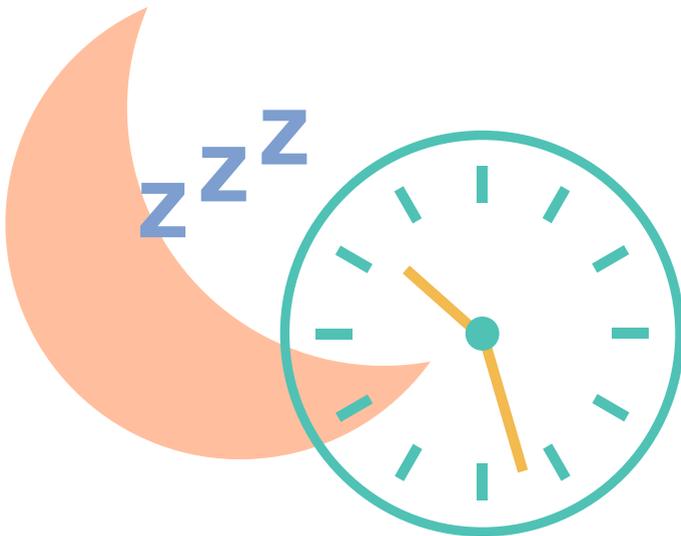


Sleep

Post-Covid fatigue



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Introduction

This booklet provides a number of strategies to help you to manage problems with sleep. It covers:

- An overview about sleep
- Sleep and fatigue
- Sleep structure and the sleep cycle
- Problems related to sleep (oversleeping, not sleeping enough)
- Tips and strategies to help improve sleep



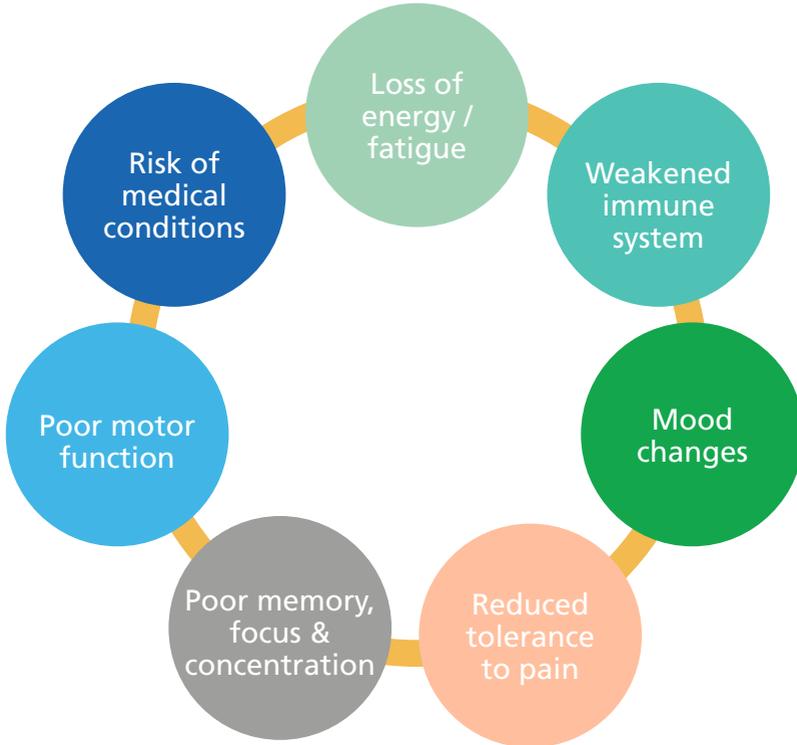
Why we sleep and why is it important?

