

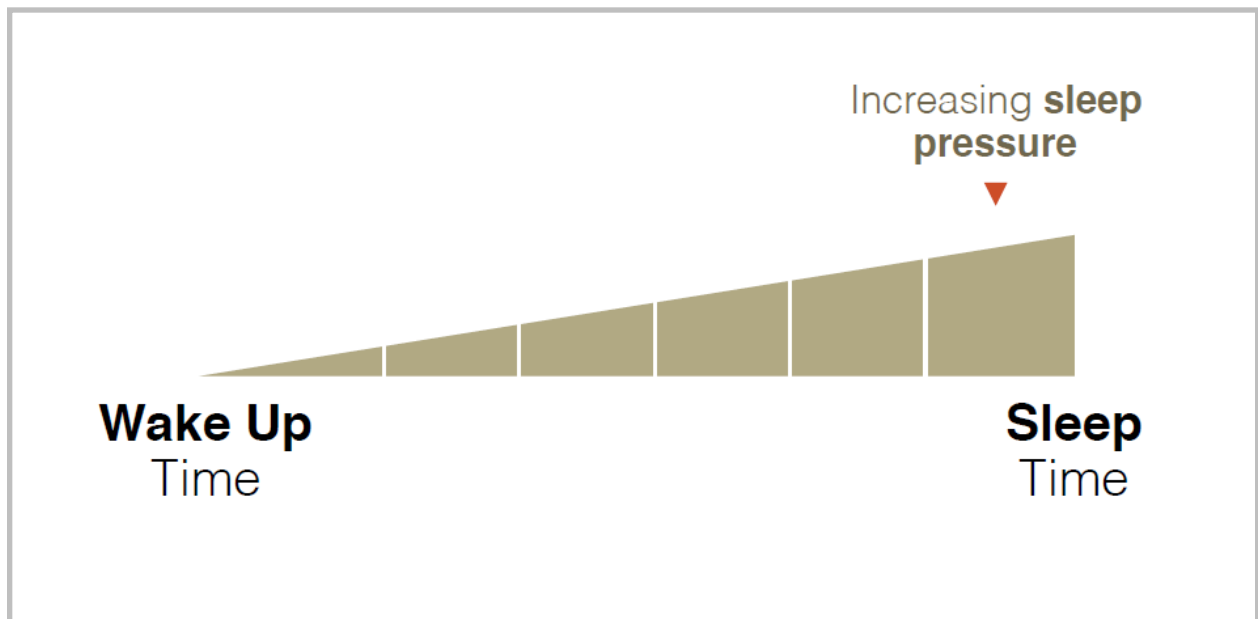
Sleep Recommendations

Hey, everybody. In this presentation, we're going to talk about the basic recommendations for sleep.

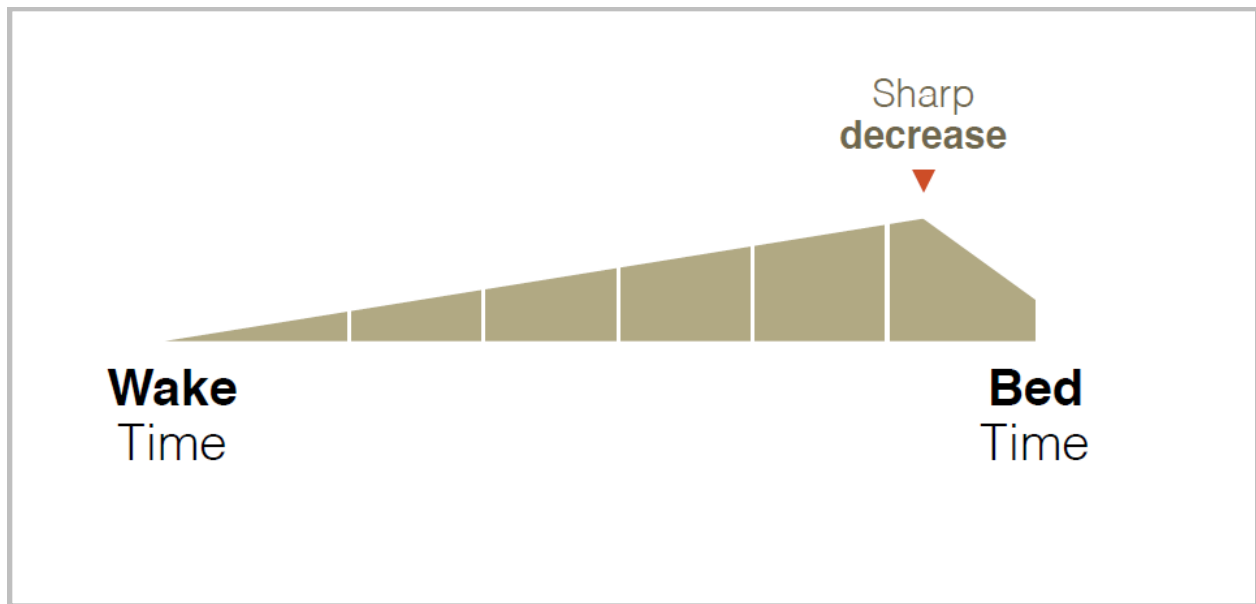
Sleep can be one of the most difficult lifestyle factors to change, and this is often due to the fact that people don't make time for sleep. This goes back to the attitude towards sleep, rest, and leisure in general in our culture, with sayings such as, "I'll sleep when I'm dead," or "The early bird gets the worm." You may need to educate your patients on the importance of sleep for both healing and disease prevention. Interviewing your patients, talking to them about what their sleep patterns are, and getting a really thorough history is really important to identifying potential issues with sleep and then making them a core part of the treatment plan.

