

# Insomnia

Restoring Restful Sleep

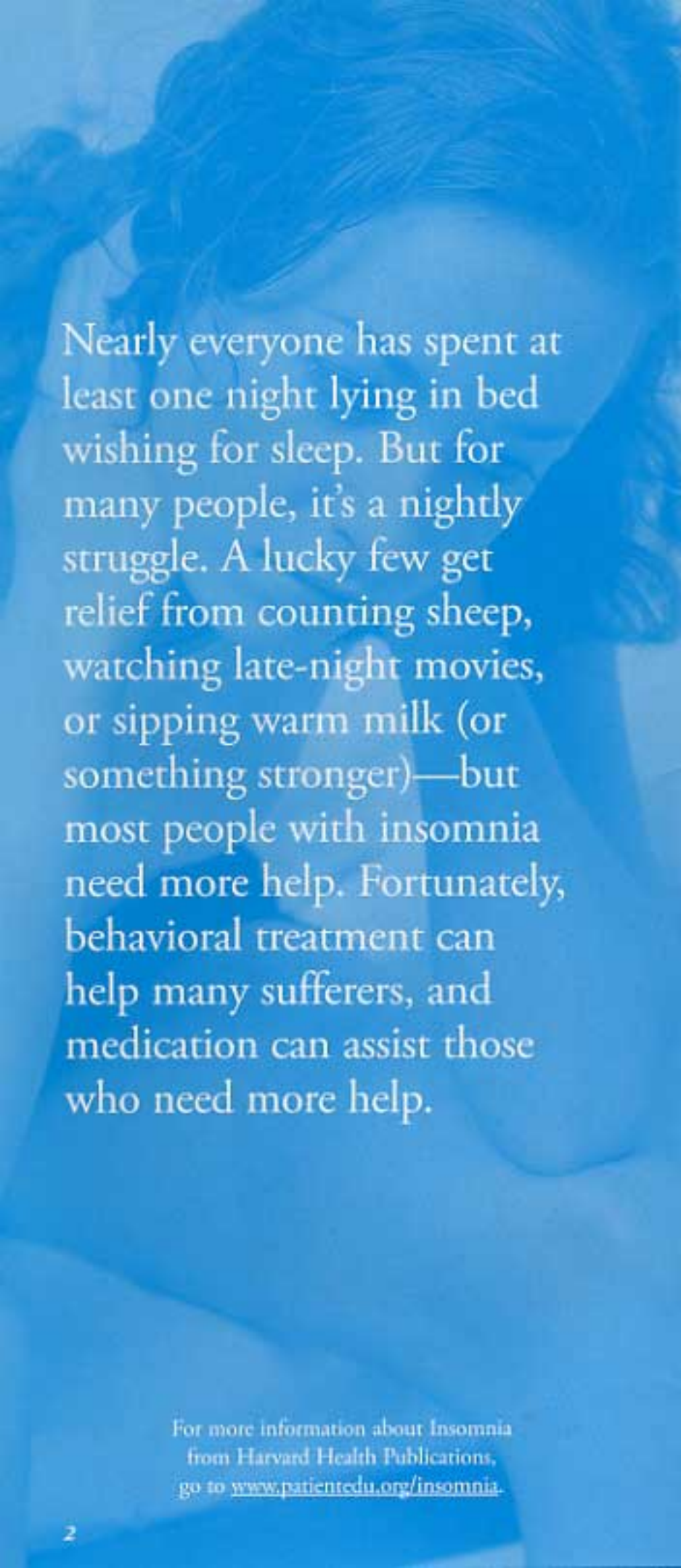


written by Harvard Medical School



PRIMED  
Patient Education Center

[www.patientedu.org](http://www.patientedu.org)



Nearly everyone has spent at least one night lying in bed wishing for sleep. But for many people, it's a nightly struggle. A lucky few get relief from counting sheep, watching late-night movies, or sipping warm milk (or something stronger)—but most people with insomnia need more help. Fortunately, behavioral treatment can help many sufferers, and medication can assist those who need more help.

