
Recommendations

IMPROVING YOUR SLEEP

Sleep is a fundamental requirement for the proper functioning of our body.

Humans have a biological clock which follows something called the circadian rhythm. This 'clock' is located in the suprachiasmatic nucleus (SCN) in the hypothalamus of the brain. The SCN is a tiny pinhead-sized area, containing just 20,000 or so very small neurons, but it has the responsibility for sending signals to several other parts of the brain to regulate the daily sleep-wake cycle. Our eyes have special nerves that sense light frequency and thus inform the brain about daytime and when it is time to prepare for sleep.

The brain's circadian clock regulates a huge range of activities including sleeping and feeding patterns, alertness, core body temperature, brain wave activity, hormone production, regulation of glucose and insulin levels, urine production, neuron restoration, immune system regulation, cell regeneration including muscle and damage repair, and many other biological activities.



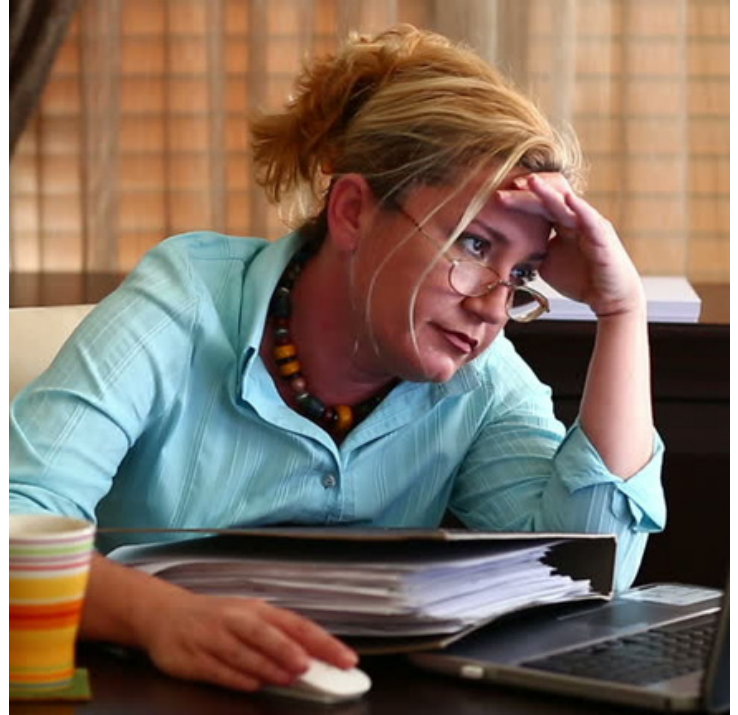
Without sleep, you would die within a matter of days. The more common problem in everyday life is not getting enough sleep, rather than no sleep. This loss accumulates into a huge sleep deficit each year. Proper sleep habits help sustain the many biological processes mentioned above, and bad sleep can cause these processes to be suboptimal or even malfunction.

Some of the issues that you might experience as a result of poor sleep include problems with cold/heat regulation, lowered immunity and therefore more colds/flu, increased stress hormones, inability to manage appetite and cravings, leading to increased weight and an association with obesity, increased inflammation, increased cortisol levels and a longer recovery and repair from exercise.

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In perimenopause, hot flashes and night sweats can be a contributing factor to disturbed sleep, as a result of low progesterone and fluctuating oestrogen. If hot flashes continue after the last period, they are more related to low oestrogen levels. Check out our FAQs in the Resources section to see what you could do to help this.

