

## The Role of Physical Education Activities in Children's Mental and Physical Development under the Influence of Digital Technologies

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**Annotation:** *In today's rapidly developing era of modern technologies, children's dependence on various electronic devices—especially mobile phones and the internet—is steadily increasing. Even a one-year-old infant is drawn to phone screens and tries to use them. Certainly, nowadays it is possible to quickly access information about current news, socio-political events, and the latest achievements in science and technology via the internet. This is undoubtedly one of the positive aspects of modern progress.*

*In particular, staying informed about developments in education, healthcare, the economy, and other sectors in developed countries holds great importance in the context of globalization. However, it is also crucial to pay full attention to the natural mental and physical development factors of children during this process of advancement. Childhood is a period that forms through active movement, play, social interaction, and natural connections with the surrounding environment. Therefore, it is advisable to organize children's free time not only through computer games but also through physical education, sports activities, and creative pursuits. In this way, a balanced approach is needed to develop not only technological skills in children but also to foster mental, physical, and psychological stability.*

**Keywords:** *Digital technology, physical education, mobile device, physical exercise, information technology, creative development, cognitive, physical activity, physical development, attention, perception, healthy lifestyle, mental development, movement, physical ability, motor skills, psychosocial health*

### 1. Introduction

In the 21st century, digital technologies have become an integral part of human life, and their role in everyday activities continues to expand. Mobile devices, computers, the internet, and other information technologies are increasingly penetrating not only the lives of adults but also those of young children. Today, even infants as young as one year old show interest in phone and tablet screens. This situation raises the need for scientific analysis of the role digital technologies play in children's development.

**Physical education** helps children become healthy, cheerful, resilient, physically fit, and fosters their creative development. When selected based on the child's age, as well as their anatomical, physiological, and psychological characteristics, physical education contributes to improving their health and developing rational, conscious movements. It also enables children to gain experience and apply it in their daily lives. Physical education plays a vital role in strengthening a child's overall physical and mental well-being.

By taking into account the child's age and developmental features, appropriate physical activities and exercises can help in developing and maintaining a healthy body, while also fostering purposeful movement, self-awareness, and decision-making skills.

On one hand, digital technologies offer expanded opportunities for learning, acquiring modern knowledge, and developing creative potential. On the other hand, excessive dependence on technology can reduce children's physical activity, lower the level of social interaction, and lead to psychological issues. In particular, digital tools that promote a sedentary lifestyle can result in negative consequences such as obesity, irritability, and decreased attention span. This study examines the changes occurring in children's mental and physical development under the influence of digital technologies. It analyzes the existing problems and proposes suggestions and recommendations for addressing them. The focus is placed on ensuring the comprehensive development of children through the proper and effective use of digital technologies.

## 2. Materials and Methods

The preschool years are a period of significant physical and mental growth and development for children. During this stage, a child's brain undergoes rapid development, forming crucial neural connections that shape cognitive abilities and learning potential. In addition to cognitive development, this period is also vital for children's physical development. At this stage, children develop essential gross and fine motor skills that influence their physical abilities and coordination in later life. The World Health Organization (WHO) and other research studies have indicated that excessive use of computers and other digital devices may have negative effects on children's health. For example, according to a study conducted by the WHO in 2024, the rate of problematic use of social media among adolescents increased from 7% in 2018 to 11% in 2022. Additionally, 12% of adolescents were found to be at risk of problematic use of computer games. Furthermore, excessive use of digital devices has been linked to musculoskeletal disorders, deterioration of vision, psychosocial health problems, and a decrease in overall quality of life in children. The World Health Organization recommends that children under the age of one should not be exposed to electronic devices at all, and for children aged 2 to 4, screen time should be limited to no more than one hour per day.

The World Health Organization (WHO) and the Healthy Austria Foundation recommend that children engage in at least 60 minutes of physical activity per day (e.g., walking to kindergarten, climbing stairs, and riding a bicycle) [2; 131-137].

Some researchers argue that children who do not engage in physical exercises will never fully develop their genetic potential in terms of motor skills [5; 1510-1516].

From this perspective, it is essential to consider the pedagogical foundations of physical education during early childhood. Designing activities and exercises that support not only physical development but also social, emotional, and cognitive growth is crucial. These activities may include teamwork, communication, problem-solving, creativity, as well as exercises that help develop spatial awareness, balance, and coordination. Physical activity enhances blood circulation to the brain, improves nerve pathways and connections, and helps develop cognitive function and academic achievements. By engaging in physical exercises, children form positive relationships with their peers and adults, which fosters important social and emotional skills such as teamwork, communication, and self-discipline.

