Circadian Wisdom

An Ayurvedic Guide to Living in Nature's Rhythms

Dr. John Douillard, DC, CAP

Published by LifeSpa Products,™ LLC
United States of America

John Douillard's
LifeSpa™

Proving Ancient Wisdom with Modern Science

6662 Gunpark Drive E, Suite 102
Boulder, CO 80301
(303) 516 – 4848
lifespa.com | **info@lifespa.com**

Table of Contents

Medical Disclaimer

All material provided from LifeSpa for the *Circadian Wisdom eBook* is provided for informational or educational purposes only. Speak with your medical doctor regarding the applicability of any opinions or recommendations with respect to your symptoms or medical condition. The instructions and advice presented from LifeSpa for the *Circadian Wisdom eBook* are in no way intended as medical advice or as a substitute for medical counseling. The information should be used in conjunction with the guidance and care of your physician.

Introduction

Circadian rhythms are the unique forces in nature created by daily and seasonal light-dark cycles. Every living thing has evolved to react to these rhythms by turning on and off biological clocks in every cell of the body. For plants, the cycles trigger the opening of petals and the peak of their nutritional potency (midday). Some animals, like bats, have evolved to turn on the biological clocks of digestion and hunger hormones at night, as they consume thousands of mosquitoes. Humans evolved to eat during the day and sleep at night, to give our species the best chance of survival in a changing world.

Three billion years ago, the molecule *melatonin* was assembled in nature's laboratory and became the key to survival for all living organisms. Melatonin became the survival link between light-dark cycles and all living organisms. For early life forms to survive, knowing an austere winter was coming turned on biological clocks to gorge on fats and carbohydrates in the fall to store as fuel and insulation. In a similar way, we still today prepare for the darkness each night: eating by day, storing fuel for the night.

In 1885, at the Chicago World's Fair, humans entered a new world—one that was lit by night and soon to be heated and cooled by season. Biological clocks would soon need to be reset to keep up with a world endlessly trying to insulate humanity from the circadian rhythms that took them so far. Then, in 1962, the first LED light was invented, leading to another, more targeted, assault on our circadian-based biological clocks. LED lights emit blue light, rather that the orange hue of an incandescent bulb. Blue light handcuffs the pineal gland from making melatonin and shields the body from receiving and reacting to light-dark cycles. Orange-hued light, like a fire, candle, or original light bulb, is absorbed

by the brain's circadian master switch in the suprachiasmatic nuclei and, even though it severely reduces melatonin production at night, it does not totally block melatonin production, as an LED light does.

Today, TV sets and LED screens have created such an imbalance in the natural regulation of our biological clocks that studies on circadian rhythms won the Nobel Prize. Soon, experts predict a medical specialty called *circadian medicine* will help folks reset their circadian and biological clocks and begin to live in harmony with nature once again.

Well, that medical specialty already exists! It was developed 4-5,000 years ago and is called Ayurveda. Ayurveda 101 is the study of nature and how humans must live in sync with natural rhythms in order to survive. This eBook on circadian medicine is rich with new science that backs the ancient circadian wisdom of Ayurveda.

When we live flowing downstream with the natural circadian rhythms of nature, life is easy and effortless. Merrily down the circadian stream!

Be Well,

Dr. John Douillard, DC, CAP

DAILY CYCLES

•1•

We Are Circadian Beings —Let's Act Like Them

Do you ever notice you feel differently in summer and winter? You crave different foods, have different sleeping patterns, or experience different moods? Well, we are circadian beings, which means our ability to survive and thrive as a species depends on our connection to the nature's rhythms.

We now know, from the last remaining hunter-gatherer tribe, the Hadza, that our gut microbes are designed to change from one season to the next.[1] We know microbes in the soil change seasonally and they have interdependent relationships with plants and microbes in our guts.[2,3]

Furthermore, we know carbohydrate-digesting microbes (*Bacteroidetes*) flourish in summer, when more complex carbohydrates are harvested, and fat-eating microbes (*Actinobacteria*) flourish in winter, when a higher-fat, higher-protein diet is available. Clearly, science points us in the direction of seasonal eating as a primary tool to stay in circadian rhythm.[4]

Emerging studies find digestive efficiency, in particular digestive enzymes, changes with the seasons.[5] Both starch-digesting amylase and the digestion-promoting parasympathetic nervous system increase as temperatures cool in fall and winter.[6]

Of course, due to the fall harvest of starches and grains, it makes sense that we produce more amylase. Ayurveda says digestive strength is stronger during

winter, which would be necessary to break down heavy and dense foods: think nuts, tubers, and meats.

It also makes sense that the rest-and-digest parasympathetic nervous system increases during colder months, when we need warmth and a stronger digestive fire.[6]

Another difference is that receptors for neurotransmitters like serotonin, dopamine, and brain-derived neurotrophic factors (BDNF) are more receptive in light-filled summer months and much less receptive in darker winter months. This explains why we see more mood-related concerns and depression during winter.[7]

Nature's biohack for this is to harvest roots in fall to boost BDNF, serotonin, and dopamine receptor activity: herbs like ashwagandha, bacopa, and turmeric, as well as foods like fish oils.

Learn more about these herbs here.

Studies in both animals and humans show increased microbial diversity in the gut during winter and spring, with much less in summer and fall.[7] Opportunistic harmful bacteria also increase in winter and spring, so we need our immune strength most. Greater microbial diversity has been associated with greater health and immunity, which is much needed during cold winter and wet spring.[4,6,7]

Melatonin levels surge in winter, when daylight is less. This acts as a natural birth control agent for mammals. Conceiving in winter would render the baby premature to handle the cold the next winter. Melatonin is also the body's most powerful immune-boosting, detox and repair molecule, all of which we need more of during darker winter months.[8,9,10]

How Delicate Are Your Circadian Rhythms?

In a recent study, gut bacteria in two groups of mice were measured during normal exposure to light-dark cycles for two days.[2] One group was healthy and the other had their circadian clock disabled to mimic jetlag.

The group with the disabled circadian clock saw disturbed gut bacteria function. Most notable was that normal feeding signals governed by gut bacteria were masked, so those mice ate incessantly during the two-day trial.

In fact, loss of circadian rhythms altered their microbiome so it became very similar to that of mice and humans with high blood sugar and obesity.[10]

The same study also compared the microbiomes of a small group of humans. One group flew cross-continentally and the other stayed in the same time zone. The group who flew overseas had microbiome changes similar to mice with disabled circadian clocks.

Jet-lagged humans have microbiological changes that put them at higher risk for obesity and type 2 diabetes.[10]

According to Ayurveda, living in sync with natural circadian rhythms is key to health and longevity. So don't be surprised if you feel changes with travel or the seasons, and take care of yourself as best you can!

Tips for Circadian Living

1. Eat whole, organic, unprocessed seasonal food. Get my free seasonal eating guide here.
2. Relax when you eat.
3. Get to bed early.
4. Exercise daily.
5. Follow the Ayurvedic Clock.

•1•

Shape your Day the Ayurvedic Circadian Way

The Ayurvedic Circadian Longevity Lifestyle

- Imagine finishing your day with the same energy you started your day with . . .
- Imagine going through your day without craving sweets, coffee, or chips . . .
- Imagine waking up early, without an alarm, refreshed and ready to go . . .
- Imagine feeling like life is not a struggle—like the wind is at your back and you are floating joyfully downstream on the river of life!
- Imagine feeling healthier instead of older with each passing year . . .

These are not pipe dreams; they are the reality of living with awareness in connection with the cycles of nature—the benefits of syncing up with nature's circadian rhythms are well supported by the new science of circadian medicine.[1]

Circadian Medicine according to Ancient Wisdom

In nature, according to Ayurveda and similar principles in Traditional Chinese Medicine, there are two 12-hour cycles, divided into three smaller cycles. Each

four-hour cycle is linked to certain bodily functions governed by one of the following:

- *Vata* (air element, increases in winter): controls nervous system
- *Pitta* (fire element, increases in summer): controls digestion and metabolism
- *Kapha* (earth-water element, increases in spring): controls immunity and structural strength

According to Ayurveda, the daily lifestyle flow that syncs the body with nature's rhythms is also backed by circadian science,[1] and is as follows:

First 12 Hours of the Day: 6am–6pm

Note: Imagine 6am is sunrise and 6pm is sunset.

- **6am-10am**: After sunrise, kapha increases, corresponding to the earth and water elements and the season of spring. Spring is a time where the earth holds more water, it is a muddy, heavy, congestive time of year. The morning is a heavy time of day. Can you recall the feeling of being stiff, heavy, and dull when you sleep in too late? This is an example of the heavy qualities of nature increasing during the morning hours.

On the flip side, if you're up before sunrise, you can avoid morning stiffness, making morning the best time for exercise and physical labor. The heavier stiff qualities experienced when you sleep in can provide structural strength to

physical labor and exercise. Nature made sure we had strength for manual labor before the noon-day heat. One study shows morning exercise actually lowers stress hormones, which may be why so many folks like exercising in the morning. It makes the whole day feel better.[2]

This is also the time to eat at a good-sized breakfast, as it not only provides you a good source of fuel for the day, but studies find eating a healthy-sized breakfast helps reduce obesity and disease.[3-6]

- **10am-2pm**: Pitta increases, corresponding to the fire element and the seasons of late spring into summer. This is the best time to relax and eat the biggest meal of the day because digestive fire is at its strongest, hottest, and brightest, just like the sun overhead.[7] Eating earlier in the day, including a good breakfast and lunch, has been linked to numerous health benefits, including reduced cholesterol and stress.[4] Not only that, but the nutrient blueprint of the vegetables we eat has been found to be most potent at noon: a perfect nutritional gift from nature.[8,9]

Wait, think about that for a second. Two studies found that vegetables, even after harvesting, increased in nutrient potency at noon, when our digestive strength is highest. Fascinating studies like these make it much harder to ignore the fact that we are intimately connected to the circadian cycles of nature. Also, noon-ish is the best time to digest hard-to-digest foods, like wheat and dairy.

If you skip lunch, like many people do, the circadian digestive clock still goes off. Hydrochloric acid (*agni*) in the stomach is still produced and, if there is no food to digest, this can predispose the stomach to acid irritation and inflammation down the road. This is the one meal you do not want to miss.

- **2pm-6pm**: Vata increases, corresponding to the air and ether elements and winter. This is the best time for mental and creative energy, as the nervous system is more active. Craving sweets at this time indicates exhaustion, blood sugar issues, poor digestion, or that you didn't eat a sufficient lunch. This is the best time for a light supper, as heavy suppers do not digest well.[10]

Ask yourself how you feel during these hours. If you are nibbling on dark chocolate, ordering a latte, or ready for a nap, this is an indicator your blood sugar may be crashing. Many people skip lunch because they are afraid they will fall asleep in the afternoon. If you eat a meal and feel the need to pass out, you clearly are not digesting your food well enough. So, instead of injecting yourself with caffeine, sugar, or chips, let's fix the underlying issue in your digestive system.

When the digestive system is optimal, you will feel energized from a large, relaxing, well-prepared meal—not comatose.

Second 12 Hours of the Day: 6pm–6am

Note: The cycles repeat, but with different effects.

- **6pm-10pm**: Kapha increases again. This time, the heaviness is not for physical labor, but rather to settle the body and mind in preparation for sleep. This is the time when cortisol (the stress-handling hormone) drops.[11] Sleepy-time, here she comes!

In the West, this is the time most people sit down to eat the largest meal of the

day. According to the circadian clock, the kitchen closes at sunset. According to science and thousands of years of tradition around the world, we should eat a big breakfast, a big lunch, and a light early supper. While it may be difficult for everyone to stop and make lunch the biggest meal of the day, more and more of my patients report that they really dread eating a heavy late supper.

Personally, we have six kids. My wife and I almost always have a big lunch together . . . it's our time. Then, in the evening, we all sit down for a family meal, but because we are both still quite full from lunch, neither of us prefers a big dinner. So, while the kids are chowing down, we have a light supper and very important family time. It works great!

- **10pm-2am**: Pitta increases again. Many folks get a second wind during this time of night. It is common to be sleepy at 8 or 9pm (in the kapha time of night), but by 10, you feel ready to go until 2am. It is pitta time, and we can get all fired up! This, however, is not the best time to change the world on your computer; it is actually the best time to be asleep. During these hours, the liver goes into detoxification mode in an attempt to prepare the body for the next day.[12,13] If you are up late regularly, you will disturb this circadian rhythm and the liver will not be able to effectively detoxify you.

