

A study on major effects of physical education on academic achievement in present context

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Abstract:

A child's health has an important moderating role on their capacity to learn. Empirically proven and widely recognised is the notion that healthy kids learn more effectively (Basch, 2010). The academic success of a child is influenced by numerous things. Socioeconomic status (Sirin, 2005), parental participation (Fan and Chen, 2001), and a variety of other demographic characteristics are a few of them. Numerous researches have established the links between physical activity and improved mental and cognitive functioning, bone health, cardiovascular and muscular fitness, and psychosocial effects (Strong et al., 2005). Since the brain controls both mental and physical functions in the body, brain health is crucial throughout life. Adult brain health is defined as the absence of disease, optimal anatomy, and function. This is measured in terms of everyday functioning and quality of life. The healthy development of attention, on-task behaviour, memory, and academic performance in a learning environment are indicators of a child's brain health. Fitness and physical activity are essential for a child's brain development. After engaging in a physical activity session, kids answer to a number of cognitive tasks more quickly and accurately. A study demonstrated that engaging in moderate physical activity increased the brain and behavioural correlates related to the allocation of attention to a particular cognitive task. Youngsters who engaged in aerobic exercise for 30 minutes did better in an experiment than youngsters who watched television for the same length of time. Physical exercise, which is typically done as a break from academic study, has positive post-engagement impacts on attention, on-task behaviour, and academic achievement. Teachers might incorporate physical exercise breaks into their regular lessons or simply use them to refocus students' attention. An increase in aerobic fitness has been shown to mediate improvements in academic performance as well as the allocation of neural resources supporting performance on a working memory task. After-school physical activity programmes have shown their ability to improve cardiovascular endurance.

Keywords: Physical education, academic achievement, supporting performance, cardiovascular endurance, cognitive tasks

Introduction:

The proverb "health is wealth" emphasizes the importance of maintaining good health for the general well of both individuals and societies. A common adage is "All work and no play makes Jack a dull kid." The necessity of engaging in regular physical activity is actually the focus of this. We prefer to choose nutritious foods over stringent workout routines and healthy eating habits because our conception of health is so flawed. It's understandable why some people get obese in their mid-twenties. The English version of a Latin proverb often used in academic settings is "A sound mind in a sound body." Our ancestors regularly engaged in physical activity and were conscious of the qualities of good health. So it makes perfect sense to delve deeply into how college students generally feel about physical activity. Humans can use sports to achieve a variety of developmental objectives that secure their overall well-being. Sport encourages academic pursuits, social growth, and, most importantly, community life while also enhancing public health. We are all aware of how important physical activity is to both our health and survival. Physical activity reduces the chance of

developing Type 2 diabetes, cardiovascular disease, and other chronic diseases and helps prevent obesity (White House Let's Move campaign, 2015). According to criteria for health-related outcomes, kids today do not engage in the appropriate quantity of physical exercise, according to recent studies (Salmon & Timperio, 2007). Children should engage in at least 60 minutes of physical activity each day, according to recommendations (Janssen & LeBlanc, 2010; US Department of Health and Human Services, 2008). Due to reduced or, in some cases, eliminated physical education lessons from the school day, children are failing to achieve this requirement. Nearly 50% of American adolescents do not participate in any form of physical education throughout the school week, compared to 30% of youth who receive physical education instruction everyday (Centres for Disease Control and Prevention, 2012). One factor contributing to the reduction in youth physical activity levels is a lack of funding for programmes. Another justification for reducing and abolishing physical education programmes in our schools is to give kids more time in the classroom (Wójcicki & McCauley, 2014). This justification is to improve accomplishment and

