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| **Sleep Improvement Starter Kit**  **In this workbook, we’re going to cover the basics of *Cognitive Behaviour Therapy for Insomnia* (CBT-I), an evidence-based approach to improving sleep.**  In a [2015 large-scale analysis paper](https://www.researchgate.net/publication/277892977_Cognitive_Behavioral_Therapy_for_Chronic_Insomnia_A_Systematic_Review_and_Meta-analysis), CBT-I was found to improve:   * The time required to fall asleep by 20 minutes * Sleep efficiency by 10%[[1]](#footnote-1) * Total sleep time by 7 minutes (not much admittedly!)   The results of CBT-Ican be [superior to the use of medications](https://www.med.upenn.edu/cbti/assets/user-content/documents/Jacobs_Pace-Schott_Stickgold_Otto_2004.pdf) long-term, and the benefits appear to be maintained. | |
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| **5. Access additional resources** | * Frequently asked questions * Resource list |

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| **Spoiler alert!**  *If you want to increase the quality of your sleep, here are my top two recommendations*:  1. Schedule 6-8 hours for sleep per night, and keep your schedule consistent, even on the weekends. Our body operates on a precise 24-hour clock called the [circadian rhythm](https://www.nigms.nih.gov/education/pages/factsheet_circadianrhythms.aspx). When we honour this clock by creating a regular bed time, our body works optimally, including repairing damage from the day, consolidating memory, and regulating hormones and appetite.  2. Temporarily restrict the amount of time you spend in bed by making your bed time the actual time you fall asleep (but not less than 5 hours per night). This will help to build up your sleep drive as well as to improve the quality of your sleep. If you go to bed at 10.00 pm and fall asleep at 11.30 pm, go to bed at 11.30 pm. When you can fall asleep within 30 minutes for one week, increase your total sleep time by half an hour (e.g., 11.00). By temporarily restricting your sleep, you will increase your confidence in your ability to fall asleep. |

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| **My Sleep Story**  My issues with sleep started out at a young age – six weeks to be exact. I had severe cholic and would wake up screaming from my naps. I believe that these early experiences, combined with an anxious disposition, set the stage for my sleep struggles. In elementary school, I found had difficulties falling asleep on Sunday night after staying up later on the weekends (I’m pretty sure watching *Unsolved Mysteries* wasn’t helping either ☺). I remember lying awake, looking at the clock, becoming progressively more upset as I calculated the sleep I was losing.  In my late teens, I would awaken in the night and eat. It took me years to realize that over-exercising was creating a caloric deficit that kept me awake. Another issue was that I mistook my body’s natural drop in energy in the evening to mean that I was tired, leading to an unnecessarily early bed time. I would go to bed at 8.30 pm, only to be wide awake at 11.00 pm. Here began my quest to improve my sleep, which involved sleep coaches, supplements, and research.  In my 30s, my sleep had improved, but I had started using the sleeping medication Zolpidem daily. When I started to learn about the impacts of taking sleeping medications on memory, I decided to quit using them in favour of the full program for Cognitive Behaviour Therapy for Insomnia (CBT-I). It was a challenging few months, but now my sleep is the best it’s ever been. I go to bed and wake up around the same times every day, including weekends. I wind down about an hour before bed by reading in dim light. If I’m tired during the day, I take a 20-minute nap to boost my energy. Most importantly, my anxiety about getting a good sleep is diminished as I have a renewed confidence that I can get the rest I need.  *Here are my results:*   |  |  |  |  | | --- | --- | --- | --- | |  | **Before** | **After** | **% Change** | | **Sleep length** | 6.5 hours | 6.0 hours | - 8% | | **Number of awakenings** | 3 | 0-1 | - 65% | | **Energy level (10=best)** | 4-5 | 6-8 | + 29% | | **Bed time** | 8.40 pm | 10.00 pm | + 80 minutes |   You may have noticed that my overall sleep time has decreased 30 minutes. I find that if I have a consolidated sleep without frequent awakenings, I feel better on less sleep. |

**Sleep 101: The Basics**

*We shall come to learn that sleep is the universal health care provider: whatever the physical or mental ailment, sleep has a prescription it can dispense* – [Matthew Walker](https://psychology.berkeley.edu/people/matthew-p-walker)

Most people know that sleep is important, but its importance cannot be understated. Sleep expert Matthew Walker calls sleep a life support system, meaning that is responsible for maintaining every aspect of our body.

Throughout the day, our body accumulates damage through general wear and tear.[[2]](#footnote-2) When we sleep, this damage is repaired, and the material we have learned gets converted into long-term memory. Here are some of the negative consequences of sleep deprivation:

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| * [20-40% decreased memory retention](https://www.apa.org/monitor/jan06/onit) * [30% increase in anxiety](https://www.nature.com/articles/s41562-019-0754-8) * Decreased ability to [maintain focus](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2656292/pdf/NDT-3-553.pdf)[[3]](#footnote-3) as well as impaired decision making * Higher risk of car accidents due to [micro sleeps](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2808128/pdf/nihms40113.pdf).[[4]](#footnote-4) Sleeping 4 hours or less increases our risk of car accidents by 12x * Increased [risk of relapse](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2850945/) into addictive behavior * Increased risk of [early death and health issues](https://bmjopen.bmj.com/content/bmjopen/2/1/e000850.full.pdf) like cancer and dementia * A 60% increase in [emotional reactivity](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4286245/pdf/nihms648813.pdf) in the amygdala (a brain structure associated with threat detection) |

Interestingly, during sleep, our brain shrinks down and fluid from our spinal column goes in and [washes out some of the waste products](https://science.sciencemag.org/content/342/6156/373) ([glymphatic system](https://neurosciencenews.com/sleep-cerebrospinal-fluid-15153/)). Think of it like a car wash for your brain! If we are not getting adequate sleep, our ability to clear cellular waste is impaired.

I don’t want to share these statistics to scare you, but rather highlight that there are good reasons to prioritize sleep. It’s important to allow yourself the opportunity to get at least 7 hours of sleep per night.

**Definition of insomnia**

**Insomnia is broadly defined as persistent difficulties in falling or staying asleep that significantly impact daily functioning.** The symptoms of insomnia are quite common, with [68% of adults](https://www.consumerreports.org/sleep/why-americans-cant-sleep/) reporting a poor sleep at least one night per week.

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| *The criteria for insomnia include meeting one or more of the criteria: [[5]](#footnote-5)*   * Getting less than 6 hours of sleep 3 or more nights per week for at least 1 month (average sleep length with insomnia is 5.75 hours per night) * Waking up more than 3 times per night for a combined total of more than 1 hour (called sleep maintenance insomnia) * Taking more than 30 minutes to fall asleep (called sleep-onset insomnia) * **In addition,** the sleep deprivation has to be associated with significant negative consequences, such as drowsiness and mood issues |

*Short-term insomnia* is typically defined as experiencing these symptoms for one month or less, while *chronic insomnia* is associated with impairments that last more than six months. It’s also important to note that insomnia is different than not allowing adequate time for sleep. Staying up late watching Netflix does not count!

