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COGNITION®**

Sleep

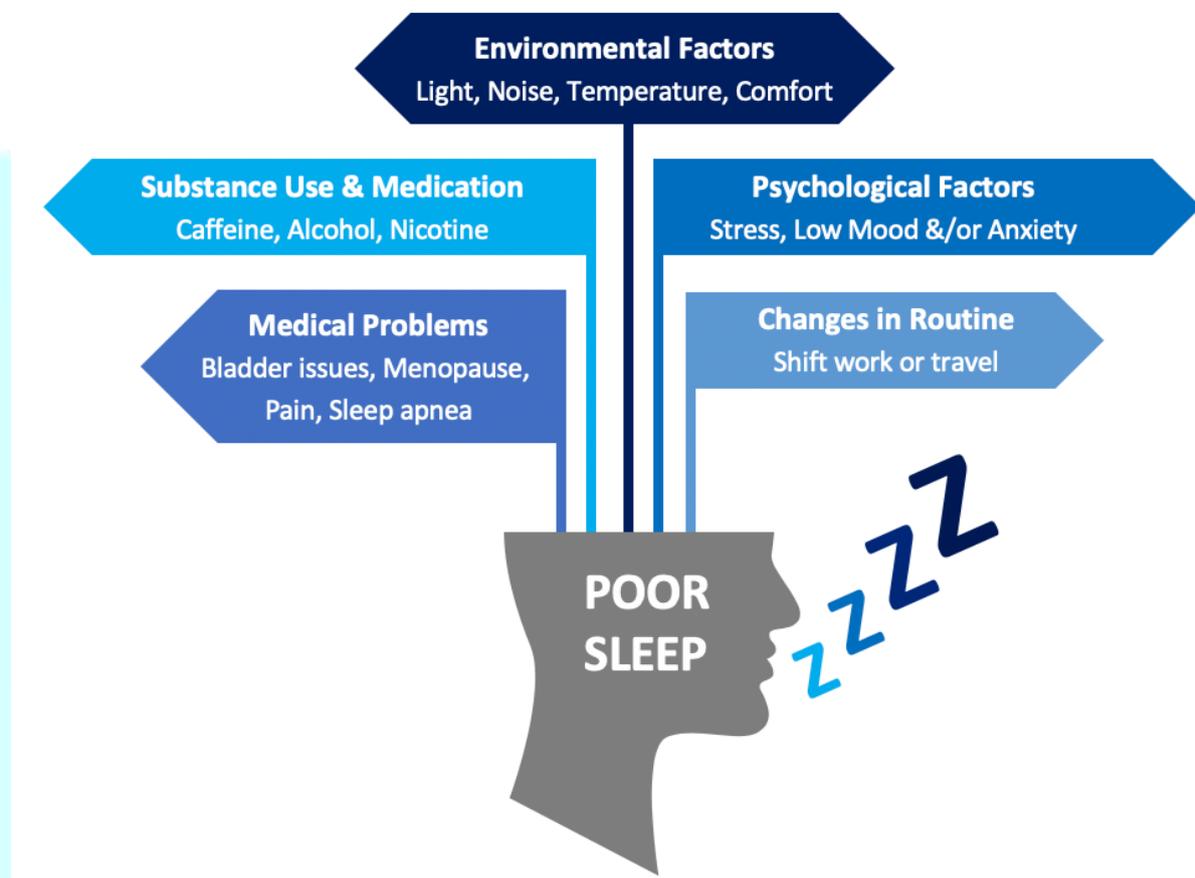
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The Importance of Sleep

