

EFFECTS OF PHYSICAL ACTIVITIES ON THE ACADEMIC PERFORMANCE OF COLLEGE STUDENTS

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Abstract

This study examined the effects of physical activity on the academic performance of college students at Lyceum-Northwestern University in Dagupan City. Anchored in the Cognitive Activation Theory of Stress, Self-Determination Theory, and Multiple Intelligences Theory, it tested the assumption that regular movement supports learning by improving stress regulation, motivation, and cognitive functioning. A quantitative correlational design was employed. One hundred college students answered a structured questionnaire that measured their weekly physical activity frequency and level (inactive, moderately active, active, and highly active). Academic performance was determined using self-reported grade point average (GPA) and academic achievement scores. Descriptive statistics summarized activity patterns and performance levels, while Pearson correlation assessed the relationship between physical activity and academic outcomes.

Findings showed that most respondents were moderately active (40%), while 25% were inactive, 25% active, and 10% highly active. Academic performance increased with activity level. Inactive students posted a satisfactory GPA ($M = 2.25$), moderately active students a good GPA ($M = 2.00$), active students a very good GPA ($M = 1.75$), and highly active students an excellent GPA ($M = 1.50$). Active students likewise obtained higher academic achievement ($M = 1.82$, very good) than inactive peers ($M = 2.25$, satisfactory). Overall, physical activity frequency showed a strong, statistically significant positive relationship with academic performance ($r = 0.68$, $p < .05$).

The results indicate that consistent engagement in physical activities is associated with better scholastic outcomes among college students. The study recommends strengthening campus wellness and fitness programs, integrating accessible physical activity into student life, and encouraging healthier routines to support long-term well-being and academic success.

Keywords: Physical Activity, Academic Performance, GPA, College Students, Wellness Program, Correlational Study

1. Introduction

Physical activity is widely recognized as a cornerstone of health and well-being. However, many university students struggle to meet recommended levels as academic workloads, screen-based learning, and sedentary leisure compete for time and energy. Global guidelines emphasize that adults should accumulate 150–300 minutes of moderate-intensity aerobic activity (or 75–150 minutes of vigorous activity) per week to achieve meaningful physical and mental health benefits (World Health Organization [WHO], 2020; Bull et al., 2020). Despite these clear recommendations, physical inactivity remains common in higher-education settings, leaving students vulnerable to stress, fatigue, and reduced cognitive readiness. In the Philippine context, recent evidence among tertiary students indicates that physical activity and related health behaviors remain uneven, with a substantial proportion of students reporting low levels of physical activity even after the return to normal campus life (Guinto et al., 2025). These trends underscore the practical relevance of examining how activity habits relate to academic functioning in college populations.

The link between physical activity and academic performance has been studied extensively, with the majority of evidence suggesting a generally positive association. Reviews of school-age populations show small but consistent academic benefits of physical activity, particularly through improved classroom behavior, attention, and cognitive function (Álvarez-Bueno et al., 2017; Singh et al., 2020). Although much of the earlier literature focused on children and adolescents, research is increasingly extending to university students. A systematic review and meta-analysis centered on university populations highlighted a stress-buffering pathway: physically active students often demonstrate lower perceived stress and, in turn, better academic outcomes, although study designs vary and effect sizes are heterogeneous (Wunsch et al., 2021). Related work in higher education also notes that physical activity interventions tend to improve mental health indicators—stress, anxiety, and depressive symptoms—which are known correlates of academic engagement and achievement (Deliens et al., 2024; Guo et al., 2024). In other words, even when direct causal links to grades are difficult to establish, physical activity appears to strengthen psychological conditions that support learning.

Several mechanisms explain why physically active students may perform better academically. First, physical activity enhances cognitive processes that are central to learning, including executive function, memory, and attentional control. Large-scale undergraduate research using objective activity patterns found that more frequent and sustained activity were associated with higher academic achievement, suggesting that movement supports information processing and sustained study performance (Du et al., 2023). Second, activity improves emotion regulation and resilience, which are critical for maintaining academic focus under pressure. Experimental evidence indicates that structured exercise programs can improve cognitive control and emotion regulation among stressed college students, helping them respond adaptively to academic demands (Zhang et al., 2025). Third, physical activity is strongly related to motivation and self-regulation. From a self-determination perspective, exercise supports feelings of competence, autonomy, and social connection, which can generalize to academic goals and persistence (Wunsch et al., 2021). Together, these pathways align with stress-coping frameworks that view physical activity as a behavioral resource that offsets physiological and psychological strain, thereby protecting performance in demanding environments.