Another way sleep experts evaluate sleep is by sleep efficiency. Sleep efficiency is determined by dividing the time you’re asleep by the total time you’re in bed. The objective is to spend as much time in your bed sleeping as possible, making your sleep efficiency 85-90%. For example, if it takes you 30 minutes to fall asleep and you sleep 7 hours, this would be 92% efficiency, a good ratio. However, if you were in bed for 10 hours but only slept 7 of those hours, your sleep efficiency score would be 70%. People with insomnia typically have a sleep efficiency score of 65%.

**What causes insomnia?**

*Insomnia develops through a combination of factors: [[6]](#footnote-6)*

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| **1. Predisposing factors:** A genetic predisposition to anxiety or being naturally energetic. |
| **2. Precipitating factors:** A stressor life event that disrupts sleep (e.g., job loss). |
| **3. Perpetuating factors:** The development of unhelpful behaviours that exacerbate the problem (e.g., going to bed earlier to catch up on sleep, worrying about lost sleep). |

**Example:** Brad has always been an ambitious person (predisposing factor). He started having sleep troubles when the economy slowed down (precipitating factor). He coped with the stress by working more, reading news stories late into the night, and drinking a lot of coffee (perpetuating factor). Brad had to learn to schedule meditation, exercise, and breaks into his day, and schedule a regular bed time. After a few months, his sleep and productivity improved.

Overall, people with insomnia have a stronger waking system than a sleeping system. The interventions in this booklet are designed to balance out these systems.

**The good news is that insomnia can be overcome by addressing the underlying thoughts, behaviors, and lifestyle factors that have contributed to this condition.**

*The two distinct processes that regulate our sleep and wakefulness are:*

**1. Sleep pressure:** Every hour we are awake, our body produces sleep pressure based on a build-up of a chemical called [adenosine](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0053814).

**2. Circadian rhythm:** A 24-hour clock that governs all living things. Throughout the day our body is producing certain processes that regulate aspects of energy levels, body temperature, and our immune system.

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| [**Stages of Sleep**](https://www.helpguide.org/harvard/biology-of-sleep-circadian-rhythms-sleep-stages.htm) |
| **Stage 1 (5%):** The drowsy state between waking and sleep, which lasts a few minutes. You may experience day dreaming here. |
| **Stage 2 (50%):** The first official stage of sleep, where our body starts to relax more and we produce K complexes.[[7]](#footnote-7) |
| **Stage 3 and 4 (20%):** Deep sleep appears to be the most important stage of sleep for it is the most related to memory consolidation and bodily repair, and we tend to suffer the most functionally if it is lost. Night terrors and sleep walking can occur in this state. |
| **REM sleep (25%):** In this stage we dream, and our body and brain are actually quite active, as though we are awake. However, our body is actually paralyzed so we don’t move around! Nightmares can occur in this phase, and we can experience increased REM sleep after discontinuation of medications or alcohol withdrawal. |
| * A typical sleep cycle lasts about 90 minutes. During the first half of the night, more time is spent in deep sleep, and the second half of the night is comprised of more deep sleep. * **NREM sleep** is important for helping to remove extra information that we don’t need, and move the retained information from our hippocampus out into our prefrontal cortex. * **REM sleep is important** for helping our brain to problem solve, consolidate memory, as well as develop emotional intelligence. * According to sleep researcher [Matthew Walker](https://psychology.berkeley.edu/people/matthew-p-walker), our waking state is where we **receive** information from the outside world, deep sleep is where we **reflect** on that information to make memories, and our dream state is where we **integrate** all of that material together with our past memories. |

**Sleep Changes Across the Lifespan**

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| **Infants:** REM is dominant in order to form cells and connections in the brain. Babies often split their sleep/wake cycle evenly between the day and night and settle into a nighttime sleeping routine around 3-4 months. |
| **Childhood:** Children can generally sleep through the night but may have frequent awakenings. NREM starts to become more dominant. |
| **Teenagers:** Teens start to sleep for longer periods (8-10 hours), and they experience a [sleep shift delay](https://www.sleepfoundation.org/articles/teens-and-sleep) by going to bed up to 3-6 hours later. It has been recommended to delay the start of school as the early waking time can interfere with REM sleep and is associated with [higher risk of car accidents](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2823274/). In addition, the teenage brain experiences a burst of growth followed by a decrease of brain connections that are not being used (called [synaptic pruning](https://www.healthline.com/health/synaptic-pruning)). |
| **Adulthood:** Major changes include reduced overall sleep time and quality, reduced sleep efficiency, and disrupted timing of sleep (bed time shifts earlier). As we age, we experience [a significant reduction in deep sleep](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3500384/), which interferes with our ability to consolidate memories. Furthermore, sleep difficulties in adulthood are associated with [lowered lifespan and cognitive decline](https://www.ahajournals.org/doi/10.1161/JAHA.118.008552). This is why it’s important to prioritize sleep, as it is related to maintaining our physical health. |

**Sleep Questionnaire**

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| 1. What time do you go to bed and wake up each day? How much does your sleep schedule vary throughout the week? | Bed time:  Wake time:  Variance (>60 minutes): |
| 2. Average total hours of sleep / night |  |
| 3. How long does it take you to fall asleep? |  |
| 4. How many times do you wake up during the night? (>3 = problematic) |  |
| 5. How long does it take for you to fall asleep after waking?  (>60 minutes = problematic) |  |
| 6. Do you wake up without an alarm? |  |
| 8. What are the negative impacts of sleep deprivation for you? Are you drowsy during the day? |  |
| 9. When did these problems start and why? |  |
| 11. List any medications or sleep supplements you have taken now or in the past, (including dosages): |  |
| 12. Have you ever been diagnosed with a health or mental health concern? |  |
| 13. How many caffeinated beverages do you have per day? How many alcoholic drinks do you consume per week and when? | Caffeine:  Alcohol: |
| 14. Do you take naps? (>20 minutes) |  |
| 15. Do you use the bed for things other than sleep and sexual activity? |  |
| 16. Do you snore? |  |
| 17. Do you wake up during the night and feel unable to breathe? |  |
| 18. Do your legs ever jerk repeatedly or feel restless after you lie down to sleep? |  |
| 19. Do you have nightmares? |  |
| **Evaluation**  Onset: \_\_\_\_\_\_\_\_\_\_ (>30 minutes, 3x/wk)  Maintenance: \_\_\_\_\_\_ (>3x, >60 minutes)  Total time: \_\_\_\_\_\_\_\_ (< 6 hours/> 3 nights per week)  *Main symptoms reported:*  *Level of sleep deprivation*:  low / mod / severe  *Length:*  Acute / chronic | **Priorities**   * Mindset * Sleep hygiene * Sleep restriction * Medication issues * Stress reduction |

