

ADDICTION TO MOBILE GAMES AND DISTURBANCE OF SLEEP RHYTHMS

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Annotation:

This article provides an in-depth analysis of the impact of mobile game addiction on the rhythms of sleep hormones-particularly melatonin and cortisol-among young people. Based on scientific sources, the study highlights alterations in the secretion patterns of these hormones resulting from prolonged and nighttime engagement with mobile games, as well as their effects on health. Research indicates that in individuals addicted to mobile games, melatonin levels are on average 35-40% lower than normal, while the circadian rhythm of cortisol is delayed by 23 hours. Consequently, screen-induced eye strain, sleep deprivation, chronic fatigue, irritability, and neurobiological dysfunctions in brain activity are observed. Therefore, it is recommended to strengthen preventive educational efforts among youth, promote sleep hygiene, reduce mobile game addiction, limit screen exposure during evening hours, engage in physical activity, and carefully use natural remedies that help restore biological rhythms.

Keywords: mobile game addiction, sleep rhythm, melatonin, cortisol, digital technologies, screen light, healthy lifestyle.

Аннотация.

В данной статье проводится глубокий анализ влияния зависимости от мобильных игр на ритмы гормонов сна, в частности мелатонина и кортизола, у молодежи. На основе научных источников рассматриваются изменения в секреции этих гормонов, возникающие при длительном и ночном использовании мобильных игр, а также их воздействие на здоровье. Исследования показывают, что у молодых людей, зависимых от мобильных игр, уровень мелатонина в среднем на 35–40 % ниже нормы, а суточный ритм кортизола смещается на 2–3 часа. Это приводит к перенапряжению глаз во время экранного времени, недостатку сна, хронической усталости, раздражительности и нарушениям нейробиологических процессов головного мозга. В связи с этим рекомендуется усилить профилактическую работу среди молодежи, соблюдать гигиену сна, снижать зависимость от мобильных игр, ограничивать использование экранов в

вечернее время, заниматься физической активностью и осторожно применять природные средства, восстанавливающие биологические ритмы.

Ключевые слова: зависимость от мобильных игр, ритм сна, мелатонин, кортизол, цифровые технологии, экранное излучение, здоровый образ жизни

The digital technologies of the 21st century have entered all spheres of human life. Smartphones and mobile games are playing an important role in the lives of young people. After school, they spend most of their free time playing mobile games. Mobile games can be useful for relaxation, communication, and stress reduction, but excessive playing can cause physiological problems, in particular, disruption of the rhythms of the sleep hormones melatonin and cortisol. Mobile game addiction is a state of psychological and biological dependence on gaming. During the game, the dopamine system of the brain is activated. Dopamine creates a feeling of pleasure and satisfaction. During constant gaming, dopamine receptors are overstimulated and the brain begins to lose its sensitivity to dopamine. In this case, a person loses sources of pleasure in real life and seeks a sense of pleasure only through gaming. At the same time, constant emotional excitement, defeat or victory during the game activates the stress system. As a result, cortisol secretion increases, heart rate increases, blood pressure rises, and sleep begins to be disturbed.

The hormone melatonin is secreted by the pineal gland and controls the human circadian rhythm. In the dark at night, melatonin production increases, which makes it easier to fall asleep. It increases in the evening under the influence of darkness, and decreases in the morning. Melatonin controls the following processes: sleep-wake cycle, lowering body temperature, antioxidant protection, and immune system activity. However, during mobile games, the red spectrum light emitted from the screen inhibits the pineal gland and reduces melatonin secretion. As a result, delayed sleep, poor quality sleep, morning fatigue, and decreased attention are observed. Cortisol is a stress hormone secreted by the adrenal glands. Its amount should be highest in the morning and lowest at night. Due to emotional stress and mental stress during mobile games, cortisol secretion is delayed. This disrupts the sleep-wake system and increases hormonal imbalance.

Recent scientific studies have shown that insomnia is three times more common among young people who play games for more than two hours a night. For example, a 2022 study in South Korea, in which 500 adolescents participated, 67% of whom complained of sleep disturbances and 54% of whom complained of morning fatigue. It is known that in adolescents who were addicted to mobile games, evening melatonin secretion decreased by up to 40%, and cortisol increased by 30% at night. The main reason for this condition was found to be excessive addiction to mobile games and the cessation of melatonin synthesis due to the influence of screen light at night. In addition, addiction to mobile games is widespread among students,

and playing for more than two hours at night reduces the production of melatonin, the hormone responsible for sleep. Delaying the cortisol rhythm increases stress and disrupts sleep. This situation among students reduces learning efficiency and worsens their psychological state. Observations conducted among students also confirm this result. Young people who are heavily addicted to mobile games have poor sleep quality, fatigue and loss of motivation, and impaired attention. Thus, addiction to mobile games should be considered a factor that causes not only psychological, but also endocrine and neurophysiological disorders.

Excessive addiction to mobile games has a significant negative impact on a person's physiological and psychological state. In particular, the fact that gaming time falls on the evening hours disrupts the natural secretion rhythm of the hormone melatonin, which leads to a decrease in the quality and duration of sleep. Sleep deprivation, in turn, negatively affects cognitive functions, the ability to concentrate, and overall mental stability.

Symptoms such as insomnia, fatigue, depression, and attention deficit disorder are more common among young people addicted to mobile games. Also, hormonal imbalance disrupts the body's biological clock and increases chronic stress. Therefore, it is necessary to limit the time spent using mobile games, especially in the evening and at night, to adhere to healthy sleep hygiene, and to strengthen preventive measures to form a healthy digital lifestyle among young people.

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