

The science of sleep: Strategies for better rest and rejuvenation



Have you ever found yourself wide awake at 2 AM, trying to count imaginary sheep to fall asleep? You're not alone. In our fast-paced world, aggravated by the lingering effects of global events like the pandemic, an increasing number of people are experiencing difficulties with sleep.

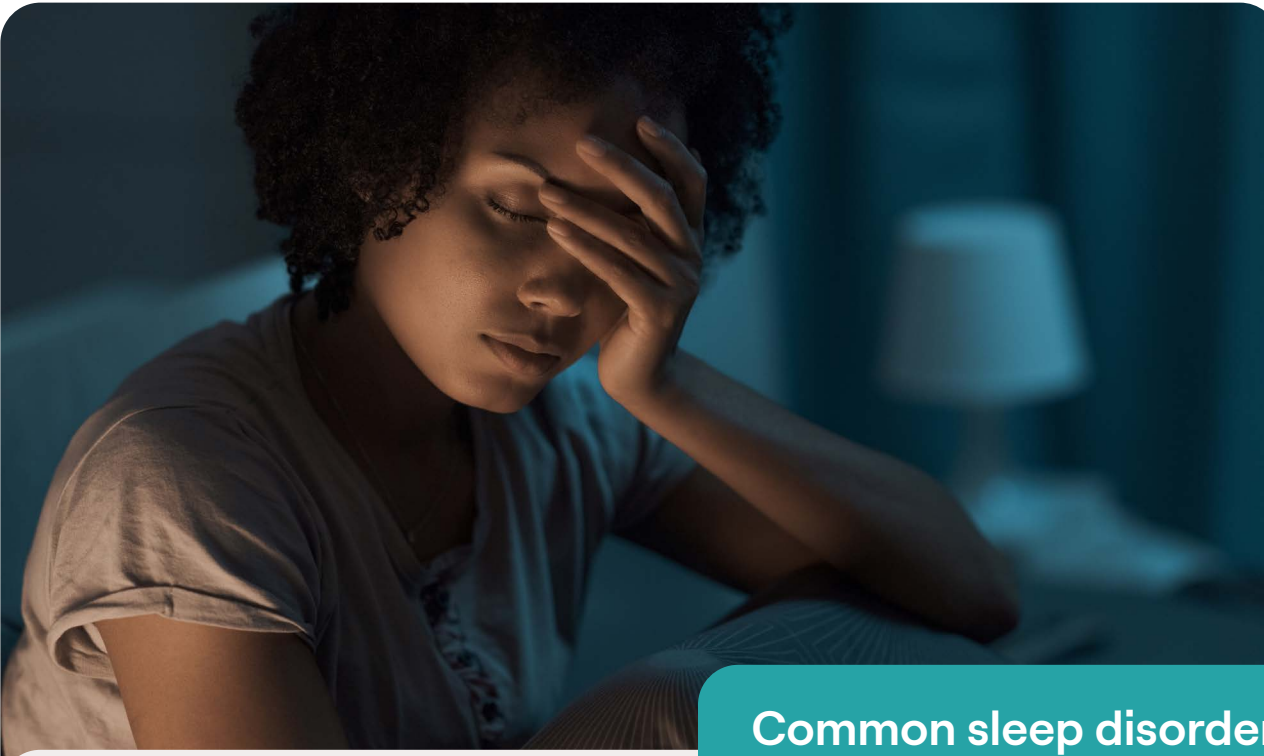
The key to a superior snooze lies in understanding sleep patterns and the environment that surrounds us. We'll explore everything from the **benefits of cooler temperatures** to the **necessity of the right kind of darkness**. With a growing number of adults experiencing some form of sleep disorder, understanding and addressing sleep issues has never been more essential.



The science behind sleep

During sleep, our brain undertakes essential functions such as **consolidating memories**, **processing information**, and **replenishing its energy stores**. The connection between sleep and mental health is strongly bidirectional. Poor sleep can worsen mental health issues, while mental health disorders can disrupt sleep patterns. In fact, emerging research indicates that changes in sleep patterns may serve as early indicators of mental health disorders like depression and anxiety.

