

Researching Medical Education

What are circadian rhythms?

Circadian rhythms are physical, mental, and behavioral changes that follow a 24-hour cycle. These natural processes respond primarily to light and dark and affect most living things, including animals, plants, and microbes. Chronobiology is the study of circadian rhythms. One example of a light-related circadian rhythm is sleeping at night and being awake during the day. The Average Teen Circadian Cycle image shows the circadian rhythm cycle of a typical teen.

What are biological clocks?

Biological clocks are organisms' natural timing devices, regulating the cycle of circadian rhythms. They're composed of specific molecules (proteins) that interact with cells throughout the body. Nearly every tissue and organ contains biological clocks. Researchers have identified similar genes in people, fruit flies, mice, plants, fungi, and several other organisms that make the clocks' molecular components.

What is the master clock?

A master clock in the brain coordinates all the biological clocks in a living thing, keeping the clocks in sync. In vertebrate animals, including humans, the master clock is a group of about 20,000 nerve cells (neurons) that form a structure called the suprachiasmatic nucleus, or SCN. The SCN is in a part of the brain called the hypothalamus and receives direct input from the eyes.

Reference

[Survey Methods for Medical and Health Professions Education: A Six-Step Approach](#)

[International Handbook of Research in Medical Education \(Springer International Handbooks of Education, 7\)](#)