

[Home](#) > [Health Information](#)

In-Depth Reports

Insomnia

An in-depth report on the causes, diagnosis, treatment, and prevention of insomnia.

Highlights

What Is Insomnia?

Insomnia can be a short-term or long-term condition, but it always involves problems with falling asleep or staying asleep. Short-term (acute) insomnia is often due to underlying psychological or physical conditions.

Who Is at Risk?

Anyone can get insomnia, but it is generally more common in women than in men. The elderly are particularly at risk for insomnia.

Diagnosing Insomnia

A doctor will make a diagnosis of insomnia based on information about your sleep patterns. Your doctor may ask:

- How long does it take for you to fall asleep at night?
- How many times during the night do you wake up?
- Do you experience daytime fatigue?
- Do you have a medical condition that may interfere with sleep?
- What medications do you take (including prescription drugs, over-the-counter drugs, and herbs or supplements)?
- Do you drink alcohol or smoke?

Your doctor may also ask you to keep a sleep diary to record specific sleep-related information.

Treating Insomnia

- Sleep hygiene is the most important step for controlling insomnia. These simple self-help measures include establishing a regular bedtime routine.
- Behavioral therapy can help treat insomnia in people of all ages. It includes various approaches for establishing new sleep behaviors and addressing underlying issues.
- If self-help or behavioral therapies do not solve the problem, a doctor may prescribe medications for use on a short-term basis.

Non-benzodiazepine sedative hypnotics are usually the preferred type of drugs. They include zolpidem (Ambien, generic), zaleplon (Sonata, generic) and suvorexant (Belsomra). These drugs can cause side effects, so make sure that your doctor explains the risks of these drugs and the benefits.

New Drug Approval

In 2014, the FDA approved a new type of sleep drug called suvorexant (Belsomra). Suvorexant is an orexin receptor antagonist. Orexin is a neurotransmitter that plays a role in the wake cycle and keeping people awake. Suvorexant targets and blocks the action of orexin to promote sleep. The FDA approved four different dosages.



Introduction

Insomnia comes from the Latin words for "no sleep." Insomnia is characterized by:

- Difficulty falling asleep
- Difficulty staying asleep
- Waking up too early
- Poor quality ("non-restorative") sleep

Insomnia may be primary or secondary:

- **Primary insomnia** means that the inability to sleep is not caused by other health problems.
- **Secondary insomnia** is due to other health conditions that interfere with sleep. It is also called "comorbid insomnia."

Duration of Insomnia

Insomnia is often categorized by how long it lasts:

- **Transient** insomnia lasts for a few days.
- **Short-term (acute)** insomnia lasts for several weeks.
- **Long-term (chronic)** insomnia lasts for a month or longer.

Related Disorders

Insomnia may also be defined in terms of inability to sleep at conventional times. The following examples are referred to as circadian rhythm disorder

- **Delayed sleep-phase syndrome** refers to a pattern of falling asleep very late at night or in the early morning hours, and having difficulty waking up.
- **Advanced sleep-phase syndrome** refers to a pattern of falling asleep early in the evening (6 to 9pm), waking early in the morning (3 to 5am)

Healthy Sleep

In studies of human sleep behavior, subjects spend about one-third of their time asleep, suggesting that most people need about 8 hours of sleep many as 16 hours a day.

The daily cycle of life, which includes sleeping and waking, is called a **circadian** (meaning "about a day") rhythm, commonly referred to as the bio prominent circadian rhythm.

The sleeping and waking cycle is about 24 hours. It usually takes the following daily patterns:

- Daytime activity and nighttime rest.
- A natural peak in sleepiness at mid-day, the traditional siesta time.

In addition, daily rhythms intermesh with other factors that may interfere or change individual patterns:

- The monthly menstrual cycle in women can shift the pattern.
- Light signals coming through the eyes reset the circadian cycles each day, so changes in season or various exposures to light and dark can trouble falling asleep and waking up at "normal" times because they are missing the normal light cues.

