

# The effects of technology on health and physical activity: A qualitative study

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## ABSTRACT

The aim of this study was to explore how technological devices influence individuals' physical activity and overall health, identifying both the positive and negative effects of technology use on well-being. A qualitative design employing semi-structured interviews was used with a convenience sample of 100 participants aged 18–52 years ( $M \pm SD = 26.3 \pm 8.5$ ). The sample consisted of 51% females and 49% males. The interviews explored participants' experiences and perceptions of how technological devices influence physical activity and overall well-being. Data were transcribed, coded, and thematically analyzed to identify both positive and negative effects. The findings indicated that excessive use of smartphones, computers, and gaming devices contributed to sedentary lifestyles, musculoskeletal discomfort, psychological fatigue, and reduced social interaction. However, participants also reported that technology can support physical activity through fitness apps, wearable devices, and online exercise platforms. Suggested strategies to mitigate adverse effects included regulating screen time, correcting posture, practising mindful technology use, and incorporating breaks for physical movement. Technology has a dual influence on health and physical activity, acting both as a barrier and a facilitator. Striking a balance between use and overuse is essential to ensure positive outcomes. Public health initiatives and educational programs should emphasize responsible technology engagement and encourage strategies that promote active lifestyles.

## KEYWORDS

Sedentary Behavior; Digital Technology; Mobile Applications; Physical Fitness; Health Behavior

## **1. INTRODUCTION**

The relationship between technology and physical activity in contemporary society is multifaceted and reciprocal, presenting advantages and challenges. The prevalence of sedentary behaviours in younger populations, which has been significantly associated with increased obesity rates, underscores the potentially detrimental impact of technology on physical well-being (Biddle et al., 2017; Farooq et al., 2021; Sukatemin et al., 2025). Conversely, the potential of technological interventions to promote physical activity is noteworthy. The concept of gamification demonstrates the viability of technology-based applications in stimulating and incentivizing physical exercise (Patel et al., 2019; Xu et al., 2023; Fanaroff et al., 2024).

Nevertheless, the propensity for technology to foster sedentary lifestyles cannot be disregarded. Prolonged periods of seated inactivity, commonly associated with technological use, have been linked to various health concerns, including obesity and deteriorated general health metrics (Goyal & Rakhra, 2024; Tjahjono & Arthamin, 2024). The benefits of low-intensity physical activities are well-supported, highlighting the potential of technological advancements in enhancing such activities to bolster health and well-being (Füzéki, Engeroff, & Banzer, 2017; Herbert, 2022).

Technological innovations have paved the way for novel methodologies to augment physical activity in this era. Access to diverse forms of exercise has become widely available through platforms such as YouTube, which provide a broad spectrum of tailored exercise programs (Fucarino et al., 2024; Chen et al., 2024). Furthermore, the inception of fitness trackers and health apps has catalyzed a paradigmatic shift in the perception and monitoring of physical health, empowering users with real-time health metrics and goal-setting capabilities (Gómez-Cuesta et al., 2024; Rowland et al., 2024). However, the adverse implications of excessive technology engagement remain salient. Extended exposure to screen-based technologies may potentially replace active pursuits, leading to health complications such as obesity, cardiovascular diseases, and musculoskeletal ailments (Biddle et al., 2017; Presta et al., 2024; Lopes, 2024).

A retrospective analysis of healthcare evolution delineates the transformative influence of technology. The transition from paper to Electronic Health Records (EHRs) initiated a revolutionary shift (Alawiye, 2024; Mahendra et al., 2024). In subsequent years, they have marked the fusion of smartphone capabilities with wearable technologies, reshaping health monitoring paradigms (Yang et al., 2024). Driven by the growing use of data-driven and individualized healthcare interventions, telehealth has evolved from an emerging idea to an essential component of healthcare delivery (Smith

et al., 2020; Singh et al., 2024). The rapid proliferation of wearable devices, coupled with innovations in diabetes management tools such as Continuous Glucose Monitors, epitomizes the strides in health tech (Huang et al., 2024; Sunstrum et al., 2025). The indispensable nature of EHR platforms in assimilating patient data accentuates their pertinence in the evolving healthcare ecosystem (Dubovitskaya et al., 2020; Gour et al., 2024; Saranya, 2024).