Once you've convinced your patient that sleep is important, which may or may not be difficult depending on the patient, but fortunately there is a lot of research to support you in that endeavor, you'll need to help them determine how much sleep they need. The overwhelming majority of research suggests that most adults need seven to eight hours of sleep, but, of course, there are individual differences that can change this number either upwards or, less commonly, downwards. If someone is dealing with an active disease process, they may need a little bit more sleep. If someone is just one of those more rare people who needs less than seven hours to function properly, then they may need a little bit less.

I'm going to walk you through a process for determining individual sleep needs that was suggested to me by Dan Pardi, who is a sleep researcher at University of Leiden in the Netherlands and also at Stanford. This can be really helpful in determining what each person's hourly or nightly sleep need is.

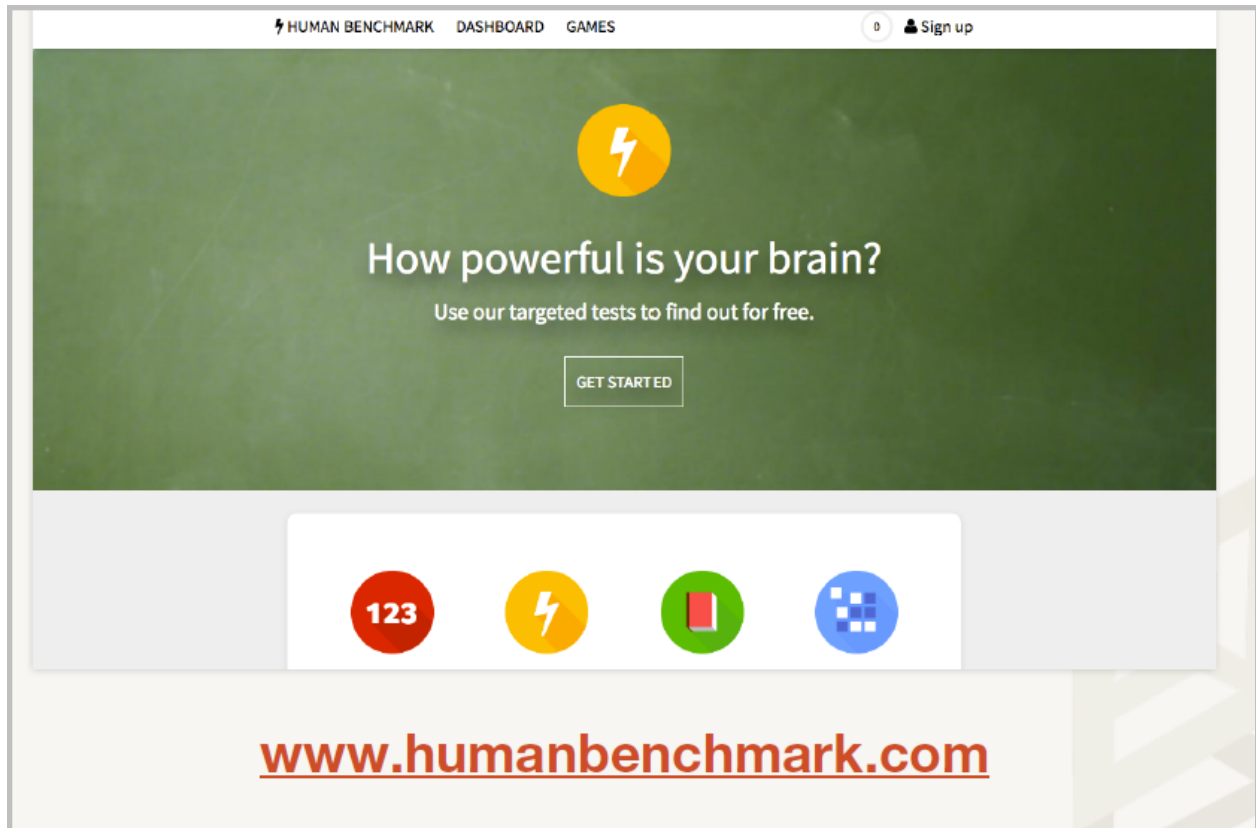


First, let's define the two concepts that determine how sleep cycles work. The first concept is called sleep pressure. From the moment you wake up in the morning, sleep pressure builds until you fall asleep, and sleep pressure is what helps you fall asleep and then stay asleep for the whole night. Overnight, sleep pressure decreases until you wake up, and you would then start the next day with low sleep pressure. However, if you get less sleep than you need, you start creating a sleep debt, which means that you would start each day with a higher amount of sleep pressure.



The other concept that drives our natural sleep-wake rhythm is called wake drive. Wake drive is essentially different brain systems working together to create a signal that counteracts sleep drive. As sleep pressure builds from morning to night, so does wake drive in order to counteract the effects of mounting sleep drive. Then, as your normal daily bedtime approaches, wake drive plummets, allowing sleep pressure to take over. Wake drive is controlled by a 24-hour rhythm, meaning that it tends to start whenever you tend to wake up each day and plummet near your usual bedtime. Wake drive responds to light exposure, which helps determine your usual wake-sleep cycle.