The Response in the Brain to Light Signals

The response to light signals in the brain is an important key factor in sleep:

- Light signals travel to a tiny cluster of nerves in the hypothalamus in the center of the brain, the body's master clock, which is called the suprachiasmatic nucleus.
- This nerve cluster takes its name from its location, which is just above (supra) the optic chiasm, a major junction for nerves transmitting information to the brain.
- The approach of dusk each day prompts the SCN to signal the nearby pineal gland (so named because it resembles a pinecone) to produce melatonin.
- Melatonin is thought to act as the body's clock-setting hormone. The longer a person is in darkness the longer the duration of melatonin secretion.

Sleep Cycles

Sleep consists of REM and Non-REM sleep, two distinct states that alternate in cycles and reflect differing levels of brain nerve cell activity.

Non-Rapid Eye Movement (Non-REM) Sleep:

Non-REM (or NREM) sleep is also termed quiet sleep. Non-REM is divided into three stages of progression:

- N1 (light sleep)
- N2 (so-called true sleep)



- N3 (deep "slow-wave" or delta sleep)

With each descending stage, awakening becomes more difficult. It is not known what governs NonREM sleep in the brain. A balance between cer

Rapid Eye Movement (REM) Sleep:

During REM sleep the brain is highly active. This stage is called active sleep in babies. Most vivid dreams occur in REM sleep. In REM sleep, brain from acting out their dreams. Except for vital organs like lungs and heart, the only muscles not immobilized during REM are the eye muscles. REM brains must work harder than when they are well rested.

The REM/Non-REM Cycle:

The cycle between quiet (Non-REM) and active (REM) sleep generally follows this pattern:

- After about 90 minutes of Non-REM sleep, eyes move rapidly behind closed lids, giving rise to REM sleep.
- As sleep progresses the Non-REM/REM cycle repeats.
- With each cycle, Non-REM sleep becomes progressively lighter, and REM sleep becomes progressively longer, lasting from a few minutes e

Causes of Temporary Insomnia

A reaction to change or stress is a common cause of short-term (several weeks) and transient (several days) insomnia. This condition is sometime

The trigger could be a major or traumatic event such as:

- An acute illness
- Injury or surgery
- The loss of a loved one
- Job loss

Temporary insomnia can also develop due to a relatively minor situational event, including:

- Extremes in weather
- Stress about an exam
- Trouble at work
- Travel, particularly across time zones

In most cases, normal sleep almost always returns when the condition resolves, or when the person recovers from the event or becomes used to a few weeks. Individual responses to stress vary. Some people never experience insomnia, even during very stressful situations while others may

Female Hormonal Fluctuations

Fluctuations in female hormones play a major role in insomnia in women over their lifetimes. This temporary insomnia may occur during:

- **Menstruation:** Progesterone promotes sleep. Levels of this hormone plunge during menstruation, causing insomnia. When progesterone le
- **Pregnancy:** Changes in progesterone levels during the first and last trimester can disrupt normal sleep patterns.
- **Menopause:** Insomnia can be a major problem during the transition to menopause (perimenopause), when hormone levels are fluctuating ir awakening.

Jet Lag

Air travel across time zones often causes temporary insomnia. After long plane trips, a day of adjustment is usually needed for each time zone cr a later time zone in the east because it is easier to lengthen a circadian phase than to shorten it.

Effect of Light and Other Environmental Disruptions

Light, noise, and uncomfortable temperatures can cause sleeplessness. Depending on the time of day, too much or too little light can disrupt sleep

- **Excessive Light at Night:** A person's biologic circadian clock is triggered by sunlight, and very bright artificial light maintains wakefulness.
- **Insufficient Light during the Day:** Insufficient exposure to light during the day, as occurs in some disabled elderly people who rarely ventu

Other Causes of Temporary Insomnia

Caffeine: Caffeine is a stimulant, which can interfere with falling asleep. **Nicotine:** Nicotine is also a stimulant, but quitting smoking can lead to tra sleep. **Medications:** Insomnia is a side effect of many common medications, including over-the-counter preparations that contain caffeine. [See a pharmacist.](#)

Causes of Chronic Insomnia



Sleep problems seem to run in families. Many people with chronic insomnia have a family history of insomnia, with the mother being the most common. Insomnia is difficult to define.

