



# Physical Education: A Magical Stratagem In Controlling Smartphone Addiction Among School Students

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**Abstract:** In today's technocratic era using smartphones is the need of the hour but at the same time refraining from the addiction is the demand of the hour. Smartphones have so many advantages and contribute to the formation of the digital world by bringing the world into a small rectangle. Digitalisation will add one more milestone in humans' technological development but also raises a question in our minds, shall it be a heavenly life with smartphones in each hand? It has many adverse effects on human beings, especially children and students. This is the 21<sup>st</sup> century and the year 2024, Today, all children including school students are under the category of "Digital Native", this generation has to understand that excessive use of smartphones will lead to addiction and pave the way for technological health hazards like Smartphone Stress, Blackberry Stress Injuries Thumb, Radiation from the cell phones, Cell Phone Sickness, Crazy Phones, Wrist Pain, Back & Neck Pain, Decreased Sperm Count from the Wi-Fi, Sleeping Problems Decreased attention span from using Facebook, Anxiety, Headphone Use leading to Accidents, Hearing Loss, Visual Impairment, Death from Social Networking, Environmental Degradation, Aggression, Social Crimes, etc. According to NEP 2020, digitalization of education inclusion of ICT and Yoga education and holistic development sometimes stand against each other. Excessive use of everything is bad, COVID-19 taught us many things simultaneously it taught us the use of smartphones, ICT, and technical gadgets needed for study but at the same time, it left the footprints of smartphone addiction among many children and students. Sports, games, yoga, and physical education can be a master stroke in protecting us from the evils of smartphone addiction. If the inclusion of physical education at the school level is done it will give a new dimension to the sapling children and shaping youths of school. Our education system persists in the core values of the "Siksha Mandir" and "Gurukul" system it shapes the students by all means and helps in holistic development. Physical education will not only help in physical development but also mental development by liberating students from Smartphone addiction.

**Index Terms:** Smartphone, Addiction, Physical education, Holistic development, School students, Healthy lifestyle, Digital Native.

## **Introduction:**

Physical education has a broad spectrum and it is felicitated throughout the world, in developed countries like the USA, China, Japan, and our beloved India. All people carry a motive of balancing life, though we all carry a motive of adopting physical education along with Information and Communication Technology (ICT), here our main concern is regarding smartphone addiction in which Smartphone is just a supporting part of ICT. Information and Communication Technology (ICT) can also be run without a smartphone in schools and with less support at home. Students should have to give priority to desktop computers and the use of laptops at home. Nowadays few coaching centers are providing tablets to students and a few companies are making tablet mobiles excluding the apps causing time killing or distraction among the students, even the features developed with which they can only use the helpful apps will be restricted from accessing the other platforms. Indian school students, no matter they belong to which class or category of society according to financial status, are now carrying mobile phones that are available under the various government schemes, even students can buy them through the EMI mode of payment. There is also a provision of having playgrounds and sports kits by a school rather than giving preference to physical education the school students are captivated by smartphone addiction. A country will be developed when it invests in technology, health, and education, knowledge and practice of physical education can prove a game changer if it invests in this field. The students become aware of the proper way of maintaining good health and its importance in minimizing the worse effects of harmful habits and technology, things that cause mental and physical health deterioration. School students are children to adolescents, this time is very important as these two stages of growth and development play a great role in the life of every human being. Childhood is a stage of habit-building and adolescents go through many physical and psychological changes, here smartphone addictions can be replaced with healthy habits when taught physical education in school. Smartphone addiction impedes growth and development, especially physical and mental health. when a person seat for hours in a place and engages in sliding the reels and taping the phone's screen it will hit dopamine, reduce the span of attention badly affect cognitive development and it will also slacken muscle development because of no loco-motor movements for a long hour. If the importance of physical education is propagated appropriately its practice will lead to the development of good habits among the students, the habit of engagement in healthy activities will not only help in the ample release of dopamine but also increase the endorphins which helps in the reduction of stress and pain.

