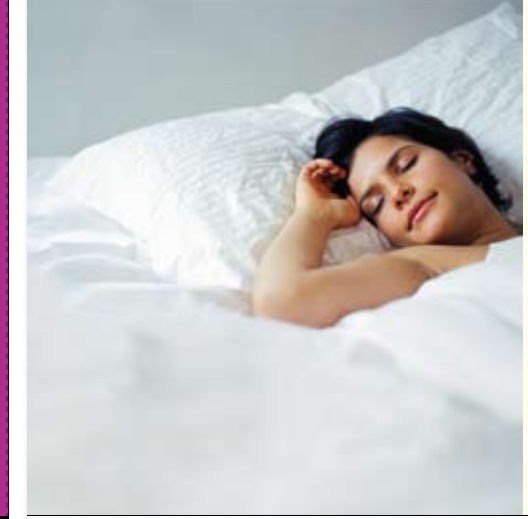


Sleep & Sleep Disorders

published by Barnes & Noble



Good days depend on good nights.

It's among the most basic of human needs, yet sleep eludes millions of us, whether through occasional sleeping problems or more serious sleep disorders. Are you sleeping enough? Find out now—it's never too late to get help or change old habits.

- Learn what happens during sleep and why it's crucial to good health
- Evaluate your sleep habits and improve the quality of your night's sleep
- Overcome the most common sleep problems, from insomnia to snoring

The Facts About Sleep

Despite the fact that we all experience it every night, **sleep** remains a mystery to many of us. Understanding the physical and mental complexities of sleep is the first step to recognizing its importance to your health.

What Happens During Sleep

While your body rests, your brain remains active and experiences several stages of sleep in two different states:

- REM sleep: REM (rapid eye movement) sleep is the most active kind of sleep, in which dreams occur.
- Non-REM sleep: The more frequent non-REM sleep accounts for roughly 75% of a night's slumber.

In a typical eight-hour period of sleep, you alternate between these two states roughly every 90 minutes. One 90-minute cycle of sleep consists of five stages—four non-REM stages and one REM stage.

- Stage 1: This stage is the transition between being awake and sleeping, when some parts of the brain are asleep and others aren't. Thoughts drift, but you're still easily awakened.
- Stage 2: This stage marks the onset of sleep, when breathing and heart rate become regular and the body temperature lowers.
- Stages 3 and 4: These stages, also called **delta sleep**, are deep periods of sleep in which muscles relax, blood pressure drops, and breathing slows. Stages 3 and 4 are the most physically restorative periods of sleep, when growth hormones are released for tissue repair in muscles and bones.
- Stage 5: REM sleep occurs during the fifth stage. Muscles shut down and become nearly paralyzed, but the brain is intensely active. During this stage, the eyes dart rapidly back and forth under the eyelids, and vivid dreams occur. Breathing and heart rate increase and may become irregular. Stage 5 sleep is necessary for providing your brain and body with energy and is suspected to play an important role in mental recovery.

Why Sleep Is Important to Health

Quality sleep occurs when you experience these five stages in continuous succession, 4–6 times a night. When this happens, you awake feeling revitalized and refreshed. Physical and mental benefits of good sleep include the following:

- Muscle and bone repair
- A healthier immune system
- Appetite control (via regulation of two hormones, ghrelin and leptin)
- Memory consolidation
- Daytime alertness

When you lose sleep, both your health and your quality of life suffer. The potentially harmful effects of not getting enough sleep—even for just a night or two—include:

- Excessive daytime sleepiness (EDS)
- Decreased daytime alertness
- Increased risk of motor vehicle or on-the-job accidents
- Impaired immune system

Chronic sleep loss can have even more serious, long-term effects, including:

- Decreased ability to remember new information
- Irritability and erratic behavior
- Impaired ability to use insulin, increasing the long-term risk for diabetes
- Increased long-term risk of heart problems, stroke, high blood pressure, and cancer
- Increased risk of psychiatric problems, including depression and substance abuse
- Weight gain and increased risk of obesity, due to increased appetite and slowed metabolism

It is possible that regularly getting too much sleep—known as **long sleep**—may also have its dangers. Though research is not yet conclusive, studies have indicated that there may be a link between health problems and increased mortality in adults who regularly sleep nine or more hours per night.

