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## Physical Education as a Tool for Combating Sedentary Behaviour Among Adolescents

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### ABSTRACT

The phenomenon of sedentary behaviors in young people has become a critical public health issue in the twenty-first century. Technological advancements, increased screen time, reduced time spent outdoors, academic demands, urbanization, and a decline in participation in sports activities have contributed to a sedentary lifestyle among school-going young people. Adolescence is a significant life stage marked by tremendous physical, emotional, social, and cognitive development, and behaviors developed during this stage are long-lasting, persisting through adulthood. In this context, physical education plays a significant role in combating a sedentary lifestyle through school-based intervention strategies. This research paper aims to investigate the role of physical education in preventing sedentary behaviors among adolescents. It aims to establish the conceptual relationship between physical education and adolescent health, including the causes and effects of sedentary lifestyles, as well as the role that physical education plays in promoting physical activity, physical fitness, and mental well-being among adolescents. It also aims to establish the social, psychological, and educational benefits derived from adolescents' active participation in physical education classes. It also seeks to identify the challenges facing physical education programs, including inadequate infrastructure, a lack



of training among teachers, insufficient attention to the curriculum, gender disparities, and socio-economic factors. Finally, the paper concludes with the assertion that physical education should be redefined not as an elective form of physical education, but rather as an integral part of the development and health policies of adolescents. Support from robust policies, proper curriculum design, periodic evaluation, parental support, and community support are essential in order to fully harness the potential of physical education in eliminating sedentary behavior among adolescents.

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## **Introduction**

In recent years, the level of sedentary behaviours in young adolescents has become a significant problem in the world. Sedentary behaviours are those activities in which individuals engage with minimal energy expenditure while they are sitting, lying, or reclining while they are awake. Such activities include, but are not limited to, excessive viewing of television programs, increased usage of mobile phones, video games, learning through computers without breaks, and spending a lot of time in classrooms or coaching centers while sitting. Although modern technology has significantly enhanced learning, it has resulted in a sedentary lifestyle in young people in recent times. Young people in contemporary society are spending a significant portion of their time on sedentary activities, which is negatively impacting their physical movement, outdoor activities, and exercise.

Adolescence is an important period in the life cycle with regard to physical, mental, and social growth. During this period, the adolescent experiences rapid growth, hormonal, and neurological developments in the body. In addition, the adolescent develops habits, tastes, and identities that can stay with him/her through life. If an inactive lifestyle is normalized during adolescence, the probability of the onset of future inactivity, obesity, cardiovascular diseases, back problems, musculoskeletal weaknesses, anxiety, and reduced fitness is greatly increased. In this context, the intervention during adolescence is not only preventive but also lays the foundations for the future.

Among the numerous strategies available to combat sedentary behaviours, physical education is one of the most accessible and institutionalized forms of intervention. Unlike sports activities, which can be differentiated depending on the availability, interest, and opportunities, physical education is part of the educational system and therefore has the potential to cover a wide range of adolescents from different



backgrounds. Schools are among the major social institutions where adolescents spend a considerable part of their time during the day; therefore, they are among the best places where movement, health literacy, and active behavior can be introduced. Physical education has great potential to break up long periods of sitting, encourage regular participation in moderate to vigorous activities, enhance motor skills, build confidence, and create positive attitudes towards fitness.

The objective of this paper is to critically analyse the role of physical education in combating sedentary behaviours among adolescents. It will include a discussion of what sedentary behaviours are, what causes sedentary behaviours, and what educational and health implications sedentary behaviours have on adolescents, as well as how schools can use physical education as a tool in creating a healthier and more active generation of adolescents in the future.

### **Understanding Sedentary Behaviour Among Adolescents**

Sedentary behaviour, however, is not the absence of physical exercise but rather a specific behaviour in which an individual expends extremely low levels of energy. An individual can engage in a physical exercise routine for a few hours every day but still be highly sedentary because he or she spends most of the day sitting. This is an important point because even students who meet the minimum physical activity requirements can still be at risk of health problems because of their sedentary behaviour. The sedentary behaviour of adolescents has risen dramatically because of the combined effects of digital entertainment, online education, urban constraints, academic competition, lack of play spaces, and changing family styles.