Even with growing evidence, findings among university students remain mixed in part because of contextual differences. Some studies report strong positive relationships between physical activity and GPA, while others find weaker or inconsistent links depending on activity type, frequency, or student characteristics (Tobi et al., 2022; Wunsch et al., 2021). Such variability suggests that local investigations are necessary to clarify how physical activity operates within specific settings. Campus culture, facility access, commuting patterns, and academic structures can shape both activity habits and performance outcomes. Moreover, Philippine higher education has unique features—such as heavy commuting for many students and varying institutional support for wellness—that may alter the role of physical activity in student success (Guinto et al., 2025). Local empirical work is therefore essential not only to test whether global patterns hold, but also to generate evidence for campus-based wellness programs tailored to Filipino students.

This study addresses these needs by examining how the frequency of physical activity relates to the academic performance of college students at Lyceum-Northwestern University in Dagupan City. Using a quantitative correlational design, the study assesses students' activity levels and compares these with indicators of academic performance, including grade point average and academic achievement measures. By focusing on a Philippine college sample, the research provides context-specific evidence in an area where local studies remain limited and where student well-being has become increasingly salient after years of disrupted routines. Understanding this relationship may guide institutional decision-making on fitness initiatives, physical education programming, and broader student-support systems. Ultimately, the study aims to clarify whether encouraging consistent physical activity can serve as a feasible, low-cost

strategy to enhance academic outcomes while simultaneously promoting healthier lifestyles among college students.

2. Method

2.1 Research Design

The study employed a quantitative correlational research design to determine the relationship between college students' physical activity and academic performance. This design was appropriate because the purpose was not to manipulate variables but to measure naturally occurring differences in students' activity levels and examine how these relate to academic outcomes. Data were collected from 100 college students using a structured questionnaire that classified respondents by weekly physical activity frequency (inactive, moderately active, active, or highly active). At the same time, academic performance was assessed through self-reported Grade Point Average (GPA) and academic achievement scores. Descriptive statistics (frequencies, percentages, and means) were used to summarize activity patterns and performance levels. Inferential statistics—specifically Pearson product-moment correlation to test the strength and significance of relationships and a t-test to compare academic achievement between active and inactive groups—were applied to address the research questions and evaluate the null hypotheses within the IMRAD framework.

2.2 Participants

The participants of the study were 100 college students enrolled at Lyceum–Northwestern University in Dagupan City, who served as the primary source of data for examining the relationship between physical activity and academic performance. Respondents were selected from different year levels and programs to reflect a range of academic experiences, and they were grouped according to their reported weekly physical activity frequency (inactive, moderately active, active, and highly active). Participation was voluntary, and students were included if they were currently enrolled in the college department and willing to provide information about their physical activity habits and academic performance (GPA and achievement scores). Prior to data collection, respondents were informed of the study's purpose, assured of confidentiality, and asked to complete the questionnaire honestly, ensuring that ethical standards in participant selection and involvement were observed within the IMRAD structure.

2.3 Instrumentation

The study utilized a researcher-made structured questionnaire as its primary instrument to collect data on both physical activity and academic performance within the IMRAD framework. The tool was organized into three parts: (1) a profile section that gathered basic demographic information of the respondents; (2) a physical activity section that asked students to report the frequency of their weekly participation in physical activities, allowing classification into inactive, moderately active, active, and highly active groups; and (3) an academic performance section that elicited respondents' self-reported Grade Point Average (GPA) and academic achievement indicators, supplemented by items on study-related perceptions to contextualize performance outcomes. The questionnaire was designed to align directly with the study's variables and research questions, ensuring that the data gathered could be quantified and analyzed using descriptive statistics, Pearson's correlation, and t-tests.

2.4 Data Analysis

The study applied both descriptive and inferential statistical techniques consistent with a quantitative correlational IMRAD approach. After collecting the completed questionnaires, responses were tallied and organized to determine students' physical activity categories and

academic performance levels. Descriptive statistics—specifically frequency counts, percentages, and weighted means—were used to summarize the distribution of physical activity frequency (inactive to highly active) and GPA/achievement classifications. To test the study's central relationship, the Pearson product-moment correlation (r) was computed to assess the strength and direction of the association between physical activity frequency and academic performance, with significance evaluated at the 0.05 alpha level. In addition, a t-test for independent samples was employed to determine whether there was a statistically significant difference in academic achievement scores between physically active and inactive students. These analyses directly addressed the research questions and provided the statistical basis for accepting or rejecting the null hypotheses.

3. Results

The results showed that college students differed notably in how often they engaged in physical activities. Most respondents were moderately active, participating in physical activity about two to three times per week (40%). A quarter of the students were inactive (0–1 time per week), another 25% were active (4–5 times per week), and a smaller group were highly active (6 or more times per week). This distribution indicates that while many students maintain some level of activity, a substantial portion still falls short of regular exercise patterns, suggesting room for greater participation in routine physical movement.