Anxiety, Depression, and Other Mental Health Disorders

Many cases of chronic insomnia have an emotional or psychological basis. The disorders that most often cause insomnia are:

- Anxiety
- Depression
- Bipolar disorder
- Attention-deficit hyperactivity disorder
- Post-traumatic stress disorder

Insomnia may also be the cause of emotional and mental health problems, such as depression and [anxiety](#). It is often unclear which condition has the greater impact.

Psychophysiological Insomnia

In many cases, it is unclear if chronic insomnia is a symptom of some physical or psychological condition or if it is a primary disorder of its own. In

Psychophysiological insomnia occurs when temporary insomnia disrupts your sleep patterns:

- You begin to associate the bed not with rest and relaxation, but with a struggle to sleep. A pattern of sleep failure emerges.
- Over time, going to bed becomes a source of anxiety. You focus on your inability to sleep, the consequences of sleep loss, and the lack of morning energy.
- Eventually, excessive worry about sleep loss becomes persistent and provides an automatic nightly trigger for anxiety and arousal leading to insomnia.

Medical Conditions and Their Treatments

Among the many medical problems that can cause chronic insomnia are allergies, benign prostatic hyperplasia (BPH), arthritis, gastroesophageal reflux disease, Alzheimer disease, Parkinson disease, hyperthyroidism, epilepsy, and fibromyalgia. Other types of sleep disorders, such as restless legs syndrome, can also cause insomnia.

Among the many medications that can cause insomnia are antidepressants (especially bupropion), beta-blockers, and beta-agonists.

Substance Abuse

Substance abuse can cause chronic insomnia. This is true for both stimulants such as cocaine and sedatives such as alcohol. One or two drinks of alcohol can cause wakefulness a few hours later. It also increases the risk for other sleep disorders, including sleep apnea and restless legs syndrome. Sleep problems can persist for years during recovery.

Risk Factors

More than a quarter of all Americans experience short-term (acute) insomnia at some point during a year, and nearly 10% have long-term (chronic) insomnia.

Gender

Overall, insomnia is more common in women than men, although men are not immune to insomnia. Sleep efficiency deteriorates equally in men and women.

Hormonal fluctuations that occur during menstruation, pregnancy, and menopause put women at higher risk for insomnia. Women are also more likely to have insomnia during the perimenopausal period.

Age

Insomnia is more common in older people than younger people. As people grow older, sleep patterns change. Older adults tend to wake up frequently during the night.

Older people are also more likely than younger people to have medical conditions that cause pain or nighttime distress. These conditions include arthritis, heart disease, Parkinson disease and Alzheimer disease, can also affect sleep patterns. Consequences of poor sleep in the elderly include a higher risk of falls, depression, and cognitive decline.

Shift Work

Shift workers are at considerable risk for insomnia. Workers over age 50 and those whose shifts are always changing are particularly susceptible to sleep problems.

Night-shift workers are at risk for falling asleep on the job at least once a week, implying that their internal clocks do not adjust to unusual work times. They may also have a higher overall risk for health problems.

Complications

Insomnia itself is not life threatening, but it can increase the risk of accidents, psychiatric problems, and certain medical conditions. It can also contribute to weight gain and lead to obesity.



Increased Risk of Accidents

Sleepiness increases the risk for motor vehicle and workplace accidents. Studies indicate that drowsy driving is as risky as drunk driving. Research shows that chronic health condition.

Quality of Life

Surveys show that people with severe insomnia have a quality of life that is almost as poor as those who have chronic medical conditions, such as chronic pain, depression, and poorer relationships.

Thinking and Performance

Insomnia makes it harder to concentrate and perform tasks. Deep sleep deprivation reduces concentration and impairs the brain's ability to process information.

Mood Disorders

Although stress and depression are major causes of insomnia, insomnia may also increase the activity of the hormones and pathways in the brain that lead to depression and anxiety.