The benefits of quality rest extend beyond mental health. Adequate sleep is essential for emotional regulation, cognitive function, and physical health. It helps **reduce stress**, **uplift mood**, and **sharpen concentration**. Chronic sleep deprivation, on the other hand, is linked to a higher risk of health issues, including cardiovascular diseases and metabolic disorders. Good sleep practices are not just preventative but also restorative, offering a buffer against these risks.



Common sleep disorders

Sleep disorders are a significant health concern, affecting a large portion of the population at some point in their lives. Here, we explore some of the most common sleep disorders and the latest advancements in their management.

- **Insomnia:** Characterised by **difficulty falling or staying asleep** and often associated with stress, lifestyle habits, or underlying health conditions. Insomnia is quite prevalent, with studies suggesting that approximately **10-30% of adults** suffer from it to some degree. Cognitive-behavioural therapy (CBT) has emerged as a highly effective treatment, focusing on changing sleep habits and misconceptions about sleep.
- **Sleep Apnoea:** Marked by **pauses in breathing during sleep**, sleep apnoea can lead to fragmented sleep and reduced oxygen levels in the blood. Innovations in Continuous Positive Airway Pressure (CPAP) technology greatly benefiting anyone suffering with this disorder.
- **Restless Leg Syndrome (RLS):** Causes **uncomfortable sensations in the legs** and an irresistible urge to move them, especially at night. Recent research is making strides in understanding the neurological basis of RLS, leading to more effective treatments.
- **Narcolepsy:** A chronic condition characterised by overwhelming **daytime drowsiness** and **sudden attacks of sleep**. Advances in medication and lifestyle adjustments are showing promising results in managing its symptoms.

The different sleep stages

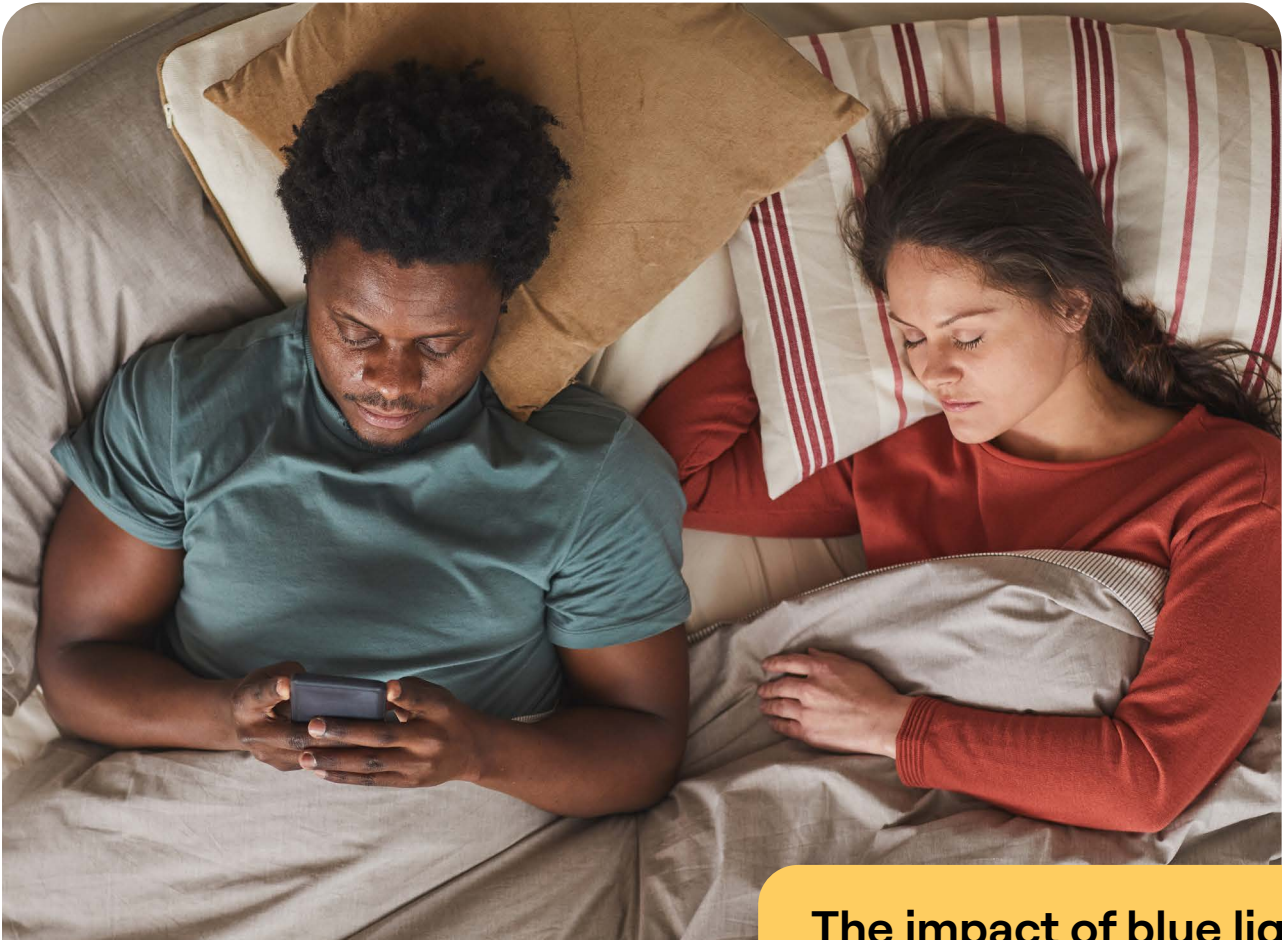
The key to feeling refreshed isn't just about how long you sleep, but how well you sleep. Many of us, despite clocking the recommended eight hours, wake up feeling groggy and unrefreshed. This can often be explained by the quality of sleep, particularly the stages of sleep we cycle through at night.