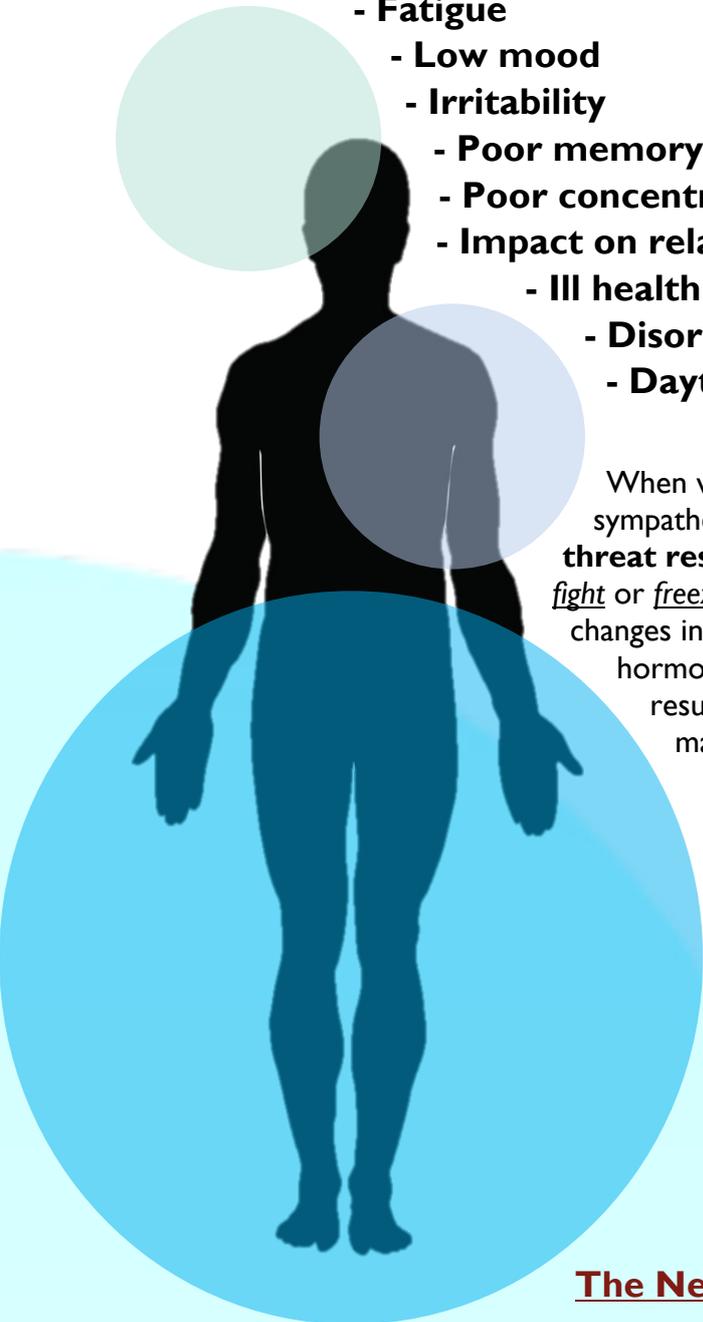
When striving towards mental fitness, it is important to consider how we are sleeping. Good sleep is an essential part of our lives. It enables us to function optimally and directly contributes to our health, happiness and overall wellbeing. However, poor sleep affects many people, and most will experience difficulties with sleeping at some point in their life.

Chronic poor sleep, otherwise known as insomnia, is when we have recurring problems with our sleep. Sleep should not be effortful and if it is, it's probably time to address it. With the increasing demands on our daily lives, sleep can become less of a priority and can also become more effortful. There are many factors that contribute to poor sleep hygiene, some of which are mentioned below:



Numerous factors can influence the quality and quantity of our sleep. It is vitally important to identify triggers such as those above. By doing this we can understand what might be impacting our sleep and therefore having a knock-on effect on our cognition.

Poor sleep can lead to a number of detrimental consequences including:

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- **Fatigue**
 - **Low mood**
 - **Irritability**
 - **Poor memory**
 - **Poor concentration**
 - **Impact on relationships**
 - **Ill health**
 - **Disorientation**
 - **Daytime sleepiness**

When we are sleep deprived, this can activate our sympathetic nervous system, which in turn triggers our **threat response**. This is a response associated with *flight*, *fight* or *freeze* mode. Activation of this system leads to changes in blood pressure and increased levels of our stress hormone cortisol being secreted in our bodies. One result of this can be an impaired immune response, making ill health more likely.

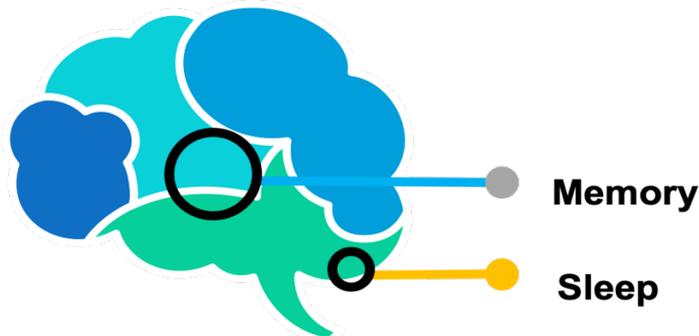
Research also suggests that non-depressed individuals with insomnia can double their chances of developing depression when compared to those who do not have any issues with their sleep. Such evidence highlights the importance of prioritising our sleep hygiene but also the impact that sleep can have on mood and cognition.

The Neuroscience of Sleep

How exactly does sleep help keep our cognitive function healthy? There is much evidence to say that sleep is crucial for learning and in the formation of long-term memories.

During sleep, our brains are still highly active, in particular there is considerable electrical activity in a part of the brain known as the **hippocampus**. The hippocampus is a brain region that serves many functions, but it is best known for its role in memory. Specifically, the hippocampus enables us to file our memories away, from a short-term store to a long-term store. If our sleep is disrupted, this can interfere with memory processing which can in turn impact the way we store and are able to retrieve memories.

In Subjective Cognitive Impairment (SCI), when a person perceives their memory is impaired, sleep can often underpin the difficulties individuals feel when trying to retrieve or recall an item from memory.