Even modest alterations in waking and sleeping patterns can have significant effects on a person's mood. In both children and adults, the combination of insomnia and mood disorders is common.

Obesity and Weight Gain

Lack of sleep causes hormonal, metabolic, and brain activity changes that affect weight and appetite regulation. Research increasingly suggests that insomnia increases the risk for other health conditions, such as heart disease and diabetes.

Heart Health

Evidence suggests that chronic insomnia may moderately increase the risk for heart disease, heart attack, and heart failure. In men, insomnia may be associated with the chronic inflammation associated with heart disorders.

Diagnosis

Sleep Questionnaires

A number of questionnaires are available for determining whether a person has insomnia or other sleep disorders. For example, the doctor may ask you to complete a questionnaire about your sleep.

- How would you describe your sleep problem?
- How long have you had the sleep problem?
- How long does it take you to fall asleep?
- How many times a week does it occur?
- How restful is your sleep?
- Do you have trouble falling asleep or do you wake up too early?
- What is the sleep environment like? (Noisy? Not dark enough?)
- How does insomnia affect daytime functioning?
- What medications do you take? (Include herbs and over-the-counter or prescription drugs.)
- Are you taking or withdrawing from stimulants, such as coffee or tobacco?
- How much alcohol is consumed per day?
- What stresses or emotional factors may be present?
- Have you experienced any significant life changes?
- Do you snore or gasp during sleep (an indication of sleep apnea)?
- Do you have leg problems (cramps, twitching, crawling feelings)?
- Is there a bed partner? Is this person's behavior distressing or disturbing?
- Are you a shift worker?

Sleep Diary: Keeping a sleep diary is a helpful diagnostic tool. Every day for 2 weeks, record all sleep-related information (including responses to a questionnaire, number of nocturnal awakenings, and rising time). Your bed partner's observations of your sleep behavior can also help.

Measuring Sleepiness

Actigraphy: Actigraphy uses a portable device with a sensor to monitor movement. Actigraphy may be used in some situations to help give a doctor a better idea of your sleep patterns. Most people with insomnia are diagnosed and treated without this test. However, actigraphy may help identify insomnia in some people.

Sleep Disorders Centers

If unexplained insomnia persists after treatment or there is evidence of a primary sleep disorder, such as sleep apnea or narcolepsy, the doctor may refer you to a sleep disorders center.

Among the signs that may indicate a need for a sleep disorders center are:

- Insomnia due to psychologic disorders
- Sleeping problems due to substance abuse



- Snoring and sudden awakening with gasping for breath (possible sleep apnea)
- Severe restless legs syndrome
- Persistent daytime sleepiness
- Sudden episodes of falling asleep during the day (possible narcolepsy)

Most sleep disorders centers perform an in-depth analysis, which includes **Polysomnography**. Polysomnography is the technical term for an overnight study used to diagnose obstructive sleep apnea, restless leg syndrome/periodic limb movement disorder, or other abnormal sleep behaviors called parasomnias.

Treatment

The American Academy of Sleep Medicine (AASM) recommends a number of behavioral methods and prescription medications as the main treatments for people with insomnia.

Doctors agree that behavioral therapies should be the first-line treatment for insomnia. For children in particular, medications should rarely be used.

Behavioral Therapy

Various approaches are available to help people learn how to relax and sleep well. Although medications can help people with insomnia to sleep, in some cases, the benefits of psychological and behavioral therapy are long lasting. Behavioral methods work for all age groups, including children and adolescents.

Sleep hygiene practices, tips and techniques for ensuring a good night's sleep, should accompany any behavioral method. (For more on sleep hygiene, see the Sleep Hygiene page.)

Behavioral methods include:

- Stimulus control
- Cognitive behavioral therapy
- Relaxation training and biofeedback
- Sleep restriction

All behavioral approaches have the same basic goals:

- To reduce the time it takes to go to sleep to less than 30 minutes
- To reduce wake-up periods during the night

Studies report that the majority of people who are treated with non-drug methods experience improved sleep. Furthermore, most of those who have been treated with non-drug methods experience improved sleep.