There are two main types of sleep: rapid eye movement (REM) sleep and non-rapid eye movement (NREM) sleep. Each plays a unique role in our health and wellbeing:

- **Stage 1 (NREM):** This is the lightest stage of sleep and lasts for a few minutes. It is a transitional stage between wakefulness and deeper sleep.
- **Stage 2 (NREM):** In this stage, your body starts to relax further, and your brain waves become slower with occasional bursts of rapid brain activity.
- **Stage 3 (NREM):** Also known as deep or slow-wave sleep. Your brain waves slow down significantly, and it is challenging to wake up during this stage. This is when your body undergoes physical restoration and repair.
- **REM Sleep:** Characterised by rapid eye movements, increased brain activity, and vivid dreams. It is thought to be essential for emotional processing and memory consolidation. REM sleep cycles can vary in length but typically become longer as the night progresses.

A complete sleep cycle consists of **NREM sleep followed by a period of REM sleep**. Throughout the night, you will cycle through these stages multiple times. The exact number of sleep cycles varies from person to person, but on average, most people experience **four to six complete sleep cycles** in a typical night.

Keep in mind that individual sleep needs can vary, and some people may feel rested and alert with slightly more or slightly fewer sleep cycles. It's essential to **listen to your body** and pay attention to how you feel during the day to determine your own sleep requirements.



The impact of blue light

Our nightly routines often include the use of digital devices, but this habit can be detrimental to our sleep quality. The blue light emitted by screens is particularly impactful on our sleep-wake cycles.

- **Blue light and circadian rhythms:** Blue light interferes with our circadian rhythms, the natural internal process that regulates our sleep-wake cycle. Exposure to blue light, especially in the evening, can trick our brain into thinking it's still daylight, making it harder to fall asleep. Blue light disrupts melatonin production, a hormone that signals our body it's time to sleep.
- **Daytime blue light exposure:** Not all blue light exposure is bad. In fact, exposure to natural blue light during the day can be beneficial. It boosts alertness, helps regulate our sleep patterns, and improves mood and cognitive function.
- **Managing blue light for better sleep:** To reduce the negative effects of blue light on sleep, limit screen time in the evening. Options like blue light filtering apps or glasses can also help reduce exposure. Activities that don't involve screens, such as reading a book under warm light, can further prepare your body for sleep.

