



Physiotherapy approach to digital addiction: Strategies for health and recovery

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Abstract

The widespread use of digital devices has led to the rise of digital addiction (DA), a condition affecting both physical and psychological health. This addiction encompasses various behaviors such as social media usage, gaming, gambling, and compulsive online shopping. Digital addiction impacts the brain's neurobiological processes, affecting mood regulation, cognitive functions, and impulse control. Physiotherapy, through tailored exercise programs and physical activity, can play a vital role in mitigating the adverse effects of DA. Physiotherapy not only addresses the physical health impacts but also supports mental well-being by enhancing cognitive function and reducing dependence on digital behaviors. Integrating physiotherapy with digital therapeutics offers a holistic approach, combining physical and psychological interventions for effective recovery.

Keywords: Digital addiction, physiotherapy, cognitive function, holistic recovery

Introduction

The internet has revolutionized communication, work, and access to information, becoming an integral part of modern life with numerous benefits and conveniences for users. However, this ubiquitous technology also has a darker side. Concerns about excessive Internet use have been raised in recent years, leading to the concept of Internet addiction [1] over the past few years, digital addiction (DA) has emerged as a significant research area due to its increasing prevalence. The prevalence of DA differs globally, varying between 8.90% in Eastern countries and 4.60% in Western countries [2]. Excessive and compulsive engagement in internet-based activities can negatively affect various aspects of an individual's life. Digital addiction encompasses multiple online behaviors, including social media usage, gaming, gambling, problematic consumption of online pornography, and more. Social media addiction refers to an uncontrollable and habitual use of social networking platforms, characterized by a persistent need to check and update these platforms. This behavior often interferes with daily functioning and disrupts real-world relationships. Internet gaming disorder involves excessive involvement in online or video gaming, leading to the neglect of responsibilities, physical health, and other aspects of life. Online gambling has emerged as a significant issue, with the increasing availability of betting apps and virtual gambling options. Features of gambling are also being integrated into other digital activities, such as video games, raising new concerns about accessibility and addiction. Compulsive online shopping is another growing issue, where individuals feel a strong urge to shop online, frequently acting on these impulses in ways that negatively affect their personal and professional lives. Problematic use of online pornography involves compulsive engagement with digital sexual content, which can harm mental health and strain interpersonal relationships [3].

Impact of digital addition on human body [4]

1. Salience: This occurs when the activity becomes the most significant aspect of a person's life, dominating their thoughts (preoccupations and distorted cognition), emotions (intense cravings), and behaviors (decline in socially appropriate actions). Even when not actively participating in the activity, the individual remains fixated on it, constantly anticipating the next opportunity to engage.

Mood Modification: This refers to the subjective emotional changes experienced during the activity, often used as a coping mechanism. Individuals may feel an intense "buzz" or "high," or conversely, a calming sense of "escape" or "numbness," depending on their emotional state and engagement with the activity.

Tolerance: Over time, increasing levels of engagement are required to achieve the same emotional effects previously experienced. This means individuals progressively dedicate more time to the activity to reach the desired mood-altering outcomes.

Withdrawal Symptoms: When the individual is unable to engage in the activity, they may experience unpleasant physical and emotional states such as irritability, mood swings, restlessness, or physical discomfort.

Conflict: This encompasses the tensions that arise due to excessive engagement in the activity. These may include interpersonal conflicts (e.g., strained relationships), conflicts with responsibilities or other activities (e.g., work, social life, hobbies), or internal struggles (e.g., feelings of loss of control or guilt).

Relapse: This refers to the tendency for individuals to return to earlier patterns of excessive engagement in the activity. Even after periods of restraint or control, the individual may quickly revert to extreme levels of involvement reminiscent of their prior behavior.

Mechanism of Action^[5]

Neurobiological Stages of Addiction: The cycle of addiction is composed of three interconnected stages:

Intoxication: This stage, primarily involving the basal ganglia, is characterized by the rewarding and pleasurable effects of substance or activity use, which reinforce the behavior.

Withdrawal/Negative Affect: Linked to the extended amygdala, this stage occurs when access to the substance or activity is restricted, leading to emotional distress, irritability, and physical withdrawal symptoms.

Preoccupation/Anticipation: Associated with dysfunction in the prefrontal cortex, this stage involves obsessive thinking about the substance or activity.

Behavioral Patterns in Addiction: Addiction is driven by key behavioral mechanisms:

- **Impulsivity:** Engaging in behaviors without considering long-term consequences.
- **Compulsivity:** Repetitive actions driven by an irresistible urge, even in the face of adverse outcomes.
- **Positive Reinforcement:** The rewarding effects of substances or activities that motivate continued use.
- **Negative Reinforcement:** The relief from discomfort or withdrawal symptoms that encourages repeated engagement.

Dopamine and Neural Dynamics: Dopaminergic activity plays a central role in the addiction process. During the intoxication or binge stage, increased dopamine release enhances the salience of substance- or activity-related cues, making them more appealing and difficult to resist. Over time, chronic exposure leads to alterations in dopamine signaling pathways, reducing sensitivity to natural rewards and increasing reliance on the addictive behavior for gratification. Additionally, these changes impair decision-making and impulse control, further entrenching the addiction cycle.

The Role of Physiotherapy

Physiotherapy plays a crucial role in addressing digital addiction by offering both preventive and therapeutic strategies. Physiotherapists can help mitigate the adverse effects of digital addiction, particularly in vulnerable groups such as adolescents. This approach not only improves physical health but also supports mental well-being, addressing both the physiological and psychological components of addiction.

Customized Exercise Programs

Individualized exercise regimens have proven effective in alleviating symptoms of digital addiction, particularly in teenagers. These programs contribute to improved mental health outcomes and reduced dependency on digital devices^[6].

Cognitive and Neurological Enhancements

Engaging in regular physical activity has been shown to improve cognitive function and neuroplasticity. This aids in

reprogramming the brain's response to addictive behaviors, facilitating recovery^[7].

Complementary Strategies

Physiotherapy can complement digital therapeutics, which involve psychological and behavioral therapies, to create a well-rounded treatment approach for digital addiction. This integration allows for a more comprehensive management plan.

Holistic Recovery

Combining physical activity with digital intervention strategies addresses both the physical and psychological aspects of addiction, fostering a more complete recovery process^[8].

Conclusion

Physiotherapy offers a unique and holistic approach to managing digital addiction, addressing both its physical and psychological effects. By incorporating structured physical activity, physiotherapists can help mitigate the negative impacts of excessive digital use while promoting mental well-being and cognitive resilience. Integrating physiotherapy with other therapeutic modalities, such as digital therapeutics and psychological counseling, ensures a comprehensive treatment strategy. As digital addiction continues to rise, physiotherapists are well-equipped to play a significant role in both prevention and recovery. Their interventions not only improve physical health but also contribute to long-term behavioral changes, making physiotherapy an essential component in tackling this modern health challenge.

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