# DANGERS OF SLEEP DEPRIVATION

What you need to know

Implementing change is never painless, but you can make the journey easier by recognising where people are on the change curve and taking the right kind of action.

## WHAT IS THIS FACTSHEET ABOUT?

Did you know, you'll spend around one third of your life sleeping, and yet, most of us know very little about it. Like food and water, sleep is a biological necessity. A sort of fuel that the body needs to function properly.

Our prehistoric ancestors would go to sleep when the sun went down and wake up at sunrise. The 9 to 10 hours of sleep they had each night, allowed them to function at peak performance, so they could hunt, protect themselves and survive.

For thousands of years this would be the human sleep routine until around 1880, when an event happened that revolutionised our sleeping habits forever: the invention of the electric light bulb.

Ever since that moment, we've gradually reduced the amount of sleep we should be getting in order to stay fit, alert and healthy.

If you spent last night tossing and turning, you're not alone. In today's fast paced world, more and more of us aren't getting enough sleep.

This factsheet is designed to wake you up to the importance of sleep.

## WHO SHOULD READ THIS

Most of us are all too familiar with the effects of a poor night's sleep, like being irritable or low on energy. But studies have shown the effects can be very serious indeed. So this course is for everyone.

The topics covered may be particularly useful for employees who work shifts, drive as part of their work, or work unsociable or long hours.

## WHAT ARE THE KEY INSIGHTS?

Regular poor sleep puts you at risk of serious medical conditions. Should you be worrying about your sleeping habits are affecting your health?

Your body clock provides a baseline for the best time to wake-up, the best time to concentrate, and the best time to go to sleep. Find out how your own body clock ticks.

You sleep in cycles. Only in stage 5, rapid eye movement (REM) do you dream. Find out what happens in the other four stages.

Are you being kept up at night by sleep stealers? Find out what they are and discover new techniques to get a good night's sleep.

Most of the time, this tiredness is linked to mood, lifestyle and stresses in life. But such effects can be due to medical conditions, too. Take a closer look at the top ten sleep disorders.

When we don't get adequate sleep, we accumulate a sleep debt that can be difficult to 'pay back' if it becomes too big.

Naps can make you brainier, healthier, and safer. But to understand how you can nap best, you need to understand your body.

It's thought 20% of road accidents are linked to driver fatigue. Find out how you can avoid becoming yet another tragic statistic.

## WAKING UP TO THE IMPORTANCE OF SLEEP

In 2014 a sleep-deprived football fanatic died from a stroke after a 48-hour World Cup TV marathon.

Doctors ruled that the 39-year-old's death was related to an excessive lack of sleep.

Scientists are only starting to understand why it is we sleep, but what we do know for sure is that sleep is very important.

Regular poor sleep puts you at risk of serious medical conditions, including obesity, heart disease and diabetes, and, like our football fanatic, in extreme cases, death.

In the short term, lack of sleep and the resulting fatigue can leave you with general feelings of tiredness and being unable to perform work effectively.

Who would have thought something as simple as getting enough quality sleep at the right time could help protect your health, quality of life, and safety?

## TAKEAWAY

Most of us are all too familiar with the effects of a poor night's sleep, like being irritable or low on energy. But studies have shown the effects can be very serious indeed.

Should you be worrying about how your sleeping habits are affecting your health?

## HOW OUR BODY CLOCK TICKS

Did you know that most Olympic records are broken in the afternoon?

And it's all to do with our internal body clock. We all have a built-in clock, called a circadian rhythm. It's actually a small group of cells made up of special 'body clock' genes. This sort of 'master clock', sits in your brain, and, like a conductor, sends regulating signals throughout your body at different times of the day.

Amazingly, you're not the only one to have them. It's thought any life form that gets energy from sunlight has some kind of circadian rhythm to make the most of light and darkness.

Your body clock has a role in everything from your metabolism, to regulating blood pressure. But perhaps the body clock's most obvious function is to tell you when to get up and when to go to bed.

But what happens when your body clock is out of sync?