In light of the above, striking an optimal equilibrium between technology utilization and physical activity is imperative. It necessitates meticulous strategization, encompassing the limitation of screen exposure, harnessing technology to amplify physical engagement, and fostering societal cognizance regarding the intertwined relationship between technology and health (Biddle et al., 2017; Hartstein et al., 2024; Schmidt-Persson et al., 2024). Such insights are instrumental in shaping effective public health directives and interventions, ensuring that technology serves as a facilitator rather than an impediment to health and well-being. This research comprehensively analyses the intricate interplay between technology and physical activity.

**Table 1.** Evolution of technology-driven milestones and their impact on healthcare systems (2005–2025)

Year/Period	Impact Level	Technology & Healthcare Milestone	Notes
2005	Small Impact	EHRs Introduction	Beginning of digital health records
2006–2009	Rising Impact	Smartphones and Wearables	Onset of personal health tech
2013	Higher Impact	Health Apps and Early Telemedicine	Expansion of mobile health
2014–2017	Peak Impact	Wearables Ubiquity, Enhanced EHRs, AI Emergence	Major tech innovations in health
COVID-19 Outbreak	Sharp Spike	Telemedicine Boom	Remote health during the global crisis
2023	Highest Impact	Integrated Tech in Healthcare	Convergence of all technologies in health
2024–2025	Sustained High Impact	AI-driven Diagnostics, Remote Monitoring, Digital Twins	Expansion of predictive analytics and hyper-personalized care

The aim of this study is to explore how technological devices influence individuals' physical activity and overall health, identifying both the positive and negative effects of technology use on well-being.

## 2. METHODS

### 2.1. Design and Participants

This study used the semi-structured interview method, a commonly employed approach within qualitative research frameworks (Shoozan & Mohamad, 2024). The selection of this approach was motivated by the study's aim to provide a multidimensional and comprehensive perspective on a specific subject, enabling the evaluation of a defined problem from various angles (Lönngren et al., 2015). The semi-structured interview technique enables researchers and participants to engage in in-depth discussions and interpretations of a particular topic, thereby facilitating a broader examination of the research problem.

The research employed a convenience sampling strategy, involving 100 participants. The convenience sampling strategy allows the researcher to gather a large sample quickly and cost-effectively (X. Wang, 2024; G, 2024). However, as this strategy lacks the characteristic of random selection, the generalizability of the obtained results to the entire population may be limited. The selection of participants was conducted to align with the subject and objectives underpinning the research. These individuals, possessing diverse demographic and occupational characteristics, were carefully selected to bring a range of perspectives and rich data to the subject.

The protection of participants' personal information and confidentiality was prioritized in this research. During data collection and analysis, participants' personal information was not disclosed in any way, and participation was entirely voluntary. This practice was implemented to adhere to the ethical principles of the research and aimed to increase participants' trust and engagement in the study. Table 2 presents the demographic characteristics of participants.

**Table 2.** Demographic characteristics of the study sample

<b>Age (years)</b>	
Mean±SD	26.3±8.5
<b>Gender</b>	
Female	51%
Male	49%
<b>School Type</b>	
Private School	73%
Public School	27%

The participants' ages ranged from 18 to 52 years, with an average age of 26.3 years (SD = 8.5). The gender distribution was nearly balanced, with females representing 51% and males 49% of the sample. Regarding school type, most participants attended private schools (73%), while 27% attended public schools.

## **2.2. Data Collection Process**

During the data collection process, a semi-structured interview approach was employed. This method enables participants to explore a specific topic, describe their experiences, and share their ideas (Adeoye-Olatunde & Olenik, 2021). The interviews were conducted using a series of open-ended questions appropriate to the research topic, and additional questions were incorporated during the interviews based on the participants' responses (Galletta, 2013). The interviews lasted an average of 30 to 45 minutes, and each was recorded using a sound recording device. Subsequently, these audio recordings were transcribed into text format.

## **2.3. Data Analysis**

The collected data were examined through qualitative data analysis techniques. Each interview was thoroughly assessed, and special sections were coded. These codes were assembled within specific themes, and the relationship of these themes to the overall problem and objectives of the research was explored. The researchers made a particular effort to understand the expressions and thoughts of the participants within their respective contexts. This study adhered rigorously to the ethical and scientific principles of research. During the interviews and data collection, the knowledge and consent of all participants were obtained. Participants were informed about the research objectives, process, and data collection and analysis methods prior to participation.

