

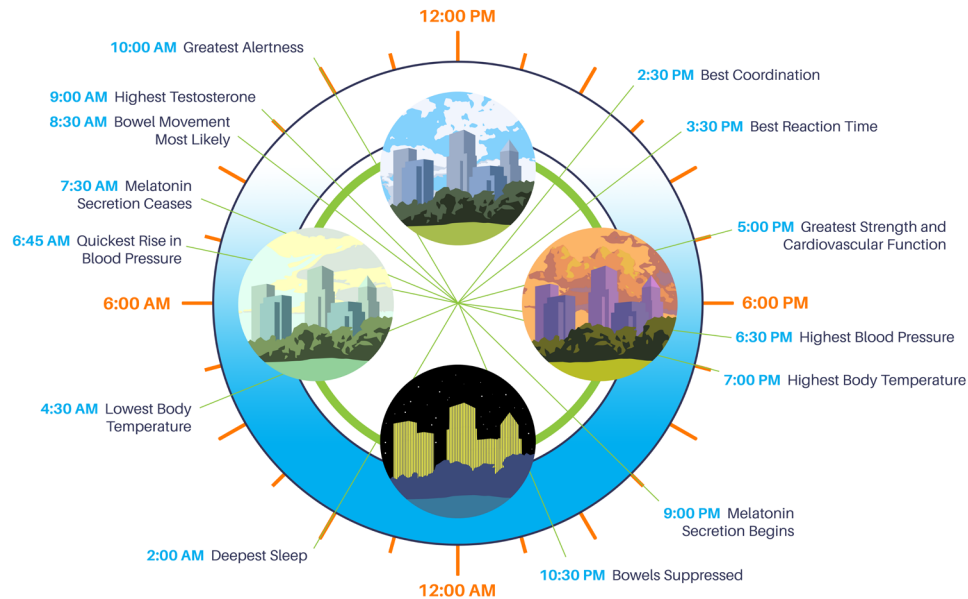
Circadian Lighting

Natural lighting patterns
for greater wellness

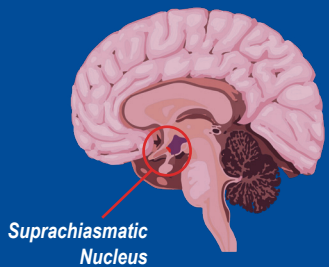


What is a Circadian Rhythm?

During any given 24-hour period, the natural shifts in hue and light intensity have a vital impact on the human body's circadian cycle. This biological rhythm regulates the release of the hormones, cortisol and melatonin (released during the day and night respectively) and affects many other physiological processes that determine the body's overall health and performance.



In 1980, Dr. Martin Moore-Ede led a team at Harvard Medical School that identified the **suprachiasmatic nucleus** or **SCN**, a region in the human brain that regulates the 24-hour circadian cycle of sleep patterns, body temperature and hormone excretion.



As a result of the demands of modern existence, we now spend 90% of our time inside under artificial lighting. This excess of unnatural light generated by ordinary LEDs has caused disruption in our circadian rhythms. Light intensity and hue of ordinary fixed color temperature LEDs are inadequate, providing too much blue at night and too little during the day. Such chronic exposure to blue light (from LED bulbs and other electronics) is known to cause stress on the body, sleep problems, and general deterioration of health.


Many believe, erroneously, that installing white tunable LEDs can solve the problem of circadian disruption. The truth is that not all white-tunable LEDs are created equal. Despite marketing claims such as human centric, most white-tunable systems do not emit the full range of color temperatures or provide enough light intensity to be supportive of circadian health.

Why Install Circadian Lighting?

Most LEDs fail to adequately limit blue light at night or yield enough daytime stimulus to reset the body's clock (circadian rhythm). Circadian Lighting is intended to work with the human biological clock, reducing the disruptions to circadian rhythm caused by the excessive unnatural lighting so prevalent in modern society.



By simulating the changing position of the sun, circadian lighting modulates blue light exposure through a full range of color temperature which accommodates the biological clock and assists in maintaining consistency of sleep/wake patterns. Studies have indicated exposure to natural light variation can reduce the physical and psychological stress that is a result of constant artificial illumination*. With the introduction of proper circadian lighting into workspaces, building occupants have reported better sleep, increased energy, and greater feelings of health and general wellness.



*In a recent study by the Lighting Research Center, employees from a couple of VA buildings participated in a study that compared work spaces that included circadian lighting with those that included only conventional lighting. The results indicated that the dynamic lighting had detectable circadian stimulation; employees exposed to circadian lighting had far better sleep scores as well greater vitality and energy throughout the day.**

* Figueiro, Mariana G. PhD, et al. Circadian Lighting and Its Impact on Alertness in Office Workers. Lighting Research Center, Rensselaer Polytechnic Institute. New York, 2017.

For more information and to set up Circadian Lighting Starter Steps, Contact Katherine Wilde
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