

# INTEGRATIVE HEALTH APPROACHES FOR BETTER SLEEP

## FAST FACTS

- The National Sleep Foundation recommends that adults ages 18–64 receive seven to nine hours of sleep a night and seven to eight hours of sleep for adults aged 65 and over.<sup>1</sup>
- The National Heart, Lung, and Blood Institute estimates that between 50 and 70 million Americans have sleep disorders.<sup>2</sup>
- 1 in 3 Americans do not regularly get enough uninterrupted sleep needed to maintain and protect their health.<sup>3</sup>
- 35.2% of Americans report receiving on average less than seven hours of sleep.<sup>2</sup>

Sleep plays a vital role in long-term health and wellness and is as essential as food and water for survival.<sup>4</sup> A few nights without restful sleep or occasionally experiencing sleep disturbance is normal and will not have long-term effects. However, regular sleep disturbance is common and does impact long-term health on many levels. An estimated 1 in 3 Americans do not get enough uninterrupted sleep to maintain and protect their health.<sup>3</sup>

Long-term sleep deprivation is linked to an increased risk of physical conditions including high blood pressure, diabetes, heart disease, stroke, and kidney disease.<sup>5</sup> Additionally, long-term sleep disturbance can impact psychological and cognitive health, causing an increased risk of depression, anxiety, cognitive decline, and dementia.<sup>6,7</sup>

## What are sleep disorders?

It is normal to have nights where you do not sleep well or get an adequate amount of sleep. However, sleep disorders are those that regularly affect or impair your ability to fall asleep or stay asleep, resulting in daytime drowsiness and other symptoms.

There are over 80 types of sleep disorders.<sup>4</sup> The most common include:

- Insomnia – A sleep disorder where you experience trouble falling asleep and staying asleep, causing daytime fatigue.
- Sleep apnea – A sleep disorder that involves a person's breathing being interrupted during sleep throughout the night. The types of sleep apnea are:
  - Obstructive sleep apnea (OSA), which is the more common form, where a blockage in the airway is caused by the relaxing of the soft tissue in the throat.
  - Arenal sleep apnea (CSA), which is when the brain forgets to tell the body to breath during sleep.)
  - Complex sleep apnea syndrome, which is a combination of OSA and CSA.
- Restless legs syndrome – A sleep disorder that causes the legs to move in a manner that is intense and often irresistible, resulting in difficulties falling and staying asleep.
- Narcolepsy – A neurological sleep disorder that affects the

regulation of sleep and results in sudden attacks of sleep and excessive daytime drowsiness. People who are diagnosed with narcolepsy have a hard time maintaining regular daytime routines when sleep may come on suddenly without warning. People with narcolepsy experience a range of other symptoms. To learn more, visit: <https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Narcolepsy-Fact-Sheet>

## Sleep and Cancer

59% of cancer patients experience disordered sleep, as compared to estimates of 10–30% among the cancer-free American population.<sup>7</sup>

Both cancer treatment itself and the worries related to being diagnosed with cancer can negatively impact sleep. Cancer treatment commonly includes the use of steroids (e.g., dexamethasone or prednisone), which directly impair sleep quality and may cause insomnia. Additionally, treatment side effects like hot flashes, which occur in both men and women, and cancer-related fatigue make sleep quantity and quality all the more important.

Continue reading on the next page...

In addition to standard sleep-hygiene guidance, non-drug approaches like those listed in this guide should be considered. Strong evidence exists for exercise and cognitive behavioral therapy for insomnia (CBT-I). However, any modality that supports whole-person healing and is of interest to you may be explored. These may include yoga, tai chi, acupuncture, light therapy<sup>8</sup>, cannabis, or melatonin. Talking to your doctor about these last two is particularly important as there is currently little data on cannabis use for sleep in cancer, and some data suggests tumor response to immunotherapy may be blunted in those using cannabis.<sup>9</sup>

Consider keeping a journal for middle-of-the-night thoughts so that you can bring up any cancer-related items at your next appointment. If stress and anxiety are keeping you up, addressing concerns with your care team. Improved sleep may be the strongest foundation you can set to support your healing.

Learn more about sleep and cancer on [Beyond Conventional Cancer Therapies' sleep page](#).