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| **When a Sleep Test is Needed**  A sleep study can involve a referral to a sleep clinic where you may stay overnight to be monitored or may be given equipment to take home with you to use. Your physician can refer you to a sleep specialist who can do a polysomnography test, which measures brainwave activity, eye movement activity, and muscle activity.  Sleep studies are typically not required for insomnia, but seeing a physician can help to determine whether you may need one. The [Epworth Sleepiness Scale](http://healthysleep.med.harvard.edu/narcolepsy/diagnosing-narcolepsy/epworth-sleepiness-scale)is a screening tool for sleep disorders. A score of >16 indicates issues.  Common sleep disorders that can be diagnosed by a sleep test:  [**Sleep apnea:**](https://www.mayoclinic.org/diseases-conditions/sleep-apnea/symptoms-causes/syc-20377631) A sleep disorder where the person’s breathing stops and starts throughout the night. Warning signs are snoring, gasping for air when sleeping, chronic tiredness, and being overweight.  [**Narcolepsy:**](https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Narcolepsy-Fact-Sheet) Excessive daytime sleepiness resulting in uncontrollable sleep episodes. People with narcolepsy can often experience interrupted sleep during the night and vivid hallucinations or dreams upon going to sleep or waking.  [**Restless Leg Syndrome:**](https://www.mayoclinic.org/diseases-conditions/restless-legs-syndrome/symptoms-causes/syc-20377168) An uncontrollable urge to move your legs that happens when lying down. Can also be accompanied with a crawling or throbbing feeling in the legs. These tend to be worse in the evening, and often feel better with movement. |

**Substance Use Assessment and Medications**

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| **Health issues that can impact sleep:**   * Angina: A condition in which the heart receives insufficient oxygen * Asthma, bronchitis, and emphysema * Allergies, congestion, or coughing * Indigestion, acid reflux, or ulcers * Bladder problems * Arthritis * Chronic pain * Headaches * Epilepsy * Hyperthyroidism * Kidney disease * Diabetes or hypoglycemia * Dementia or Alzheimer’s disease * Depression: Early morning waking can be a symptom of depression, as well as sleeping too much (hypersomnia) * Anxiety * Post-traumatic Stress Disorder | **Prescription and over-the-counter drugs:**  A significant number of prescribed drugs can interfere with sleep by causing stimulating effects, creating withdrawal, and disturbing the overall quality of sleep:   * Pain killers that contain caffeine such as Anacin, Excedrin, Codeine * Diet pills * Steroids * Beta blockers or other drugs used for treating high blood pressure * Nasal decongestants * Asthma medications that have stimulating effects * Thyroid hormones * Some antidepressant medications (e.g., Wellbutrin, Cymbalta, Effexor) |

**Substance Use**

I’ve worked with many clients over the years who have used alcohol to sleep. While these drugs may increase the feeling of sedation, most of them do not improve the quality of sleep. And of course, stimulants like cocaine can lead to difficulties sleeping because they increase the sympathetic nervous system activity.

Many people are experimenting with cannabis for sleep. Some people take CBD oil[[8]](#footnote-8) and THC[[9]](#footnote-9). One study found that cannabis decreased the [length of time to fall asleep](http://files7.webydo.com/92/9209805/UploadedFiles/5E9EC245-448E-17B2-C7CA-21C6BDC6852D.pdf) by 15-30 minutes. Cannabis can interfere with our REM or dream sleep, which helps us to problem-solve and develop emotional intelligence. This might not be a bad thing for people who struggle with PTSD and depression, as [decreases in REM sleep](https://onlinelibrary.wiley.com/doi/full/10.1111/j.1755-5949.2008.00071.x) are associated with an improvement in mood.

If you’re going to try cannabis for sleep, it’s important to proceed slowly, do your own research, and consult a professional. In addition, cannabis has variable impacts on people, making some people feel more alert.

List the frequency in which you use the following substances:

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| **Substance** | **Frequency / Amount** |
| Caffeine |  |
| Nicotine |  |
| Sugar (e.g., dark chocolate) |  |
| Alcohol |  |
| Cocaine / stimulants |  |
| Cannabis |  |
| Other: |  |

Here are some of the guidelines regarding the consumption of substance use for sleep:

* **Caffeine:** Consuming no more than two cups of coffee, and none after 11.00 am
* **Alcohol:** Consuming no more than two standard drinks[[10]](#footnote-10) no later than three to six hours before bed time
* **Nicotine:** Avoid using six hours before bed

Of course, making these changes can be challenging. If you’re wanting to start making a change but don’t know where to start, check out my [Behaviour Change Starter Kit.](http://www.christinabell.net/downloads)

**Medications**

Medications are currently the most common intervention for insomnia. Commonly prescribed sleeping medications are Zolpidem (Ambien), Lorazepam (Ativan), and Zopiclone (Imovane). These medications typically work by enhancing a chemical that slows our brain waves, called Gaba. People have also had success using antidepressant medications like Trazodone and Sertraline (Zoloft) due to the side effect of drowsiness.

Medications can be beneficial for resetting the sleep cycle after brief periods of disruption due to life stressors. Drugs like Zolpidem (Ambien) have been associated with a [slight decrease (10-30 minutes)](https://www.bmj.com/content/bmj/345/bmj.e8343.full.pdf) in the amount of time required to fall asleep. However, there are a number of serious risks for taking sleeping medications long-term (>3 weeks):

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| * The use of sleeping medications has been associated with increased a [three-fold increase in death](https://bmjopen.bmj.com/content/bmjopen/2/1/e000850.full.pdf) over a three-year period * Sleeping medications have been found to interfere with restorative [deep wave sleep](https://www.ncbi.nlm.nih.gov/pubmed/25922426) * There is a [significantly higher risk of falls](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4980537/pdf/JAR2016-3685789.pdf) when sleeping medications are used by older adults * Sleeping medications have been found to [interfere with long-term memory retention](https://www.ncbi.nlm.nih.gov/pubmed/18344728) the following day in a group of older adults * The [FDA issued a black-box warning](https://www.fda.gov/drugs/drug-safety-and-availability/fda-adds-boxed-warning-risk-serious-injuries-caused-sleepwalking-certain-prescription-insomnia) for sleeping medications, linking them to a higher incidence of sleep walking, aggressive behavior, confusion, depression, sleep driving, drowning, and other behaviours. Some of these accidents have resulted in deaths. Some of the medications mentioned were Eszopiclone (Lunesta), Zaleplon (Sonata), and [Zolpidem](https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/019908s046lbl.pdf#page=23) (Ambien) * The effectiveness of sleeping medications commonly decreases after four-to-six weeks of use as we habituate to the medication. This increased tolerance increases the risk of addiction because we can increase the dosage * Discontinuing sleeping medications can be terribly difficult, even dangerous. For example, discontinuing a benzodiazepine like Ativan can result in [seizures](https://www.ncbi.nlm.nih.gov/pubmed/7841856). Rebound insomnia is also a common side effect * Sleep medications can reinforce the belief that we need something outside ourselves to induce sleep[[11]](#footnote-11) * Sleep medications do not address the underlying causes of insomnia, and therefore can be seen as a “band aid” approach |

**Supplements and Over-the-Counter Options**

There are many different supplements to increase sleep. Here are a few common ones:

**1. Antihistamine-based sleep aids** with active ingredients like Diphenhydramine (Nytol, Benadryl) and Doxylamine (Unisom) are found in the drugstore. Some of the criticisms of these medications is that they [lack clinical evidence](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4805417/) that they are effective and may only increase sedation and not deepen sleep.