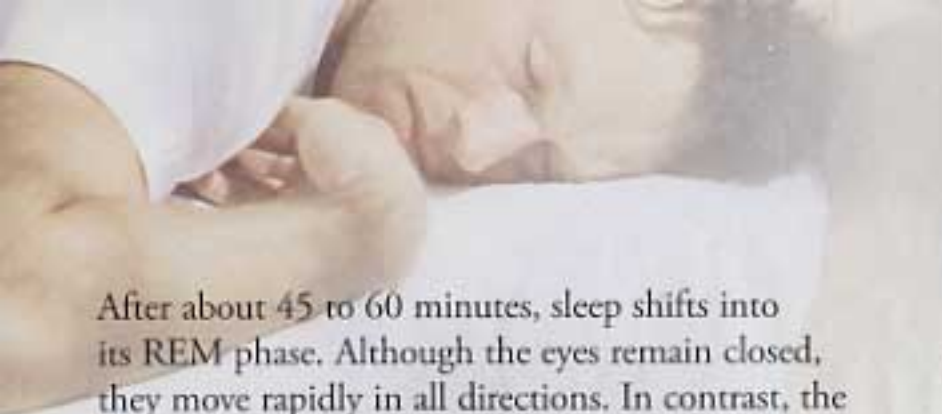
For more information about Insomnia from Harvard Health Publications, go to [www.patientedu.org/insomnia](http://www.patientedu.org/insomnia).



## Normal Sleep

Sleep is essential for health, providing rest and restoration for the mind and body. Although it's restful, sleep is actually quite complex and busy in its own right.

Sleep is divided into two major phases, *rapid eye movement* (REM) sleep and *non-rapid eye movement* (non-REM) sleep. Good sleepers fall asleep quickly, usually in less than 15 minutes. They enter non-REM sleep first, moving gradually from light sleep (Stage 1) to deep sleep (Stage 4). During non-REM sleep, the mind slows down. The circulation slows, too, as the heart rate and blood pressure fall. Breathing is slow and steady. The muscles are relaxed, but body movements do occur.



After about 45 to 60 minutes, sleep shifts into its REM phase. Although the eyes remain closed, they move rapidly in all directions. In contrast, the limb muscles are completely limp and immobile. Breathing is very slow and may even pause briefly. But the brain is turned on; dreaming occurs only during REM sleep. Although the body is entirely relaxed, the heart rate and blood pressure fluctuate from low to high; the heart pumps less blood to the body but more to the brain. The sympathetic nervous system is active, stimulating production of the stress hormone *adrenaline*. Most men develop penile erections during REM sleep.

*There is no “normal” amount of sleep; what matters is how well you sleep, not how long you sleep.*

After about 30 to 45 minutes, sleep shifts back from REM to the non-REM pattern. The two states continue to alternate, with four to six 90- to 110-minute cycles occurring during the course of a typical night's sleep.

There is no “normal” amount of sleep; what matters is how well you sleep, not how long you sleep. Still, most middle-aged people function best on 7 to 9 hours of sleep, though some do well with as little as 4 hours while others need up to 11 hours. Sleep requirements change during the course of a lifetime; most children need more sleep, while older adults need less.

## What is Insomnia?

Since there is no “normal” amount of sleep, a diagnosis of insomnia does not depend on the number of hours a person sleeps. Instead, it's defined as an inadequate quantity or quality of sleep that interferes with normal daytime functioning. For some people, insomnia means difficulty in falling asleep. For others it's difficulty in maintaining sleep or early awakening.

Everyone has a rough night or two, and about 30% of adults have occasional or short-term insomnia. Chronic insomnia, though, lasts for more than 3 weeks. About 10% of American adults experience chronic insomnia, and most need treatment to get relief.



## Symptoms

A restless, wakeful night is the most obvious symptom. Although that can be a miserable experience, daytime symptoms are actually more significant. They may include sleepiness and fatigue, which sometimes can cause car crashes and other accidents. Impaired concentration, grumpiness and irritability, forgetfulness, and depression can also occur. Although insomnia itself does not lead to other medical illnesses, it can take a toll on work, family life, and personal happiness.



