

HOW SLEEP WORKS

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Why Is Sleep Important?

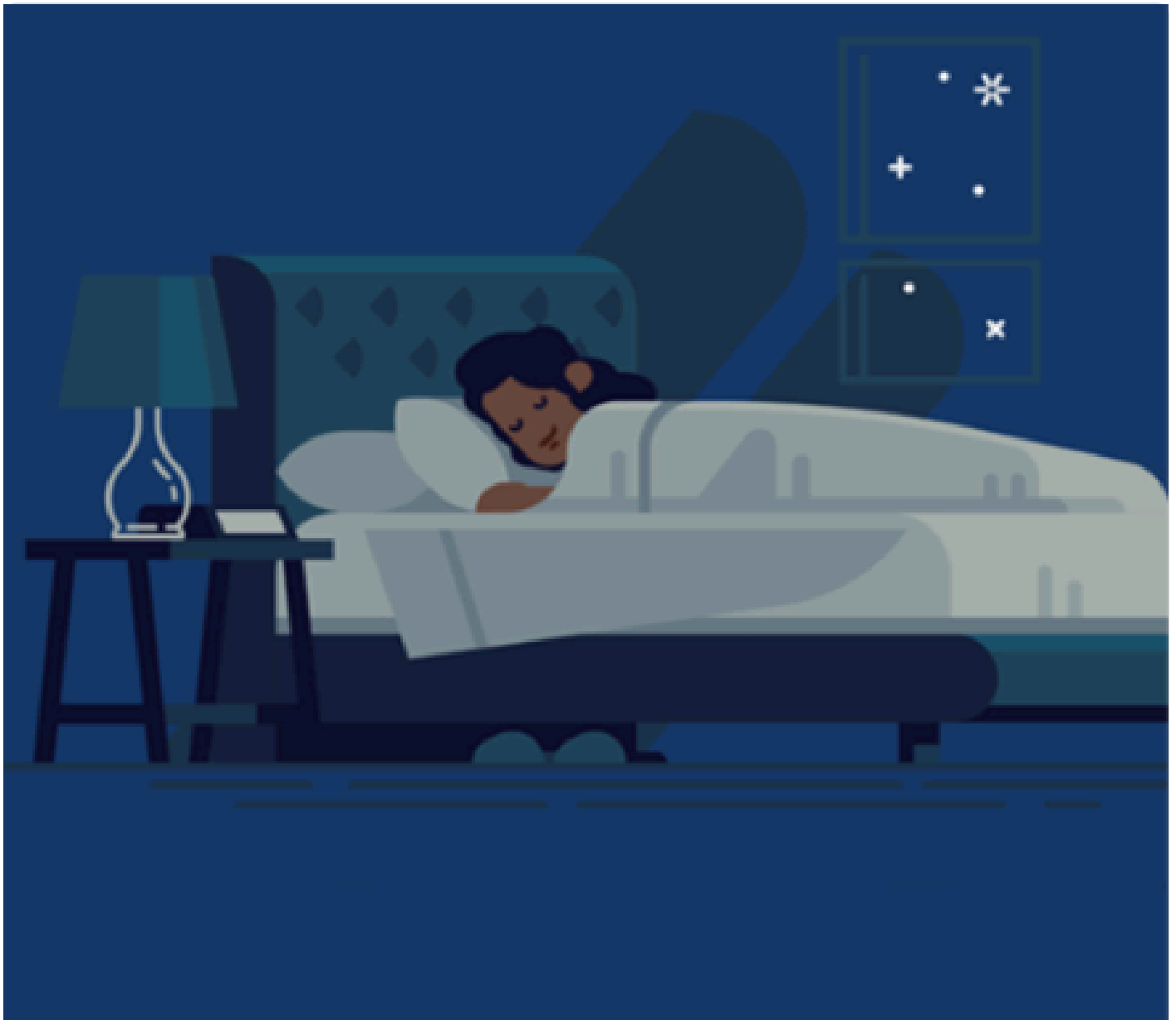


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Sleep plays a vital role in good health and well-being throughout your life. The way you feel while you are awake depends in part on what happens while you are sleeping. During sleep, your body is working to support healthy brain function and maintain your physical health.

In children and teens, sleep also helps support growth and development. Getting inadequate sleep over time can raise your risk for chronic (long-term) health problems. It can also affect how well you think, react, work, learn, and get along with others. Learn how sleep affects your heart and circulatory system, metabolism, respiratory system, and immune system and how much sleep is enough.



BROCHURE

This brochure describes the differences between the types of sleep needed to feel awake and to be healthy and offers tips for getting a good night's sleep.

[View the brochure](#) ➤

Heart and circulatory system

When you fall asleep and enter [non-REM sleep](#), your blood pressure and heart rate fall. During sleep, your parasympathetic system controls your body, and your heart does not work as hard as it does when you are awake. During REM sleep and when waking, your sympathetic system is activated, increasing your heart rate and blood pressure to the usual levels when you are awake and relaxed. A sharp increase in blood pressure and heart rate upon waking has been linked to angina, or chest pain, and [heart attacks](#).