We spend about one-third of our lives sleeping. Although a lot is still unknown about the purpose of sleep, there are many biological processes that happen during sleep that enable our bodies to function correctly. We need sleep to:

- Conserve energy
- Allow body cells to repair and grow
- For good memory function
- Keep our immune system strong
- For mental health and emotional wellbeing
- Maintain good relationships
- Reduce stress levels

Effects of poor sleep

The effects of irregular, poor quality sleep for anybody are:



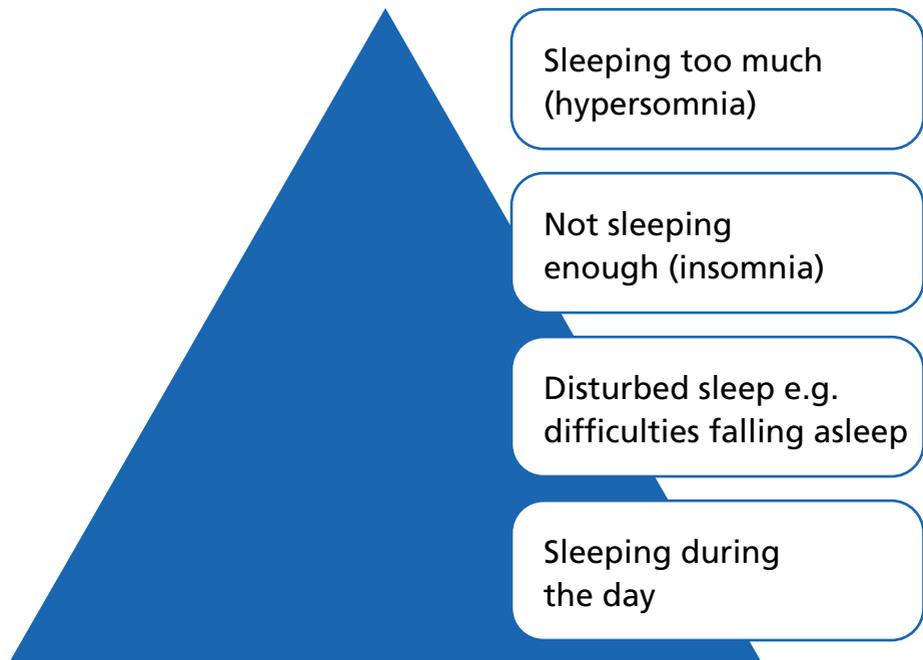
Sleep and fatigue

Difficulty with sleep is common for people who have fatigue. When people have an acute illness, like an infection, the body may need more sleep to assist recovery. This is a natural response as the body deals with the physical stress of the infection.

The body's natural response to stress, is controlled by the Autonomic Nervous System (ANS). The ANS is responsible for the release of hormones - adrenaline and cortisol and controls the 'fight, flight, freeze' response to anything that the body perceives as dangerous or threatening. Whilst a certain amount of stress is good for us, keeping us motivated and interested in daily activities, prolonged physical, mental or emotional stress can affect our overall wellbeing and have a negative impact on our sleep.

People who have experienced fatigue for a long period of time can change from oversleeping to not being able to sleep enough, despite high fatigue levels.

Sleep can often feel unrefreshing and the routines of sleeping and waking may have been lost.



Ask yourself exercise:

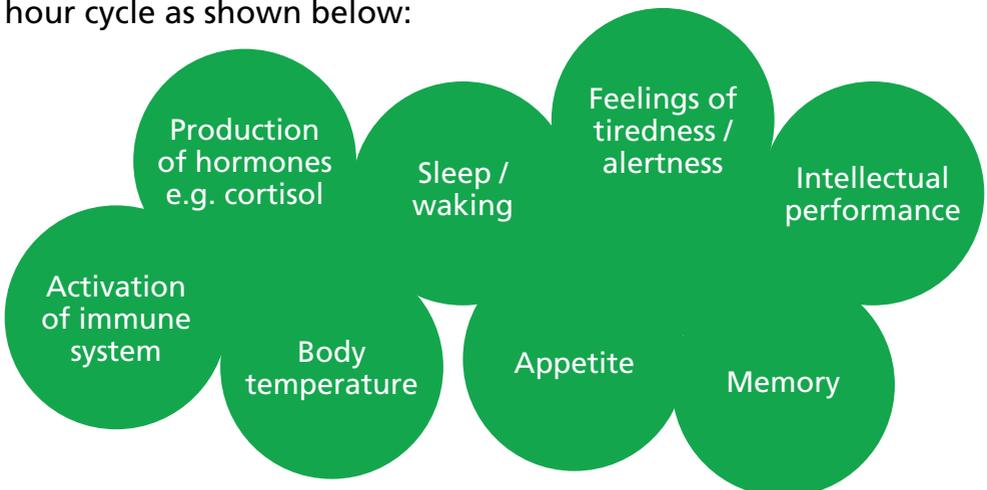
What problems am I experiencing with sleep?