## What are the conventional ways of treating sleep disturbance?

Conventional approaches to address sleep disturbance include altering daily habits, improving sleep hygiene, pharmaceutical interventions, and behavioral approaches, such as Cognitive Behavioral Therapy for Insomnia (CBT-I).

### Daily Habits & Sleep Hygiene

Your daily habits and your lifestyle can cause sleep disturbance. Some habits that can have significant impact on sleep include:<sup>10</sup>

- Consuming large amounts of caffeine or other stimulants (such as cigarettes and energy drinks) throughout the day or too close to bedtime.
- Drinking alcohol.
- Taking naps longer than 30 minutes during the day.
- Shift work.
- The use of technology (such as smartphones and the computer) and watching TV close to bedtime.
- Excessive light and noise.
- Inconsistent schedule/no bedtime routine.

Sleep hygiene is defined as the practices and habits that promote and are conducive to sleeping well on a regular basis. Some activities that help promote sleep hygiene include:<sup>11</sup>

- Establishing a sleep routine: getting up and going to bed at the same time every day.
- Finding ways to help you relax before you go to sleep that do not involve the use of screens.
- Removing technology such as smartphones and TVs from your bedroom.

- Exercising regularly (it is recommended to avoid exercise three hours before your regularly scheduled bedtime).
- Avoiding large meals, alcohol, or caffeine close to bedtime.

Adjusting some of these habits and introducing some sleep promoting activities that support sleep hygiene may help to reduce sleep disturbance and address symptoms of sleep disorders.

### Pharmaceutical Interventions

Prescription medication is available to help you fall asleep and stay asleep. Although these medications are initially effective and some are approved for long-term use, doctors often do not recommend relying on medications for chronic sleep disorders because they can negatively impact your natural sleep cycle.<sup>12</sup> These medications can also cause daytime drowsiness and be habit forming, so it is best not to use them long-term and alert your doctor if you are experiencing medication-related side effects.

Examples of medications prescribed for sleep disturbances and sleep disorders include:<sup>13</sup>

- Sleep Disturbance and Insomnia:
  - Eszopiclone (Lunesta)
  - Ramelteon (Rozerem)
  - Zaleplon (Sonata)
  - Zolpidem (Ambien, Edluar, Intermezzo, Zolpimist)
  - Suvorexant (Belsomra)
  - Lemborexant (Dayvigo)
  - Doxepin (Sinequan)
- Restless Leg Syndrome:
  - Gabapentin (Neurontin and Gralise)
  - Gabapentin enacarbil (Horizant)
  - Pregabalin (Lyrica and Lyrica CR)
- Narcolepsy:
  - Modafinil (Provigil)
  - Armodafinil (Nuvigil)
  - Pitolisant (Wakix)
  - Solriamfetol (Sunosi)
  - Other prescription stimulants

To learn more about the pharmaceutical interventions for sleep disorder, please visit the Mayo Clinic's guide here: <https://www.mayoclinic.org/diseases-conditions/insomnia/in-depth/sleeping-pills/art-20043959>.

The most used, over-the-counter medications to address sleep disturbance are diphenhydramine and doxylamine succinate, which are both antihistamines. Although it is OK to occasionally take these medications, long-term use may be linked to dementia and Alzheimer's disease.<sup>14</sup> Diphenhydramine and doxylamine can also cause daytime drowsiness, short term memory loss, and other side effects.

Pharmaceutical interventions are not used to treat both OSA and CSA. The first line of treatment for sleep apnea-related disorders are continuous positive airway pressure (CPAP) machines that

deliver air pressure through a mask worn at night while sleeping. The air pressure delivered through the machine keeps the airways open and prevents breathing from being interrupted at night. There are alternative treatments to the CPAP (such as surgery and less intrusive machines), but this is the most effective treatment.<sup>15</sup>

If lifestyle factors such as obesity are contributing to your sleep apnea, doctors will recommend you make changes that will help you lose weight, such as increasing exercise and changing dietary habits.