It is much like a janitor coming into your office to wash floors and clean windows. The janitor notices you just finished a steak dinner at 9pm and you just started watching a movie at 10. The janitor simply cannot do their job and decides to call it a night and try again tomorrow. Disturbing this cycle for years on end can lead to the inability to detoxify, liver and gallbladder congestion, and a compromised ability to digest.

- **2am-6am**: Vata increases again. This is a very important part of the sleep cycle. This is the time when the brain drain toxins into microscopic lymph vessels. Many people find it difficult to sleep during these hours. The sense is that they have too much energy, but the reality is most sleep concerns are a result of chronic exhaustion: too little energy, not too much. The nervous system actually needs energy to sedate itself and fall asleep. In Ayurvedic practice, we never give sedatives for sleep. We give deep rejuvenation herbs to help rebuild the nervous system so it can reconnect with circadian rhythms.

This is the best time to sleep deeply and naturally, waking up before sunrise.[14-16] In traditional cultures, sunrise was when you started the day, but predawn was reserved for bathing, yoga, meditation, and prayer. Work didn't start until after sunrise. The best way to be able to get up before sunrise is to regularly go to bed before 10pm.

When to Sleep

Imagine you went to bed tonight at midnight and woke up tomorrow at 10am. How would you feel? In my seminars, when I ask this question, most folks (barring teenagers) say they would feel stiff, groggy, and as if they slept too much.

Imagine the next night, you went to bed at 8pm and woke up at 6am. How would you feel in comparison? Most folks say without hesitation that they would feel more rested, alert, awake, flexible, and as if they got a great night's sleep.

Surprisingly, both night's sleep were 10 hours. How you feel from these two different night's sleep is not about how much sleep you got; it's all about *when* you got it. This is an example of the difference between living in sync with circadian cycles or going against them.

Living in sync with circadian rhythms is the foundation of Ayurveda. Living a lifestyle downstream with these powerful cycles is what makes life flow. It's why birds fly south and whales migrate. These are the rhythms of life forgotten by a culture too distracted to appreciate the rewards of a life in sync with, rather than in spite of, nature.

This article is excerpted from Dr. John's latest book, *Eat Wheat*.

•3•

Ayurvedic Daily Routine (Dinacharya)

The most recent Circadian Medicine research suggests human genes have lost the ability to perceive and stay in tune with nature's circadian rhythms.[1-3]

In our high-tech, fast-paced world, with endless distraction and entertainment, more and more of us are becoming disconnected. Circadian disruptors, like jet-lag, artificial and blue light, and shift/night work, disconnect our physiological needs from environmental cues.

Scientists are only now beginning to understand exactly how important it is for the body to stay connected to nature's rhythms. Disconnect from circadian rhythms is called *chronodisruption*.

Chronodisruption is linked to a host of health concerns, including poor cognitive function, mood disorders, sleep disorders, diabetes, obesity, daytime sleepiness, reduced school performance, reduced driving reaction time, substance abuse, heart disease, and some cancers.[10,11]

While Ayurveda has emphasized the importance of a connection with nature for millennia, it was nice to read in a recent issue of Scientific American that Circadian Medicine "may revolutionize medicine as we know it."[2]

In fact, three researchers who discovered the molecular mechanisms that control circadian rhythms were awarded the Nobel Prize in Medicine in 2017.[7] Soon, we can expect to see medical doctors who specialize in Circadian Medicine. But why wait? Just find a qualified Ayurvedic practitioner!

In this article, I share the Ayurvedic daily routine designed to maintain and reconnect us to natural circadian rhythms. In Ayurveda, a daily ritual of self-care is called *dinacharya*.

I have written full articles and eBooks dedicated to most components of this routine, so if you are curious about the benefits of a certain technique, check out the articles and the science behind it (click the links in the bullet points below) and see if it fits for you.

This daily routine can become very elaborate, so I have listed the basics (**marked with an asterisk***), along with the optional components.

Morning Dinacharya

- Arise early in the morning, preferably before sunrise.*
- Drink a large glass of warm water: with lemon out of a copper cup is ideal.*
- Wash your face.*
- Scrape your tongue with a tongue scraper which stimulates digestion and elimination, preferably a copper scraper.*
- Brush your teeth with natural tooth powder or paste.*
- Evacuate bowels and bladder, ideally within the first hour of waking.*
- Do 10-15 minutes of morning yoga and/or 15-30 minute brisk walk or exercise while performing nasal breathing: see my nose breathing workout

articles and videos.*

• 5-10 minutes of breathing exercise (pranayama).

• 5-15 minute meditation or sit in silence: see my One-Minute Mediation or TAT: Transformation Awareness Technique Meditation eCourse.*

• Shower or bathe.*

• Perform oil pulling: swish herbalized coconut or sesame oil in your mouth for 10-15 minutes while showering.

• Enjoy abhyanga (self-massage using oil): best with our Lymphatic Massage Oil or Tri-Doshic Massage Oil—this can also be done in shower.*

• Breakfast: eat a small amount, but make it big enough to get you through to lunch without needing a snack. Quantity may vary based on body type.*

Midday Dinacharya

• Lunch: relax and make it the largest meal of the day. Do not snack until dinner.*

• Brief rest on the left side and light walking (10 to 15 minutes) after lunch to facilitate digestion.

Evening Dinacharya

• Supper: the lighter and earlier, the better.*

• Evening yoga, breathing exercise, and meditation.

• Go to bed by 10pm.*

From an Ayurvedic perspective, following this dinacharya will reconnect you with nature's rhythms.[5]

For instance, exercising is most optimal in the morning, between 6am and 10am,[9] when the body is in its kapha phase and at its strongest physically.

Eating the largest meal of the day at lunchtime aligns with the pitta time of day, from 10am until 2pm, when digestive fire is strongest.[8]

Between 2pm and 6pm, vata time of day, the nervous system is most active, so it is beneficial during this time to do calming, centering activities such as mental work and meditation.[5]

To experience a complete Ayurvedic lifestyle, try our 28-Day Ayurveda Challenge,[6] an eCourse where you receive a new Ayurvedic challenge each day for 28 days, including articles, tips, and videos—a program that has the power to renovate your life and enrich your health and vitality.

How do *you* incorporate practices from dinacharya into your life?

•4•

Astonishing Mind-Body Benefits of Vitamin D

Seasonal Vitamin D

Do you know how to optimize your vitamin D levels for every season?

A growing body of knowledge shows that, at optimized levels, vitamin D functions as a hormone, rather than a vitamin, with numerous notable effects on the body.

Vitamin D Supports

- Healthy immunity
- Healthy mood
- Targeted support for over 2,000 genes
- Healthy bone formation
- Healthy glucose metabolism
- Musculoskeletal comfort
- Heart health
- Healthy skin

Many experts consider the benefits of vitamin D to be one of the most important health discoveries of the past 100 years. In this article, I share new research on vitamin D deficiency—which affects 87% of Americans—and walk you through how to safely increase your levels.

History of Vitamin D Deficiency

Vitamin D deficiency, causing devastating bone-softening effects, was reported as far back as the 1600s. Originally treated with cod liver oil in the 1800s, it wasn't until the 1930s that vitamin D deficiency was discovered as the cause.

Though called *vitamin D*, it is not really a vitamin, but a hormone. In fact, at optimized levels in the blood, the active form, known as calcitriol, is now understood as the most potent secosteroid hormone in the human body. At optimal levels, its effects may extend far beyond bone support, showing responsibility for many health-promoting processes in the body.

Vitamin D Overflow

About ten years ago, researchers discovered **people in climates where natural sun exposure is greatest experience greater longevity.** In northern climates, studies show up to 61% of Americans are vitamin D deficient, going up to 87% in winter months![1,2]

For the past 80 years, it was believed vitamin D was only important for regulating calcium and protecting bones. At levels below 45-50 ng/ml, this is vitamin D's main role. However, new research reported by the Vitamin D Council shows

higher levels of vitamin D may have a much greater role to play. For example, when vitamin D3 levels are between 50-80 ng/ml, excess calcitriol (secosteroid hormone form of vitamin D) heads towards the cells (not the bones), where it targets over 2,000 genes (about 10% of the human genome).

This overflow of calcitriol has created a worldwide stir about the pervasive role of optimized vitamin D. At lower levels of sun exposure and vitamin D, this overflow simply doesn't happen. The role of excess calcitriol in the cells is only now being understood.

No Sun = No Fun

During summer months, UVB rays are strongest between 10am-2pm. For most people, 10-15 minutes of direct sunlight on unprotected skin during these hours will be enough to manufacture ~10,000-20,000 IU of vitamin D3. Get just enough sun to turn your skin slightly pink. Darker-skinned people will need more sun to optimize vitamin D levels.

How Your Body Uses Vitamin D_3

From the skin, vitamin D_3 (cholecalciferol) heads to the liver, where it is converted to **calcidiol** (25 hydroxyvitamin D). This is the form that circulates in the blood and is most accurately measured on a blood test.

From here, calcidiol heads to the kidneys, where it is converted to **calcitriol** (1,25-dihydroxyvitamin D), the most active form of vitamin D, which circulates to every tissue in the body.

Vitamin D Supports Immunity

Vitamin D expert Dr. John Cannell developed a theory that some immune issues are seasonal, due to seasonal variations in sunlight, which cause fluctuations in vitamin D levels.[3,4] Vitamin D activates genes that support an immune response to foreign entities in the body.[5]

Vitamin D has also been shown to support healthy respiratory immunity.[6,7]

Pro-inflammatory cytokines may be responsible for many lasting health issues. Vitamin D down-regulates cytokine activity and supports healthy inflammatory response.[7]

Vitamin D Toxicity: Fiction or Fact?

Current understanding has it that the physiological requirement for vitamin D may be as high as 4-5,000 IU/day for adults. Although the Food and Nutrition Board established the tolerable upper intake level (UL) at 2,000 IU/day for adults, newer research demonstrates this amount is very conservative, and it appears unlikely toxicity would occur in healthy people with doses less than 10,000 IU/day.[8] For adolescents, 2,000 IU daily for a year has proven safe and efficacious.[9]

With many articles discussing that individual sensitivity issues may exist, it's important to be aware that vitamin D toxicity is rare. One study showed 4,000 IU/day for several years was completely safe and only after taking 40,000 IU/day for several years is there risk of developing toxicity symptoms.[5]

That said, as I review the research, I am not so convinced that we can be casual about intake of high doses of vitamin D supplements. Ideally, I think we should all do our best to optimize vitamin D levels in summer, when UVB rays are available.

There is no vitamin D toxicity from the sun because UVA rays break down excess vitamin D. Vitamin D is stored in fat, so we carry much of it into the winter months if we optimize the summer's UVB rays. Unfortunately, most of us work indoors during midday summer hours, when UVB rays peak.

The Sunscreen Mistake

For the past 25 years, sunscreens have only blocked out skin-protecting UVB, but not UVA. It was mistakenly thought that UVB rays potentially caused abnormal cell division in skin cells, so sunscreens were designed with SPF factors that reflect effectiveness of blocking only UVB rays. As it turns out, UVA rays are more abundant and penetrate deeper, making them more harmful than UVB rays!

Additionally, twenty years ago, SPF ratings were only at 10, but today they have risen up to 100, in the effort to make sunscreens more protective against abnormal cell growth. Sadly, all this time, sunscreens have been blocking protective UVB rays, while letting in harmful UVA rays.

Take a Vitamin D Test

While it is difficult to become toxic with vitamin D, experts believe it is ideal to keep levels at the higher end of normal, which is between 50-80 ng/ml. To maintain optimal levels, it is best to take a vitamin D test in the spring and fall. Once you establish the winter and summer dose of needed supplemental vitamin D_3 that maintains levels in the 50-80ng/mL range, you can reduce frequency of vitamin D testing.

We offer an accurate Vitamin D Test Kit you can do at home. This test is inexpensive, safe, simple, accurate, and approved by the Vitamin D Council.

Summer Sun Exposure

Regularly receive midday sun exposure between 10am-2pm in late spring, summer, and early fall, exposing as much skin as possible for 10-15 minutes if you are fair-skinned, and longer if you are dark-skinned. Remember, you've had enough when skin shows the first sign of a pinkish change.

Supplementation: Depending on sun exposure and testing, I generally recommend a minimal vitamin D_3 supplementation in the summer: perhaps 1,000-2,000 IU/day.

Test Your Levels: Test vitamin D levels to ensure you have optimized summer sun exposure.