The contemporary teenager lives in an environment which passively promotes physical inactivity. The place of electronic gadgets in contemporary life cannot be overemphasized, as they are now integral to communication, leisure, education, and identity. Social networking, movie streaming, gaming, and virtual classrooms are now a big part of a teenager's life, promoting a culture of physical inactivity in which sitting is not just socially acceptable, but has become the new normal. Second, urban lifestyle is associated with a lack of play spaces, especially in densely populated areas or areas with a lower socio-economic status. In many instances, parents' concerns over safety, traffic, air pollution, and academic performance hinder the free movement of their children. Hence, the contemporary teenager spends most of their time moving from one desk to another: their study desk at home, their bench in class, their chair in coaching class, and finally, their screen for leisure activities.



It is also possible to argue that academic pressures can be viewed as one of the major causes of sedentary behaviors. Indeed, in most academic systems around the world, academic performance has been viewed as more significant compared to physical development, particularly in highly competitive environments. Students are required to spend more time studying, attending tuition sessions, and sometimes even revising for exams. Physical education sessions have been viewed as secondary, non-essential, and/or expendable in these environments. This devaluation of physical movement can therefore support the view that physical activities are a luxury rather than a necessity.

The consequences of sedentary behaviour are many. The physical consequences include obesity, reduced cardiovascular endurance, muscular weaknesses, lack of flexibility, insulin resistance, and postural problems. Sedentary behaviour among adolescents also includes reduced energy levels, sleep problems, and tiredness. The psychological consequences include stress, irritability, reduced self-esteem, and anxiety or depression. In terms of education, reduced concentration, motivation, and interest in classwork are the consequences. Therefore, sedentary behavior is not only related to physical health but also to the educational and developmental aspects of an individual.

### **Concept and Scope of Physical Education**

Physical education is a planned educational process in which physical activity, movement, exercise, games, sports, and health-related instruction are employed to help in the development of the individual. Physical education is not restricted to sports and games. Instead, physical education is a pedagogy that helps in the development of physical competence, health consciousness, emotional stability, social skills, teamwork, discipline, and a positive attitude towards physical activity. Physical education is the best way to help in the development of the individual by integrating body and mind in the educational process.

Traditionally, physical education has sometimes been viewed as a break from academic learning or as a time for sports practice. Such views of physical education are narrow and detract from its educational value. Physical education is a vital part of general education, as it helps students with cognitive development, emotional control, social interaction, and personal management. By engaging in physical activities such as running, stretching, games, rhythmic exercises, yoga, weightlifting, and sports, students are not only learning physical movement but are also learning to comprehend their physical capabilities, cope with stress, work with other people, and live a healthy lifestyle.

The scope of physical education is of particular significance in adolescence, as this stage is highly susceptible to habit formation and identity development. That is, adolescents who have a good physical



education experience in terms of enjoyment, inclusivity, and meaningfulness are more likely to associate physical activity with feelings of confidence, enjoyment, and affiliation, while adolescents who have a bad physical education experience in terms of competition, monotony, exclusivity, and punishment are less likely to participate in physical activity and are more likely to embrace inactivity. Thus, the success of physical education in reducing inactivity not only depends on the availability of physical education in the school curriculum, but also on the quality of physical education.

Physical education in the contemporary school system needs to extend beyond physical drills, sports specialization, and other traditional activities. It needs to include health education, lifestyle awareness, posture correction, movement breaks, fitness literacy, body positivity, mental wellness, and knowledge of the negative effects of prolonged sitting, among other aspects. Physical education, in its new dimensions, is a potent tool for public health promotion in schools. It needs to take into consideration gender differences, disability, body image, and cultural attitudes towards physical activity, among other considerations.

