

## **The Impact of Physical Training on Academic Progress: A Perspective through Self-Determination Theory and Maslow's Hierarchy of Needs**

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**ABSTRACT:** *The pursuit of overall well-being has become increasingly vital in our fast-paced and demanding world. Understanding the complex interplay between the mind and body is essential for realizing our full potential and living a healthy and satisfying life. Physical activity is one effective way to foster this relationship. Regular exercise has a plethora of benefits that extend beyond physical health, immediately benefiting our mental and emotional well-being. Students will feel competent in their performance if they have the freedom to engage in activities based on their sense of autonomy, competence, and relatedness. This article looks at the synergy effect of self-determination and Maslow's theory in creating a link between physical activity and student academic achievement. Students can develop strong social connections with their peers and professors through effective discipline and incentive, leading to more engagement in learning and better study habits.*

**KEY WORDS:** discipline, motivation, physical activity, academic progress, well-being

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### **INTRODUCTION**

The pursuit of overall well-being has become increasingly vital in our fast-paced and demanding world. Understanding the complex interplay between the mind and body is essential for realizing our full potential and living a healthy and satisfying life. Physical activity is one effective way to foster this relationship. Regular exercise has a plethora of benefits that extend beyond physical health, immediately benefiting our mental and emotional well-being.

This introduction sets the stage for delving into the deep effects of physical activity on motivation and well-being, emphasizing the transforming power of the mind-body link. We can get insights into how our physical activities and habits can influence our mental state, drive our motivation, and propel us toward personal growth and achievement by researching into this issue (Keeley & Fox, 2009). Reduced physical activity levels among high school kids may

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result in weight gain and impaired cardiovascular fitness as a negative impact on physical activity (Dobrosielski, 2021).

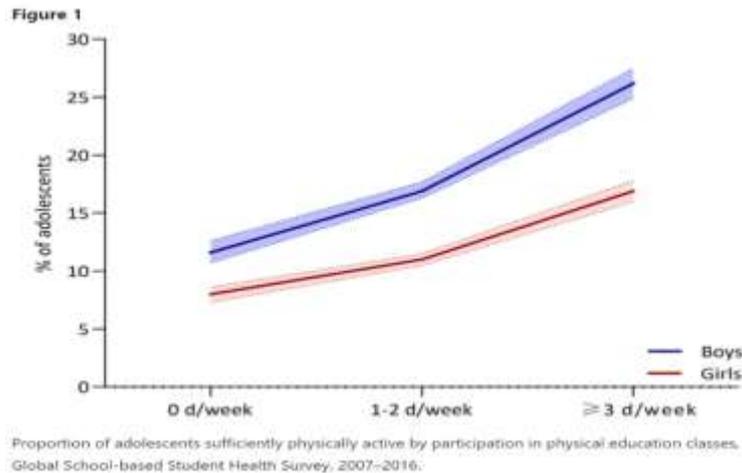
According to one of the study regular physical activities can prevent cognitive decline. SCD was reported by 11.3% of US individuals aged 45 and over. SCD can be one of the earliest noticeable symptoms of Alzheimer's disease (Alzheimer's), a fatal form of dementia (Gaugler et al., 2018). SCD refers to self-perceived cognitive declines that may or may not be visible on formal cognitive tests. Regular physical activity has been linked to a variety of cognitive benefits, including a lower risk of subjective cognitive decline (ERICKSON et al., 2019).

According to one study, depression alone would account for 13% of global deaths by 2030 due to poor mental health, which is associated with poorer physical health and higher health-risk behaviours, as well as other factors such as low income, inadequate education, and so on (Harris, 2018). People who are not physically active enough have a 20% to 30% higher risk of death than those who are physically active enough (WHO, 2022). Physical activity, on the other hand, reduces the risk of acquiring breast cancer by up to 75%, cardiovascular disease by up to 49%, and diabetes by up to 35% (Harris, 2018).

Regular physical activity has been proved to provide several benefits to students. We can support students' well-being in various facets of their lives by knowing the neurochemical impacts, cognitive enhancements, increased energy levels, stress reduction, and sense of accomplishment that result from physical activity. Physical activity becomes a strong tool for cultivating student well-being, from improving concentration and focus to reducing stress and increasing emotional resilience (U.S. Department of Health and Human Services, 2018).

