

BioBites: Sleep

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Sleep Health: Overview

Sleep and fatigue. One of the most common health conditions mentioned by patients is fatigue or the need for quality sleep. Though sleep most often happens at night, it's important to look at sleep cycles as 24-hour cycles. The circadian rhythm is like a series of physiological dominoes that need to be checked off so that your body can get to the next position; if there are interruptions during the day with this rhythm, there'll likely be interruptions at night. When sleep is disrupted, we must consider what is happening within the full 24-hour frame that may be affecting our body's natural sleep progression.

How much sleep? How much sleep we require is related to growth/regenerative needs. We think of growth as stopping as we reach a certain height, but that's not quite true. The body's physiology continues to develop even though we may not be growing in height. The moral of the story: we generally need less sleep as we age, so that the average adult will require between 7-9 hours of sleep per night.

Function of Sleep. When we sleep, our goal is to get to the deepest level we can, moving through four levels and working towards REM sleep. When in REM, we enter into the 82% of our brain that is subconscious. In REM sleep, the body is allowed its greatest opportunity to regenerate. Physiological functions slow down or cease; this allows the brain and body to heal. Learning processes - consolidating, or translating learning to the brain's 'mainframe' - take place when we are in the deepest levels of sleep.

When sleep is disrupted, doctors can give chicklets of medication; but these only sedate, they don't fix the problem.

Good sleep cycles. Sleep is a good day; good sleep starts in the day time. Our goal should be to tick through the physiological dominoes of our day to position our body to enter sleep, as it is biologically primed to do.

One of the most significant disruptors to good sleep patterns stems from technological devices. As Dr. Drobot says, using our phones and other devices at night is the second-hand smoke of this generation. We are often using these devices in the evening, which interferes with our body's expectation for dark and other natural cues for sleep (including melatonin production, which begins at 9:00pm).

The body operates in a rhythm. Different organs take the stage at different times of the day. When our habits support natural rhythms, we are more likely to enjoy sound sleep. When our habits create disruption to those rhythms, our sleep is likely to be disrupted. If the liver needs support to detoxify, for instance, it may cause us to wake and move about to aid its function.

Moon cycles also affect sleep. Studies show people will generally sleep less based on gravitational pull/what the moon is doing before a full moon. From an evolutionary perspective, the body was triggered around a full moon because there was more light available for food-finding.

We have a monthly circadian rhythm that happens with moon cycles and a daily rhythm that happens with hormones.

When should I go to bed? Melatonin starts about 9:00pm and helps the body prepare for sleep. Melatonin encourages you to lay down and conk out; cortisol is a stress hormone that makes you wakeful, alert, stressed. In a healthy state, these hormones are 'peaking' in the body at opposite intervals.

If you've had a stressful day, you may not get the melatonin production you need for a restful night. If you've had a restful day, then you can sustain low cortisol levels at night, increasing early in the morning.

Sleep Remedies. Sleep is about balance and cycles. Much disruption to sleep is the result of imbalance in the hormones (melatonin, cortisol) or nervous system. The BioMed Center and ACBM can perform assessments to see if sleep issues are reflective of hormonal imbalances or nervous system imbalance. Correct what you need to correct; don't try to suppress or overdo it. If we can create balance in the hormonal system and nervous system, we can restore rhythm to the body's cycles.

Somno-Pro is a melatonin-based sleep supplement. This can be effective if we're not producing enough melatonin. And there needn't be fear of altering the body's melatonin-producing potential; taking melatonin as a supplement doesn't suppress the body's production of melatonin.

Wired but tired? This may point to a nervous system imbalance. Some products help the nervous system calm down at night, similar to Ambien or Lunesta. These work off of GABA (opposite of adrenaline), a sedating neurotransmitter. Ambien and Lunesta keep GABA around for longer periods of time, while you can also take different amino acids to heighten GABA. Sleep Guard is a product which heightens GABA (non-pharmaceutical).

If melatonin makes you agitated, this is a signal that you may have a nervous system imbalance and need support for that system rather than try to stimulate melatonin production to support sleep.

Cortisol Manager is a product that helps regulate cortisol, which can also disrupt sleep. Food sensitivities, chronic infections, stress can all create a situation where the body is producing a lot of cortisol during the day, which makes it difficult to suppress this at night. Cortisol Manager taken during the day can help moderate cortisol levels.



There are also technologies that can help train the body to do what it is designed to do; provide references that support quality sleep progression.

Lumilights are light technologies that deliver light frequencies to the body that encourage the nervous system to shift from stress to relaxation.

NuCalm is another system that helps place the brain into a restorative state. NuCalm tells the body to get in this state, and our central nervous system is able to get into the desired rhythm.

Dodow is a little light; it doesn't disrupt sleep or rhythms. The light is projected onto the ceiling and can be used to train the body to relax, in coordination with breathing.

ChiliPAD cools the body off and supports the body getting into deepest restorative sleep. Sleeping on cool things, cools body temperature down - a key trigger point in our circadian rhythm.

Earth Pulse technologies deliver electromagnetic frequencies that emulate the Earth's own low-low frequencies. This helps the body tune into its natural rhythms to promote quality sleep.

Q&A Synopsis

I tried melatonin and this produced a negative reaction. Why is this? If the body is experiencing high levels of cortisol and you take melatonin, it can produce a negative result. When you try to suppress your body by handcuffing it with melatonin, the body may say "I'm not comfortable with that". Sleep Guard, which addresses cortisol, may be a better route.

Can your melatonin be measured? Does it vary from day to day? It does vary day to day along with the moon cycle. Dutch Test measures melatonin, and measuring this is recommended so that we know whether supplementation is recommended. About 85% of the time, sleep disorders are nervous system-based; 15% melatonin-based.