Stimulus Control

Stimulus control is considered the standard treatment for primary chronic insomnia and may also be helpful for some people with secondary insomnia. The following are the basic principles of stimulus control:

- Go to bed only when ready to sleep or for sex.
- If unable to sleep within 15 to 20 minutes, get up and go into another room. (People who find it physically difficult to get out of bed should sit in a chair.)
- Maintain a regular wake-up time no matter how few hours you actually sleep.
- Avoid naps.

Cognitive-Behavioral Therapy

Cognitive behavioral therapy (CBT) is a form of therapy that emphasizes observing and changing negative thoughts about sleep such as, "I'll never be able to fall asleep." Emphasis is on reinforcing the need for 7 to 8 hours of sleep each night and addressing the anxiety that prevents sleep. According to several studies, adding medication to CBT does not provide additional benefit.

Relaxation Training and Biofeedback

Relaxation training includes breathing and guided imagery techniques. Progressive muscle relaxation is another technique for inducing sleep that involves tensing and then relaxing muscles.

- Focus on one specific muscle group at a time. Most people start with the muscles in one foot. Inhale and tense the foot muscles for about 8 seconds.
- Relax the foot, and let it become loose and limp. Stay relaxed for 15 seconds, and then repeat with the other foot.
- Move up to the next muscle group and repeat the sequence, doing one side of the body at a time. Move progressively from each foot and leg to the head.

Biofeedback may be combined with relaxation techniques. Biofeedback involves being monitored with an electroencephalogram (EEG), a device that measures electrical activity in the brain so that they can either avoid or repeat them voluntarily.

Paradoxical Intention and Sleep Restriction Therapies

Paradoxical intention is a type of cognitive technique that aims to conquer anxiety about insomnia by forcing the patient to stay awake. Not trying to fall asleep can help some people fall asleep more easily.



Sleep restriction therapy is similar to paradoxical intention. It involves limiting the time spent in bed to the number of hours that are actually spent ; improves, the hours spent in bed are increased.

Treatment of Underlying Mental Health Problems

Disruption in sleep is commonly present in those with mental health problems, such as certain types of depression, bipolar disorder, anxiety disorder.

When a sleep problem accompanies any of these disorders, it is important that the underlying mental health problem is treated also.

Drug Therapy

Unlike behavioral treatment, which can cure insomnia, sleeping pills produce only temporary improvement. Medications for insomnia can also have important effects when using medications for the treatment of insomnia:

- Non-benzodiazepine and other newer sedative hypnotics are the preferred medications for insomnia and have less risk for dependency than benzodiazepines. They can also impair driving and mental alertness the next day. If you need to take one of these prescription drugs, start with as low a dose as possible.
- For adults over age 60 years, the risks of sedative hypnotics may far outweigh their benefits. Sleep medications increase the risks for falls, and older people need lower doses than younger people.
- As a general rule, do not take either prescription nor non-prescription sleeping pills on consecutive days or for more than 2 to 4 days a week.
- Medication should be withdrawn gradually, and the person should be aware of the possibility of rebound insomnia after stopping medication. Rebound insomnia can be more severe than the original insomnia.
- If insomnia is still a problem after stopping the medication and continuing with good sleep hygiene, this pattern can be repeated again, but fewer times.
- Alcohol intensifies the side effects of all sleeping medication and should be avoided.
- If chronic insomnia is accompanied by depression or anxiety, treating these problems first may be the best approach.

Lifestyle Changes

Sleep Hygiene Tips

Proper sleep hygiene should accompany any behavioral method. The term sleep hygiene is used to describe simple behaviors that may help ever

During the day:

- Avoid naps, especially in the evening.
- Exercise before dinner. Stimulation from exercise drops to a low point a few hours after exercise, making sleep easier.
- Exercising close to bedtime may increase alertness.
- Eat light meals, and schedule dinner 4 to 5 hours before bedtime. A light snack before bedtime can help sleep, but a large meal may have the opposite effect.
- Spend at least a half hour in daylight every day. The best time is early in the day.