To get up at a different time than we naturally wake up – for instance when our alarm clock goes off – we have to activate stress hormones. Fight or flight response kicks in and prepares our bodies. Our hearts start pumping faster, glucose gets thrown into circulation and we force ourselves to concentrate more.

The problem is, if you repeatedly use this response to override your body clock, you're activating the stress response for long periods, and this can make you vulnerable.

The good news is, there are ways in which you can help your body clock, but before we find out how, we first need to take a look at sleep cycles.

## TAKEAWAY

We all have a built-in clock, called a circadian rhythm.

It's a 24-hour biological system that regulates our lives from a high-level, and governs certain highs and lows during each day.

Overall, it gives people a baseline for the best time to wake-up, the best time to concentrate, and the best time to go to sleep.

# SLEEP CYCLES

Scientists have found that while you sleep, you go through five cycles of sleep states.

Let's take a look at what exactly happens when we drift off to sleep.

Stage 1 is the lightest stage of sleep, when you feel yourself drift off. You don't spend too much time in stage 1 sleep – typically five to ten minutes – just enough to allow your body to slow down and your muscles to relax.

The second stage of sleep is still considered light sleep. Your heart rate and breathing drop, and your brain activity starts to slow down. This stage is all about prepping your body for the deeper sleep to come.

Stage 3 is known as slow wave sleep, or deep sleep. During this stage your brain waves are slow, and if you were awakened suddenly you'd be confused and find it difficult to focus.

Stage 4 is when you experience your deepest sleep of the night, and it's difficult to wake someone up when they're in this stage.

It's in stages 3 and 4 that our bodies do most of the repair work and regeneration. Things like muscle growth and tissue repair.

These stages typically last from 5 to 15 minutes each, but the first deep sleep of the night is more likely to be an hour or so.

Stages 1 to 4 are known as non-rapid eye movement sleep, and account for around 75% of our sleep.

Stage 5 is known as rapid eye movement sleep and first occurs about 90 minutes after falling asleep.

This is the stage of sleep when you dream, and interestingly will cause your arms and legs to go through a period of paralysis. It's thought this is nature's way of protecting us from acting out our dreams.

As the night passes, the periods of rapid eye movement sleep become longer. For a healthy adult, stage 5 occurs for about 25% of the time you are sleeping.

Understanding these patterns, and the factors that affect them, may help in making choices that will lead to better quality sleep.

In the next section, we're going to outline how you can optimise your sleep cycle.

# RULES FOR A GOOD NIGHT'S SLEEP

Improving your sleep cycle improves the quality of your sleep, and moves you back into a more natural routine, leaving you better rested, healthier and more energised.

You can do this by developing good sleep hygiene.

Sleep hygiene is essentially a selection of healthy sleep habits, lifestyle choices and intelligent planning for your crucial sleep time.

Let's explore the dos and don'ts of getting a good night's sleep. As you work through the suggestions, be on the lookout for sleep stealers, the daily habits that might be robbing you of your rest.

## TRY TO KEEP A REGULAR SLEEPING PATTERN

Your body clock is driven by consistency, so you can help it out by going to sleep and waking up at the same time every day. Sadly, this includes weekends. That Sunday morning lie-in will have a knock-on effect on what time your body is ready to sleep at night.

## TRY TO STICK TO A RELAXING BEDTIME ROUTINE

Do you ever switch the light off and find your brain somehow switches on with a flood of worries and thoughts?

This is a symptom of an overactive mind.

Taking some time before bed to regularly do something calming, can mark an end to a busy day and help you to unwind and sleep.

It doesn't have to be a long process and can be as simple as taking a warm bath, brushing your teeth or reading for 15 minutes.

## CREATE THE PERFECT SLEEP ENVIRONMENT

Your bedroom, bed and bedding can have a big effect on the quality of your sleep.

Make sure you're sleeping on a comfortable mattress.

Use black-out blinds to prevent light coming in.

Try to maintain the ideal sleeping temperature (somewhere between 18 and 22 degrees Celsius).

And keep your bedroom tidy, clean and free from clutter.