When sleep pressure and wake drive are well coordinated, they work as a perfect team and allow us to wake and sleep when we need to. However, when they're out of sync, for example, your wake drive is pushed a few hours later, it can cause day-long sleepiness and problems falling asleep or issues with poor sleep quality.



Dan Pardi's process for determining how much sleep you need is as follows. You'll need to get somewhere between seven and nine hours of sleep per night and just track your natural sleep habits for the first three days to see where you fall in that range. You should also get a baseline reaction time before you start this process from humanbenchmark.com. Do 20 tries each morning at the same time for the first three days of the experiment, and then average your scores, and that would be your baseline score. Then, for the next three weeks, add an extra half-hour or hour to what you are currently getting. During that initial three-day experiment, let's say you were getting seven-and-a-half hours of sleep per night. For the next three weeks, you would aim to get eight to eight-and-a-half hours of sleep per night. Give yourself extra time in bed so you're not rushed to fall asleep or wake up in the morning.

For the three weeks that you're giving yourself that extra time to sleep, you'll also need to pay close attention to your exposure to light. Light exposure is one of the determining factors of wake drive, so you need to give your body the right signals. Get at least 30 minutes of daylight exposure during the day, and the best time for this is right when you wake up, if it's already light out, or by using a bright light machine. Then reduce your exposure to artificial light at night. This includes dimming indoor lighting, avoiding electronic media use within two hours of bedtime, and/or using orange- or amber-tinted glasses to reduce blue light exposure or applications such as f.lux on your computer. Now most iOS and Android devices have a similar setting where you can reduce the amount of blue light that is emitted from those devices, and those are built in to the operating

system with the latest versions. You want to remove sources of light from your bedroom, such as alarm clocks and TVs, and use blackout shades and/or wear an eye mask when you sleep.