Winter Maintenance

Supplementation: Take 4-5,000 IU vitamin D_3/day for three months, and then take a 25-hydroxy vitamin D test.

The goal is to get vitamin D levels between 50-80 ng/ml and keep them there. Testing is the only way to know for sure you are maintaining these levels. Test yourself in fall when levels are highest and in March when they are lowest. With those two numbers, everyone can safely calculate vitamin D supplement needs.

Children: Take 2,000 IU of vitamin D_3 per day during winter.

CIRCADIAN EATING

•5•

You Are HOW You Eat

Taking time to sit down, relax, dine, and digest your food are much-revered, well-studied, health-promoting practices. There are even well-studied benefits of taking a short rest or "siesta" after the meal to help the body efficiently digest.[1] Furthermore, Ayurvedic texts state lying on your left side or resting after a meal will boost digestive strength and ward off a post-big-meal crash by allowing food to be properly digested and released from the stomach naturally.

Modern science supports these ancient principles, suggesting that taking time to relax and eat, resting after the meal, and/or walking after the meal—all traditional Ayurvedic techniques—will help strengthen digestion, support weight loss, and

balance blood sugar levels.[2]

Modern research indicates emotional stress will alter the intestinal skin health and microbiome function, intimately involved in digestion.[3] To take advantage of the research—like how a restful, relaxed environment during meals is beneficial for health and digestion—follow another ancient Ayurvedic saying: "Better not to eat than to eat while angry." Make your meals a scheduled, relaxed event you look forward to. And then, once at the table, take some time to relax and then begin to eat your food.

Ayurveda takes this concept even further, with another old saying now backed by science: "What you see, you become." This means whatever you choose to give your attention to will shape you, and thereby become you. Feelings and beliefs make up much of what we give our attention to, altering gut microbes. When gut microbes are impacted by stress hormones, it has significant impact on our health, and ultimately our digestion.[4] This science allows us to connect the concepts "what you see, you become," "what you eat, you become," and "how you eat, you become."

Three Mindsets While Eating

- **Sattvic** is a state of mind that is fully content, aware, peaceful, and calm within itself. It does not require anything from the outside to make it happy.
- **Rajasic** is a state of mind that requires stimulation to be happy. Satisfaction comes from the stimulation of our senses from the outside world.
- **Tamasic** is a state of mind that has become overstimulated, exhausted, and depleted. It is inward, depressed, and withdrawn.

Rajasic and tamasic mindsets trigger a sympathetic nervous system response that literally shuts off the digestive process, while the sattvic mindset activates the parasympathetic nervous system that turns on and strengthens the digestive process. The "fight-or-flight" and "protection" mindsets can put stress on your emotions and microbes, causing imbalances in your microbiome, contributing to difficulties with hard-to-digest foods. Our microbes are extremely sensitive, and thrive in a healthy, balanced, peaceful, loving environment.[5]

While all of us have experienced all three of the above mindsets, a sattvic mindset while eating will turn on digestive strength, have a positive effect on microbiology, give a life-supporting epigenetic effect, actually lengthen chromosomal telomeres (helping curb the aging process),[6] and have a direct effect on the genetic code.[7]

Don't miss out on the most simple and potentially profound therapy to boost digestive strength—sit, relax, dine. Take time to enjoy each and every meal!

Discover your emotional state of mind by taking my Emotional Body Type Quiz. Learn about your mind and how to balance it!

•6•

10 Compelling Reasons to Not Skip Breakfast

While breakfast is one of the easiest meals to skip, missing it has powerful repercussions on your circadian clock. Breakfast and a dose of morning sunlight set your circadian rhythms in motion for the day.

For breakfast, I like to gather some seasonal greens from my garden and blend them with flax and chia seeds into a room temperature green drink.

While I would prefer to steam them, we are still getting kids off to school these days, so for me, breakfast has to be substantial, but relatively quick.

The green drink is always followed by either a bowl of oatmeal or a mixture of nuts, seeds, and berries. I have this alongside a cup of chicory-based herbal tea or Bengal Spice tea blended with a teaspoon of coconut oil.

A whopping 31 million Americans still haven't gotten the memo to eat breakfast. NPD's Morning MealScape 2011 study found 28% of men ages 18 to 34 are guilty of skipping breakfast. Teenagers are almost as bad, with 14% opting out.[1]

Not convinced breakfast is the most important meal of the day? Let's look at some science and, of course, ancient wisdom.

1. Ancient Wisdom

Ayurveda, a system of medicine dating back 5,000 years, maintains that breakfast and lunch are the two most important meals of the day, with supper being the least important.

2. Breakfast Maintains Ideal Weight

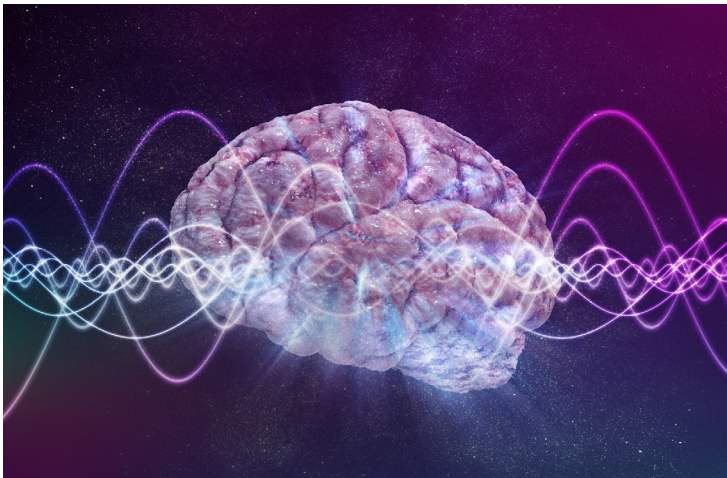
A review of 19 studies involving over 93,000 participants found skipping breakfast was associated with being overweight and obese. This was globally observed regardless of cultural diversity among countries. The review concluded consuming breakfast in all populations may be beneficial for healthy weight.[2]

3. Breakfast Enhances Cognitive Function

Studies suggest those who eat breakfast enjoy better cognitive function, mood, and satiety than those who skip it.[4]

In a study on teenagers, those who ate breakfast self-reported higher energy levels and less fatigue. Overall, findings suggest breakfast consumption enhances cognitive function in teenagers.[5]

In a review of 38 studies, breakfast eaters saw a robust boost in memory as well as better attention, motor, and executive function. The review concluded, however, that the time of supper the night before played a major role in the cognitive outcome.[4] Once again, we see that the earlier the supper, the better!



4. Breakfast Helps Burn Carbs Better During Exercise

In one study, breakfast consumed two hours before an hour-long cycling session increased the rate at which the body burned carbohydrates during exercise. It also quickened the rate that the body digested and burned food consumed post-exercise. Interestingly, carbs burned during exercise were not only from the breakfast meal, they were also burned from fat storage sites.[6]

5. Breakfast Reduces Risk of Adult-Onset Diabetes

A study on 4631 adult men and women spanning almost nine years concluded skipping breakfast may increase risk of type 2 diabetes, independent of lifestyles and baseline levels of body mass index (BMI).[8]

6. Breakfast Reduces Build-Up of Arterial Plaque

In a study of some 4,000 bank workers, researchers looked at breakfast-eating habits and arterial health. They found that those who ate breakfast were less likely to build up arterial plaque than those who skipped breakfast on a regular basis.[7] Breakfast had to be about one-fifth of the daily calories, at least 500 kcal if the daily intake was 2,500 kcal.

7. Breakfast Reduces Risk of High Blood Pressure

In the 2014 Korea National Health and Nutrition Examination Surveys (KNHANES), those who ate breakfast at least five times a week compared to non-breakfast eaters were evaluated. The study was adjusted for age, sex, regular exercise, current smoking, systolic blood pressure, diastolic blood pressure, body mass index, waist circumference, and red blood cell counts. The results showed a significantly lower risk for high blood pressure in those who ate breakfast.[9]

8. Breakfast Reduces Risk of Metabolic Syndrome

Those who ate breakfast were found to have lower risk of metabolic syndrome compared to those didn't eat breakfast. Metabolic syndrome features high triglyceride, cholesterol, and blood sugar levels, excess belly fat, and high blood pressure—not a syndrome you want to mess with!

9. Breakfast Extends Life

A study of 34,128 men and 49,282 women aged 40-79 evaluated breakfast habits in Japan. The study aimed to determine if skipping breakfast would have an effect on mortality from all causes, cancer, or cardiovascular diseases. Skipping breakfast was associated with increased risk of mortality (death) from circulatory diseases and all causes among men and women. (Skipping breakfast did not increase risk of dying from cancer.)[11]

10. My Take!

While these studies make a compelling case for not skipping breakfast, other factors, such as *what* you eat for breakfast, *when* you eat it, and even *how* you eat it may explain some of the conflicting studies that did not show such clear findings regarding benefits of breakfast. According to the ancient wisdom of Ayurveda, how you eat, what you eat, and when you eat ALL matter!

Based on the science, we do see that a morning meal will combat the tendency for the liver to increase blood sugar levels in the morning as part of the body's wake-up call. Eating a morning meal will increase insulin levels, quickly lower blood sugar, and deliver glucose to cells that we need for energy.

Not eating breakfast on a regular basis can allow sugar to linger in the bloodstream, where it can glycate (clump together) with proteins that cause harm to the arteries, joints, brain, and more.

This may explain why there is so much evidence that eating breakfast is a critical piece of the diabetes, weight gain, metabolic syndrome, and cognitive decline prevention strategy.

Do you eat breakfast?

•7•

Dangers of Eating Late

In 1984, during my first year in practice, I found myself exhausted at the end of a long day of patients. To figure out why I was so tired after work, I went to see an Ayurvedic doctor. Before my exam, the nurse took my blood pressure and informed me it was high. That really surprised me, as I was into yoga and breathing meditation, I was a competitive triathlete, and I had finished an Ironman, so it made no sense that I would have high blood pressure at 27 years old.

The first thing the Ayurvedic doctor asked me was, "What do you eat for lunch?" I told him I had a very busy practice and struggled to stay on time. I found myself typically with only 10-15 minutes for lunch and would quickly grab a bite or one of the chocolate truffles that were always gracing the staff lounge. I told him that I would have a nice big breakfast and a nice big dinner, but lunch was on the run.

He told me I should schedule more time for lunch: "Go home and have a nice, relaxing, warm cooked meal in the middle of the day and you will never have blood pressure problems again." I pushed back, asking for an Ayurvedic pill, but he was quite clear that I did not need a medicine, just a reset of my daily rhythms.

We now call this *circadian medicine*, and it is Nobel Prize-winning science.[3]

Shortly thereafter, I reset my schedule to have 1½ hours for lunch. I would leave the clinic and find a nice relaxing place to enjoy

what became the largest meal of my day.

My blood pressure resolved in a few weeks and I started telling my patients to do the same. I did a small clinical study with my patients and saw that making such a simple lifestyle shift was often all that was needed to resolve certain types of blood pressure issues.

Circadian Meal Rules

1. Eat breakfast.
2. Eat a bigger lunch.
3. Eat a smaller earlier supper.

When Do You Eat?

For decades now, I have preached the health benefits of minding when you eat. In America, we are conditioned to eat three meals a day, with dinner as the biggest meal.

Ayurveda suggests supper be the smallest meal, eaten as early as possible—aligning the word *supper* with *soup* or *supplemental*.

A new study, published in the journal Circulation, supported by the American Heart Association, evaluated mealtimes of more than 12,000 participants between 18 and 76 years old. 56.6% ate more than 30% of their daily calories after 6pm.

That group had a 23% increased risk of developing high blood pressure and a 19% higher risk of becoming prediabetic compared to those who ate less than 30% of their daily calories after 6pm.[1]

Many emerging studies back a new interest in circadian medicine and, without

realizing it, support basic Ayurvedic rules laid down thousands of years ago.

In another study, of over 50,000 Seventh-day Adventists, meal timing was evaluated for impact on long-term weight loss. They found:

1. Breakfast eaters lost more weight than breakfast skippers.
2. Larger breakfast eaters lost more weight than larger dinner eaters.
3. Larger lunch eaters lost more weight than larger dinner eaters.[2]

They concluded that for relatively healthy adults, eating less frequently, not snacking, consuming breakfast, and eating the largest meal in the morning or midday may be effective methods for preventing long-term weight gain.[2]

Meal Timing for Blood Pressure, Weight Loss + Energy

The studies I cited above find the three simple Circadian Meal Rules above do in fact lower blood pressure, as well as support long-term weight loss.[1,2] If you have these types of health concerns, making these lifestyle changes are the best place to start.