**Objectives:**

1. Identify the adverse effects of uncontrolled use of smartphones and develop a healthy lifestyle through physical education among school students.
2. To understand the relationship between physical education and the holistic development of a child.
3. To understand the necessity of physical education inclusion in secondary and higher secondary level schools' core curriculum as a compulsory subject.
4. Identify the proper age of a student for using a smartphone.
5. Identify smartphone alternatives or substitutes for school students, that will not obstruct their knowledge of technology.
6. What Role does the government play in the nourishment of school students by promoting physical education at school and implementing proper schemes
7. Identify the roles of schools in reducing smartphone addiction and promoting physical education.
8. Spread awareness among parents about the effect and proper use of smartphones by their wards.

**Significance:**

1. Necessity of Inclusion of physical education in secondary and higher secondary level schools as a compulsory subject in the core curriculum.
2. Physical education is a magical weapon against the adverse effects of smartphones without requiring any medical support.
3. Physical education will increase the span of attention which will help the students restrain what they read.
4. Inclusion of physical education in Secondary and Higher Secondary level core school curriculum will show a path for employment.
5. Students will be enriched with the value of patriotism when they are motivated to participate in international games like the Commonwealth and the Olympics while studying physical education.

## Review of Literature:

**a. Effect on Physiological Development:** Physical education is related to the Physiological development of a child. It triggers the cardiovascular system of a human being. Proper physical activities and body exercise help to improve many dysfunctions of body parts. Various studies revealed that physical exercise and play contribute to flexibility and muscular fitness and also correct postural defects among school children (Gharote, 1976; Gharote, Ganguly & Moorthy, 1976; Moorthy, 1982). help to control obesity (Ganguly, 1981; Bera, 1998; Ganguly, 1989; Govindarajulu, Gannadeepam & Bera, 2003; Mishra, Tripathi & Bera, 2003). Apart from contributing to physical fitness, playing games physical exercise also contributes to improving learning, memory, and dealing with stress and anxieties in children by secreting beneficial hormones and enzymes (Kulkarni: 1997; Ganguly, Bera & Gharote, 2002).

**b. Effect on Mental Development:** According to Zara Abram's report Why young brains are especially vulnerable to social media? reveals that Oxytocin and Dopamine are the happy hormone that starts to synthesize after happy moments like recognition and praise from a peer group. This affects most children and adolescents' periods. After getting rewards our ventral striatum gets a dopamine and oxytocin rush. ventral striatum lies next to the ventral pallidum, the Key brain portion for motivating action. These structures, which lie beneath the more recently evolved cortex, are older parts of the brain that drive instinctual behaviors. In adulthood, social media is also inked with activation in the brain's reward centers. There are two major differences - one, adults have a fixed sense of self that does not confuse with fake recognition from peers, and two, adults have a more mature prefrontal cortex, which helps to regulate emotional responses to social rewards. (<https://www.apa.org/news/apa/2022/social-media-children-teens>). Oxytocin can increase trust, reduce anxiety, and enhance communication and social bonding. It has also been found to improve and maintain close relationships. But if a close relationship with the right person can change a life, any contact with the wrong person may also destroy a life. Yoga and Physical exercises are directly related to lowering anxiety levels and depression. Playing games also increases social bonding but they have no harmful effect on the body stated by Lauren A Rutter et al. in their study Social Media Use, Physical Activity, and Internalizing Symptoms in Adolescence: Cross-sectional Analysis in September 2021.

**c. Effect on Social skills:** Chou and Edge in 2012 told that according to two cross-sectional surveys among students of American and German universities found that students who spent more time on the social media platform Facebook were more likely to endorse feeling envy or sensing that others in their social network were better off than they were. (Krasnova et al, 2015 and Przybylski et al., 2014 ) According to Beyens, Frison, and Eggermonts in 2016 The term "FOMO" means fear of missing out — has been defined as "a pervasive apprehension that others might be having rewarding experiences from which one is absent," and has been associated with increased stress related to Facebook use.<sup>15</sup> All social sites have some good effects but addiction to social sites is very harmful for any person. A person who is addicted to social sites is

starting to live in an imaginary world and day by day detached from the real world. Przybylski (Beyens et al. 2016)