### Cognitive Behavioral Therapy for Insomnia (CBT-I)

If you are experiencing insomnia or sleep disturbance, CBT-I is considered a first-line treatment to address your sleep-related issues. CBT-I is designed to help you understand how your thoughts and behaviors may be affecting your sleep, and, on average, takes four to eight sessions. Components of CBT-I sessions<sup>16</sup> may include:

- Cognitive reappraisal – Addressing and changing negative and unproductive thoughts around sleep.
- Behavioral strategies – Developing good behaviors, habits, and routines to help support sleep hygiene. This may include relaxation strategies and counter-arousal methods.
- Psychoeducation – Providing you with research and education around the connection between thoughts and behaviors and their impact on sleep.

A recent review of all of the randomized control trials of behavioral and psychological treatments for adults with chronic insomnia disorder by the American Academy of Sleep Medicine (AASM) recommends the use of CBT-I for chronic insomnia based on a substantial evidence base of positive randomized control trials.<sup>17</sup> Additionally, organizations including the American College of Physicians, the Australian Sleep Association, and the British Association for Psychopharmacology have all recommended CBT-I as a first-line treatment to address insomnia.<sup>18,19,20</sup>

To learn more about the evidence for behavioral interventions to treat chronic insomnia, see the AASM's recent publication here: <https://jcs.m.aasm.org/doi/10.5664/jcs.m.8988>.

CBT-I can also be with an app and appears also to be effective in this way. Explore the CBT-I Coach app available through the Department of Veterans Affairs here: <https://mobile.va.gov/app/cbt-i-coach>.

### Exercise

There is substantial evidence supporting the use of exercise to help address disrupted sleep patterns and sleep disorders. Although exercising too close to bedtime can disrupt sleep, maintaining regular daytime moderate aerobic exercise increases the quality and amount of slow-wave sleep, which is the deepest phase of sleep.<sup>21</sup> Slow-wave sleep helps the body recover and rejuvenate and assists with memory consolidation. Research has found that only 30 minutes a day is needed to help address sleep disturbances,

and some may experience the benefits to sleep immediately.<sup>22</sup>

**Side Effects:** If you exercise with approval from your physician and the supervision of a trainer, negative side effects are minimal. It is best to track how exercising impacts you and your sleep patterns if you plan to exercise at night because studies have been mixed about the impact of night exercise. Some recommend avoiding exercising three hours before bedtime because engaging in physical activity can disrupt some people's ability to fall asleep.<sup>8</sup> However, other researchers have found that moderate and strenuous exercise in the evening may improve sleep quality, even when performed close to bedtime.<sup>23,24</sup> You must learn what works best for you.

**Evidence:** A systematic review of 14 clinical trials (927 participants included in total) looking at the impact of physical activity on sleep outcomes in older adults ( $\geq 60$ ) found that moderate intensity exercise programs that occurred three times a week, for a duration of 12 weeks to six months, reported the most consistent and significant impact on sleep outcome. In the studies reviewed, including different types of exercise interventions, all reported significant improvements in difficulties falling back to sleep, non-rapid eye movement sleep, and subjective sleep quantity. No major adverse events or significantly detrimental effects were reported in the included studies.<sup>25</sup>

A randomized, controlled trial of 80 adult sedentary subjects with chronic primary insomnia were randomized to either supervised aerobic exercise three times a week for six months ( $n=40$ ) or to a non-physical activity intervention control group ( $n=40$ ). Participants in the aerobic exercise group had significant improvements in sleep duration, sleep efficiency, sleep onset latency, awake time after sleep onset, REM sleep, sleep latency, self-esteem, depression, and mood disturbances when compared to the control group at the end of the study. Additionally, in the exercise group (when compared with the control group), CD3 count, CD4 count, and CD8 count decreased, indicating improvements in immune system functioning.<sup>26</sup>

### Are there effective integrative-health approaches to helping with sleep disturbance and sleep disorders?

Some estimates have found that over 50% of adults use integrative-medicine approaches to address sleep disturbances.<sup>27</sup> The National Center for Complementary and Integrative Health has stated that, although more research is needed to understand potential side effects and efficacy, there is evidence supporting the use of integrative-health modalities such as nutritional supplements and mind-body practices to address sleep disturbance- and disorder- related symptoms.<sup>28</sup>

### Acupuncture

**Acupuncture** is a practice in which a trained specialist called an acupuncturist stimulates specific points on the skin called acupoints, usually with a needle. Stimulating acupoints increases the release of chemicals like endorphins (naturally produced pain reducers) in the body and brain.