### **The Relationship Between Physical Education and Physical Activity Levels**

Physical education is seen to have a direct and indirect effect on increasing the level of physical activity among adolescents. Directly, it breaks up periods of inactivity throughout the school day by providing scheduled periods of activity. Even a highly structured moderate-intensity activity will have a significant effect on daily energy expenditure and will help adolescents reach recommended levels of physical activity. Indirectly, physical education may have an effect on the attitudes and knowledge of adolescents about physical activity and may motivate them to be physically active outside of school hours.

One of the first ways in which physical education can address the issue of sedentary behaviour is by making sure all students engage in physical activity. Unlike sports activities, which might attract only the already physically active and sporty, physical education caters to the entire student population. It caters to the entire student population, including the less physically active, shy, overweight, and less sporty. It is this characteristic of physical education that provides it with its biggest advantage. It is the one subject in which the entire student population is brought together to engage in physical activity.

Another important role of physical education can be noted in the development of movement skills. It has been observed that many adolescents avoid physical activities not because they dislike moving, but because they feel incapable or unskilled. If an adolescent lacks basic skills like coordination, balancing, or skills in sports, he or she might feel stressed rather than enjoying physical activities. Therefore, it can



be noted that physical education plays an important role in developing basic skills in students, and when students feel capable, they can enjoy physical activities in their routine life.

Physical education can also enhance students' understanding of the value of physical movement. There are many students who are not aware of the implications of physical inactivity on their health, physical posture, emotions, and potential risks of future illnesses. Through physical education, students can gain insight into the value of physical movement, the necessity of taking breaks while studying, and the value of stretching, cardiovascular fitness, and physical movement in relation to mental acuteness. Such knowledge is vital, as changing students' behaviours is more likely to be long-term when students are aware of why they are changing, as opposed to changing their behaviours through discipline alone.

Physical education can also serve as a bridging tool in students' behaviours, both in school and at home. There are students who are encouraged to engage in physical activities they learned in school, such as physical exercises, games, yoga, or physical fitness, outside school hours. Therefore, the impact of physical education on students' behaviours is not limited to the physical class alone.

### **Physical Education and the Prevention of Lifestyle-Related Health Risks**

Sedentary behaviour in adolescents has been found to have a strong association with health risks related to lifestyle. Lifestyle health risks in adolescents include obesity, type 2 diabetes, hypertension, poor cardiovascular health, decreased bone density, muscular imbalance, and metabolic problems. Even though these health problems are often related to adults, they are now being found to have been initiated in childhood and adolescents. Physical education plays a role in preventive health care by initiating activities before these problems take deep root.

Physical education plays an important role in maintaining energy balance in the body. This is because physical education increases the rate of energy expenditure. Therefore, physical education increases metabolism in the body. For instance, physical activities like running, jumping, and other sports help in maintaining and regulating weight, blood sugar, and heart functions in teenagers. Therefore, physical education increases the strength of the heart, lungs, muscles, and the skeletal system. This, in turn, reduces the risk of obesity and other related diseases. It should be noted that physical education benefits not only the students who already have physical fitness but also those who lack physical fitness.

The skeletal system in teenagers is another aspect that should be considered in physical education. This is because physical education plays an important role in maintaining and increasing bone mineral content. Therefore, physical education reduces the risk of osteoporosis in teenagers. For instance, muscular



strength and flexibility help in maintaining proper posture. In today's world, teenagers spend most of their time bending over books and computers. Therefore, physical education plays an important role in maintaining proper posture and reducing neck, back, and abdominal problems.

The preventive aspect of physical education also includes sleep quality and biological rhythm. Inactive adolescents tend to have an irregular sleep pattern, particularly if they expose themselves to screens late at night. Physical activities enhance sleep quality, sleep onset, and alertness, which impact performance and emotional states. Therefore, physical education promotes a healthy biological rhythm, benefiting body and mind.

Physical education, being a part of daily life and not an ad hoc solution to a problem, helps to develop a preventive culture. Physical education helps adolescents understand that health is not just addressed after a problem arises but is actually constructed. This transformation in health practices, from being reactive to being proactive, is perhaps one of the most important things that physical education may offer to adolescents.

