

Lima F. (2024) PHYSICAL ACTIVITY AND ITS CORRELATION WITH ACADEMIC PERFORMANCE IN SOUTH AMERICAN SCHOOLS. Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte vol. 24 (94) pp. 498-514.
DOI: <https://doi.org/10.15366/rimcafd2024.94.031>

ORIGINAL

PHYSICAL ACTIVITY AND ITS CORRELATION WITH ACADEMIC PERFORMANCE IN SOUTH AMERICAN SCHOOLS

Fernanda Lima¹

¹ Master's in Public Health, Universidade Federal do Rio de Janeiro (UFRJ), Brazil

Recibido 28 de abril de 2023 **Received** April 28, 2023

Aceptado 16 de Septiembre de 2023 **Accepted** September 16, 2023

ABSTRACT

This study examines the connection between academic achievement in South American schools and physical exercise. Even while research from throughout the world indicates that regular physical exercise and academic achievement are positively correlated, it is critical to investigate this relationship in the context of South American educational systems, taking social, cultural, and regional differences into account. Using a mixed-methods approach, the study combines qualitative observations from educators, students, and parents with quantitative analysis of academic achievement data and physical activity levels. Data is gathered from various South American schools that include urban and rural environments, a range of socioeconomic origins, and a variety of educational frameworks. Initial results show that physical activity and academic achievement are positively correlated in South American schools. Regular physical exercise among students is associated with enhanced cognitive performance, decreased stress levels, and improved general wellbeing. The influence of social contact and extracurricular physical activities on academic performance is also considered in this study. However, the study recognizes that a more complex comprehension of the South American setting is necessary. Cultural norms, geographic differences, and distinctive characteristics of educational programs can all impact the association's kind and degree. The study emphasizes how crucial it is to modify interventions and instructional techniques to fit South American classrooms' unique requirements and dynamics. As a result, the study adds to the expanding corpus of research on the connection between academic achievement and physical exercise, providing information that will help shape educational practices and policies throughout South America. It is advised to do further study to understand regional differences better and create focused treatments to optimize the

benefits of physical exercise for academic achievement in the South American environment.

KEYWORDS: physical activity (PA), Academic Performance (AP), Correlation (CC), South American Schools (SAS)

1. INTRODUCTION

The schools were built for a group activity of learners related to education so they become good citizens and can play a role in the betterment of the nation. But in the past few years, the school has mainly focused on the educational aspect and given no attention to the importance of physical activities. The South American government has taken a few steps to promote physical activity in schools to eradicate this aspect. In this study, we are going to discuss how these physical activities are related to better and improved academic performance in South American schools (Chen, 2022).

No one can deny that physical activity is the main key to maintaining physical and mental health in people of any age group, ranging from children to old people. Keeping in view the importance of physical activity, some physical activities were arranged by the school administration daily and weekly (Blom, Alvarez, Zhang, & Kolbo, 2011). The data obtained and analyzed after these physical activities made us realize that these physical activities promoted and improved academic performance in students.

If we want to explain the effect of physical activity on academic performance, we can enumerate it in different ways. There (Alvarez-Bueno et al., 2020) are different ways how physical activity results in better academic performance. The first way is that physical activity can help students engage mentally in activity, and this engagement can improve the focus and attention level. Such physical activities are promoted which increase students' attention level so that their academic performance can be enhanced. The other positive effect of physical activity is that these activities are performed in groups so that students also learn social interaction and cooperation with other fellows (Trudeau & Shephard, 2010).

There is no doubt that the human brain undergoes different and various stages of brain growth and development. The growth and development of the brain need social interaction for proper differentiation. When students are engaged in group physical activities, the part of the brain that needs social interaction can develop well. Some hormonal changes are also related to the positive effect of physical activity on improved performance in students. When students are engaged in different physical activities, there is the release of various specific hormones that are related to the growth and development of the brain (Keeley & Fox, 2009). These hormones are endorphin, serotonin, and dopamine. There are various functions of these hormones in the

body(González-Silva, Fernández-Echeverría, Conejero, & Moreno, 2021). For example, endorphins cause happiness in the body and promote the growth of the body. Serotonin plays a role in preparing the body for various fight-and-flight responses. Dopamine is responsible for mood changes in the human body thus affecting the overall growth of the body. It was seen that when students were encouraged to participate in such physical activities at school, there was a sharp increase in students' attention and happiness because of the release of these hormones in the body. The other benefit of physical activity is the oxygenation or saturation level in the body. It is evident from medical studies that the body's oxygen level is mandatory for all other reactions (Dryden, 2016). When students are particularly engaged in physical activities, their bodies' oxygen level increases.