To learn more acupuncture, its potential benefits, and how to find a practitioner, please see our Acupuncture Pocket Guide here: <https://drwaynejonas.com/resource/acupuncture-pocket-guide/>.

### Side Effects

- Slight bleeding and bruising at the acupoint site
- Fainting
- Convulsions (rare)
- Pain or soreness at the acupoint site (which may be important for effectiveness)

### Evidence

In a randomized control trial of 72 adults with primary insomnia, participants were randomized to either receive acupuncture or sham acupuncture three times a week for four weeks. The acupuncture group experienced significant decreases in insomnia symptom severity, number of sleep awakening times throughout the night, and anxiety symptoms as well as significantly increased total sleep time in comparison with the sham acupuncture following the four-week intervention.<sup>29</sup>

A systematic review and metaanalysis of 15 randomized control trials (1,108 participants in total) compared the effectiveness of acupuncture (including acupressure and electro acupuncture) and sham/placebo acupuncture to address insomnia and sleep-related symptoms in adults with insomnia and found that acupuncture was superior to sham/placebo acupuncture in improving sleep quality, insomnia severity, total sleep time, reducing wakefulness after sleep, and the amount of time spent asleep versus awake while in bed. These effects were maintained in the studies that included a follow-up period after the acupuncture intervention. When analyzing the effect of the different acupuncture interventions versus sham/placebo acupuncture, traditional acupuncture (3RCTs, MD = -7.34, 95% [-8.02, -6.66], I<sup>2</sup> = 86%) and minimal acupuncture (5RCTs, MD = -3.29, 95% [-3.95, -2.63], I<sup>2</sup> = 53%) were superior to sham/placebo acupuncture.<sup>30</sup>

### Guided Meditation

Guided meditation is a mind-body practice that uses the imagination and sensory memory to induce a state of relaxation and physiological, emotional, and attitudinal responses. A common example used to illustrate the power of guided imagery is imagining eating a lemon. By describing eating a lemon using the five senses, a person will begin to salivate as though they had just taken a bite from the fruit itself; the body responds to the imaginative description in a realistic manner. In a similar manner, imagining being in a relaxed space through all of the senses can create a physiological experience of being relaxed—turning on a relaxation response.

To access free guided meditations to help promote restful sleep, visit: [DrWayneJonas.com/Meditate](http://DrWayneJonas.com/Meditate).

### Side Effects

Guided imagery is widely considered a safe way of addressing many physical and mental conditions; side effects are rare.

### Evidence

Research supports the use for guided meditation to improve sleep quality for populations that encounter sleep disturbance, including post-surgical patients<sup>31</sup>, new mothers<sup>32</sup>, patients in the intensive care unit<sup>33</sup>, hemodialysis patients<sup>34</sup>, people with type 2 diabetes<sup>35</sup>, and cancer patients<sup>36</sup>.

### Mindfulness Meditation

Meditation is a practice that involves consciously exerting control over breathing and attending nonjudgmentally to the present moment. It produces multiple physiological and chemical effects such as decreased heart rate, blood pressure, and cortisol (stress hormone) levels.

To learn more about the benefits of meditative like practices, please visit the Breathwork Pocket Guide, here: <https://drwaynejonas.com/wp-content/uploads/2018/05/Breathwork-Pocket-Guide.pdf>.

### Side Effects

Meditation is widely considered a safe way of addressing physical and mental symptoms; side effects are rare.

### Meditation with Rapid Breathing

- Although rare, there have been reports that engaging in breathwork has worsened symptoms of patients with psychiatric problems, such as anxiety. If you are attending a breathwork class, please make sure to alert your instructor of any condition you may have.
- Excessive, rapid breathing can drop carbon dioxide levels and change the pH of the blood, causing tingling, muscle cramps, light-headedness, and, on rare occasions, seizures. If you are susceptible to seizures, consult your doctor before engaging in any type of meditation that includes intensive breathwork.