For me, not only did I see my blood pressure come down, but I still have low blood pressure to this day. My original concern of being exhausted after work was also eradicated by this simple shift and thank God for that!

We raised six children and still, after work, I'm recruited for homework help, track

meets, and other projects by my two remaining kids in high school.

Ayurveda starts with circadian medicine for good reason. Fixing your daily routine (*dinacharya*) and seasonal routine (*ritchucharya*) is step one to healthy energy levels, blood pressure, balanced weight, and more.

Try it out and let us know what happens!

Two Ways to Reset Your Digestive Clock

1. Download my free Ayurvedic Weight Balancing eBook for a guide to meal timing and Ayurvedic calorie restriction without starvation.

2. Sign up for my 28-Day Ayurvedic Challenge and let me guide you through a month of Ayurvedic lifestyle changes.

SEASONAL EATING

•8•

Stanford Study Backs Seasonal Eating for the Healthiest Microbiome

One of the last remaining hunter-gatherer tribes on earth confirm that our gut microbes were meant to change seasonally!

If you are a regular reader here at LifeSpa, this may be old news . . . you probably already eat seasonally, enjoy our monthly recipes, and utilize the grocery and superfoods lists we publish for free each month as part of the 3-Season Diet Guide. Or you may have read my book *The 3-Season Diet*.

Never heard of it? Sign up for free and start eating seasonally now! It truly is the easiest and healthiest diet there is, and it is now backed by Stanford University research.

What the Hunter-Gatherer Diet Does to the Body

In a new Stanford University study published in the journal Science, researchers found microbes in members of the Hadza tribe in Tanzania change dramatically with each season, in sync with seasonal changes made to their diet.

The study shows certain gut microbes residing in the gut in one season may almost disappear in the next, suggesting dramatic changes take place in the microbiome from one season to the next. The researchers concluded that the Hadza tribe's gut microbes and their digestion is cyclical, in sync with the precise

biorhythm of nature.[1,2]

In addition to their microbiome making dramatic seasonal shifts, the Hadza microbiome is significantly more diverse than that of a Western-cultured microbiome. They carry a powerful stable of gut microbes extremely skilled at breaking down fiber.

The Hadza microbiome has more enzymes for breaking down animal-made carbohydrates during the dry season, and more enzymes to target plant-based carbohydrates in the wet season.

Microbes in the digestive system manufacture enzymes that change seasonally. They do so to help digest seasonal foods, as well as boost immunity when needed in winter, decongest the body in spring, and dissipate heat during the long, hot summer.

For the Hadza, the combination of a higher-fiber and seasonally-shifting diet (from dry-season hunting to wet-season foraging) has left them seemingly free of colon cancer, colitis, and Crohn's disease.[1,2]

How the Body Adapts to Seasonal Shifts

In my book, *Eat Wheat*, I cite research showing how the starch-digesting enzyme, amylase, naturally increases in the body during fall and winter. This is aligned with when more starchy tubers, wheat grasses, and grains are in abundance and harvested.

Amylase decreases in summer, when the diet shifts to more vegetable-based.

Another way the human body responds to the change of seasons is that the parasympathetic nervous system (often referred to as the "rest-and-digest" nervous system) increases the body's digestive potential in fall and winter. It does

this in order to more effectively break down the denser and more concentrated fall- and winter-harvested foods, such as root vegetables.[3]

Seasonal Microbe Symphony

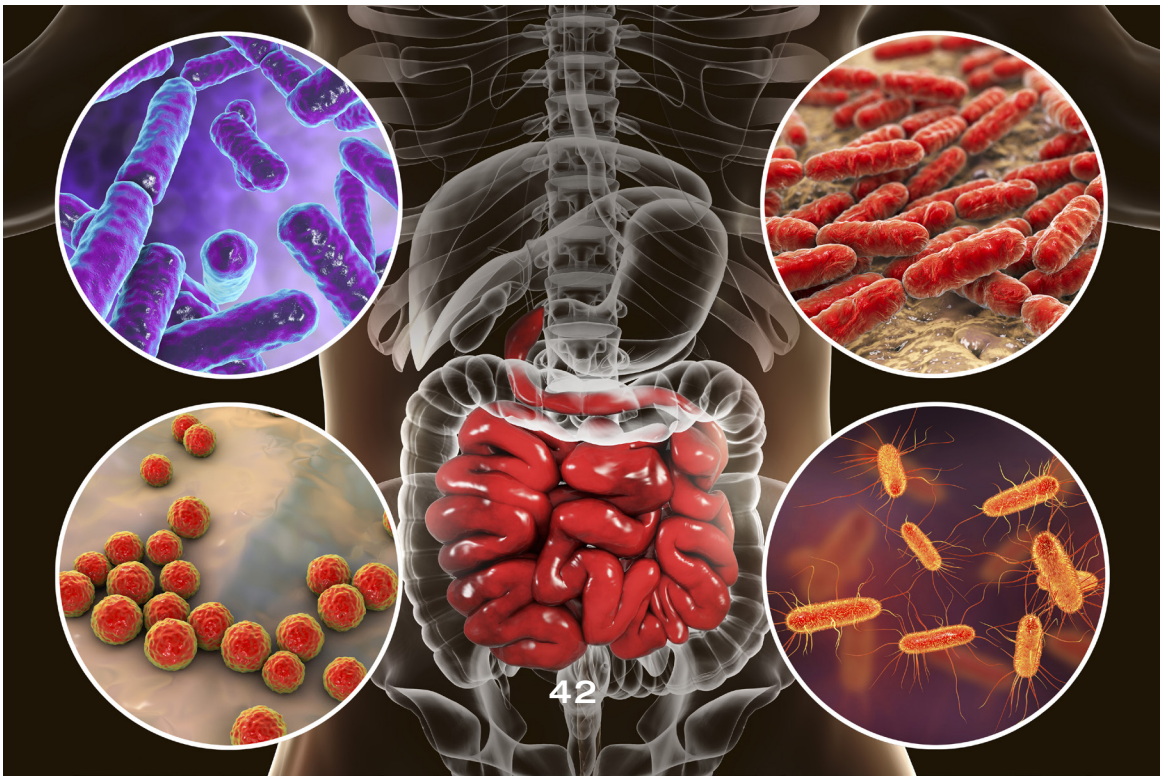
Microbes in our microbiome come from the soil that nourishes the plants we eat.

Each plant seasonally attracts certain beneficial microbes from the soil, creating a symbiotic relationship. Plants seem to benefit from certain microbes, and certain microbes seem to benefit from the nutrients of certain plants.

With each seasonal shift, soil microbiology changes, plant chemistry changes, and microbes attached to the roots, stems, and leaves of each plant shift like a changing of the guard.

When we eat these plants in season, we consume the nutrients in the plant, but also the microbes attracted to and attached to that plant. We also ingest the foods that microbes love.

These microbes create a microbial community within us. In fact, microbes make up 90% of the nucleated cells in the human body!



Dangers of Eating out of Season

When we do not eat seasonally, our microbiome is quickly disconnected to the intelligence of nature, and much of our genetic dependence on seasonal microbes is lost.

Let me share a quote from the book The Forest Unseen, to illustrate this point:[4]

> *Sudden changes in the diet can disrupt this elegant molding of the rumen community and its environment. If a deer is fed corn or leafy greens in the middle of winter, its rumen will be knocked off balance, acidity will rise uncontrollably, and gases will bloat the rumen. Indigestion of this kind can be lethal.*

In other words, when an herbivore eats out-of-season foods, it causes a drastic shift in its microbiology, leading to severe indigestion that can actually *kill* the animal. Cows, for example, when taken from pastures and fed grain instead of seasonal grasses, have to be medicated to settle their stomachs.

I realize we are omnivores, not herbivores, but, clearly, this is food for thought! We are as connected to nature's cycles as are the herbivores, albeit in a different way. If eating out-of-season foods can kill a deer, **is this a message to begin respecting the diet that has been right in front of us all these years?**

There is no doubt intestinal microbes change according to diet and seasonal influences. Perhaps we are more resilient to these changes than deer, but are we

immune to them?

Without a diet rich in seasonally-changing microbes, our intestines are often populated by space-occupying microbes that, while not necessarily bad, are not beneficial either. They take up real estate in the intestines and can affect the gut, its immunity, and many other adaptive processes to function less than optimally.

Without the influx of seasonal microbes to boost digestive strength and support a diverse community of essential and beneficial bacteria, **we can become extremely vulnerable and often hypersensitive to our environment and foods.**

Seasonal Microbe Summary

New research shows stress from non-organic, highly processed, refined foods, as well as seasonal changes in diet, lifestyle, and many other factors are forcing the body to adapt genetically.

In addition, recent studies have gone further. Not just microbes on the food, but genetic information of the food itself has been shown to horizontally transfer into our genetic code (in order to negate any genetic surprises down the road that could take the species out).[7,8]

In this regard, GMO food is implicated in its ability to make changes to us on a genetic level—logic would tell us this can't be good! More on this in future articles . . . in the meantime, enjoy your healthy, organic, seasonal food and stay in tune with nature's cycles!

Receive my free monthly seasonal eating guide, the 3-Season Diet Guide.

SLEEP CYCLES

•9•

Sleep Well + Wake Up Rested with Ayurveda

What's Keeping You Up at Night?

Do you have trouble falling or staying asleep? When it comes to a good night's rest, those of us who have trouble will try anything. However, you should be aware that sedatives, herbal or pharmaceutical, offer short-term symptomatic relief at best.

The most common theory relating to sleep issues is that excessive mental energy makes it difficult to settle down. On the surface, this makes sense. But clinically, it turns out this theory has limited effectiveness.

Read on as I explore the Ayurvedic science of sleep troubles and offer some practical solutions.

Are You Exhausted?

In my practice, I've observed most people who cannot sleep at night are deeply exhausted and often physically, mentally, and emotionally depleted. Odd as it may seem, *the body needs energy to settle down to sleep*. Someone at a deep level of exhaustion may not have enough energy to settle their moods, and the result is that they stay wired, unable to truly rest.

Sedating this person will only drive the exhaustion deeper and use of sedatives is accompanied by a long list of undesirable side effects.[6,7] What they actually need is *rejuvenation*. Deep rejuvenation, according to Ayurveda, is called *rasayana therapy*, closely related to adaptogenic herbal therapies. True adaptogens do not stimulate or sedate—they restore the reserve energy needed to enjoy a healthy night's sleep.[1-3]

Ashwagandha (*Withania somnifera*), named after its sleep-inducing properties, may be one of the world's most studied adaptogens. It has been shown in study after study to support a healthy and normal night of deep sleep.[1-3] Studies also show ashwagandha boosts energy reserves and endurance in physical exertion. One study of 40 cyclists, who took just 1,500mg of whole-herb ashwagandha root powder, saw significant improvements in cardiovascular

and respiratory endurance compared to placebo.[5]

In order to regain equilibrium, we need a way to support our nervous systems so we have energy to handle stress, support mood, build energy, and sleep at night. Long-term sleep cycle disturbances can imbalance the body's circadian cycles, which may also need to be addressed.

Read articles on how to reset your circadian cycles here.

Some folks cannot fall asleep easily, while others wake up in the wee hours of the night. One of the ways Ayurveda addresses individual sleep cycle imbalances is by understanding sleep according to our constitution/body type, an idea now backed by Western science.[8]

Don't know your body type? Take our quiz!

Sleep Issues by Ayurvedic Body Type

1. Pitta Sleep Support: Difficulty Falling Asleep

The first type of sleep issue is having a hard time getting to sleep. Typically, this is when you lie in bed wide awake anytime from 10pm-2am counting sheep, waiting for the angel train to take you off to sleep.

According to Ayurveda, 10pm-2am is pitta time of night, when the liver becomes active and begins its evening detox cycle to prepare the body for the next day.[9,10] It is similar to when the night janitor cleans floors and windows while everyone is asleep. This explains why folks often get a second wind at this time of night, turning on the TV, getting on

the computer, and off they go changing the world in the wee hours. As this cycle winds down (sometime after midnight, but usually before 2am), the fire goes out and you drift off to sleep.

This type of sleep imbalance is caused by excess pitta, or heat. A person with a hot body type who hasn't fallen asleep before the pitta cycle starts at 10pm will often be swept up in the stimulation of heat and glean all kinds of energy, making sleep at this time very challenging.