In 2016, 28% of adults aged 18 and up were not physically active enough (men 23%, women 32%). This indicates they do not meet the global recommendation of 150 minutes of moderate-intensity physical activity per week or 75 minutes of vigorous-intensity physical activity per week. Adolescent girls were less active than adolescent boys, with 81% of adolescents aged 11 to 17 were not physically active enough and 85% failing to meet WHO standards of at least 60 minutes of moderate to vigorous intensity physical activity per day, compared to 78% failing to meet World Health Organisation's recommendation of at least 60 minutes of Moderate-Vigorous intensity physical activity per day (WHO, 2020).

One study on physical activity among adolescents in 65 countries collected between 2007-2016, suggests a positive relationship between regular participation in physical education classes and meeting physical activity guidelines among children and adolescents worldwide, regardless of gender or age group.



Source: (Uddin et al., 2020)

The benefits of regular participation in physical education programmes to increase physical activity are universal across all WHO regions, with teenagers from Southeast Asian nations benefiting the most. Thus, this study supports the relevance of physical education in providing enough physical activity among school-aged children and adolescents worldwide. In both sexes, the overall percentage of teenagers who were appropriately active was higher for those who attended more physical education programmes (Uddin et al., 2020).

The inspiration from western and eastern historical and philosophical traditions, from the teachings of Socrates, Aristotle, Ali ibn Abi Talib, and Ibn al-Qayyim to modern scientific studies, reveals the fascinating ways in which physical activity affects the brain, influences motivation, and improves general well-being.

In ancient Greek philosophy, Socrates, and Aristotle both held views on the relationship between bodily and mental well-being. Socrates, who was known for emphasizing self-examination and moral philosophy, acknowledged the significance of bodily well-being in the formation of wisdom and virtue. One illustration of his point of view can be seen in Plato's dialogue "Phaedrus". Socrates compares the soul to a charioteer guiding two horses, one symbolizing rationality and the other representing passions or wants, in this debate. Socrates says that physical exercise and self-discipline are required to keep the passions in check and allow the reasoning part of the soul to successfully lead one's actions. He felt that a sound mind necessitated a sound body, and that physical health and self-control were necessary for the pursuit of knowledge and moral greatness (Giasoumi, 2022). Aristotle, a Plato pupil, acknowledged the interdependence of bodily and mental well-being. In his work "Nicomachean Ethics," Aristotle argues that cultivating virtues is necessary for living a prosperous and contented life. Physical well-being, he believed, served as a basis for moral and intellectual values. Physical activity and maintaining a healthy body, according to Aristotle, contribute to the development of qualities such as temperance, courage, and self-discipline. He

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Publication of the European Centre for Research Training and Development-UK saw exercise and a balanced lifestyle as ways to achieve the golden mean, a condition of moderation and harmony that he believed as essential for ethical and intellectual development (Tamir et al., 2017).

Physical well-being was highlighted by both Socrates and Aristotle as an important component of overall human happiness. They understood that physical health and self-discipline were inextricably linked to the quest of wisdom, moral values, and a meaningful existence. Instead, they considered bodily well-being as a vital prerequisite for cultivating virtues and realizing human potential.

Ali ibn Abi Talib's best renowned for his contributions to Islamic law, government, and spirituality, his teachings also included insights on holistic well-being, including as the relationship between physical and mental health. One of his insightful sayings on the subject is, "Take care of your body as if you were its guest, and of your soul as if you were its guardian." The significance of fostering both the physical and spiritual sides of human existence is emphasized in this remark. Ali bin Talib highlights the fleeting aspect of life and the need to care for the physical vessel that houses the soul by encouraging people to consider their bodies as guests. He encourages people to engage in habits that enhance and preserve physical well-being, such as adequate eating, exercise, and self-care (Khan, 2023).

One of the other Islamic scholar and philosopher, Ibn al-Qayyim al-Jawziyya, provided insights into the relationship between bodily and mental well-being. His work "Al-Fawa'id" (The Benefits) is one illustration of his point of view. In "Al-Fawa'id," Ibn al-Qayyim highlights the importance of physical health and how it affects mental health. He contends that maintaining a healthy body is essential for the development of a healthy mind. Ibn al-Qayyim thought that a person's physical health has a direct impact on their intellectual talents, emotional state, and general spiritual well-being. He emphasized the need of physical activity, moderation in eating and drinking, and keeping a healthy lifestyle. Walking, swimming, and other types of exercise, according to Ibn al-Qayyim, help sustain bodily health and energy, which in turn has a favourable effect on mental and spiritual health (Nurlaini & Leliana, 2022).

