

LIGHT EXPOSURE

Light and the body clock

The environmental time cues that synchronize the clock to a 24-hour day are known by the German term



zeitgebers, meaning “time-givers.” One of the most powerful types of *zeitgebers* is exposure to bright light.

Bright light (more than 2500 lux — most normal indoor light is less than 500 lux) affects the circadian clock by means of a direct neural pathway from the eye.

Research shows that exposure to bright light close to bedtime can impact sleep by suppressing **melatonin**, an important hormone produced by the pineal gland in the brain. Turning down the lights before bedtime helps stimulate the secretion of melatonin, signaling the body that it’s time to go to sleep. Melatonin secretion usually continues until about halfway through the night, then it starts to decrease gradually until you awaken.

Light and dark reset your clock

The body clock does not adapt immediately to changes in our work and rest schedules due to different work shifts or traveling across time zones. Exposure to light dark at different times can help adjust your body clock.

- For **night shifts**, consider light exposure in the evening hours to help “push” the clock back
- When **traveling east**, get light in the morning and avoid light in the evening
- When **traveling west**, get light in the evening and avoid light in the morning
- We generally adjust a little quicker traveling west, at about 1.5 time zones per day; it’s about 1 time zone per day when going east.

Got shiftwork?

Light up your nights!

Bright light exposure can also provide an acute short-term boost to alertness. During the day shift, getting outside for some sunlight can help, while on night shifts, a brightly lit break room can help.

A study found that night workers who got bright light during their night shift and minimized the morning light with sunglasses reported more alertness while on shift and had better daytime sleep.



Don’t be SAD, it’s just wintertime

When winter comes, the shortened amount of daylight can affect several aspects of life. **Seasonal affective disorder** (SAD) is a type of depression that occurs mainly during the winter months. This disorder is associated with increased sleepiness, increased appetite (leading to weight gain), and unhappiness. People who live closer to the Arctic region are exposed to the least amount of daylight and report more cases of SAD.

Those who may be suffering from SAD are encouraged to seek help from a health care professional, as there is a risk for developing long-term depression. Medical treatment for SAD includes bright light therapy, medications, and cognitive behavioral therapy.

“It’s a cruel season that makes you get ready for bed while it’s light out.” – Bill Watterson, author of Calvin and Hobbes, regarding summer