## 3. Results

*"Healthy Childhood" – The Foundation for a Great Future* The upbringing of a well-rounded individual with strong spirituality and high culture, as well as the development of skills for the rational use of modern information and communication technologies, is one of the key areas of modern pedagogy. Excessive and ineffective interaction with the internet, electronic devices, and digital content can have a negative impact on the human body, especially the health of young generations. Therefore, it is crucial to teach children from an early age to act consciously and responsibly in the digital information environment, developing their digital immunity—i.e., the ability to protect themselves from harmful,

excessive, or pointless digital activities. This task can be effectively achieved through physical education and sports.

Encouraging physical activity in children, reducing their use of phones and other electronic devices, and promoting a healthy lifestyle are urgent issues in today's society. With the rapid development of technology and the growing interest of children in electronic devices, there is an increase in reduced physical activity and health-related problems. Therefore, promoting physical activity and forming a healthy lifestyle is of great importance.

Medical-biological and psychophysiological studies show that excessive digital activity (in particular, prolonged use of phones, tablets, computers, and other electronic devices) leads to the following negative consequences:

**Impact on the visual system:** Prolonged exposure to electronic device screens causes decreased vision, eye strain syndrome (Computer Vision Syndrome), dry eyes, and focus disturbances.

**Impact on somatic health:** Insufficient physical activity leads to excess body weight (obesity), cardiovascular problems, underdeveloped musculoskeletal systems, fatigue, and energy deficiency.

**Impact on sleep:** Evening use of electronic devices reduces the production of melatonin, leading to disrupted sleep patterns, difficulties falling asleep, and reduced sleep quality.

**Impact on psychological state:** Excessive dependence on electronic devices can lead to stress, anxiety, depression, and social isolation. Moreover, it decreases attention and concentration levels, and weakens communication skills in real life.

In this regard, promoting physical activity, strengthening cultural and spiritual immunity, as well as shaping a culture of purposeful and moderate use of digital technologies, should be regarded as an essential component of the modern educational process.

#### 4. Discussion

The activities aimed at increasing children's physical activity in educational institutions and family settings can be divided into five interconnected parts. These parts may include:

##### 1. Encouraging Physical Activity and Motivation

- Encouraging children to engage in physical activity and increasing their interest in sports.
- Stimulating an interest in an active lifestyle by introducing different sports and physical exercises.
- Developing a conscious approach to the importance of sports in family and society.

##### 2. Systematic Organization of Physical Exercises

- Developing and regularly implementing suitable physical exercises for children both at school and at home.
- Organizing family activities, such as walking, running, and playing sports games.
- Making the exercises interesting and effective for children to improve their physical health.

##### 3. Rest and Recovery Activities

- Organizing rest and recovery activities to support physical activity, such as yoga or breathing exercises.
- Ensuring children's recovery after physical activity, promoting good sleep and rest.

#### 4. Promoting a Healthy Lifestyle

- Teaching children about healthy eating, proper sleep, and stress management as part of a healthy lifestyle.
- Promoting a healthy lifestyle in families and educational institutions, emphasizing the importance of physical activity to children.

#### 5. Collaboration with Parents and Teachers

- Involving parents in increasing children's physical activity and engaging them in the educational process.
- Strengthening cooperation between educational institutions and families to help increase children's physical activity.

#### Conclusion

The physical and mental development of preschool children serves as an essential foundation for their entire life activities. During this period, children not only grow physically but also experience rapid development in brain activity, particularly their cognitive abilities. It is at this stage that their primary neural connections are formed, and their learning and social interaction abilities are strengthened. Therefore, movement and play occupy a central place in the lives of preschool children as key activities. Research shows that physical activity not only supports physical health but also promotes mental well-being, psychological comfort, and intellectual development. Creating an environment rich in physical activity and play is crucial for the healthy development of children. When used in moderation and under control, digital devices contribute to preserving their physical and mental health. Regular physical exercises and active games reduce stress levels, improve mood, and enhance cognitive functions. As a result, children grow up to be active, healthy, and happy individuals in society. Therefore, to ensure a healthy lifestyle for preschool children, it is essential for parents, educators, and other members of society to pay special attention to physical activity.

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