### **Psychological and Emotional Benefits of Physical Education in Reducing Sedentary Lifestyles**

Physical education can also be viewed from a psychological and emotional perspective. Being inactive is not only a physical condition, but there are psychological implications associated with it. Being inactive in adolescence sometimes may be associated with psychological conditions such as stress, social withdrawal, dependence on technology, and a lack of motivation. Physical education can help break these psychological conditions, which are emotionally stimulating, socially engaging, and confidence-building in nature.

Adolescence is a stage of emotional hypersensitivity. At this stage, adolescents often have to cope with academic demands, personal identity issues, comparisons, and social anxiety. Sedentary behaviour in adolescents can sometimes cause emotional hypersensitivity. Sedentary behaviour, especially in combination with technology overuse, can sometimes cause feelings of isolation, irritability, or emotional exhaustion. Physical activity has been found to influence the regulation of emotions through physiological mechanisms such as improving blood circulation, balancing hormones, and releasing endorphins. However, in the school context, there is an additional factor. Physical education can offer adolescents emotional outlets that sedentary behaviour does not.

Being involved in physical education can help adolescents develop self-esteem, especially if they experience success in mastering physical activities. Being able to learn something new, accomplish



something challenging, or contribute to the success of the group can help adolescents develop feelings of competence and self-worth. Physical education can be the one place where adolescents feel visible, capable, and worthy if they are struggling academically and/or socially. This is important because low self-confidence is one factor that can hinder adolescents' involvement in physical activities.

Socially, physical education can help adolescents learn to work together, cooperate, communicate, and show mutual respect towards one another. Physical activities can help adolescents develop social relationships outside the academic arena. Being lonely is less likely to occur if adolescents are socially involved. Sedentary lifestyles can lead to feelings of loneliness because adolescents can be isolated in individualized screen-based environments. Physical education can help adolescents integrate the body into the social experience. In addition, physical education can also help adolescents build resilience, discipline, and emotional intelligence. The ability to cope with winning and losing in games, perseverance through physical struggles, compliance with rules, and consideration for others are important life skills. These life skills can also be translated to the scholastic world. Thus, physical education seeks to reduce sedentary behavior not only through physical activity but also through the emotional value attached to physical activity.

### **Physical Education, Cognitive Function, and Academic Performance**

One of the biggest misconceptions in most educational institutions is that physical education activities detract from academic performance by depriving students of time for more “serious” subjects. However, there is a rapidly growing body of evidence that suggests otherwise. Physical education activities can actually help students achieve better in school. Thus, physical education should not be regarded as a detractor from academic performance but rather as a facilitator of it.

Students who participate in physical activities regularly have shown improvements in aspects such as concentration span, working memory, information processing speed, and executive functions. Physical activities increase blood flow to the brain, help in neural connection, and reduce mental fatigue. Physical education sessions, particularly those scheduled strategically in the school schedule, can actually help students recover from having been seated for long periods in cognitively draining environments. After engaging in physical activities, most students can come back to their schoolwork in a more refreshed state of mind.

On the contrary, sedentary activities can cause sluggishness, restlessness, and lack of focus, especially when a student sits for a long time without interruptions. A student may become physically



uncomfortable and mentally exhausted and may lack focus in class due to sitting in class for a long time. Physical education acts as a “reset button.” It interrupts monotony and stimulates the nervous system, thus increasing a student’s focus.

Physical education also helps students develop skills that can contribute indirectly to academic success. For instance, time management skills, perseverance, goal-setting skills, adherence to rules, strategic skills, and teamwork skills can be learned in physical education activities. During sports and movement activities, students learn how to make quick decisions, analyze situations, and strategize as a team. These are cognitive skills related to academic success and future professional activities.

Hence, the integration of physical education in school systems should not be viewed as less serious in academic tone. Rather, it should be viewed as more effective in educational terms. If school systems sacrifice physical education in the name of academic performance in examinations, they may actually be compromising academic performance in other areas. A holistic educational philosophy acknowledges the fact that healthy bodies mean healthy minds.

