Why Your Body Runs on a 24-Hour Clock—and Why It Matters to Women's Health Transcript

(Transcripts are generated by AI and may contain errors)

Podcast Introduction and Circadian Rhythm Overview

So one of the recommendations to keep on a better circadian rhythm is to reduce your blue light exposure. And that includes just overhead light in your home or office.

And some people would even advocate using red lights if you're someone who has a particular problem sleeping. Have you made it past menopause or are you going through it now?

I'm Dr. Pat McShane and on the Women's Health Span Voices podcast, I'll guide you through the health challenges of the menopausal years and beyond. Guiding the way to thriving in this powerful era of your womanhood.

Hi, I'm Dr. Pat McShane, and it's great to have you on my podcast here, Women's Health Span Voices. Today, I'm going to be the only voice that you're going to hear, but you're going to hear a lot of information from other sources about circadian rhythm.

Circadian rhythm seems to come up more and more in a lot of the medical literature that I've been reading. And there's many, many reasons for that, which we'll go into in some detail.

Well, what is circadian rhythm and why do we have it? Well, as you probably are aware, we certainly have sleep and wake cycles, most of us, and they're fairly constant from one person to the next, unless we're shift workers or night workers.

What Circadian Rhythm Is and Why It Matters

And there's a good reason for that in biology, which is in our earlier times, we were vulnerable if we were up and about at night to nocturnal predators, perhaps, and our food sources were more easily discoverable during the day.

So we have carefully evolved a mechanism to keep us on kind of a 24-hour schedule. and following the light dark schedules fairly well. And I'm going to read a couple of statements here.

One of them, a quite recent one from the American Heart Association talking about what is circadian rhythm and circadian health. So here goes. a rapidly advancing field of medicine focused on applying insights from circadian biology to the prevention, diagnosis, and treatment of diseases with particular relevance to cardiometabolic disorders.

For example, hypertension, that's high blood pressure, diabetes, and cardiovascular disease. Offering the potential to greatly improve patient outcomes and longevity.

And that, of course, is the entire reason for this podcast. My women's health span voices and circadian health. refers to the optimal function, rhythmicity, and alignment of the circadian system to the light-dark cycles for maintaining physiological and behavioral homeostasis.

And homeostasis is being basically stable and not having large swings and being able to adapt to conditions that are around you. So that's kind of a broad overview, and what mechanisms do we have within our body?

Well, the main one is our brain's response to light, the light cycle of sunrise, sunset, and so on. And that goes on in what's called the suprachiasmatic nucleus in our brains.

But it turns out, and this has been fairly newer information, that almost all of our cells in our body have their own

clocks that may or may not be in sync with the brain suprachiasmatic nucleus, the SCN nucleus.

Body Clocks, Light, and Daily Timing

And our gut is one of the examples of that, but our muscles even, our heart, and many, many other of our organs have their own timekeepers, if you will.

Other things that might help us to stay in the right rhythm are response to temperature. And of course, most of us live in places where it's cooler in the morning and the evening and the peak temperatures are midday.

And some of this has to do with how our bodies release hormones and what our appetite is doing and so on. And then we superimpose some timing aspects by what we do, sleep being the main one, but our exercise and other activities, and then when we eat as well.

So all of these things kind of come together to determine the clocks in our body. And we're going to talk a little bit more about how that can be helped and how it can be disrupted.

Our modern life, of course, doesn't behave according to a lot of the older aspects of life. In other words, we have the availability of food. We don't have to catch it or grow it.

It's in our refrigerators or in the deli counter at our local supermarket. We have light 24-7 with the flip of a switch and the light that we currently have is a different wavelength than the sunlight, which in fact the sunlight varies during the day and artificial lights don't vary in their wavelength and we'll come back and talk about that a little bit more.

We also have As I mentioned, people who work night shifts routinely or different shifts or even split shifts, which can be very disruptive to our internal clocks.

We also have jet lag and we can be flying around and be in a time zone that's 12 hours different than our natural time zone in the matter of less than a day.

So all of this has been studied to some extent and can certainly disrupt our normal circadian rhythms. As we get older, our clocks tend to change and many of us are familiar with the sleeping of babies, which is all over the map.

Modern Life Disruptions to Circadian Health

They haven't been entrained yet in the light and dark cycle because they've been in the in the uterus in the womb for nine months, hopefully. And then younger children tend to wake up earlier than during our teen years that backs up into a different timeframe.

Our adult life is more on a clock circulated around our work life. And a lot of people have what we call social jet lag, which is every weekend they sleep in an hour or two or sometimes more.

