



TAKE TIME TO STAY IN TUNE

with Your Biological Clock

You've probably heard that your body has its own biological clock, but have you ever given much thought as to how important this clock is? Indeed, your biological clock helps you feel alert during the day, hungry at mealtimes, and sleepy at night. Moreover, keeping your body's daily cycles, or circadian rhythms, in sync is important for your health.

A circadian rhythm is a roughly 24 hour cycle in the physiological processes of living beings, including humans, plants and animals. They affect almost every part of your physiology in one way or another. Circadian rhythms are big influencers in the body. Learning how these rhythms are generated is critical for understanding health.

DAILY RHYTHMS

Our natural daily rhythms are synchronized with the sun. A "master clock" in the brain receives direct input from the eyes and coordinates all the biological clocks in the body.

During the day, it sends signals to other brain regions to make hormones that will help keep you awake, boost your heart rate, and give you energy. In the evening, when less light enters your eyes, it triggers production of a hormone called melatonin. Melatonin makes you feel drowsy and helps you stay asleep.

Your biological clock's "settings" are determined by specific genes. These settings can affect body temperature, blood pressure, activity level, inflammation (your body's protective response to injury or infection), fertility, mood, and brain functions. Even the timing of health-related events can be related to your biological clock. For instance, heart attacks are more likely to occur early in the morning, when the level of a hormone called cortisol starts its daily rise.

Circadian rhythms can influence eating habits, digestion, and metabolism (how our body uses and stores energy), too. Researchers have found that eating later in the day, closer

to when melatonin is released, can disrupt the body's natural rhythms. This can lead to increased body fat and weight gain, which are often associated with obesity, heart disease, and diabetes.

Time of day has also been shown to impact the effectiveness and side effects of certain medications, including those used to treat cancer.

BE MINDFUL OF WHAT AFFECTS YOUR RHYTHMS

Be mindful about how you may be altering your circadian rhythms. For instance, shift workers who must be on the job after the sun goes down are at odds with their biological clocks. They may be tired at work and have trouble falling or staying asleep during daylight hours after work. Studies show that shift workers have increased risk for heart disease, digestive disturbances, cancer, depression, and other health problems.

Traveling across time zones can also disrupt your circadian rhythms. The brain has trouble adjusting when the time of day suddenly changes. The result is jet lag.

Researchers are considering time of day and how to sync up with the body's clocks in all aspects of health, even the best time to have surgery on specific parts of the body. These studies may lead to new insights for a range of clock-related disorders, from insomnia and jet lag to diabetes.

Here are some additional ways you can help keep your body's clock in sync:

- » Stick to a regular sleep schedule every day of the week.
- » Sleep in a dark, quiet, and comfortable place.
- » Avoid heavy meals two to three hours before bedtime.
- » Avoid caffeine, nicotine, and alcohol late in the day.
- » Exercise daily, but not within two hours of bedtime.
- » Limit the use of electronics with bright screens before bedtime.



DID YOU KNOW?

Smartphones—like laptops, tablets, and televisions—emit blue light, a type of light that the brain interprets as daylight. It suppresses melatonin (the hormone that affects circadian rhythm) and can make it even tougher to fall asleep if used before bedtime.