- Sleeping too much?
- Not sleeping enough?
- Disrupted sleep?
- Sleeping during the day?

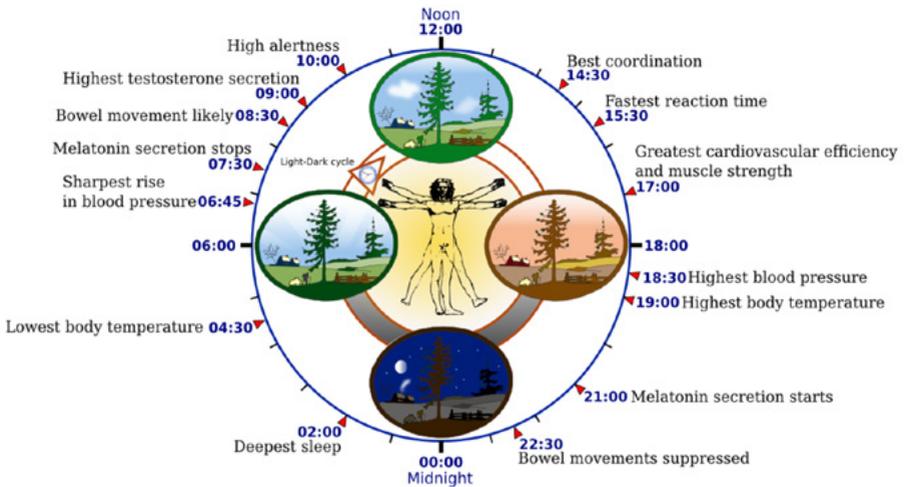
Sleep structure

Sleep is regulated by two body systems: sleep/wake homoeostasis and the circadian biological clock. Sleep/wake homoeostasis creates a drive that balances sleep and wakefulness and tells us that it is time to sleep. It also helps us to maintain enough sleep through the night to make up for the hours of being awake.

The hypothalamus is the brain structure that gives rise to the circadian biological clock. This regulates the timing of sleepiness and wakefulness during the day. The circadian clock also regulates and controls many other vital bodily functions on a 24-hour cycle as shown below:

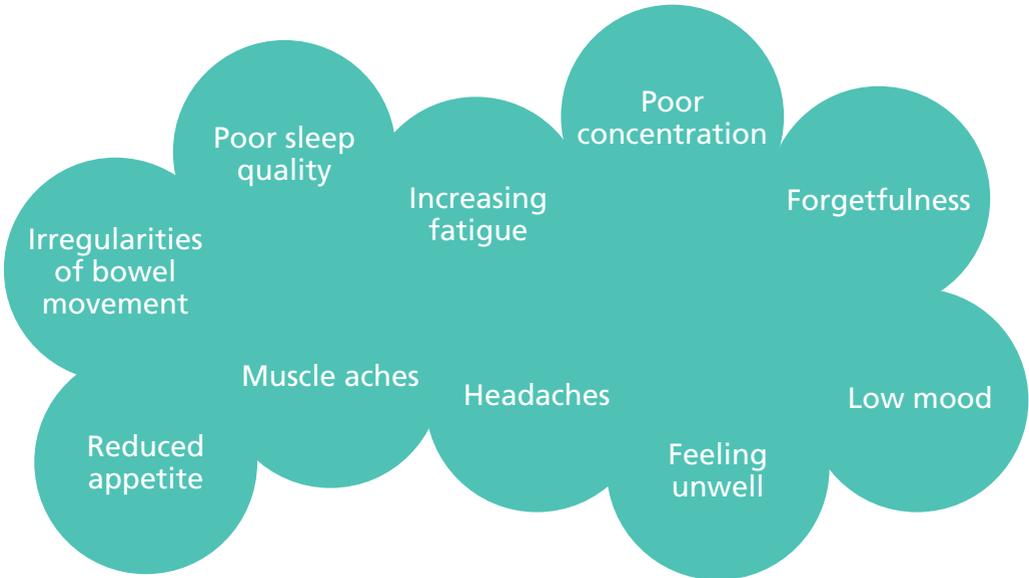


By the time we become an adult, we have adjusted to a 24-hour cycle. When our body clock is properly aligned it can promote consistent and restorative sleep. The picture below demonstrates the circadian rhythm or sleep-wake cycle.