And then by, let's say, Monday morning, when many of us go back to work, they have basically reset their internal clocks, and that can be very, very disruptive.

As we get older, our clock goes back to an earlier version. We tend to go to sleep earlier and wake up earlier. And we can suffer from more disruptions in our rhythms as we get older as well.

And women are more susceptible to this, it turns out. In an earlier era, when we were perhaps awakened by the natural sunlight, what would occur was that light that had a lot of blue light in it would reset a bunch of hormones and mechanisms in our body.

One of the main ones is cortisol. It would lower our cortisol. And of course, cortisol is an adrenal hormone that determines many, many of our body metabolic processes.

Melatonin is a hormone that is active within our brains as well as in other parts of our bodies. And that morning light will diminish our melatonin as well.

And that helps us to improve our energy. Other issues that go on have to do with our neurotransmitters in our brains, dopamine and serotonin. So some of the issues with if we're not paying close attention to our circadian rhythms is we can lack energy and focus from these various hormones and neurotransmitters not being up to par.

Many of the sources of artificial light are very heavy in the blue light spectrum, especially LED lights, which of course have taken over from the old incandescent lights that many of us grew up with that were much more reddish.

Aging, Hormones, and Blue Light Exposure

And these impair often our ability to get to sleep and even to stay asleep. So one of the recommendations to keep on a better circadian rhythm is to reduce your blue light exposure.

And that includes just overhead light in your home or office. And some people would even advocate using red lights if you're someone who has a particular problem sleeping.

I am going to do a podcast on sleep in the near future. So today we're just going to be touching on a couple of the aspects of sleep, which of course is so important.

in obtaining a good circadian rhythm, but there will be much more to be said in our next episode. Another thing that has recently been particularly studied is light at night.

And of course, many of us don't have a lot of control over how much light we are exposed to at night. If we're lucky enough to have a dark room or darkening shades, that's a big help.

But not everybody has that option. Some of us live in areas that have a tremendous amount of nighttime light. Besides being bad for bird migrations and other animals, it's bad for humans, it turns out.

There have been studies looking at light maps and various kinds of illnesses in humans, and there is a correlation between excessive light at night and even mortality, overall mortality, chance of dying.

Another aspect of sleep that is a little bit more under our control for most of us is consistency. So even if we get the recommended seven to nine hours of sleep, but we're kind of moving all over the map, one night we go to sleep at nine o'clock and the next night it's midnight or one or two, that can disrupt our circadian rhythms as well.

So that's something to be mindful of. Activity or exercise, for most of us, we get it when we can. And if we're in the work world, that may be late at night in some instances.

If that is disruptive of one's sleep, then it's better to avoid it if possible. But I would say in general, I'm such a big advocate for activity and movement.

Sleep, Light at Night, and Meal Timing

that it's better to do the activity and take the chance that it might disrupt our circadian rhythm a little bit than to just not do the activity. So that is highly variable from one person to the next.

Another aspect is meals and food. In general, most of the studies of what people eat have really not looked at when they eat. And this is something that's being focused on more and more now.

And it's important and our gut has its own clocks and we can certainly disrupt our circadian rhythm and this can be studied in our hormone secretions and so on by eating particularly late at night is the one that that is the most problematic.

And it turns out that it's healthier to basically eat breakfast fairly early upon awakening and then try to keep within a timeframe of 10, 12, 14 hours somewhere in there, not eating after dinner and eating dinner as early as is practical for you, which of course in in the working population, sometimes very, very difficult, especially if you're the one who has to go home and make the dinner and you don't get home until six or 7 PM from your commute.

So for most of us in the senior age range, that's not going to be a big issue unless we're feeding folks who are themselves on a work-related schedule.

So that one should be pretty easy for most of us to manage. So our overall to-do list here is to try to keep on a consistent schedule with our sleep. Try to keep the eating schedule within the bounds that I just mentioned.

Don't do late night or late evening exercise if it disrupts your sleep. Basically try to stick on our own chronobiology or circadian rhythms.

Practical Tips and Closing Remarks

It turns out that people who are able to do that are much less likely to have heart disease and even diabetes and other kinds of health problems as mentioned in the American Heart Association statement that I read at the beginning.

of this podcast. So I hope this is helpful information for you. If it is, I would love you to like and subscribe and tell your friends about Women's Health Span Voices.

Thanks so much and see you again soon. Thanks for listening to the Women's Health Span Voices Podcast. If today's episode spoke to you, follow the show and share it with a friend ready to take charge of her health and please leave a review.

It helps more women find us.