

30 Boost Your
DAYS TO Energy

The science of SLEEP

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Sleep is a pretty bizarre thing to do when you think about it. Every night we tuck ourselves into bed, our bodies become immobile, while our brains are active with wild and wonderful dreams...

When there's so much to fit into a day, it is perhaps not surprising many people don't prioritise sleep over other activities. A report on the sleep habits of people in the UK, taken in 2025, found that more than half of the adults surveyed weren't getting the recommended hours of sleep per night. Another study found that 7.5 million Brits were getting less than five hours of sleep a night, which is



Science of sleep

considered "dangerously" low. Dangerous sounds like an extreme term for not staying in bed for long enough, but sleep is so important for our wellbeing because it affects everything from our energy levels to our emotions, and responsiveness and recovery.

In the short-term, a bad night's sleep could be dangerous if it causes you to have an accident, like falling asleep at the wheel or cutting yourself chopping veg because you're not

focused on using the sharp knife. It can have an effect on your relationships by making you irritable, and ruin job prospects if you're too tired to concentrate in an exam or on a work task. This can all have an impact on your mental health, too. The long-term dangers of sleep deprivation make for scary reading; a consistent lack of sleep over the decades can weaken the immune system, leading to chronic illness, and it can increase the likelihood of developing diseases such as heart disease and Alzheimer's.

So, what actually happens to the

body when we sleep? It's such a crucial time for the body to physically repair and restore energy as when we sleep well, the body produces more ATP. This is an energy molecule known as 'the energy currency of life' as it fuels all cellular function. Without ATP, cells don't have a source of usable energy.

During sleep, we also produce higher levels of growth hormones that repair muscle fibres and bone tissue. This is particularly important if you have been physically active during the day. Studies have found that athletes who get more sleep are less likely to get injured. Inflammation is also reduced while sleeping, which aids joint recovery and mobility.

Information processing

Not only is sleep an important restorative time for the body, it is also beneficial for the mind too. During sleep, our brain processes information and stores memories. This helps us learn and develop new skills. If you don't get enough sleep, you may be more forgetful and less productive. Studies show people who get less sleep don't retain as much new information as those who do. This can have a real impact on your >



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day-to-day life and, in the long term, it can have serious consequences for your mental health too. During sleep, toxins are cleared from the brain. Long-term sleep deprivation can lead to these toxins building up, which has been linked to the development of dementia and Alzheimer's disease.

Does how much sleep we need to change as we age? As babies, children and teenagers are growing, studying and constantly learning new things, they need a lot more than adults. Newborns to toddlers need up to 16 hours, including naps. Children aged 3-12 need 10-13 hours, and teenagers up to nine hours. The NHS recommend 7-9 hours of sleep a night

for healthy adults. Aiming for this duration regularly is ideal, while accepting that there are some times when it will not be possible, for example if you're up late at an event, rising early for an appointment or up in the night with children. There are also circumstances when you should aim for extra sleep, for example if feeling unwell, or after a particularly hard exercise session. As previously explained, the mind benefits from sleep, so getting to sleep earlier could actually help you more than staying up late and cramming in revision for an exam, or preparing for a work presentation into the early hours.

While aiming for a decent duration

of sleep is a good idea, the quality is as important as the quantity. We go through various sleep cycles at night and deep sleep and REM (Rapid Eye Movement) sleep is when much of the magic happens. That's why a long night in bed of interrupted, light sleep can actually be less beneficial than a few hours of deep sleep.

Four stages of sleep

The four stages of sleep begin with stage one of light sleep, which is on average about 7 minutes. This is the period when you are just nodding off. Stage two, which is 10-15 minutes on average, is when the body begins to wind down even more. The heart rate becomes lower, breathing rate is slower and the muscles become more relaxed. This is preparation for stage three – deep sleep. This is the most restorative part of the sleep cycle for the body, and typically it lasts 20-40 minutes. Stage four, known as REM, is when brain activity increases. This is the time when you are more likely to

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have dreams. It's also this stage that is the most important for cognitive functions, and it lasts on average up to 60 minutes. During REM, the body experiences 'atonia', which is a temporary paralysis of the muscles. The only muscles that continue to function are the muscles for breathing and the eyes – hence the stage referring to eye movement.

Adults will go through several of these sleep cycles a night. You're more likely to be woken up during stage one and two, which will then impact on how much deep and REM sleep you get. So try to keep your sleep more constant by giving yourself a calm and peaceful sleeping environment. Have double-glazed windows or noise reducing curtains fitted if you live in a busy area where traffic might disturb you. Wear ear plugs if you have noisy neighbours or a partner who stays up later than you. Black-out blinds or an eye mask will help keep out sun rays that might wake you up too early. Especially in the summer months when the sun can rise as early as 5am. Keeping your bedroom cool also enhances your sleep, so turn off radiators or use a fan when it is hot. Avoid stimulants that might prevent you getting into a deep sleep, such as too much caffeine, alcohol or sugar before bed. ■

TOP TIPS

4 tips to improve your sleep hygiene

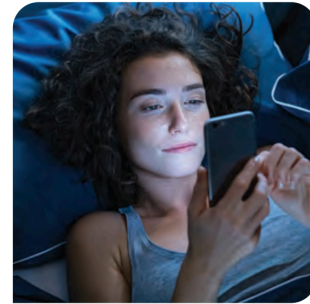
1 BEDTIME ROUTINES AREN'T JUST FOR KIDS!

If you can create your own, you'll be able to wind down better and keep your body clock in sync. It is a form of brain training, so as you go through the various steps it will send signals to your brain that you are preparing to sleep. This will help make it much more likely that you will nod off more easily once your head hits the pillow.



2 AVOID CAFFEINE IN THE LATE AFTERNOON AND EVENING

It can take a long time for your body to process caffeine (just how long depends on numerous factors including your tolerance, age and genes) so avoid it four to six hours prior to your bed time. Having a hot drink before bed can be an effective part of a bedtime routine though, by providing psychological comfort that makes you feel cosy and relaxed. Just make sure to avoid sugary hot chocolates, which can make you feel more alert. Instead, go for calming herbal options like chamomile tea.



3 STAY OFF YOUR MOBILE PHONE

Phone screens emit blue light, which suppresses the hormone melatonin that helps you fall asleep. The mental stimulation of reading captions, watching videos or engaging socially with someone else via messages will also make it harder for your mind to switch off.



4 KEEP A NOTEBOOK AND PEN HANDY

This is a good idea if you're someone who often can't sleep, because all the things you need to do the next day are whirling around your head. Or you suddenly remember something you were supposed to do but forgot before going to bed. Having a notepad and pen handy (avoid making notes on your mobile phone, see point above!) will put your mind at rest and give you a reminder in the morning in case you forget again.