Our sleep-wake patterns however are not automatic cycles. The body clock is re-set each day by environmental cues and signals such as exposure to daylight. If regular cues are lost, this can cause problems with getting to sleep and remaining asleep, getting enough sleep and difficulty being more alert during the daytime.

Disruption of the body clock results in a slipping of the body rhythms resulting in:



For example, night shift workers often have problems falling asleep after work and staying awake at work because their natural circadian rhythm and sleep-wake cycle is disrupted.

Travelling across time zones results in jet-lag, as there is a mismatch between the internal body clock and the actual clock, resulting in poor concentration, performance and forgetfulness.

It is therefore important to:

- Get more exposure to natural daylight during the day
- Keep to a regular sleep pattern
- Allow plenty of time for quality sleep including establishing a pre and post sleep routine

The sleep cycle

Sleep also has its own internal rhythms. Brain activity changes during the course of the night to take the sleep into different levels of consciousness moving from higher to lower levels of sleep.

As illustrated below sleep is divided into 4 stages. Stages 1,2,3, and Rapid Eye Movement (R.E.M.) sleep.

NREM – Stage 1

Transition between wakefulness and sleep. Lasts 5 to 10 mins

NREM – Stage 2

Body temperature drops and heart rate slows. Lasts approximately 20 mins

NREM – Stage 3

Deep sleep occurs. Muscles relax. Blood pressure and breathing rate drop

REM – Stage 4

Brain becomes more active. Eyes move rapidly. Dreams occur.

- When we first fall asleep, we enter non-rapid eye movement sleep (NREM)
- Stages 1 and 2 of NREM are lighter stages of sleep and we can be easily woken during these 2 stages
- In Stage 3 we enter a deeper and restorative level of sleep and we can feel disorientated if we are woken up during this stage
- REM sleep is the fourth stage which is when we normally dream as our brains are more active

Each sleep cycle lasts around 90 minutes. To feel fully rested and wake feeling refreshed we need to experience all four stages of sleep. A full night's sleep will include 5 or 6 cycles of sleep, whilst a disturbed restless night consists of fewer cycles.

How much sleep do I need?

There is no such thing as an ideal amount of sleep. Some people need ten hours, while others only need five. An average night's sleep is around eight hours. If you are experiencing an increase in fatigue, it may be that you are getting either too little or too much sleep, rather than the right amount. A good indication of how much sleep you need is how much you used to need before developing fatigue.

Ask yourself exercise:

How many hours of sleep on average per night did I need before the onset of fatigue symptoms? How many hours of sleep on average per night am I getting now?

- Hours of sleep per night before onset of symptoms
- Hours of sleep on average per night currently

If you are waking up feeling tired, groggy and disorientated this could be because you have woken up mid sleep cycle rather than because of lack of sleep. The Sleep Council www.sleepcouncil.org.uk explain that the best way to ensure you wake at the end of a sleep cycle is to:

- Identify how many hours of sleep you need, e.g. 7.5 hours (5 cycles)
- Identify the time you want to wake up
- Count back 7.5 hours to identify your bedtime e.g. 11.30pm
- Make sure you are in bed before your bedtime
- Allow at least 15 minutes so that your body is relaxed and ready for sleep

Ask yourself exercise:

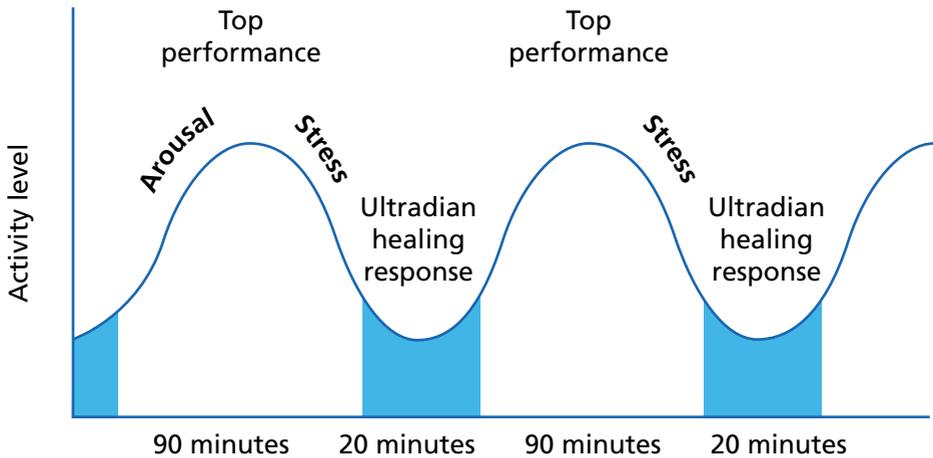
What was my sleep pattern before the onset of fatigue symptoms? What sleep pattern am I aiming to achieve?

Before fatigue	Bed-time: Wake-up time:
Aiming to achieve	Bed-time: Wake-up time:

Ultradian rhythm

In the 1950s, sleep researcher Nathaniel Kleitman discovered that the human body tends to move through 90-120 minute cycles during the daytime. These cycles correspond to the different stages of sleep that we go through during the night. He referred to these daytime cycles as 'basic-rest-activity cycle' or ultradian rhythms. An ultradian rhythm describes biological cycles that recur throughout a 24-hour cycle. During the day, these cycles correspond to different levels of energy and alertness. Somewhere between 90 and 120 minutes, the body begins to crave a period of rest and recovery.

The ultradian performance rhythm



It is thought that by taking short periods of quality rest (not sleep) at frequent points during the day, this will help to re-charge our batteries. It can also avoid those dips or energy lows that can occur, for example in the afternoon when we may have reached a very low point in an ultradian cycle.

Ask yourself exercise:

When do I rest during the day? What am I doing when I take rest breaks?

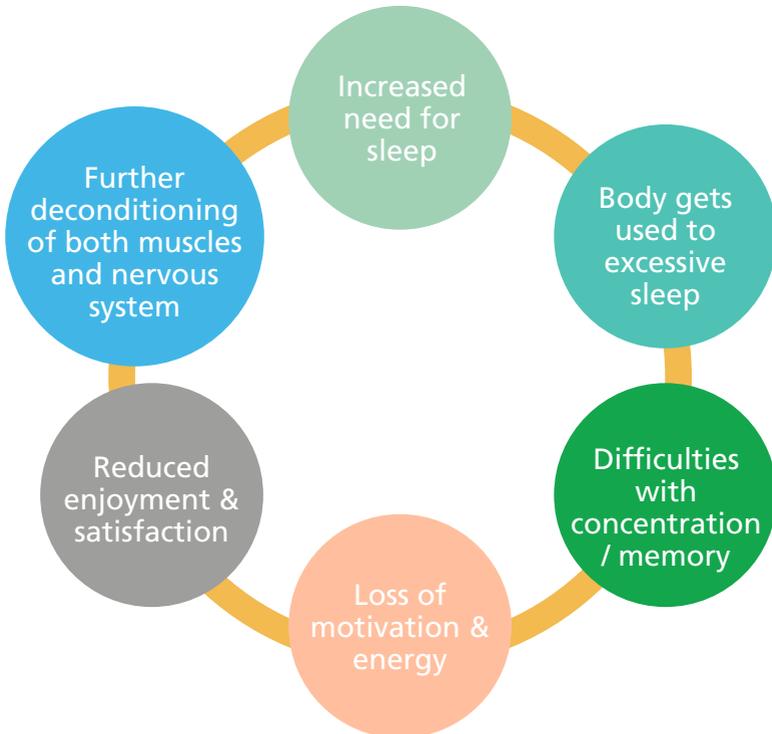
- When do I rest?
- What am I doing?