**2. Melatonin.** Melatonin is a hormone produced in the pineal gland of our brain that signals the brain to start preparing for sleep. While there is [some evidence](https://www.ncbi.nlm.nih.gov/pubmed/12076414) that it may be helpful to help [reset sleep cycles from jet lag](https://www.ncbi.nlm.nih.gov/pubmed/12076414), some experts argue that there is a lack of clinical evidence. Part of the issue is that the level of the melatonin can [vary widely](https://www.ncbi.nlm.nih.gov/pubmed/27855744).

**3. Herbal remedies** such as Ashwaganda, Valerian, Kava, and other compounds are popular as well, but the research seems suggests that these herbs are either [ineffective or insufficient research](https://www.sleephealthfoundation.org.au/herbal-remedies-and-sleep.html) has been conducted on their efficacy.

**Overall Thoughts on Medications and Supplements**

* In general, sleeping medications are intended for short-term use is (2-3 weeks)
* Be aware that drowsiness is a major side effect of medication, which should be a consideration in operating motor vehicles
* Our biology is very individualized and we can have different responses to different compounds
* **Please speak to a physician or pharmacist about your situation, as this information is not intended to be a substitute for medical advice**

Many people decide to discontinue or cut back their sleeping medication when trying to improve their sleep. **It is not recommended to go “cold turkey” and abruptly discontinue your medication** as this may cause rebound insomnia and potentially result in seizures. Please speak to your physician about methods for discontinuing your medications.

**Sleep Diary (Week \_\_\_\_\_ )**

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| **Date:** | **Mon\_\_\_** | **Tues\_\_\_** | **Wed\_\_\_** | **Thurs\_\_\_** | **Fri \_\_\_** | **Sat \_\_\_** | **Sun \_\_\_** |
| **Bed time:** |  |  |  |  |  |  |  |
| **Length of time to fall asleep:** |  |  |  |  |  |  |  |
| **Number of awakenings:** |  |  |  |  |  |  |  |
| **Total time awake:** |  |  |  |  |  |  |  |
| **Waking time:** |  |  |  |  |  |  |  |
| **Snooze time:** |  |  |  |  |  |  |  |
| **Total hours:** |  |  |  |  |  |  |  |
| **Meds:** |  |  |  |  |  |  |  |
| **Notes:** |  |  |  |  |  |  |  |

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| **Weekly Goal:** | **Progress:** |

**Mindset and Sleep**

One of the most helpful parts of the CBT-I program is that it addresses our negative thoughts and beliefs about sleep. When we think a stressful thought, our body initiates our sympathetic nervous system, which signals to our body that we are in danger. This process is that it is triggered not only when we encounter stress, but when we think stressful thoughts. Human beings are notorious for having a [negativity bias](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3652533/pdf/nihms275010.pdf), meaning that we often overestimate negative outcomes and underestimate our ability to cope. For example, if I get a poor night’s sleep, I may react to this event by thinking: “I’m going to have a horrible day tomorrow”.[[12]](#footnote-12) This of course leads to increased anxiety, increasing alertness.

To change our thinking, we first need to identify the thoughts that may be interfering with our ability to sleep. Second, we need to develop thoughts and attitudes that challenge these negative positions, and repeat them often in order to counteract the negative beliefs. As [Rick Hanson](https://www.rickhanson.net/wp-content/uploads/2014/11/6_GardenOfTheMind.pdf) has stated, the mind is a garden in which we want to “pull the weeds” of negative thinking, but we also want to work on “planting flowers” by installing more realistic ways of thinking.

**Helpful Beliefs About Sleep[[13]](#footnote-13)**

One of the major contributors to anxiety around insomnia is sleep research! There are many studies popularized on the internet that discuss the tragic outcomes of sleep deprivation. Although I think this research is very helpful, there are some [issues with the studies](https://guzey.com/books/why-we-sleep/) and their interpretation. Here are some ideas that will help you to counter sleep anxiety.

**1. Humans can survive periods of sleep deprivation.** Although researchers documented the negative impacts of sleep deprivation, human beings are incredibly resilient. Sleep expert [Gregg Jacobs](https://www.amazon.ca/Say-Good-Night-Insomnia-Drug-Free/dp/0805089586/ref=sr_1_1?keywords=gregg+jacobs&qid=1576520237&sr=8-1) has argued that people have functioned adequately on limited amounts of sleep for months, including transatlantic solo yacht racers, and medical students. Our body has a homeostatic mechanism[[14]](#footnote-14) where we can compensate for a lack of sleep by sleeping longer the next night and getting a higher proportion of deeper sleep. Furthermore, when we are deprived of sleep, our body seems to gravitate toward an average of 5.5 hours, which some call core sleep.

Given that many people with insomnia average about 5.75 hours of sleep a night, most are getting their core sleep needs met. Therefore, it’s okay to relax and know that your body has a compensatory mechanism to get you the sleep that you need.

It’s also important to distinguish between moderate and severe sleep deprivation. Most people presenting to clinics with insomnia are categorized as moderate sleep deprivation, getting about 5.75 hours of sleep. Getting 4 or less hours of sleep per night ongoing would be considered severe.

**2. The amount of sleep we need varies**. The amount of sleep each person needs each night is influenced by multiple factors such as age, genetics, and lifestyle. There is a wide variability across individuals in terms of how much sleep they need to feel at their best. Current research has associated sleeping 6-8 hours a night with higher [problem-solving skills](https://www.ncbi.nlm.nih.gov/pubmed/30212878) and [lower risk of death](https://www.ahajournals.org/doi/10.1161/JAHA.118.008552). Interestingly, sleeping more than 8-9 hours was associated with higher incidence of health issues than sleeping less than 6. While it’s helpful to know the research on optimal sleep length, these studies are generalizations that cannot tell you exactly how much sleep is optimal for you. Another confounding factor is that sleep studies often measure sleep duration but not quality. Someone can be getting eight hours of light sleep but their quality may be less than someone getting more deep sleep in a shorter period. Sleep is similar to food intake. Just as our caloric requirements can change day-to-day based on our activity level, so can our sleep requirements. However, most of us tend to hover around an average that is best for us. Naps of 20-30 minutes can be a great way to [boost alertness](https://www.ncbi.nlm.nih.gov/pubmed/21075238) and are associated with a number of other positive outcomes.