Several research have investigated the link between physical activity and academic success in students. One of the studies have investigated the impacts of a 9-month physical exercise intervention on scholastic achievement in preadolescent children. The results demonstrated that the intervention group outperformed the control group in terms of attention and academic achievement. The intervention improved cognitive performance and brain function in tasks that required more executive control. These findings support the use of physical activity to improve childhood cognition and brain health by demonstrating a causal effect of a physical activity programme on executive control (Hillman et al., 2014). Dr. Raghveer, a paediatric cardiologist at Children's Mercy in Kansas City, Missouri, stated in one of the interviews that previously, children were more likely to spend social time by riding or shooting baskets, but now a days technology and 24/7 connections on social media has numerous negative impacts connected with health difficulties (American Heart Association News, 2022).

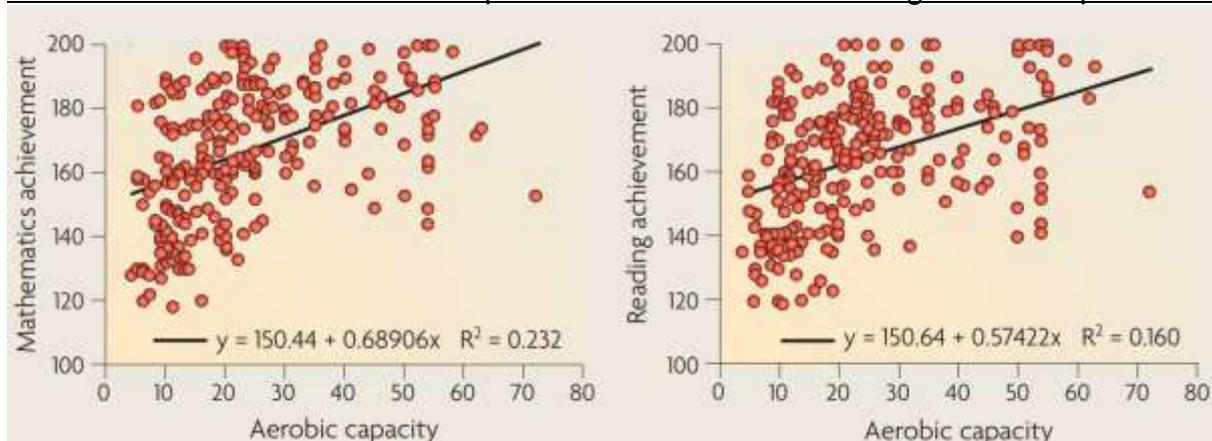
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Davis et al. (2011) investigated the association between physical activity and academic achievement in a sample of college students in another study. The data demonstrated a favourable relationship between physical activity levels and GPA, indicating that students who participated in regular physical activity performed better academically. The study was based on a random selection of students from various schools between 2003 and 2006, from Middle, High, College, and Universities. The experimental study tested the effects of approximately three months of regular aerobics exercises on overweight children in conjunction with the cognitive assessments. This study revealed that physical activity has a positive impact on behavioural and brain activity.

According to research, physical activity can increase the creation and release of certain neurochemicals. Exercise, for example, is known to stimulate dopamine release, a neurotransmitter involved with motivation, reward, and attention. Dopamine is engaged in the brain's reward circuit and plays an important role in motivation and behaviour reinforcement. Physical activity can increase students' motivation, attentiveness, and overall cognitive performance by raising dopamine levels, which can lead to improved academic success (Bhattacharya et al., 2023). Neurochemicals are chemical substances that are involved in the nervous system's functioning and communication. These substances are essential for signal transmission between neurons as well as modulation of many physiological and cognitive functions (Ali et al., 2018).

Furthermore, physical activity has been demonstrated to increase the release of endorphins, which are natural pain relievers and mood enhancers. Endorphins can cause bliss while also reducing stress and anxiety. Exercise can improve students' mental well-being, boost their resilience to academic problems, and improve their academic performance by lowering stress levels. Endorphins gives rise to the 'Feel Good' hormones. Dopamine increases motivation leading to better engagement in academic progress (Dfarhud et al., 2014).

In one of the studies between physical exercise and academic achievement in preadolescent children in one such study. A group of children was assigned to a physical activity intervention that included aerobic exercises, while another group was assigned to a non-physical activity control group. The results of a 9-month intervention period revealed that children who engaged in regular physical activity improved much more in academic achievement, notably in areas of mathematics and reading, which shows determination and discipline (Hillman et al., 2008).