People who do not sleep enough or wake up often during the night may have a higher risk of:

- [Coronary heart disease](#)
- [High blood pressure](#)
- [Obesity](#)
- [Stroke](#)

Hormones and sleep

Your body makes different [hormones](#) at different times of day. This may be related to your sleep pattern or your circadian clocks. In the morning, your body releases hormones that promote alertness, such as cortisol, which helps you wake up. Other hormones have 24-hour patterns that vary throughout your life; for example, in children, the hormones that tell the glands to release testosterone, estrogen, and progesterone are made in pulses at night, and the pulses get bigger as puberty approaches.

Metabolism and sleep

The way your body handles fat varies according to various circadian clocks, including those in the liver, fat, and muscle. For example, the circadian clocks make sure that your

liver is prepared to help digest fats at appropriate times. Your body may handle fat differently if you eat at unusual times.

Studies have shown that not getting enough quality sleep can lead to:

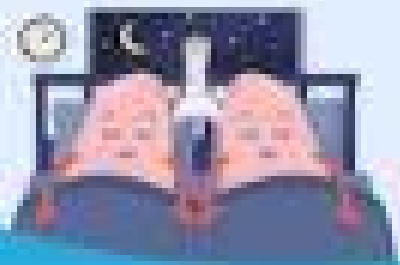
- Higher levels of the hormones that control hunger, including leptin and ghrelin, inside your body
- Decreased ability to respond to insulin
- Increased consumption of food, especially fatty, sweet, and salty foods
- Decreased physical activity
- [Metabolic syndrome](#)

All of these contribute to [overweight and obesity](#).

Respiratory and immune systems

During sleep, you breathe less often and less deeply and take in less oxygen. These changes can cause problems in people who have health problems such as [asthma](#) or [chronic obstructive pulmonary disease \(COPD\)](#). Asthma symptoms are usually worse during early morning sleep. Likewise, breathing problems in people who have lung diseases such as COPD can become worse during sleep.

Sleep also affects different parts of your immune system, which become more active at different times of day. For example, when you sleep, a particular type of immune cell works harder. That is why people who do not sleep enough may be more likely to get colds and other infections.



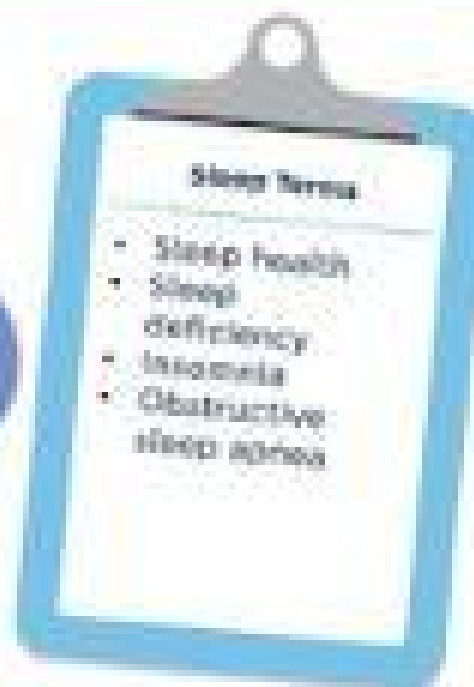
Lung Health Basics: Sleep

Lung health and sleep are linked in complex ways. People with lung disease often have trouble sleeping. Symptoms of lung diseases like chronic obstructive pulmonary disease (COPD) or asthma can cause sleep problems. In turn, poor sleep can cause lung disease symptoms to worsen. Sleep is critical to overall health, so take the first step to sleeping better: learn these sleep terms, and find out about treatments that can help with sleep apnea.

Sleep health refers to consistently getting enough sleep that is of good quality to make you feeling rested and alert at the appropriate time for sleep. Maintaining sleep health promotes physical and mental well-being.

Sleep efficiency occurs if you experience one or more of the following:

- Not getting enough sleep.
- Sleeping at inconsistent times.
- Not sleeping well or getting the different types of sleep the body needs, such as **deep sleep**, which is when the body repairs itself.
- Having a sleep disorder that prevents getting enough sleep or causes poor quality sleep.



Insomnia is a common sleep disorder. With insomnia, a person may have trouble falling asleep, staying asleep, or getting good quality sleep. Insomnia frequently impacts functioning. It may get in the way of your daily activities and make a person feel sleepy during the day.

Obstructive sleep apnea happens when the upper airway becomes blocked many times while you sleep. In fact, it usually or completely stops airflow into the lungs. This is the most common type of sleep apnea.



www.nhlbi.nih.gov/health/sleep

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FACT SHEET

Lung Health Basics: Sleep

People with lung disease often have trouble sleeping. Sleep is critical to overall health, so take the first step to sleeping better: learn these sleep terms, and find out about treatments that can help with sleep apnea.

[View the fact sheet](#) 

Problems with thinking and memory

Sleep helps with learning and the formation of long-term memories. Not getting enough sleep or enough high-quality sleep can lead to problems focusing on tasks and thinking clearly. Read our [Sleep Deprivation and Deficiency](#) page for more information on how lack of sleep affects performance of daily activities, including driving and schoolwork.

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