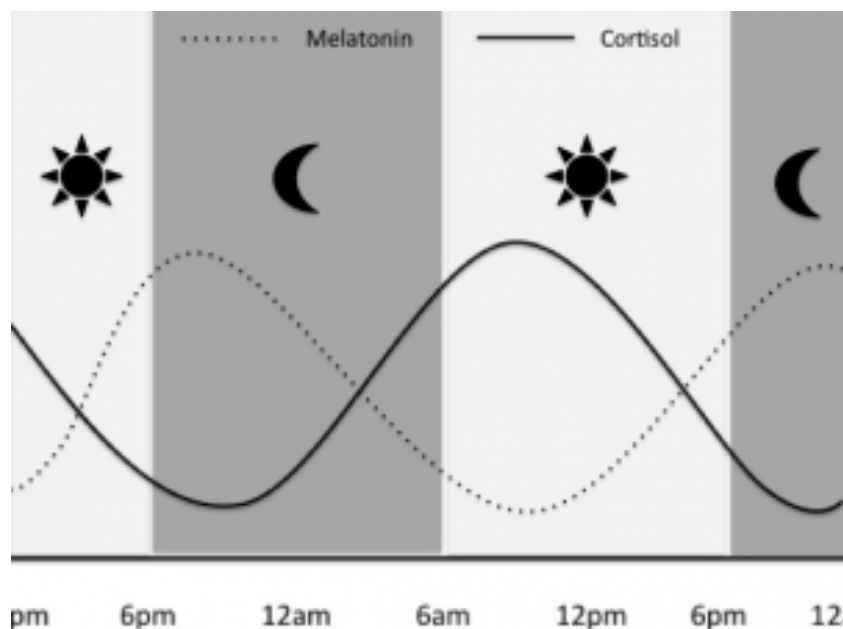
In addition, sleep disturbances, related to mood and anxiety, in perimenopause are again due to low progesterone, high oestrogen and possibly high histamine. If you are experiencing allergy like symptoms, such as rashes (e.g. hives), itching, flushing, irritable bowel syndrome, indigestion, breathlessness, palpitations, migraines, dizziness, anxiety/panic, joint aches and nasal congestion, then you may be experiencing a temporary histamine intolerance, related to high oestrogen. In this case, it might be worth following a low histamine diet. Please see the 'Resources' section for more details on this.



Outside of the hormonal fluctuations in perimenopause, melatonin and cortisol are two hormones that are strongly involved in the circadian rhythm.

Melatonin is a natural hormone that is produced by the pineal gland. It helps control your sleep cycle. The body produces melatonin just after it gets dark, peaking in the early hours of the morning and reducing during daylight hours. Melatonin acts on receptors in your body to encourage sleep.

As you can see from the diagram below, melatonin and cortisol peak at different times; melatonin at night and cortisol in the early morning. Both hormones are sensitive to environmental factors like retinal light exposure (which suppresses melatonin secretion) and stress (which, as we've seen already, stimulates cortisol release).



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Other neurotransmitters are also involved in driving wakefulness and sleep, including histamine, dopamine, norepinephrine, serotonin, glutamate, orexin and acetylcholine, amongst others. While none of these neurotransmission processes is individually necessary to the cycle, they all appear to contribute in some way. We've already mentioned that the fluctuating and dropping female hormones, oestrogen and progesterone, contribute to the functioning of some of these neurotransmitters and as a result, problems with sleep and insomnia are common problems in perimenopause.

How much sleep do I need?

This question can open a big can of worms because there are a lot of factors to consider: age, genetics, environment, and individual differences in daily physical and mental strain. Each of these will create huge variations in ideal sleep times.

Consider the following when thinking about what works best for you:

- How much sleep do you personally feel rested and happy with? Some people do great on 6 while others need 9.
- Do you have health issues or a chronic medical condition?
- Are you an athlete training 8+ hours p/week, training for a specific goal?
- Are you recovering from an injury?
- Do you experience sleep problems (quality)?



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Sleep Debt

How do I know I'm not getting enough sleep? The emphasis on sleep is two-fold: not only do the amount of hours matter, but the quality too. In the absence of a test, ask the following questions:

- Do you have to drag yourself out of bed in the morning? Or do you need ten coffees to wake up? This could also be a sign of poor blood sugar management.
- Do you need to set an alarm to wake up?
- Do you get less than 7 hours of sleep once or more per week?
- Do you sleep in on the weekend?
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A 'yes' to any of these would indicate sleep debt.



Tips and tricks to improve sleep quality

Set a baseline: look to track sleep data points on certain devices, like the iPhone, Fitbit, Garmin, Polar, Whoop strap etc. These trackers, while maybe not 100% accurate, can give you some invaluable insights into trends. Or just keep a sleep diary, like a food diary. Recording time you went to bed, how long it takes to go to sleep, waking times and reasons, etc.



Timing: Deep sleep, or slow wave sleep, is the most restorative sleep for the brain and is the time when some crucial processing occurs, such as physical repair, memory consolidation, secretion of growth hormone, and an increase in parasympathetic neural activity, which slows heart rate and blood pressure, amongst others. Our sleep is composed of a series of 90-minute cycles during which your brain moves from deep, non-rapid eye movement (non-REM) sleep to REM sleep. While the 90 minute cycle remains stable, the ratio of deep to REM sleep changes as the night progresses, with deep sleep dominating in the early part of the night, and REM sleep increasing towards dawn.

