

Mark's Daily Apple - The Definitive Guide to Sleep

Sleep Awareness Week (as sponsored by the National Sleep Foundation) technically ended March 13th, but somehow I'm guessing there are just as many sleep deprived folks milling about this week as there were a few days ago – just like our good reader [Monday](#). Maybe a few of us feel better adjusted to the time change these days, but probably just as many stayed up late to watch the NCAA games this weekend. Or maybe it was a late St. Paddy's Day party. Somehow it's always somethin', isn't it?

Even if we're good and diligent and never sacrifice sleep for entertainment purposes, life too often pokes holes in our most worthy intentions. Babies wake up in the middle of the night. Flights leave early. Deadlines, projects and bills keep us up later than we'd planned. Maybe we even burn the midnight oil to get a jump on the next morning's tasks! Nighttime too often becomes a default slush fund for the day's chores. Still others of us might deliberately stay up to bask (however groggily) in what seems like the only time we have to ourselves. The house is quiet, the kids/partner are asleep. The world is hushed, and the deep solitude is too much to resist.

But there's always a price.... The next morning has us clutching our pillows in fervent denial. Cruel, callous and relentless as it is, the alarm tolls for thee and you're suddenly reeling in regret. However much you enjoyed or appreciated the previous night's extension, you now see the error of your ways. Your bed is suddenly the most wonderful, restful place in the world, and you couldn't possibly tear yourself away. Snooze button it is.

When the necessities of life (or an incredible bracket-busting game) strike, it's good to keep ye olde [80/20 Primal Principle](#) in mind. Nonetheless, let's give shut eye its due. I've done [Definitive Guides](#) on all manner of Primal priorities. It was high time, I thought, we offer the same deference to our non-waking Primal efforts.

The "I'll sleep when I'm dead" overachiever mindset assumes our bodies aren't doing anything useful when we're buried beneath the covers. Nothing could be further from the truth. Sleep is an incredibly active time for our bodies and brains when we undergo all manner of growth and repair processes through a dynamic biochemical orchestration. When we know the facts on sleep, we're more likely to give it our full respect – and wholehearted Primal commitment. Let's begin....

What's Sleep Done For Me Lately?

A good laugh and a long sleep are the best cures in the doctor's book. ~[Irish Proverb](#)

Sleep is key, essential, absolutely downright necessary for our basic physiological operations – with special support for neurological performance, endocrine balance, immune system functioning, and musculoskeletal growth and repair. For one, you wouldn't be half the man or woman you are without the physiological feats sleep achieves. I mean that both literally and figuratively, since sleep spurs the release of [human growth hormone](#) (HGH), an essential player in cellular regeneration.

Before you stay up for your favorite late night host, consider the fact that a solid night of shut eye bears all kinds of gifts. A full night of sleep will [enhance your memory performance](#) and [creative problem solving skills](#) the next day, not to mention make you a better person to be around by [helping you see the positive in your interactions](#). Oh, but

there's more of course. A good night's sleep will further [boost your athletic performance, including speed, accuracy, mood and overall energy](#).

Then there's your immune system. Hate getting sick? How about [cutting your risk for the common cold and other basic illnesses](#)? Your immune system is, in fact, most active during sleep. (So, that's why the flu leaves you in a coma-like state...) To boot, [adequate sleep makes you more resilient to daily stress](#), which supports your immune functioning that much more.

Finally, there's the big picture. Solid, consistent sleep over the long-term has been [linked to self-reported "successful" aging](#).

The Ugly World of Sleep Deprivation

Without enough sleep, we all become tall two-year-olds. ~JoJo Jensen, Dirt Farmer Wisdom

Now consider the flip side. Believe it or not, you'll die of sleep deprivation before you will starvation. Of course few people ever venture that far into the insomniac tunnel, but the fact underscores the damage done when we skimp on sleep. When you pull that all-nighter or drag yourself through multiple months of newborn-induced sleep deprivation, you feel like crap because, well, you're body is legitimately struggling. Every system suffers in some regard. Make no mistake: even a single hour of missed sleep takes its toll, as the [research on daylight savings time shows](#). If you continue down the path of scarcity, you build up what experts call a sleep debt – one that the body tries desperately to repay.