This increased oxygen level in the body is a positive aspect of normal and improved brain functioning. The improved functioning of the brain is related to better connections of neurons among themselves. When any person learns anything new and tries to store it in the brain, neural connections are formed among neurons. Physical activity is also related to forming more neural connections inside the brain. These increased neural connections play an important role in enhancing students' academic performance at the school level(Araujo et al., 2022). Sometimes it has been that students are unable to perform well in academics because of a level of stress or anxiety in them. The level of stress and anxiety can be minimized by recommending and engaging students in physical activities. The level of stress can be related to a poor kind of interactive relationship between student and teacher, but when students are encouraged to do physical activity along with the teacher, it can increase the level of trust among them. Thus, the level of fear or stress related to the teacher can easily be reduced. Physical activity is also related to mental health; as we know, balanced health comprises both physical and mental health(Castelli, Hillman, Buck, & Erwin, 2007).

By engaging in physical activities, not only physical health has been improved, but mental health has also improved, which played a role in better academic performance of students in South American schools. For better academic performance, not only is learning the facts necessary, but paying attention to moral values is also mandatory such as a sense of positive competition, honesty, cooperation, social interaction, and others. When a student learns these moral values, these values will not only help students improve academic aspects but will also help them in practical life to be successful and honest(Trudeau & Shephard, 2008).

The other benefit seen as a result of physical activity is that engagement in physical activities has reduced students' screen time. The extensive and overuse of technology results in a waste of time for students which can cause poor academic performance but engaging them in physical activities will

eliminate the negative aspects related to screen time and will result in improved academic performance (D'Abate & Vitale, 2020).

The main distraction from studies has been caused by overuse of mobile phones, which can result in hormonal imbalance and fatigue in the body. Students' use of mobile phones can be reduced if we engage them in physical activities (Santana et al., 2017). There is the creative part of the brain, which needs proper development to enhance students' critical thinking, and this creative part can be developed well by engaging students in creative physical activities. Suppose we discuss the positive effect of physical activity on students' academic performance in South American schools. In that case, we can say that there was much betterment and improvement in the academic performance of students who engaged in physical activities at school. This is a positive and effective step taken by the American government that has not only enhanced students' academic performance but also taught them the importance of physical activities in daily life. Other countries should also take similar steps (Du Toit, Pienaar, & Truter, 2011; Morales-Ortiz, Burgueño, Cueto-Martín, Macarro-Moreno, & Medina-Casabón, 2021).

2. Research objective

The main objective of this study is to understand the relationship of physical activity with improved academic performance in students of South American schools. This study has effectively concluded that physical activity is mandatory for enhancing the performance of students related to academic aspects.

3. Literature review

Researchers claim that the use of smartphones harms adolescents' health. the academic performance of most youth is getting badly affected by the excessive use of mobile phones. indulging students in PA-based exercises helps minimize the use of smartphones (Abbasi, Jagaveeran, Goh, & Tariq, 2021).studies explain that in South American schools, students receive PA training using game-based teaching methods. through games, students indulge in PA-based exercises.

Also, using game-based teaching to provide students with knowledge related to the importance of PA holds immense importance (Barba-Martín, Bores-García, Hortigüela-Alcalá, & González-Calvo, 2020).studies reveal that digital technology is used in PETE to engage the students in PA. By using student-centered digital technology in PETE, the performance of school sports athletes is enhanced greatly. the learning behavior of school sports students improves by digitalizing the learning process of physical education (Calderón, Meroño, & MacPhail, 2020). Studies show that in most schools around the globe, PA-based programs are gaining popularity. The PA-based programs make the

students more interested in PA exercises and enhance their overall well-being. Students' cognitive functioning is enhanced when they participate in PA-based programs(Booth, Chesham, Brooks, Gorely, & Moran, 2020).studies suggest that regular exercise provides great health benefits. the university students are provided with PA-based programs to indulge in physical exercises. physical exercise improves the physical as well as mental health of university students.

A lot of university students face depression problems that disturb their mental peace.to enhance the mental well-being of depressed university students, they are provided with PA-based programs(Herbert, Meixner, Wiebking, & Gilg, 2020).Studies highlight that student self-esteem and self-determination are improved by motivating them to participate actively in PA-based programs. The self-determination theory reveals that students who are involved in PA are more confident in their lives and are mentally strong (Howard, Bureau, Guay, Chong, & Ryan, 2021).studies predict that the student's performance in school is highly associated with their emotional and behavioural functioning.

Secondary school students' academic performance depends on their behavioral activities(Korpershoek, Carrinus, Fokkens-Bruinsma, & de Boer, 2020).studies highlight that the involvement of students in intense and low PA activities depends on PE teachers' teaching methodologies. The PE teachers engage the students in MVPA to improve according to student physical strength(Kwon, Welch, & Mason, 2020).in addition, the self-determination theory explains that a supportive learning environment improves students' learning behavior. improved learning environment allows the students to learn the PA-based exercises with full motivation.

