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Perspective

Impact of Digital Device Use on Sleep Hygiene and Circadian Rhythm Regulation

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DESCRIPTION

Sleep hygiene refers to a set of behavioral and environmental practices that are intended to promote better quality sleep and prevent insomnia or other sleep-related disturbances. In today's fast-paced, digitally driven world, maintaining healthy sleep habits has become increasingly challenging. Many individuals experience disrupted sleep patterns due to irregular schedules, excessive screen exposure, poor dietary habits and heightened stress levels. Although sleep is a natural biological process essential for restoration and functioning, it often becomes neglected in modern lifestyles. Understanding sleep hygiene involves appreciating not only the physiological necessity of sleep but also the intricate relationship between habits, environment and mental well-being. Sleep hygiene thus represents both a science and a discipline one that requires deliberate effort and mindfulness to cultivate.

Sleep serves as the body's fundamental mechanism for recovery, memory consolidation, and regulation of various physiological systems. During sleep, the brain undergoes processes that enhance cognitive performance, emotional stability, and immune defense. However, when sleep quality is compromised, individuals may experience cognitive decline, irritability, weakened immunity and increased susceptibility to chronic illnesses such as hypertension, diabetes and depression. Research has shown that adults require an average of seven to nine hours of quality sleep per night, yet a significant proportion of the population fails to achieve this benchmark. The global rise in sleep deprivation has been linked not only to lifestyle habits but also to technological overuse, social pressures, and occupational demands. Poor sleep hygiene often lies at the core of these sleep difficulties, underscoring the need for education and behavior modification to restore healthy sleep patterns.

One of the foundational principles of good sleep hygiene is maintaining a consistent sleep schedule. The human body operates according to a circadian rhythm a biological clock that regulates the timing of sleep and wakefulness based on environmental cues, particularly light and darkness. Disruptions to this rhythm, such as irregular bedtimes, frequent napping, or shift work, can lead to sleep disorders and fatigue. Going to bed and waking up at the same time every day, even on weekends, helps synchronize the body's internal clock, making it easier to fall asleep and wake up naturally. Consistency signals the brain when to release melatonin, the hormone responsible for inducing sleep, thereby creating a stable sleep-wake cycle.

Technology has become one of the major disruptors of sleep hygiene in recent decades. The pervasive use of smartphones, tablets, and computers before bedtime exposes individuals to blue light, which suppresses melatonin production and delays sleep onset. Furthermore, engaging with stimulating content such as social media, emails, or streaming entertainment keeps the brain active at a time when it should be winding down. Experts recommend avoiding screens at least one hour before bedtime and opting for calming pre-sleep rituals instead, such as reading a physical book, listening to soft music, or practicing relaxation techniques. Implementing a "digital curfew" can help signal to the brain that it is time to transition from the stimulation of the day to the tranquility of rest.

In many cases, individuals underestimate the cumulative effects of poor sleep hygiene. Chronic sleep deprivation can impair attention, decision-making and emotional regulation, often leading to accidents, decreased productivity, and strained relationships. In the long term, poor sleep has been associated with metabolic disorders, immune dysfunction, and neurodegenerative conditions such as Alzheimer's disease. Therefore, investing in good sleep hygiene is not merely about feeling rested but about preserving long-term health and cognitive integrity.

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