

Improving and Maintaining Healthy Sleep Habits

What is insomnia?

When people are not able to fall asleep or remain asleep, they suffer from insomnia. Many different factors can contribute to sleep problems, including a change in daily routine. This can happen when you travel or have a change in work hours. It can also be caused when noise, a change in eating or exercise habits, leisure activities, or relationship conflicts get in the way of good sleep. Insomnia may be one of the first symptoms to appear when someone has anxiety or depression; fortunately, it often improves early on when those conditions are addressed. Difficulty falling asleep can be related to anxiety and having your mind race from thought to thought. Waking up too early can be related to low levels of some hormones, particularly if a person struggles with anxiety, depression, and other mood concerns.¹⁻⁵

Why is lack of sleep a problem?

Sleep is essential to good health. When people sleep, their tissues heal, grow, and repair themselves. Sleep helps the body make the right levels of important hormones including:

- **Cortisol** - released every day to help you wake up in the morning. It is also released during times of stress.
- **Melatonin** - the circadian rhythm hormone. How much is released by your brain is based on time of day and light levels. It is released in the brain to help you prepare for sleep.
- **Gamma-Aminobutyric acid (GABA)** - helps you relax and allows nerve cells to communicate.
- **Growth Hormone** - a hormone that helps cells grow and repair damage.^{1,4}

Hormones require time to balance out overnight during sleep. People are more likely to be tired, irritable, anxious and depressed if they do not get enough sleep. Your brain needs sleep to wire (and rewire) connections between nerve cells. This makes it so you can store new memories and learn. Good sleep is also linked to better concentration. In addition, people who do not sleep well are more likely to have pain, get sick easily, and have a hard time managing other diseases.¹ People with insomnia are much more likely to be involved in car accidents and perform poorly in athletic competitions.^{6,7}

What does a healthy sleep/wake pattern look like?

Most adults from age 18 to 65 need about 7 to 9 hours of restful sleep. Older adults may need a little less sleep, only about 7 to 8 hours per night. Children need much more sleep than adults. The amount depends on their age. See the National Sleep Foundation website for guidelines based on age: <https://www.sleepfoundation.org/press-release/national-sleep-foundation-recommends-new-sleep-times>.⁸

Here is an example of a normal sleep and wake cycle:



No matter what time a person plans to go to bed, the brain releases more **melatonin**, which makes you sleepy, when it gets dark outside.^{1,2} This helps most people sleep at night and stay awake during the day. If a person is around bright lights at night, the brain will not release very much melatonin. Bright light sources include indoor lights, as well as screens from a TV, computer, tablet, or phone.

Cortisol, a key stress hormone, goes down overnight, and then spikes in the morning to help get your mind and body going for the day. It can also spike during the day if needed, or as a response to stress. If you are stressed or unable to calm down in the evening, your cortisol level may stay high and keep melatonin from being released in the brain. This is one reason why it is important to find good ways to relax and manage stress during the day, so your daytime worries don't keep you from sleeping overnight.^{1,9}

When we get older sleep is not as deep and it is common to wake up more often during the night.¹⁰ This is partly because our bodies make less melatonin and growth hormone, but also because of an increased need to urinate at night. When we age, our brain makes less antidiuretic hormone, a hormone that controls how much water is in our urine, especially at night. We produce more urine, so we have to get up once or twice. If the signal comes more than once or twice, it is likely that we really do NOT have to urinate, and can just try to go back to sleep.

Older age makes sleep apnea (stopping breathing in your sleep for short amounts of time) more common. More than 2/3 of us have it.¹¹ Treatment may consist of sleeping on your side, CPAP (air is pushed into the nose by a machine to keep airflow going), or weight loss. Decreasing apnea can improve memory, mood, and other areas of health.¹² Restless legs are also common as we age. Exercise during the day and pedaling a cycle before going to bed help. Another non-medical treatment is a vibrating pad that slows and stops automatically when we are asleep. Talk with your health care provider if you think you have apnea or restless legs.

Are there medications or supplements that can interfere with sleep?