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| *Here are some ways to know if you’re getting enough sleep:*   * Are you having problems sleeping 6-8 hours? * Are you able to wake up without an alarm? * Do you feel drowsy at 10.00 am?[[15]](#footnote-15) * Are you significantly drowsy during the day? |

**3. It is possible to improve your sleep**. How confident are you that you can develop good sleeping habits? I had overidentified with the idea that I was a “bad sleeper.” This changed once I understood that I needed less sleep than the average person. As mentioned above, making this shift was very helpful for improving my mindset around sleep, which increased my overall confidence and lowered my anxiety.

*Here are some mindset shifts that helped me to let go of my preoccupation with sleep:*

1. Trusting that my body will get the sleep it needs. Sleep is a drive similar to hunger – we cannot force it. If I take care of myself and allow adequate time for sleep, my body will get what it needs.

2. Energy levels vary throughout the day, and sleep is not the only variable that impacts my energy level. Exercise, diet, stress levels, the seasons, my immune system, and my thoughts all play a role in how I feel during the day. I expect that my energy will have some natural ebbs and flows and take naps regularly if I’m feeling fatigued.

The worksheet below is designed to help you identify your negative thought patterns and beliefs about sleep and identify healthier alternatives. Please take a look and select your top three cognitive distortions below. Like any skill, you will have to practice viewing the situation in new ways when you encounter those old ways of thinking, but over time it will improve.

**Cognitive Distortion Worksheet for Insomnia**

|  |  |  |
| --- | --- | --- |
| **Unhealthy Thought** | **Healthy Thoughts** | **Type of Distortion** |
| * If I don’t get a full night’s sleep tonight, I won’t be able to function the next day | * People can function on a core amount of sleep (5.5 hours) * I can have a short nap to improve my energy if I’m tired * My daytime mood is determined by many factors, sleep being only one of them * I have survived a bad night’s sleep in the past, and I can do it again * Energy levels change throughout the day and this is natural | * Fortune telling * Black and white thinking * Catastrophizing |
| * I am a bad sleeper | * I’ve struggled with sleep in the past, but I can learn new skills | * Labelling * Black or white thinking * Overgeneralization |
| * I barely slept at all last night | * People with insomnia are poor estimators of the actual sleep they receive[[16]](#footnote-16) * Several variables are responsible for how well-rested we feel (e.g., stress levels, immunity) * My energy will improve throughout the day as my body temperature increases | * Magnification |
| * I need to try harder, then my sleep will improve | * Sleep is biological drive that I create throughout the day. I do not need to force it * If I focus on the main components of the program, I will get the sleep I need |  |
| * I slept horribly last night – these tools are not working for me | * Even healthy sleepers have variations in sleep quality * My body has a homeostatic mechanism that will help me to get the sleep I need * These techniques have worked for others, and they will work for me | * Black and white thinking * Fortune telling |
| **Thought Plan** | | |
| **Top three negative thoughts** | **Healthy thought** | **Notes** |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |

