

A Patient's Guide to Sleep

The Importance of Sleep

Sleep is as necessary for the human body as food and water. It has been found that sleep plays a role in physical, emotional and mental health as well as in cognitive and motor functioning.² Sleep deprivation has been linked to poor outcomes such as mood swings, hallucinations, memory problems and even weight gain.



The Purpose of Sleep

Even though it is known that sleep is essential, the precise effect that sleep deprivation has on the body is not fully understood. Studies have shown that sleep deprivation can impair the immune system, the nervous system and can affect the growth of children and young adults. It has also been found that a lack of sleep can effect emotions, learning and social interactions.

A lack of sleep seems to impair the functioning of the brain and the nervous system. It can impair someone's memory, their ability to concentrate, their aptitude for math problems and their physical ability. Severe sleep deprivation has even been found to cause mood swings and hallucinations. Two hypothesizes exist for these actions. It has been hypothesized that the neurons in the brain that were used throughout the day are able to rest and repair themselves during sleep. It has also been hypothesized that while you sleep vital brain activity may occur. This brain activity can deteriorate from lack of use caused by sleep deprivation.

It is thought that some processes important for growth occur during sleep. The release of growth hormone seems to occur during deep sleep. During sleep, there also appears to be an increase in the production of proteins that are involved in cell growth and play a role in repairing damage caused to these proteins from stressors such as UV rays.²

Sleep Hygiene

Sleep hygiene is a collection of guidelines and tips for developing and maintaining good sleep habits. Often sleep problems can be attributed to poor sleep hygiene.

Tips or guidelines for a good nights sleep:³

- Maintain a regular sleep and wake schedule all week long.

- Avoid napping during the day.
- A good exercise routine can support more restful sleep.
 - Vigorous exercise should be done earlier in the day while relaxing activities, such as yoga, in the evening can help to fall asleep.
- Stimulants such as caffeine, chocolate, nicotine and alcohol should be avoided, especially close to bedtime.
- Avoid large meals close to bedtime; food can be disruptive to sleep.
- A protein containing snack close to bedtime can help to balance blood sugar throughout the night.
- Create a relaxing bedtime routine. Try to avoid emotionally or physically strenuous activities just before bedtime.
- The bedroom should only be a place for sleep; television watching, reading and other activities should occur outside of the bedroom.
- The sleep environment should be comfortable, not too hot or too cold or too bright.
- Sufficient exposure to natural light can help to maintain a healthy sleep-wake cycle.
- If you cannot fall asleep right away do not lie in bed awake, go into another room and perform a relaxing activity until you feel sleepy again.

The Number of Hours of Sleep you Need

It is important to get an adequate amount of sleep every night, not too much and not too little. The precise amount of sleep that a person needs varies. It has been found that if someone struggles with daytime drowsiness they should spend a minimum of 8 hours in bed while if someone has difficulty sleeping at night they should limit themselves to only 7 hours in bed.³

The amount of sleep someone needs depends on factors such as age. Infants need the most sleep, about 16 hours per night, teenagers need on average 9 hours per night while adults typically need 8-9 hours a night. However these are not exact numbers; some adults may only need 5 hours of sleep per night while others may require as much as 10 hours per night.²

Sleep Deprivation

We live in a culture that is extremely busy and constantly on the go, which leaves us little time for the much needed sleep our bodies require. Therefore many people do not regularly get enough sleep. Experts have found that if you feel drowsy throughout the day, even during tiresome or unexciting activities, or if you fall asleep within 5 minutes of when you lie down, you are considered to be sleep deprived.² A good test to determine if you are sleep deprived is how you feel when you are bored. If you get tired when you are bored it indicates that you are sleep deprived, while if you get restless when you are bored it means you are not.

By getting less than the amount of sleep your body needs you accumulate a “sleep debt”. If you do not repay this debt your body will eventually force you into doing so. While it may seem that you can condition your body to function with less sleep, your reaction time, judgment and other functions are impaired without adequate sleep.

Sleep deprivation has dangerous consequences. Studies have shown that the coordination of someone who is sleep deprived is similar to that of someone who is intoxicated, making driving and other tasks into hazardous activities. Sleep deprivation can also intensify the effects of alcohol; making someone with a sleep debt more impaired than someone who is well rested. Stimulants such as caffeine cannot overcome the effects of sleep deprivation.² Studies have also shown that sleep deprivation is linked to weight gain in women.⁵

Sleep Problems can be Caused by:

- Caffeine, chocolate (contains caffeine)
- Alcohol
 - While alcohol may help in falling asleep it also decreases the quality of sleep.
 - It has been found that an evening dose of alcohol can also decrease melatonin levels.⁶
- Nicotine
 - Smokers often wake up every 3-4 hours in withdrawal.
- Sugar
 - Sugar causes a rise, then drop in blood sugar which can cause you to wake up in the middle of the night.
- Weight loss products²
- Medications
 - decongestants
 - thyroid medications
 - oral contraceptives
 - beta blockers
 - stimulants
 - antidepressants¹

Diet and Lifestyle Changes to Help with Sleep

Dietary suggestions include:¹

- Reduce or eliminate alcohol consumption.
- Avoid everything that contains caffeine (i.e. coffee, tea, soda, chocolate)
- Eat a healthy diet high in vegetables, protein, whole grains and high-fiber foods and low in simple carbohydrates such as cereals and white flour and low in unhealthy fats.
- It may be beneficial to have a high protein snack at bedtime; this will help to stabilize your blood sugar as you sleep.