In the short term, you find a full spectrum of unsavory impacts. On the cognitive side, you sacrifice all manner of memory abilities, including short-term and working memory. Over time, even long-term memory and the [generation of nerve cells are impaired](#). Of little surprise is the impact on emotional mood and well-being. Sleep deprivation has been shown to increase the risk for conditions like depression and [exacerbate pre-existing psychological illnesses](#). However, even a single night of sleeplessness can throw our emotional regulatory abilities out the window. Sleeplessness causes our emotional selves to revert to their more primitive roots, effectively [shutting down the reasonable prefrontal cortex](#) and putting the primally defensive amygdala in the driver's seat. One study even linked sleep deprivation with a corresponding [increase in people's dissatisfaction with their primary relationships](#). (An important bit of perspective to cranky new parents...) Finally, the physical self pays a price of course. A single night of sleep loss [increases systemic inflammation](#), and (as I shared Monday) impairs the body's ability to handle the kind of moderate oxidative stress we deal with every day.

When you graduate to the extended – however "minor" – levels of sleep deprivation, you'll enjoy the above experiences (magnified of course), all the while putting significant strain on many of your body's systems, including your neurological and cardiovascular systems. One study found that [skipped sleep led to a shrinking brain](#). Bye, bye gray matter! The [heart and kidneys also take a beating](#) as does your [blood pressure](#). You, in fact, put yourself at continually increased risk for a whole host of lifestyle diseases, including [obesity and diabetes](#). The logical extension of this pattern? Numerous studies link partial sleep deprivation/disruption and [increased mortality risk](#)!

Not All Sleep Is Created Equal

“An hour before midnight is worth 2 after.” ~[Sleep Proverb](#)

Although it might feel like it some days, it's not an instantaneous plunge into cataleptic nothingness. Sleep fills a progressive spectrum of sorts. The process and pattern of sleep reveals the complex, dynamic experience it is. We likely all recall the REM and non-REM designations gestured to in our middle school health classes. The picture is a little more complicated than that, but those categories represent the bones of it. Essentially, the body moves through three stages of non-REM (Non-Rapid Eye Movement) sleep that are called N1, N2 and N3, proceeding eventually to REM sleep (typically with a N1, N2, N3, N2, REM pattern) and then back again through numerous cycles throughout the night.

Phase N1 represents the initial switch in brain wave frequency. It's the stage in which you feel like you're mostly under but can still see the light above the water. It characterizes most surreptitious office naps that people think no one will notice – until your head slips off the hand that was holding it up. (Hmmm...forgot about that N1 relaxation of muscle tone, I guess.) Most notably, it's the stage in which you scare the crap out of yourself and your spouse with those annoying sudden jerks. From there, N2 takes you down enough that any residual awareness of your environment is gone. Finally, N3 takes you into deep, slow wave sleep. Those of you who walk or talk in your sleep tend to begin performing now.

If you recall from your textbooks, REM sleep hosts most of our dreaming, particularly those memorable bits in the early morning that confound us for hours throughout the day. Although muscle tone was progressively relaxed in non-REM sleep, it's generally non-existent in the REM stage.

REM sleep constitutes about a quarter of the typical adult's sleep. The N2 stage of non-REM sleep makes up an additional half. The remaining quarter is split between the initial N1 stage and the deep sleep of N3. We experience most of our deep sleep early on in the night – hence the instructive proverb about going to bed early.