How to Evaluate Your Sleep

There's no magic formula to determine how many hours of sleep a person needs. The question is complex for two reasons:

- Sleep loss adds up cumulatively over time, leading to a phenomenon known as **sleep debt**.
- Some people simply seem to need more or less sleep than others.

The best plan is to listen to your body and follow a few general, rule-of-thumb guidelines.

How to Assess Your Own Sleep Needs

To gauge how much sleep you should be getting, first think about your **basal sleep need**—the amount of sleep that you need regularly to function at an optimal level. Basal sleep need varies by age: infants require about 16 hours of sleep a day on average, teenagers about 9 hours, and healthy adults 7–9 hours. To determine how much sleep you need, ask yourself these questions:

- How many hours of sleep do you need to feel productive and healthy? Consider how you feel after about 6 hours compared with 8 hours.
- Do you suffer from health problems (e.g., diabetes, heart disease, stroke), or are you overweight? Poor health and obesity are linked to a greater incidence of sleep problems—if you suffer from either, you may need more sleep.
- Do you have a large sleep debt? Sleep loss is cumulative, so even if you've recently been meeting your basal sleep need, you may still suffer from excessive daytime sleepiness if you're carrying a sleep debt. A sleep debt may cause you to feel especially sleepy during dips in your **circadian rhythm**—the day-night cycle of about 24 hours that helps signal to your body when it's time to sleep. Dips generally occur every 12 hours—during the night and in the mid-afternoon. Fortunately, research suggests that you can often work down sleep debt with good, regular sleep.

How to Tell Whether You're Sleep-Deprived

If you suspect that you're not getting the amount of sleep you need, ask yourself the following questions:

- In the morning, do you feel groggy, need caffeine to function, or hit the "snooze" button repeatedly?
- Do you feel drowsy during the day? Do you ever doze off while driving, attending meetings, or watching TV?
- Do you need less than five minutes to fall asleep?
- Do you sleep extra hours on weekend mornings?
- Do you experience impaired memory or shortened attention span?
- Do you experience loss of temper and excessive irritability?

Though all of the above are signs of sleep deprivation, some experts say that if you so much as feel drowsy at all during the day, you're lacking in sleep. There's a difference, though, between just feeling tired and feeling likely to doze off.

Epworth Sleepiness Scale

Since 1991, the **Epworth Sleepiness Scale** has been a common method that sleep specialists use to gauge daytime sleepiness. It rates how likely you are to fall asleep during these daytime situations:

- Sitting and reading
- Watching TV
- Sitting inactive in a public place
- Riding in a car as a passenger for an hour or more
- Lying down in the afternoon
- Sitting and talking to someone
- Sitting quietly after lunch with no alcohol
- Stopped for a few minutes in traffic after driving

If you were using the Epworth Sleepiness Scale, you would rate your chance of dozing during each situation, answering with one of the following responses:

- Never (0 points)
- Slight (1 points)
- Moderate (2 points)
- High (3 points)

A score of 10 or higher is a possible indication of a sleep disorder.

How to Recognize Sleep Disorders

Though many people experience sleeping problems, that isn't the same as having a **sleep disorder**. Disorders are more complicated, often requiring the help of a sleep specialist or doctor, whereas simple sleeping problems can often be chalked up to poor sleep hygiene.

