

Sleep and Good Mental Health

What happens when we sleep?

Scientists used to think that nothing was happening, physically or mentally, when we slept, but we now know this is not true at all. When we sleep, we move through five stages of sleep that rotate between non-rapid eye movement (NREM) and rapid eye movement (REM). The stages include drowsiness, light sleep, moderate to deep sleep, deepest sleep, and dreaming. We rotate between these stages through the night, spending an average 5 to 15 minutes in each stage with a total of 90 minutes in the whole cycle.

Each stage of sleep serves as a unique restorative function, including muscle recovery, hormone regulation and memory consolidation, making it essential to allow enough time to cycle through the sleep stages. Without a full night of sleep our body and mind are deprived of essential elements needed to help get through the day.

Stage 1 – Light non-rapid eye movement sleep where we go from being awake to being asleep. This stage doesn't last very long, we start to relax and dream and may twitch as we move into stage 2.

Stage 2 – this stage of sleep is still considered light, but we move into a steadier sleep. Our breathing and heartbeat slow down and our muscles begin to relax. Body temperature decreases and our brain waves are less active.

Stages 3 and 4 – we enter deep sleep in stage 3 and our deepest sleeping stage is stage 4. When in a deep sleep our breathing, heartbeat, body temperature and brain waves reach their lowest level. Our muscles are extremely relaxed and we are at the most difficult to arouse. Stage 4 is extremely important for healing, this is when tissue growth and repair take place, hormones are released and cellular energy is restored.

Stage 5 – referred to as the REM dream state. It is the only stage of rapid eye movement (REM) and is unlike any other sleep stage because the brain is bursting with activity. It's during non-REM sleep that the mind rests while the body heals, but in REM sleep the mind energizes itself while the body is immobile.

Circadian Rhythms

Circadian rhythms, sometimes referred to as the human body clock, work on a 24-hour cycle in the physiological process of the human body. Our body responds to how much light there is to determine whether it is night or day and how our body knows it's time to sleep. There are three important biological phase markers associated with circadian rhythms. Melatonin, a hormone that is secreted when there is not much light, this makes us drowsy and ready to sleep. Temperature, which is lowest in the morning and cortisol, the stress hormone, which is highest in the morning and reduces significantly in the evening and early stages of sleep.

Sleep Deprivation

During deep sleep, a variety of functions take place in the mind and body:

- memories are consolidated
- learning and emotions process
 - physical recovery occurs
- blood sugar levels and metabolism balance out
 - the immune system is energized
 - the brain detoxifies

Without deep sleep, these functions cannot take place and the symptoms of sleep deprivation kick in.

There are many effects of a lack of sleep, such as feeling grumpy or not working at your best. But sleep deprivation also has profound consequences on our physical and mental health. One in three of us suffer from poor sleep, with stress, screens and working long hours often to blame. The cost of sleepless nights is more than just bad moods and a lack of focus. Regular poor sleep can put us at risk of serious medical conditions such as obesity, heart disease and diabetes and mental health conditions such as anxiety disorders and depression. Surveys of people with anxiety or depression showed that most slept for less than 6 hours a night.

Symptoms of sleep deprivation can include:

- Fatigue/grogginess
 - Irritability
- Anger/outbursts
 - Tearfulness
 - Headaches
- Poor concentration
- Dozing off through the day
- Increased likelihood of mentally 'stalling' or fixating on one thought or event

Effects of Alcohol, Nicotine and Caffeine

Although alcohol may leave us feeling drowsy and induce sleep, it can impact upon the quality and quantity of our sleep. Alcohol effects our circadian rhythms and the normal production of hormones, such as melatonin, that trigger sleepiness. Alcohol blocks REM sleep, which is the most restorative type of sleep and with less REM sleep we are more likely to wake up feeling groggy and unfocused.

Nicotine is a stimulant and even though people may smoke in order to relax before bed they're actually telling their body to do the opposite. Nicotine increases our heart-rate and alertness, so we feel more awake when we're trying to fall asleep. A 2013 study showed that the more exposure to tobacco the worse our sleep disruption and impact upon our circadian rhythms, increasing the likelihood of depression, anxiety or other mood disorders.

Caffeine is also a stimulant and works on receptors in the brain to increase alertness and prevent sleepiness. Caffeine can stop us from getting to sleep initially and when we fall asleep it can increase the number of times we wake through the night and deprive us of our deepest, most restorative sleep. When caffeine causes insomnia or fitful sleep it often creates a cycle of dependence. We're so tired we reach for a coffee, soft drink or energy drink for a lift, it makes it harder for us to sleep that night and we feel even more tired the next day and more reliant on caffeine. Caffeine is no substitute for a good night's rest and it is possible to break the dependence. It is best to reduce your caffeine intake gradually, to avoid the uncomfortable symptoms of withdrawal. Slowly reduce your daily intake by one cup every few days until your sleep has improved and the effects of caffeine on your sleep have subsided.

Improving Sleep

It is recommended that adults aim for good quality sleep for between 7 and 9 hours per night. The amount of sleep we need also goes up if we've missed sleep in previous days. If we don't have enough sleep, we can have a 'sleep debt', which means our body will demand we start to repay the debt! While you may think you're getting ample rest, not all sleep is created equal.

Not only is it important to get enough sleep every night it's important to get good quality sleep. Tips for improving sleep include:

- Setting a routine – with an aim to go to sleep around the same time and wake up around the same time (setting an alarm if you need to), this helps regulate our body clock.
- Create a comfortable environment – a cool, dark, quiet room.
- Minimise caffeine, alcohol and nicotine
- Gentle exercise – studies have shown that being inactive is associated with poorer sleep and that exercise during the day may help you sleep better at night.
- Pay attention to your diet – foods that can interfere with your sleep include high-sugar, high-carbohydrate, heavily-processed food. Eating sugary foods throughout the day can cause pronounced changes to blood sugar, which can bring on feelings of fatigue and alter our daily routine and sleep patterns at night. Large meals high in carbohydrates can have a similar effect on blood sugar and eating heavy meals close to bedtime interferes with the body's process of winding down for sleep.
- Devices – leave them alone! Blue light from electronic devices can interfere with our production of melatonin and confuse the body about when it needs to sleep. Putting down devices at least one hour before bed and adopting a more calming activity such as reading, listening to relaxing music, taking a bath or meditating are much better sleep hygiene practices.

Sources of Sleep Support

If you are concerned about the amount of sleep or the quality of your sleep, there are a number of sources of support dependent upon the reasons or who can help you determine the reasons. GPs are a great first port of call, they can run physical health and mental health checks to then make a determination with you around possible treatment options.

Employee Assistance Programs provide counselling and psychology support to employees who may be experiencing difficulties in their life which can lead to an impact on sleep.

Sleep Disorder Clinics offer a variety of assessments and services for a whole range of sleep disorders. One of the most experienced and under-diagnosed sleep disorders is sleep-apnoea, this occurs when a person's throat is partially or completely blocked when they're asleep and can stop breathing for up to 90 seconds before their heart starts to race, their body jolts them awake and they gasp for air. It isn't uncommon for people not to know they have this condition as they have no recollection of waking through the night, this can occur multiple times an hour and cause interruption to our normal sleep patterns as well as put extra strain on the heart and the brain.

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Sources:

www.sleepfoundation.org

www.ncbi.nlm.nih.gov

www.msdmanuals.com