For this type of concern, we need to support the nervous system and reduce pitta with a cooling herb. The Ayurvedic herb brahmi has cooling properties for the brain and nervous system, supporting restful sleep.[1] This unique adaptogen can be taken at night to support sleep and in the morning to enhance mental clarity and energy.

2. Vata Sleep Support: Difficulty Staying Asleep

The second type of sleep issue involves waking up sometime between 2am-6am and having difficulty getting back to sleep. This can be most disturbing, as you lie there in the middle of the night wide awake.

According to Ayurveda, this type of sleep concern is due to excess vata, as this is considered vata time of night. Vata is associated with the nervous system.

According to the rhythms of nature, the nervous system starts to excite around 2am. If you do not have energy to pacify yourself during this early morning activation, you will wake up and stay up.

What is needed here is deep rejuvenation. The best rejuvenative herb for vata-type sleep issues is ashwagandha (*Withania somnifera*).[1-5]

Ashwagandha is an adaptogen, or rejuvenative, traditionally said to give the strength of ten horses, although the name suggests the root actually smells like a horse! Like brahmi, ashwagandha has the ability to support strength and stamina during the day, while at the same time giving the nervous system energy to settle down and sleep.[1-3,11]

Ashwagandha supports our deep reserves and restores balance to many bodily functions. Unlike brahmi, which is cooling, ashwagandha is a warm, heavy, sweet root. It deeply rejuvenates body and mind.

Recommendations for Good Night's Sleep

1. **Herbs**

    1. Brahmi cools the mind, while rejuvenating and supporting the nervous system. It supports falling asleep between 10pm-2am.

    2. Ashwagandha supports 2-6am sleep issues. It gives the body energy it needs to stay asleep.

    3. Sleep Easy is an adaptogenic formula that includes brahmi, ashwagandha, and other adaptogens.

2. **Drink one cup warm milk** boiled with a pinch of ghee, cardamom, ginger, turmeric, dates, crushed almonds, and coconut (or Ojas Nightly Tonic). Add honey after boiling. (Almond milk is fine.)

3. **Take a hot bath or shower** at 9pm, followed by warm oil self-massage with LifeSpa Tri-Doshic Massage Oil. Apply oil to feet if full-body massage is not possible.

4. **Read a boring book** at 9:15pm (not my book).

5. **Do** One-Minute Meditation at 9:45pm.

6. **Cell phones and screens off (use night filters).** Try to be in bed ready for sleep by 9:46pm.

7. **Consider LOW-DOSE melatonin.**

Have you tried these sleep recommendations? Have they helped you?

•10•

Blue Light + Screen Time Cause Brain Damage, Aging + Shorter Life

How Much Screen Time Do You Get?

Today in America, adults check their cell phones an average of 52 times a day and spend a whopping nine hours in front of a blue light-emitting cell phone, tablet, or computer screen![1]

LED blue light-emitting bulbs are on pace to replaced orange-hued incandescent bulbs worldwide, resulting in dangerous levels of artificial blue light exposure.

Recent research finds blue light from screen time and LED exposure

not only damages retinal cells in the eyes, but is also linked to accelerated aging.[2]

Blue Light Science: Melatonin + Vitamin D

Blue light is part of the visual light spectrum in sunlight. It is absorbed by the circadian control center of the brain, the *superchiasmatic nuclei* (SCN). The SCN regulates production of melatonin and the body's biological clocks found in just about every cell.

Morning and daytime sunlight exposure amp up vitamin D_3 production, while shutting down nighttime melatonin production. Darkness has the reverse effect, stimulating production of melatonin and shutting down vitamin D production.

Most people think of melatonin as just a sleep hormone, but it is much more! Melatonin does induce sleep, but only so it can then do its detox, repair, rebuild, rejuvenate, and anti-aging mission—every night!

Lack of melatonin from excessive artificial blue light exposure can cause disturbed sleep and disturbed sleep can cause lack of melatonin production—a vicious cycle. Remember, circadian imbalances are not just related to sleep quality. Many folks produce enough melatonin to sleep well, or so it seems, but not enough to get the depth of sleep and do the nighttime janitorial duties of cleansing and rejuvenating required for optimal health and longevity.

Circadian Rhythms + Aging

This insidious imbalance, called a *circadian imbalance*, quietly disturbs the body's biological clocks, now known to be linked to an exhaustive list of health concerns, including accelerated aging.[2]

As we age, one of nature's ways of getting rid of us is to produce less melatonin, literally causing an age-accelerating circadian imbalance. Living in sync with nature's circadian rhythms is so critical for health and longevity that research on this topic won the Nobel Prize in 2017.[5]

Not surprisingly, Ayurveda, along with many other traditional and time-tested systems of medicine, was founded on circadian principles in harmony with daily, monthly, and seasonal cycles. All these rhythms are dependent on precise production of melatonin from the brain's pineal gland and a lifestyle in sync with light-dark cycles.[5]

Screen Time Linked to Accelerated Aging

A new study published in Aging and Mechanisms of Disease found blue light emanating from your phone, screens, and light fixtures could accelerate the aging process, even if it is not shining in your eyes.[2,3]

Fruit flies, which share developmental and cellular mechanisms with humans and other animals, are commonly used in studies to mimic humans. **In one study, fruit flies exposed to 12 hours of blue light and 12 hours of darkness had significantly shorter lifespans than when they had blue light filtered out or were only exposed to darkness.[2,3]**

The researchers also found that:

> ***"Flies exposed to blue light showed damage to their retinal cells and brain neurons and had impaired locomotion—the flies' ability to climb the walls of their enclosures, a common behavior, was diminished.***
>
> ***"Some of the flies in the experiment were mutants that do not***

develop eyes, and even those eyeless flies displayed brain damage and locomotion impairments, suggesting flies didn't have to see the light to be harmed by it.

"It was very clear cut that although light without blue slightly shortened their lifespan, just blue light alone shortened their lifespan very dramatically."[2]

Biohack Eye Health, Brain Power + Longevity

If the average adult is exposed to blue light for nine hours a day, we may need to biohack our blue light exposure. Today, most every phone, tablet, and computer has a night filter that blocks blue light exposure and turns your screen a reddish-orange color. You can set your screen to be orange 24/7 and dramatically lower blue light exposure.

Amber glasses can also be purchased that block blue light for extended work on the computer or in front of a TV. Also, I suggest you use old-fashioned incandescent light bulbs, candles, or salt lamps to dimly light your house in the evening. Once the sun sets, it is best to keep lights low, so nighttime melatonin production is not inhibited.

It has been much less than 100 years that we have been exposed to bright nighttime artificial light, and we simply have not had enough time to genetically adapt to these circadian disturbances with updated levels of melatonin production.

Candles and fireplaces, much like a sunset, are rich in orange hues that block out much of the blue light and are circadian safe!

Hack Aging + Reset Circadian Clocks with Low-Dose Melatonin

Melatonin is a three-billion-year-old molecule found in every living creature, from the invisible to the botanical to the largest mammals. Everything on this planet must be in sync with light-dark cycles to survive, and this has been governed by melatonin from the beginning. Because we evolved around melatonin and light-dark cycles, melatonin plays an executive role in almost every physiological function. But how much melatonin do we need?

Health food stores sell melatonin at extraordinarily high dosages. For most folks, these work for a while and then stop. According to melatonin researcher Paula Witt, contrary to popular belief, supplemental melatonin will not suppress natural melatonin production—it *encourages* your own production. This fact thus classifies melatonin as NOT a hormone, but a bioactive molecule. **So, when you take supplemental melatonin, you will slowly increase your own production, causing you to require a lower supplemental dose over time.**

Research by another melatonin scientist, Al Lewy, found we only need a very small amount of melatonin. Studies show a supplemental dose of .5mg melatonin is just as effective as 5mg—10 times less!

At LifeSpa, we formulated a low-dose melatonin product called Liquid Melatonin, where one drop equals just .1mg, so we can find the minimal effective dose for each person.

How to Use Low-Dose Melatonin for a Circadian Reset

To hack the aging process and reset your circadian clock, I recommend starting with one drop before bed for four to five nights, then increasing by one drop every four to five nights until the desired effect (deep sleep and rested in the morning) is achieved.

Stay on that dose, but when it begins to stop being effective, drop the dose back down by one drop. If melatonin is encouraging production of your own, then it makes sense that your supplemental melatonin needs will go down over time.

Keep lowering the dose by one drop over time to find the minimal dose your body needs. If you are young (below 50), you may end up not needing any melatonin supplementation as your circadian clock resets. If you are over 50 and the body's production has decreased due to age, you may find that just one to two drops (.1-.2mg) is all you need long-term to hack the aging process.

Anti-Aging Circadian Medicine

To reap the benefits of your anti-aging hormones, avoid blue light as much as possible. Stay in sync with nature's light-dark cycles, and use melatonin if needed to get yourself back on track.

•11•

Reset Your Circadian Clock This Weekend

Being out of sync or disconnected from circadian rhythms is called chronodisruption (CD), and has been linked to a host of health concerns.

Chronodisruption-Related Health Concerns[1,3]

1. Poor cognitive function
2. Mood disorders
3. Sleep disorders
4. Diabetes
5. Obesity
6. Daytime sleepiness
7. Reduced school performance
8. Reduced driving reaction time
9. Substance abuse
10. Heart disease
11. Some cancers

Circadian Reset + Melatonin

In a new study, researcher Kenneth Wright at the University of Colorado evaluated the circadian clocks of a group of people by measuring melatonin levels (which should rise at night and fall during the day). Normally, after sunset, melatonin levels start to rise and a feeling of sleepiness naturally ensues. In the morning, right after sunrise and getting out of bed, melatonin levels rapidly drop, allowing sleepiness to be quickly replaced with energy.

This study found something shocking. About two hours after waking, when melatonin levels should have dropped, they started to rise again. This, of course, lead to midmorning sleepiness and poor performance at work. This may explain the need for a coffee break about this time of day.

Researchers measured the effects of living without artificial light for one week during a camping trip. During the camping trip, they went to bed and arose on their own, but there were no sources of artificial light except for a campfire. They compared melatonin levels after a week of camping to melatonin levels after a week of normal life, using artificial light, televisions, computers, etc.

The results were amazing. After just one week of living in sync with natural light-dark cycles, the group went to bed and woke up an average of two hours earlier. The mid-morning melatonin surge did not happen. Their clocks were reset!

Researchers then measured the effects of just a weekend camping trip to see if this would be enough to reset the clock. In this case, campers went to bed and got up almost 1.5 hours earlier compared to their falling and rising time in artificial light-world.

In fact, in just one weekend camping trip, researchers observed that campers were able to achieve ~69% of the circadian shift benefits achieved by a week of camping.[1]