Beyond light exposure, physical activity also has an impact on the way we sleep, so those who get adequate exercise get better sleep than those who are sedentary. You can follow the physical activity recommendations we talked about in an earlier module for optimal sleep.

Of course, nutrition also plays a role. While some sleep better with a light dinner, others do better going to bed with at least something in their stomach, so eating a bedtime snack right before they go to sleep. In general, I've found with most patients it's best to go to bed neither too hungry nor too full. In terms of macronutrients, I've found that both very low-fat and very low-carb diets can also lead to insomnia. Carbs increase the ability of tryptophan, which is a precursor to serotonin and melatonin, to enter the pineal gland, so if a patient is on a low-carb diet and has trouble sleeping, increasing carbs can make a huge difference. Glycine also promotes the uptake of tryptophan and the production of serotonin and melatonin, so I encourage patients to eat nose-to-tail and make sure they are getting adequate glycine or can supplement with either gelatin or glycine at night.

Stimulants such as caffeine are probably one thing that almost every patient will come in knowing that it has some impact on sleep. However, you'll often hear them say, "Oh, I drink coffee, and it doesn't really affect my sleep." You shouldn't necessarily take that at face value because it's difficult to actually determine if coffee affects sleep unless you've completely eliminated it from your routine for at least 30 days. Two weeks may be the minimal. Thirty days is optimal, but many people drink caffeine and don't feel immediately affected by it. In other words, they don't get jitters or anxiety right after they drink it in the morning, but it can still interfere with sleep. I'm actually one of those people. I can drink caffeine, a cup of coffee in the morning, and just feel alert and good, but if I drink coffee every morning, I will notice that my sleep quality will start to degrade. I won't have trouble falling asleep, but I'll wake up in the night, and I won't sleep as well. A lot of people don't really make this connection because they had the coffee in the morning. They have no trouble falling asleep, but they are not sleeping well through the night, and they just don't tie those two things together. Coffee, like other drugs, it takes a while to withdraw from it, and sometimes patients should titrate off it, so that's why 30 days is usually a safer period. It can take a week or 10 days or two weeks to really titrate off it, and then spend a good two solid weeks without any caffeine at all. They may be surprised to find that caffeine and coffee were affecting their sleep.

Alcohol can also have a significant impact on sleep, so, again, if a patient is having sleep issues, encourage them to decrease or eliminate alcohol for a period of time, such as two weeks to four weeks, to see how that affects their sleep.

Of course, stress has an enormous impact on how we sleep, and we're going to be talking about stress management in another module, so I won't reiterate it here, but I can't overstate how

important it is to look at stress management for anybody with sleep issues. We're going to talk about various stress management techniques that can be particularly useful for sleep in that module.

Finally, it's really important to make sure that the bedroom is conducive to good sleep, so this means keeping it as dark as possible with blackout curtains and an eye mask if necessary like we talked about before. It also means creating a pleasant and relaxing environment, controlling the temperature. Slightly cool is usually best. Most human beings sleep better in a slightly cool environment. Also create a nice ambience. Avoid emotionally upsetting conversations or activities whenever possible in the bedroom. Again, keep electronics out of the bedroom. Not only are they a source of light, but they are a distraction. This is increasingly a problem for adults but especially for teenagers and college-aged students. Something like 60 percent of college-aged students in one study admitted to sending text messages in the middle of the night. If they get a text from a friend, they'll actually wake up, pick up their phone, and respond to it. I don't think we need any studies to tell us that that's really bad for sleep. Keeping a phone and other electronics out of the bedroom and, really ideally, bedrooms should just be used for sleep and sex and not much else. Even reading before bed can, in some cases, be stimulating and interfere with sleep, although for other people, that actually helps them to fall asleep. Of course, there is some individual variation here, but you want to at least have these discussions with your patients and make them aware.

After sleeping longer and implementing all the sleep tips we just talked about for three weeks, most people will notice that they feel better. They'll feel more alert. They'll fall asleep more easily and stay asleep throughout the night. They can retest their reaction time at humanbenchmark to compare and see if adding that half-hour or hour of extra sleep improved their reaction time in addition to improving their subjective sense of well-being.

Okay, that's it for now. Thanks for watching. In the next presentation, we're going to dive into stress management. Talk to you then.