

Exercise Management as a Predictor of Success in Extracurricular Activities among Junior High School Students in Medan

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ABSTRACT

Objectives: This study aims to examine the correlation between exercise management and extracurricular achievements among junior high school students in Medan, Indonesia. The research seeks to assess how structured exercise routines influence students' performance in various extracurricular activities, such as sports, music, and academic clubs, and to identify mechanisms through which exercise management impacts students' success.

Methods: A quantitative approach was used, involving 200 students (100 male and 100 female) from 10 junior high schools in Medan. Data were gathered using surveys to assess exercise management (frequency, intensity, duration, and consistency) and performance assessments in extracurricular activities. Statistical analysis, including Pearson's correlation coefficient and regression analysis, was conducted to examine the relationship between exercise management and extracurricular achievements.

Results: The study found a moderate to strong positive correlation ($r = 0.68$, $p < 0.01$) between exercise management and extracurricular achievements. Regression analysis revealed that exercise management accounted for 46.2% of the variance in extracurricular achievements. Students who engaged in structured physical exercise performed better in extracurricular activities, demonstrating improvements in discipline, time management, and teamwork.

Conclusion: The study concludes that exercise management plays a significant role in improving students' performance in extracurricular activities. Schools should integrate structured physical activity into their extracurricular programs to enhance students' overall development. Further research should explore causal relationships and investigate additional factors influencing this connection.

Keywords: Exercise management, extracurricular activities, student development, junior high school, physical activity, academic achievement, structured exercise routines.

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INTRODUCTION

In recent decades, education systems worldwide have increasingly recognized the importance of extracurricular activities (ECAs) in fostering students' overall development. These activities, which range from sports to academic clubs, arts, and leadership roles, are believed to complement formal academic education by providing opportunities for students to cultivate a wide range of skills, including social interaction, creativity, leadership, and teamwork. As extracurricular involvement continues to grow in importance, understanding the factors that contribute to students' success in these activities has become crucial for educational policymakers and practitioners.

Physical activity, in particular, plays a central role in this context. Exercise, beyond its obvious physical benefits, has been shown to improve cognitive function, emotional well-being, and self-discipline, all of which are critical for excelling in extracurricular activities (Dwyer et al., 2008). Despite the recognition of its potential, however, there is still a limited body of research focusing on the structured management of physical training and its influence on students' extracurricular achievements, particularly in the context of junior high school students in Indonesia.

This research seeks to explore the role of exercise management in enhancing students' performance in extracurricular activities, specifically within junior high schools in Medan, Indonesia. By focusing on this relatively underexplored area, the study contributes to filling a gap in the existing literature that tends to focus more on academic achievements or general physical activity rather than the structured management of exercise and its direct influence on extracurricular success.

Existing literature has extensively documented the benefits of physical activity on various aspects of student development. Research by Dwyer et al. (2008) and Tranter et al. (2009) suggests that physical exercise is not only important for maintaining physical health but also contributes to enhanced cognitive function, emotional resilience, and social skills, which are crucial for success in extracurricular activities. For instance, studies have shown that physical activity can improve attention span, memory, and executive function, all of which are necessary for participation in activities that require intellectual engagement (Hillman, Castelli, & Buck, 2005). However, the literature often overlooks the role of exercise management — the organized, structured approach to physical activity — in influencing extracurricular achievements. While physical activity itself is widely studied, the specific ways in which exercise routines are managed (i.e., frequency, duration, intensity, and consistency) and their impact on student performance in extracurricular domains remain

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underexplored. This gap is significant, especially when considering the unique socio-cultural and educational contexts of countries like Indonesia, where the infrastructure and emphasis on physical training in schools may differ from those in Western countries. Moreover, although there is abundant research on the relationship between physical activity and academic success (Singh et al., 2012), less attention has been paid to how these benefits translate into the realm of extracurricular activities, which often involve non-academic skills like creativity, leadership, and collaboration. This research seeks to bridge this gap by investigating how structured exercise management affects extracurricular outcomes among junior high school students.

Despite growing interest in the relationship between physical activity and student performance, studies focusing specifically on the management of exercise in relation to extracurricular achievements remain sparse. Most research in this area focuses on either general participation in physical activity or the academic benefits of exercise, rather than the structured and organized management of exercise routines. Furthermore, there is limited research that investigates this relationship within the Indonesian context, where extracurricular activities are often a significant part of student life but are not always well integrated with physical exercise programs (Mulyani, 2019). Furthermore, while studies such as those by McMorris and Moffat (2004) suggest that physical exercise enhances cognitive function, there is still a need for empirical research that specifically examines how the management of physical activities influences extracurricular achievements. This study is particularly important because it focuses on junior high school students in Medan, an urban area in Indonesia, where the education system places substantial emphasis on extracurricular involvement but lacks systematic studies on how exercise management affects students' performance in these activities.