There are several medicines, supplements, and substances that can get in the way of a good night's sleep. If you are taking any of these, it may be worth talking with your health care team to see if a different medicine (or lower dose) could help improve your sleep.^{1,2, 14-16}

Medicines That Can Make It Hard To Sleep or Limit How Much Melatonin Your Brain Lets Out at Night

- Amphetamines (methylphenidate, dextroamphetamine, other medicines to treat ADD or ADHD)
- Antidepressants (many classes—ask your health care team.)
- Asthma “rescue” inhalers (albuterol)
- Beta Blockers (atenolol, bisoprolol, carvedilol, labetalol, metoprolol, propranolol)
- Decongestants (phenylephrine, ephedrine)
- Diuretics (also called “water pills,” especially if taken at night: furosemide, torsemide, bumetanide, metolazone, chlorthalidone, hydrochlorothiazide, spironolactone, triamterene)
- Histamine blockers (ranitidine, famotidine) and antihistamines (loratadine, fexofenadine, cetirizine)
- Steroids (prednisone, prednisolone, betamethasone, cortisone, dexamethasone, fluticasone, mometasone)
- Some thyroid replacement medicines (liothyronine, natural and other thyroid supplements containing T3/tri-iodothyronine)

Supplements and Other Substances That May Make It Hard to Sleep

- Alcohol
- Caffeine (including coffee, green/black tea, sodas, energy drinks)
- Ginseng
- Nicotine, tobacco
- SAMe
- Weight loss supplements (Ma huang/ephedra, bitter orange)

What are some conditions that make insomnia worse?

Here are some medical conditions that can affect a person’s ability to get good sleep. If you have any of these, it does not mean that you will never be able to sleep well. It does mean that you may need to try several approaches (i.e., not only a medicine, or only supplements, etc.).¹⁻⁵

- Anxiety, panic disorders, or PTSD
- Asthma, emphysema, COPD, and other lung diseases
- Depression
- Diseases of the central nervous system
- Heart failure
- Pain—any cause
- Restless leg syndrome/periodic limb movement disorder
- Sleep apnea
- Substance abuse

What is an integrative approach to treating insomnia?

The best way to improve your sleep habits is through a healthy lifestyle. This will raise your melatonin at night and lower your cortisol/stress hormone in the evening (and help to keep it at a healthy level all the time).^{1,4-5} It will help to balance out your body chemistry in many other ways as well.

Take steps to allow your own hormones to come into balance. Listed below are some of the most effective changes you can make that will help you sleep both longer and better. Create a plan for yourself. Change the habits that you can, one at a time. Do not try to do too many new things at once!^{1,2, 4-5} What you do related to where and how you sleep is called your “sleep hygiene.”

Daytime

- ☀ Recognize that you may not be able to do this alone. Research tells us that one of the most helpful ways to fight insomnia (and restore a healthy sleep pattern) is to get insomnia-focused counseling. This is called cognitive behavioral therapy for insomnia, or CBT-I. There is more information about this below.
- ☀ Regularly spend time outdoors or in bright light.
- ☀ Exercise daily. There is good evidence that regular exercise improves restful sleep, and it helps people feel more awake during the day.
- ☀ Get up from bed at the same time each day, no matter what.
- ☀ Keep a sleep diary. The National Sleep Foundation has an example of a good one on their website: <https://sleepfoundation.org/sleep-diary/SleepDiaryv6.pdf>. Track your sleep, then talk about this information with your health care team.
- ☀ Eat fresh foods that are healthy for you.
- ☀ Reduce stress. Find ways to regularly relax.

Nighttime

- › Cut out bright lights an hour before bed. Dim inside lights, turn off the TV, or wear sunglasses inside if others object to the low lighting.
- › Develop a relaxing pre-bedtime routine, just before going to sleep. (Some ideas: listen to a recording of guided imagery, practice a muscle relaxation exercise, massage tense muscles, take a warm bath, etc.).
- › As the temperature drops at night, our brain gets the signal that it is time to go to sleep. Turn down the thermostat at night to lower the temperature. If drinking something hot, or taking a hot bath or shower at night, do so at least an hour before bed to allow for a drop in body temperature.
- › Go to bed at the same time each day, no matter what.
- › Keep the bedroom quiet when sleeping, or use a source of “white noise” (e.g., a fan, white noise recordings).
- › Keep the bedroom dark to facilitate sleep. (This increases production of melatonin, the sleep hormone).
- › Use your bed only for sleep and sex.
- › Remove electrical devices from around your head when you sleep (e.g., radios, cell phones, outlet connectors). Easy access to your phone or tablet may cause you to use it more in bed. This can lower melatonin levels, both from the light of the screen, and any stress that may be related to your interactions.