Are you sleeping too much?

It is not unusual for people with fatigue to report that they sleep for twelve or more hours, yet still feel fatigued and unrefreshed on waking. Although sleep may have been helpful at the beginning of your illness, it may not be making any difference now.

Often people think that if they are tired, they need sleep, but fatigue and other symptoms are **not necessarily improved by sleep**. Therefore, it is difficult for people to tell the difference between when they are tired due to lack of sleep and when they feel fatigued, which can be made worse by increased sleep.

The consequences of sleeping too much



Practical tips for oversleeping

Complete a sleep diary to establish how much sleep you are getting.

Establish a routine. Get up at the same time in the morning and go to bed at night when you are tired.

When you have established a routine, GRADUALLY reduce how long you are sleeping. For example 15 minutes at a time.

Keep the lights bright at night.

Replace daytime sleep with restorative rest.

Sleeping in the day

We often advise people with fatigue to avoid sleeping in the day as it may affect your night-time sleep and natural body rhythms. Many people feel groggy after sleeping and take a while to come round, often feeling worse than they did before they went to sleep. It will also be difficult for you manage your activity demands and energy levels effectively if your sleep routine is chaotic. If you do not think you can manage to get through a whole day without sleeping:

Evaluate

Ask yourself "Am I tired or fatigued?"

Regulate

Establish a routine. Get up at the same time in the morning and go to bed at night when you are tired.

Replace

When you have established a routine, GRADUALLY reduce how long you are sleeping. For example 15 minutes at a time.

Do not worry!

Initially the change to your sleeping pattern may make you feel worse and more fatigued. In the long term you should feel more energised. Another benefit of reducing your sleep is that you will have more time available for the activities you enjoy and choose to do.

Are you not sleeping enough?

Some people describe going to bed tired and then ending up "wired" the minute their head hits the pillow. Difficulty falling and staying asleep is common with fatigue but can also be a problem for many individuals without it.

Don't panic if you're having trouble getting to sleep. One sleepless night has little effect on the body. If you have several bad nights, when you do fall asleep you will automatically catch up on deep sleep.

If you don't fall asleep until the early hours, try to get up at a set time in the morning as this helps to keep your circadian clock in a pattern. If you sleep on until mid-morning you are likely to disrupt your circadian rhythm, hindering your ability to fall asleep at night.

Sleep is not the only way we can replenish our energy levels during the day. Other ways include:

Rest / relaxation

Eating regularly
during the day

Keeping hydrated

Regular graduated activity

Sleep hygiene

Tips to manage lack of sleep:

Improve
sleep
efficiency

Consider the proportion of time spent in bed actually asleep. Not going to bed unless you are tired may help.

Keep to
a regular
routine

Helps to promote feelings of sleepiness and drowsiness. Where possible try not to vary the time you go to bed or wake up even across weekends.

Get
natural
light

Helps to reset our internal body clock. Get outside (even on cloudy or grey days) at the same time if possible, every day.

Engage
in gentle
exercise

Exercise helps to improve quantity and quality of sleep. Avoid exercise at least 2 hours before bed.

Avoid day
time sleep

Avoid daytime naps or limit to 30 minutes.
Replace with rest/relaxation.

Don't go to bed full, hungry or thirsty

A warming glass of milk or a banana may help as they contain an amino acid called tryptophan, thought to help induce sleep.

Reduce Electronic Devices

Avoid using electronic devices at least an hour before bed and avoid using them in the bedroom. They hinder the production of hormones that help us to feel sleepy.

Avoid alcohol

Alcohol impacts on the quality & quantity of our sleep. Can lead to waking up in the night and feeling unrefreshed during the day.

Wind down routine

Relax and wind down at least 30 minutes before bed. Having a warm bath can help trigger sleep. Play soft soothing music, engage in deep breathing techniques.

Avoid / reduce stimulants

Reduce caffeine intake after 12-2pm. Drinking too much during the day will make it difficult to get to sleep. Nicotine stimulates the nervous system. Avoid smoking at least an hour before bed.