Sleep Hygiene

Sleep hygiene basically means your sleep habits. Poor sleep hygiene can stem from anything from lifestyle practices (such as drinking too much coffee) to environmental factors (such as too much light in your bedroom) to psychological stressors (such as a job crisis). If you think you have just a temporary sleep problem, follow these tips to try to improve your sleep hygiene:

- Use your bedroom for sleep and sex only: This means no TV, no eating, no computers, and certainly no working in bed or the bedroom—even reading in bed is arguable. If you obsess about time in bed, turn the alarm clock away from you so that you won't see it. The goal is to make your bedroom a peaceful oasis.
- Create a sleep-friendly environment: Your bedroom should be dark, quiet, comfortable, and cool. Curtains, eye shades, earplugs, white noise devices (such as fans), humidifiers, good mattresses, and allergen-free pillows can help eliminate common environmental distractions.
- Avoid nicotine and caffeine before bedtime: Both nicotine and caffeine are sleep-inhibiting stimulants. Avoid smoking and caffeine, whether from coffee, tea, soft drinks, or chocolate, within 5–6 hours of bedtime.
- Avoid alcohol at night: Contrary to the idea of a "relaxing nightcap," alcohol actually interferes with the body's ability to maintain deep, restorative sleep. Avoid alcohol within 4–6 hours of bedtime.
- Avoid eating at night: Avoid eating within 2–3 hours of bedtime. If you're hungry late at night, have a small snack, such as cheese and crackers. Big meals can cause stomachaches or heartburn at night.
- Avoid exercise at night: Avoid strenuous exercise within a few hours of bedtime. Though regular exercise does contribute to sounder sleep, a workout leaves you more alert and with a higher body temperature for up to 5–6 hours afterward. Exercise early to ensure that your body calms down to more sleep-conducive levels by bedtime.



eye shades earplugs

- Establish a regular bedtime routine: Replace stressful nighttime activities, such as work, bill-paying, or emotionally taxing discussions, with relaxing activities, such as baths or light reading. Also avoid exposure to bright light shortly before bedtime, including light from computer screens.
- Maintain a regular sleeping and waking schedule: Your body's circadian rhythm becomes confused when you disrupt it by sleeping in on weekends, napping during the day, or traveling across time zones. Try to avoid these irregularities in your sleep schedule—even daytime naps. A consistent morning wake-up time supports the circadian function and can help with regular sleep onset at night.

Do You Have a Sleep Disorder?

If you practice good sleep hygiene but still consistently have problems sleeping, you may want to consult your doctor about sleep disorders. There are many types of disorders, but a few general questions can help you narrow your problem down. See whether you answer "yes" to any of the following:

- Are you often sleep-deprived? (see How to Evaluate Your Sleep)
- Do you snore or ever awake suddenly, gasping for breath?
- Do you kick or thrash during the night?
- Does your family have a history of sleep disorders?
- Do you regularly have trouble falling and staying asleep?
- Do you have unusual sensations in your legs at night that disturb your sleep?
- Have you experienced unusual behaviors (such as walking, eating, or acting out dreams) that have disturbed your sleep or caused injury to yourself or others?
- Do you have inconsistent or irregular sleeping and waking times?
- Have you experienced persistent sleeping problems for more than three months?

You may also want to try keeping a **sleep diary** for two weeks, which will help you look objectively at your sleeping patterns and habits. Fill the diary out shortly after you get up each morning so that you remember details. A sleep diary can take a variety of forms—a simple one could consist of a table like the following:

	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Number and length of naps							
Medication taken before bed							
Quantity/time of alcohol and caffeine intake							
What you ate and at what time							
Time you went to bed							
Number of minutes it took to fall asleep							
Number and duration of awakenings							
Final out-of-bed time							
Total amount of time slept							

When to Seek Help

If you think you practice good sleep hygiene yet you still regularly have trouble falling or staying asleep, or feel consistently unrefreshed even after a good night's sleep, you should see your doctor. Suppress the impulse to prescribe yourself an over-the-counter sleep aid or herbal remedy such as melatonin—though these agents may help get you out of a rut, it's best to discuss all medication options with your doctor. He or she will ask you about your sleep history and either recommend treatment or refer you to a sleep specialist or sleep center.

