

Fatigue Risk Management Info Sheet: the benefits of sleep on mood.



Why read this?

Sleep is a foundation of emotional wellbeing. As Jojo Jensen said¹, 'without enough sleep we all become tall two-year-olds'. Reading this information sheet will help you to understand why getting enough sleep is paramount for our mood and mental health. You will also learn how light influences our sleep and mood. In this this information sheet, the words mood and emotion are used interchangeably.

Why is sleep important for our mood?

We all know what it feels like after a poor night's sleep – we can be anxious, irritable, have mood swings and overreact to even the smallest thing. Research consistently shows that sleeping less than six hours per night for just a few days is associated with negative mood and symptoms of anxiety the next day.

Our ability to maintain a positive outlook is challenged each day, and the extent to which we can cope depends on many factors, including the amount of sleep we are obtaining, as well as our personality, financial situation and the support we receive from our community. We need to get enough sleep, so we are more able to fend off negative emotions, feel positive about ourselves and the world around us.

Research has also found that the relationship between short sleep and mood goes both ways. Short sleep increases the likelihood of negative mood the next day, and a daytime negative mood can increase the likelihood of short sleep the next day². This highlights the interdependent relationship between our sleep and mood, and that emotional wellbeing starts with a good night's sleep.

Can sleeping well make us feel more positive?

The answer is, 'Yes'. Sleep loss makes us emotionally reactive so we focus more on negative rather than positive stimuli. For example, after just one night of sleep deprivation, we engage more with pictures of faces showing negative emotions such as anger, compared to positive and neutral images.³

When we have enough sleep, we can more accurately recognise emotions in others, which facilitates social relationships. Sleeping well also enables us to shift our attention from negative to positive information, which is central to our ability regulate our emotion and stay neutral. This ability underpins our mental state, and our ability to conduct good relationships.

Can sleep help me maintain my mental health?

While the relationship between sleep and emotion is complex⁴, there is now strong evidence that sleep affects our mood and emotions. For example, people who develop insomnia have a two-fold likelihood of developing depression compared to people who do not experience sleep disturbance⁵.

Complaints about sleeping too little or too long (e.g. more than 10 hours) are common features of mood disorders such as depression and anxiety⁶. In the long term, not getting enough good sleep, and the increased likelihood of negative thinking can develop into depression. At the same time, and going the other direction, depressed mood affects our ability to fall asleep and stay asleep.

If, for 2 weeks or more, you experience a notable change in your sleep (e.g. less or more sleep than usual), and this cannot be explained by other factors such as a new work schedule, it may be an indication of a depressed mood and you should speak to your doctor.

How does sleep affect my emotions?

The sleeping brain is very active. One of the functions of sleep is to sort information we have processed during the day by consolidating it into memory and discarding unnecessary information. Uninterrupted periods of deep sleep are associated with memory formation, and dream sleep is associated with forgetting information. Dreaming may help us to calibrate our emotions by venting or forgetting negative experiences.

If sleep is disturbed, our 'memory sorting' process is disrupted. We are left with an 'untidy' mind and we are unable to think clearly and make accurate emotional evaluations⁷. In the long run, we may begin to form negatively biased memories, and depressed moods

become learned or hard-wired ('neurons that fire together, wire together'⁸).

When we do not get enough sleep, our brain becomes emotionally reactive. An MRI brain-imaging study⁹, showed that when we are sleep deprived the amygdala, the part of the brain involved in processing and triggering strong emotions such as fear and anger (fight or flight response), is more active. After a full night of sleep, the inhibitory action of the prefrontal cortex, which is the part of the brain involved in logical thinking, limits the emotional responses triggered by the amygdala. For example, when you are flying in an aircraft turbulence may activate the amygdala to produce an immediate fear response; however, logical thinking (air travel is safe) involving the prefrontal cortex downgrades the fear response.

Lack of sleep diminishes the communication from the prefrontal cortex, and the over-active amygdala prevails, heightening the fear and anger responses. Over time, if we aren't getting enough sleep, and are repeatedly exposed to negative emotional stimuli, our repeated emotional responses and the neural pathways that are associated with these emotional responses become hard-wired. In this way, negative moods become learnt and 'normal'.

Not sleeping well increases our chances of being awake in the very early hours of the morning, approximately between 02:00 and 06:00, when our alertness is at its lowest. At about the same time, our mood is also at its lowest, and we are especially likely to think negatively about our future.

What role does light play in influencing my sleep and mood?

There is a strong relationship between light, sleep, and mood. In order to sleep well, we need plenty of natural bright light during the day and darkness at night. However, in modern societies, many people spend most of their time indoors and are not exposed to enough natural light during the day. At night, the use of artificial light and electronic screens, such as smartphones, disturbs the natural night-time period of darkness. This disruption of levels of light and darkness leads to a disruption of our natural sleep and wake cycle.

For example,, a study found that those who live in urban areas that have more outdoor light at night-time, sleep less, are sleepier during the daytime, and report feeling more dissatisfied with their sleep than people who live in rural areas, which tend to be darker at night.

The urban dwellers also go to bed and wake up later than people in rural areas, and some even meet the criteria for circadian rhythm sleep disorders (CRSD)¹⁰. CRSD are disorders associated with sleep patterns that are not in sync with the natural rhythm of sleeping at night and being awake during the day, which results in poor quality and quantity of sleep.

Some countries, such as Norway, have dramatic seasonal variations in light exposure involving very long hours of daylight in summer, and sometimes almost no daylight in winter. Seasonal Affective Disorder (SAD), a type of depression that comes and goes in a seasonal pattern, peaks in winter when people experience low levels of natural daylight.

To summarise

Many of us often shorten our sleep due to work, leisure or social activities, but getting enough sleep is essential for our mood and mental health. Though we may not realise it, light plays a key role in influencing our sleep and mood. Try and make sure to spend time outside each day and keep your bedroom dark and free of electronic screens, to maintain a positive mood and good mental health.

What should I read next?

If you are having trouble sleeping, you will find the information sheets titled 'How to adjust my beliefs and thoughts about sleep'¹¹ and 'How to adjust my daily patterns of light exposure, meals and exercise to improve sleep'¹². If you suspect you or someone you know may have a sleep disorder, have a look at 'How to cope with insomnia'¹³ and 'How to seek professional support to improve chronic sleep difficulties'¹⁴.

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