**d. Effect on Academic Achievement** Physical activity is beneficial for the development of cognitive, motor, and social skills, as well as good metabolic and musculoskeletal health. There is also a knock-on effect on academic performance,” says Stephen Whiting, Technical Officer in the WHO European Office for the Prevention and Control of Noncommunicable Diseases (NCDs) and one of the authors of the Umbrella Review of Physical Activity and Academic Achievement. (<https://www.who.int/azerbaijan/news/item/17-02-2021-who-reviews-effect-of-physical-activity-on-enhancing-academic-achievement-at-school>). Ana Barbosa et al. in the year 2020 proposed that forty-one systematic reviews and meta-analyses showed that small positive or mixed associations between physical activity and academic achievement. From meta-analyses, it was observed that physical activity had null or small-to-medium positive effects on academic achievement. Chronic physical activity showed a medium positive effect on academic achievement, and acute physical activity did not demonstrate benefits. Conclusions: Physical activity seems not to be detrimental to school-age children and adolescents’ academic achievement, and may be beneficial. This work was published with the title Physical Activity and Academic Achievement: An Umbrella Review.

**e. Awareness among parents regarding the use of smartphones:** According to Buabbas et al in 2021 parents are worried about the overuse of smartphones by their children because overuse affects their health and study. (paper Parents’ Attitudes Toward School Students’ Overuse of Smartphones and Its Detrimental Health Impacts: Qualitative Study). Parents are also facing hard challenges to control the use of SPs by their children. In a study namely "Associations between child mobile use and digital parenting style in Hungarian families" conducted by Konok et al. in 2019, the use of mobile phones and digital media by parents also influences their children to uncontrolled use of mobile phones and media. Adolescent children have less control over themselves about the use of social media and they are easily engulfed by the negativities of social media and smartphones. (Acharya et al. in 2013 and Shan et al in 2013). A good relationship between parents and children is beneficial for the control of the overuse of smartphones by parents and children. Physical exercises are also beneficial for the controlling overuse of smartphones.

**f. Physical education (PE) as a core curriculum subject in school education:** Physical education helps in the overall development (cognitive, affective, and psychomotor) of a school student. It is also beneficial to solve the problems that arise in the adolescent period. It helps in emotional control and proper growth of the body (Sallis et al., 1999 Ardoy et. al., 2014, But Physical Education faces some major problems in being a part of a core curriculum like general teachers are not interested in PE. Impact of Physical Education Curriculum on Academic Achievement of Higher Secondary School Students in India Sampa Bhowmick, Sandip Sankar Ghosh, Biswajit Biswas thinks it does not have any significant importance in child academic achievement. Many schools do have not proper infrastructural facilities and funding, Non-availability of trained teachers in PE, lack of awareness among parents, non availability of good books on PE (POSITION

PAPER NATIONAL FOCUS GROUP ON HEALTH AND PHYSICAL EDUCATION, NCERT). According to the state (West Bengal govt.) and central govt. CBSE and WBBSE. In the curriculum of WBCHSE Physical Education falls under SET-III (Humanities group). Though it is a science-based subject. 25 subjects are here and students have to select 3 compulsory subjects and 1 Optional Elective subject. Here also PE is not mandatory (<https://wbchse.wb.gov.in/curriculum-syllabus-set-iii/>). In the CBSE board, there is no option for PE. In the case of ICSE board physical education is not compulsory but in the HS curriculum.

**g. Smart Phone VS. Physical Education:** In 2004, in a paper K. S. Young found that in information technology addiction internet addiction is one of the earliest examined forms. According to Kwon Et. al. “Smartphone addiction” (SA) is a newer concept in internet addiction research. Montag et al. say that Smartphones distinguish their use from traditional Internet use on computers or laptops because smartphones allow users to access the Internet continuously regardless of time and space. In a study, it was found that fitness influencers make content creation their full-time vocation—benefitting from professional photo shoots, professional lighting and makeup, photo-editing software, and/or performance-enhancing supplements and drugs—fitspiration proliferates unrealistic and unobtainable body ideals that increase the risk of psychopathologies: (i) exercise addiction and compulsive exercise; (ii) body dissatisfaction and objectification; (iii) appearance-related anxiety, depressive symptoms, and low self-esteem; (iv) excessive control of eating habits; (v) use of performance-enhancing drugs; and (vi) low quality of life.