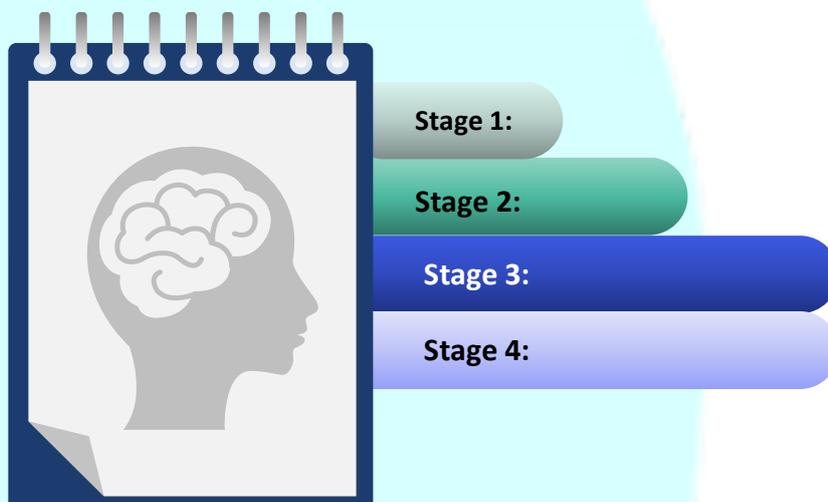


The Sleep Cycle

We all have a sleep-wake cycle that occurs every *24 hours* known as our **circadian rhythm**. This rhythm acts as our internal clock, telling us when it is time to wake up and when it is time to go to bed. This cycle is influenced by both biological factors and cues from the external world. Rather than just relying on biological factors such as feeling tired, we also rely on external cues such as alarms and morning light coming from the window.

Our circadian rhythms are like the thermostat we have in our homes. They regulate our drive for sleep and are dependent on hours of wakefulness and hours spent asleep. External cues influence both our quality and length of sleep, therefore it is very important that we learn how to create an optimal sleep environment.

There are four main stages of sleep that occur throughout the night. Each full sleep cycle lasts around 90 minutes and we should have around 4-5 cycles each night in order to get a good night's sleep.



Stage 1: N1

This initial phase of sleep is the transitory period between being awake and falling asleep. In this stage our muscles relax and we start to feel drowsy. We typically spend between 7-10 minutes in this stage.

Stage 2: N2

In this stage, we enter a light sleep in which we can easily be woken. Adults typically spend around 50-60% of each sleep cycle in stage 2. If you have a cat nap, you would want to wake up at this stage. If you wake up beyond this stage when napping, you are likely to feel very drowsy. This stage of sleep can last up between 30- 60 minutes.

Stage 3: N3

Once we are in stage 3, we have entered into a deep sleep. If you attempt to wake someone during this stage, it could take a lot of effort as they will be deep in sleep. This is the level of sleep you need to reach to feel truly refreshed the next day. During this stage our breathing and heart rate are rhythmic, and our muscle activity becomes restricted. We stay in this stage for around 20-40 minutes.

Stage 4: REM Sleep

The final stage of sleep is known as rapid eye movement sleep, or REM.

During this stage of sleep our eyes dart back and forth beneath our closed eyelids. It is during this stage that we have most of our dreams and our blood pressure and heart rate increase. This stage of sleep can sometimes last for up to an hour. Babies and children typically spend more time in REM than adults do.

In order to feel our best, we need a balance of all sleep stages. It is for this reason that doctors recommend us having between 7-8 hours of sleep per night, as this enables us to go through multiple cycles, getting those all-important deep stages which will allow us to feel refreshed in the morning. When we sleep it is not just about **quantity**, but also, the **quality** of the sleep that we are getting.

How much sleep do I need?

The amount of sleep we need varies with age, levels of activity and what stage of life we are in. People vary in how much sleep they need. It is generally thought that we need around 7-8 hours per night but the range for adults can vary between 6 -10 hours.

Benefits of Good Sleep

- Good sleep allows our brains to recharge and consolidate memories overnight, reducing the likelihood that we will be tired or drowsy the next day. This means that memories have a chance of transferring from a short-term to a long-term store.
- If we have a good sleep, we are more able to concentrate and focus our attention on what is important. Sustaining our attentional focus allows items to enter into our memory easier.
- Sleep protects our immunity. Those who sleep less than 7 hours regularly are 3 times more likely to develop a cold!
- When we sleep well, our nerve cells repair themselves at a higher rate.
- Good sleep decreases our stress hormone cortisol, which means we are better able to regulate our mood.



Are you Sleep Efficient?

Do you consider yourself to have issues with your sleep? This can be in terms of sleeping too much or too little. It is worth asking yourself the following questions when assessing your sleep:

- *Do you have issues getting to sleep?*
- *Do you have issues staying asleep?*
- *Do you sleep, but feel that it is light and disturbed?*
- *Do you sleep too much?*
- *Do you wake up too early?*

If you have said yes to one or more of the questions above, it could be beneficial to review your sleep patterns as these could be contributing to your cognitive difficulties. Sometimes you will be able to break free from behavioural “traps” that are compromising your sleep by yourself. However, although the notion of breaking behavioural cycles is simple, it’s not always easy to put into practice.

It is not unusual to need support from healthcare professional. If you feel that this is the case, speak to your GP or therapist regarding these issues. Our **Clarity Course** teaches you techniques to help assess and identify what might be causing problems with your sleep and also what can be done to help improve your sleep hygiene.



My thoughts and action plan, based on the information in this leaflet:

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2. _____

3. _____

4. _____

5. _____



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