



주 은 연

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New Insights Into Light and Circadian Rhythm

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In humans, light exposure at night, (before the core body temperature minimum phase delays the clock or moves the clock later), early morning light exposure, after the core body temperature minimum phase, advances the clock (moves the clock earlier). In most individuals, this daily exposure to light helps to maintain appropriate alignment of behaviors (including the sleep-wake cycle) with the environment. Delayed sleep-wake phase disorder (DSWPD) is a circadian rhythm sleep-wake disorder characterized by a delay in the habitual sleep period relative to the environment, resulting in insomnia and impaired daily functioning. Misalignment between the endogenous sleep-wake cycle and the daily light-dark cycle or required social/professional activities can lead to sleep complaints of insomnia and/or excessive sleepiness. In addition to sleep complaints, there are higher levels of depression, anxiety and substance abuse disorders among individuals with DSWPD. Although light is the most powerful synchronizing agent for the circadian clock, prior/past studies quantifying the timing and amount of light exposure in DSWPD or evening-types are limited. In this lecture, I present latest data on the timing of light exposure and activity in adults with DSWPD compared to intermediate chronotype controls. In addition, given the growing evidence for a role of light in regulating body weight, I present recent data on the relationship between the timing and duration of daily habitual ambient light exposure, sleep timing and duration with body mass index.

Key Words: Light, Circadian rhythm, Delayed sleep-wake phase disorder, Sleep, Body mass index

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