### **Barriers to Effective Physical Education in Schools**

In spite of its established importance, physical education is still underdeveloped and/or underappreciated in many educational systems. There are several impediments to the effective functioning of physical education as a means to counter sedentary behavior among adolescents. These impediments are structural, cultural, pedagogical, and socio-economic in nature.

One impediment to the effective functioning of physical education is the marginalization of physical education in the academic curriculum. Physical education is often not considered an examination subject in many educational institutions. Consequently, it is perceived by the educational administration, parents, and even the students themselves to be less important than academic subjects. As such, physical education periods may be cancelled to allow for preparation to take tests, to be used for administrative work, and/or to be shortened. It is indeed a powerful message to send to adolescents to support the idea that physical activity is less important than academic success.

The second barrier is the lack of adequate school infrastructures. In most cases, there is a lack of playgrounds, halls, or other activity spaces. This is more common in urban schools due to inadequate space. Physical education in such cases can only be repetitive, limited, or theoretical. It is not possible for students to develop interest in physical living in such cases because they are not exposed to much.



Another barrier is teacher preparation. Physical education can only be offered by well-trained educators. Trained educators are those who are familiar with adolescent development, health education, motivation techniques, and other aspects of physical education. In some cases, physical education is given to untrained educators or viewed as a supervisory activity. This not only minimizes the educational aspect of the subject but can also cause student alienation.

Gender bias is also a factor in participation. In some societies, there may be fewer opportunities, less support, or more restrictive socialization for girls in terms of physical activity. There may also be issues of modesty, safety, social pressure, or body image that can act as deterrents for girls from actively engaging in physical education. If physical education programs are very competitive, very male-dominated, or not sensitive enough to different levels of comfort, there is a possibility of excluding a large number of adolescents. Similarly, there can also be issues of disability, obesity, poor fitness levels, or social inhibitions for some adolescents.

Socio-economic disparities also play a role in influencing the availability of supportive environments outside school. Even in the presence of physical education programs in the school curriculum, there can exist socio-economic disparities in the availability of safe environments outside school, sports facilities, healthy foods, or parents' awareness of the benefits of physical activity. Thus, physical education programs in school need to be of sufficient quality to compensate, at least in part, for these socio-economic disparities.

### **Strategies for Strengthening Physical Education as an Anti-Sedentary Intervention**

For physical education to have maximum impact in the prevention of sedentary behavior, there needs to be a more comprehensive and deliberate approach. Physical education should not be merely an additional activity but a core element in the wellness of adolescents. For this to be achieved, there are a number of steps that can be taken.

First, physical education must be made compulsory, consistent, and not easily substituted by additional academic or administrative classes. This is because the benefits of physical education accrue over time. It should be ensured that all adolescents in a school have multiple classes of physical education each week.

Second, there should be diversity and inclusivity in physical education. It should not be merely about sports. Some adolescents might not enjoy sports. Some might enjoy dancing, yoga, martial arts, fitness, walking, aerobics, stretching, or other non-competitive physical activities. A more flexible physical education curriculum can help engage more adolescents in physical activities. The fear of failure should



not be an issue in physical education. It should be understood that adolescents will be more inclined to avoid sedentary behavior if they find physical activities they enjoy.

Thirdly, physical education should include the health topic of sedentary behavior. Students should not only be taught how to engage in physical activity but also why sedentary behavior is a health risk. Physical education should include awareness about the health risks of sedentary behavior and the practicality of changing such behaviors. When students are aware of the health risks of sedentary behavior and are aware of the practicality of changing such behaviors, they are likely to engage in positive health behaviors even without external influence.

Fourthly, schools should include movement activities other than physical education. Physical education is not the only time for students to engage in physical activity. Schools should include short activity breaks in other classes, such as standing discussions in classroom activities, and school fitness campaigns. Physical education teachers should work closely with classroom teachers to ensure that students do not engage in prolonged periods of sedentary behavior throughout the school day.

Lastly, teacher training is essential for ensuring that students engage in positive health behaviors. Physical education teachers should be trained not only on how to engage students in games but also on how to influence positive health behaviors.

