SLEEP

UVU WELLNESS PROGRAMS

Sleep

On average, how much sleep do you get a night? _____

It is recommended that adults get 7-9 hours of sleep per night.

What We Will Cover:

- How's Your Sleep?
- Science of Sleep
- Protocols for Better Sleep
- Tools for Better Sleep
- Benefits of Sleep
- Naps

How's Your Sleep?

Sleep Questionnaire	Weekday	Weekend
What time do you go to bed?		
How long does it take you to fall asleep?		
How many times do you wake up during the night?		
What time do you get out of bed in the morning?		
What time do you stop using electronic devices?		
What time do you stop consuming caffeine?		
If you can't sleep, what do you do?		

Science of Sleep

Circadian Rhythm & Sleep Pressure

Circadian rhythm is one of two factors that determines when your body wants to sleep and when it wants to be awake. Your circadian rhythm is your internal, biological, approximately 24-hour clock. It controls rhythmic patterns other than sleep, such as when you prefer to eat or drink, your mood and emotions, your core body temperature, your metabolic rate, and when you have the most energy. Most people's circadian rhythms are naturally a little bit longer than 24 hours. Exposure to daylight "resets" our internal clock to make sure it runs on exactly a 24-hour cycle.

DID YOU KNOW?

Sleep deprivation has an effect on the brain similar to alcohol consumption.

★★★ 17 hours awake is equivalent to a BAC 0.05%

★ 21 hours awake is equivalent to a BAC 0.08%

★ 24 hours awake is equivalent to a BAC 0.10%

Your biological clock communicates with the rest of your body using a hormone called melatonin. Contrary to what most people think, melatonin does not generate sleep. It helps regulate the timing of sleep. It signals to other parts of the brain that it is time to start generating sleep. Melatonin levels begin to rise soon after dusk and continue to rise until just before dawn, when they start to fall again.

The second factor that determines when your body wants to sleep is a rise in "sleep pressure". Sleep pressure is caused by the build-up of a chemical called adenosine in your brain. Adenosine levels rise every minute you are awake. The longer you are awake, the more adenosine accumulates in your brain. The greater your sleep pressure, the more sleepy you will feel and the greater desire you will have for sleep.

Morning: Lark

40% of people

Prefer to wake around dawn.

Intermediate: Hummingbird

30% of people

In between Larks and Owls.

Night: Owl

30% of people

Prefer to wake late morning to afternoon.

If you had no obligations, what time would you go to bed to help you feel and perform your best? _____

If you had no obligations, what time would you wake up to help you feel and perform your best? _____

Thinking about these questions can help you identify which of the chronotypes you are!

Stages of Sleep

Your body moves through several stages of sleep throughout the night. Each of these stages occurs within a cycle, which lasts approximately 90 minutes. During an average 8-hour night of sleep, you will likely "cycle through" each stage of sleep 5-6 times. There are four main stages of sleep.

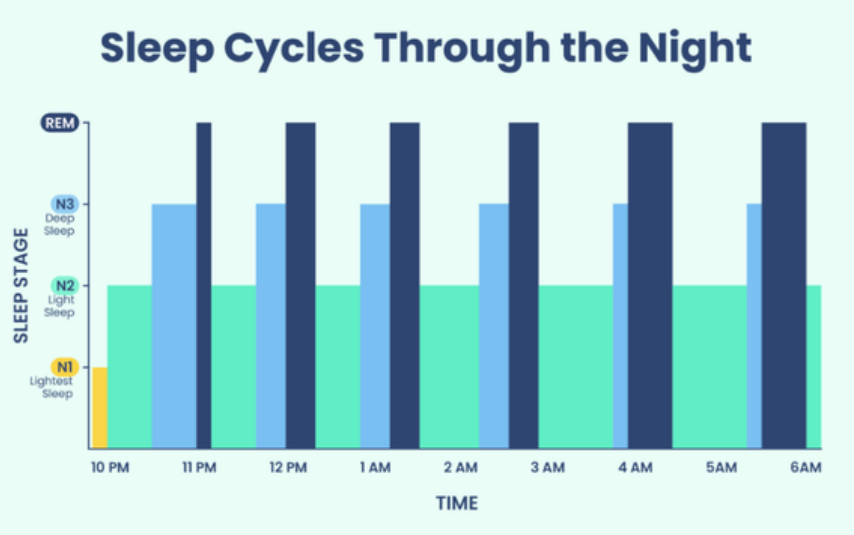
- **STAGE 1 (1-7 minutes):** This stage of sleep occurs right when a person falls asleep. The body is not yet fully relaxed and it is easy to wake someone up during this sleep stage. This stage occurs less and less throughout the night and may not be existent during the later sleep cycles of an uninterrupted night of sleep.