## STAY HYDRATED

The single biggest change in your diet that may help you sleep better, be more active, and have more energy throughout your day is staying hydrated.

Water makes up about 60% of your body, 75% of your muscles, and 85% of your brain. Water is essential for almost all of your bodily functions, especially brain function. So, it's no surprise that being dehydrated may disrupt healthy brain function while sleeping.

So try to drink enough water throughout the day. Your body hydrates slowly, so drinking a lot of water all at once won't help as much as eating water-rich foods and drinking water throughout the day.

## TRY TO GET REGULAR EXERCISE

Not only does exercise naturally tire you out, it also helps to combat stress, anxiety and depression.

If you exercise regularly, you'll find yourself naturally alert during the day, and this helps bring on sleepiness at night.

Try to stick with a regular routine, and allow the benefits to develop gradually. Slow and steady wins the race, in this case.

Although exercise is good for sleep, you should avoid exercising just before bedtime since the natural high will inhibit your ability to fall asleep immediately.

## AVOID ALCOHOL BEFORE BED

Some people find that alcohol helps them fall asleep faster, and this can be true. But alcohol disrupts the REM sleep stage, which results in you feeling less refreshed the next day.

You'll probably need to nip to the bathroom in the night, too.

So try to cut out the night-cap.

## AVOID CERTAIN FOODS

Your diet can have a significant impact on your quality of sleep. The unsurprising rule of thumb is that the healthier your diet, the healthier your sleep.

Try to eat your biggest meal of the day for lunch. If you can't, eat dinner as early as possible. The important thing is not to eat a heavy meal in the 4 to 6 hours before bed.

Also, avoid sugary food before bed, especially chocolate as it contains caffeine. Steer clear of spicy food and food containing garlic, and avoid food with lots of processed carbohydrates at night, like pasta.

It can be a good idea to have a snack before bed, but it must be something light, like peanut butter on toast, a banana or a handful of nuts.

## AVOID CAFFEINE AND ENERGY DRINKS

Try to remember that stimulants like caffeine can stay in your body for a long time.

This means you should avoid drinks like coffee, colas and energy sports drinks in the 4 to 6 hours before you go to sleep.

If you like to have a hot drink at night, then either a warm milk or herbal tea could form part of your relaxing bedtime routine.

## NEVER FORCE YOURSELF TO FALL ASLEEP

There's nothing worse than lying in bed clock watching, endlessly changing position and steadily getting more stressed about how you'll feel the next day. That's why it's a good idea to only go to bed when you feel tired.

It takes 20 to 30 minutes on average to fall asleep, so if you find yourself awake after that time, it's better to get up for a while, then try to sleep again a bit later. During that time, you could repeat part of your bedtime routine.

## AVOID THE TEMPTATION TO NAP

Daytime naps stagger your body clock. This means you might not feel tired at bedtime, encouraging you to stay up late.

If you don't go to bed at a reasonable hour, you might feel tired the next day and opt for another daytime nap, which establishes a vicious cycle.

If it is necessary to take a nap, try to sleep for less than one hour, and nap no later than 3pm.

## IF YOU SMOKE, THINK ABOUT QUITTING

Ok, so there are lots of good reasons to quit smoking, and getting a better night's sleep is another one.

Nicotine is a stimulant and will interfere with your body's ability to fall asleep.

If quitting isn't an option, try not to smoke in the hour or two before bedtime.

## DON'T LET NOISE KEEP YOU AWAKE

External noise, like someone snoring, is a very common cause of sleeplessness.

If someone in your house is creating noise, speak to them about it honestly and think of ways to minimise it.

If you can't stop the noise, try ear plugs or a white noise machine.

## PUT THE MOBILE AND TABLET DOWN

It's important that you don't use visual electronic devices in bed.

The light from the screen is strong enough to interfere with your internal body clock.

Working or playing games can stimulate your brain and stop you relaxing.

And reading endless posts on social media can be addictive, and ruin your carefully planned bedtime routine.

Whilst we're on this point, it's worth noting that your bed should really only be used for sleeping and, well you know...

Doing other things in bed, like watching TV, can disrupt your healthy sleeping habits.

