, breathing, & brain activity increases, but your muscles go into a paralysis-like state. The brain activity looks similar to when you are awake

Diagnosing nocturnal seizures

It can be difficult to diagnose nocturnal seizures because they happen during sleep and the person may not be aware they are happening.

As with most forms of epilepsy, a good history of the seizures, or an eyewitness account is very important for diagnosis. The doctor may also suggest a sleep video EEG.

If left undiagnosed, the person may suffer from excessive daytime sleepiness. This can affect concentration, attention and learning as well as behaviour and emotions leading to reduced quality of life.

Can they change to daytime seizures?

If a person maintains a pattern of only having seizures during sleep for several years, the probability of the seizures happening when they are awake, is small.

This does not mean daytime seizures won't occur. There may be extenuating situations such as extreme stress or sleep deprivation and medication changes or withdrawal, all which lower their seizure threshold and increase the risk of a seizure, day or night.

Daytime seizures may also occur if someone with nocturnal seizures decides to take a daytime nap or becomes very drowsy during the day. With good seizure and lifestyle management however, the risks of a daytime seizure can be greatly reduced.



How are they managed?

Medical treatment of nocturnal seizures is like treating daytime seizures, it is generally based on the type of seizures rather than on the time of them happening. Although sometimes the specialist may prescribe a higher evening dose of antiseizure medication.

It is important to aim for the best seizure control possible because nocturnal seizures interrupt sleep, sometimes quite a lot. This can then cause a cycle of sleep deprivation, which is also a common seizure trigger, and may increase the risk of more seizures occurring. Nocturnal seizures are also associated with risk.

Risks – Safety

Having a seizure in bed, particularly if you live or sleep alone, poses a number of safety risks. For a person with nocturnal seizures, it may be wise to:

- Choose a low bed and avoid sleeping in a top bunk
- Keep heavy or sharp cornered furniture away from the bedside to prevent injury
- Consider using a safety mat on the floor next to the bed if they are likely to fall out of bed during seizures.
- Wall mounted lamps pose less safety risks than ordinary table lamps or study lamps, which can be easily knocked over.
- There are many devices for night-time seizure monitoring available for use in the home. They are designed to recognise that a seizure has occurred or that breathing has been disrupted and trigger an alarm so assistance can be provided.
 - Although many people find these monitors helpful, these devices cannot guarantee the safety of a person experiencing nocturnal seizures. However, some families have used monitors as a part of a risk reduction plan. Speak to your doctor about whether a device is something that you might choose to use. You may also seek out the advice and personal experience of others in an online community. See some [safety devices](#) available.
- There are also special pillows available called an 'anti-suffocation' pillow, which allows more airflow.
- If there is someone available to help you if you have a seizure, make sure they know how to put you into the recovery position (onto your side) and that they know what to do in an emergency. Download a free [seizure first aid poster here](#)

Risks – SUDEP

Sudden Unexpected Death in Epilepsy (SUDEP) is when a person with epilepsy dies suddenly and prematurely and no reason for death is found. SUDEP deaths are often unwitnessed with many of the deaths occurring overnight during sleep. There may be obvious signs a seizure has happened, though this isn't always the case.

Although the risk of SUDEP is very low, the risk increases for people with tonic-clonic seizures, especially if they happen at night or when asleep. [Click here](#) to see how to take action against this risk

We also have a [SUDEP and Safety Checklist](#) which your GP or Epilepsy Nurse can discuss with you.

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Practice good sleep habits

Try some of these ideas:

- Keep the same bedtime and rising times as much as possible
- Work with your internal body clock, so don't ignore tiredness, go to bed when your body tells you to
- Make sure your bedroom is a restful and calm place to be. Keep it dark at night and open the blinds when you wake
- Avoid shift work if you can, as it affects sleep times and quality of sleep.
- Avoid caffeine after lunch as this can affect sleep quality, which can affect seizures in some people
- Regular exercise can improve a restful sleep. Don't exercise within four hours of bedtime though
- Keep evening activities calm or use relaxation or breathing techniques to get a better nights sleep
- Read (for enjoyment) before going to sleep if that relaxes you
- If you are worried about something, try not to think about it just before bedtime, but rather write a list to help put those problems aside and deal with them in the morning.
- If you like to have an alarm clock in the bedroom, don't have it where you can see the time. If you wake up in the night, it is best not to keep looking at the clock
- If you have tried and failed to improve your sleep, there are sleep specialists who can help

Medication

The effect of antiseizure medication on sleep varies from person to person. If you feel your medication has a negative impact on your sleep, or you are excessively tired it is something worth discussing with your neurologist or GP.

If nocturnal seizures aren't detected or diagnosed, this can result in years of daytime fatigue, memory and concentration problems. Good sleep patterns are essential for people with epilepsy.

Further information

[Epilepsy and Sleep](#): Neurologist Dr Dan McLaughlin talks about epilepsy and sleep

[Safety Factsheet](#)

[SUDEP and Seizure Safety Checklist](#)



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