**Lifestyle Assessment for Sleep Hygiene**

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| **Issue** | **Recommendations** |
| * **Exercise:** A lack of exercise and exercising too close to bed time can create difficulties falling asleep. Exercise can also improve the quality and duration of sleep, as well as help the body to prepare for sleep if done early enough. | * Try exercising no later than three hours before bed. |
| * **Shift work or frequent travel:** Our body is sensitive to small changes in our sleep schedule, and shift work has been linked to many [negative health outcomes.](https://www.bmj.com/content/355/bmj.i5210) | * Try to keep your sleep schedule routine consistent, even on your days off * Allow yourself at least 1-2 hours to wind down before going to bed * Eat within a predictable 8-10 hour window (to help you optimize your body’s circadian rhythm) * Increase light exposure at the beginning of your shift and lower lights toward the end of your shift (wear sunglasses home, use black out blinds and an eye mask) * Consider taking melatonin a few hours before bed to help adjust to a new time zone |
| * **Extended work hours:** Working more than 48-55+ hours per week [has been associated](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2690560/) with lower overall sleep time and difficulties falling asleep. Working longer hours has also been associated with [increased accidents](https://www.osha.gov/SLTC/workerfatigue/hazards.html) and lowered cognitive processing speed. | * Some research has suggested that that working [38 hours per week (7.6 hours per day)](https://medium.com/@andrewmerle/this-is-how-many-hours-you-should-really-be-working-ff1e8a6ad958) has been associated with the greatest work-life balance and health. * Take your vacation days * Have boundaries with technology |
| * **Fluid consumption:** Drinking too much fluid in the evening can increase evening waking in order to go the bathroom. | * Avoid consumption of liquids after supper |
| * **Caloric restriction or fasting:** Decreasing food intake is often associated with [positive changes in mood and sleep](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4905696/). However, for some people, this can lead to greater production of [stress hormones such as cortisol and norepinephrine,](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2895000/) making can make it more difficult to sleep. | * Determine your [baseline level of calories](https://www.niddk.nih.gov/bwp), and make sure you are eating enough * It’s natural to have a few nights of sleep difficulty when starting a new eating routine. However, if you are getting less than 6 hours of sleep per night and are noticing significant drowsiness or mood changes, you may need to make changes to your diet and track the impact. * Eating within an 8-10 hour window will help to optimize your body’s 24-hour clock and help free up resources for bodily repair |
| * **Noise:** Although many people sleep with the TV on, intermittent sounds and [noise levels can interfere with sleep](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608916/) quality and lead to poor health. This is because your body’s stress response is activated by the noise, preventing you from going into a deep sleep. | * Wear ear plugs * Use a sound conditioner or white noise machine, fan, or phone app (sonic sleep app) |
| * **Co-sleeping:** Sleeping with children and/or a romantic partner can increase our connection to others, but is has been associated with [decreased sleep time and sleep satisfaction](https://www.psychologytoday.com/us/blog/the-truth-about-exercise-addiction/201811/should-you-sleep-in-the-same-bed-your-partner). | * If your sleep is consistently disrupted by another, consider sleeping separately. However, try to implement a bed time ritual to say goodnight in order to keep your emotional connection strong. * If one partner has an issue such as snoring, see a physician to get tested for sleep apnea and consider treatment options. * Consider getting a bigger mattress and one that that doesn’t allow for much motion transfer (memory foam). |
| * **Technology use:** The use of electronic devices and TV before bed can lead to [increased blue light exposure, suppressing melatonin](https://selfhacked.com/blog/health-effects-bluelight-at-night/). This is important because melatonin is a hormone that signals to our body that it’s time to start winding down for sleep. | * Install blue light filters on tablets[[17]](#footnote-17) * Avoid using electronics 1-2 hours before bedtime |
| * **Light exposure:** The invention of the light bulb was great for productivity but confusing for sleep schedule. Light exposure first thing in the morning helps to reset our body’s clock by suppressing melatonin, while lowering light in the evening increases melatonin and helps to promote sleepiness. | * ***In the daytime:*** * Increase light exposure as much as possible by getting outside for 15 minutes at the beginning of the day, using light therapy lamp and avoiding wearing sunglasses * ***In the evening:*** * Decrease light exposure about three hours before bed * Use glasses that block blue light * Installing programmable light bulbs that turn red in the late evening * Cover up blinking lights with black electrical tape * Black out blinds * Use a sleep mask (I like the ones that leave a bit of room for the eyes) |
| * **Temperature:** A cooler core body temperature is associated with [better overall sleep](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3427038/). Our body seems to do best sleeping at 18-20 degrees. | * Program the thermostat to 18-20 degrees before bed * Have a bath about an hour before bed * Wear socks to bed * Use layers of blankets to adjust temperature * Use a fan or air conditioning |
| * **Boredom / lack of stimulation:** When we are active during the day, we build up sleep pressure. A lack of activity can contribute to insomnia because there is excess energy in the body. | * Get as much exercise as you can (at least 60 minutes of walking per day) * Make sure you are intellectually challenged during the day |
| * **Stimulating activities close to bedtime:** Doing something that requires a lot of energy and focus can stimulate the waking system, making it difficult to fall asleep as well as decreasing our overall sleep quality. | * Give yourself at least 1-2 hours of boring but pleasurable activities before bed |
| * **Stress:** Stress is a natural part of life, and it can help us to grow. However, too much stress can strengthen our waking system, making it difficult to sleep. A waking system that is out of balance is one of the biggest causes of insomnia. This can be caused by multiple factors, such as excessive busyness, stress, or genetic factors. * For some people, underlying anxiety issues can be creating insomnia. If you’d like to determine whether anxiety may be a problem for you, complete this [brief screening questionnaire](https://www.mdcalc.com/gad-7-general-anxiety-disorder-7) and seek professional help if this is an issue. | * Take an inventory of the stressors in your life right now, rank them from 1-10 in severity, and start making a plan to manage them (e.g., work, family, health, finances, home) * Having a daily stress-reduction ritual such as yoga, meditation, or journaling * Practicing [progressive muscle relaxation](https://www.anxietycanada.com/sites/default/files/MuscleRelaxation.pdf) regularly has been associated with [improved sleep quality](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5433629/) * Creating boundaries between work and home, and scheduling regular holidays * Having a few trusted people that you can share your inner thoughts and feelings with (a feeling of belonging lowers stress hormones) * Regularly examining your time and determining whether your expectations for productivity are realistic. Part of what can create unnecessary stress is multitasking or trying to accomplish too much in too little time |
| * **Allergens:** Dust mites, mold, pet dander, and pollen are common allergens that can interfere with sleep. Furthermore, air pollution, chemicals in textiles, bed sheets, and beauty products and be common culprits. | * **Dust mites:** Consider getting a mattress protector, pillow protector, and wash your bedding regularly in hot water. * **Mold:** Keep the air moving in your bedroom with a fan, purchase an air filter. * **Pet dander:** Keep your pets off the furniture, wash your pets once a week, and vacuum regularly. * **Textiles:** Invest in hypoallergenic bed sheets and covers. * Overall, you may want to see a physician or a naturopathic doctor for allergy testing and to explore your options. |
| **Lifestyle issue** | **Plan** |
| 1. |  |
| 2. |  |
| 3. |  |

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| **Sleep Improvement Checklist**   * Allow 6-8 hours a night for sleep * Follow the same sleep schedule, even on weekends * Develop a wind-down routine with a relaxing activity 1-2 hours before bed * Increase light exposure during the day and decrease it at night * Sleep in a cooler room (18-20 degrees) * Avoid caffeine or alcohol 3-6 hours before bed * Diminish light and noise in your bedroom * Avoid napping for more than 30 minutes to avoid difficulties sleeping * Do not use the bed for anything other than sleep and sexual activity * **30/30 rule:** Do not spend more than 30 minutes in bed awake. If this happens, calmly remove yourself and do something relaxing for 30 minutes in dim light, then try again. Repeat as necessary * Do not go to bed unless drowsy. If you are not sleepy, try doing something relaxing and somewhat boring, or try having a hot bath |

**Sleep Restriction Therapy**

Sleep restriction is a type of therapy that is intended to increase the quality of sleep by temporarily restricting your time in bed. The idea behind this is that the tiredness you build up during the day will help you be able to fall asleep faster and lead to less awakening in the night. This approach is also helpful for breaking the association between the bed and wakefulness, because many people with insomnia spend too much time awake in bed. Some researchers have found that sleep restriction can be an [effective treatment for depression](https://www.sciencedaily.com/releases/2017/09/170919140416.htm), as restricting some of the REM sleep has been associated with increased mood.

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| **Sleep Restriction Therapy** | |
| *Benefits* | *Risks* |
| * Increased overall sleep quality * Decreased wakening in the night * Increased ability to fall asleep in less time (increased sleep efficiency) * No medication is required * Increased leisure time in the evening * Increased confidence in being able to tolerate sleep deprivation (exposure therapy) * For some sleep deprivation can lead to feeling calmer | * An initial overall reduction in sleep time * Potential [short-term impairments in mood, drowsiness, motor skills](https://www.ncbi.nlm.nih.gov/pubmed/24497651) * Increased psychological stress (not getting sleep can be stressful!) |

Sleep restriction is [**not recommended**](https://www.med.upenn.edu/cbti/assets/user-content/documents/btsd--advancedsleeprestriction-spielman.pdf) for:

* People who drive for a living or work in a safety sensitive position
* People with health issues that are exacerbated by a lack of sleep (e.g., epilepsy, disordered breathing)
* In addition, do not operate a motor vehicle if you are feeling very drowsy (take the bus, uber, or have someone drive you). People can behave in ways similar to being impaired on alcohol after less than 4 hours of sleep.

