

Physical Activity Improves Academic Performance

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As a society, we are always looking for ways to improve academic performance. Physical activity has shown to boost academic performance in children. Physical activity improves academic performance as indicated by higher grades, promoting social connectedness, and reducing absentee and dropout rates. Implementing this into a child's education and everyday life at an earlier age will help guarantee academic success down the road. With an increase in the critical observations being done within the education system and on teachers, schools failing to produce graduates from year to year, and the desire for the successful development of young people to achieve occupational and economic success, we are always looking for ways to improve academic performance. This is a problem that affects students starting as early as pre-k all the way until they graduate from high school, parents, educators, and other school faculty members. This also affects institutions, including schools and eventually businesses that hire these students. Some possible solutions to this problem are increasing the time dedicated to physical activity during the school day, motivating and rewarding students for receiving high grades, encouraging social connectedness through hands-on activities, and providing a positive culture that students want to be a part of, which encourages them to come to school and should reduce absentee and dropout rates.

Background

According to the World Health Organization, "Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure – including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits" (WHO, 2018). In other words, this means that physical activity can be performed by many different mechanisms as long as someone is moving their body in some way. One of the most important things someone can do for their body, in terms of maintaining health, is to perform some type of physical activity on a regular basis. Physical activity is necessary for optimal growth and development in children, and by starting in early childhood when the child is still developing and learning, can help form healthy habits they will practice the rest of their life. The World Health Organization (2018) recommends that children ages 5-17 years old should do at least 60 minutes of moderate to vigorous-intensity physical activity daily, or more for additional health benefits. A scholarly journal article titled "What Do Parents and Preschool Staff Tell Us About Young Children's Physical Activity: A Qualitative Study" written by Dwyer, Higgs, Hardy, and Baur (2008) states that physical activity provides opportunities for children to develop their sensorimotor, cognitive, and socio-emotional capacities and promotes a sense of psychological well-being.

Higher Grades

Physical activity positively affects the brain structure and functions, and improves overall academic performance as seen through higher grades. According to a scholarly journal article titled "The Investigation of the Relation Between Physical Activity and Academic Success,"

Physical activity increases blood stream and brain oxygenation by developing cell capillaries... Physical activity also causes a rise in the level of neurotrophins, an expansion in neurons, an increase in brain tissue and development of new neuron links. These physiological changes occurring in the brain affect concentration, data processing and memory strategies and coping strategies, thus improving academic success. (Iri et al., 2016, 122)

In other words, performing physical activity regularly supplies our brains with adequate fuel we need to be able to perform at peak performance, especially within the classroom. Therefore, physical activity directly impacts the behavior and development of the brain, thus affecting executive functioning. Many experts support this position. Another scholarly article titled "Academic Achievement and Physical Activity: A Meta-Analysis" makes a similar point by explaining the effect of physical activity on different areas of academic achievement and classroom behaviors in children at developmental age. This article focused on a study that concluded that through the use of intervention studies that looked specifically at language- and mathematics-related skills, reading, composite score, and time in on-

task behavior, there was a direct relationship between physical activity and academic performance. "The development of core executive functions (inhibition, working memory, and cognitive flexibility) and metacognition have been closely related with academic achievement and classroom behaviors and are essential for healthy child development" (Álvarez-Bueno et al., 2017, n.p.). This finding is significant because it explains how physical activity greatly impacts the way children act in the classroom and how well they perform in certain academic areas, specifically on mathematics-related skills and reading.

Encourages Social Connectedness

Physical activity not only leads to students receiving higher grades, but it also provides them with a time in which they can socially connect with others. In the online article titled "Social Benefits of Physical Activity for Teens" written by Tara Kunesh (2017), a writer and teacher who holds her masters in education, there are many social benefits to being physically active. Everyone knows that physical activity poses many health benefits, but what people don't talk about nearly enough is what physical activity can do for these children in a social context. "It is hard to be comfortable in a group or to stand your ground socially if you are struggling with doubts about your value" (Kunesh, 2017, n.p.). Therefore, by getting involved in physical activity, students start to increase their self esteem and confidence in themselves which allows for them to step outside of their comfort zone

and get more involved socially. Physical activity helps children make friends and improve their social skills. It gives them the ability to practice and learn how to cooperate well with others, work as a team, communicate properly, and problem solve (Kunesh, 2017). Incorporating physical activity at an early age allows these children to learn these different skills that they will use for the rest of their lives. We as humans often learn best through doing and making mistakes. By practicing and learning from these skills, children are experiencing “teachable moments,” which allows for them to understand how to incorporate these into their everyday life.

Similarly, another article titled “What is the Impact of Physical Education on Students’ Well-Being and Academic Success?” written by Schaefer, Wasyliv, and Campbell (2018) discussed how physical education affects different areas of success in the classroom and expectations for behaviors in the classroom. The authors discussed how physical activity offers physical, social, emotional, and cognitive benefits. They revealed benefits for each individual component of a persons’ health and well-being. Research has confirmed that better learners are made from healthier students (Schaefer et al., 2018, n.p.). Socially, it “provides students with the opportunity to socialize with others and learn different skills such as communication, tolerance, trust, empathy and respect for others. They also learn positive team skills including cooperation, leadership, cohesion and responsibility” (Schaefer et al, 2018). In other words, physical activity

greatly impacts all areas of someone's life and can make them a happier and healthier person overall. It exposes these children to different emotions and scenarios and teaches them how to better respond in different situations throughout their life.