performance on standardized tests. Our youth's lack of physical activity increases their chance of becoming obese, but it can also affect their academic performance. After all, children who engage in physical activity tend to pay attention better and learn more effectively (Wójcicki & McAuley, 2014). These factors led our team to decide to look at whether a lack of physical education in high school had an impact on students' academic performance in low-income communities. Because scholastic success is consistently lower in metropolitan areas, we chose these areas because of this. According to Ahram, Stembridge, Fergus, and Noguera (2015), this issue has been explained by the large number of pupils who perform badly on standardized tests and do not perform at grade level, as well as by high rates of high school dropouts and special education designation. If physical education time affects high school students' academic performance in low-income communities is what we want to know about this subject but do not know. As a result of failing to consider how reducing physical education time actually lowers academic performance, the lack of knowledge of this information may have a negative impact on students' academic progress. This study is important because it has the potential to reduce obesity rates, boost academic performance, and address problems that low-income adolescents already encounter that have an impact on their future development.

Review of Literature:

According to Joseph (2011), it is crucial to understand the predictors and antecedents of physical activity because, if practised into adulthood, learned childhood behaviours can have a positive impact on health. This is in addition to the age-related decline in physical activity from childhood to adolescence. It is possible to accurately identify a child or group of children as a target for intervention. Zeng & Raymond (2011) looked at the high school students' views on physical education and their preferred sports. According to the researchers, encouraging youngsters to participate in physical activity now and throughout their lives requires identifying and understanding the correlates of their engagement in physical education. Children's attitudes are among the main elements that affect how much they engage in physical activity. According to studies, kids with more favourable attitudes towards physical exercise are more likely to engage in physical activity outside of school and engage in higher levels of physical activity than kids with less positive attitudes. The development of children's present and lifelong participation in physical exercise might benefit from fostering their favourable attitudes towards physical activity.

According to recent studies cited by Broman (2005), stress among college students is unique and is associated with substance addiction, decreased self-esteem, difficulty in the classroom, depression, and a host of other conditions. Additionally, a transition from parental control to a more independent way of life takes place during the college years. Students frequently struggle to manage their time, deal with work-related challenges, and learn how to handle a variety of social role shifts as they form new friendships and relationships. Many people face new difficulties as they get their first chance to create their own sleeping and everyday routines. New financial developments and demand for academic performance are also present. These particular pressures have been linked to anxiety and may ultimately have a detrimental effect on a student's capacity for learning.

A cross section of pupils was the subject of a study by Carlson (1995), and the results of that study are now publicly available. According to the report, most students did not value physical education the same way they did other disciplines like math or geography. There are, however, very few studies on teenagers who have unfavourable attitudes towards physical education.

Carlson (1995), Portman (1995), and Smith (1995) concentrated on certain student demographics, such as low-ability or socially isolated or alienated students. However, there hasn't been any in-depth research on the attitudes of capable pupils towards physical education. Teachers frequently identify talented pupils and work to motivate and inspire them to realize their full potential. Most educators make the supposition that capable pupils like and value physical education. However, Bain (1980) discovered that for pupils to have a positive attitude towards physical education, they needed to be favourable socialized into it. According to Onifade (1985), early involvement on the part of the government is essential given the numerous advantages of engaging in vigorous physical exercise and the subsequent improvement in the general health of the populace. The needs of each trainee should be considered while creating a fitness programme. 30 minutes a day of moderate-intensity physical activity is the typical recommendation for improving physical fitness. Since they improve energy, strength, endurance, bone mass, and the capacity to participate in sports, the physiological advantages of physical activity and fitness training are crucial.

Pathan & Iqbal (2010) investigated the connection between high school students in Sindh's participation in sports, academic success, and personality traits. The study examines the connection between a person's academic success and

social development, particularly at the early levels of schooling, through participation in sports. Sports participation during the early years of school has a substantial impact on an individual's personality qualities in their later professional lives, according to certain legitimate inferences. Numerous countries have conducted thorough investigations to determine the link between academic success at various levels and attitude towards physical activity. Physical activity is known to improve health and can lessen the negative impacts of a number of diseases. These beneficial outcomes showed an improvement in other areas as well. Physical activity can enhance cognitive functioning, particularly academic or learning processes, according to recent studies in youngsters. Studies over the last few decades have shown that physical activity can boost academic achievement. A few research have looked at the connection between physical exercise and academic achievement in children, despite the fact that the majority of these studies have focused on children and youth. Improvement in academic performance is the end result of these impacts, regardless of whether they result from physiological or psychological changes. Numerous studies have looked at children's academic achievement, stress, and physical exercise. Exercise might be a cheap approach to encourage stress alleviation and improve academic achievement. Students may perform better academically if they may benefit physiologically and mentally from physical activity.