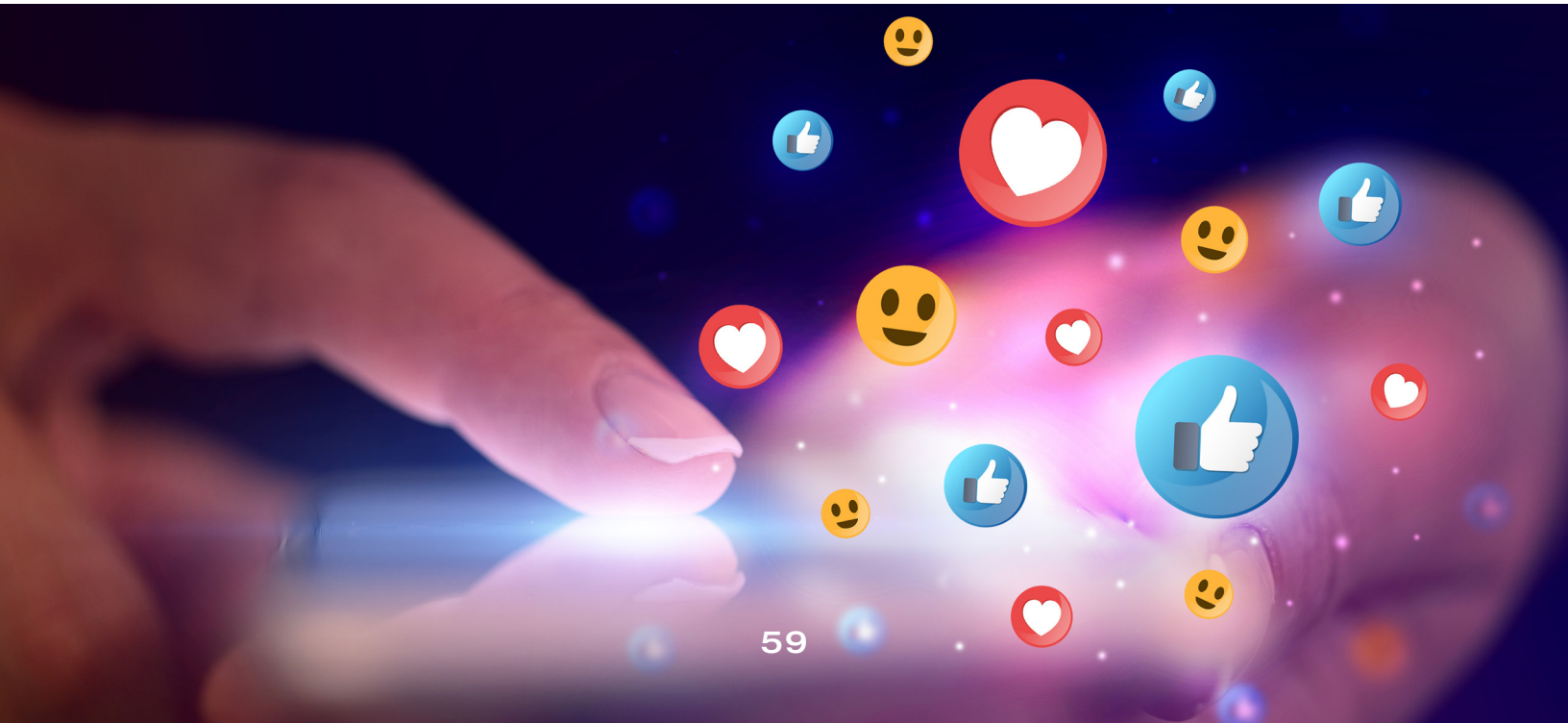
By naturally getting to bed earlier, the campers all naturally got up earlier and were able to enjoy the early morning natural light. The sun's mornings rays are filled with

blue light that suppresses melatonin and are, thus, capable of resetting the body's circadian clocks.

In 1998, researchers discovered *melanopsin retinal ganglion cells*, a new type of photoreceptor in the eye. These cells provide signals to the suprachiasmatic nucleus (SCN), the brain's master clock. Melanopsins project to numerous brain centers and have an impact on numerous physiological functions. Melanopsins are particularly sensitive to blue light.[2]

Blue light, particularly beneficial during the day, seems to be more disruptive at night, as it blocks melatonin production. Nocturnal blue light exposure is currently increasing, due to proliferation of energy-efficient lighting (LEDs) and electronic device screens, which are 35% blue light, whereas the sun only 25% blue light. No wonder folks are having more trouble getting to sleep!

The study also confirmed what Ayurveda has been saying for thousands of years regarding seasonal circadian cycles. They found melatonin levels will rise earlier in the evening and drop later after sunset in winter, when the days are shorter and nights are longer. In summer, melatonin levels are delayed and rise much later in the evening, matching the longer days and later sunset.



5 Steps to Reset Your Internal Clocks this Weekend

Try some of these simple home strategies to help reset your circadian clock:

1. Turn off Wi-Fi, lock away your cell phone, and turn off all lights (use candles and/or a fireplace for evening light).

2. Get outside for a hike or walk as much as possible. Go to bed in the early evening at the first sign of sleepiness and get up in the morning when your eyes first open. Get outside and take a morning walk as you watch the sunrise. Enjoy!

3. During the week, turn off Wi-Fi after supper. Dim house lights and avoid phones, televisions, and computers. Go to bed reading a book by candlelight.

4. On your next camping trip, don't miss the opportunity to reset your clock. Don't turn on your phone and avoid flashlights. Make torches and a campfire. Enjoy!

5. Consider getting outside and performing a yoga sequence, such as the Sun Salutation at sunrise and sunset.

•12•

11 Natural Ways to Increase Melatonin Levels

If you've read this far, you have learned the importance of melatonin in regulating our light-dark circadian cycles. You may be wondering how to increase your melatonin levels naturally. Well, look no further—below are my top tips for naturally boosting melatonin!

1. No Artificial Light (Especially at Night)

Ambient or artificial light at night blocks melatonin production, needed to get to sleep and stay asleep. During the day, try to use natural sources of light. Turn on the night filter on your computer and cell phone, or use an app that will block blue light emissions. You can also purchase blue light-blocking glasses for use with the computer or phone.

Begin reducing blue and artificial light exposure starting at sunset, or two to three hours before bed. Go to bed by candlelight, have dinner by candlelight, read by candlelight, and have a good night's sleep.[1]

Make sure there are no lights on while you sleep. If necessary, use blackout curtains or an eye mask to block ambient light.

2. Test Your Melatonin Levels

The earth's sun gives off about 25% blue light, while LED light bulbs, computer

screens, cell phones, and televisions give off blue light at about 35%.

Research shows that blue light, in particular, blocks melatonin levels. Blocking melatonin, by watching TV or checking email on your phone during the day, will compromise full production of melatonin while you sleep.[3]

This doesn't just affect the depth of your sleep. Melatonin's real job is to detoxify you, rebuild you, and rejuvenate you during the wee hours of the night.[2]

We may only need a small amount of melatonin to get us to sleep and keep us asleep, but hindering full melatonin production may not show its harmful effects for years. This is just one reason I encourage testing your melatonin levels now before it's too late.

3. Soak Up the Sun (in Moderation!)

To produce optimal melatonin, we require an optimal amount of daylight or sunlight. Melatonin levels at night are dependent on complete shutdown of melatonin during the day. This can only be accomplished if we are exposed to extremely bright sunlight during the day.

Light intensity is measured in lux. Most offices produce about 400-500 lux during the day. The sun can produce 4,000-5,000+ lux during the day, suggesting sunlight may be 10x+ brighter than indoor light.

Studies show exposure to bright daylight can significantly increase melatonin production at night.[4-6] This makes good sense, as melatonin is the special hormone that connects us to light-dark cycles.

4. Eat Melatonin-Rich Foods

Every plant on the planet carries a certain amount of melatonin. They, too, are dependent on making light-dark cycle adjustments to survive.

One way to naturally boost melatonin levels is to eat more melatonin-rich foods. Studies show tart cherries have a significant amount of melatonin, and are linked to deeper and higher quality sleep.[7]

High-Melatonin Foods

- goji berries
- tart cherries
- walnuts
- almonds
- pineapple
- tomatoes
- bananas
- oranges
- and many others[8]

5. Take a Hot Bath at Night

Research shows taking a hot bath at night has a relaxing effect on the body, and a resultant boosting effect on melatonin levels! Perhaps this is due to the relaxing effect on cortisol levels from a hot bath. As cortisol decreases, melatonin levels will rise.[2,9]

6. No EMF or Wi-Fi Exposure at Night

Electromagnetic fields (EMFs) are produced by pretty much every electrical device. Generally, EMF levels are only dangerous when you are occupationally exposed to high levels for prolonged periods of time.[15]

There is little research on Wi-Fi and cell phone service radiation's effect on

melatonin, but research that has been done suggests reducing exposure to EMF levels, particularly while you sleep, may offer an ounce of protection.

Avoid sleeping with your cell phone under your pillow, next to your pillow, or next to your bed. Do your best to create a master Wi-Fi switch that can be turned off at night, power down your cell phones and computers, and give your pineal gland every chance it can get to produce optimal melatonin levels.

7. Regulate Caffeine

Most people have figured out if they drink a cup of coffee too late in the afternoon or evening, they don't sleep as well that evening. While coffee beans are loaded with melatonin, much of their beneficial effects are neutralized by caffeine.[14]

Caffeine is a stimulant linked to reduced melatonin levels. Having a small amount of caffeine in the morning may help reduce melatonin production to wake you up, but drinking excessive coffee or caffeinated beverages during the day can decrease overall melatonin production over time.[12,14]

Unfortunately, most people who drink coffee find themselves needing more and more to experience the benefits of mental clarity, energy, and bowel regulation. If you are going to drink coffee in the morning, try to limit the amount of caffeine you ingest so as not to become dependent on taking more and more of it. Over time, increased intake of coffee may reduce your natural production of melatonin.

8. Take Time to Pray or Meditate

Studies show people who meditate produce more melatonin than people who do not.[13] Melatonin seems to require a settled mind and body to be produced in the early evening hours.

This makes sense because relaxation techniques, such as prayer and meditation, help lower cortisol and destress the body. When the body is destressed, many good things happen, including increased melatonin production.

9. Hot Milk before Bed

Milk, whether from a mother, cow, or goat, is rich in melatonin. Drinking a cup of hot milk before bed has been shown to boost melatonin levels and support healthy sleep.[14] Stick with non-homogenized and vat-pasteurized whenever possible.

10. Eat Tryptophan-Rich Foods

Tryptophan is an essential amino acid and a precursor to melatonin. Increasing intake of tryptophan-rich foods may boost melatonin levels.

Tryptophan-Rich Foods

- garbanzo beans
- pumpkin seeds
- almonds
- spirulina
- turkey
- peanuts
- soybeans
- chicken
- yogurt[2]
- cottage cheese
- tofu
- chicken liver
- watermelon seeds

Garbanzo beans win the tryptophan prize. Loaded with free tryptophan (meaning it is not attached to a protein, like in other foods), uptake of this source of tryptophan the best.

11. Melatonin Supplementation

If you still need melatonin support after trying the strategies above, I suggest trying the following: for a circadian medicine reset, I tell my patients to start with one drop or .1mg 45-60 minutes before bed and increase by one drop every two to three days until you have a deep and restorative night's sleep without morning grogginess. Most never need to exceed ten drops.

Once the best dose is found, stay on it for three months. Then, most of my patients can slowly lower their dose. The correct dose of melatonin will encourage natural production of your own melatonin (rather than suppress it, as is commonly believed).

Have you tried any of the above strategies for boosting melatonin? What have you noticed?

MOON CYCLE

•13•

Menstrual Cycle Strategies by Body Type

Menstruation falls under the general Ayurvedic heading of *yonivyapad*. Ayurveda uses the word yoni for female genitalia and reproductive organs, and *vyapad* to describe disorders or diseases.

The *Charaka Samhita*, a comprehensive text on the ancient Indian medicinal system of Ayurveda, describes around 20 different gynecological disorders.

The premise of Ayurveda is not based on removal of menstrual symptoms, such as mood swings, nervous tension, emotional disturbances, and physical pain. Rather, the focus is on identifying and addressing **the initial cause** of menses-related concerns, and the appropriate treatments.

Charaka and other Ayurvedic authorities state suppression of natural urges, such as resisting the urge to go to the bathroom, doing things in excess (like sex or exercise), unhealthy lifestyle, and improper diet are all linked to female reproductive issues.[1-5]

Here in the West, the average female strays from many major feminine health guidelines in India's Ayurvedic culture.

The causes of some of our modern health concerns, which did not exist in Vedic times, have to be investigated from a modern perspective to focus on lifestyle.

Understanding the Cleansing Menstrual Cycle

There is a general consensus among Ayurvedic practitioners from India who visit our country as to why excessive female concerns plague the West and not the East, and they say it has much to do with honoring the female body's cycle itself.

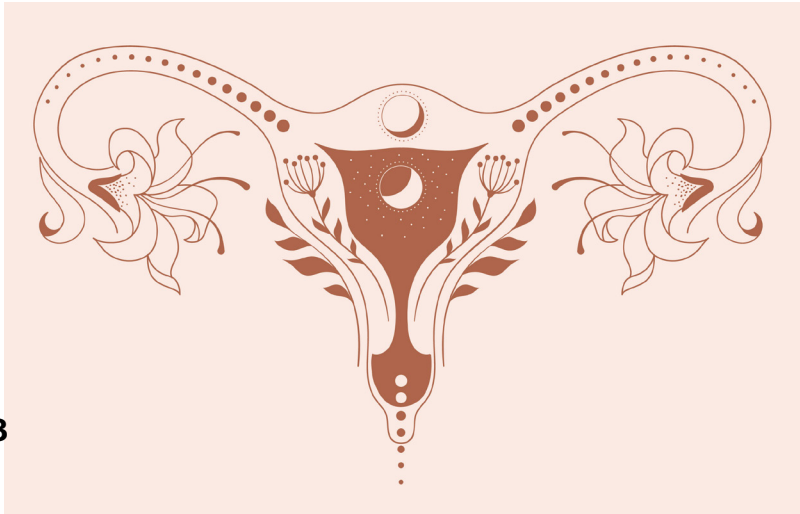
In India, the menstrual cycle is a highly respected expression of the female connection to the moon. This moon cycle regulates the tides, migrations, mating times, and, of course, the 28-day cycle of menstruation.[1-5]

Menses is a time when the female body is providing extra energy to ensure an effective and complete sloughing of waste products. It is a natural time of cleansing and rejuvenation, traditionally accompanied by a time of rest or light duty. In traditional cultures, family members would provide support to women during their monthly cycle and through menstruation.

