

HAPPY HOLIDAYS

Chronotype vs. Circadian Rhythm

Chronotype is the natural inclination of your body to sleep at a certain time, or what most people understand as being an early bird versus a night owl. In addition to regulating sleep and wake times, chronotype has an influence on appetite, exercise, and core body temperature. It is responsible for the fact that you feel more alert at certain periods of the day and sleepier at others.

Sleep chronotype is closely related to circadian rhythm, which controls the day-to-day sleep-wake cycle and releases melatonin in response to environmental cues such as light and temperature. However, while circadian rhythm can be “trained” by adhering to a strict schedule, the underlying chronotype exists on a more permanent basis.

Chronotype does not influence total sleep time. If most adults need between seven and nine hours of sleep a night, this is usually much easier to accomplish for an early bird than for a night owl, who has trouble falling asleep before 1 am. For this reason, night owls have historically faced more difficulty adapting to typical work schedules. Scientists consider it very difficult or impossible to purposely change your chronotype, though it may shift throughout the course of your life. When a person’s natural chronotype comes into conflict with the demands of their schedule, this is termed social jetlag.

What Determines Your Chronotype?

Chronotype can vary from person to person depending on genetics, age, and other factors. Some scientists believe that chronotype may differ according to geographical location as well, due to changes in daylight hours. As a general rule, most children have an early chronotype. Beginning in adolescence, chronotype is pushed back, leading to the myth that teenagers are lazy because they find it difficult to wake up for school. Chronotype then gradually shifts earlier and earlier starting from the age of 20. The majority of middle-aged American adults do best with a bedtime between 11 pm and 12 am, and a wake-up time between 7 am and 8 am. In older adulthood, our chronotype shifts even earlier.

Females tend to have an earlier chronotype than males, though some studies find that this gap disappears after approximately age 50. It’s possible that the differences between the genders are simply a product of societal factors such as household tasks, career progression, and retirement, which tend to follow different patterns for women and men. Emerging evidence shows that chronotype likely has a strong genetic component. Among other things, having a longer allele on the PER3 circadian clock gene has been tied to morningness.

<https://www.sleepfoundation.org/how-sleep-works/chronotypes>



AIR FORCE MEDICINE
TRUSTED CARE...ANYWHERE
WWW.AIRFORCEMEDICINE.AF.MIL

See calendar on other side to
see what is going on this week

What is Your Chronotype?

To figure out your chronotype, think about what time you would prefer to wake up on a day that you are completely free to plan, with no work or other requirements.

You probably already know whether you prefer waking up early or late. If not, one of the most popular online quizzes was made by Dr. Michael Breus, who describes four kinds of chronotypes, based on sleep-wake patterns seen in animals.

Lion: The lion chronotype stands in for the early bird. These individuals wake up early and are most productive in the morning, but may have more trouble following a social schedule in the evenings.

Bear: According to Dr. Breus, the bear chronotype makes up about 55% of the population. People with this intermediate chronotype tend to follow the sun. They do well with traditional office hours but also have no problem maintaining a social life in the evenings.

Wolf: The wolf chronotype is equivalent to the classic night owl, and is believed to make up approximately 15% of the population.

Dolphin: The dolphin chronotype is based on the ability of real dolphins to stay alert even while sleeping. Human “dolphins” are best described as insomniacs.

While these types can give you a general idea of your ideal schedule, there will always be variations from person to person.

A Personal Message From Your Health Promotion Health Myth Busting Team



Dear Health Myth Busters,

Is there an association between being an early bird or night owl and your personality and health?

Sincerely,
Sleep Curious

Dear Sleep Curious,

This is a great question, multiple studies have found associations between being an early bird or night owl and your personality, health, and your quality of life. Personality traits associated with being an early bird include conscientiousness and agreeableness. By contrast, neuroticism and openness to experience are typically related to night owls. Studies have found conflicting evidence for whether extraversion is more representative of morning or evening types.

Morning people tend to perform better in school, while evening types may have more of an aptitude for creative thinking. It is difficult to say whether these traits are innate or whether they are due to secondary factors, such as the fact that school tends to start early in the day and many creative professions require people to be active in the evening. Evening people tend to have more flexible sleep schedules, be less physically active, and sleep less on weekdays, making up the lost time by sleeping in on the weekend. These unhealthy habits lead to an increased stress response, higher cortisol levels, and a higher resting heart rate, which are risk factors for sleep apnea, obesity, type 2 diabetes, mental disorders, and metabolic syndrome.

Many of these adverse outcomes are also linked specifically to a mismatch between being an early bird or night owl (chronotype) and work schedule. For those who must adhere to a routine that does not match their chronotype, melatonin supplements, light therapy, or careful attention to sleep hygiene habits may help shift circadian rhythm to reduce insomnia and the effects of social jetlag. However, most people find they are unable to permanently change their chronotype.

Sincerely,
Health Myth Busters

Got questions on other health issues related to sleep health, physical activity, tobacco, or nutrition? Share them with us and we will help you "Bust The Myths!" Send your questions to usaf.jbsa.afmsa.mbx.afmra-hpo@health.mil. Make sure to include in the subject line "Health Myth Buster." For more online health tips visit the Air Force Health Promotion webpage <https://www.airforcemedicine.af.mil/Resources/Health-Promotion/>



@AF_HealthPromotion_HQ



@AirForce_HP



Air Force Health Promotion HQ

Community Events

HERE'S WHAT'S GOING
ON WHERE YOU LIVE

Your Local Health
Promotion Office



Contact:

Phone:

Email:

Monday	Tuesday	Wednesday	Thursday	Friday