Major objectives of the study:

1. To study the Importance of Addressing Opportunities for Physical Education in the Present Moment
2. To understand the significance of health and academic achievement
3. To study the importance of physical education minutes and academic achievement
4. To ascertain the relationship between physical fitness and its impact on academic performance on children
5. To suggest major measures to strengthen the concept of including physical education as part of curriculum at school level

Importance of Addressing Opportunities for Physical Education in the Present Moment

Students in California's elementary schools took part in the school-based Playworks programme as part of a research project by Madsen, Hicks, and Thompson from 2011. The goal of the Playworks programme is to encourage healthy adolescent growth. The study's findings showed that children in low-income communities have health and immediate dangers, and that there may be a higher need for more encouraging physical programmes to reduce these risk factors. Further, physical activity

has the extra benefit of lowering cardiovascular risk and obesity, according to Madsen et al. (2011). Such health hazards have been found to be reduced by exercise, which also increases opportunities for social connection. Madsen et al.'s (2011) paper addresses how children living in low income neighborhoods have worse educational outcomes, in addition to serious concerns about health risk. Less time is available for youngsters to engage in physical activity as a result of the steady increase in testing-related pressure. Furthermore, Madsen et al. (2011) assert that the No Child Left behind Act of 2001, which required schools to pay less attention to students in underperforming schools' need for physical education, may be a possible reason for these detrimental consequences. Playtime, physical education, art and music time allotments in elementary school districts have decreased by 32% since NCLB, according to Madsen et al. (2011) (p. 467). In order to increase students' time in the classroom, schools are currently lowering physical education programmes and/or PE class times. The requirement that children complete standardized tests in order to meet academic achievement testing benchmarks puts extra pressure on schools. This is a key factor in the PE budget cuts (Chomitz et al., 2009). The percentage of children who participated in daily physical education decreased from 42% to 28% between 1991 and 2003, according to the National Association for Sport and Physical Education (Van, Kelder, Kohl, Ranjit & Perry, 2011).

Health and Academic achievement:

At this time, there are growing health and academic achievement gaps among American urban adolescents. These disparities may have severe personal, societal, and financial repercussions. Unfortunately, those who come from urban homes must struggle with the harsh effects of poverty. People with lower socioeconomic level, less education, and those who are people of color have a higher risk of developing illnesses earlier in life from almost all sources. This may have an impact on their quality of life and their capacity to support the financial security of their families and communities. As prior studies only looked at one health issue, such as obesity, on academic achievement among urban kids in the United States, the researchers set out to investigate the effects of other health assets in this study (Ickovics et al., 2014). In order to conduct their research, they gathered information from questionnaires, physical examinations, fitness tests, and school district records. They used the results of standardized tests to gauge academic performance. Physical health, healthy behaviours, family environment, and psychological well-being are among the 14 health assets that make up the health index. 940 fifth- and

sixth-graders from 12 randomly chosen schools in an urban district made up the sample (Ickovics et al., 2014). According to Ickovics et al. (2014), there is a significant link between students' health and academic success. Researchers discovered that kids with nine or more health assets were 2.2 times more likely to perform better or even above standards on standardized examinations in subjects like reading, writing, and arithmetic than students with six or less health assets. After six, the likelihood of reaching academic achievement goals increased by 18% for each additional health asset. Additionally, the most significant predictors of academic achievement appeared to be not having a television in the bedroom, being physically fit, at a healthy weight, being food secure, and eating at fast food restaurants once or less per week. This was when examining the odds of achieving "goal" or higher on all 3 standardized tests. The findings of this study show that several health factors, including physical health, do have an impact on academic achievement. These results are significant because they show that having good physical health is one health advantage that can help students' academic performance, among other things. Because of this, the authors of this study contend that include health-promoting practises in urban school systems could boost students' intellectual and physical well-being. Additionally, it may be able to reduce the gaps in academic achievement and health that our urban adolescents encounter (Ickovics et al., 2014)