UNESCO (2014) analyses PE curricula worldwide. It documents that most PE curricula intend to provide beneficial effects along five domains: (i) support academic achievements, (ii) foster personal and social development (non-cognitive skills), (iii) improve basic motor skills, (iv) encourage physical activity in and out of school, and (v) improve health. (<https://docs.iza.org/dp11268.pdf>)

The above two pieces of research were done 20 and 10 years ago, respectively. At that time, they showed the adverse effects of smartphones on child health as well as overall development. There they also talked about the worsening effect of smartphones and the eradication of those effects by physical education. Smartphones were barely advanced in the year 2004, 2 decades before researchers showed the concerns regarding harmful effects of smartphones. Day by day, smartphones are advancing technologically and challenging the holistic development of a child. Now it is 2024, when a person can hardly take a sigh of relief without a smartphone.

The use of smartphones has become an integral part of our lifestyle; here we need the recommendations of UNESCO to promote physical education in the school curriculum. Japan is among the developed countries in the world that invested in its human capital after the atomic attack of Hiroshima and Nagasaki. If countries like India start investing in human resources by making their citizens aware of good health. The first step to making people aware of health and hygiene (physiological and mental both) is to include these studies in the school curriculum.

Studies by various researchers at various times have revealed many facts about the negative effects of smartphones, yet the use of smartphones is increasing day by day, and it is proving to be very harmful to students. A smartphone certainly has some good effects too. But its negative aspects are all the same and affect the world very badly; we must bring its use under control.

## Discussion:

Physical education encourages activities like jumping, running, climbing, throwing, and also meditation as the basic need. Introducing physical education in schools will work as a knot between education and health. This will cover both sides that should be taken care of by a government to develop a nation that is healthy for the citizens and the education of the citizens.

Physical education is a blessing in an era where the cases of anxiety, depression, and health issues among children are increasing. School students are in the budding stage and will later contribute to the development of the nation. They are important assets to a country their healthy mind and fitness will act as valuable resources for a country. Without health, one cannot achieve anything it may be academics or athletics. For holistic development Physical education is very important. Now this is the era of digitalization. Digitalization has so many good effects but day by day it is losing the human touch. A society devoid of human touch marks the backwardness of the nation. Physical education studies will work in contrast with the harmfulness of smartphone addiction:

Table: Comparison Between Smartphone addiction Effects and Physical Education Effect

Development	Smartphone addiction Effects	Physical Education Effects
<b>Holistic development of a child.</b>	<b>Physical Health:</b> Using a smartphone for long hours can cause many physical problems in students like dry eye, headache, bone-related issues, and less growth due to fewer locomotor movements	<b>Physical Health:</b> This will help students maintain good lung, muscular, and cardiac health after the execution of what they learn about.
	<b>Mental Health:</b> This will cause anxiety, a short span of attention due to sudden changes in emotion by watching short videos, and less release of useful chemicals from various glands due to engagement in one activity (using a smartphone). Overuse indulges mental retardation. Increase suicidal tendencies.	<b>Mental Health:</b> Implementing what the students read will help in increasing the span of attention by the activity like meditation while doing activities like Yoga. Exercise will help the various parts of the body release useful chemicals in appropriate amounts. It has a positive effect on mental health. A healthy mind easily eradicates