Before and at bedtime:

- Establish a regular time for going to bed and getting up in the morning. Stick to this schedule even on weekends and during vacations.
- Use the bed for sleep and sexual relations only, and not for reading, watching television, or working. Excessive time in bed disrupts sleep.
- Take a hot bath about 1.5 to 2 hours before bedtime to help fall asleep.
- Do something quiet and relaxing in the 30 minutes before bedtime. Reading, meditating, or a leisurely walk are all appropriate activities.
- Keep the bedroom relatively cool and well ventilated.
- Avoid fluids just before bedtime so that sleep is not disturbed by the need to urinate.
- Avoid stimulants such as caffeine or nicotine in the hours before sleep.
- Avoid alcohol in the hours before bedtime. While alcohol may help you fall asleep quickly, it can cause you to wake up in the middle of the night.

If you are having problems falling asleep:

- Do not look at the clock. Obsessing over time will just make it more difficult to sleep.
- If still awake after 15 to 20 minutes, go into another room, read or do a quiet activity using dim lighting until feeling very sleepy. Do not watch television.
- If distracted by a sleeping bed partner, moving to the couch or a spare bed for a couple of nights might be helpful.
- If a specific worry is keeping you awake, thinking of the problem in terms of images rather than in words may help you to fall asleep more quickly.

Medications

Many Americans use some form of herbal, over the counter, or prescription sleep aid pill. Over-the-counter (nonprescription) medications that help with sleeping are called **sedative hypnotics**.

Herbs and Supplements

More than 1.5 million Americans use complementary and alternative therapies to treat insomnia. Valerian and melatonin are among the most commonly used. These substances are generally harmless for most people. However, other herbs and supplements have more serious side effects and interactions.



The American Academy of Sleep Medicine (AASM) advises that there is only limited scientific evidence to show that herbal and dietary supplements are safe to use without consulting a doctor. Be sure to talk to your doctor if you are considering taking any herbal or dietary supplement. Some of these products can interact with your medications.

Generally, manufacturers of herbal remedies and dietary supplements do not need FDA approval to sell their products. Just like a drug, herbs and supplements can be harmful. There have been a number of reported cases of serious and even lethal side effects from herbal products. People should always use caution when taking these products.

Melatonin

Melatonin is the most studied dietary supplement for insomnia. It appears to reduce the time to fall asleep (sleep onset) and increase the time spent in deep sleep. General recommendations are to take 0.3 mg to 1 mg about 90 minutes before going to sleep. Taking higher doses may disrupt sleep and may cause drowsiness. Limited benefits for people with chronic insomnia, studies suggest that it may help travelers with jet lag and people with delayed sleep syndrome.

Valerian root

Valerian is an herb that has sedative qualities and is commonly used by people with insomnia. Some studies have indicated that it may help improve sleep.

Kava

Kava has been used to relieve anxiety and improve sleep. It is dangerous and associated with reports of liver failure and death, with highest risk in people taking other anti-anxiety drugs. Kava also increases the strength of certain other drugs, including other sleep medications, alcohol, and antidepressants. Do not use kava if you are taking any of these medications.

Tryptophan and 5-L-5-hydroxytryptophan (5-HTP)

Tryptophan is an amino acid used in the formation of the neurotransmitter serotonin, which is associated with healthy sleep. L-tryptophan used to be a common supplement, but serious, and even fatal, disorder called eosinophilia myalgia syndrome. A byproduct of tryptophan, 5-HTP, is still available as a supplement. It is generally considered safe.

Non-Prescription Sleep Medications

Brands with Antihistamines

Many over-the-counter sleeping medications use antihistamines, which cause drowsiness. Diphenhydramine (Benadryl, generic) is the most common.

Some drugs marketed as sleep aids contain diphenhydramine alone, while others contain combinations of diphenhydramine with pain relievers (such as acetaminophen) or other medications. Certain antihistamines indicated only for allergies, such as chlorpheniramine (Chlor-Trimeton, generic) or hydroxyzine (Atarax, Vistar).