Ways to increase deep sleep include giving your body the opportunity to get rest, so going to bed between 8pm and midnight, tuning in to when you're tired and ensuring you have the time to stay in bed for 8 hours.

Other ways of increasing deep sleep include doing some aerobic exercise during the day, heat exposure before sleep, such as sauna or hot bath and eating a low carbohydrate diet.

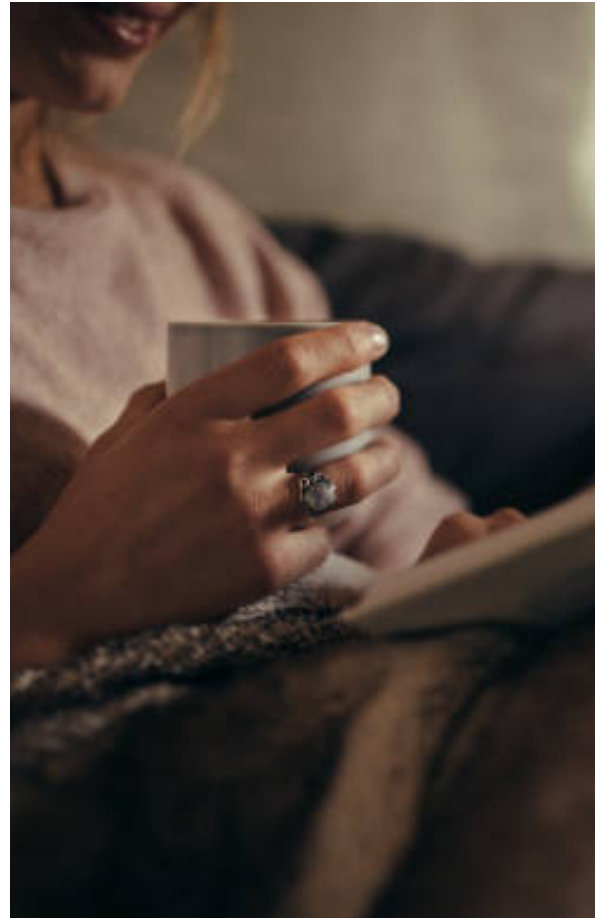
Other advice to maximise the chances of deep sleep are to go to bed and wake up at the same time each night, even after a bad night's sleep and at the weekend.

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Light: our circadian rhythm works off our light exposure. Blue light helps to stimulate and keep us awake while red light and dark helps to wind us down for bed. In today's society, it's hard to escape blue light from TVs, laptops, computers, phones and other electronic devices. Blue light amplifies cortisol which is not something you want happening all day as it interferes with melatonin production.

The circadian clock is most sensitive to light from about 2 hours before usual bedtime and through the night, until about 1 hour after usual wake-up in the morning (this is the sensitive period). Exposure to light during these times will affect when your body naturally gets sleepy and is ready to fall asleep.

Bright evening light 2 hours before bedtime will shift the time for sleep later, so you will tend to get sleepy and fall asleep later in the evening and will wake up later in the morning. As a result, it is a good idea to turn off all technology at least 2 hours before bed. If you have trouble falling asleep, keep the light levels dim for the 2 hours before you want to go to sleep. You can wear dark sunglasses, if it is hard to control the light in the area; wraparound ones work best, or there is some research to suggest that amber glasses can suppress the effect of melatonin reduction from blue light. That should help you fall asleep more easily. If you are waking up too early and cannot fall back to sleep, make sure you keep the lights very dim until the time you want to wake up.



In the morning, allow your eyes to get natural light exposure as early as possible in the morning, in order to reset your circadian clock. Ideally, this should be 30 minutes of full spectrum light in the first 1 to 2 hours of the day. Bright morning light will shift the time for sleep earlier, so you will tend to get sleepy and fall asleep earlier in the evening and will wake up earlier in the morning. If you are unable to expose yourself to daylight, it might be worth considering a light therapy box, which aims to mimic outdoor light.