Physical Education Minutes and Academic Achievement:

Researchers have examined adding the number of minutes that kids spend in physical education classes in addition to standardized fitness tests when calculating physical activity. Researchers Snelling et al. (2015) wanted to know how much time students spent exercising compared to how well they could do arithmetic in primary school. They used information from 120 elementary schools that completed School Health Profiles (SHP) for their study. Among other things specified by the Healthy Schools Act (HSA), the SHP provides statistics on the number of minutes schools set aside for physical and health education. They calculated a composite score to determine the extent of HSA implementation while utilizing a math standard test to gauge academic progress. The efficacy of the school's implementation of the policy was what went into calculating the composite score. Researchers discovered that while schools with the highest composite scores had higher average math proficiency rates, schools with the lowest composite scores typically had lower math accomplishment rates. These results show how physical activity, and more especially the time spent exercising, may enhance academic performance (in math's).

Additionally, studies have shown that physical activity improves children's academic performance, which is another justification for keeping PE lessons in place. Giving kids the chance to be physically active benefits them in more ways than only their academic achievement (Snelling et al., 2015). It also benefits their lives and future. Following a study of the literature, it is evident that physical education and exercise have a positive impact on students' academic performance. Students can be active during the school day by participating in physical education sessions, which also support healthy youth development. Additionally, physical education promotes peer socialization and instills key abilities like teamwork. As kids who are healthier typically score better on standardized tests, researchers have discovered that physical health, one health asset among many, does have an impact on academic achievement. Others have studied physical education in schools and discovered a link between increased academic achievement and time spent exercising. The aforementioned research especially looked for a connection between physical activity/fitness and academic performance at the primary to middle school levels in metropolitan environments. In light of this, the literature has provided us with an answer to our question about the connection between physical education and its effects on academic achievement in low-income communities, but it does so by primarily focusing on elementary and middle school pupils. More details on the relationship between high school academic achievement and physical education are lacking in the research. Due to this, our study team chose to address the subject of how physical education at the high school level affects students' academic ability in low-income communities in order to close this gap in the literature. We predict that high school students will perform better on math and reading standardized examinations if they participate in more physical education time.

Research methodology adopted for the purpose of study:

1. Type of research: The study adopted is descriptive in nature
2. Sample size: 500 respondents
3. Respondents selected for study: School children studying in various schools of North Karnataka region of Karnataka State
4. Type of data: Primary data has been collected using well designed questionnaire, direct personal interview and also observational methods
5. By consulting articles and research papers that have been published in several national and international journals, periodicals, reports, etc., secondary data has been gathered.

6. Data Analysis: The acquired data was examined using the SPSS programme, and analysis of variance was done to determine how closely the dependent and independent variables were related.

Findings of the study:

1. Physical activity improves classroom attitudes and behaviours as well as cognitive abilities like concentration and attention, all of which are crucial elements of better academic performance.
2. Children who are physically healthy are more likely to do better in school and earn higher grades, according to a University of Illinois study. Electroencephalograms (EEGs) were administered to research participants' children to track brain activity and how quickly the brain reacts to various stimuli. Researchers discovered that youngsters who were physically fit had stronger and faster firing brain synapses, which improved their linguistic skills.
3. Not only were the physically fitter kids better readers, but they were also better readers of sections with numerous grammatical faults. The ability to recognize grammatical faults and the brainwave patterns associated with language were examined by the researchers. The fit kids performed well in both brain wave groups and had a superior comprehension of illogical or mistake-filled words.
4. Additionally, the study discovered links between academic success, fitness, and physical activity. The data suggested a link between physical activity and the brain regions that enable complicated cognitive functions during laboratory tasks. It also demonstrated the significance of physical activity for overall health, development, and growth.
5. Kids' scholastic performance, brain function, and cognition are all immediately improved after only one session of modest physical activity.
6. Learning fundamental movement techniques improves cognitive function and academic success. It is not necessary to sacrifice academic success to take time away from the classroom for physical activity.
7. According to research, adolescents who engage in enough physical activity during the school day not only avoid obesity and its complications but also perform better academically.
8. The effects of exercise on the brain's growth and behaviour are direct. According to a 2010 post by Columbia University's Charles Basch, "It is conceivable that the impacts of physical activity on cognition would be particularly important in the growing brains of adolescents."