Unfortunately, most of these drugs leave people feeling drowsy the next day and may not be very effective in providing restful sleep. Side effects include:

- Daytime sleepiness
- Cognitive impairment
- Dizziness
- Drunken movements
- Blurred vision
- Dry mouth and throat

In general, people with angina, heart arrhythmias, glaucoma, or problems urinating should avoid these drugs. They should not be used at the same time as other medications. Avoid some non-prescription sleeping aids, such as those containing doxylamine.

Common Pain Relievers

When sleeplessness is caused by minor pain, simply taking acetaminophen (Tylenol, generic) or a non-steroidal anti-inflammatory drug (NSAID) such as ibuprofen (Advil, Motrin) or naproxen (Aleve) is usually sufficient. An extra "P.M." antihistamine found in combination products is simply an extra, needless chemical in these situations.

Sedative hypnotics

Sedative hypnotics include benzodiazepines and non-benzodiazepines, which enhance the effects of the brain chemical (neurotransmitter) GABA. There are also new types of sedative hypnotics that work in a different way by targeting receptors for melatonin or orexin.

Sedative hypnotics carry risks for dependence, tolerance, and rebound insomnia:

- **Dependence** means relying on a drug for falling asleep and having difficulty falling asleep or achieving restful sleep without it.
- **Tolerance** is being unable to fall asleep using the original dose and needing to take progressively higher doses of medication.
- **Rebound insomnia** can occur after stopping the drug. It typically causes 1 to 2 nights of sleep disturbance, daytime sleepiness, and anxiety.

Non-Benzodiazepine Hypnotics

Non-benzodiazepines (also called "Z" drugs) are the preferred sedative hypnotic drugs for the treatment of insomnia. In general, non-benzodiazepines are safer than benzodiazepines.

Non-benzodiazepine hypnotics currently approved in the United States are:



- Zolpidem (Ambien, Ambien CR, generic) is the most commonly prescribed drug for insomnia. Because it is long-lasting, people should not take a formulation of zolpidem (Intermezzo) is approved for people who wake up abruptly in the middle of the night and have trouble falling back to sleep after taking.
- Zaleplon (Sonata, generic) is the shortest-acting hypnotic available. Because it is rapidly eliminated from the body it may be best for people who have trouble falling asleep within 30 minutes and may be taken at bedtime or later as long as the patient can sleep for at least 4 hours.
- Eszopiclone (Lunesta, generic) is related to zopiclone (Imovane), which has been used for many years in Europe. Unlike other sleep medications, it is not habit-forming.

Dosage

Recommended dosage for zolpidem products:

- All zolpidem products now have lower recommended bedtime dosages.
- Women have lower recommended dosages than men (women metabolize zolpidem more slowly than men and are more susceptible to next-day impairment of driving). In addition, the FDA warns people to refrain from next-day driving after taking zolpidem (generic).

Lower dose recommendations are also in place for eszopiclone, which can cause impairment in driving and cognitive skills up to 11 hours after an evening dose.

Side Effects

Non-benzodiazepines tend to have fewer side effects than benzodiazepines because they target the GABA receptor in a more specific way. However, if you first start taking any of these drugs, they should use caution during morning activities until they are sure how the drug affects them.

General side effects may include:

- Drowsiness
- Dizziness
- Fatigue
- Headache
- Diarrhea or constipation

All non-benzodiazepine drugs carry labels warning that these drugs can cause strange sleep-related behavior, including driving, making phone calls, or eating when people use the drug along with alcohol or other drugs or take more than the recommended dose.

Anyone who receives a prescription for these medicines will get a patient medication guide explaining the risks of the drugs and the precautions to take.

Carefully read the information labels for all drugs and follow the directions. Some sleeping pills take 30 to 60 minutes to take effect, while others (such as zolpidem) take effect more quickly.

- Take zolpidem immediately before going to sleep
- Take zolpidem only when able to get a full night's sleep (7 to 8 hours)
- Not drink alcohol the same evening
- Not take more than the prescribed dose
- Use caution in the morning when getting out of bed, driving, or operating heavy machinery

Interactions

As with any hypnotic, alcohol increases the sedative effects of these drugs. These hypnotics also interact with other drugs. Inform your doctor of all medications you are taking.