### Meditation with Mindfulness

- Few studies have shown negative effects of mindfulness. However, some note that under certain conditions and when done in excess, mindfulness can have some negative effects including an increase in anxiety, depression and decreased quality of life among other potential adverse effects.<sup>37</sup>

### Evidence

A meta-analysis and systematic review of 18 randomized control trials (1,654 participants) looking at the use of multiple mindfulness meditation sessions for adults diagnosed with

clinically significant sleep disturbance found that, when compared to nonspecific controls (such as an educational program), there was moderate evidence that mindfulness meditation improved sleep quality in a variety of clinical populations.<sup>38</sup>

Another systematic review of 10 randomized control trials (2,812 participants) looking at the effectiveness of virtual mindfulness-based interventions for adults diagnosed with insomnia or met a symptom severity threshold (as defined by sleep quality questionnaire) for insomnia found similar results concluding that virtual mindfulness-based interventions improved sleep quality better than nonspecific controls and that there was preliminary evidence that these interventions have long-term effects on sleep quality.<sup>39</sup>

The Australasian Sleep Association reviewed the evidence for insomnia-based treatments and found enough evidence to recommend the use of a Mindfulness Based Therapy for Insomnia (MBT-I) as treatment for sleep disturbance and insomnia.<sup>40</sup>

## Yoga

Yoga is an ancient practice rooted in Indian philosophy. The type of yoga that is most commonly practiced in the United States involves a combination of breathing techniques (pranayama), physical postures (asanas), and meditation (dhyana). There are variations on how yoga is practiced based on the lineage and the approach taken by your practitioner, so the physical demands of the practice will vary.<sup>41</sup> The poses can be altered to accommodate a seated or wheelchair practice.

### Side Effects

Although very rare, certain types of stroke as well as pain from nerve damage have been reported from people practicing yoga. Muscle injury can also occur if not properly done.

Minor side effects include:

- Dizziness
- Fatigue
- Weakness
- Nausea
- Heat exhaustion (if practiced in rooms with extreme heat such as Bikram yoga)

### Evidence

A systematic review and meta-analysis of 19 clinical trials (1,654 participants) looking at yoga interventions for women with sleep problems found that those who participated in the yoga interventions experienced significant improvements in sleep (SMD = -0.327, 95% CI = -0.506 to -0.148, P < 0.001). The meta-analysis also found that women who did not have breast cancer or were not peri/postmenopausal experienced the greatest benefits and that there was a direct correlated between class time and sleep quality for this subgroup.<sup>42</sup>

A prospective cohort study of 105 healthy participants without

any past or present sleep-wake cycle anomalies and no prior experience practicing yoga, randomized participants either to a Sudarshan Kriya yoga intervention (n=52) for 30 minutes a day, six days a week for eight weeks (the first week was taught in person and the following weeks were self-administered), or to a control group that was instructed to engage in a 30-minute daily sitting activity and Surya Namaskar for four weeks. Participants in the yoga intervention experienced significant improvements in excessive daytime sleepiness and nighttime sleep as compared to the control group.<sup>43</sup>

To learn more about yoga, its potential benefits, and how to find a practitioner, please see our Therapeutic Yoga Pocket Guide here: <https://drwaynejonas.com/wp-content/uploads/2017/09/Therapeutic-Yoga-Pocket-Guide.pdf>.

## Tai Chi

Tai chi is a moving meditation practice that combines the use of slow and deliberate movements with meditation and breathing practice and can help build balance, coordination, strength, and functional capacity.

### Side Effects

Tai chi is widely considered a safe way of addressing physical and mental symptoms and can be modified for people who have challenges, pain, and weakness. Additionally, most practices can be done seated and in wheelchairs.

### Precaution

- Some have reported aches, pains, and soreness after engaging in tai chi or qigong, especially at the beginning.
- If you are pregnant, have chronic back problems, or a hernia, please speak with your physician prior to beginning tai chi or qigong practices.