Also, the teacher-student relationship is crucial in providing PE to the students. a positive behavior of teacher towards the students mediates the PE learning process(Leo, Mouratidis, Pulido, López-Gajardo, & Sánchez-Oliva, 2022).scholars claim that universities devote many resources to developing better social skills in their students. EI-based programs that develop students' personalities are provided to university students around the world. University students' academic performance also depends on their personal development(MacCann et al., 2020).studies claim that sports athletes are provided with PA training that increases their body flexibility level. The intrinsic property of the body is the maximum movement ability of joints without resulting in any injury situation. In most sports schools, flexibility is an important part of physical fitness.

Athletes are trained to develop a notion of flexibility that allows them to have static stretching that enhances their flexibility .flexibility in sports athletes is maintained by regular exercise-based activities and stretching(Nuzzo, 2020).studies elaborates that in school bullying is common .this bullying makes

students lose their confidence and disturbs the mental health of students.the academic performance of students declines badly due to the disturbed mental health of students(Polanin et al., 2021).scholars explain that CRF is the circulatory system's ability to transport oxygen to the muscles of the body.the improved cardiorespiratory fitness means that the person gets the appropriate level of oxygen transported to their skeletal muscle during physical exercise.

The mental and physical well-being of students is dependent on CRF.in South American states, it is believed that only forty per cent of youth have healthy levels of CRF(Raghuveer et al., 2020).studies claim that students who meet the recommendations made by sports movement programs are more likely to develop good psychological health.by properly following the PA protocols made by sports movement programs, the athletes can achieve enhanced psychological health. the behavior of the family of athletes plays a critical role in determining athletic psychological condition(Rhodes et al., 2020).Scholars explain that ACS has developed certain strategies for improving the dietary habits of athletes engaging in physical activity.

The guidelines made by ACS help reduce the risk of cancer. The guidelines made by ACS are so effective that they reduce heart disease-related risks in PA-performing athletes(Rock et al., 2020).scholars predict that athletes playing handball games require a lot of intellectual ability to understand the movements and tactics behind playing handball sports. The intellectual qualities in athlete improve their game learning skills and allow them to perform more confidently.

Also, the intellectual qualities develop a competitive spirit in athletes .athlete shaving high intellectual ability are able to tackle the sports-related competitions with high efficacy(Shalar et al., 2020).studies highlight that MVPA in daily life is essential for improving the mental health of students During the Covid 19 pandemic sch, schools were closed, and the lack of PA resulted in mental health problems development in students in the US.

During the Covid 19, PA-related practices in students were improved through the evidence-based recommendations(Tulchin-Francis et al., 2021).studies claim that almost twenty four percent of the world pollution comprises of young and adults.to improve the health of this young generation are provided with PA-based interventions. various scholars' studies also reveal that almost eighty per cent of the world's population is physically inactive.to indulge this eighty percent of the population in PA is very difficult (van Sluijs et al., 2021).

Researcher suggest that self-determination theory is helpful in predicting PE-related outcomes in school students(Vasconcellos et al., 2020) Furthermore, the special cognitive theory predicts that different characteristics are

responsible for improving the performance of students in school. school environment play an important role in influencing the behavioral activities of school students (Zysberg & Schwabsky, 2021). Many studies have demonstrated a favourable association between physical exercise and academic achievement. There are some important things to think about:

1. Cognitive Benefits: Regular exercise has been associated with enhanced cognitive performance, including enhanced memory, processing speed, and attention. This may have a satisfactory impact on academic achievement.

2. Brain Health: Exercise encourages the release of growth factors and neurotransmitters, which support the brain's development and health. This can improve a student's capacity for knowledge acquisition and retention.

3. Less Stress and Anxiety: Studies have shown that physical activity lowers stress and anxiety levels. Reduced stress may help create a more concentrated and supportive learning environment, enhancing academic performance.

4. Better Sleep: Getting regular exercise might help you get higher-quality sleep. Getting enough good sleep is essential for scholastic performance and the best possible cognitive function.

5. Enhanced Mood: Exercise causes endorphins to be released, which can enhance mood and general well-being. A cheerful disposition might encourage a more optimistic outlook on education.

6. Social Interaction: Social interactions are a common part of physical activities, and they may help students develop their emotional intelligence and social skills. These abilities are beneficial for one's own growth and may have a coincidental effect on academic achievement.

7. School Attendance: Being physically active can help increase involvement and attendance at school, which are crucial for academic success.

3.1 Benefits of Physical Activity

Physical activity offers a wide range of benefits for overall health, including physical, mental, and cognitive health. Regular physical activity can help maintain a healthy weight and reduce the risk of chronic diseases such as heart disease, type two diabetes, and certain cancers. Physical activity has been linked to improved mood and symptoms of anxiety and depression; these activities can positively impact cognitive function, including attention, memory, and executive control abilities, which are essential for academic performance.

Physical activity has been associated with larger brain structures,

superior brain function, and enhanced brain health, particularly in school-age youth. Physical Activities, especially aerobic exercise, may increase academic performance by improving physical and mental health.