Source: (Hillman et al., 2008)

## LITERATURE REVIEW

According to the study, some of the causes of low physical activity may be related to a lack of understanding of the family's /parents' support for physical activity, or enrolment in any extracurricular sport club after school, or a lack of a proper physical education curriculum, which leads to low motivation and a lack of goals and objectives in students' lives (Telford et al., 2016).

When studied through the lens of Self-Determination Theory and Maslow's Hierarchy of Needs, the impact of physical exercise on scholastic advancement reveals a convincing link. Physical activity not only meets students' psychological requirements for autonomy, competence, and relatedness, but it also meets their physiological needs, creating an environment conducive to academic success.

The relationship between physical activity and academic performance has gotten a lot of attention in recent years. Students' overall well-being and motivation are critical factors in their academic success (Tomprowski et al., 2007). By combining the theoretical frameworks of Self-Determination Theory (SDT) and Maslow's Hierarchy of Needs, this essay investigates the potential impact of physical exercise on academic performance. Understanding how physical exercise meets the psychological and physiological demands of kids might offer light on the positive benefits it may have on their academic performance.

### Self Determination Theory

Deci and Ryan established self-determination theory (SDT) in 1991, which was further expanded in 2000. Individuals are intrinsically motivated, according to SDT, when their core psychological demands for autonomy, competence, and relatedness are met. The sensation of power and choice in one's actions is referred to as autonomy. Competence refers to feeling capable and successful in a variety of endeavours, whereas relatedness refers to a sense of connection and belonging with others.

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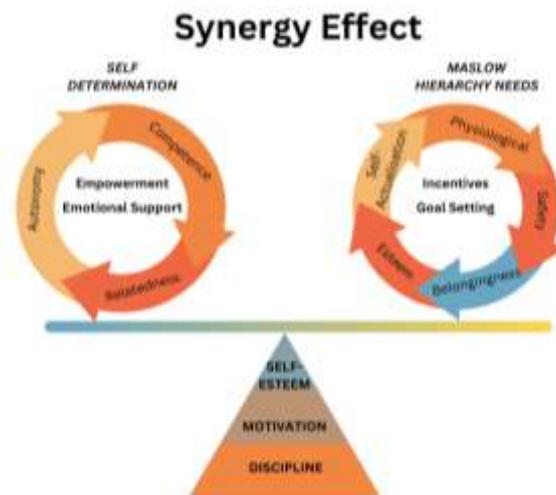
Physical exercise can improve academic performance by meeting the SDT's psychological demands. Participating in sports, exercise, or physical activities encourages students to take control of their fitness journey, allowing them to make decisions about their habits and progress. As kids see their physical talents develop, their confidence in their own abilities grows through discipline. Participation in group activities and team sports also promotes a sense of camaraderie, which improves social bonds with peers. As a result, students' intrinsic motivation and involvement in academic work may grow (Hillman et al., 2008).

### Maslow's Hierarchy of Needs

In Psychology, Maslow's (1943-1987) hierarchy of needs is a human motivational theory. Maslow's Hierarchy of demands posits a five-tier model in which people must meet lower-level demands before moving on to higher-level ones. Physiological necessities, safety, belongingness, esteem, and self-actualization are examples of these needs.

Physical activity helps to meet several of these demands. At its most fundamental, exercise meets physiological needs by improving health, raising energy levels, and decreasing stress. Students feel comfortable when they engage in regular physical activity, both in terms of physical well-being and stress alleviation.

### The Synergy Effect: Impact of Physical Training on Academic Progress through SDT and Maslow's Theory



Source: Researcher's study

Physical training can considerably improve academic success and overall student development by enhancing the synergy impact of Maslow's Hierarchy of Needs and Self-Determination Theory (SDT). Let us investigate how the combination of these two theories can have a favourable impact on students' academic performance:

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## **Fulfilment of Basic Needs**

Maslow's hierarchy of needs emphasises the need of addressing physiological needs through physical exercise. Students participate in sports and exercise to meet their physiological needs for physical well-being, health, and vitality. Students can focus more on their academic pursuits when their fundamental needs are met, leading to greater cognitive ability and better attention in the classroom by creating future goals and objectives. Individuals attain the summit of Maslow's theory, self-actualization, as they climb up the hierarchy and meet their social and esteem demands. Self-actualization is the achievement of one's full potential, personal progress, and fulfilment of one's unique mission in life. According to this study approach, the development of cognitive behaviour is inextricably linked to the passage through Maslow's hierarchy. Individuals are more capable of engaging in higher-level cognitive activities such as critical thinking, problem-solving, and goal setting as they satisfy their physiological demands and feel secure in their environment (Maslow, 1943).