## AVOID HAVING PETS ON YOUR BED

With Rover hogging the covers, bedtime is never going to be a calm experience.

Co-sleeping with animals interferes with getting a good night's sleep.

Move your pet to their own bed and let everyone in the family sleep peacefully.


Try to think of sleep hygiene like a jigsaw puzzle with many pieces of advice to slot together.

The more of them you put together, the more likely it is that you'll see the complete picture of a good night's sleep.

Some of the techniques we've covered can take time to really make a difference. For example, getting up at the same time can take a week or two to help reset your bedtime. The key is to stick with it and give the techniques time to work.

# SLEEP DISORDERS

Feeling exhausted is so common that it has its own acronym, TATT, which stands for 'tired all the time'.

At any given time, one in five people feel unusually tired, and one in ten have prolonged fatigue.

Most of the time, this tiredness is linked to mood, lifestyle and stresses in life. But such effects can be due to medical conditions, too.

In this section we'll explore ten health conditions that are known to cause fatigue.

## 1. COELIAC DISEASE

This is a type of food intolerance, which causes your body to react badly when you eat gluten – a substance found in bread, cakes and cereals. Research suggests that up to 90% of people suffering don't know they have the condition. Other symptoms of coeliac disease, apart from tiredness, are diarrhoea, anaemia and weight loss. Your GP can check if you have coeliac disease through a blood test.

## 2. ANAEMIA

One of the most common medical reasons for feeling constantly run down is iron deficiency anaemia. It affects around one in twenty men and post-menopausal women, but may be even more common in women who are still having periods.

Typically, you'll feel you can't be bothered to do anything. Your muscles will feel heavy and you'll get tired very quickly. Pregnant women, or those with heavy periods, are especially prone to anaemia.

## 3. CHRONIC FATIGUE SYNDROME

Chronic fatigue syndrome (also called M.E.) is a severe and disabling tiredness that persists for at least six months. There are usually other symptoms, such as a sore throat, muscle or joint pain and headache.

## 4. SLEEP APNOEA

Sleep apnoea is a condition which causes your throat to narrow or close during sleep, repeatedly interrupting your breathing. This results in bad snoring and a drop in your blood oxygen levels. The difficulty in breathing means that you wake up often in the night, and feel exhausted the next day.

It's most common in overweight, middle-aged men. Drinking alcohol and smoking makes it worse.

## 5. UNDERACTIVE THYROID

An underactive thyroid gland means that you have too little thyroid hormone (thyroxine) in your body. This makes you feel tired. You're also likely to put on weight and have aching muscles. It's most common in women, and it happens more often as you get older.

Your GP can diagnose an underactive thyroid by taking a blood test.

## 6. DIABETES

One of the main symptoms of diabetes, a long-term condition caused by too much sugar in the blood, is feeling very tired. The other key symptoms are feeling very thirsty, going to the toilet a lot and weight loss. Your GP can diagnose diabetes with a blood test.

## 7. GLANDULAR FEVER

Glandular fever is a common viral infection that causes fatigue, along with fever, sore throat and swollen glands. Most cases happen in teenagers and young adults. Symptoms usually clear up within four to six weeks, but the fatigue can linger for several more months.

## 8. DEPRESSION

As well as making you feel very sad, depression can also make you feel drained of energy. It can stop you falling asleep or cause you to wake up early in the morning, which makes you feel more tired during the day.

## 9. RESTLESS LEGS

This is a common condition of the nervous system that causes an overwhelming, irresistible urge to move the legs.

It can cause uncomfortable sensations in your legs, which keep you awake at night.

You might have an overwhelming urge to keep moving your legs, a deep ache in your legs, or your legs might jerk spontaneously through the night.

Whatever your symptoms, your sleep will be disrupted and of poor quality, so you'll feel very tired throughout the day.

## 10. ANXIETY

Feeling anxious is sometimes perfectly normal. However, some people have constant, uncontrollable feelings of anxiety, which are so strong they affect their daily lives. Doctors call this generalised anxiety disorder (GAD). As well as feeling worried and irritable, people with GAD often feel tired.