It positively impacts cognitive function through various processes, contributing to improved brain health and overall brain functions. Regular physical activity has been associated with increased brain plasticity, which refers to the brain's ability to recognize itself by forming new neural connections. This can improve cognitive functions such as attention, memory, and learning.

Physical activity has been shown to positively impact executive functions, including cognitive processes, including working memory, cognitive flexibility, and inhibitory control. Physical activities, especially those involving complex coordination and rapid decision-making processes, can enhance attention and focus. This can be particularly beneficial for children's cognitive performance, especially in subjects that involve logic, such as mathematics. The education system in South American schools varies by country, but there are some similarities across the region.

Generally, education is considered a fundamental right and is provided free of charge in most countries. The quality of education can differ significantly, and there are often significant disparities in access to education, particularly for the underrepresented population. In South American countries, the education system is divided into primary, secondary, and tertiary. Education typically lasts for six years, while secondary education lasts for another six years. tertiary education includes other higher education institutions.

There are many significant challenges facing the education system in South America. These include education funding, a shortage of qualified teachers, and a lack of resources and structure in many schools. Additionally, there are often significant disparities in educational outcomes between Urban and rural areas and between different socioeconomic groups.

3.2 Relation Between Physical Activity and Academic Performance

A positive relationship exists between physical activity and academic performance in South American schools. Several studies have investigated this relationship, and the findings suggest that physical activity can positively impact academic performance. Physical activity has been connected to improved cognitive functions, including attention, memory, and information processes, which are important for academic success. Regular physical activity has been associated with enhanced brain health, including increased brain plasticity and structural changes that may positively impact cognitive abilities.

Physical activity can positively influence mood, reduce stress, and improve overall well-being, contributing to a conducive learning environment

and better academic performance. In South American schools, physical education classes are typically offered as part of the curriculum, but there may be variation in the frequency and quality of these classes across different schools and regions. Extracurricular activities, sports programs, and active breaks during the school day can provide additional opportunities for physical activity. Physical activity in South American schools can potentially lead to improved academic outcomes.

In South American schools, they have shown that physical activity can have a positive impact on academic performance, cognitive functions, and mental health in students. Physically active students had higher grade point averages and preferred certain learning styles. Conducting physical education classes positively improved the academic performance of students. In South American schools, physical activity can positively impact academic outcomes and overall well-being.

3.3 Descriptive Statistics

Table 1

	N	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION
PHYSICAL ACTIVITY 1	50	1.00	3.00	1.4800	.57994
PHYSICAL ACTIVITY 2	50	1.00	3.00	1.5000	.54398
PHYSICAL ACTIVITY 3	50	1.00	3.00	1.4400	.54060
PHYSICAL ACTIVITY 4	50	1.00	3.00	1.5600	.54060
PHYSICAL ACTIVITY 5	50	1.00	3.00	1.5200	.54361
ACADEMIC PERFORMANCE 1	50	1.00	3.00	1.4800	.57994
ACADEMIC PERFORMANCE 2	50	1.00	3.00	1.2600	.48697
ACADEMIC PERFORMANCE 3	50	1.00	3.00	1.4800	.54361
VALID N (LISTWISE)	50				

The above results describe that descriptive statistical analysis results represent the minimum and maximum values and explain the mean rate and standard deviation of each indicator, including independent and dependent. Physical activity 1,2,3,4 and 5 are all consider as independent variables according to the result, its mean values are 1.4800, 1.5000, 1.4400, 1.5600 and 1.5200 shows that positive average value of mean.

The standard deviation rates are 57% and 54%, deviating from the mean. According to the result, the overall minimum value is 1.000, and the maximum value is 3.000. Academic performance is the main dependent variable. According to the result, its mean values are 1.4800, and 1.2600 shows positive average rates. Its standard deviation values are 48%, 57% and 54%, respectively.