- › Keep your feet and hands warm. Wear warm socks and/or mittens or gloves to bed if your feet and hands tend to be cold.

What doesn't work for my mind and body? (Remove barriers that may be preventing a good night's sleep) ¹⁻⁵

- Try not to engage in stimulating activity just before bed, such as playing a competitive game, watching something exciting on television, or having an important discussion with a loved one.
- Do not have caffeine in the evening (coffee, many teas, chocolate, soda, etc.).
- Avoid watching television, or using your phone/tablet in bed, and reading material that excites you or wakes you up.
- Do not use alcohol to help you sleep. Alcohol disrupts your sleep cycle and suppresses REM sleep, which can contribute to depression.
- Do not go to bed too hungry or too full.
- Stay away from daytime naps. If napping, subtract that time from night time sleep total.
- Do not try to command yourself to go to sleep or worry about not sleeping. This only makes your mind and body more alert (and often upset). Research shows us that worrying about not sleeping actually makes it harder to sleep! Remember that there are several safe remedies and approaches to help you sleep.
- Try to steer clear of medicines, supplements, and substances that can make it difficult to get good sleep.

What are some integrative things to try if I still can't sleep?

Following are the top three most effective ways to fight insomnia:

1. Cognitive Behavioral Therapy for Insomnia (CBT-I).

- The first step is to see what is really happening. Fill out a sleep diary for a week. An example of a good one is available from the website of the National Sleep Foundation: <https://sleepfoundation.org/sleep-diary/SleepDiaryv6.pdf>.
- The next steps involve visits with a trained counselor. CBT-I works because it takes into account a person's health, medicines, habits, thoughts and feelings, and helps to make a sleep plan that is tailored just for you. It may include some of the sleep hygiene techniques listed above. It often includes practicing relaxation techniques, setting specific sleep hours, and using techniques that help calm the mind and reduce nighttime (and daytime) stress. The counselor will also help set up a plan for what to do if sleep problems come back. CBT-I is very safe, and the skills learned in this type of therapy can help you for years to come.^{2,14}

- 2. **Melatonin supplements.** A melatonin supplement helps boost the levels of the rest-related hormone made in the brain. People generally do well starting at 1 mg each night. Many people do better on smaller, rather than larger, doses. For this reason, it may help to try 1/2 mg or 1/4 mg at night if the full 1 mg dose does not help at first. It is safe to increase the dose up to 10 mg if needed. Try the same dose every night for 1-2 weeks, and see how it works. It is important to take melatonin at least 60-90 minutes before going to bed, and 7-8 hours before you plan to wake up.^{1-3,5, 15}

- Music Therapy.** Music can affect people's physical bodies, as well as concentration, feelings, mood, and overall well-being. It can be played or listened to, and is quite safe. For some, it works best to use calming music. Others find that it helps to play music to match their mood at first, and then transition to calmer, more restful music.^{1,2,4-6}

What are some other techniques to help with sleep?