What moves us to sleep in the first place, however, is our circadian rhythm, the physiological clock responsible for putting in motion temperature changes and hormonal releases associated with sleep and waking. As we approach sleep, our body reaches its highest concentration of adenosine, a sleep promoting neurotransmitter. Simultaneously, the body begins to kick out melatonin and begins reducing our core temperature, which will hit its lowest point in the second half of our normal sleep schedule – around the time when melatonin will incidentally be at its highest. Our best sleep, not surprisingly, results from staying on consistent course with our natural circadian rhythm and – if we nap – not napping too late in the day. Speaking of which...

Closed for Siesta

There is more refreshment and stimulation in a nap, even of the briefest, than in all the alcohol ever distilled. ~[Edward Lucas](#)

I'm a big believer in naps, and I consider them one of the most useful (and pleasurable) of the PB [sensible vices](#). Research supports the benefit of inducing the relaxation response each day, and one study showed that even [the anticipation of a nap can lower your blood pressure](#). Following a truly bad night, naps can help us recharge our cognitive and physical stores. Longer naptimes following sleepless nights [tend to include more REM sleep for better restoration](#). Although some “authorities” might balk at the healthiness of daily napping, I think long-time tradition (as well as the natural circadian rhythm) shoots

that one down sufficiently. Problems can arise when naps signify symptoms for an otherwise unhealthy lifestyle or when they become a consistent, necessary stand-in for good sleep quality and adequate hours each night. Nonetheless, for those with young babies or swing/night shift jobs, sometimes the best Primal choice we can make is doing the best we can with the reality in front of us. Naps can be part of that effort.

Our Need for Sleep

People who say they sleep like a baby usually don't have one. ~Leo J. Burke

Of course the need for sleep [varies by individual](#). Though most of us fall into the pot of the seven-eight hour average, others of us genuinely can't get by without nine or ten. A few lucky ones among us hit our optimum with only six or so hours of shut eye. (These folks are honest to goodness mutants, as [science has confirmed](#).)

However, the majority of our sleep differentiation is determined by age. Babies, no surprises here, need the most (however patchy it is), while adults require the least. The notion that older adults need less sleep is actually hogwash. Although sleep patterns become more fragmented as we age, we still need the same good old average. Sleep still fosters critical hormonal secretion (like growth hormone) necessary for healthy aging. One study in particular [linked solid sleep with higher levels of testosterone in older men](#).

Children, however, are especially susceptible to the ravages of sleep deprivation. Sleep is essential for babies to learn and retain new information. Sleep deficits have been long been linked to an increased risk of ADHD, [depression](#) and [behavioral problems in children](#).

Getting Some Good Primal Sleep

*There is no hope for a civilization which starts each day to the sound of an alarm clock.
~Author Unknown*

In [Grok's](#) world, of course, [there were no alarms](#), no clocks, no trains to catch or appointments to make. Likewise, there were no lamps or computers, T.V.s, smart phones and all the other technological gadgetry that tests our circadian rhythm and tempts us to stay up instead of hit the sheets. Although Grok and his tribe didn't turn in the second the sun fell below the horizon, they undoubtedly slid into a hunkered down, lower key mode. On a typical night, the darkness – even with a central fire or bright moon – would've been enough to impose a quieter sense of consciousness. The stars, the flames would've been enough to inspire calm, maybe meditative stillness if not sleep. What would our experience of night be – how rested and composed might we feel – if we spent ten to twelve hours in relative darkness?

Although I suspect most of us have at least several hours to trudge through before we can call it a night, maybe some of you are already planning a clandestine nap this afternoon. (There's always our Primally approved plan for [selling your boss on the siesta idea](#)....) Looking forward to sleep is the first step to taking back bedtime, I'd say. Not only is it an essential investment for your health, it's one of life's best luxuries. You wake up looking better and feeling like a million bucks. How much better can it get? Now take the money you'll save on extra coffee and buy yourself a nice set of sheets or the pillow you've always wanted.

In the meantime, be sure to check out our past tips for a great night's rest!

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