3.4 Correlations

Table 2

		PHYSICAL ACTIVITY 1	PHYSICAL ACTIVITY 2	PHYSICAL ACTIVITY 3	PHYSICAL ACTIVITY 4	PHYSICAL ACTIVITY 5	ACADEMIC PERFORMANC E 1	ACADEMIC PERFORMAN CE 2	ACADEMIC PERFORMA NCE 3
PHYSICAL ACTIVITY 1	Pearson correlation	1	-.129	.029	-.094	.034	-.092	-.162	-.163
	Sig. (2-tailed)		.371	.843	.517	.816	.524	.261	.258
	N	50	50	50	50	50	50	50	50
PHYSICAL ACTIVITY 2	Pearson correlation	-.129	1	.208	-.347*	.345*	-.129	-.116	-.207
	Sig. (2-tailed)	.371		.147	.014	.014	.371	.424	.149
	N	50	50	50	50	50	50	50	50
PHYSICAL ACTIVITY 3	Pearson correlation	.029	.208	1	-.162	.386**	-.167	.022	-.178
	Sig. (2-tailed)	.843	.147		.261	.006	.247	.881	.217
	N	50	50	50	50	50	50	50	50
PHYSICAL ACTIVITY 4	Pearson correlation	-.094	-.347*	-.162	1	-.386**	.036	.211	.317*
	Sig. (2-tailed)	.517	.014	.261		.006	.802	.142	.025
	N	50	50	50	50	50	50	50	50
PHYSICAL ACTIVITY 5	Pearson correlation	.034	.345*	.386**	-.386**	1	-.031	.019	-.033
	Sig. (2-tailed)	.816	.014	.006	.006		.830	.899	.819
	N	50	50	50	50	50	50	50	50
ACADEMIC PERFORMA NCE 1	Pearson correlation	-.092	-.129	-.167	.036	-.031	1	.055	.355*
	Sig. (2-tailed)	.524	.371	.247	.802	.830		.705	.011
	N	50	50	50	50	50	50	50	50
ACADEMIC PERFORMA NCE 2	Pearson correlation	-.162	-.116	.022	.211	.019	.055	1	.136
	Sig. (2-tailed)	.261	.424	.881	.142	.899	.705		.347
	N	50	50	50	50	50	50	50	50
ACADEMIC PERFORMA NCE 3	Pearson correlation	-.163	-.207	-.178	.317*	-.033	.355*	.136	1
	Sig. (2-tailed)	.258	.149	.217	.025	.819	.011	.347	
	N	50	50	50	50	50	50	50	50

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

The above result describes that correlation analysis shows Pearson correlation values, significant values, and number of observations of physical activity and academic performance. The overall result of academic performance shows -0.162, -0.116, 0.022, 0.211, 0.019, some positive and negative correlations between independent and dependent variables. The relationship between physical activity and academic performance in South American schools has been a topic of interest in recent years. Physical activity can positively impact students' academic performance, brain processes, and mental health. Many schools in South America need help in promoting physical activity due to limited resources, weak foundations, and conflicts of priorities. Although there are challenges, they have promoted physical activity in South America schools. In Columbia, the Ministry of Education has implemented a program called "Escuela Activa" (Active Schools), which has tried to promote physical activity and healthy lifestyles among students. Similarly, in Brazil, the government has launched a program called "Mais Educação" (More Education), which Includes physical education as a core component of the curriculum. The relationship between physical activity and academic performance in South American schools is to understand the potential impact of physical activity on student's cognitive function, academic achievements, and overall well-being.

Physical activities positively influence students' academic performance, learning outcomes, and cognitive abilities. Understanding these potential benefits can inform the development of evidence-based strategies to enhance academic achievement through physical activity. Establishing a link between physical activity and academic performance, studies can provide valuable insights for educational policymakers and school administrators. This information can guide the development of school-based physical activity programs, curriculum enhancement, and supportive environments that promote both physical and academic development. With the rising concerns about inactive lifestyles and increasing academic pressures among students, understanding the relationship between physical activity and academic performance can contribute to addressing public health challenges and educational variations in South American schools.

3.5 Coefficients

Table 3

MODEL	UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	T	SIG.
	B	STD. ERROR	BETA		
1 (Constant)	2.037	.605		3.367	.002
Physical activity 1	-.110	.150	-.110	-.738	.465
Physical activity 2	-.152	.175	-.143	0.869	.389
Physical activity 3	-.180	.171	-.167	1.048	.300
Physical activity 4	-.022	.178	-.020	.122	.903
Physical activity 5	.084	.185	.079	.454	.652

A. Dependent Variable: Academic Performance 1

The above result describes that regression analysis results represent the unstandardized coefficient analysis, including beta and standard error. The result also describes standardized coefficient values related to beta. The result describes the t statistic and significant values of each indicator. Physical activity 1 is the main independent variable. The result shows that the beta value is -0.110, and the standard error value is 0.150, showing a 15% error rate between them. the t statistic value is -0.738, and its significant value is 0.465, which shows that it is negative, but its 46% significant value is between physical activity and academic performance. similarly, physical activity 2,3, 4 and 5 are independent variables. The result describes that beta values are 0.152, -0.180, -0.022 and 0.084, and the t statistic rates are 0.869, 1.048, 0.122 and 0.454 show that positive rates also significant values are 38%, 90%, 65% respectively.