Is white noise soothing to fall asleep to? Does it help? It's soothing because it's distracting. Pink noise is even better because it's more of a bass in the tones of the frequencies. The best pink noise machine was mom's belly - some of the best tones include heart beats, waterfalls. Use pink noise machines because these emulate natural frequencies. These create deeper sleep and are more biologically friendly.

Have any studies been done on intermittent fasting and sleep? Real intermittent fasting is fasting at night, which aligns with our evolutionary biology. Europeans put their biggest meals from 1-3pm, which is reflective of this premise. The liver is most active from 1-3am. If you want to do intermittent fasting, eat breakfast, your biggest meal in the middle of the day, and your lightest meal at dinner to reduce the load on your metabolism. It's ideal to have the least amount of food in your belly at night so that your body spends its night-time energy on the body, not on processing food.

What happens with long-term use of sleep aids like Ambien and Lunesta? Studies show that interrupting the long-term brain chemistry is probably not a good idea. Even the producers do not suggest these are for long-term use. New studies say things like dementia, Alzheimer's are more of a risk when we tamper with the sleep cycles. If you use these, it's important to try to limit these to short-term use.

What about using medical marijuana or CBD for sleep? Putting the brain into sleep with chemicals is a short-term solution. You can do a lot of 'natural' things to put the body into sleep; but it's still medicated sleep. The question to ask: what is the issue that explains why we can't get the body into a natural rhythm that supports sleep?

How do Wifi and EMFs affect sleep? Wifi has a different frequency. We are supposed to have natural earth frequencies, which are quite low. We are electrical machines; and the earth interacts with our bodies to induce certain frequencies. Acupuncture and homeopathy are used to induce certain frequencies to our body. Wifi and EMFs emit frequencies that we can't perceive that nonetheless irritate our nervous systems. If you can, you're supposed to turn your Wifi off. The best sleep machine is black noise, no noise - no frequencies coming at the body. You cannot negate Wifi - it's everywhere, but you can try to change it. Earth Pulse technologies deliver the earth's frequencies to the body. Battery-driven or plug-based technologies are preferable to app-based or Wifi technologies.

Does phosphatidylserine help manage cortisol levels? Phosphatidylserine is one of the main ingredients used to balance cortisol during the day. It is a wonderful substance that can lower cortisol production at night. Cortisol Manager uses phosphatidylserine to keep cortisol around a little longer so you don't have to produce higher levels.

Can brain-controlled sleep habits (like waking, going to sleep) be changed? One of my favorite treatments for the nervous system is neurofeedback. All of the patterns and frequencies in the brain can be re-written, adapted. Neurofeedback is one of those long-term treatments that creates magic for people. Personalities are created 0-7; sometimes we have to go back and strengthen some parts of the nervous system. If we change the way the day operates in the day, we'll also change the night.

Can blood pressure be controlled by sleep habits? Yes, this is based on cortisol. Blood pressure is a symptom; blood pressure is your body's reaction to its environment. If you're not sleeping during the night or if you have high adrenaline during the evening, you're going to have elevated blood pressure during the day.

Are there breathing exercises that help with sleep, like the 4/7/8 technique? Yes, breathing techniques can be used to induce a physiological meditation. When you do these breathing techniques, you're helping your heart rate calm down and you want to get the diaphragm moving. Diaphragms are big muscles; when your diaphragm goes up and down, it's cuing the body to activate the parasympathetic state, which is the state of sleep.

Many sleep technologies claim to track sleep habits; are these reliable? They can give you numbers which are based on frequencies. This is heart rate variability. The frequencies that come off your body when they're the deeper frequencies of sleep are relayed to the device as numbers, which are then tracked to different stages of rest or sleep. These devices can tell you if your system is agitated or if you're relaxed, and then indirectly if you're sleeping, based on frequencies.

Can you take phosphatidylserine if you have a soy allergy? Phosphatidylserine is different from soy, though it's often extracted from soy. It's a natural substance that's mostly amino acids (fats); the allergy comes typically from soy protein. If you have an anaphylactic reaction to anything, including soy, you should stay away to be safe.

What are your thoughts on Earthing mats? These devices are great because they emulate the earth's frequencies. This provides a signal to the nervous system that tells your body it's time to "knock the next domino down" or proceed to another stage in its natural rhythms.

Can a too-low heart rate or too-low blood pressure affect sleep? How does one fix this? A too-low anything (blood pressure, blood sugar, heart rate) will affect sleep. This suggests there's some sort of imbalance or other problem within the body. Look at your hormones during the day, these can be a cause of what's happening at night.

I know I shouldn't eat around 8 or 9pm, but I can't help it! Any recommendations for nibbling? They say lean turkey breast is a good solution because it contains a little bit of tryptophan. The goal if you're going to eat at this time is to try to put the smallest load on the body, as possible. High-fat or high-sugar food items are going to induce the liver and gall bladder into action. Avoid salad; this contains a bunch of fiber which is work for the body at night.

Am I getting quality sleep even if I'm having vivid dreams and remembering them? No. If you're having vivid dreams and remembering them, it's a sign your body is trying to solve a problem. You're not supposed to consciously still be in your body at night. Most of us get into this weird no-man's land because we can't get comfortable enough to take a break from ourselves.

What is a good way to combat adrenal deficiency or excess at night? The day determines that night. When you have lots of inflammation during the day or your body's fighting infection constantly, the body's not able to cool down at night. When we're not strong enough to fight infection off, the body isn't able to get adequate sleep. Cortisol manager can help manage cortisol. External heat sources can also support the body's own infection-fighting systems: a sauna, for example, can help burn some of this stuff up during the day so your body doesn't have to do this all during the night.