

Sleep Smarter: Evidence-Based Sleep Tips

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Sleep has a critical role in a wide range of cognitive functions including problem solving, attention, memory and creativity. Sleep is also important for muscle formation and repair, motivation and mood as well as appetite and body weight regulation. Also, sleep is essential for preventing and recovering from health problems. In this article a series of guidelines, derived from basic science, are offered to enable and encourage you to optimize your sleep. When implemented together, the strategies are deceptively simple but potentially very powerful.

Caffeine & Alcohol

Many of us have come to rely on coffee to wake us up each morning and alcohol or other sedating drugs to calm us down in the evening. So instead of embracing our natural daily rhythms we have a tendency to medicate them.

Many studies show that moderate to high caffeine users have more disturbed and interrupted sleep than do low or no caffeine users. Then, in an attempt to cope with disturbed sleep the next day, people often use even more caffeine. This vicious cycle of caffeine use disrupting sleep, leading to fatigue and subsequent caffeine use to counteract the fatigue perpetuates poor sleep and heightens caffeine consumption. Hence, we typically recommend ceasing use of caffeine by noon.

Although alcohol tends to make people feel tired or fall asleep faster, it also causes disruptions to the stages of sleep we would usually get in the first part of the night. Then, in the second half of the night sleep becomes very disrupted and interrupts our Rapid Eye Movement (REM) sleep. REM is a stage of sleep linked to creativity and emotional regulation. There is even evidence showing that alcohol before bedtime can impair critical sleep-dependent processes, such as memory consolidation. Substance-free sleep is much more restful!

Technology Use & Darkness

Humans have evolved to have an extended period of darkness in every 24 hour cycle. Multiple scientific studies demonstrate that this period of sustained darkness is critical for our health. So choosing an 'electronic curfew' and a time to dim the lights at night is important (this includes those bright bathroom lights!). Ideally we'd all set our electronic curfews for 30-60 minutes before our target bedtime. For those of us who find it hard to turn off email, Twitter, Facebook, texting, etc., it might be interesting to think about why. Is it fear of being alone? Or fear of missing out? Is it a desire for more connection? There are probably many reasons we find it hard to switch off technology. Perhaps try to move one step in the direction of reducing exposure to light. We call this a 'harm reduction' approach. This might be turning down the

intensity of the light on your iPad or switching from watching a stressful or arousing news program to watching a program that is relaxing and positive.

The reason residing in dim light as your bedtime draws near is so important is that dimmer lights trigger a chemical signal in your brain to release melatonin. Melatonin is naturally secreted in the brain. This natural secretion of melatonin makes us sleepy. You might have noticed the power of darkness last time you camped out. Without artificial light, and about one hour after sunset, everyone heads for their sleeping bags and falls asleep—even if it is 8pm! Unfortunately it seems that light from electronic devices like computers, phones, and TVs may be sufficient to suppress melatonin release. Of course, it is not just the light that is problematic, sources of technology are also often arousing and interesting. So this constitutes a double whammy to our sleep—the light and the arousal.

Naps

For most of us an occasional afternoon nap is a truly luscious experience. However, be aware that naps can contribute to sleep problems for some people. This is because from the moment we wake up, we are building the homeostatic pressure to sleep again. Taking a nap discharges this pressure and therefore reduces our “appetite” for sleep, which makes it much harder to fall asleep and stay asleep across the night. So for people with sleep problems we tend to recommend that, if you must take a nap, take it before 3pm and for just 20 minutes or less.

Anxiety & Worry

When animals sleep they go to safe burrows and nests. Similarly, we need to feel safe and non-anxious and non-worried in order to sleep well. Yet many people find that when their head finally hits the pillow at night, it is the first time in the day they have had to think and process what’s going on.

There are many effective methods to help us all manage day-to-day stress. If you find yourself worrying or mulling over the day at bedtime, consider taking time in the afternoon or evening to dedicate to “processing” or journaling the events of the day and planning for the following day. Also, there is an opportunity for us to reassociate our head hitting the pillow with the activation of positive emotion brain circuitry by engaging in gratitude practice (e.g., generate three things that you are thankful for) or savoring (e.g., recalling good feelings that you had today. What made you feel happy? Try to picture the situation and relive the feelings). Small things – like putting on a sweater and feeling warm on a cold day – are perfect for gratitude practice and savoring.