## What Causes Insomnia?

Insomnia is not a disease, but it may be a symptom of other conditions (*secondary insomnia*). And it's a common symptom because it has many causes. Table 1 describes some of the things that can shorten sleep, interrupt sleep, or produce poor-quality, non-refreshing sleep:

**Table 1** Causes of Secondary Insomnia

- Medical illnesses, including gastric reflux with heartburn, chronic obstructive lung disease and asthma, congestive heart failure, menopausal hot flashes, arthritis and other causes of chronic pain, enlarged prostate gland and other urinary conditions, and overactive thyroid
- Neurological disorders, including Parkinson's disease, strokes, and dementia
- Sleep disorders, including obstructive sleep apnea, periodic limb movement disorder, and restless legs syndrome
- Psychological conditions, including depression, anxiety, stress, and over-stimulation or overload
- Stimulants such as caffeine and nicotine
- Medications, including decongestants, bronchodilators, certain antidepressants, steroids, beta-blockers, and diuretics. Improper use of sleeping pills can cause rebound insomnia

Although it's a long list, many people with insomnia don't have any of these underlying conditions. Instead, they have *primary insomnia*. Although doctors don't know what causes primary insomnia, they do know how to help.

## Evaluation

There are no specific tests to diagnose insomnia. Still, it's very important for you to have a thorough medical evaluation. Your doctor will check your general health and review your medications and supplements. If there is reason to suspect any of the causes of secondary insomnia listed in Table 1 (see page 7), your doctor may order lab tests or x-rays. In some cases, you may be asked to have a sleep study (*polysomnography*) or to see a specialist.

You can help your doctor evaluate your problem by keeping a sleep diary. Keep a record every day for the week before your check-up, and ask your bed partner or roommate for any observations about your sleep, such as snoring, interrupted breathing, thrashing, and so forth. Be sure to bring your diary to your appointment. See Table 2 below for an example of the information you should record.

**Table 2** Sleep Diary

### Answer these questions in the evening before going to bed:

Medications during the day: \_\_\_\_\_

Caffeinated beverages during the day: \_\_\_\_\_

Alcohol during the day; list amount and time: \_\_\_\_\_

Exercise during the day: \_\_\_\_\_

Sleepiness during the day: \_\_\_\_\_

Naps during the day: \_\_\_\_\_

Food consumed within 3 hours of bedtime: \_\_\_\_\_

Activities within 2 hours of bedtime: \_\_\_\_\_

### Answer these questions in the morning after awakening:

Bedtime last night: \_\_\_\_\_


Approximate time it took to fall asleep: \_\_\_\_\_

Approximate number of awakenings during the night: \_\_\_\_\_

Reasons for awakening, if known: \_\_\_\_\_

Time of awakening for the day: \_\_\_\_\_

Level of energy and alertness after washing up in the morning: \_\_\_\_\_



## Sleep Hygiene

These simple tips can help you get a good night's sleep:

- **Use your bed only for sleeping or love-making, never for reading or watching TV.** If you can't sleep after 15 to 20 minutes, get out of bed and go into another room. Read quietly with a dim light but don't watch TV, since the full-spectrum light emitted by the tube has an arousing effect. When you feel sleepy, get back into bed—but don't delay your scheduled awakening time to compensate for lost sleep.
- **Don't nap during the day unless it's absolutely necessary.** Even then, restrict your nap to 15 to 20 minutes in the early afternoon.
- **Get plenty of exercise.** Build up to 30 to 45 minutes of moderate exercise nearly every day; walking is an excellent choice. Get your exercise early in the day, then try some stretching exercises or yoga to relax your muscles and your mind at bedtime.



- **Wind down late in the day.** Whenever possible, schedule stressful or demanding tasks early and less-challenging activities later. Establish a regular bedtime and a relaxing bedtime routine, such as taking a warm bath or listening to soothing music.
- **Eat properly.** Avoid caffeine, especially after mid-afternoon. Try to avoid all beverages after dinner if you find yourself getting up at night to urinate. If you enjoy a bedtime snack, keep it bland and light. Avoid alcohol after dinnertime; although many people think of it as a sedative, alcohol can actually impair the quality of sleep.
- **Be sure your bed is comfortable and your bedroom is dark and quiet.** It should also be well ventilated and kept at a constant, comfortable temperature. Try using a sleep mask, earplugs, or a white noise machine to compensate for problems in your sleeping environment.
- **Above all, don't worry about sleep.** Watching the clock never helps. Except when keeping a sleep diary, don't keep track of the amount of time you spend trying to sleep. Instead, just rest quietly and peacefully. Try not to lie in bed reviewing your problems and plans. If you really are overloaded, get out of bed and make a list, then return to bed and think of something relaxing and pleasant.