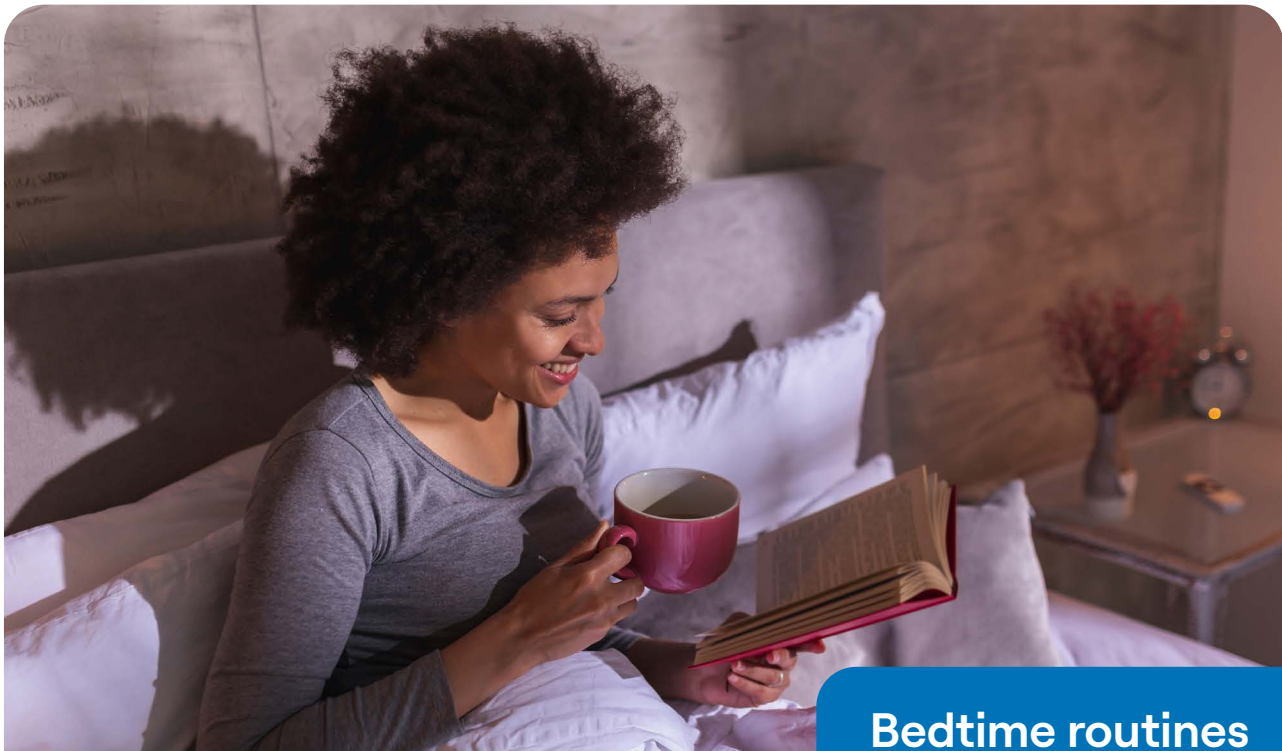


Diet and sleep

The connection between diet and sleep is often overlooked, yet what we eat can significantly affect our sleep quality. Both the type of food and the timing of meals play a crucial role in how well we sleep.

- **Foods to avoid before bedtime:** Avoid consuming caffeine-laden beverages, heavy or rich meals shortly before bedtime. Caffeine, a stimulant found in coffee, tea, and some sodas, can remain in the system for several hours, hindering the ability to fall asleep. Similarly, heavy meals can cause discomfort and indigestion, making it difficult to stay asleep.
- **Sleep-inducing nutrients:** On the flip side, certain foods can promote better sleep. Foods rich in magnesium, such as almonds and spinach, help relax muscles and calm the nervous system. Tryptophan, an amino acid found in turkey, dairy products, and nuts, aids in the production of serotonin and melatonin, which can improve sleep quality.
- **Effects of spicy and sugary foods:** Spicy foods can lead to discomfort and heartburn, while high sugar intake can cause fluctuations in blood sugar levels, leading to restlessness and nighttime awakenings.
- **Meal timing:** The timing of meals is also crucial. Eating too close to bedtime can interfere with the body's natural winding-down process. It's generally advised to have the last meal of the day at least a couple of hours before going to bed.