Reduces Absentee and Dropout Rates

By combating chronic school absenteeism at an early age and incorporating physical activity into a child's life, students are more likely to come to school and excel academically. A scholarly journal article titled "The Link Between School Attendance and Good Health" written by Allison and Attisha (2019) defines what chronic absenteeism is and why it matters. When students are excessively absent from school for both legal and illegal reasons, this is referred to as chronic absenteeism (Allison & Attisha, 2019, n.p.). The authors describe that:

Chronic school absenteeism, starting as early as preschool and kindergarten, puts students at risk for poor school performance and school dropout later down the road....this puts them at risk for unhealthy behaviors as adolescents and young adults as well as poor long-term health outcomes... Chronic absenteeism can be a better predictor of school failure than test scores. (Allison & Attisha, 2019)

Simply put, when students miss school for any reason over and over again for a prolonged amount of time, they are jeopardizing their academic performance for the rest of their school years. By exposing these children to

physical activity, they are more likely to want to come to school and be involved, greatly reducing absentee and dropout rates. The scholarly research article titled, the "Relationship Between Health Risk and School Attendance Among Adolescents," written by Centeio, Cance, Barcelona, and Castelli (2017) focused on understanding the relationship between physical activity and school absences. "Those who had positive intentions to be physically active had fewer unexcused absences compared to students who had negative intentions and lower fitness" (Centeio et al., 2017). Therefore, children who are physically active on a regular basis tend to have fewer absences and a greater chance of graduating over those who are less active. People who are physically active often feel better about themselves. These students are more motivated to attend school regularly, which improves their overall academic performance and reduces absentee and dropout rates.

Another Alternative to Improving Academic Performance

Many experts support this position, and there weren't any data/studies that did not show a direct correlation between physical activity and improved academic performance. However, there are other alternatives to improving academic performance. One alternative is having a regular sleep schedule and getting an adequate amount of sleep every night. A scholarly journal article titled, "Causes and Consequences of Sleepiness Among College Students" written by Hershner and Chervin (2014), who both work in the Department of Neurology at the University of Michigan, discusses the

importance of sleep on academic performance. Although my research is not focused on college students, this article provided me with information about how certain sleep schedules impact learning, memory, and overall academic performance. The authors discussed that,

The dual process theory maintains that certain types of memory are dependent on specific sleep states, such that procedural memory (knowing how) may be dependent on REM (rapid eye movement) sleep and declarative memory (knowing what) on NREM (non-REM) sleep. The sequential processing theory suggests that memories require an orderly succession of sleep stages, ie, memory formation may be prompted by slow-wave sleep and consolidated by REM sleep. (Hershner & Chervin, 2014, n.p.)

Therefore, we can conclude that both of these theories suggest that a student's sleep pattern can impact the quality of their learning. Different sleep states affect memory consolidation and overall academic performance. Someone who receives the proper amount of sleep at night, and enters these specific sleep states, has a better chance of staying awake and focusing when in class. These students are more capable of concentrating when necessary, and they do not become easily distracted or experience errors that could usually be easily avoided. This allows these students to perform better academically and receive higher grades.

Likewise, an article titled "Studying: Is it Bad for Your Health to Pull an All-Nighter?" published by David Earnest (2016), PhD, a professor with the Texas A&M College of Medicine, makes a similar point by explaining that sleep deprivation has a major effect on the working memory. The brain and body require a sufficient amount of sleep at night to function properly the next day. "When we try to learn information quickly, we're only enabling short-term memory... If you don't 're-use' information, it disappears within a period of a few minutes to a few hours. Cramming doesn't allow information to assimilate from short-term to long-term memory" (Earnest, 2016, n.p.). In other words, when students do not get the recommended amount of sleep at night, the brain has a hard time with different learning and memory tasks. However, if a child does get proper sleep at night, the brain is able to function properly, activate long-term memory rather than just short-term, and retain the material much more easily. When children follow a sleep schedule, they are more able to effectively learn and perform academically, thus improving their overall grades and memory consolidation.

Physical Activity Improves Academic Performance in Many Areas

Physical activity improves academic performance as indicated by higher grades, promoting social connectedness, and reducing absentee and dropout rates. Incorporating physical activity to some degree, starting in early childhood, can facilitate a pathway for academic success down the

road. However, there are other ways to boost academic performance in children as well, including getting an adequate and proper amount of quality sleep every night. The increased scrutiny of the education system and teachers, schools failing to produce graduates, and most importantly the desire for the successful development of young people to achieve occupational and economic success, has drawn an increased attention to the research of this topic for many years. This affects students starting as early as pre-k all the way until they graduate from high school, but also parents, educators, and other school faculty members, if nothing is done early on. This also affects institutions, including schools and eventually businesses that hire these students later on in life. By increasing the time teachers and faculty include physical activity into their students' schedules, we can improve these students' overall academic experience and performance tremendously. Motivating and rewarding students for receiving high grades, encouraging social connectedness, and providing them with a classroom setting which they love to be a part of on a daily basis, will increase the number of students who come to school and reduce dropout rates overall. However, this must be done early on to have the most success.

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