## **3. RESULTS**

Table 3 presents the technological device usage, daily duration, and social media engagement of the participants (N = 100). Nearly all participants actively use technological devices, with 48% always and 44% often using them, while only 8% use them occasionally. The daily duration of device use ranges from 1 to 6 hours, with the largest groups spending 2 hours (37%) and 6 hours (28%) per day. Regarding social media, 80% of participants use it solely for social purposes, whereas 10% combine it with communication and another 10% also include educational content. These results indicate a high level of engagement with technology and social media among the study sample, highlighting both frequent use and varying intensity of daily use.

**Table 3.** Technological device usage, duration, and social media engagement among participants

Category	Subcategory / Usage	Percentage (%)
Technological device usage	Always	48
	Often	44
	Sometimes	8
Duration of device usage	1 hour	11
	2 hours	37
	3 hours	17
	4 hours	20
	5 hours	21
	6 hours	28
Social media usage	Social media only	80
	Social media + communication	10
	Social media + communication + education	10

Table 4 provides a comprehensive overview of the diverse thematic categories that examine the influence of technology on physical activity, as derived from a range of statements.

**Table 4.** Impact of technology on physical activity: Thematic categorization

Category	Code	Example Statement
<b>Negative Physical Effects</b>	Eye strain, neck pain, herniated disc, etc.	"There are effects such as herniated disc, back pain, posture disorder, and eye deterioration."
<b>Negative Psychological Effects</b>	Mental fatigue, depressive states, distraction, etc.	"There could be effects like timing, step counting, or calorie counting as well as heart rate monitoring."
<b>Sedentary Lifestyle</b>	Lack of physical activity due to technology	"Sport without technology is more productive."
<b>Interruption in Activity</b>	Distraction due to notifications while exercising	"We might get distracted by notifications while exercising if we have phones."
<b>Misuse</b>	Technical errors, position errors	"Incorrect, negative, or explanations of techniques (posture, exercise, duration of movement, etc.)..."
<b>Addiction</b>	Social media, application usage	"It kills time because it is addictive."
<b>Social Impact</b>	Antisocial behaviour, a decrease in social interaction	"We rarely meet face-to-face with our loved ones now."
<b>Positive Use of Technology</b>	Contribution of technology to sports and exercises	"I do not think it has a negative effect, as the exercise through technology has increased with the pandemic."

These categories encompass both positive and negative perspectives, addressing various concerns related to physical and psychological health outcomes, social implications, and benefits. This

systematic categorization provides a comprehensive understanding of the multifaceted impact of technology on physical activity, facilitating a more nuanced examination and discourse.

Table 5 presents an inventory of technological devices that users have identified as potentially contributing to reduced physical activity, along with proposed strategies to mitigate these effects.

**Table 5.** Technological devices impacting physical activity and potential mitigation strategies

<b>Category</b>	<b>Device</b>	<b>Example Sentence</b>	<b>Proposed Mitigation Strategies</b>
<b>Negative Effects</b>	Computer	Excessive computer usage may cause eye and neck pain	Regular stretching and breaks, setting a time limit for usage
<b>Addiction</b>	Smartphone	Unnecessary apps may cause addiction	Mindful usage, limiting screen time
<b>Sedentariness</b>	Smartphones, TV, Tablets, Computer	"I believe that phones, in particular, increase asociality."	Allocating specific time for physical activities, decreasing screen time
<b>Activity Interruption</b>	Smartphone	"We should not bring our phones when we go to training; we should focus on the training."	Not bringing devices during workouts, setting device-free time
<b>Postural Issues</b>	Computer	"Computers generally ruin it because it is usually not sitting properly and steadily."	Correct seating and posture when using devices, and regular breaks
<b>Negative Social Effects</b>	Computer	"Computer, in particular, throws back both physically and socially."	Limiting time spent on the device, encouraging social activities
<b>Time Mismanagement</b>	Various Devices	"Using any device that takes up too much of his time can prevent him from finding time to exercise."	Time management, limiting device usage
<b>Sedentariness</b>	Various Devices	"Long-term uses should be avoided, breaks should be given, and physical activities should be done."	Regular breaks, physical activities
<b>Addiction</b>	Smartphone	"Mobile phones, especially Instagram streams, are making us addicted."	Mindful usage, limiting social media usage
<b>Activity Replacement</b>	Various Devices	"Instead of doing physical activities, you can spend time with a phone or another technological device, so you move less."	Encouraging outdoor activities, setting a schedule for device usage
<b>Inactivity Due to Business</b>	Various Devices	"I do not think this situation is possible in world conditions because the business world has mostly turned to the online system; it brings inactivity."	Encouraging movement during online meetings, setting the work-life balance
<b>Dependency</b>	Smartphone	"Phones can be, with our addiction level increasing, the inability to stay away leads us away from physical activity."	Mindful usage, setting time limits