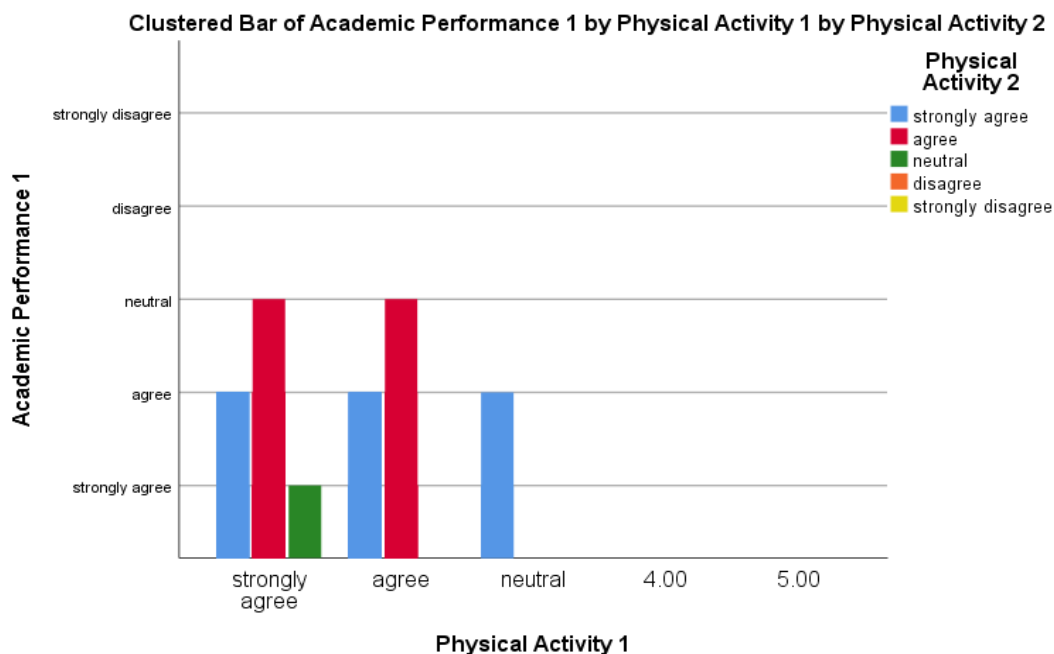


Figure 1

The above graph represents that histogram analysis. The vertical side shows strongly agree, agree, neutral, disagree and strongly disagree related to academic performance 1. The horizontal side represents the same factors, including strongly agree, agree, neutral, disagree and strongly disagree. The above blue line shows a strongly agreed-upon factor between academic performance and physical activity. The green line shows a neutral level between academic performance and physical activity 1.

4. Conclusion

Incorporating physical activity in South American schools is of vital importance due to its numerous benefits for students' overall health and academic success. Physical activity contributes to the Holistic development of students by promoting Physical health, mental Wellness, and social skills. It

takes a balanced approach to education that values physical and mental fitness. Physical activity can serve as a stress relief mechanism for students, helping reduce anxiety and improve overall mental health, positively impacting their academic performance. By understanding the relationship between physical activity and academic performance in South American schools, educators and policymakers can create a scheme that supports students' overall development and academic success. The association between physical exercise and academic achievement may be influenced by regional differences in educational systems, cultural norms, and socioeconomic issues, all of which should be taken into account while focused on South American schools. You might wish to look for current research, scholarly publications, or educational databases that have examined this subject in the context of South American educational systems in order to obtain more detailed information regarding the correlation in South American schools. To sum up, although I am not very knowledgeable with the study "Physical Activity and Its Correlation with Academic Performance in South American Schools," data from other countries indicates that academic success and physical activity are positively correlated. Regular exercise has social, emotional, and cognitive advantages that might enhance the learning environment and perhaps improve academic results.

It is critical to take into account regional differences and particular elements within South American educational institutions that might impact this connection. The interplay between physical exercise and academic achievement can be influenced by cultural traditions, socioeconomic circumstances, and the design of South American educational institutions. Additional investigation, especially those focused on South American settings, would offer a more thorough comprehension of the ways in which physical exercise affects scholastic achievement in this area. Educators and policymakers may harness the potential advantages of physical exercise to improve students' overall well-being and academic achievement in South American schools by implementing well-designed interventions and taking local peculiarities into consideration.

Recommendations

Several suggestions might be made in light of the research on "Physical Activity and its Correlation with Academic Performance in South American Schools," which produced its conclusions. To guarantee that students have frequent chances for physical exercise, South American schools should implement and improve physical education programs. These courses have to be comprehensive and take into account the wide range of student demands and skill levels. Look at methods to include physical exercise in the academic program. This might entail developing multidisciplinary projects that incorporate physical activities, implementing movement breaks during classes, or using active learning techniques.

Launch awareness programs to inform teachers, students, and parents about the advantages of physical activity for academic success. Encourage cooperation among all parties involved in actively promoting and supporting the value of leading an active and healthy lifestyle. Make sure schools have enough resources and facilities to allow for physical education. Playgrounds, sporting goods, and outdoor areas are all included in this. Schools should be taken into account in both urban and rural environments. Include stress-reduction and mindfulness practices, such as yoga or meditation, throughout the school day. These techniques can support physical exercise in enhancing general wellbeing and managing stresses that could affect academic achievement. Promote and grow extracurricular physical activity programs. This might involve offering kids a variety of opportunities to keep active after school hours, such as participation in sports teams, dancing organizations, or outdoor adventure programs. Form alliances with health experts to offer their knowledge and skills in creating and carrying out successful physical activity initiatives. This partnership can improve students' general health and wellbeing as well as their academic performance.