Coping with worry & anxiety

Anxious thoughts can cause muscle tension making falling asleep harder. Write down problems before bed. Set aside time during the day to think about any concerns. If possible, try to write down ways to resolve your problems

Good sleeping environment

Noise

Close windows and doors, or wear foam earplugs. Soft steady sounds e.g. 'white noise' can be soothing.

Lighting

Darkness helps to release melatonin (relaxes the body and helps us to sleep). Try blackout curtains or an eye mask.

Temperature

Not too hot or too cold 16-18 degrees is ideal. Have suitable bedding for different seasons.

Comfort

Make sure your mattress offers support and comfort for your weight and build.

Bedroom

Your bedroom should be a calm, relaxed uncluttered space. Standby lights can upset the body's circadian rhythm. Make sure everything is switched off at the mains.

Bedroom clocks

Having the clock face out of sight will help reduce any sleep anxiety.

Medication

Consider the impact medication may be having on your sleep.

Worrying about sleep

Our thoughts and expectations about sleep can also hinder our ability to get a good night's sleep.

Unrealistic expectations

"I should be able to sleep well every night"

Catastrophising

"I will not cope with x,y,z if I don't get a good night's sleep"

Fortune telling

"It will take me ages before I am able to get to sleep tonight"

Hopelessness

"There is nothing I can do to improve my sleep"

Changing our thoughts about sleep to more realistic expectations can help reduce the pressure we may be putting on ourselves. For example, changing the thought "There is nothing I can do to improve my sleep" to reframe it positively to "I am starting to make changes to help improve my sleep".

Ask yourself exercise:

- Worrying thoughts
- Positive reframing of thought

Adjusting your sleep pattern

Some people with fatigue may be getting enough sleep but getting their sleep mainly in the day rather than at night. For example, sleeping from 4 am to 1 pm. If this is the case and you want to change it start by:

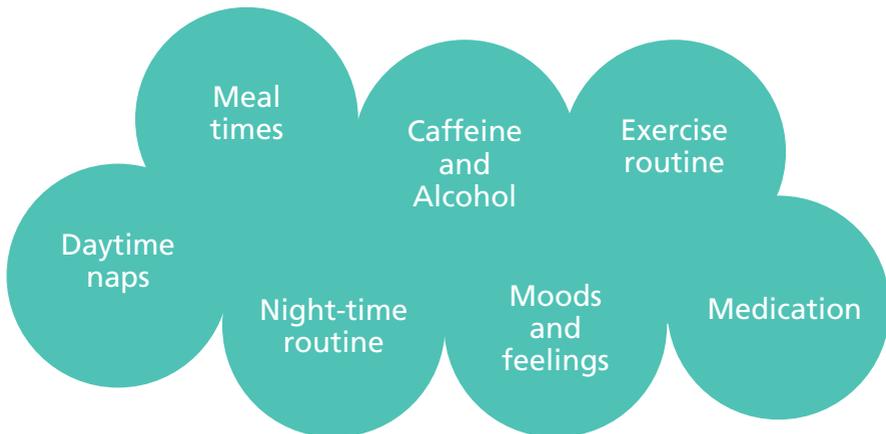
- Regulating the time you get up. Wake up at the same time every day i.e. at 1pm (setting an alarm clock will help with this)
- Gradually move the time you get up. Move the time back by half an hour e.g. 12.30pm. Gradually start to go to bed earlier as you should start to feel tired earlier
- Continue this process until you are going to sleep and waking up at the time you want
- This process may increase fatigue levels slightly to begin with, but if you stick with it, it should help you to adjust your sleep pattern with minimum shock to the system

Sleep routine

It is also important to remember that it is the quality of sleep rather than the quantity of sleep that you are getting that is important.

The parasympathetic nervous system helps our body to 'rest and digest', however the recuperative functions that occur when the body is in a relaxed state do not automatically happen if we are not relaxed when we are sleeping. It is possible for our body to still be in 'high sympathetic arousal' if our brain is struggling to switch off mentally, or if we are in pain or having disturbed dreams.

A good way to notice if there are any patterns or practices that may be helping or hindering the quality of your sleep is to look at and reflect on your daily habits and routines:



There is a habits and routines chart that you can complete at the end of this booklet.