### Evidence

A systematic review and meta-analysis of 25 randomized control trials (1,858 participants included in total) looking at the impact of tai chi on subject sleep quality found that tai chi moderately improved sleep quality (SMD = -0.512, 95% CI [-0.767, -0.257], P < 0.001). Tai chi interventions had significant effects on sleep quality in a healthy populations ((SMD = -0.684, 95% CI [-1.056, -0.311], P < 0.001)) compared to clinical populations and was more beneficial to participants in studies based in Asia (SMD = -0.977, 95% CI [-1.446, -0.508], P < 0.001) when compared with participants from studies done in America. Of the studies included, 24 of 25 were considered high quality with low risk of bias.<sup>44</sup>

A randomized, controlled trial of older adults (≥ 60 years old) with insomnia were randomized to one of three groups: exercise intervention, which included brisk walking and muscle-strengthening exercises (n=105); a Yang-style 24-form tai chi training program (n= 105); or a control group with no intervention (n=110). Both the exercise and tai chi group were one hour, three times a week for 12 weeks. Following the 12-week interventions,

both the exercise group and the tai chi group experienced significantly improved sleep efficacy—the ratio of total sleep time to time in bed—and decreases in wake time after sleep onset when compared to the control group. There were no significant differences between the exercise, or the tai chi groups, so the authors concluded that tai chi may be an alternative approach to helping older adults improve sleep outcomes as a low-impact exercise.<sup>45</sup>

To learn more about tai chi, its potential benefits, and how to find a practitioner, please see our Moving Meditations Pocket Guide here: <https://drwaynejonas.com/wp-content/uploads/2018/12/Moving-Meditations-Pocket-Guide.pdf>.

## Supplements

Herbs and supplements involve taking a plant extract in liquid, powder, or pill form, usually orally, to either maintain or improve an individual's health. There is some evidence to support the use of supplements to improve sleep.

After ruling out sleep apnea or other medical conditions, helping patients improve their sleep through the judicious use of supplements and good sleep hygiene is an important way to practice integrative health. Slow-release melatonin has been shown to improve quality of life for both children with autism and their parents, for example.<sup>46</sup> It can also be prescribed to help with jet lag for frequent or long-distance travelers. Other supplements with some evidence for assisting with sleep include lavender, valerian,<sup>47</sup> chamomile tea or extract<sup>48,49</sup>, and passionflower extract,<sup>50,51</sup> melatonin,<sup>52</sup> magnesium,<sup>53,54</sup> L-theanine,<sup>55</sup> and 5-HTP<sup>56</sup>. After checking for medication interactions, many patients can successfully substitute combinations of these ingredients for drugs prescribed for insomnia—with fewer side effects.

Additionally, those with fibromyalgia have benefited from taking CoQ10 to improve sleep issues, and black cohosh improves sleep in postmenopausal women.<sup>57</sup>

Currently, the AASM does not recommend the use of supplements to address insomnia, and evidence for most dietary supplements

is considered weak or inconclusive.<sup>58</sup> However, the AASM clinical guidelines do recommend the use of strategically timed melatonin for some circadian rhythm sleep-wake disorders including shift work and jetlag disorder.

If you are interested in taking dietary supplements to address sleep disturbance and or a sleep disorder, please speak with your physician. It is also important to choose a dietary supplement from a quality company because the composition of nutritional supplements is not regulated by the U.S. Food and Drug Administration. The AASM recommends looking for supplements labeled as [USP Verified](#) as these meet the quality requirements of the U.S. Pharmacopeial Convention.

## Bottom Line

Both conventional and complementary therapies are available to help treat sleep disturbance and sleep disorders. Although pharmaceutical interventions work and are available for occasional use, long-term use is discouraged and has been associated with adverse effects on health such as dementia and Alzheimer's disease. Physicians recommend that people with frequent sleep disturbance and sleep disorders first seek the use of cognitive behavioral interventions such as CBT-I and adjust their daily habits and routines to help support sleep hygiene. Integrative-medicine approaches can improve your sleep hygiene by helping you find alternative ways to relax as well as engage in other forms of physical activity (such as yoga and tai chi). Depending on your particular sleep-related issues, supplements such as melatonin, valerian, L-theanine or others may also help address sleep disturbance. Devices in the area of TMS (transcranial magnetic stimulation) and electromagnetic devices such as Alpha-stim, Fisher devices, and others are also an option. Some have been cleared by the FDA for insomnia and should be considered along with conventional treatments. Before making adjustments to your routine and integrating any new approaches, it is recommended you speak with physician about how to best incorporate these practices in a way that promotes healthy sleep.

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