

Study of circadian rhythm reveals differences in men and women

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A pair of researchers at the University of Pennsylvania has been analyzing papers by researchers studying the circadian rhythm in humans and has found a pattern: there are gender differences. Seán Anderson and Garret FitzGerald have published a Perspective piece in the journal *Science* describing the differences they found.

Prior research has found that humans and other animals have more than one kind of bodily rhythm. In addition to the circadian rhythm, which regulates sleep and wakefulness, humans have rhythms that control breathing, the shedding of skin and the heart rate—to name just a few. The circadian rhythm is perhaps the most well-known because it has such an observable impact on our daily lives; it controls when we go to bed and when we wake up. It also is involved in metabolism. We get more tired at certain times than others and because of that, tend to speed up or slow down whatever it is we are doing. In this new effort, the researchers were looking to learn more about the circadian rhythm by reading papers written by researchers who had conducted direct studies of its impact on people. In

all Anderson and FitzGerald looked at studies involving over 53,000 people. In so doing, they found that age and sex "substantially affect" body clocks.

More specifically, the researchers found women in general, tend to be morning people, while men are more apt to be night people. They also found that women are more resilient to disruptions of their natural circadian rhythm. Women tend to be more active during the day, a pattern that is also common in children. They are less energetic than men at night, however. And they found that women spend more time sleeping and while sleeping spend more time in slow-wave deep sleep, than men. They were also more resilient to disturbances while they were sleeping. Men on the other hand, were found to be more likely to take afternoon naps.

The researchers did not find any reasons for the differences in [circadian rhythms](#) between the genders but suspect it has to do with the maternal role women have traditionally played—it would seem natural for them to have a circadian rhythm in tune with their offspring. They also note that some research has found a link between the circadian rhythm in [women](#) and their estrous cycle.

More information: Seán T. Anderson et al. Sexual dimorphism in body clocks, *Science* (2020). [DOI: 10.1126/science.abd4964](https://doi.org/10.1126/science.abd4964)

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