

TerranearPMC Safety Share

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Sleep deprivation happens when you don't get enough sleep for your body to function properly. The fact is, about 1 in 3 adults suffer from the consequences of sleep deprivation. Experts stress that humans need between 7 and 8 hours of good quality sleep every night. Regularly sleeping less than 6 hours a night can put one at risk from the dangers of sleep deprivation such as diabetes, heart disease, stroke or - due to a reduced alertness - being susceptible to workplace hazards.

According to the National Heart, Lung, and Blood Institute, getting enough sleep is essential for good health. Sleep is a basic need of the body, and the effects of sleep deprivation can be as serious as not eating or breathing, while health consequences of poor sleep can also build up over time. Although napping can help to reduce some of the effects of little sleep, it is not a substitute for getting a good night's sleep regularly.

It was once thought that sleep was a passive state; a time when a person's brain and body shut down for the night to rest and recover. But now, researchers know that sleep is a highly active time, a period during which the brain and some physiological processes may be hard at work. There are also different stages of sleep – rapid eye movement (REM) sleep and non-rapid eye movement sleep. REM sleep is the time when your brain is active and when we dream.

Non-REM sleep is now recognized to occur in three stages, known as N1, N2 and N3. Stage N1 is when a person gets drowsy. In this first stage, a person is making the transition from being awake to falling asleep. This is a relatively light form of sleep that lasts about 5 to 10 minutes. During this stage, heart and breathing rates begin to slow, eye movements also slow, and muscles relax. Body temperature decreases, and brain waves, if observed on an electroencephalogram (EEG) in a sleep lab, would be seen to slow. A person can be easily awakened from N1 sleep, while thinking that he or she had been sleeping.

It's normal for a person to experience "hypnic jerks," also known as "sleep starts," during N1 sleep. This is a sudden, brief muscle jerk that may happen along with a falling sensation when a person is in bed. When it occurs, this sudden movement may or may not wake a person.

Stage N2 occurs when N1 sleep ends. During this stage, eye movement stops, heart rate slows, brain waves become slower and muscles relax even further. As sleep cycles repeat throughout the night, a person spends more time in stage N2 sleep than in any other sleep stage. Adults spend about 55 percent of their total sleep time in stage N2 sleep.

Non-REM sleep then progresses into its third stage, which is often referred to as "slow wave," "delta" or "deep" sleep. This is the stage that is necessary for an individual to feel refreshed for the next day. A person typically spends more time in the N3 stage during the first half of sleep than the second half, but why this happens is not known. Typically lasting 20 to 40 minutes, N3 sleep is when the brain becomes less responsive to external stimuli, and as a result, it is most difficult to wake a person up from this stage. The heart rate and breathing slow to their lowest levels during



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sleep. Blood pressure falls, and body temperatures drops even slower. Muscle activity decreases, and there is no eye movement.

There can be many reasons why people are not getting the required 7 or 8 hours of sleep every night. A big reason lies in our lifestyles. For instance, staying up late to socialize or watching late night TV. The physical symptoms of sleep deprivation can be felt if you have an underlying illness or take medication that causes insomnia. Also, taking stimulants such as alcohol, caffeinated drinks, or smoking before bedtime can result in poor sleep quality.

Putting on extra weight is one of the physical effects of sleep deprivation. One of the reasons why chronic sleep deficiency causes you to be overweight is that it affects your hormones. Studies report that the hunger hormone ghrelin increases when you are deprived of sleep. At the same time, lack of sleep inhibits leptin – the hormone that makes you feel full. This hormonal imbalance can lead to overeating and obesity.

Because a loss of sleep doesn't allow your body time to repair itself and recharge itself, sleep exhaustion can cause chronic inflammation. Inflammation in the short term is necessary to help your body fight disease. However, long-term inflammation can put you at risk of developing chronic diseases such as cancer, diabetes, and heart disease.

This may seem too obvious to even consider, but the best treatment for sleep deprivation is also the easiest: sleep more. Sleep deprivation might occur chronically, with inadequate sleep over an extended period of time, or it may occur acutely, such as when we "pull an all-nighter." We each have individual sleep needs, and the average amount of sleep changes over our lifetime. Sleep that is of poor quality, such as may occur in sleep disorders such as insomnia or sleep apnea, may also lead to sleep deprivation.

The next option to treat sleep deprivation is the opposite of sleep: that is, activity. Brief periods of activity may help you to stay more alert, especially when you are experiencing minor sleep deprivation. Research studies have shown that a five-minute walk can improve excessive daytime sleepiness as measured by multiple sleep latency testing (MSLT). Unfortunately, this increased alertness may be a transient benefit that comes and goes rather quickly. However, if you are suffering from profound sleep deprivation, you may not find many benefits from being active. Depending on the level of activity, you may develop increased fatigue (as opposed to improved sleepiness) that may counteract the benefits of being more alert.

While sleep experts promote meeting our sleep needs, trying to get at least 7 to 8 hours of sleep every night, the demands of our daily pressures may make this "easier said than done." If you find yourself feeling sleepy despite adequate hours of rest, you may need to confer with a medical professional. And always remember: *Never drive drowsy*. Don't start driving if you are sleep deprived. Playing loud music is NOT a remedy to driving while tired. Pull over if you feel sleepy while on the road. Driving in a state of sleep deprivation is simply not worth the risk.

A man wrapped up in himself makes a very small bundle – Benjamin Franklin

