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Why We Sleep & Why It Matters
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Yesterday was winter solstice, the longest night of the year. Starting today, daylight begins growing incrementally longer. But for now, spring is months away. We are at the beginning of winter, a season when some species go into hibernation, which seems like an auspicious time to reflect the curious phenomenon of sleep. It's cold; why not try starting bundling up longer where it's soft, cozy, and warm?

So if you think back over the past week, how many of you feel like you consistently got enough sleep? Who feels you definitely didn't get enough sleep? And who feels somewhere in the middle or unsure? Or here's another important test: consider how long it has been since you woke up *before* your alarm clock, feeling refreshed? If that is frequently the case for you, great! But if it's been awhile, you are in the majority: **"Two-thirds of adults throughout all developed nations fail to obtain the recommended eight hours of nightly sleep"** (3).

If you aren't sure how much sleep you get, there's an app for that. If you have an iPhone, check out the "Health" app that comes pre-installed on your home screen. On Android devices, it's called "Google Fit." Both apps can easily track your sleep—or at least the time you spend in bed. Importantly, the time it takes you in bed to get to sleep doesn't count toward your needed hours of *actual sleep*.

The "Health" app on my iPhone tells me that for the past week, I've been "in bed" an average of 7 hours, 53 minutes. (For the past month, however, my average drops to 7 hours, 27 minutes. I try to take a 20 minute nap each day that I can, which

helps make up some of the difference. For anyone wondering, napping really does make a difference. On tests done in the late afternoon or early evening, **people who take a nap performed 20 percent better** than on days when they did not nap (110).

So here's the thing: I know that I feel better if I get around eight hours of sleep, but if I scroll back through the past few years on my "Health" app, there are a significant number of months where my average drops to around 6 hours per night. These results are from times when my "to do" list—or sometimes (let's be honest!) when something I really want to finish watching on TV—kept me up too late. And I will confess to having sometimes followed that old adage, "I'll sleep when I'm dead" (Walker 4).

Don't get me wrong, I love sleeping. But I also love getting stuff done. Over the past few weeks, however, I have been prioritizing sleep more, and I intend to continue doing so primarily because I have been convinced by arguments in the book, *Why We Sleep* by Dr. Matthew Walker, a professor of neuroscience and psychology at the University of California, Berkeley. As one reviewer described it, this book is **"Everything you need to know about sleep, but were too tired to ask"** (Berkeley News). Published in 2017, it is one of those books I have repeatedly heard praised by different people from different parts of my life. And I am not alone: Bill Gates recently included *Why We Sleep* on his "Top Five Favorite Books Read in 2019." I would go one step further to say that this book ranks among the top ten best books I have read this decade.

Prior to reading this book, I knew sleep was important. I've read various articles over the years about sleep. But this book has convinced me that the benefits of getting enough sleep and the consequences of inadequate sleep are both much more impactful that I previously realized. And part of why I giving a sermon to this topic is that sleep is not only really important; it's also a huge part of every one of our lives. For most of us, if we're doing it right, we should be spending approximately a third of our lives asleep. So it feels like a topic worthy of more engagement and reflection than it often receives.

I should also acknowledge here at the top that I know each of us has an intimate and complex relationship with sleep that has likely changed over time. I will do my best

to highlight some insights about the science of sleep that are widely applicable, but please do feel free to translate them into your own unique circumstances. In addition, I very much do not want anyone to be up all night tonight—or in future nights—because you are so anxious about getting eight hours of sleep that you end up barely sleeping at all. My intention is the opposite: I hope that today's sermon gives you **permission to prioritize sleep to the extent you are able to in this season of your life.** I hope that you leave here today better equipped to say to yourself, "You know what, I need to turn off the tv, shut down my computer, and stop using my iPhone because it's time, as Samuel L. Jackson says, to "Go the [bleep] to sleep."

Sleep, when you can get it, really is amazing. And what happens when we don't get enough sleep is also astounding. Now, perhaps you are one of those rare individuals who are able to operate without impairment with six or fewer hours of sleep. Such people do exist, but more often, people who subjectively experience themselves as "fine" on less than eight hours of sleep have incrementally decreased performance on objective tests with each hour less of sleep? Indeed, in the words of one of Dr. Walker's colleagues, "**The number of people who can survive on five hours of sleep or less without any impairment, expressed as a percent of the population, and rounded to a whole number, is zero"** (144). Said differently, "It is far, far more likely that you will be struck by lightning (the lifetime odds being 1 in 12,000) than being truly capable of surviving on [minimal] sleep thanks to a rare gene" (144-145).

For the vast majority of us, one of the most significant consequences of regularly sleeping less than six or seven hours is that our immune system is dramatically lowered. To list only a few of the long list of consequences, **getting inadequate sleep is correlated to increased risk of cancer and other diseases, it exacerbates almost all psychiatric conditions, and it causes us to eat more than when we are well rested…."** Even moderate reductions in sleep for one week can "disrupt blood sugar levels" to the extent that one could be classified as pre-diabetic (3).