Sixth, parental and community involvement is vital. If parents see physical activity as an interference with studies, children may be given conflicting information. Awareness sessions, sports days, health workshops, and home-based activity challenges can be held to create an enabling environment outside the school.

### **The Role of Policy and Educational Reform**

The development of physical education from being a neglected subject to becoming a powerful tool in combating sedentary behaviors requires a policy-oriented engagement due to the need to develop a realization in educational systems that physical inactivity among adolescents is not simply a personal problem; rather, it is a structural problem associated with various issues, including curriculum, urban planning, technology, and health neglect. Thus, there is a need to develop a policy guideline that places physical education at the interface of education, health, and youth development.

It is imperative for governments and educational authorities to develop a policy that aims to mandate a certain number of physical education hours in secondary-level educational systems. It should include



quality standards in terms of learning outcomes, intensity of physical activities, participation, and health knowledge. It is important to note that assessment should not be limited to physical performance; rather, it should include participation, improvement, knowledge, and habit formation in a way that eliminates anxieties and increases interests.

Funding is another factor which cannot be overlooked. Schools require infrastructure, equipment, grounds, and staff. Different models may have to be developed for rural and urban schools, keeping in view space and availability of resources. Low-cost and flexible models of physical education may have to be promoted, especially in schools where such infrastructure is not available. Another area which may have to be explored is community-based schools, sports clubs, sports spaces, youth clubs, and sports parks.

There is also a need to look into equity issues. Special attention is to be given to issues concerning girls, disabilities, and marginalized groups. Uniforms may have a positive role to play in enhancing girls' participation in physical education. Menstruation may also have to be addressed. Uniforms may have to be sensitive to girls' needs. Physical education staff for girls may also have to be considered.

Notably, physical education should be included in the national health campaigns and the programs targeting the health of the youth. Schools possess the capacity to be the main arena for the prevention of non-communicable diseases, the reduction of the risk of obesity, and the improvement of mental health. From this point of view, physical education is not only education but also social investment in the health of the future population.

## **Conclusion**

The problem of sedentary behaviors among young people can be regarded as a hallmark challenge of contemporary life, which is related to technological saturation, academic demands, physical inactivity, and changes in social behaviors. At the same time, it should be noted that the problem of sedentary behaviors has far-reaching implications that go beyond the physical domain, involving physical, emotional, cognitive, and lifestyle aspects. In this context, physical education can be regarded as the most powerful and egalitarian strategy for counteracting sedentary behaviors, first of all, in connection with the educational system.

The importance of physical education, therefore, lies not only in ensuring that adolescents engage in physical exercises within school hours, but also in transforming their relationship with their body, physical movements, health, and self-discipline. It can help in physical fitness, prevention of obesity,



development of muscles and bones, correction of postures, sleep, and prevention of lifestyle diseases in adulthood. It can have a positive impact on emotional well-being, self-esteem, social skills, concentration, and class readiness. Therefore, physical education, when conducted with a sense of inclusivity, diversity, and educational purpose, is not only an opportunity to allow children to engage in physical exercises, but it can be a transformative educational practice. The true value of physical education, nevertheless, has been hindered by a number of factors, such as curricular neglect, inadequate infrastructure, teacher training, gender bias, and social misconceptions, which often value educational achievement more than physical education. All these challenges, therefore, need to be overcome through reforms, policy support, curriculum innovation, and community awareness. Physical education has to be made compulsory, well-supported, health-oriented, and embedded within a broader educational culture that promotes physical movements within a school day.

At the end of the day, breaking the sedentary habit among adolescents means more than simply telling young people to “be active.” It means designing environments in which young people can easily, enjoyably, meaningfully, and socially be active. Physical education, understood as a serious and essential educational activity, can play precisely this role. It is not a supplement to education; it is a prerequisite for healthy adolescence and adulthood. In a world becoming ever more defined by sitting, screens, and stillness, physical education can provide young people the chance to reclaim motion, vitality, balance.

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