- **Make the bed a place for sleeping:** If lying in bed awake for more than 20-30 minutes, get up and go to a different room (or different part of the bedroom). Participate in a quiet activity (e.g., reading that does not wake you up too much). Then return to bed when you feel sleepy. Do this as many times during the night as needed.^{1,2,4-6}
- **Guided imagery/visualization recordings:** Listening to these helps you relax. They may also help your mind to process stress more easily.^{1,4,5} There are many good (and free) options. Try the following:
 - www.fammed.wisc.edu/mindfulness-meditation-podcast-series/
 - http://www.healthjourneys.com/kaiser/download/download_healthfulSleep.asp
- **Biofeedback:** The idea behind biofeedback is to become more aware of heart rate, breathing patterns, and other body functions that you might not always be noticing. As you become more aware, you learn to have more control over these functions. Biofeedback devices can help you move your body from a "fight or flight" state to a place of more relaxation. Biofeedback is also used for several other purposes, including better mood, focus, blood flow, and overall well-being. Many biofeedback devices can be purchased online, including the Stress Eraser, HeartMath, and many others.^{1,2,4-6}
- **Healing Touch and other self-care biofield approaches:** These can easily and safely be done before bed or on an as-needed basis to help manage stress and support your body's own ability to rest and heal itself.^{3,5} One example, called the "Self Chakra Connection," is included here: https://www.healingtouchprogram.com/content_assets/docs/current/Self-CC-handout1.pdf
- **Progressive muscle relaxation (PMR):** This is a technique that involves tensing specific muscle groups and then relaxing them to create awareness of tension and relaxation. It is called "progressive" because it proceeds through all major muscle groups, relaxing them one at a time. It eventually leads to relaxation of all your muscles. *You Must Relax* is a helpful book by the developer of this technique, Edmund Jacobson.^{1,2,4-6}

Step 1. Find a comfortable position. You may lie down. Loosen any tight clothing. Close your eyes and be quiet.

Step 2. Assume a passive, accepting attitude. Focus on yourself and on getting full relaxation in specific body muscles. Tune out all other thoughts.

Step 3. Tense and relax each muscle group as follows:

- Forehead - Wrinkle your forehead; try to make your eyebrows touch your hairline for five seconds. Relax and allow those muscles to loosen.

- Eyes and nose - Close your eyes as tightly as you can for five seconds. Now relax for 5 seconds.
- Lips, cheeks and jaw - Draw the centers of your mouth back and grimace for five seconds. Relax for a few seconds. Feel the warmth and calmness in your face.
- Hands - Extend your arms in front of you. Clench your fists tightly for five seconds. Relax. Feel the warmth and calmness in your hands.
- Forearms - Extend your arms out against an invisible wall and push forward with your hands for five seconds. Relax.
- Upper arms - Bend your elbows. Tense your biceps (the front muscles on your upper arms) for five seconds. Relax. Feel the tension leave your arms.
- Shoulders - Shrug your shoulders up to your ears for five seconds. Relax.
- Back - Arch your back off the floor for five seconds. Relax. Feel the anxiety and tension disappearing.
- Stomach - Tighten your stomach muscles for five seconds. Relax.
- Hips and buttocks - Tighten your hip and buttock muscles for five seconds. Relax.
- Thighs - Tighten your thigh muscles by pressing your legs together as tightly as you can for five seconds. Relax.
- Feet - Bend your ankles toward your body as far as you can for five seconds. Relax.
- Toes - Curl your toes as tightly as you can for five seconds. Relax.

Step 4. Focus on any muscles that may still be tense. If any muscle remains tense, tighten and relax that specific muscle three or four more times.

Step 5. Fix the feeling of relaxation in your mind. Make a decision to repeat the process again.

Remember, people respond differently to various activities. Some feel pleasant or refreshed, and others feel calm and relaxed after an activity like this one. Some people benefit from hearing the prompts in their own voice. Make a recording of these instructions if this is true for you. Some people notice very little change the first time, but with practice, their control increases—as well as the benefits. If you practice this activity, your relaxation should increase. Note: If you have movement limitations, you can change this over to Progressive Relaxation (PR). With PR, you follow the same pattern with focusing on different body parts, but you do not contract and relax muscle groups.

- **Mindfulness:** This is a whole class of techniques to help you become more aware of the constant activity in the mind and body.^{1,2,3-6} Following is an example of a mindfulness technique to help you sleep:
 - Place one hand on your chest and the other on your abdomen. When you take a deep breath, the hand on the abdomen should rise higher than the one on the chest. This ensures that the diaphragm is expanding, pulling air into the bases of the lungs. (The diaphragm is the muscle separating your chest cavity from your belly.) Once you have this mastered, you do not have to use your hands.
 - Take a slow deep breath in through your nose for a count of 3-4 and exhale slowly through your mouth for a count of 6-7. (Exhale twice as long as you inhale).
 - This breathing using your diaphragm, stimulates the vagus nerve, which increases the “relaxation response” (opposite of the “fight or flight” response).