### **Autonomy and Competence**

The importance of autonomy and competence in creating intrinsic motivation is highlighted by Self-Determination Theory. Physical training allows students to select their chosen activities, set personal fitness goals, and track their progress. Students gain a sense of competence as their physical talents develop, which contributes to a good self-concept. This sense of autonomy and competence can permeate their academic endeavours, pushing children to take command of their learning and pursue academic goals with discipline and confidence.

Setting clear, specific, and achievable goals is essential for academic success and physical training. The goal-setting theory suggests that individuals are motivated when they have specific goals, receive feedback on their progress, and believe that they have the ability to achieve those goals (Locke, 2013). Applying this theory to physical training, students can set goals related to physical fitness or specific sports achievements, which can positively impact their academic performance.

### **Relatedness and Belongingness**

Both theories stress the significance of social relationships and a sense of belonging. Team sports, group activities, or fitness courses are common forms of physical training that create relationships with peers and instructors. This sense of belonging fosters a positive and encouraging environment in which children feel appreciated and connected to their school community. Students who engage in physical exercise develop positive social interactions and are more likely to engage in collaborative learning and request help from professors and peers when needed, which can benefit their academic achievement (Allen et al., 2021).

### **Intrinsic Motivation and Academic Engagement**

Through physical exercise, the synergy between Maslow's theory and SDT can improve students' intrinsic motivation. Students are more likely to be organically driven to participate

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Publication of the European Centre for Research Training and Development-UK and excel when they feel a feeling of autonomy, competence, and relatedness in their physical activities. This enhanced intrinsic drive can spill over into their academic activities, resulting in improved levels of engagement, active learning, and a readiness to tackle difficult academic assignments. Individuals are motivated to engage in physical training and academic activities by incentives and rewards. Positive reinforcement in the form of rewards, according to the operant conditioning idea, can improve the likelihood of desired behaviours being repeated (Skinner & Skinner, 2012). In the context of academic success, rewards such as praise, recognition, or extrinsic incentives like scholarships can motivate students to pursue physical training and perform well academically.

### **Emotional Well-being and Empowerment**

Both theories recognise the significance of psychological well-being in overall growth. Physical activity helps to reduce stress, anxiety, and sadness, resulting in greater emotional well-being. Students are better able to focus on their studies and achieve well academically when they feel emotionally balanced and supported. Furthermore, pleasant experiences and accomplishments in physical training can boost kids' self-esteem, leading to a positive self-image that influences their academic self-concept. A study found that 38.4% of boys from a Chinese college, out of 526 students, demonstrated signs of self-control and life satisfaction as a result of physical activity. This study discovered a link between life pleasure and self-control. Because of the adjustment in interpersonal skills and enhanced emotions, self-control demonstrated greater performance in everyday studies, resulting in confidence and empowerment to face academic problems (Zhou et al., 2023).

### **CONCLUSION**

Through physical training, the synergy effect of Maslow's Hierarchy of Needs and Self-Determination Theory produces a holistic approach to student development. Physical training can benefit kids' academic success by meeting basic needs, fostering autonomy, competence, and relatedness, and improving motivation and psychological well-being. By improving physical health and well-being, physical education directly contributes to achieving these demands. Regular physical activity and exercise help to maintain excellent health, reduce stress, and raise energy levels, laying a solid basis for academic achievement. Team sports and cooperative activities can create trust and strong relationships with students and teachers, offering emotional security and increasing the sense of safety in the school community. With Discipline, students gain the confidence to handle academic obstacles with a more hopeful outlook by creating a positive self-concept through physical successes. Physical education can be quite beneficial in generating intrinsic motivation. Students can develop a genuine interest in being physically active by providing a variety of engaging physical activities, leading to a higher sense of personal fulfilment. As educational institutions recognise the value of this integrated approach, schools may create curriculum and programmes that promote both physical and academic growth, allowing students to attain their greatest potential in all aspects

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 of their lives. Regular physical activity and overall well-being can produce a positive feedback loop that reinforces motivation and promotes a healthy and productive mindset.

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