<b>Negative Physical Effects</b>	Computer	"People who spend too much time on the computer lose their sense of time and cause various shape disorders in the skeletal system."	Regular breaks, exercises to correct posture
<b>Overuse</b>	Various Devices	"Phone, computer, and game consoles have negative effects; a little more use of them can be a preventive measure."	Limiting usage, scheduling regular breaks
<b>Misuse</b>	Various Devices	"Any technological device, if not used correctly."	Raising awareness about the correct usage, setting time limits
<b>Inactivity Due to Transportation</b>	Various Devices	"The vehicles we use for transportation, computer... we can start by using the day in a balanced way, adding exercises to the plan for 4-5 days a week."	Encouraging walking or cycling for short distances, and regular breaks during long drives
<b>Inactivity Due to the Ease</b>	Smartphone	"First of all, the phone. It is the most harmful because it leads to a big waste of time and convenience."	Encouraging outdoor activities, limiting convenience usage of devices

The findings indicate that excessive utilization of technology, particularly smartphones and computers, can result in sedentary behaviours, addiction, and postural problems. The suggested mitigation strategies primarily focus on promoting mindful device usage, engaging in regular physical activity, and establishing clear limits on screen time. Furthermore, there is an emphasis on improving posture during device usage and fostering social interactions. Enhancing public awareness about the proper use of these devices is also recommended. These findings underscore the need for a balanced approach to technology usage that acknowledges the benefits of connectivity and information accessibility while also emphasizing the importance of physical activity and social engagement.

Table 6 below provides a comprehensive overview of user opinions regarding technological devices that can reduce physical activity. Additionally, it presents potential preventive measures that can be employed to counteract these effects.

**Table 6.** Technological devices reducing physical activity and potential preventive measures

<b>Category</b>	<b>Device</b>	<b>Sample Statement</b>	<b>Preventive Measures</b>
<b>Harmful Devices</b>	Smartphones, Computers, Tablets, TV, Gaming Consoles	"Especially the phone increases antisocial behaviour." "Regular computer game players reduce their physical activity, leading to sedentary behaviour."	I am setting a specific time limit for use, not taking the phone to the training, avoiding unnecessary apps, and implementing breaks during long gaming periods.
<b>Device Addiction</b>	Smartphones, Social Media Platforms	"Certain unnecessary apps can cause addiction." "All that contains social media."	Self-discipline, device detox periods, setting screen time limits, and mindfulness exercises.

<b>Sedentary Lifestyle</b>	Computer, Gaming Console	"Those who spend much time on the computer cause eye and neck pain." "Playing computer games reduces young people's physical activity and makes them sedentary."	They encourage regular physical activity, setting time limits for device use, and taking frequent breaks to move around.
<b>Physical Impact</b>	Smartphones, Tablet, Computer, TV	"Cell phone restricts my movement; disabling it after a certain period would be nice."	We are incorporating stretching exercises during prolonged use, setting time limits, and using devices only when necessary.
<b>Social Impact</b>	Smartphones, Tablet, Computer, TV	"We rarely see our loved ones face-to-face anymore." "Phone, I believe, increases antisocial behaviour."	Promoting face-to-face interaction, limiting social media use, and encouraging community events and gatherings.

The findings indicate that smartphones, computers, tablets, and other screen-based devices are widely recognized as the primary contributors to decreased physical activity. The proposed preventive measures emphasize the importance of self-discipline and regulated usage of these devices, thereby underscoring the necessity for heightened awareness and specific strategies to manage screen time effectively. It is crucial to acknowledge that the impact and solutions outlined in the table are contingent upon individual circumstances and the specific utilization of technology.

Table 7 comprehensively summarizes the adverse effects of specific technological devices on physical activity. It employs a system of specific codes and example sentences to outline these negative impacts and proposes potential preventive measures to mitigate their occurrence.