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| **Sleep Restriction Plan**  **1. Pick a consistent wakeup time every day.** You can determine your rising time by averaging your waking times in the past week, but earlier is better. A regular rising time will help your body to build up your sleep pressure through the day and to feel tired by the time you’re supposed to go to bed. Once you pick a time, don’t stay in bed for more than 30 minutes after waking.  **2. Restrict your time in bed only to the time you are actually sleeping.** If you go to bed at 8.00 pm but don’t fall asleep until 12.00 am, you’d go to bed at 12.00 am. Wouldn’t this mean that you’re going to feel more tired in the morning? Yes, but your body will start to increase its sleep pressure, leading to falling asleep faster (sleep efficiency). After a few days, your body will begin to reset itself, and you will naturally start to feel sleepy when it’s bed time. While it’s okay to wind down for 20-30 minutes before bed, you should remove yourself and do something relaxing if you’re awake for more than 30 minutes in bed.  **Please do not set your total sleep time to less than 5.5 hours, because this level of sleep deprivation is linked to slowed reaction time for driving.**  Once you can fall asleep within 30 minutes for most nights of the week, add another half an hour, making your new bed time 11.30 pm. Then continue adding 30 minutes each week until you are sleeping between 6-8 hours and can fall asleep within 30 minutes.  Try to avoid napping in this phase in order to develop a stronger sleep pressure. If you have to nap, make it no longer than 20-30 minutes twice per week.  **Current bed time:**  **Current fall asleep time:**  **New fall asleep time:** |

**The “rip the band aid off” approach:** This option is the most challenging but it can lead to the quickest results. In this option, you set an early waking time every day, and only go to bed when you’re extremely tired. So that means if it’s 12.00 am and you’re not tired, don’t go to bed! I tried this a few years ago over the Christmas holidays. Some nights I was not very tired and I didn’t go to bed until 3.00 am! However, because I was relaxing with family and decided not to stress about it, I felt fine. After about five days, I had a much easier time falling asleep.

**A Few Thoughts on Sleep Restriction Therapy**

I’m not going to lie – this process is challenging! However, the short-term discomfort is worth the long-term benefits.[[18]](#footnote-18) Also, it’s one of the most effective and fast-acting tools we have (even compared to medication).

An interesting aspect of this approach is that it changes our goal from trying to fall asleep to trying to stay awake. Make sure to have a number of relaxing activities on hand make a list of relaxing things to do or read, as you can actually learn to enjoy this extra time.

**Frequently Asked Questions**

**What is the best time to go to bed?**

According to circadian rhythm researcher [Satchin Panda](https://www.amazon.ca/Circadian-Code-Supercharge-Transform-Midnight/dp/163565243X/ref=sr_1_1?crid=EQ7A0DCYH9K6&keywords=satchin+panda&qid=1576532993&sprefix=sat+chin+pand%2Caps%2C304&sr=8-1), the best overall time to go to bed is between 9-10pm. However, some researchers have found that there are [some people](https://en.wikipedia.org/wiki/Chronotype) that have more energy in the morning (called larks) versus the evening (called owls). Experiment and see what works best for you, but when you find a schedule that works, keep it consistent.

**How do you know if you’re getting enough sleep?**

There are some differing views regarding the research on the optimal length of sleep, but some studies have found that [7 hours of sleep](https://www.ncbi.nlm.nih.gov/pubmed/26900147) is associated with the lowest probability of death. Interestingly, sleeping more than 9 hours is associated with a higher risk of death than sleeping less than 6. However, it’s important to note that these findings are based on a relationship between health outcomes and sleep (correlation), versus causation (i.e., that too much or too little sleep causes early death).

Overall, the amount of time that people sleep is individual and based on multiple factors (e.g., age, genetics, lifestyle). It’s important to critically evaluate your need for sleep based on how you feel, as some of the information that suggests that you are in danger if you are not sleeping 8 hours can [inadvertently create anxiety around sleep](https://guzey.com/books/why-we-sleep/).

Here are some ways to tell whether you’re getting enough sleep:

* Do you wake up without an alarm?
* Do you experience intense drowsiness during the day?
* Are you allotting about 8 hours for sleep?

**How long will it take before I start to see results?**

First few weeks are often the most challenging in terms of drowsiness and irritability. However, many people start to settle into a routine by the fourth week. In my experience, the first month I felt more fatigue, and after two months I noticed that my sleep had markedly improved. The initial discomfort was manageable and worth the results.

**What is normal to expect during this process?**

Initially, you may feel increased anxiety because you are engaging in something outside of your comfort zone, as well and some drowsiness and irritability. However, the long-term investment is going to give you so much more energy and stability.

**How do you evaluate success with sleep?**

Being able to fall asleep within 30 minutes 5/7 nights, obtaining between 6-8 hours of sleep per night, and waking up 3 times or less per night (for a combined total of less than 60 minutes).

**How do I go about getting a sleep study if I need one?**

You need a referral from a general physician for a sleep study. The first part of the evaluation will likely involve giving you a portable device which tracks your breathing, oxygen levels, and body position. Sometimes, people will be referred to a sleep laboratory where they will sleep there overnight with monitoring equipment attached to them.

**What do you think about sleep tracker options on wearable devices like Fitbit?**

From what I’ve read, there is some research to suggest that they can be a [decent way to estimate your overall sleep time](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6025478/). However, their ability to accurately track the stages of sleep is currently not as accurate at this time.

**What are your thoughts on sleep gadgets and technology (special beds, cooling pads, white noise machines)?**

There are many interesting and fun gadgets out there to improve sleep! As with any product, please do research before purchasing one. Your overall goal is to strengthen your sleep system, and doing so does not require any major investments in technology.

**What would you suggest if I have trouble getting to sleep?**

All of the concepts discussed in this workbook will help with falling asleep. To strengthen your sleepiness, I would suggest setting an early rising time, not napping, and going to bed an hour later for about a week to build up sleepiness.

**What do you recommend for shift work?**

* If possible, it is advisable to avoid shift work, as it is associated with a [number of poor health outcomes](https://oem.bmj.com/content/58/1/68), including earlier death
* When leaving work, wear sunglasses to prevent the light from keeping you awake
* Allow sufficient downtime of 1-2 hours before going to sleep
* Eat within a predictable 8-10 hour window to help your circadian rhythm establish a routine
* Brighten light when it is the beginning of your day and taper light 2-3 hours before the end of your day
* Wear a sleep mask if you sleep during the day and use black-out blinds

**What do you recommend for jet lag?**

* It can take up to 2 days to adjust to an hour of time zone shifting
* Upon arrival, immediately adjust your sleep to the local time
* Use a light therapy box upon waking to help set your circadian rhythm
* Taking a sleeping medication or 1-3 mg of melatonin 2 hours before bed can be helpful for jet lag or to adjust to a new time zone

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| * **Eastbound flights =** adjust sleep by rising, eating, and going to bed **earlier** | * **Westbound flights =** adjust sleep by eating, going to bed, and rising **later** |

**Final Thoughts**

Like most things in life, improving sleep involves trial and error. There are some people who make small adjustments with their sleep and are able to feel great, and for others the journey is more onerous. Try to think about improving your sleep as a gradual process where you make small improvements over time. Also, please remember to think critically when it comes to sleep research or recommendations, and do what works for you. We are all unique. I hope you have found this workbook helpful and it hasn’t put you to sleep (or maybe that would be a good thing ☺).