In terms of academic performance, respondents generally clustered in the good-to-very-good GPA range, but performance varied across activity categories. Overall GPA results revealed that 35% of students had “very good” grades (1.50–1.99), 30% were in the “good” range (2.00–2.49), 20% were “satisfactory” (2.50–2.99), and only 15% achieved an “excellent” GPA (1.00–1.49). These findings suggest that most students perform reasonably well academically, yet a smaller segment achieves excellence.

When GPA was compared across physical activity levels, a clear upward pattern emerged: students who were more physically active tended to have higher GPAs. Inactive students posted only a satisfactory mean GPA ($M = 2.25$), moderately active students reached a good mean GPA ($M = 2.00$), active students obtained a very good mean GPA ($M = 1.75$), and highly active students achieved an excellent mean GPA ($M = 1.50$). This stepwise improvement across activity groups strongly suggests that regular physical activity participation is associated with stronger scholastic performance.

A similar trend appeared in academic achievement scores. Students categorized as physically active achieved a very good average ($M = 1.82$), whereas inactive students achieved only a satisfactory average ($M = 2.25$). The difference suggests that active students may benefit from improved concentration, energy, and stress regulation, all of which support learning and test performance. Thus, both GPA and achievement indicators converged in showing that greater participation in activities is associated with higher academic outcomes.

Finally, inferential analysis confirmed that this pattern was not due to chance. The Pearson correlation between physical activity frequency and academic performance was strong, positive, and statistically significant ($r = 0.68$, $p < .05$), meaning that as physical activity increased, academic performance also tended to improve. Taken together, these results supported rejecting the null hypotheses. They reinforced the study's main conclusion: consistent physical activity is meaningfully linked with better academic performance among college students, highlighting the value of wellness and fitness initiatives within the university setting.

4. Discussion

The findings of the present study corroborate a broad body of literature showing that higher physical activity participation is associated with stronger academic outcomes. In this research, increasing activity frequency was associated with progressively higher GPAs and

achievement scores, and the overall relationship was strong and significant ($r = 0.68$). Similar positive associations have been reported among undergraduates in other contexts. For example, Wehler (2023) found that moderate-to-vigorous physical activity was positively associated with college students' GPAs and academic skills, reinforcing the idea that sustained exercise engagement aligns with better scholastic performance.

The pattern in this study also aligns with higher-level syntheses, suggesting that physical activity is generally beneficial—or at least not harmful—to academic performance. An umbrella review by Singh et al. (2020) concluded that most systematic reviews and meta-analyses report small but consistent positive effects of chronic physical activity on academic achievement, with clearer benefits emerging when activity is sustained over time rather than performed sporadically. Although Singh et al. (2020) focused largely on school-age populations, the direction and logic of their findings mirror those of the present results among college students, suggesting that the academic advantage of regular activity may extend across educational levels.

Further, the study's results are supported by evidence emphasizing cognitive pathways through which activity enhances learning. Du et al. (2023) used large-scale behavioral data and machine-learning approaches. They showed that college students who engaged more frequently in physical activity tended to achieve higher academic achievement, suggesting improvements in attention, memory, and executive functioning. This provides a plausible explanation for why students in the current study who were active or highly active achieved “very good” to “excellent” GPA levels compared with inactive peers.

The present findings are also consistent with research highlighting psychological mechanisms—especially stress and mental well-being—as key mediators. Wunsch et al. (2021) reviewed university-based evidence and reported that physical activity often relates to lower stress, which, in turn, supports academic performance, even though direct activity–performance correlations vary across studies. In the same vein, systematic reviews of college populations indicate that physical activity interventions reliably improve mental health indicators (e.g., reduced stress and anxiety, better well-being), strengthening students' capacity to focus, persist, and perform academically (Huang et al., 2024; *Frontiers in Psychology* review, 2025). These stress-buffering and well-being pathways fit closely with the present study's theoretical grounding and help explain the higher achievement scores among active students.

At the same time, this study adds to the literature by providing clear evidence from a Philippine university setting, where local corroborative data remain limited. Prior syntheses note heterogeneity and occasional null results in university samples, often due to differences in measurement tools, timing (e.g., exam vs. non-exam periods), and contextual factors such as campus culture or lifestyle demands (Wunsch et al., 2021). The strong positive relationship observed here, therefore, strengthens the argument that—within this specific institutional context—consistent physical activity is a meaningful contributor to academic success and supports calls for campus wellness programs tailored to student realities.

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