**Table 7.** Technological devices impacting physical activity and potential preventive measures

<b>Category</b>	<b>Code</b>	<b>Example Sentence</b>	<b>Suggestions for Preventive Measures</b>
<b>Negative Physical Effects</b>	Excessive computer use	"Excessive computer use can lead to eye strain and neck pain."	Regular breaks, physical exercise, and proper workspace ergonomics.
<b>Technological Addiction</b>	Smartphones, Social Media, Gaming Consoles	"Unnecessary applications on the smartphone can become addictive."	Implementing usage restrictions, creating awareness about addiction risks, and encouraging offline activities.
<b>Sedentariness</b>	Computers, Tablets, TV	"Regular computer gaming among young individuals decreases physical activity."	Encouraging periodic movement during prolonged gaming sessions, suggesting physical activities that parallel technological usage.
<b>Social Impacts</b>	Smartphones	"Especially, smartphones increase antisocial behaviour."	Promoting face-to-face interactions and social activities, implementing digital detox periods.

<b>Irresponsible Use</b>	Excessive screen time	"Spending a long time in front of screens like TVs, PCs, and smartphones, in short, overuse of everything has negative effects."	Using screen time alerts, promoting responsible device use, and educating users on potential adverse effects.
<b>Distraction</b>	Smartphones during workouts	"We should not take our phones to training sessions; we should focus on the workout."	Creating phone-free zones or periods, and encouraging full attention to physical activities.

It is evident that excessive utilization of these devices, particularly smartphones, computers, and gaming consoles, frequently results in sedentary behaviour, addiction, and a decline in social interactions. In response to these effects, recommended measures include implementing restrictions on device usage, promoting in-person social interactions, and advocating for responsible and mindful use of devices. However, it should be noted that the efficacy of these preventive measures may vary significantly depending on individual behaviours and circumstances, necessitating the adoption of personalized approaches to ensure successful implementation.

Table 8 provides an in-depth overview of the various intersections between technology and physical activity, encompassing both positive and negative aspects. It offers additional insights into the implications of technology in sports, including the potential for technological imbalances and the issue of misinformation. Moreover, it emphasizes the importance of cultivating awareness and adopting a mindful approach to the use of technology in order to balance its advantages and drawbacks effectively—the suggestion of standardizing technology in sports aims to mitigate any potential disparities that may arise.

**Table 8.** A comprehensive review of the role of technology in physical activity: Balancing advantages and drawbacks

Category	Code	Example Sentence
<b>Negative Physical Effects</b>	Eye strain, neck pain, disc herniation, etc.	"Issues such as disc herniation, back pain, posture problems, and deteriorating eyesight."
<b>Negative Psychological Effects</b>	Mental fatigue, depressive states, attention deficit, etc.	"Effects can include time regulation, step counting, or calorie calculations, such as heart rate monitoring."
<b>Sedentariness</b>	Sedentary lifestyle, lack of physical activity	"Sport without technology seems more productive."
<b>Activity Interruption</b>	Attention diversion, notifications during sport	"Our attention may be diverted due to incoming notifications while exercising with a phone."
<b>Misuse</b>	Technical errors, position mistakes	"Incorrect, negative, or misrepresentation of techniques (posture, exercise, duration of movement, etc)."
<b>Addiction</b>	Social media, application usage	"It kills time due to its addictive nature."
<b>Social Impacts</b>	Being antisocial, a decrease in social interaction	"We rarely see our loved ones face-to-face anymore."