Selecting Your Bedtime

Often wake time is determined by the time your work or classes start. So in order to get enough sleep we often need to go to bed earlier. The recommendation is to make any adjustments to bedtime slowly—typically bringing bedtime forward by only 20-30 minutes every few days. Small adjustments are more achievable than large adjustment because they give our highly

rhythmic clockish bodies time to adjust. If we try to spring our bedtime forward by several hours we will often lie in bed awake.

The Body Likes Consistency

Think back to the last time you lost or gained sleep due to daylight savings or to jet lag. How did you feel? The effects typically include moodiness, difficulty concentrating and remembering, sleepiness in the day and proneness to accidents. These situations are the antithesis to the consistency we humans thrive on.

Regular bed and wake times from night-to-night and across weekdays and weekends is very helpful for optimizing sleep. In particular, we can keep our biology in alignment by getting light exposure at around the same time each morning. Also, waking up at about the same time every morning is like an anchor thrown off a ship. The ship's anchor ensures the ship won't move too far. In the same way, waking up at the same time every day is a strong signal to which the many body clocks, including the central circadian clock in the brain (the suprachiasmatic nucleus), can synchronize. Also, a regular wake up time helps to ensure we are sleepy enough to go to sleep by the time bedtime rolls around again. So if we sleep in through noon on a Sunday it will be hard to develop enough "appetite" (or homeostatic pressure) for getting to sleep at our desired bedtime on Sunday night. Then a late night on Sunday night makes it harder to get up on Monday morning.

Of course, many student schedules are demanding with many classes, dissertations and deadlines all requiring the type of rigor that only long hours working affords. Developing skills in time management can be an essential element of carving out space for sleep on a regular schedule.

The Body Needs Time to Transition

The Transition into Sleep

Ideally we would all go to bed when we are tired. However, for many people and particularly for 'night-owls' or evening-types who tend to feel active and alert later in the day, it can be very helpful to develop pre-bedtime habits that cue our biology that it is almost bedtime. Wind-down strategies of 30-60 minutes can include turning down the lights, journaling, taking a warm shower or bath and engaging in positive, gentle and calming activities and interactions. The hope is to establish habits of relaxing, positive and sleep-enhancing activities in dim light conditions. Do take care to not finish exercise too close to your target bedtime. In typical conditions, after exercise it can take several hours time for the body to be ready for sleep. Finally, it's important to have realistic expectations. Few people get into bed and immediately fall asleep. After the light is turned off it typically takes 10-30 minutes to fall off to sleep.

The Transition into Wake

It also takes time to wake up. "Sleep inertia" is the technical term for the normal and natural transitional state of lowered arousal and impaired performance following sleep. For most

people, this is a period of 5-20 minutes of grogginess, heavy eyes, sore shoulders and a feeling of wanting to go back to sleep. These feelings resolve relatively quickly. Again, this is a normal transition between sleep and wake. So generally these unpleasant feelings on waking are not good data on which to make judgments about staying in bed and snoozing some more versus getting up. It's usually better to get up and get moving.

A version of the 'RISE-UP' routine can be very helpful. The RISE-UP involves: **R**efrain from snoozing, **I**ncrease activity, **S**hower or wash face and hands, **E**xpose yourself to sunlight (even on a cloudy day) by opening the curtains and looking out, **U**pbeat music and **P**hone a friend. These are just starting points. We always personalize the RISE-UP routine by adding and deleting based on what will help you wake up. The goal is to reinforce getting out of bed.

Optimizing Time in Bed: Not Too Much & Not Too Little

When you want more sleep, an understandable strategy is to spend more time in bed trying to get more sleep. However, this can cause the bed to become associated with not sleeping and with anxiety about not being able to sleep. Also, bed can be a cosy place to read or watch TV. However, both examples can lead to your brain getting mixed signals about what to do in bed. If the bed has become associated with states other than sleep (e.g. anxiety or study), limiting time in bed to the actual amount of time slept can be very helpful to reassociate the bed with sleep. Having said all of that, on the flip side, if you are aiming to get 8 hours of sleep, it's wise to plan to be in bed for at least 8.5 hours. This is because it takes time, after 'lights out', for the transition into sleep to occur.

If you have had difficulty getting enough sleep for a month or more please consider seeking out cognitive behaviour therapy (CBT). This is typically available from psychologists as well as other mental health practitioners with CBT training. Or if you suspect you might have sleep apnea, narcolepsy or similar sleep disorder do talk to your primary care physician about getting an overnight polysomnography.