- Allow your thoughts to focus on your counting or the breath, as the air gently enters and leaves your nose and mouth.
 - If your mind wanders, gently bring your attention back to your breath.
 - Repeat the cycle for a total of 8 breaths.
 - After 8 breaths, change your body position in bed and repeat another 8 breaths. Continue to do these 8 breath cycles. It is rare that you will complete 4 cycles of breathing and body position changes before falling asleep.
- **Movement/Exercise:** Regular exercise is one of the key ingredients in maintaining good sleep and overall health. Try to get 40-60 minutes of aerobic and muscle toning exercise most days of the week. This will lower the cortisol (stress hormone) in the body, which naturally helps raise your own melatonin levels.¹⁻⁶
 - **Acupuncture and traditional Chinese medicine (TCM):** Acupuncture and TCM can help treat many conditions, including sleep troubles. Acupuncture uses very small needles to channel different energies in the body and speed healing. It has been around for over 5,000 years and has very few side effects for most people. Acupuncture may not be the best choice if you are taking medicine to thin your blood.^{1,2,4-6,12}
 - **Supplements and prescription medicines:** Supplements are pills, oils, herbs, or other substances that have an effect like medicine. Generally, supplements are not regulated by the U.S. Food & Drug Administration (FDA), so there can be differences in quality. While they often are thought to be more natural than medicines, it is good to be cautious with supplements. Many brands are not tested in labs and may not contain the ingredients that are reported on the bottle. That said, there are many supplements that have been found to be helpful for sleep.

Whether you take medicines or supplements, the goal is to use fewer of them over time. While helpful for a time, or on an as-needed basis, the brain and body can become dependent on them. Ideally, you want to help your body find what it needs to sleep well, but you do not want to develop a tolerance to products that can cause side effects when higher doses are needed. The products listed in the next two tables are to help jumpstart a better sleep/wake cycle. The goal is to use these for support, but to use them in the short term while you are working with the other tools and approaches described above to make lasting changes.^{1,2,4-6, 14}

Over-the-Counter Medications, Supplements, and Foods to Help with Sleep

Chamomile Tea	Chamomile has a soothing/calming effect. Drinking other warm, soothing beverages and teas may work similarly. Do not drink too much, or you may wake up to go to the bathroom.
Foods Rich in Tryptophan and Melatonin	<p>These two are present in the nervous system and have a soothing or calming effect on the mind. It can take time to raise levels after eating. Eat at least one hour before bedtime, or earlier, to avoid possible heartburn and prevent weight gain.</p> <ul style="list-style-type: none"> • Foods high in tryptophan: eggs (the whites), cod, soy, dairy products, poultry, bananas, sesame and sunflower seeds, whole grain cereals. <p>Foods high in melatonin: cherries, meats, bananas, rice, whole grains/cereals, plums, oranges, apples, tomatoes, cucumbers, cabbage, almonds, walnuts, sunflower seeds, mustard seed, fennel.</p>
5HTP (5-Hydroxy Tryptophan)	This is an important ingredient of serotonin, a chemical in the brain that helps regulate mood. There is not a lot of research about how effective this is, but many people feel it is helpful, and it has few side effects. Talk with your healthcare professional about taking this (and about possible side effects) if you also take other antidepressant or anti-anxiety medications.
Lavender or Sweet Almond Essential Oils	Place a few drops of essential oil on a cloth under your pillow or on your temples (if you do not have a skin allergy to essential oils). Inhaling the aroma can make you sleepy.
Magnesium	This common electrolyte/salt can have a calming effect on the mind and body. It can be taken as a supplement (a standard dose is 250 mg daily), absorbed in an Epsom salt bath soaks, or eaten in magnesium-rich foods. These include almonds, spinach, cashews, peanuts, black beans, soybeans (soy milk, edamame, and tofu), yogurt, potatoes, and avocados. If it loosens your stools too much, cut back on the dose.
Melatonin (Regular or Extended Release)	<p>A common starting dose is 0.25 mg to 3 mg.</p> <ul style="list-style-type: none"> • The regular/immediate release form works over 1-3 hours, and helps people get to sleep. • The extended release form slowly allows the melatonin to be digested over time, helping people stay asleep. <p>Take either form 60-90 minutes before going to bed, and 7-8 hours before you plan to wake up.</p>
Valerian Root	Take 400-900 mg 30 minutes—2 hours before bedtime. Valerian works best if used every night for 4-6 weeks. It does not work as well on an “as needed” basis. Slowly taper off since withdrawal symptoms can occur (this is very rare).
Diphenhydramine (Examples: Benadryl, Tylenol PM)	It only works for 3-4 days and then becomes ineffective. Should not be used by older adults. ¹⁶ Increases risk of developing dementia later in life. ¹⁷