- **STAGE 2 (10-25 minutes):** During this stage of sleep, the heart rate and breathing rate slows, body temperature drops, and the muscles relax. This stage of sleep generally gets progressively longer with each cycle as the night progresses.

- **STAGE 3 (20-40 minutes):** This stage is commonly referred to as deep sleep. During deep sleep, muscle tone decreases and pulse relaxes even more. Deep sleep is a critical time of restoration and healing for the body. Sufficient time in stage 3 leads to a stronger immune system, more insightful thinking, greater creativity, and improved memory.

- **STAGE 4 (10-60 minutes):** This stage is commonly referred to as REM (rapid eye movement) sleep. During this stage, the muscles undergo atonia, or temporary paralysis (except for the eyes and the muscles that control breathing). Most vivid dreams occur during this stage. REM sleep is beneficial for memory, learning, and creativity.

Individuals generally spend more time in Stage 2 towards the beginning of the night and more time in Stage 4 as the night progresses. It is important to note that going to bed later than usual results in missed deep sleep while waking up earlier than usual results in missed REM sleep. The body does not compensate well for fluctuating bedtime schedules.



Source: Sleep Foundation

Protocols for Better Sleep

- **Stick to a regular sleep schedule (even on the weekends):** Your body loves regularity. This is one of the most important things you can do to improve the quality of your sleep.
- **Create a relaxing bedtime routine:** Take time to unwind by reading, listening to relaxing music, meditating, taking a warm bath, or whatever else helps you feel relaxed.
- "**Warm up to cool down to fall asleep":** To fall asleep, your internal body temperature must drop. Taking a warm bath or shower before bed can help decrease your internal body temperature.
- **Exercise daily:** Being active during the day improves sleep duration and sleep quality, although you should finish exercising at least 3 hours before bed to give your internal body temperature time to drop.
- **Develop a sleep-conducive environment:** Your room should be dark, quiet, and cool. Choose a comfortable pillow and mattress. Wear clothing that is not tight or restrictive.
- **Don't agonize over falling asleep:** If you can't sleep, get out of bed and do something relaxing until you feel sleepy.
- **Don't go to bed hungry or too full:** Avoid eating a large meal right before bed. If you are hungry, eat a light, healthy snack 45 minutes before bed.
- **Avoid caffeine and alcohol:** These substances can disrupt your sleep cycle, especially if consumed later in the day.
- **Spend time outside:** Spending time in the sun can help regulate your circadian rhythm.
- **Use your bed only for sleep:** It is difficult to relax when your bed is associated with stressful activities such as homework.
- **Avoid using electronic devices before bed:** The light that is emitted from electronic devices can disrupt our circadian rhythms and trick our body into thinking it is still daytime.
- **Dim the lights an hour before bed.** This will signal to your brain it is time to begin releasing melatonin.

DID YOU KNOW?

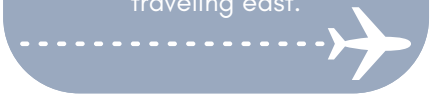
When some species of birds sleep in a flock, the two birds on the ends sleep with only half their brains to stay alert enough to protect the flock.

Humans do something similar when sleeping in an unfamiliar environment (such as a hotel). Half their brain does not enter as deep of sleep as the other half until the conscious brain registers that the sleeping environment is safe.

Traveling East vs West

It's easier to stretch a day (gain hours) than to shrink a day (lose hours).

Traveling west is easier than traveling east.



Overcoming Jet Lag

Take a warm bath before bed to increase your body temp.

Eat at mealtimes in the new time zone, even if you're not hungry.

Spend time in the sunlight.

Adjusting to a New Time Zone

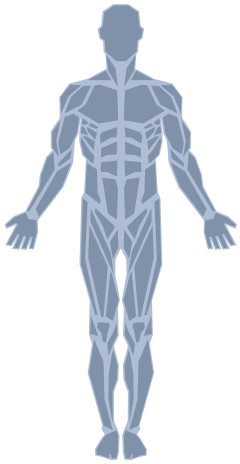
For every day that you are in a new time zone, you can only readjust by about 1 hour.

Example: 2 hour time change means 2 days of adjusting

Tools for Better Sleep

Sometimes it can be challenging to "turn off your brain" to sleep. Distracting your brain can be a powerful tool that can allow you to fall asleep more easily. Try these tools!