Sleep diary

A sleep diary is a helpful tool to record and evaluate your sleep problems. It allows you to:

- Find out exactly what your current sleep pattern is.
- Measure the quality of your sleep
- Identify factors that may be affecting your sleep
- Reduce anxiety. The more you understand your sleep difficulties the more you can start to make changes to improve your sleep
- Enable you to monitor your progress over time.

There is a blank sleep diary in the homework section of the booklet.

Summary

Don't worry if your sleep routine is not perfect. Remember, altering your sleep pattern is important, but is only one part of the treatment of fatigue. Improvement in your sleep routine will be more effective alongside other lifestyle management strategies e.g. activity management, rest/relaxation etc

Homework

- Complete habits and routines chart
- Complete sleep diary for at least two weeks
- Complete sleep checklist

Blank habits and routines chart

Meals	Caffeine	Alcohol	Exercise	Medication	Napping	Mood	Night time routine
Do I eat and drink regularly during the day?	How many caffeinated drinks do I regularly have per day?	How many days per week do I drink alcohol?	How many times per week do I usually engage in exercise?	Do I take medication to help me sleep?	How likely am I to catnap during the day (slight, moderate, high)	Throughout the day my mood tends to be (e.g. pleasant, unpleasant, low etc)	What do I normally do in the hour before I go to bed?
Do I eat/drink late at night or go to bed hungry or thirsty?	What time to I have my last caffeinated drink?	Do I drink alcohol in the evening?	What time and for how long?	What do I take and at what time?	When do I catnap in the day and for how long?	Does my mood fluctuate?	Is this routine consistent?

Blank sleep diary

(fatigue scale 1-10. 1 very poor to 10 very good)

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Time I went to bed at (e.g. 10.30pm)							
Turned light out at (e.g. 11.15pm)							
Fell asleep at (e.g. approx. midnight)							
Number of times I woke in the night (e.g. 2)							
For how long (e.g. 30 mins and 20 mins)							
Number of hours asleep overall (e.g. 7 hrs 20 mins)							
My sleep was disturbed by (noise, light, pets, stress/worry etc) (e.g. noise)							
Woke up at (e.g. 8.00am)							
Got out of bed at (e.g. 9.00am)							
Fatigue level on waking (e.g. 6)							
Overall sleep was (restful, refreshed, reasonable, unreasonable etc) (e.g. reasonable)							
Any other factors? E.g. monthly cycle for women, shift work (e.g. monthly cycle)							
Time spent 'catnapping' during day (e.g. 30 mins)							

Review habits and routines chart and sleep diaries. What are the main areas to address to help improve sleep?

The sleep checklist below allows you to record the techniques you have used with a column to record if you have found them helpful:

Sleep checklist

Sleeping too much:

Used	Notes
Establishing a routine	
Keeping the lights bright at night	
Gradually reducing amount of sleep by getting up earlier	
Reducing sleep during the day	
Replacing daytime sleep with rest/relaxation	
Other	

Not sleeping enough:

Used	Notes
Not going to bed unless tired	
Keeping to a regular sleep routine	
Having a wind down routine before bed	
Not going to bed full, hungry, thirsty	
Not using electronic devices before bed or in bed	
Getting up if not able to sleep / go back to sleep e.g. after 20 mins	
Getting outside daily for natural daylight	
Engage in exercise	
Avoid sleeping during the day	
Limit day-time sleep / replace with rest/relaxation	
Avoid / reduce stimulants (alcohol, caffeine, nicotine)	
Use of medication	
Making the environment more conducive to sleep	
Other	

Acknowledgements

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Pemberton, S. (2009) *Fighting Fatigue. A practical guide to managing the symptoms of CFS/ME*. London: Hammersmith Press
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Patient Advice and Liaison Service

For information about CPFT services or to raise an issue, contact the Patient Advice and Liaison Service (PALS) on Freephone 0800 376 0775, or e-mail pals@cpft.nhs.uk

Out-of-hours service for CPFT mental health service users

Please call NHS 111 for health advice and support.

If you require this information in another format such as braille, large print or another language, please let us know.