## TAKEAWAY

It may be common to feel tired all the time, but it isn't normal.

If you're worried, or recognise any of the symptoms listed, you should book an appointment to see your doctor for advice and reassurance.

The doctor can rule out anything serious, and just knowing there is nothing wrong can be reassuring in itself.

# SLEEP DEBT

Sleep experts say most adults need between seven and nine hours of sleep each night for optimum performance, health and safety.

When we don't get adequate sleep, we accumulate a sleep debt that can be difficult to 'pay back' if it becomes too big.

Once sleep deprivation, with its fuzzy-headedness, irritability, and fatigue, has us in its sway, we can hardly recall what it's like to be fully rested.

And as the sleep debt mounts, the health consequences increase, putting us at growing risk of weight gain, diabetes, heart disease, stroke, and memory loss.

In some cases, sleep debt results from insomnia or other underlying conditions that may require medical attention.

But most sleep debt is due to burning the candle at both ends, consistently failing to get to bed on time and staying there until we've slept enough.

It may take some work, but you can repay even a chronic, long-standing sleep debt.

To do this, you first need to stop thinking of sleep as an indulgence or luxury. Instead, remember that adequate sleep is just as important for health as diet and exercise.

If you think you've fallen into sleep debt, here are some tips you can use to repay the debt.

## NO.1 SETTLE SHORT-TERM DEBT

If you missed ten hours of sleep over the course of a week, add three to four extra sleep hours on the weekend and an extra hour or two per night the following week until you have repaid the debt fully.

## NO.2 ADDRESS A LONG-TERM DEBT

Plan a holiday with a light schedule and few obligations. Then, turn off the alarm clock and just sleep every night until you awake naturally.

## NO.3 AVOID BACKSLIDING INTO A NEW DEBT CYCLE

Once you've determined how much sleep you really need, factor it into your daily schedule. Try to go to bed and get up at the same time every day — at the very least, on weekdays.

# THE IMPORTANCE OF NAPPING

We all know naps are important for children, but can they benefit adults, too?

For years, napping has been derided as a sign of laziness. We are 'caught' napping or 'found asleep at the switch'. But lately napping has garnered new respect, thanks to scientific evidence that midday dozing benefits both mental acuity and overall health.

A slew of recent studies have shown that naps boost alertness, creativity, mood, and productivity in the later hours of the day.

There are three types of nap:

## 1. PLANNED NAPPING

Also called preparatory napping, involves taking a nap before you actually get sleepy. You may use this technique when you know that you will be up later than your normal bedtime or as a mechanism to ward off getting tired earlier.

## 2. EMERGENCY NAPPING

This occurs when you are suddenly very tired and cannot continue with the activity you were originally engaged in. This type of nap can be used to combat drowsy driving or fatigue while using heavy or dangerous machinery.

## 3. HABITUAL NAPPING

Is practised when a person takes a nap at the same time each day. Young children may fall asleep at about the same time each afternoon, or an adult might take a short nap after lunch each day.

## RULES OF NAPPING

If you need to take a nap, there are simple steps to take to make sure you get the most out of it.

- Keep it short. A nap lasting 20-30 minutes may be the ideal pick-me-up. Even just napping for a few minutes has benefits. Longer naps can lead to sleep inertia – the post-sleep grogginess that can be difficult to shake off.
- Find a dark, quiet, cool place. You don't want to waste a lot of time getting to sleep. Reducing light and noise helps most people nod off faster. Cool temperatures are helpful, too.
- Plan it. Waiting till daytime sleepiness gets so bad that you have to take a nap can be uncomfortable and dangerous if, say, you're driving. A regular nap time may also help you get to sleep faster and wake up quicker.
- Time your caffeine. Caffeine takes some time to kick in, and the mere suggestion of caffeine, in the form of coffee taste or smell, wakes us up. Regardless of the exact timing, you need to coordinate caffeine intake with your nap.
- Don't feel guilty! The well-timed nap can make you more productive at work and at home.

# TAKEAWAY

Naps make you brainier, healthier, and safer. But to understand how you can nap best, you need to understand your body.