Rebound Insomnia, Dependence, and Tolerance

The risk for rebound insomnia, dependence, and tolerance is lower with non-benzodiazepine hypnotics than with benzodiazepine drugs. These drugs can be taken at higher than the recommended dose without a doctor's approval.

Benzodiazepine Hypnotics

Benzodiazepines used to be the most commonly prescribed sedative hypnotics. These drugs were originally developed in the 1960s to treat anxiety and insomnia.

Commonly prescribed benzodiazepines are:

- Long-acting benzodiazepines include flurazepam (Dalmane, generic), clonazepam (Klonopin, generic), and quazepam (Doral).
- Medium- to short-acting benzodiazepines include triazolam (Halcion), lorazepam (Ativan), alprazolam (Xanax), temazepam (Restoril), oxazolam (ProSom), and zolpidem (Ambien, Ambien CR, generic). Oxazolam may be useful for air travelers who want to reduce the effects of jet lag.

Side Effects

Elderly people are more susceptible to side effects and should usually start at half the dose prescribed for younger people. They should not take more than the recommended dose.



Side effects may differ depending on whether the benzodiazepine is long- or short-acting. They include:

- Respiratory problems, which may occur with overuse or in people with pre-existing respiratory illness.
- Worsening of depression, a common co-condition in many people with insomnia.
- Residual daytime drowsiness, which is common with benzodiazepines. Long-acting benzodiazepines pose a higher risk than shorter-acting
- Memory loss, sleepwalking, sleep driving, eating while asleep, and other odd mood states may occur. These effects are enhanced by alcohol
- Urinary incontinence may occur, particularly in older people and when taking long-acting formulations.
- Birth defects are a risk because these drugs cross the placenta and enter breast milk. Pregnant women or nursing mothers should not use them
- Although rare, fatal overdoses can occur.

Interactions

Benzodiazepines are potentially dangerous when combined with alcohol. Some medications, like the ulcer and acid reflux medication cimetidine (

Withdrawal Symptoms

Withdrawal symptoms usually occur after prolonged use and indicate dependence. They can last 1 to 3 weeks after stopping the drug and may include

- Gastrointestinal distress
- Sweating
- Disturbed heart rhythm
- Rebound insomnia (the risk is higher with short-acting benzodiazepines than with long-acting ones)
- In severe cases, hallucinations or seizures

Other Types of Sedative Hypnotics

Ramelteon (Rozerem, generic)

Ramelteon is a type of sedative hypnotic called a melatonin receptor agonist. Unlike non-benzodiazepines or benzodiazepines, which target GABA, sleep drug that is not designated as a controlled substance. A related melatonin receptor agonist, tasimelteon (Hetlioz), is approved for treating circadian

Suvorexant (Belsomra)

In 2014, the FDA approved suvorexant (Belsomra), the first orexin receptor antagonist sleep drug. Suvorexant targets and blocks orexin. Orexins regulate the sleep cycle and keep people awake. Suvorexant is a controlled substance, which means it can potentially be abused or cause dependence. Like other approved four different dose strengths for suvorexant and advises people to use the lowest effective dose.

Antidepressants

Antidepressants are often helpful in treating insomnia even when anxiety or major depression are not present. Certain types of antidepressants have been used to treat depression.

For example, the antidepressant trazodone (Desyrel, generic) is prescribed in low doses as a hypnotic to help induce sleep. A very low dose form of antidepressants used for insomnia include the tricyclics trimipramine (Surmontil, generic) and amitriptyline (Elavil, generic) and the tetracyclic anti

Precautions should be taken in the use of trazodone and other sedating antidepressants in elderly people, due to the risk for side effects (daytime

Resources

- www.aasmnet.org -- American Academy of Sleep Medicine
- www.nhlbi.nih.gov/about/ncsdr/index.htm -- National Center for Sleep Disorders Research
- www.sleepfoundation.org -- National Sleep Foundation
- yoursleep.aasmnet.org -- Your Sleep from the American Academy of Sleep Medicine

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