<b>Positive Use of Technology</b>	Contributions of technology to sports and exercise	"I do not think it has a negative effect, as the use of technology for sports increased during the pandemic period."
<b>Technological Imbalance</b>	The technological disparity in sports needs standardization	"In some sports, technology can create imbalances and inequalities. I believe technology should be used within certain standards."
<b>Technology Awareness</b>	Mindful technology use, balancing social interaction	"Technology makes our lives easier, but it also makes us asocial. I do not think it will be a problem as long as we know and balance this."
<b>Impact on Performance</b>	Positive and negative influences on Physical, mental, and social performance	"It benefits anything that will contribute to the use, performance, and the individual's fitness level. However, harmful use will bring many factors that will reduce the individual's physical, mental, social and psychological performance."
<b>Technological Devices in Exercise</b>	Use of devices for measurement and improvement in sports	"The most important issue is whether all technological devices are used correctly and in place. Technological devices measuring the right move or how many seconds the movement was made can help physically."
<b>Promotion of Amateur Sports</b>	Technology as a tool for better amateur athletes	"It can make a better amateur athlete by stimulating physical activity and showing right from wrong."
<b>The Role of Willpower</b>	Willpower in technology use and physical activity	"Like many other issues, the use of technological devices and the level of physical activity to be performed depend on willpower and awareness, and for this reason, environments that can increase people's awareness should be created."
<b>Potential Misinformation</b>	Misrepresentation of movements in videos, information pollution	"There may also be a negative part related to making it accessible, like information pollution... Some movements are incorrectly shown in videos."
<b>Fight Against Sedentariness</b>	Active measures against physical inactivity	"We should increase our physical activity against the inactivity caused by technology."

The inclusion of codes such as 'Technological Imbalance,' 'Technology Awareness,' 'Impact on Performance,' 'Technological Devices in Exercise,' 'Promotion of Amateur Sports,' 'The Role of Willpower,' 'Potential Misinformation,' and 'Fight Against Sedentariness' highlights the complexity and breadth of the subject matter. These codes highlight the multifaceted nature of the relationship between technology and physical activity, influenced not only by the technology's inherent characteristics but also by its application, comprehension, and management.

#### 4. DISCUSSION

Research findings indicate that private institutions typically offer greater access to technological resources, allowing for a broader application of technology among young individuals. However, this increased access may have adverse effects on physical health and activity due to increased screen time and reduced physical exercise (Wang et al., 2024; Yoluut et al., 2024). In contrast, public schools generally have limited access to technology. While this restriction may promote less screen time and more physical activity (Steunf et al., 2024; Ira et al., 2024), it may also

hinder the development of essential tech skills, potentially impacting competitiveness in the digital era (Penglong et al., 2024).

Smartphones and computers have become indispensable tools in modern society, profoundly impacting communication, education, professional activities, and leisure. Recent empirical data suggest that the vast majority of adults possess smartphones, and frequent daily use has become a normative behaviour pattern (Lee et al., 2024; Walsh et al., 2024; Forys et al., 2024). Recent studies indicate that most Europeans between the ages of 16 and 74 use the internet, primarily via mobile devices (Gomes & Dias, 2024; Goodman-Deane et al., 2024). Given this prevalence, it is crucial to evaluate the impact of technology on various aspects of life, including education, employment, social interactions, and health. Research on the psychological, social, and physical consequences of technology use is increasing and expected to continue. Technology has both advantages and disadvantages in terms of physical activity. On the plus side, it enables people to track their physical activity more closely and provides easier access to exercise tools. By encouraging regular exercise participation, wearable devices and internet platforms help increase motivation and self-efficacy. Conversely, technology can also promote sedentary behaviour, which could lower levels of physical activity and raise the likelihood of health problems (Goyal & Rakhra, 2024b; Grzelak, 2024). Prolonged use of digital devices also increases the risk of physical discomfort, including musculoskeletal strain (Wang et al., 2025; Sheng, 2025). The possibly addictive nature of technology is becoming more worrying, especially about digital platforms like video games and social media, which can support compulsive use patterns and harm mental well-being. These actions could also replace time that would otherwise be spent participating in physical activity. Furthermore, digital devices can divert attention from exercise, compromising performance and concentration. The length and way of use determine how much technology affects physical activity. Applied mindfully and in balance, though, technology can help rather than impede attempts at physical health.

The impact of technological tools on physical activity is a critical area of study. Devices such as computers, tablets, smartphones, televisions, and gaming consoles, while providing various amenities and entertainment options, can significantly decrease physical activity levels when used excessively or inappropriately (Biddle et al., 2017; Tóth et al., 2024; Dohrn et al., 2024). This sedentary behaviour often leads to prolonged sitting and a lack of movement, which can contribute to health complications (Gao et al., 2024). Daily sitting for long periods has been connected to an increased risk of death for several reasons. Moreover, media use among children and teenagers appears to be related to higher body fat and lower physical activity levels (Haug, 2024; Cohen et al., 2024). Habitually using

these devices is commonly associated with decreased physical activity (Fennell et al., 2018; Alqassim et al., 2024; Giannousi et al., 2024). Implementing measures to reduce technology usage and educate users about its potential repercussions can be essential prevention strategies (Carras et al., 2024). Implementing practical measures, such as using applications to limit the duration of technology usage and incorporating physical exercise routines into designated intervals of technology breaks, can significantly contribute to effectively managing technology usage.