Here in the West, this is clearly not common practice. However, this does not mean modern working women cannot respect this time of the month by listening to their bodies and perhaps taking a lighter load or scheduling activities around their time of the month.[1-5]

Basically, the Ayurvedic recommendation is to **act in accordance with how one feels**. Ignoring this is often the root of menstrual concerns. If there is a natural desire to rest during menstruation and rest is not provided, the body will be forced to strain to deliver mental and physical energy as well as maintain a healthy menstrual flow.

Resting is not a sign of weakness; it is a behavior linked to natural cycles. In fact, menstruation is a time of pulling the arrow back on the bow, so that one



can later engage in more dynamic activity with the start of a new cycle. Some Ayurvedic practitioners comment that the menstrual cycle is one of the factors that leads to the generally longer lifespan of women (versus men).[1-5]

Apana + Prana Vatas

The controlling dosha (or elemental energy) in premenstrual syndrome is vata (air). More specifically, it is *apana vata* (downward energy or adrenal energy) that governs the flow of prana (life force) into the reproductive organs. This apana vata provides the energy for the birthing process and the monthly cycle of menstruation. For the apana vata to do its job effectively, it is necessary for the downward-moving apana to do so without distractions.

If the lifestyle of the woman is such that there is no change in one's hectic lifestyle, particularly during the menstrual cycle, then the apana will not have available all of the energy necessary to perform a complete menstruation. Oftentimes, the physical and mental workload during this time is so great that the apana vata downward flow of energy turns upwards in an attempt to support the prana vata (upward flow of energy or mental energy) in accomplishing the task at hand.

This lifestyle stress, on a monthly basis for 10-20 years, can create a formidable depletion of adrenal energy and integrity of apana vata.[1-5]

The next stage in this picture happens when depleted apana vata is called upon to menstruate and there is not enough vitality available to support this process. Now the *prana vata* is called upon to support the apana vata in order to complete menses. The prana vata is the main vital, upward-moving force that stabilizes moods, emotions, and energy. When prana vata is imbalanced and moves downward, tiredness and moodiness (PMS) may result.[1-5]

Menstrual Health According to the Doshas

Vata Menstrual Health

Symptoms of menstrual cycle vata imbalance include:

Premenstrual

- Nervous tension
- Mood swings
- Worry/sadness
- Interrupted sleep
- Forgetfulness/confusion
- Occasional constipation

Menstrual

- Mild to moderate pain/cramps/backache
- Extended length of period with dark, clotted flow
- Irregularity of periods or flow
- Light amount of flow

Recommendations for Vata-Type Imbalances

Diet

- Eat a vata-pacifying diet. Eat more foods off of my Winter Grocery List and join my 3-Season Diet Guide, where I provide monthly guides to eating with the seasons.
- Avoid coffee, tea, tobacco, drugs, and extremely spicy foods.
- Favor warm, heavy, and oily foods.

• Minimize cold, dry, and light foods.

Food Supplements

• Eat 1 tsp ghee, coconut oil, or olive oil every night for one month. Take less if there is a laxative effect.

• Drink 2 tablespoons of pure (no preservative) aloe vera juice (*Aloe barbadensis*) after meals twice per day, but not during the menstrual flow.

• Drink fennel (*Foeniculum vulgare*) and licorice (*Glycyrrhiza glabra*) tea, as desired.

Herbal Supplements

For apana vata, take:

• Shatavari (*Asparagus racemosus*)

For prana vata, combine equal parts:

• Bacopa (*Bacopa monnieri*)

• Ashwagandha (*Withania somnifera*)

Activities

• Emphasize the importance of maintaining proper balance of rest and activity throughout the month.

• Rest during the period.

• Practice daily abhyanga (Ayurvedic massage) and exercise.

Home Treatments

• Daily abhyanga (see below) with sesame oil.

• For mild discomfort during the period, application of heat externally to the lower abdomen is advised. This may be accomplished by rubbing ripened sesame oil on the abdomen followed by the application of a hot water bottle directly to the oiled skin or placed on top of a cotton cloth soaked in fresh ginger juice or on top of a paste made from ginger powder and warm water.

Pitta Menstrual Health

Symptoms of menstrual cycle pitta imbalance include:

Premenstrual and menopausal

- Irritability/anger
- Increased appetite
- Headache
- Body heat or sweating
- Loose or increased bowel movements
- Mild skin irritation/acne

Menstrual

- Heavier than usual bleeding
- Increased frequency of periods
- Bright red flow

Recommendations for Pitta-Type Imbalances

Diet

- Eat a pitta-pacifying diet. Eat more foods off of my Summer Grocery List and join my 3-Season Diet Guide, where I provide monthly guides to eating with

the seasons.

- Avoid alcohol, coffee, tea, chocolate, cheese, yogurt, and animal products.
- Avoid delaying or skipping meals when you are hungry.
- Avoid sour, salty, and pungent foods.
- Favor cool and liquid foods.
- Favor sweet, bitter, or astringent foods. Minimize spicy, salty, or sour foods.

Food Supplements

- Drink fennel (*Foeniculum vulgare*) and/or coriander (*Coriandrum sativum*) tea.
- Drink 2 Tbsp pure (no preservative) aloe vera juice (*Aloe barbadensis*) after meals twice per day, but not during the menstrual flow.

Herbal Supplements

For both prana and apana vata, consider:

- Shatavari (*Asparagus racemosus*)
- Turmeric (*Curcuma longa*)
- Bacopa (*Bacopa monnieri*)

To decrease pitta and apana vata:

- Manjistha (*Rubia cordifolia*)

Activities

- Those experiencing pitta-type menstrual concerns should be encouraged to stay active and focused during the premenstrual phase. Overheating, however, should be carefully avoided.

Home Treatments

- Daily abhyanga (see below) with coconut oil.
- Each day for seven days before the period begins, perform abhyanga with coconut oil, followed by a hot bath one hour later. Massage the abdomen in a clockwise motion during the bath.

Other Recommendations

- Apply coconut oil to the head and feet at bedtime for more restful sleep and headache prevention.
- Sniff ghee daily for one week before the period.
- **Avoid overheating**, hot water on the head, and overexposure to sunlight.
- When irritable or out of sorts, it is important to ensure you are getting adequate rest. Also, try to stay focused on specific projects.
- Be sure not to take long hot showers or hot baths during your heavy flow days, as these tend to increase flow. Take a short shower or sponge bath instead.

Kapha Menstrual Health

Symptoms of menstrual cycle kapha imbalance include:

Premenstrual

- Mild weight gain
- Fluid retention
- Breast enlargement
- Mild to moderate abdominal bloating
- Temporary skin congestion

Menstrual

- Mild to moderate stiffness in back, joints, etc.
- Pale, mucus-like menstrual flow

Recommendations for Kapha-Type Imbalances

Diet

- Eat a kapha-pacifying diet. Eat more foods off of my Spring Grocery List and join my 3-Season Diet Guide, where I provide monthly guides to eating with the seasons.
- Avoid salt, cheese, yogurt, chocolate, and refined sugars and flours for one week before and during the period.

Food Supplements

- Spice food with ginger, cumin, cardamom, fennel, and coriander.
- Drink 2 Tbsp pure (no preservative) aloe vera juice (*Aloe barbadensis*) after meals twice per day, but not during the menstrual flow.

Herbal Supplements

For apana vata, combine equal parts:

- Shatavari (*Asparagus racemosus*)
- Ashwagandha (*Withania somnifera*)
- Trikatu (*Zingiber officinalis, Piper longum, Piper nigrum*)
- Dashamula (ten roots)

For Prana vata:

- Brahmi (*Centella Asiatica*)

General Recommendations for All Body Types

Exercise

It is especially important to get daily exercise. A brisk walk for 30 minutes is the minimum exercise required. Perform deep nose breathing during exercise.

Rest

Do not sleep during the day unless illness or unusual circumstances cause exhaustion. Always try to avoid sleeping within two hours after a meal. Try to have a lighter schedule or do not take on any extra tasks during the days of the menstrual flow.

Abhyanga: Ayurvedic Daily Oil Massage

Our skin is our largest organ. It weighs about six to 10 pounds and is about 16% of our body weight.[6-8]

Biologically, it is a very active organ: it is alive, it breathes, it self-repairs, and it gets rid of toxins.[8] But most importantly, what scientists are finding is that the skin is the largest endocrine organ and one of the richest sources of hormones anywhere in the body.[9]

When we stimulate the skin, we can cause a shower of beneficial chemicals into

our bloodstream.[10-12] The most important of these are growth factors or growth hormones. Our skin is a rich source of growth factors,13 and we can encourage these growth factors to be released into our bloodstream by simply stimulating the skin.[10-12,14]

It is important to realize that touch is about ten times stronger than verbal or emotional contact.[15] Like the other organs, the skin is also the seat of our body's emotions. We can influence emotions, feelings, and desires through our skin as a result of the release of these hormones.[16-19]

From an Ayurvedic perspective, a 10-20 minute oil massage from head to toe harmonizes mind and body and creates a sense of energy and buoyancy throughout the day. This practice is said to strengthen and balance the whole physiology, improve circulation and vitality, and rejuvenate the skin.

Conclusion

Thank you for taking the time to read this eBook. I hope it has inspired you to fight back against the blindness of innovation and realize that the regulation of innovation may take decades, allowing many to suffer needlessly.

Ayurveda is a time-tested system of medicine and, as you can now appreciate, their ancient wisdom is now cutting-edge science, as humans scramble to get their bodies (and nature as a whole) back in rhythm.

A circadian-based lifestyle for ourselves and our families is the first step to changing the course of a world obsessed with reckless innovation to a world set on sustainable innovation based on nature's wisdom.

References

Chapter 1 - We Are Circadian Beings

1. ncbi.nlm.nih.gov/pmc/articles/PMC5891123
2. ncbi.nlm.nih.gov/pubmed/26286355
3. ncbi.nlm.nih.gov/pmc/articles/PMC5711824
4. ncbi.nlm.nih.gov/pmc/articles/PMC3949691
5. ncbi.nlm.nih.gov/pmc/articles/PMC5882091
6. ncbi.nlm.nih.gov/pmc/articles/PMC4190455
7. ncbi.nlm.nih.gov/pmc/articles/PMC6070636
8. ncbi.nlm.nih.gov/pubmed/8365512
9. ncbi.nlm.nih.gov/pmc/articles/PMC4209073
10. ncbi.nlm.nih.gov/pubmed/9406025
11. ncbi.nlm.nih.gov/pubmed/25417104

Chapter 2 - Your Circadian Day

1. The Clocks within Us. Scientific American. 2: 50-55. (2015). Summa, K.C. & Turek, F.W.
2. PubMed: Effect of Time-of-Day-Specific Strength Training on Serum Hormone Concentrations and Isometric Strength in Men. Chronobiology International. 6: 1159-1177. (2007) Sedliak, M., Finni, T., Cheng, S., Kraemer, W.J. & Häkkinen, K.).
3. Medical News Today: Eating a big breakfast fights obesity and disease. 2013. University, A.F.o.T.A.
4. PubMed: Effects of Feeding Schedule Changes on the Circadian Phase of the Cardiac Autonomic Nervous System and Serum Lipid Levels. 10: 2603-2611. (2013). Yoshizaki, T., et al.
5. Scientific America: Breakfast Is the Most Important Meal for Dieters. Harmon, K. . (2013).
6. PubMed: Effect of Breakfast Skipping on Diurnal Variation of Energy Metabolism and Blood Glucose. Obesity Research & Clinical Practice. 3: e249-e257. (2014). Kobayashi, F., et al.
7. The 3-Season Diet. The 3-Season Diet Weight Balancing Study. 2001. Douillard, J.
8. Postharvest Circadian Entrainment Enhances Crop Pest Resistance and Phytochemical Cycling. Current Biology. 13: 1235-1241. (2013) Goodspeed, D., et al.).