- **Read a book.** Better yet, read a boring book! Reading a textbook can lull you right to sleep. You can also read books that interest you, but make sure to either read a physical book or on an e-reader (such as a Kindle) that is not back-lit.
- **Avoid watching the clock.** Watching the minutes tick by can cause us unnecessary stress. As you're trying to fall asleep, face your alarm clock away from you. If you wake up in the middle of the night, do not look at the clock. Try to fall back to sleep as quickly as possible without knowing how long you've slept or how much time you have before your alarm goes off.
- **Practice progressive relaxation.** Research suggests that progressive relaxation can reduce feelings of stress and anxiety and help combat insomnia.
    - Progressive Relaxation Practice:
        - Inhale and contract one muscle group in your body for 5 - 10 seconds.
        - Exhale and release all of the tension in that muscle group.
        - Rest for 10 - 20 seconds before moving on to the next muscle group.
        - Try imagining the stress leaving your body as you release the tension in each muscle group.
        - Gradually work your way up your body until you have completed all of your muscle groups.



- **Practice mindfulness.** Mindfulness can prepare your mind for sleep and can help you have better quality sleep. If you are new to mindfulness, there are many great resources online that can help you learn how to implement it into your bedtime routine. Check out *The Ultimate Guide to Mindfulness for Sleep* from mindful.org.
- **Try square breathing/box breathing.** This method of breathing follows a 4-4-4-4 pattern. Breathe in for 4 counts, breathe out for 4 counts, breathe in for 4 counts, breathe out for 4 counts. It can be helpful to picture a square in your mind and imagine you are moving around it. This can relieve stress and help relax your body. This can be used at any time in any place, so it's a good method for any time that you're feeling stressed.
- **Listen to a podcast that is designed to distract your brain.** Sometimes having some noise on in the background can help distract your brain from what's keeping you awake. *Sleep With Me* is a bedtime story podcast that tells you stories that never really get to the point and don't make a lot of sense. It's a unique listening experience that can be a great tool for sleep!
- **Use amber-tinted glasses.** Blue light glasses are often advertised as the glasses to use with screens. Amber glasses might not be as fashionable, but the amber tint helps to neutralize the blue light from the screens we use. If you must use screens before bed for homework or work, amber glasses can help keep your circadian rhythm as close to regular as possible.

Benefits of Sleep

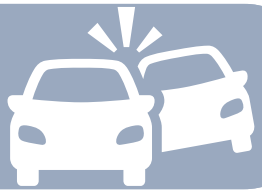
- **Production of growth hormones:** When in deep sleep, the body produces growth hormones that help the body repair and restore cells.
- **Enhanced recovery and injury prevention:** Sleep deprivation leads to worsened cardiovascular, metabolic, and respiratory capability. Sleep deprivation leads to faster rates of lactic acid buildup, a reduction in blood oxygen saturation, and a decreased ability of the body to cool itself during physical exertion by sweating.
- **Improved immune system:** Good sleep helps your body fight off common infections by releasing key hormones while you sleep.
- **Increased energy:** Deep and restful sleep helps to restore the energy you expend during the day. The more hours you can sleep a night, the more energy you will have. Obtaining less than eight hours of sleep per night reduces time to physical exhaustion by 10%–30%.
- **Improved mood, attitude, and emotional rationality:** Sleep deprivation can amplify emotional reactivity by up to 60%. For example, you may perceive someone to be much more upset than they actually are when sleep-deprived.
- **Enhanced learning and memory:** Sleeping before learning enhances your ability to take in new information, learn new skills, and make new memories. Sleeping after learning helps cement new memories and information in your brain. Sleep also helps your brain "declutter" or forget the things you do not need anymore, such as where you parked your car yesterday.
- **Enhanced brain connections:** Research shows that after a strenuous event, the brain will develop twice as much if it gets sleep. After many hours of being awake, your brain becomes less able to absorb information. Sleep is necessary to refresh it.

In a Minnesota town, a one-hour later school start time resulted in a net SAT score increase of 212 points within one year.

Naps

Have you ever noticed yourself having a difficult time staying awake or focusing during the midafternoon hours? This is a natural part of your circadian rhythm called the post-prandial alertness dip. For some, taking a brief afternoon nap can help temporarily restore energy and focus. However, *napping cannot replace sleep*. If you find that napping interrupts your sleep at night, you may want to consider choosing not to nap. If you do choose to nap, keep it brief (20-30 minutes) and finish before 3pm in order to avoid disrupting your night-time sleep. The earlier in the day you nap, the better.

Less than **5 hours** of sleep = **3x** more likely to be in a car crash
4 hours or less sleep = **11.5x** more likely to be in a car crash



Goals:

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Resources

Sleep Foundation
Medline Plus
Sleep Association
Centers for Disease Control
National Institutes of Health
The Sleep Revolution by Arianna Huffington
American Sleep Apnea Association
Why We Sleep by Matthew Walker, PhD