9. Youth who regularly engaged in interscholastic sports had reduced dropout rates. Sports may just build a connected environment that could keep at-risk pupils in school, even while they won't alleviate the dropout problem that plagues many inner city schools.

Major suggestions of the study:

1. All students will receive physical education, making it the only sure way for nearly all school-age children to participate in physical activities that improve their health. On days when they have physical education, students are more physically active. As a result, there has to be a bigger emphasis on including physical education in the curriculum.
2. Both parents and organisations that work in the field of children's health strongly support high-quality physical education. Therefore, steps must be taken to ensure that it is enforced without exception.
3. Numerous instances and models show that daily scheduling of physical education within the school day is possible. As a result, there is a need to consider include it in the curriculum.
4. The relevant authorities should offer high-quality physical education as part of the curriculum, with pupils engaging in vigorous- or moderate-intensity physical exercise for at least half (>50%) of the class period. Every elementary school student should spend 30 minutes a day in physical education class, and every middle and high school student should spend 45 minutes a day in physical education.
5. To provide flexibility in the scheduling of the curriculum, with at least 150 minutes per week for students in elementary school and 225 minutes per week for those in middle and high school.
6. Through playtime, designated classroom physical activity time, and other opportunities, students should participate in additional vigorous or moderate-intensity physical exercise throughout the school day. Physical activity should be a priority for all schools, especially if there is a chance to increase academic attainment, because it enhances both health and learning.
7. Schools are not making full use of their potential to offer kids and teenagers opportunities for physical activity. In order to boost physical activity among kids and teenagers, a whole-school strategy is required. In such a strategy, all of a school's resources and parts work in concert and dynamically to provide programmes, access, and encouragement that allow all students to engage in vigorous- or moderate-intensity physical activity for at least 60 minutes each day.

Conclusion:

In order to establish a suitable classroom environment that permits the completion of scheduled activities, effective teaching tactics are needed. In fact, according to Noltemeyer et al. (2019); Nunez and León (2019), teachers that encourage a learning environment where students participate in its development will succeed in meeting the learning objectives. On the other hand, teachers who do not support an environment in the classroom where students are engaged, independent, and interactive will find it harder to accomplish the intended learning objectives (Granero-Gallegos et al., 2020a). In terms of the teacher's role in promoting disciplined behaviour, effective teaching techniques and attitudes lessen disciplinary issues. Teaching PE skills improves group control, gives teachers more time to correct mistakes and provide students feedback, and raises student engagement, autonomy, and effectiveness in the classroom—all of which have a positive impact on academic performance (Gutiérrez et al., 2009; Wade et al., 2020). Taylor et al. (2014) conducted a thorough study on the connection between teachers' abilities and students' academic performance. Positive outcomes, such as disciplined behaviors (Gutiérrez et al., 2010) and academic performance in PE (Cid et al., 2019), are associated with participatory methodologies that center the teaching-learning process on the student, positive corrections, and giving students autonomy (Gil-Arias et al., 2020). However, due to the extremely complex nature of PE courses in secondary education, it is occasionally necessary for the teacher to divert attention from the students' academic progress in order to prioritize more regulated educational techniques and prevent disruptive behaviors (Granero-Gallegos et al., 2020a).

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