Now, let me also get to some of the good news. I love this passage from Walker's book imagining what it would be like if the following headline broke around the world:

> Scientists have discovered a revolutionary new treatment that
>
> - makes you live longer,
> - enhances your memory,
> - increases your creativity,
> - makes you look more attractive,
> - keeps you slimmer,
> - lowers food cravings,
> - helps protect you from cancer and dementia,
> - helps ward off colds and the flu,
> - lowers your risk of heart attacks, stroke, and diabetes,
> - and makes you feel happier, less depressed, and less anxious. (107)

If that level of results were suddenly available in pill form, it would be the next new billion-dollar-a-year pharmaceutical. But **sleep already does all those things—and it's available free and without a prescription!** All you need, to the extent it is available to you, is to give yourself permission to get more sleep (4).

In our exploration of sleep, perhaps it is also helpful to be honest that sleep is quite a strange phenomenon. To adapt another of Dr. Walker's analogies, imagine a world in which sleep is rare. In such a reality, new parents might occasionally be met with the following news:

> Congratulations! Your child should live a healthy and long life. But our tests did turn up one thing. Your child has been diagnosed as a "sleeper." Now, rest assured that sleeping is perfectly safe, but it may take some getting used to. **Approximately once per day, you child will lapse into a state of apparent coma for up to eight or more hours. And while the body lies still, your children's mind will often be filled with stunning, bizarre hallucinations.** Again, be assured that your child will wake up each time and be back to normal, but this state will consume approximately one-third of your child's life. (Walker 5)

Sleep is so weird, but it's also everywhere, so we often take it as just a matter of course.

Sleep is also bizarre from an evolutionary perspective. Think about it: You can't pass on your genes if you are asleep, and you are quite vulnerable to injury or death. But sleep must go back to a very early common ancestor because "**Without exception every animal species studied to date sleeps**, or engages in something remarkably like it," including insects, fish, amphibians, retiles, even very primitive worms" (56). Indeed, scientists have discovered that:

> The very simplest forms of unicellular organisms that survive for periods exceeding twenty-four hours, such as bacteria, have active and passive phases that correspond to the light-dark cycle of our planet. It is a pattern that many scientists now believe to be the precursor of our own circadian rhythm, and with it, wake and sleep. (57)

Sleep runs wide and deep.

Now someone out there may be thinking to themselves, what about sharks? While it is true that sharks never close their eyes, they do sleep; it's just that they don't have eyelids—so we wrongly assumed at one point that that meant they didn't sleep (56)!

I should also add that while all animals sleep, they don't all sleep the same way. There's a wide range, for example: Elephants only need four hours a sleep each day, whereas brown bats sleep an average of nineteen hours a day (58). And there are many other species whose sleep patterns are at various points in between. My favorite evolutionary sleep development is in dolphin, whales, and birds, all of whom have the capacity of unihemispheric sleep: they can put half their brain to sleep while keeping the other half awake. (That would be useful, although there's also something to be said for the relaxation of fully letting go into slumber!)

Walker's book also taught me some helpful terms for reflecting on sleep. Have you ever felt sleepier and sleepier and sleepier. Well, the longer we are awake, the more a chemical called adenosine builds up in our brain, creating what scientists call "sleep pressure" (13). Unless, of course, we take a stimulant such as caffeine, which latches

on to the same receptors in the brain that adenosine uses, preventing you (at least temporarily) from feeling the effects of "sleep pressure" (28).

Let's also go deeper to the underlying question of whether each one of us is getting enough sleep—whatever that means for us individually. Walker suggests two guidelines:

1. After waking up in the morning, **could you easily fall back asleep at ten or eleven a.m.?** If the answer is "yes," you are likely not getting sufficient sleep quantity and/or quality.
2. **Can you function optimally without caffeine before noon?** If the answer is "no," then you are most likely self-medicating your state of chronic sleep deprivation. (35-36)

My first response is that I could potentially function well without caffeine, but why would I want to?! (I am, however, working on cutting back to 2-3 cups per day.)

Along those lines, let's talk about what happens to most of us when we don't get enough sleep. How many of you have ever pulled an all-nighter? Do you remember how sluggish you felt the next day? Well, **"Ten days of six hours of sleep a night was all it took to become as impaired in performance as going without sleep for twenty-four hours straight"** (136). And it's unfortunately not so easy to catch up on lost sleep: "Even after three days of *ad lib* recovery sleep, performance did not return to that observed at the original baseline assessment when those same individuals had been getting a full eight hours of sleep regularly" (138).

Conversely, when we do get the recommended eight hours (or closer to it), sleep has been shown to the **"one of the most sophisticated, potent, and powerful—not to mention *legal*—"performance enhancers" for all areas of our life: physical, mental, and emotional** (128). Professional athletic teams, NASA, and other similar groups all take sleep with increasing seriousness:

> Obtain anything less than eight hours of sleep, and especially less than six hours at night, and the following happens: time to physical exhaustion drops by 10 to 30 percent, aerobic output is significantly reduced. Similar

impairment are observed in limb extension force and vertical jump height, together with decreases in peak and sustained muscle strength (129)

In competition, those differences can make all the difference.

So, what are some of the best practices for improving our “sleep hygiene” (292)? Dr. Walker has “**Twelve Tips for Healthy Sleep**” (341-342). I would also encourage you not to feel like you have to tackle all twelve at once. Start with some of the ones that would be easier for you, then perhaps incorporate some of the other ones over time. In addition, for falling asleep, I recommend trying the free “Improve Your Sleep” meditations available on the **Insight Timer** app for smartphones. For waking up, I have found a **Sunrise Simulation Alarm Clock** to be really helpful. It make “sunrise” the same time in your bedroom year round.

Sweet dreams and goodnight to you all!