9. NPR Science Friday: Vegetables Respond to a Daily Clock, Even After Harvest. 2013. Braam, J.a.F., Ira.

10. PubMed: Dietary Protein Distribution Positively Influences 24-h Muscle Protein Synthesis in Healthy Adults. The Journal of Nutrition. 6: 876-880. (2014). Mamerow, M.M., et al.

11. PubMed: Acute Effects of Bright Light Exposure on Cortisol Levels. Journal of biological Rhythms. 3: 208-216. (2010). Jung, C.M., et al.).

12. Center, U.o.R.M. To Sleep, Perchance to Clean. 2013.

13. Structural and Functional Features of Central Nervous System Lymphatic Vessels. Nature. (2015). Louveau, A., et al.

14. Merkulov, Y., Pyatkov, A. & Merkulova, D. [Work with night shift as a factor dysregulation of autonomic nervous system of locomotive drivers]. Patologicheskaia fiziologiia i eksperimental'naia terapiia. 1: 75-80. (2012).

15. pubmed.ncbi.nlm.nih.gov/24095125

16. ncbi.nlm.nih.gov/pmc/articles/PMC2701283

Chapter 3 - Ayurvedic Daily Routine (Dinacharya)

1. ncbi.nlm.nih.gov/pubmed/23440187

2. nature.com/scientificamerican/journal/v312/n2/full/scientificamerican0215-50.html

3. oem.bmj.com/content/early/2014/10/08/oemed-2013-101993

4. en.wikipedia.org/wiki/Nature_deficit_disorder

5. Douillard J. The 3-Season Diet. Three Rivers Press, New York: 2000.

6. lifespa.com/self-help/ecourses/ayurveda-challenge

7. nih.gov/news-events/news-releases/nih-grantees-win-2017-nobel-prize-physiology-or-medicine

8. ncbi.nlm.nih.gov/pmc/articles/PMC4079942

9. ncbi.nlm.nih.gov/pubmed/26566164

10. cell.com/current-biology/fulltext/S0960-9822(16)31522-6

11. ncbi.nlm.nih.gov/pmc/articles/PMC4284776

Chapter 4 - Mind-Body Vitamin D Benefits

1. ncbi.nlm.nih.gov/pubmed/12414856

2. ncbi.nlm.nih.gov/pubmed/17344510

3. ncbi.nlm.nih.gov/pubmed/18298852
4. ncbi.nlm.nih.gov/pubmed/16959053
5. sciencenews.org/article/antibiotic-vitamin
6. ncbi.nlm.nih.gov/pubmed/14662872
7. ncbi.nlm.nih.gov/pubmed/9792205
8. ncbi.nlm.nih.gov/pubmed/21384086
9. ncbi.nlm.nih.gov/pubmed/18377099
10. ncbi.nlm.nih.gov/pubmed/15531486
11. ncbi.nlm.nih.gov/pubmed/9771862
12. ncbi.nlm.nih.gov/pubmed/12499343

Chapter 5 - You Are HOW You Eat

1. ncbi.nlm.nih.gov/pubmed/9694306
2. ncbi.nlm.nih.gov/pubmed/2463752
3. ncbi.nlm.nih.gov/pubmed/2989371
4. ncbi.nlm.nih.gov/pubmed/21040780
5. ncbi.nlm.nih.gov/pubmed/15990734
6. cnn.com/2014/07/10/health/can-meditation-really-slow-aging
7. nytimes.com/2008/03/11/health/11real.html

Chapter 6 - 10 Reasons to Not Skip Breakfast

1. npd.com/wps/portal/npd/us/news/press-releases/pr_111011b
2. ncbi.nlm.nih.gov/pubmed/21925535
3. ncbi.nlm.nih.gov/pmc/articles/PMC4863263
4. ncbi.nlm.nih.gov/pmc/articles/PMC5241917
5. ncbi.nlm.nih.gov/pubmed/21439306
6. physiology.org/doi/10.1152/ajpendo.00163.2018
7. ncbi.nlm.nih.gov/pubmedhealth/behindtheheadlines/news/2017-10-04-regularly-skipping-breakfast-linked-to-hardening-of-the-arteries
8. ncbi.nlm.nih.gov/pmc/articles/PMC4411234
9. ncbi.nlm.nih.gov/pmc/articles/PMC5115204

10. ncbi.nlm.nih.gov/pubmed/23775814

11. ncbi.nlm.nih.gov/pubmed/27046951

Chapter 7 - Dangers of Eating Late

1. ahajournals.org/doi/10.1161/circ.138.suppl_1.11503

2. ncbi.nlm.nih.gov/pubmed/28701389

3. ncbi.nlm.nih.gov/pubmed/29367188

Chapter 8 - Seasonal Eating for the Healthiest Microbiome

1. sciencemag.org/news/2017/08/early-human-gut-bacteria-may-have-cycled-season

2. pbs.org/newshour/rundown/gut-microbes-found-hunter-gatherers-shift-seasons

3. lifespa.com/starch-double-early-human-brain-size

4. Haskell, David George. *The Forest Unseen*. Penguin Books, 2012.

Chapter 9 - Sleep Well + Wake Up Rested

1. ncbi.nlm.nih.gov/pmc/articles/PMC3991026

2. ncbi.nlm.nih.gov/pmc/articles/PMC3040882

3. ncbi.nlm.nih.gov/pmc/articles/PMC5313221

4. ncbi.nlm.nih.gov/pmc/articles/PMC4687242

5. ncbi.nlm.nih.gov/pmc/articles/PMC3545242

6. ncbi.nlm.nih.gov/pmc/articles/PMC3832558

7. ncbi.nlm.nih.gov/pmc/articles/PMC5042066

8. lifespa.com/discover-your-ayurvedic-chronotype

9. scientificamerican.com/article/molecular-clocks-scattered-throughout-your-body-not-just-in-the-brain-keep-your-tissues-humming

10. lifespa.com/how-to-harmonize-your-5-inner-clocks

11. ncbi.nlm.nih.gov/pubmed/17585686

Chapter 10 - Blue Light + Screen Time

1. McNeil J. *Protect Eyes from Screen Damage*. Life Extension Mag. December

2019.

2. sciencedaily.com/releases/2019/10/191017101253.htm
3. nature.com/articles/s41514-019-0038-6
4. ncbi.nlm.nih.gov/pubmed/29367188
5. lifespa.com/?s=melatonin

Chapter 11 - Reset Your Circadian Clock This Weekend

1. cell.com/current-biology/fulltext/S0960-9822(16)31522-6
2. ncbi.nlm.nih.gov/pmc/articles/PMC2831986
3. ncbi.nlm.nih.gov/pmc/articles/PMC4284776

Chapter 12 - 11 Ways to Increase Melatonin Naturally

1. cell.com/current-biology/fulltext/S0960-9822(16)31522-6
2. Reiter, R. *Melatonin*. Bantam Books. New York. 1996
3. ncbi.nlm.nih.gov/pmc/articles/PMC4734149/
4. ncbi.nlm.nih.gov/pubmed/14740000
5. ncbi.nlm.nih.gov/pubmed/3185865
6. ncbi.nlm.nih.gov/pubmed/8018787
7. ncbi.nlm.nih.gov/pubmed/22038497
8. nutritionfacts.org/2014/04/03/foods-with-natural-melatonin
9. ncbi.nlm.nih.gov/pubmed/3659736
10. ncbi.nlm.nih.gov/pubmed/9933863
11. ncbi.nlm.nih.gov/pubmed/23051584
12. ncbi.nlm.nih.gov/pubmed/26378246
13. ncbi.nlm.nih.gov/pubmed/14976457
14. ncbi.nlm.nih.gov/pmc/articles/PMC3402070
15. emfs.info/limits/limits-organisations/icnirp-2010

Chapter 13 - Menstrual Cycle Strategies by Body Type

1. Sharma, P.V. Cakradatta, *Chaukhambha Orientalia*. New Delhi, India. 1994.
2. Atha Vale, V.B. *Basic Principles of Ayurveda*. Bombay, India Town Pinery. 1980.

3. Bhishagratna, K.L. *Shushruta Samhita*, Vol 1 and 2. Varanasi, India. Chowkhamba Sanscrit series. 1981.

4. Sharma, P.V. *Charaka Samhita*, Vols. 1 and 2. Varanasi, India. Chaukhanbha. 1981.

5. Devaraj, T.L. *The Panchakarma Treatment of Ayurveda*. Dwanwantari Orientalia Publications, Bangalore India. 1986.

6. cme.dannemiller.com/scope/articles/activity?id=440

7. faculty.mu.edu.sa/public/uploads/1392463091.3606CAMS%20231%20Unit%202%20Integumentary%20System.ppt%20[Compatibility%20Mode].pdf

8. science.nationalgeographic.com/science/health-and-human-body/human-body/skin-article

9. ncbi.nlm.nih.gov/pubmed/16982574

10. ncbi.nlm.nih.gov/pubmed/25628581

11. ncbi.nlm.nih.gov/pubmed/15834840

12. ncbi.nlm.nih.gov/pubmed/23251939

13. sciencedirect.com/science/article/pii/S0022480485711602

14. ncbi.nlm.nih.gov/pmc/articles/PMC4354898

15. Field, Tiffany. *Touch*. Cambridge, MA: MIT Press: 2001. P. 57

16. ncbi.nlm.nih.gov/pubmed/2989371

17. Pert, Candace. *Molecules of Emotion*. Simon and Schuster, 1997. P. 144, 187, 208, 293, 297.

18. candacepert.com/wp-content/uploads/2014/05/Psychosomatic-network-peptides-receptors-Pert-JI85-Pert-820-6.pdf

19. candacepert.com/wp-content/uploads/2014/05/Advances-1991-Wisdom-of-the-Receptors1.pdf

Also by John Douillard

Books

Eat Wheat
A Scientific and Clinically-Proven Approach to Safely
Bringing Wheat and Dairy Back into Your Diet

Colorado Cleanse
Guide to 14-Day Colorado Cleanse + Seasonal Cookbook

Body, Mind, and Sport
The Mind-Body Guide to Lifelong Health, Fitness, and Your Personal Best

Perfect Health for Kids
10 Ayurvedic Health Secrets Every Parent Must Know

The 3-Season Diet
Eat the Way Nature Intended: Lose Weight, Beat Food Cravings, Get Fit

The Encyclopedia of Ayurvedic Massage

DVDs

Natural Detox

eCourses

Ayurveda 101: Spring, Summer + Winter (Vata, Pitta + Kapha)

Ayurveda 201: Six Weeks to Transformation + Bliss through Ayurvedic Psychology

28-Day Ayurveda Challenge: Change Your Daily Routine, Change Your Life

Transformational Awareness Technique: 6 Meditations

Ayurvedic Pulse Reading

Perfecting Digestion

Cleanses

Colorado Cleanse
14-Day Ayurvedic Detox + Lymph Cleanse

Short Home Cleanse
4 Days to Reset Digestion + Fat Metabolism

Kaya Kalpa Cleanse
5 Days to Mind-Body-Spirit Transformation

Free eBooks

Ayurvedic Guide to Immunity | Edible Flower Guide | Miracle of Lymph
Protein Solution | Ayurvedic Weight Balancing | Digestive Troubleshooting Guide
Safe Liver + Gallbladder Cleansing | Blood Sugar Secrets for Health + Longevity
Ayurvedic Guide to The Best Sleep of Your Life | Dr. John's Guide to Taking Herbs
Ayurveda for a Healthy Family | Short Home Cleanse | Kaya Kalpa Cleanse

Free Resources

Videos | Articles | Podcasts | Health Quizzes

Subscribe to our newsletter!

As a LifeSpa insider, you will get special discounts and coupons. You'll be the first to know about special events, podcasts, and our latest health and nutrition articles!

Learn More at lifespa.com/newsletter-signup

About John Douillard

Dr. John Douillard, DC, CAP, is a globally recognized leader in the fields of natural health, Ayurveda, and sports medicine.

He is the creator of LifeSpa.com, the leading Ayurvedic health and wellness resource on the web with 10M+ views on YouTube and 130k+ newsletter subscribers. LifeSpa.com is evolving the way Ayurveda is understood around the world, with thousands of articles and videos joining ancient wisdom with modern science.

Dr. John is the former Director of Player Development for the New Jersey Nets NBA team, author of seven health books, including his Amazon bestsellers *Eat Wheat* and *The 3-Season Diet*. He is a repeat guest on the Dr. Oz show and co-author of the newly released *Yoga Journal* course *Ayurveda 201* on Ayurvedic Psychology. He directs LifeSpa Ayurvedic Clinic, the 2013 Holistic Wellness Center of the Year in Boulder, CO.