THE IMPACT OF WIRELESS HEADPHONES ON THE CENTRAL NERVOUS SYSTEM

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In recent years, wireless headphones have become an integral part of everyday life, significantly simplifying the use of audio devices and providing mobility. However, the growing popularity of these devices raises questions about their potential effects on the central nervous system (CNS). Research indicates that radiofrequency radiation and prolonged headphone use may cause cognitive, emotional, and physiological changes. Therefore, studying the impact of wireless headphones on the CNS has become an important scientific issue with significant implications for public health and the prevention of potential risks.

Wireless headphones have become indispensable for millions of people. However, their widespread use raises concerns about health impacts, particularly on the central nervous system. The main concerns are related to electromagnetic radiation (EMR), effects on the auditory system, and potential influences on cognitive functions.

Electromagnetic Radiation: Bluetooth headphones emit radio frequencies in the 2.4 GHz range, which has led to concerns about their effects on the brain. According to the International Agency for Research on Cancer (IARC), such radiation is classified as “possibly carcinogenic.” However, the radiation levels of headphones are tens of times lower than those of mobile phones, averaging around 0.2–0.3 W/kg, which falls within permissible limits.

Hearing and Cognitive Function Problems: Studies show that prolonged listening to music at volumes above 85 dB increases the risk of hearing loss. According to a WHO report, more than 1.1 billion young people aged 12–35 are at risk of hearing damage due to listening to loud music through headphones. This may indirectly affect the CNS by causing stress and cognitive overload.

Epidemiology: Approximately 50% of headphone users use their devices for more than three hours daily. Among them, about 20% report headaches and fatigue, which are associated with prolonged exposure to EMR and loud sounds.

Conclusion

Although statistics indicate certain risks, most negative consequences can be prevented by following simple safety guidelines. Physicians should inform patients about the importance of moderate use of wireless technologies and promote awareness of potential health effects.

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