It's also worth noting that the need to urinate at night in older age can be attributed to different causes in men and women. In men, it can often be related to prostate issues, while in women, it may be due to hormonal changes associated with aging. Eating and drinking less in the evening is therefore a non-invasive approach to mitigating this issue.



Bedtime routines

The importance of establishing a consistent bedtime routine is often overlooked. A routine signals to your body that it's time to wind down and prepare for sleep, facilitating a smoother transition into restfulness.

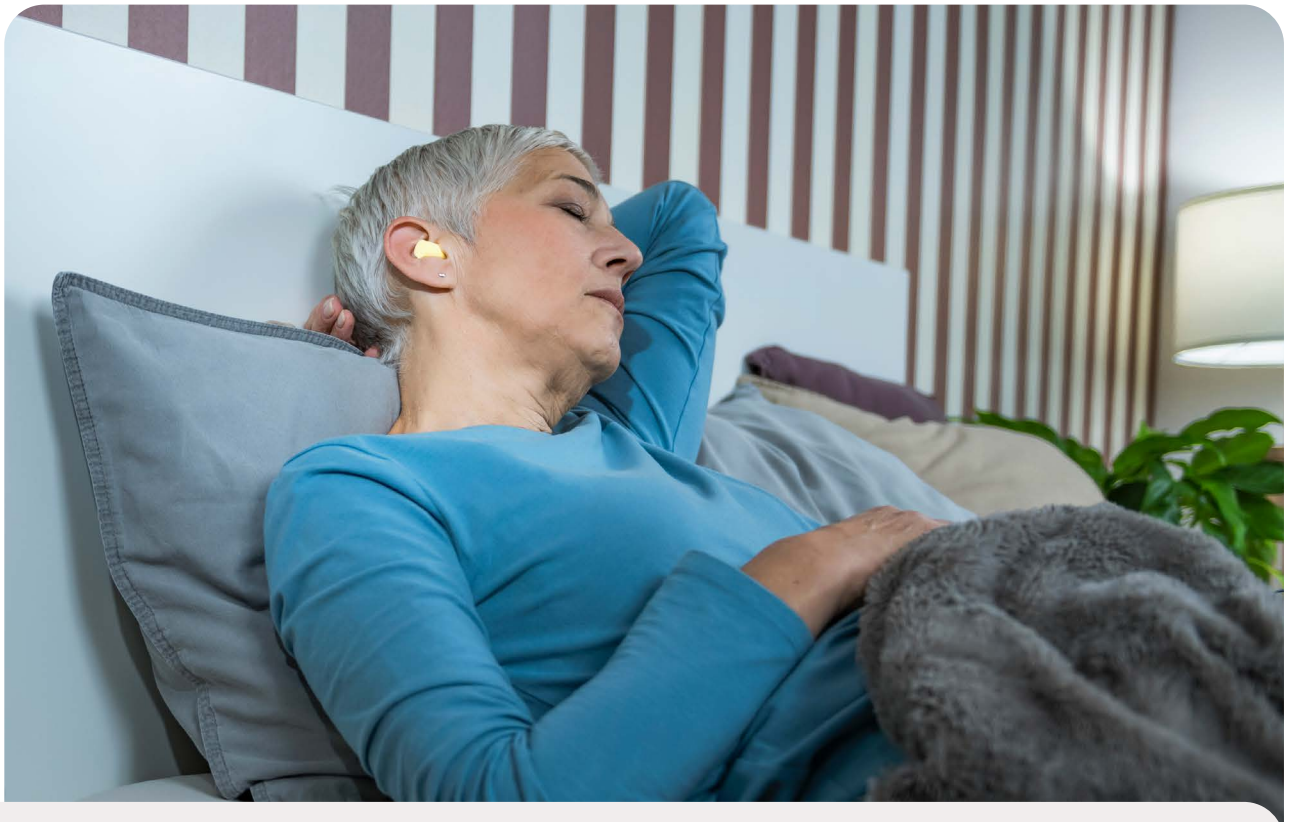
- **Creating a personalised routine:** What works for one person may not work for another. A routine could include activities like gentle stretching, mindfulness meditation, reading, or a warm bath. These activities help relax the body and quiet the mind, setting the stage for restful sleep.
- **Digital detox:** Incorporating a digital detox, where electronic devices are turned off at least an hour before bed, can significantly improve sleep quality. This practice reduces exposure to stimulating content and blue light, which can disrupt sleep cycles.
- **Duration and consistency:** Even a 10-minute routine can be effective. The key is consistency; performing the same activities in the same order every night can reinforce the body's sleep-wake cycle.
- **Relaxation techniques:** Deep breathing exercises, progressive muscle relaxation, or gentle yoga can also be included in a bedtime routine to further promote relaxation.