Prescription medications to help with sleep are listed below. Note that many of these have side effects and are not the best options for improving sleep in the long term.

Prescription Medicines to Help with Sleep ^{1,5,6,15}	
<p>Amitriptyline (Elavil) 10-100 mg at bedtime</p>	<p>Amitriptyline can be useful if a person also has pain symptoms and frequent headaches. It can cause several side effects: dry mouth, blurry vision, constipation, and low blood pressure after just standing up.</p>
<p>Eszopiclone (Lunesta) 1-3 mg at bedtime</p>	<p>Eszopiclone is longer acting than Zolpidem (<i>Ambien</i>) and Zaleplon (<i>Sonata</i>), so it can help if someone has trouble staying asleep. It can interfere with deep REM sleep</p>
<p>Mirtazapine (Remeron) 15-45 mg at bedtime</p>	<p>This medication can be useful if a person also has depression. Low doses help with sleep, higher doses lose that effect but help more with depression. It does not cause problems with deep REM sleep like other sedating antidepressants. It can cause weight gain.</p>
<p>Ramelteon (Rozerem) 8 mg at bedtime</p>	<p>This medicine works inside the brain, in a similar way to melatonin. It connects with the brain's melatonin "receptor cells" to help the body feel tired. Its effects are likely no better than over-the-counter melatonin for most people.</p>
<p>Trazodone (Desyrel) 25-50 mg at bedtime</p>	<p>Trazodone can be useful if a person also has anxiety or depression, since it also treats these conditions. It can also slow down or stop the brain from using its own serotonin and melatonin, however. It may be best used with a melatonin supplement.</p>
<p>Zaleplon (Sonata) 5-10 mg at bedtime</p>	<p>This medication is similar to Zolpidem but works more quickly. It would be most helpful for people with trouble falling asleep.</p>
<p>Zolpidem (Ambien) 5-10 mg at bedtime</p>	<p>This is the most effective sleep medicine, although research shows it increases sleep time only by an average of 7 minutes per night. It has several side effects: it is habit-forming, can cause sleepwalking and sleep-eating in a small number of people, and can interfere with deep rapid eye movement (REM) sleep. There are two forms:</p> <ul style="list-style-type: none"> • regular (immediate release) and • extended release. <p>Take it at least 8 hours before you plan to wake up.</p>
<p>Benzodiazepines:</p> <ul style="list-style-type: none"> • Temazepam (Restoril) 7.5-30 mg at bedtime • Lorazepam (Ativan) 0.25-1 mg at bedtime • Clonazepam (Klonopin) 0.25-1 mg at bedtime • Alprazolam (Xanax) 0.25-1 mg at bedtime 	<p>These medicines are sedating and can work as sleep aids. They have side effects, including memory trouble and daytime fatigue. They can also cause more insomnia when the medicine wears off (called "rebound insomnia"). They can interfere with deep REM sleep. They can also be addictive. They are not a good first choice.</p>

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The information in this handout is for general education. It is not meant to be used by a patient alone. Please work with your health care practitioner to use this information in the best way possible to promote your health and happiness.

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