		suicidal tendencies.
	<b>Social Life:</b> Students addicted to smartphones will less integrate with society and will be more attracted to the virtual world. They will have fewer social skills developed.	<b>Social Life:</b> This will help the students to meet at various places to perform physical activities. This will enhance self-esteem and increase self-confidence. Students will explore society physically.
	<b>Crime:</b> People by using smartphones are involved in different types of crime.	<b>Crime:</b> Physical education gives training body and mental fitness against crime.
	It has a negative effect on the holistic development of a child	It promotes holistic development of a child.
<b>Academic achievement</b>	Helps in e-learning, distance learning, worldwide connectivity, getting huge resources and study materials, mock tests, etc. But the absence of human touch like friends and teachers' face-to-face interactions unable to develop a child. Students can be able to run only marks without a lesson.	Physical activities help in mental and physiological growth. A healthy mind and physics will help in increasing concentration and bits of intelligence. Creates strong intrinsic motivation. Physical education is positively correlated to academic achievements.
<b>Awareness among parents</b>	Smartphones help in getting the whereabouts of their children from time to time. social groups give valuable information also regarding their ward's studies, careers, health-related issues, peer groups, etc. It also allows 24-hour surveillance.  Such kind of activity is very harmful for the children. Most of the time parents think their children should not watch mobile but, in their life, they are not leaving their mobile.	For both parents and children healthy lifestyle, holistic development, and good relationships are very essential. Physical exercise yoga or meditation helps in this matter. Holistically developed children or morally developed children need 24-hour surveillance.

**Physical Education in School Curriculum:** School students properly need holistic development so that they will be able to meet the requirements of a perfect person in this competitive and survival world. Health

and physical education as a subject at the school level which is also emphasized by the National Council of Educational Research and Training (NCERT) in India and Health and Physical Education as a subject introduced at the Higher Secondary level by the West Bengal Council of Higher Secondary Education (WBCHSE). Now let us discuss which age should be suitable for providing mobile phones to students World Health Organisation (WHO) says;

“Adolescence is the phase of life between childhood and adulthood, from ages 10 to 19. It is a unique stage of human development and an important time for laying the foundations of good health. Adolescents experience rapid physical, cognitive, and psychosocial growth.”

[https://www.who.int/health-topics/adolescent-health#tab=tab\\_1](https://www.who.int/health-topics/adolescent-health#tab=tab_1)

The adolescence stage is an important stage of human life, shifting to a new stage, especially to this stage where rapid changes create confusion in the students' minds. Controlling emotions, meeting with new people, and increasing the number of school subjects led to many questions in the student's minds. Childhood is a stage where mobile phones must be avoided because of less cognitive development and setting priorities capacity among the students, in adolescence stage up to the earlier stage smartphones should be avoided because spending more time in physical activities in this stage will help in developing good mental and physical health which is a basic requirement of the students as well as felicitate the use of dictionaries and encyclopedias. With the increasing demand for e-learning, companies should make smartphones with reasonable restrictions in accessing harmful apps and websites, in at least two categories one for secondary-level students and another for Higher secondary-level students.

The government providing smartphones or an average amount for smartphones shall make smartphones keeping the needs of the students in mind in collaboration with various companies or pay expertise attention to making ICT room at each school which will also decrease the burden on the government's treasury and the same amount should be spend on promoting and implementing health and physical education.

School management should arrange physical education classes and instructors who will maintain physical education classes regularly as well as monthly meetings with parents to get a report of smartphone use by their children and instruct them to motivate their children towards physical education. Parents should also keep monitoring their children by viewing the screen time feature and asking them to play Indigenous games at least. At the social level all the responsible.

At the social level reward system, be introduced by some clubs and NGOs to the bright students in physical games as well as less use of smartphones in unnecessary kinds of stuff by submitting screen time data. Seminars should be organized in local area functions on the importance of physical education and the harmful effects of smartphone addiction.

**Conclusion:**

Smartphone addiction augmented with time, is palpable by various studies and our estimation is the same in this regard. Our concern is regarding smartphone addiction among school students and physical education as a remedy, the discussion we have had made it clear that physical education works with the contrast energy to smartphone addiction. Ideas that have been shared with us will surely help in securing our goal to reduce smartphone addiction among students.

Under the light of WHO, NCERT, and WBCHE as well as the adoption of physical education as a core subject by various international schools, we believe that physical education will surely work like the magic of an angel and empower the children and the youth physically, mentally, spiritually and eternally.

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