Supplements to Help with Sleep

Calcium:

- Calcium has been found to have sedative and relaxing effects on the body.¹

Magnesium:

- Can help induce sleep.¹

B vitamins:

- B vitamins are known to have a relaxing effect on the nerves. Vitamin B6 and B12 have been found to be beneficial for insomnia.
- Vitamin B6 is required by the body to convert the amino acid tryptophan to serotonin.¹

Copper:

- Copper is necessary for normal functioning of the brain and the central nervous system. Therefore a deficiency can cause difficulties falling asleep and a decrease in the quality of sleep.
- Copper should only be used after copper levels are measured by hair or urine analysis because toxicity can occur.¹

Chromium:

- Chromium has been found to be helpful in regulating blood sugar levels. Therefore it can be effective for someone who has fluctuating blood sugar levels that cause them to awaken during the night.¹

Tryptophan & 5-HTP:

- Tryptophan is considered one of the top options for sleep problems. It is a precursor to serotonin which is then converted to melatonin.
- Tryptophan is not readily available, but a similar form, 5-HTP is readily available. 5-HTP is the intermediate between tryptophan and serotonin and therefore also increases serotonin and melatonin.
- An increase in melatonin is often beneficial because melatonin functions naturally in the body to regulate sleep and wake cycles.¹

Phosphatidyl-serine (PS 100)

- Phosphatidyl-serine is an amino acid that helps regulate the levels of cortisone in the body; therefore it can be helpful when sleep issues are due to high cortisone levels. High levels of cortisone at bedtime can cause sleep difficulties.¹

GABA

- GABA is a neurotransmitter or signaling molecule that is found naturally in the body; it serves as the main inhibitory neurotransmitter. It is therefore useful in treating condition where there is an excess of activity. It is useful in treating anxiety, seizures and sleep disorders.⁴

Melatonin

- Melatonin is a hormone that is synthesized naturally in the body. It seems to increase the effects of GABA, a signaling molecule, in the brain, which may be beneficial in sleep disorders. However the primary role of melatonin is to regulate the body's sleep patterns, circadian rhythm and endocrine secretions. The production of melatonin is regulated by day and night; light during the day decreases the production while darkness stimulates it.⁴

St Johns wort

- St. John's wort regulates the effects of serotonin, dopamine and norepinephrine, therefore it can be effective for depression and sleep problems linked to depression. St. John's wort can also cause insomnia in some people.
- Do not take St. John's wort if you are taking an antidepressant.
- Use caution with using St. John's wort because it can interact with many other medications or supplements you may be taking.⁴

Valerian

- Valerian extract may be helpful for sleep issues when taken in moderation for short periods of time. Valerian produces a hypnotic effect similar to prescription medications such as Valium or Xanax and can be very effective for sleep. Studies have shown that the risk of toxicities is greater when it is taken for a longer period of time. This is in part due to the tolerance that develops from taking this product; after awhile people need to take more and more to get the desired (sleep-inducing) effect.⁷

Catnip

- The active part, nepetalactone, appears to be responsible for the calming and sedating effects.⁴

Chamomile

- It is unclear what part of German chamomile is responsible for the sedatives effects or its exact mechanism. It has been hypothesized that it may bind to the GABA receptors.⁴

Passion Flower

- Passion flower has activity as a hypnotic, a sedative, a pain reliever and an anxiety reducer. It has been suggested that these effects are due to a part of the flower, apigenin, that binds to GABA receptors.⁴

Theanine

- Theanine is the major amino acid found in green tea. It is used for its relaxing and reducing anxiety. It has been hypothesized that it may increase levels of GABA and serotonin. There is however some evidence that theanine can act as a stimulant in small doses.⁴

Rhodiola

- Rhodiola can act as a stimulant at some concentrations and as a sedative and a calming agent at others.⁴

Products available from Leaves of Life:

- Calm-PRT
 - Rhodiola rosea, phosphatidyl-serine, glycine and taurine
- Trancor
 - Vitamin B6, magnesium, taurine, n-acetylcysteine, green tea leaf extract
- Travacor
- Time Released Valerian
- Kavinace
 - Vitamin B6, taurine, beta-phenyl-GABA

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