If you find yourself sleeping for long periods in the day, the naps might be hiding the effects of a more serious condition.

If you're in any doubt, speak to your doctor.

# DRIVER FATIGUE

It's thought 20% of road accidents are linked to driver fatigue.

This type of crash is 50% more likely to result in death or serious injury, because the driver, who has fallen asleep, cannot brake or swerve to avoid the impact.

85% of drivers causing sleep-related crashes are men, and over one third are aged 30 or under.

Young male drivers, truck drivers, company car drivers and shift workers are most at risk of falling asleep whilst driving.

But it can happen to anyone, especially when driving long distances, on monotonous roads like motorways.

Professional drivers, especially HGV drivers, report increased levels of sleepiness and are involved in a disproportionally high number of fatigue related accidents.

Anyone who suffers from a sleep disorder that prevents them from getting sufficient sleep is at higher risk of falling asleep when driving. Such drivers are between 6 and 15 times more likely to have a road accident.

Sleepiness reduces reaction time (a critical element of safe driving). It also reduces vigilance, alertness and concentration, so that the ability to perform attention-based activities (such as driving) is impaired. The speed at which information is processed is also reduced by sleepiness. The quality of decision-making may also be affected.

It is clear that drivers are aware when they are feeling sleepy, and so make a conscious decision about whether to continue driving or to stop for a rest. It may be that those who persist in driving underestimate the risk of actually falling asleep while driving. Or it may be that some drivers choose to ignore the risks (in the way that drink drivers do).

## SPOT THE SIGNS

You don't start to fall asleep without warning! If you start to feel sleepy while driving, this means that you are more likely to crash.

Many drivers try to stay awake by turning up the air conditioning, winding down the window, listening to the radio, talking or singing.

But these measures will only work for a few minutes, and should only ever be used to give you time to find somewhere safe to stop.

They will not stop you falling asleep.

## HOW TO AVOID FALLING ASLEEP AT THE WHEEL

Driving when you are tired greatly increases your accident risk. If you begin to feel sleepy:

Do not try to complete the journey (you might never arrive).

Find somewhere safe to stop (not the hard shoulder).

Drink one or two cups of strong coffee or other high-caffeine drinks.

Nap for about 15 minutes.

But remember, sleep is the only real cure for tiredness. A caffeine drink and a 15 minute nap is a short-term solution. So, if necessary, find somewhere safe to stay overnight.

## PLAN YOUR JOURNEY

A planned journey reduces the risk of drowsiness and falling asleep at the wheel.

Make sure you follow these simple steps before you set off:

Make sure you are well rested and feeling fit and healthy (and not taking medication which contraindicates using machinery), before starting your journey.

Consider how long the journey will take, including time for rest breaks and unexpected delays. A minimum break of at least 15 minutes after every two hours of driving is recommended. Avoid driving in the early hours of the morning, when you have had less sleep than normal, or in mid-afternoon after eating a large meal – these are peak times for sleep-related accidents. And avoid starting a long journey after a full day's (or shift's) work.

If you're going on a long journey, consider breaking it up with an overnight stop, or think about taking another form of transport, like the train.

If possible, share the driving with a second driver.

Get a good night's sleep before embarking on a long journey. Do not begin a journey if you are tired.

Do not drink alcohol. Alcohol stays in the body for several hours and will make you sleepier, so avoid having even one drink.

And finally, make sure you check your vehicle, so you're confident everything's working properly.

## TAKEAWAY

The safest option is to avoid driving when sleepy, or when you would normally be sleeping, or when you are ill or taking medication which contraindicates driving.

It is crucial that drivers plan journeys, especially long ones involving driving on motorways or other monotonous roads.

And if you begin to feel sleepy, you need to stop.

Drive alert and stay unhurt.

## FINAL SUMMARY

By now, we hope you view sleep differently. Who would have thought, the simple act of getting some sleep could be so important?

Thank you for paying attention. It's a really important topic, and we hope you now go on to implement and share the new knowledge and skills you've gained, with your family, friends and colleagues.