In order to continually evaluate the link between academic success and physical activity in the South American environment, encourage ongoing study. The efficacy of current programs and initiatives will be ensured, and methods will be improved with regular evaluation. Acknowledge and deal with regional differences in South America. To optimize the influence of interventions on academic performance, design them to take into consideration cultural practices, socioeconomic situations, and variations in the educational system. Encourage the inclusion of regulations pertaining to physical exercise in the classroom. Speak with lawmakers on the value of comprehensive educational strategies that provide equal weight to students' intellectual and physical growth. These recommendations seek to provide a thorough and flexible framework that acknowledges the distinct context of South American education while promoting students' holistic growth.

References

- Abbasi, G. A., Jagaveeran, M., Goh, Y.-N., & Tariq, B. (2021). The impact of type of content use on smartphone addiction and academic performance: Physical activity as moderator. *Technology in Society*, *64*, 101521.
- Alvarez-Bueno, C., Hillman, C. H., Cervero-Redondo, I., Sanchez-Lopez, M., Pozuelo-Carrascosa, D. P., & Martinez-Vizcaino, V. (2020). Aerobic fitness and academic achievement: A systematic review and meta-analysis. *Journal of sports sciences*, *38*(5), 582-589.
- Araujo, R. H., Werneck, A. O., Barboza, L. L., Ramírez-Vélez, R., Martins, C. M., Tassitano, R. M., . . . de Lima, L. R. (2022). Prevalence and sociodemographic correlates of physical activity and sitting time among South American adolescents: a harmonized analysis of nationally

- representative cross-sectional surveys. *International journal of behavioral nutrition and physical activity*, 19(1), 52.
- Barba-Martín, R. A., Bores-García, D., Hortigüela-Alcalá, D., & González-Calvo, G. (2020). The application of the teaching games for understanding in physical education. Systematic review of the last six years. *International Journal of Environmental Research and Public Health*, 17(9), 3330.
- Blom, L. C., Alvarez, J., Zhang, L., & Kolbo, J. (2011). Associations between health-related physical fitness, academic achievement and selected academic behaviors of elementary and middle school students in the state of Mississippi. *ICHPER-SD Journal Of Research*, 6(1), 13-19.
- Booth, J. N., Chesham, R. A., Brooks, N. E., Gorely, T., & Moran, C. N. (2020). A citizen science study of short physical activity breaks at school: improvements in cognition and wellbeing with self-paced activity. *BMC medicine*, 18(1), 1-11.
- Calderón, A., Meroño, L., & MacPhail, A. (2020). A student-centred digital technology approach: The relationship between intrinsic motivation, learning climate and academic achievement of physical education pre-service teachers. *European Physical Education Review*, 26(1), 241-262.
- Castelli, D. M., Hillman, C. H., Buck, S. M., & Erwin, H. E. (2007). Physical fitness and academic achievement in third-and fifth-grade students. *Journal of Sport and exercise Psychology*, 29(2), 239-252.
- Chen, Y. (2022). Multivariate Data Analysis for Biotechnology & Bio-processing. *Journal of Commercial Biotechnology*, 27(4).
- D'Abate, F., & Vitale, C. (2020). Ultrasound Detection of Extracranial Carotid Artery Aneurysms: A Case Report. *Vascular & Endovascular Review*, 3.
- Dryden, L. (2016). *The correlation between levels of physical activity, academic performance and self-esteem in Grade 4 children in a South African private school*. University of Pretoria,
- Du Toit, D., Pienaar, A. E., & Truter, L. (2011). Relationship between physical fitness and academic performance in South African children. *South African Journal for Research in Sport, Physical Education and Recreation*, 33(3), 23-35.
- González-Silva, J., Fernández-Echeverría, C., Conejero, M., & Moreno, M. (2021). PREDICTORS OF THE RECEPTION EFFICACY IN MEN'S WORLD VOLLEYBALL U-21 AND ABSOLUT. *International Journal of Medicine & Science of Physical Activity & Sport/Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte*, 21(83).
- Herbert, C., Meixner, F., Wiebking, C., & Gilg, V. (2020). Regular physical activity, short-term exercise, mental health, and well-being among university students: the results of an online and a laboratory study. *Frontiers in Psychology*, 11, 509.
- Howard, J. L., Bureau, J. S., Guay, F., Chong, J. X., & Ryan, R. M. (2021). Student motivation and associated outcomes: A meta-analysis from self-determination theory. *Perspectives on Psychological Science*, 16(6),

1300-1323.