Dark: working off the point above, the next step is to create a night setting that encourages your body to wind down. This can mean dimming the lights in the house once you get home, using a low light bedside lamp for when you're getting ready for bed, using black out blinds, especially in spring and summer and removing all traces of light once you are ready to go to sleep.

Sounds: Some of us live in noisy towns and cities which is where sound can become an issue for a good night's rest. Try using white noise apps or ear plugs if noise is interrupting your night's sleep.

Cool environment: sleeping in a hot room can cause you to toss and turn. Our bodies are designed to sleep in a cool environment. Maybe you need to open a window, or use a lighter duvet. A room temperature of about 18°C is ideal.

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Exercise: A 2017 meta-analysis observed that exercise is linked to significant improvement in overall sleep quality, on the basis of 150 minutes of moderate intensity exercise per week, as already discussed in our section on 'Incorporating the right kind of exercise'.

Stress: if increased cortisol production is due to stress and this is preventing you from winding down in the evening, then maybe consider some ideas to destress in the 'Reduce Your Stress' section. Common stressors that can disrupt sleep include scrolling through social media late at night, checking emails, high intensity training late at night etc.



Quit the caffeine: caffeine has a half-life of 5-6 hours. As a result, one quarter of the coffee you had at midday is still in your blood stream at midnight! If you are having sleep problems, ideally you would cut coffee out altogether, or at the very most, have one cup as early as possible, e.g. before 10am.

Avoid alcohol: alcohol depresses the central nervous system, causing brain activity to slow down and has a sedative effect, inducing feelings of relaxation and sleepiness. However, the consumption of alcohol, especially in excess, has been linked to poor sleep quality and duration and can exacerbate the symptoms of sleep apnea.

Epsom salt bath: these salts are made from magnesium sulphate and can help to relax muscles, relieve stress and, with the increase in body temperature in the bath, increase deep sleep.

Routine: introducing a regular, relaxing bedtime routine can be helpful, incorporating some of the ideas above, such as avoiding blue light 2 hours before bed, dimming the lights in the house, possibly using some of the destress touchstones we mentioned in our 'Reduce your Stress' section, getting ready for bed, reading in bed for 15-20 minutes using a low wattage reading light if possible, possibly spraying your pillow with a lavender spray.

Low histamine diet: if your sleep issues are in tandem with some allergy like symptoms mentioned above, then following a low histamine diet may help. Check out the 'Resources' section for more information.

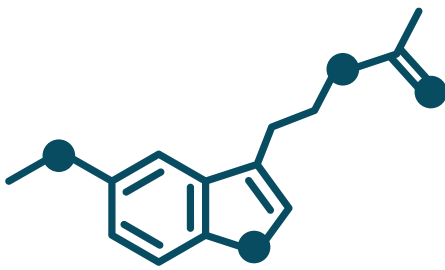
Get checked out: if your sleep is being disrupted by restless leg syndrome, hot flashes, fibromyalgia, an increased need to urinate or sleep apnea (symptoms of which are loud snoring, gasping, frequent urination, dry mouth, headaches on waking, daytime sleepiness and fatigue), it maybe worth having a conversation with your GP to see if any of these symptoms require further investigation.

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Supplements for Sleep

All a supplement can do is help you fall asleep, help you stay asleep, and help you sleep better. None of these are a magic answer to knock you out. Before looking to a supplement, the first thing is setting a sleep schedule and addressing some of the issues above. If you feel like you need to supplement, please consult with a Nutritional Therapist in advance, especially if you are taking medication.

Magnesium: we've already mentioned in our section on reducing stress that magnesium is involved in hundreds of reactions in the body. From a sleep perspective, one core benefit of magnesium is it helping with muscle relaxation which in turn can help you relax for bed. Commonly supplemented forms include citrate, gluconate, taurate and glycinate. Avoid magnesium oxide due to poor bioavailability. The therapeutic dose to aid with sleep is 300mg of magnesium.



Melatonin: The production of melatonin can be disrupted by exposure to artificial light after sunset. Oral melatonin may help alleviate insomnia, reduce sleep latency, and improve sleep quality. Melatonin's benefits hinge on its ability to decrease the time it takes to fall asleep. Note your body makes melatonin from the protein L-tryptophan. Tryptophan is an amino acid and is found in foods high in protein such as chicken, eggs, cheese, fish, peanuts, pumpkin and sesame seeds, milk, turkey, tofu and soy. Note melatonin is a prescribed medicine in Ireland.