Polysomnograms

If you report frequent daytime sleepiness, even if you think you generally sleep well at night, your doctor may recommend a **polysomnogram**, or overnight sleep study. Excessive daytime sleepiness is a major symptom of such disorders as narcolepsy and sleep apnea, both of which can

be diagnosed and treated following overnight evaluation. And though polysomnograms aren't necessary to diagnose insomnia, they're often still helpful in revealing sleep habits that you aren't aware of—including how many hours of sleep you actually get.

A polysomnogram records your physical state during different stages of sleep and wakefulness. A technician attaches electrodes to specific parts of your body to monitor the following while you sleep:

- Blood oxygen levels: An **oximeter** is placed over your fingertip or ear lobe to measure blood oxygen levels, which can help determine whether apnea, or periods of stopped breathing, are creating drops in oxygen during your sleep.
- Body position: You may be videotaped while sleeping to identify unusual body movements or positions.

- Heart rate: An **electrocardiograph (EKG or ECG)** records heart rate and rhythm.
- Muscle tone: An **electromyograph (EMG)** records muscle movement and tone, helping to distinguish sleep stages and measure random limb movements.
- Respiratory events: Airflow is recorded to reveal whether there are interruptions in your breathing during your sleep.
- Sleep stages: An **electroencephalograph (EEG)** records brain waves, which indicate the various stages of sleep as they are reached. An **electrooculograph (EOG)** records eye movements, identifying REM sleep.
- Snoring levels: A small microphone on your neck records snoring.

Monitoring these vital signs and movements throughout the night provides essential clues that can be used to help diagnose and treat sleep disorders.

Types of Sleep Disorders

There are more than 80 types of **sleep disorders**, many of which display similar characteristics. This guide offers a brief overview of the most common sleep disorders.

Insomnia

Insomnia comes in several forms, but the majority of cases can be characterized by the following:

- You can't fall asleep.
- You can't stay asleep due to frequent awakenings or waking up too early.
- You have persistent daytime fatigue and a nagging feeling of waking up unrefreshed.

Insomnia is more common among older adults and more common among women than men.

Symptoms of Insomnia

The main difference between insomnia and simply not sleeping well is that insomnia negatively affects your daytime functioning and/or your physical or emotional well-being. Some common symptoms of insomnia include:

- Fatigue and/or sleepiness
- Decreased alertness
- Poor concentration
- Depression
- Muscle aches

Causes of Insomnia

Insomnia often stems from poor sleep hygiene, especially where diet and environment are concerned. Avoid caffeine, cigarettes, and alcohol—all common contributors to insomnia that may cause difficulty sleeping as well as frequent awakenings—as well as full meals right before bedtime. Likewise, a sleeping environment that harbors too many distractions (such as TVs, computers, books, and sources of noise) can be a culprit as well. Other causes of insomnia include:

- Medical problems: Certain conditions can contribute to insomnia, including the following:
 - Angina
 - Arthritis
 - Asthma
 - Hyperthyroidism
 - Parkinson's disease
 - Chronic fatigue syndrome
- Psychiatric issues: Mood disorders, such as depression, and anxiety disorders and psychotic disorders, such as paranoia and schizophrenia, can trigger insomnia, as can alcohol or drug addiction.

Emotional issues: Internalized anger, anxiety, worries or concerns, chronic stress, and even excessive boredom can cause emotional distress that interferes with sleep.

- Medications: Some medications may act as stimulants or affect your sleep, including certain antihistamines, beta blockers, steroids, thyroid hormones, and bronchodilating drugs.
- Special cases: Women are more likely to experience insomnia during times of hormone change, including pregnancy, menopause (and its earlier stage, perimenopause), and during the menstrual cycle. Such biological events result in fluctuating levels of **progesterone** and **estrogen**, both of which affect sleep quality and sleepiness. In addition, hot flashes, depression, mood swings, and stress can contribute to insomnia in women.