Warmly, Christina

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| **My Sleep Plan**  **Bed time:** Between 9.30-10.30 pm (depending on my level of fatigue). I try to stick to this routine every day, including weekends.  **Wind down routine:** At 9.00 pm, I will read something moderately challenging and somewhat boring in dim light while wearing red glasses for about an hour. To cultivate drowsiness, I will periodically put my head down and close my eyes every 5-10 minutes for a few minutes.  **Waking time:** 4.30 am. Upon waking, I will turn on two light therapy lamps (10 lux), to help signal to my brain that it’s morning.  **Naps:** I take a 20-30 minute nap when I can between 1-3 pm. Even if I close my eyes, I notice a significant improvement in my immune system and energy level.  **Medications and supplements:** I will periodically take 5mg of Zolpidem or 30 ml of liquid Nyquil on nights where I might be fighting a cold or am worried about getting a good night’s sleep.  **Other things that help:**   * Wearing ear plugs every night to block ambient noise * When I travel, I will bring a white noise machine * I use black electrical tape to cover any beeping lights from electronics * I install blue light filters on my laptop and phone continuously * I try not to do work or check my email after suppertime * I don’t engage in energizing activities or chores after 8.00 pm, as this can increase my waking system, making it harder to sleep |

**Resources**

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| --- | --- |
| **Books**   * [*Say Goodnight to Insomnia*](https://www.amazon.ca/Say-Good-Night-Insomnia-Drug-Free/dp/0805089586/ref=sr_1_1?keywords=cbt+i+for+sleep&qid=1576970316&sr=8-1) by Gregg Jacobs * [*The Circadian Code*](https://www.amazon.ca/Circadian-Code-Supercharge-Transform-Midnight/dp/163565243X/ref=sr_1_1?keywords=circadian+code&qid=1576970377&sr=8-1) by Satchin Panda * [*Biohacking Insomnia*](https://selfhacked.samcart.com/products/biohacking-insomnia-1/) by Joseph Cohen * [*The Insomnia Workbook*](https://www.amazon.ca/Insomnia-Workbook-Comprehensive-Guide-Getting-ebook/dp/B0090Q40JW/ref=sr_1_6?keywords=cbt+i+for+sleep&qid=1576970316&sr=8-6) by Stephanie Silberman | **Influencers**   * [Dr. Rubin Naiman](https://drnaiman.com/) * [Gregg Jacobs](https://www.cbtforinsomnia.com/about-us/) * [Dr. Matthew Walker](https://www.foundmyfitness.com/episodes/matthew-walker) |
| **Apps**   * [Sleepio](https://www.sleepio.com/onboarding-sleep-test/#/improve-sleep?_k=2bxvbv) (sleep improvement program) * [Calm](https://www.calm.com/?url=https://www.calm.com/&pid=google&af_channel=g&af_c_id=6459091402&af_adset_id=81030215207&af_ad_id=378985127678&af_sub_siteid=&af_keyword=calm%20app&af_sub3=e&af_sub4=Cj0KCQiAovfvBRCRARIsADEmbRIfk974xhHndPAFlvi77PuSKHQYq91vdIzxAK3vKkgrhnyjLaz3voMaAq_sEALw_wcB&af_sub5=1t1&utm_medium=paid&utm_source=google&utm_campaign=6459091402+81030215207+378985127678&utm_content=homepage&utm_term=calm%20app&gclid=Cj0KCQiAovfvBRCRARIsADEmbRIfk974xhHndPAFlvi77PuSKHQYq91vdIzxAK3vKkgrhnyjLaz3voMaAq_sEALw_wcB) (has sleep stories and meditations) * [Sonic sleep coach](https://sonicsleepcoach.com/) (has different sleep sounds, a customized alarm) | **Websites**   * [National Sleep Foundation](https://www.sleepfoundation.org/) * [American Sleep Association](https://www.sleepassociation.org/)   **Videos**   * The [science behind power naps](https://michaelhyatt.com/videos/the-value-of-naps-from-a-scientific-perspective/) by Michael Hyatt * Sleep expert [Matthew Walker](https://www.youtube.com/watch?v=X-iQHE5tdUI) explaining the main aspects of sleep hygiene |

1. Percentage of time asleep in bed. [↑](#footnote-ref-1)
2. This is called [oxidative stress](https://www.ncbi.nlm.nih.gov/pubmed/10693912). [↑](#footnote-ref-2)
3. A troubling aspect of these findings was that the participants in the study were unaware that they were sleep deprived. [↑](#footnote-ref-3)
4. A temporary episode of drowsiness that can last a micro second up to 30 seconds. [↑](#footnote-ref-4)
5. One way to determine a general level of severity is by completing the [Insomnia Severity Index](https://www.ons.org/sites/default/files/InsomniaSeverityIndex_ISI.pdf) [↑](#footnote-ref-5)
6. This is known as [Spielman’s 3Ps](https://www.medscape.com/answers/1187829-70509/what-is-the-spielman-model-of-chronic-insomnia) [↑](#footnote-ref-6)
7. Brief bursts of activity at the end of a brain wave that is thought to protect your brain from external noises [↑](#footnote-ref-7)
8. A property in cannabis that is used to treat anxiety and other disorders without creating a high. [↑](#footnote-ref-8)
9. The active property in cannabis that can be detected in drug tests. [↑](#footnote-ref-9)
10. A standard drink is: 12 oz or 341 ml of beer or a cooler; 5 oz or 142 ml of wine, or 1.5 oz or 43 ml of spirits [↑](#footnote-ref-10)
11. Called psychological dependence [↑](#footnote-ref-11)
12. A type of thought error called fortune telling [↑](#footnote-ref-12)
13. Adapted from Gregg D. Jacobs’ *Say Goodnight to Insomnia* [↑](#footnote-ref-13)
14. Called [sleep homeostasis](https://reader.elsevier.com/reader/sd/pii/S2451994417300068?token=E7E5A49A572984CC04760016EF9253F850D4AFDC4AD0B062CCE48B5CBFEEDBD179C29803FFDB23A23E450D16A85CDC80) [↑](#footnote-ref-14)
15. 10.00 am is when we typically feel most alert, so feeling drowsy can be a sign that something is unbalanced. [↑](#footnote-ref-15)
16. People with insomnia often confuse stage 2 sleep for wakefulness, leading to distorted perceptions of sleep duration. [↑](#footnote-ref-16)
17. For Apple products - try the **nightshift setting** under the “display and brightness” tab

    For Android products, try the **night light setting** under the display tab [↑](#footnote-ref-17)
18. Researchers have found that people who follow this protocol are able to [maintain the benefits long-term](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3481424/pdf/1471-2296-13-40.pdf). [↑](#footnote-ref-18)