- Keeley, T. J., & Fox, K. R. (2009). The impact of physical activity and fitness on academic achievement and cognitive performance in children. *International review of sport and exercise psychology*, 2(2), 198-214.
- Korpershoek, H., Canrinus, E. T., Fokkens-Bruinsma, M., & de Boer, H. (2020). The relationships between school belonging and students' motivational, social-emotional, behavioural, and academic outcomes in secondary education: A meta-analytic review. *Research papers in education*, 35(6), 641-680.
- Kwon, S., Welch, S., & Mason, M. (2020). Physical education environment and student physical activity levels in low-income communities. *BMC Public Health*, 20, 1-9.
- Leo, F. M., Mouratidis, A., Pulido, J., López-Gajardo, M., & Sánchez-Oliva, D. (2022). Perceived teachers' behavior and students' engagement in physical education: The mediating role of basic psychological needs and self-determined motivation. *Physical Education and Sport Pedagogy*, 27(1), 59-76.
- MacCann, C., Jiang, Y., Brown, L. E., Double, K. S., Bucich, M., & Minbashian, A. (2020). Emotional intelligence predicts academic performance: A meta-analysis. *Psychological bulletin*, 146(2), 150.
- Morales-Ortiz, E., Burgueño, R., Cueto-Martín, B., Macarro-Moreno, J., & Medina-Casaubón, J. (2021). CAN SPORT EDUCATION IMPROVE ATTITUDES TOWARDS PHYSICAL EDUCATION IN SECONDARY SCHOOL? *International Journal of Medicine & Science of Physical Activity & Sport/Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte*, 21(83).
- Nuzzo, J. L. (2020). The case for retiring flexibility as a major component of physical fitness. *Sports Medicine*, 50(5), 853-870.
- Polanin, J. R., Espelage, D. L., Grotzinger, J. K., Spinney, E., Ingram, K. M., Valido, A., . . . Robinson, L. (2021). A meta-analysis of longitudinal partial correlations between school violence and mental health, school performance, and criminal or delinquent acts. *Psychological bulletin*, 147(2), 115.
- Raghuveer, G., Hartz, J., Lubans, D. R., Takken, T., Wiltz, J. L., Mietus-Snyder, M., . . . Edwards, N. M. (2020). Cardiorespiratory fitness in youth: an important marker of health: a scientific statement from the American Heart Association. *Circulation*, 142(7), e101-e118.
- Rhodes, R. E., Guerrero, M. D., Vanderloo, L. M., Barbeau, K., Birken, C. S., Chapat, J.-P., . . . Mâsse, L. C. (2020). Development of a consensus statement on the role of the family in the physical activity, sedentary, and sleep behaviours of children and youth. *International journal of behavioral nutrition and physical activity*, 17(1), 1-31.
- Rock, C. L., Thomson, C., Gansler, T., Gapstur, S. M., McCullough, M. L., Patel, A. V., . . . Robien, K. (2020). American Cancer Society guideline for diet

- and physical activity for cancer prevention. *CA: a cancer journal for clinicians*, 70(4), 245-271.
- Santana, C. C. d. A., Azevedo, L. B. d., Cattuzzo, M. T., Hill, J. O., Andrade, L. P., & Prado, W. L. d. (2017). Physical fitness and academic performance in youth: A systematic review. *Scandinavian journal of medicine & science in sports*, 27(6), 579-603.
- Shalar, O., Strykalenko, Y., Huzar, V., Yuskiv, S., Silvestrova, H., & Holenco, N. (2020). The correlation between intelligence and competitive activities of elite female handball players.
- Trudeau, F., & Shephard, R. J. (2008). Physical education, school physical activity, school sports and academic performance. *International journal of behavioral nutrition and physical activity*, 5(1), 1-12.
- Trudeau, F., & Shephard, R. J. (2010). Relationships of physical activity to brain health and the academic performance of schoolchildren. *American journal of lifestyle medicine*, 4(2), 138-150.
- Tulchin-Francis, K., Stevens Jr, W., Gu, X., Zhang, T., Roberts, H., Keller, J., . . . VanPelt, J. (2021). The impact of the coronavirus disease 2019 pandemic on physical activity in US children. *Journal of sport and health science*, 10(3), 323-332. doi:10.1016/j.jshs.2021.02.005
- van Sluijs, E. M., Ekelund, U., Crochemore-Silva, I., Guthold, R., Ha, A., Lubans, D., . . . Katzmarzyk, P. T. (2021). Physical activity behaviours in adolescence: current evidence and opportunities for intervention. *The Lancet*, 398(10298), 429-442.
- Vasconcellos, D., Parker, P. D., Hilland, T., Cinelli, R., Owen, K. B., Kapsal, N., . . . Ryan, R. M. (2020). Self-determination theory applied to physical education: A systematic review and meta-analysis. *Journal of educational psychology*, 112(7), 1444.
- Zysberg, L., & Schwabsky, N. (2021). School climate, academic self-efficacy and student achievement. *Educational Psychology*, 41(4), 467-482.