By tailoring a bedtime routine to individual preferences and sticking to it consistently, you can significantly enhance the quality of their sleep.

Managing insomnia

Insomnia, a prevalent sleep disorder that affects millions, can be challenging to overcome. However, **recent advancements in sleep science** offer new perspectives and strategies for managing this condition.

- **Cognitive-Behavioural Therapy for Insomnia:** CBTi is a highly effective approach for treating insomnia with approximately **70-80% of patients experiencing improvement** in their condition. It not only helps individuals recognise and change negative thought patterns and behaviours related to sleep but also focuses on establishing a consistent sleep schedule and sleep-promoting routines. CBT is often recommended as a first-line treatment for chronic insomnia.
- **Digital health technologies:** Sleep-tracking apps and wearable devices can provide valuable data on sleep patterns, but it's essential to interpret this information correctly. They can help **identify trends and patterns**, which can be useful for making informed changes to one's sleep habits. However, they should not be used as a replacement for professional diagnosis and treatment if insomnia is severe or persistent.
- **Room temperature and darkness:** Creating a sleep-conducive environment is crucial for improving sleep quality. Science suggests that a temperature between **15 to 19°C** is ideal for promoting good sleep. If you have certain medical conditions, like Raynaud's disease or poor circulation, keeping your feet warm with socks may be advisable. Many people find it easier to fall asleep in complete darkness. Consider using blackout curtains or blinds in your bedroom. If you're someone who prefers a small amount of light in the room, use a dim nightlight with a warm, soft glow.
- **Air quality and noise:** Regularly vacuum, dust, and change bedding to reduce allergens that can affect your breathing and sleep quality. Open windows periodically to allow for air exchange, especially if your bedroom tends to become stale or stuffy. Consider using an **air purifier with a HEPA filter** to remove particles and allergens from the air. Most people prefer absolute silence to fall asleep. If you're sensitive to external noise, using earplugs can be an effective way to block out unwanted sounds. Others find **white noise machines or apps** that produce sounds like ocean waves, rainfall, or gentle static to be helpful for falling asleep.



- **Diet and lifestyle:** Avoiding caffeine and heavy meals close to bedtime is important, as is maintaining a balanced diet. Engaging in **regular physical activity is beneficial** for overall health, but it's essential to time exercise appropriately, as exercising too close to bedtime may be over stimulating.
- **Medication and supplements:** In some cases, healthcare professionals may recommend medications or supplements as part of insomnia treatment. There is an exciting **new addition to the market: daridorexant**. This drug shows promise for some chronic insomniacs. While it's a recent development, its potential in improving sleep quality for those who struggle with persistent insomnia is promising. Any medication should be used under the guidance of a healthcare provider, as they can have potential side effects and interactions with other medications.
- **Stress and mental health:** Addressing stress and underlying mental health issues is also crucial for managing insomnia. Stress reduction techniques, relaxation exercises, and therapies like **mindfulness meditation** can be valuable additions to a comprehensive insomnia management plan.

It's essential for individuals experiencing chronic insomnia to consult with healthcare professionals, such as sleep specialists or psychologists trained in sleep medicine, to determine the most appropriate treatment plan.

Contact **HealthHero** today for more support and advice. We're with you every step of the way.