Enhancing user understanding of the potential health consequences of technology use is crucial. Educational seminars and workshops conducted in schools and community centres can facilitate this. Such efforts are exceptionally vital for youth and children who are more susceptible to the effects of technology due to their increased exposure and usage. Technological advancements significantly promote physical activity (Nae, 2024). Digital tools and software can encourage movement, provide various workout plans, and help monitor fitness progress (Chaudhari, 2024; K et al., 2024; Zakharina, 2024). Devices like pedometers and heart rate trackers effectively motivate individuals by allowing them to monitor their physical exertion levels (Hayashi et al., 2024; Paripoornam, 2025). Despite criticisms of technology's impact on physical activity, such as its potential to promote sedentary lifestyles through excessive use, various studies emphasize its role in enhancing physical activity (Mocco et al., 2024; Rahayu et al., 2024). Technology can effectively promote physical activity when used judiciously. Fitness apps, virtual reality exercise programs, and online workout classes make physical activity more appealing and enjoyable. These technological advancements simplify goal tracking and add entertainment value, making physical activity more attractive. However, the risk of excessive technology usage leading to sedentary behaviour must be considered. It is essential to strike a balance between physical activity and screen time. Establishing limits on screen use and incorporating consistent physical activity into daily schedules can help prevent the development of sedentary habits. Neglecting to control this balance could lead to undesirable physical health effects over time.

The emergence and widespread use of high-tech sports equipment, tracking devices, and applications have opened new avenues for enhancing physical activity and performance. For example, sports watches and activity trackers help individuals monitor and improve their performance. However, it is crucial to recognize the potential risks associated with the incorrect or excessive use of technology. Excessive video game usage, for instance, can lead to reduced physical activity levels and an increased risk of obesity. The internet has become a significant source for accessing health and fitness information. However, the accuracy and reliability of online information cannot always be guaranteed.

Insufficient regulation or misleading information can lead users to deceptive content that may harm their health and well-being. Regarding social interaction, increased time spent on social media platforms and video games is associated with a higher risk of social isolation. However, utilizing technology in a balanced and health-conscious manner can mitigate this risk.

## **5. CONCLUSIONS**

The study indicates that private institutions typically offer broader access to technological resources, while public schools tend to have more limited access. The prevalence of smartphones and computers in society is undeniable, with studies confirming their widespread use. Technology can have both positive and negative effects on physical activity. On the positive side, it can enhance access to and monitor physical activity, as demonstrated by the use of fitness trackers and online exercise platforms. However, excessive technology use can lead to sedentary behaviour, reduced physical activity levels, and associated health issues. Striking a balance between technology use and physical activity is crucial. Practical measures such as setting screen time limits, incorporating physical exercise during technology breaks, and using apps to manage technology usage can help mitigate the negative impact. Education and awareness programs should be implemented to enhance user understanding of the potential health consequences of excessive technology use. Efforts should be focused on promoting mindful and equitable technology use, particularly among youth and children who are more vulnerable to the effects of technology. Technological advancements, such as fitness apps and wearable tracking devices, offer opportunities to promote physical activity and monitor performance. However, the improper or excessive use of technology, such as in the case of video games, can adversely affect physical activity levels and contribute to issues like obesity. Therefore, it is essential to utilize technology responsibly and in a balanced manner.

Additionally, while the internet serves as a valuable source of health and fitness information, caution must be exercised regarding the accuracy and reliability of online content. The increased time spent on social media platforms and video games may elevate the risk of social isolation, but when used in a health-conscious manner, technology can help mitigate this risk.

In summary, the impact of technology on physical activity is a complex issue. While it can provide tools and resources to enhance physical activity, excessive use or improper usage can lead to sedentary behaviour and associated health complications. By promoting mindful and balanced technology use, educating users about the potential consequences, and implementing practical

strategies, it is possible to harness the benefits of technology while minimizing its detrimental effects on physical activity and overall well-being.

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#### **CONFLICTS OF INTEREST**

The authors declare no conflict of interest.

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