## Treating Insomnia: *Behavioral Therapy*

If good sleep hygiene doesn't solve your sleeping problems, behavioral therapy may. Here is a quick summary of some techniques:

- **Relaxation training.** Learn deep breathing, progressive muscle relaxation, or meditation. Relaxing your mind at bedtime will help you drift off to sleep.
- **Stimulus control therapy.** Go to bed only when you are sleepy. Don't read, watch TV, snack, or listen to music in bed. Get up at the same time every day, no matter how little you've slept. Avoid daytime napping.
- **Sleep restriction therapy.** Reduce your time in bed to the estimated total time you sleep in an average night by going to bed later (minimum 5 hours). Get up at the same time every day. Maintain the same bedtime every night for a week, and then move it 15 minutes earlier every week until you get a satisfying, refreshing amount of sleep. Then maintain the same schedule every day.
- **Cognitive therapy.** Learn to replace negative thoughts about sleep ("I'll never get to sleep tonight," "I'll be a wreck tomorrow," "I'll get sick unless I sleep 8 hours a night") with positive thoughts ("If I relax peacefully in bed, my body will take care of itself.").

## Treating Insomnia: *Supplements*

A variety of dietary supplements are widely promoted to improve sleep. However, none is subject to the FDA's standards for purity, safety, or effectiveness. The two most popular supplements are *melatonin* and *valerian*. Melatonin is a hormone produced by the brain's *pineal gland*; in low doses, it may have some benefit for temporary insomnia due to jet lag. Valerian is an herb; there is little evidence that it helps.

## Treating Insomnia: *Medications*

Sleeping pills are available over-the-counter or by prescription. Whether you are treating yourself or using a drug prescribed by your doctor, you should follow several basic guidelines:

- Use medication only as a back-up to behavioral changes
- Use the lowest dose that is effective
- Don't take a pill every night. Instead, use medication only when an uninterrupted night's sleep is really important. Even then, restrict yourself to two to four tablets per week.
- Try to stop using medication after 3 to 4 weeks
- Discontinue medication gradually to avoid rebound insomnia

**Over-the-counter medications.** Many brands are available. Most contain antihistamines such as *diphenhydramine* or *doxylamine*. Most sleep experts discourage the use of these products, particularly long-term use. Side effects include daytime sedation, dry mouth, constipation, and difficulty urinating.

**Prescription medications.** Your doctor will decide if you need a sleeping medication, then determine which drug is best for you and instruct you in its proper use, precautions, and potential side effects. Many medications are available. The older barbiturates and sedatives have been almost entirely replaced by safer and more effective drugs. Certain antidepressants can help promote sleep, particularly if depression is also present. But doctors today usually choose between three groups of medications:

**Benzodiazepines** (*temazepam, oxazepam, estazolam, and many others*). These older drugs were once the mainstays of insomnia therapy. Excessive use can be habit forming, and some of the longer-acting preparations can cause daytime sedation.

**Imidazopyridines** (*eszopiclone, zaleplon, zolpidem*). These newer medications act on the same receptor in the brain as the benzodiazepines, but they tend to act more quickly and to leave the body faster. They are less likely to cause daytime sedation, habituation, and rebound insomnia.

**Melatonin receptor agonist** (*ramelteon*). This medication acts on the same brain receptors as the hormone melatonin. It is fast acting but very short lasting. It does not appear to cause habituation or rebound insomnia.

## Sleep Tight

According to the National Sleep Foundation, the average American adult gets 6.9 hours of sleep on weeknights and 7.5 hours on weekends. But about 70 million of us sleep poorly, and for more than half, it's a long-term problem.

Nearly everyone can benefit from improved sleep hygiene. People with sleep disorders should work with their doctors to diagnose the problem and treat conditions that may be responsible. If your doctor diagnoses primary insomnia, consider behavioral therapy first, and then discuss the proper use of prescription sleeping pills.

*Nearly everyone can benefit from improved sleep hygiene.*

