

# Sleep Deprivation

Sleep deprivation occurs when an individual fails to get enough sleep. The amount of sleep that a person needs varies from one person to another, but on average most adults need about seven to eight hours of sleep each night to feel alert and well rested. Teens need an average of about nine hours of sleep per night, and children need nine hours of nightly sleep or more, depending on their age.

## Prevalence

- About one in five adults fail to get enough sleep.

## Causes

- **Voluntary behavior**  
People who engage in voluntary, but unintentional, chronic sleep deprivation are classified as having a sleep disorder called *behaviorally induced insufficient sleep syndrome*. This is a type of hypersomnia. It involves a pattern of restricted sleep that is present almost daily for at least three months.
- **Personal obligations**  
Sleep deprivation can occur when personal obligations restrict sleep time. For example, a person may lose sleep while providing home care for a relative with a chronic illness.
- **Work hours**  
The work hours required by some occupations can produce sleep deprivation.
- **Medical problems**  
Sleep deprivation may be a symptom of an ongoing sleep disorder or other medical condition that disturbs sleep.

## Risk groups

- *Males and females of all ages*
- *Adolescents*, among whom restricted sleep times are common
- *Caregivers* who look after the needs of a family member who has a chronic illness
- People who perform *shift work*, who work multiple jobs, or who work in a profession that has demanding work hours
- People who have a *sleep disorder* that causes insufficient sleep, such as delayed sleep phase disorder, environmental sleep disorder, psychophysiological insomnia, periodic limb movements and restless legs syndrome
- People who have a *medical condition* that causes insufficient sleep, such as Parkinson's disease

## Effects

The primary effect of sleep deprivation is *excessive daytime sleepiness*. A sleep-deprived person is likely to fall asleep when forced to sit still in a quiet or monotonous situation, such as during a meeting or class. This degree of severe sleepiness can be a safety hazard, causing *drowsy driving* and *workplace injuries*.

The other effects of sleep deprivation are widespread:

- **Mood**
  - Irritability
  - Lack of motivation
  - Anxiety
  - Symptoms of depression

- **Performance**

- Lack of concentration
- Attention deficits
- Reduced vigilance
- Longer reaction times
- Distractibility
- Lack of energy
- Fatigue
- Restlessness
- Lack of coordination
- Poor decisions
- Increased errors
- Forgetfulness

- **Health**

Sleep deprivation has been associated with an increased risk of these medical conditions:

- High blood pressure
- Heart attack
- Obesity
- Diabetes

Severe sleep deprivation has even been associated with an increased risk of age-specific mortality.

### Coping Strategies

The only sure way for an individual to overcome sleep deprivation is to increase nightly sleep time to satisfy his or her biological sleep need; there is no substitute for sufficient sleep. The following strategies may provide a short-term benefit to reduce the effects of sleep deprivation. They are not a long-term solution, however, and they may not restore alertness and performance to non-sleep-deprived levels.

- **Caffeine:** Caffeine is arguably the most commonly ingested stimulant, as it is used regularly by 80 percent of adults in the U.S in liquid, tablet or gum form. It can provide improved alertness and performance at doses of 75 mg to 150 mg after acute sleep restriction. Higher doses are required to produce a benefit after a night or more of total sleep loss. Frequent use of caffeine can lead to tolerance and negative withdrawal effects.
- **Sleep prior to deprivation:** Getting extra sleep before a period of sleep loss, known as a “prophylactic nap,” may decrease some of the negative performance and alertness effects.
- **Naps during deprivation:** During a period of sleep loss a brief nap of 30 minutes or less may boost alertness. It can be difficult to awaken from a longer nap, which also can produce severe grogginess, or “sleep inertia,” that persists after waking up.
- **Caffeine and a nap:** The beneficial effects of naps and caffeine may be additive; the combination of a nap prior to sleep deprivation with caffeine use during sleep deprivation can provide improved alertness over a longer period.
- **Other stimulants:** In certain situations in which sleep will not be possible, treatment with medications may become a necessity. Stimulants can reduce many of the major effects of sleep loss to some extent, but they may be associated with a number of side effects and potential risks, including a high abuse liability. Other stimulants include amphetamines, methylphenidate and modafinil. These medications should only be used under the supervision of a licensed physician.

