

Sleep deprivation

Sleep deprivation is a general term to describe a state caused by inadequate quantity or quality of sleep, including voluntary or involuntary sleeplessness and circadian rhythm sleep disorders.

Sleep is as important to the human body as food and water, but many of us don't get enough sleep. Insufficient sleep, inadequate quality of sleep or disruptions to the sleep-wake cycle (such as those that occur with shift work or travelling to a different time zone) have consequences for how we function in the daytime, causing sleepiness and fatigue.

A sleepy fatigued person is accident prone, judgement impaired and more likely to make mistakes and bad decisions. Staying awake for 24 hours leads to a reduced hand-to-eye coordination that is similar to having a blood alcohol content of 0.1. This is why sleep deprivation contributes to road accidents and work injuries.

Lack of sleep can also affect a child's school performance and could be linked to increased risk of emotional problems such as depression.

Symptoms of sleep deprivation in adults

Symptoms of sleep deprivation in adults include:

- Constant yawning
- The tendency to doze off when not active for a while; for example, when watching television
- Grogginess when waking in the morning
- Sleepy grogginess experienced all day long (sleep inertia)
- Poor concentration and mood changes (more irritable).

Symptoms of sleep deprivation in children

Sleep deprivation affects children in different ways to adults. Sleepy children tend to 'speed up' rather than slow down. Symptoms include:

- Moodiness and irritability
- Temper tantrums
- The tendency to emotionally 'explode' at the slightest provocation
- Over-activity and hyperactive behaviour
- Daytime naps
- Grogginess when they wake up in the morning
- Reluctance to get out of bed in the morning.

Causes of sleep deprivation

Common causes of sleep deprivation include:

- **Personal choice** – some people don't realise that the body needs adequate sleep. Instead of regularly going to bed at a reasonable hour, they prefer to stay up late to socialise, watch television or read a good book.
- **Illness** – illnesses such as colds and tonsillitis can cause snoring, gagging and frequent waking, and have a direct effect on sleep by fragmenting it.
- **Work** – people who do shift work disrupt their sleep-wake cycles on a regular basis. Frequent travellers (for example, airline crew) also tend to have erratic sleeping patterns.

- **Sleep disorder** – problems such as sleep apnoea, snoring and periodic limb movement disorder can disturb the person's sleep many times during the night.
- **Medications** – some drugs used to treat disorders such as epilepsy or attention deficit hyperactivity disorder (ADHD) can cause insomnia.
- **The sleeping environment** – sleep may be disrupted for a range of environmental reasons; for example, because the bedroom is too hot or cold or because of noisy neighbours or a snoring bed partner.
- **Poor sleep hygiene** – some people's habits are disruptive; for example, drinking coffee or smoking cigarettes close to bedtime stimulates the nervous system and makes sleep less likely. Another common problem is lying in bed and worrying, rather than relaxing.
- **Babies, older babies and toddlers** – parents almost always experience sleep deprivation because their young children wake frequently in the night for feeding or comfort.

Lack of sleep impairs performance

Let's say that a person who needs eight hours of sleep per night only gets six. This two-hour sleep loss can have a major impact including:

- Reduced alertness
- Shortened attention span
- Slower than normal reaction time
- Poorer judgement
- Reduced awareness of the environment and situation
- Reduced decision-making skills
- Poorer memory
- Reduced concentration
- Increased likelihood of mentally 'stalling' or fixating on one thought
- Increased likelihood of moodiness and bad temper
- Reduced work efficiency
- Loss of motivation
- Errors of omission – making a mistake by forgetting to do something
- Errors of commission – making a mistake by doing something, but choosing the wrong option
- Microsleep – brief periods of involuntary sleeping that range from a few seconds to a few minutes in duration.

Effects of sleep loss on children

Selected statistics from research studies into sleep loss and its effects on children and teenagers include:

- Sleep loss causes a range of schooling problems, including naughtiness and poor concentration.
- Chronically sleep-deprived teenagers are more likely to have problems with impulse control, which leads to risk-taking behaviours.
- Sleep problems in teenagers are associated with increased risk of disorders such as depression and attention deficit hyperactivity disorder (ADHD).
- High school students who regularly score C, D or F in school tests and assignments get, on average, half an hour less sleep per night than high school students who regularly get A and B grades.
- Later start times at school result in reduced daytime sleepiness, higher grades and reduced negative feelings.

How much sleep is enough?

Sleep requirements differ from one person to the next depending on age, physical activity levels, general health and other individual factors. In general:

- **Primary school children** – need about nine to 10 hours. Studies show that increasing your child's sleep by as little as half an hour can dramatically improve school performance.

- **Teenagers** – need about nine to 10 hours too. Teenagers have an increased sleep requirement at the time when social engagements and peer pressure cause a reduction in sleep time. Lifestyle factors such as early school start times deprive them of the required sleep-in. There is evidence that around the time of becoming a teenager, there is a shift in the sleep-wake cycle to being sleepy later in the evening with a preference for waking later.
- **Adults** – need about eight hours, depending on individual factors. We tend to need less sleep as we age, but be guided by your own state of alertness – if you feel tired during the day, aim to get more sleep.

Sleep suggestions

Suggestions on how to get more sleep include:

- Purposefully go to bed earlier each night.
- Don't smoke or drink alcoholic or caffeinated beverages in the hours before bedtime.
- Improve your sleeping environment in any way you can – for example, keep it dark and sound-proof, turn off lights and wear earplugs if you have noisy neighbours.
- Don't have any distractions in the bedroom such as TV or a computer.
- Use relaxation techniques to help you fall asleep quickly.
- Seek professional assistance for sleep disorders such as snoring.
- Browse through the Better Health Channel fact sheets on sleep to find ways to improve sleeping habits for you and your baby or child.

Where to get help

- Your doctor
- Sleep disorder clinic

Things to remember

- Not enough sleep or disruptions to the sleep-wake cycle (such as those that may occur with shift work or travelling to a different time zone) cause the physiological state known as fatigue.
- Staying awake for 24 hours leads to a reduced hand-to-eye coordination that is similar to having a blood alcohol content of 0.1.
- Sleep deprivation affects children in different ways to adults – sleepy children tend to 'rev up' rather than slow down.

This page has been produced in consultation with, and approved by:

Newcastle Sleep Disorders Centre

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