Glycine: Research has shown that glycine, an amino acid and neurotransmitter, can shorten the time to fall asleep and reach deep sleep by calming the brain and boosting serotonin and melatonin. The dose for helping with sleep is 3-5g taken an hour before going to bed. It can also be taken with magnesium as a magnesium glycinate supplement.



Taurine: is also a neurotransmitter and is involved in promoting insulin sensitivity and energy metabolism. It is also a GABA agonist, which means that it works with some GABA receptors and can therefore help to have a calming effect. Again, it can be taken alongside magnesium, as magnesium taurate, especially useful if anxiety is an issue in sleeplessness, or it can be taken as an amino acid in a dose of 3g in the afternoon or evening.

Montmorency tart cherries (*Prunus cerasus*): contain high levels of anti-inflammatory substances and melatonin. Research has confirmed the relatively high content of melatonin in some cherries, which may serve as a source of external melatonin, a substance with proven sleep-regulating properties.

However, only very limited clinical research, however, has been conducted to assess the impact of cherries on sleep.



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Valerian Root: is a perennial herb that has long been held to have sedative properties. The most common species from which valerian is derived is *Valeriana officinalis*. Like glycine, it seems to improve subjective reports on sleep and mood (well-being, alertness) the morning after supplementation. An efficacious dose is considered to be one which has the equivalent of 2 to 3 grams of dried root material with commercial products usually available in 300-600mg per day. Research on its efficacy for improving sleep parameters is variable with the largest trial of 405 participants in 2007 concluding that valerian may have a small effect on sleep quality but is unlikely to reduce the time it takes to fall asleep or increase daytime energy level. In a study in 2013, 91 patients diagnosed with primary insomnia were randomized to receive a 10 mg zolpidem tablet (sleeping tablet) or one tablet containing 300 mg of a valerian extract (standardized to 0.8% valerenic acid), hops, and passion flower (*Passiflora incarnata*) extracts at bedtime for two weeks. Thirty-nine subjects in each group completed the study, which found significant improvements on sleep diary-measured sleep latency (time it takes to fall asleep), total sleep time, and nocturnal awakenings as well as significant improvements on a Insomnia Severity Index score in each group.



Hops: *humulus lupulus L.* (hops) exhibits neuroactive properties that make it useful as a sleeping aid. These effects are hypothesized to be mediated by an increase in some GABA receptor function, thus inhibiting the central nervous system and helping to calm the brain. It is often used in sleep remedies, along with valerian. In one study, a concentration of 2 mg of hop extract effectively decreased nocturnal activity during the circadian rhythm.

Some teas and essential oils have been traditionally used to help with relaxation and sleep. While there are limited studies on these, they are always worth trying. This list of teas includes the likes of chamomile tea or night-time blends including lavender, lemon balm, hops, valerian, etc.

A 2019 review and meta-analysis on the effects of lavender on anxiety reported that inhalation of lavender is associated with a significant reduction in anxiety, when measured on a number of different scales. This relationship does not follow through to a reduction in blood pressure, as a physiological measure of anxiety. In addition, lavender essential oil administered through massage appears effective, but available studies are not sufficient to determine whether the benefit is due to a specific effect of lavender. A 2020 meta-analysis also confirms that lavender aromatherapy is, clinically, superior in short-duration, while oral lavender, at a dose of 80 mg, is preferable for long-term treatment of anxiety.



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In summary, some of the ideas to consider to help enhance your sleep include:

- Monitoring your sleep length and quality to set a baseline
- Getting to bed between 8pm and midnight and giving yourself the opportunity to get a full 8 hours
- Avoiding exposure to bright or blue light for 2 hours before bed, and trying to expose your eyes to 30 minutes of full spectrum light within 1 to 2 hours of waking
- Ensure the bedroom environment is completely dark, quiet and cool
- Reduce stimulants such as caffeine and alcohol, as well as stress
- Ensure you get some aerobic exercise, aiming for your 150 minutes of moderate exercise per week
- Consider a hot bath before bed to increase muscle relaxation and deep sleep
- Develop a bedtime routine, the same time each night (and same wake up time each morning)
- Get checked out if you have symptoms of sleep apnea, restless legs, fibromyalgia or an increased need to urinate
- Consider short term supplementation, if necessary, maybe starting with some night time tea