Types of Insomnia

Insomnia is categorized into subtypes based on how long one suffers from it, as well as whether secondary causes, such as stress, lifestyle, or health, may be at fault.

- Transient insomnia: Transient insomnia, or **short-term insomnia**, lasts anywhere from a single night to a few weeks. This kind of insomnia can often be attributed to temporary situations, such as stress, jet lag, or a life change. It is generally treated easily, and prescription medications are often helpful.
- Chronic insomnia: This type of insomnia lasts more than three weeks. Chronic insomnia might be **secondary insomnia**, which can be attributed to one of the medical or psychological causes mentioned previously. A medical diagnosis is important, though, because it might also reveal **primary insomnia**, which is insomnia that can't be linked to any such cause. Primary insomnia is sometimes attributed to an inherited factor, such as metabolic rate, or it may be psychophysiological (see below).
- Psychophysiological insomnia: This type of insomnia is characterized by certain learned behaviors that result in trouble falling and remaining asleep. Psychophysiological insomnia is often triggered by stress or environmental conditions but then is "fed" by your own sleep insecurities, such as a fear of not falling asleep, a worry about how you'll get through the next day, and so on. Psychophysiological insomnia evolves into a vicious cycle that can be hard to break without a concerted effort. Practicing good sleep hygiene and **cognitive behavioral therapy** (see "Treatments for Insomnia" later in this section) are generally the best treatments.

Treatments for Insomnia

The two main treatments for insomnia are medication and cognitive behavioral therapy, or a combination of both. Based on the suspected causes of your insomnia and the amount of time you've suffered from insomnia, your doctor will help you decide what's best for you.

Medication

Medication is the most common method of treating insomnia and is generally best for short-term insomnia. There are several types of medication available.

- Over-the-counter (OTC) sleep aids: These non-prescription medications are popular and generally safe when used correctly, but they're less effective than prescription medications, and they often result in a morning "hangover" effect. Many such sleep products include **antihistamines**, which are really intended to treat cold symptoms or allergies—not promote sleep. These medications usually do have sedating effects, however, and some offer pain relief.
- Herbal remedies: Common herbal remedies for insomnia include **melatonin** and **valerian root**. Although these remedies are generally regarded as safe, the facts—such as long-term impact, side effects, and possible drug interactions—aren't well known. In addition, many herbal remedies undergo little or no rigorous testing and may not be FDA-approved. More research is needed, so use with caution, preferably after consulting your doctor.
- Antidepressants: Though depression and insomnia are often directly related, doctors sometimes prescribe a very low dosage of sedative antidepressant, such as amitriptyline (Elavil) or trazodone (Desyrel), for insomnia, even when no signs of clinical depression are present. They do so because such medications are generally nonaddictive and some have an additional analgesic property, which especially benefits those suffering from chronic pain.
- Hypnotics: Hypnotics induce and maintain sleep and are the most common prescription medications. Some have a short half-life, which means that their effects are felt in the body for only a short time. These medications are best for people who have trouble falling asleep, as they decrease **sleep latency**—the amount of time it takes to fall asleep. Other medications have longer half-lives and are better at maintaining sleep throughout the night. The following chart provides a breakdown of the four most popular hypnotics on the market today.

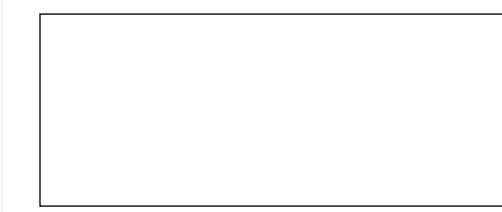


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10 9 8 7 6 5 4 3 2 1
Printed in the United States

Writer: Laura Siciliano-Rosen