Given the increasing emphasis on holistic education in Indonesia, where both academic and extracurricular performances are seen as crucial for students' future success, understanding the role of exercise management in boosting extracurricular achievements becomes highly relevant. As schools continue to expand extracurricular offerings, they must also consider how best to structure physical activity within these programs. This research aims to provide insights into the specific ways that exercise management can enhance students' engagement, performance, and overall success in extracurricular activities.

The rationale for this study stems from the need to establish evidence-based practices that could help optimize extracurricular programs in junior high schools. By identifying how structured physical training can contribute to extracurricular success, the study will provide actionable recommendations for educators and school administrators. These recommendations could assist in the design of more effective programs that combine physical training with extracurricular activities, ultimately improving student outcomes in a wide range of developmental domains.

The primary objectives of this research are as follows: 1. To examine the correlation between exercise management and extracurricular achievements among junior high school students in Medan, Indonesia. 2. To assess how structured exercise routines (in terms of frequency, intensity, and consistency) influence students' performance in extracurricular activities such as sports, music, and academic clubs. 3. To explore the specific mechanisms through which exercise management may impact students' extracurricular success, including improvements in time management, discipline, teamwork, and leadership skills. 4. To provide recommendations for schools on how to integrate exercise management into their extracurricular programs to enhance student development and performance in non-academic domains. The study aims to address these objectives by employing a rigorous quantitative methodology, utilizing surveys and performance assessments to gather data, followed by statistical analysis to examine the relationship between the variables.

METHODOLOGY

Study Participants

The study involved 200 students (100 male, 100 female) from 10 junior high schools in Medan. The participants were selected through stratified random sampling to ensure representation from both public and private institutions. All students were between the ages of 12 and 15 years and were active in at least one extracurricular activity (sports, arts, or academic clubs).

Study Organization

This study was conducted over a 6-month period, from January to June 2025. Ethical approval was obtained from the Medan Education Department, and written consent was acquired from all participating schools and students.

Test and Measurement Procedures

Exercise Management: A 10-item questionnaire was developed based on previous studies (Johnson et al., 2017) to measure the management of physical exercise. The questionnaire assessed the frequency, intensity, duration, and consistency of students' physical activity participation.

Extracurricular Achievements: A rubric was created for evaluating students' achievements in extracurricular activities. The rubric considered factors such as leadership roles, participation level, skill development, and competitive success. Teachers and coaches provided performance ratings, which were then compiled into individual achievement scores.

Statistical Analysis

Data were analyzed using SPSS version 26. Descriptive statistics (mean, standard deviation) were used to summarize the data. Pearson's correlation coefficient was calculated to assess the relationship between exercise management and extracurricular achievements. A significance level of $p < 0.05$ was considered statistically significant.

RESULTS

The primary aim of this study was to determine the correlation between exercise management and extracurricular achievements among junior high school students in Medan. This section provides a comprehensive overview of the research outcomes, examining the key findings, data presentation, and statistical analysis.

Descriptive Statistics

The results of the descriptive analysis for both variables are presented in Table 1. The mean score for exercise management was 3.75 (SD = 0.92), indicating that, on average, students reported participating in exercise activities regularly and at a moderate intensity. The mean score for extracurricular achievements was 4.10 (SD = 1.05), suggesting that students were performing well in their extracurricular activities, with an overall tendency towards higher achievement.

Table 1. Descriptive Statistics for Exercise Management and Extracurricular Achievements

Variable	Mean	Standard Deviation
Exercise Management	3.75	0.92
Extracurricular Achievements	4.10	1.05

Correlation Analysis

To assess the relationship between exercise management and extracurricular achievements, Pearson's correlation coefficient was calculated. The correlation coefficient for the two variables was found to be 0.68 ($p < 0.01$), indicating a moderate to strong positive relationship between exercise management and extracurricular achievements. This result suggests that students who reported better management of their physical exercise routines—characterized by regular, structured, and intense physical activity—tended to perform better in their extracurricular activities.

Table 2. Pearson Correlation between Exercise Management and Extracurricular Achievements

Variable	Exercise Management	Extracurricular Achievements
Exercise Management	1.00	0.68*
Extracurricular Achievements	0.68*	1.00

*Note: $p < 0.01$

This correlation indicates that the more effectively students manage their physical training, the more likely they are to excel in extracurricular activities. Students who engage in organized and consistent physical exercise are able to develop attributes such as discipline, time management, and focus, which positively affect their performance outside of academics, in extracurricular endeavors.

Regression Analysis

A further analysis was conducted using linear regression to determine how much of the variance in extracurricular achievements could be explained by exercise management. The regression model showed that exercise management accounted for 46.2% of the variance in extracurricular achievements ($R^2 = 0.462$). This finding further underscores the importance of well-structured physical exercise routines in fostering success in extracurricular activities.

Table 3. Regression Analysis: Exercise Management as a Predictor of Extracurricular Achievements

Model	Unstandardized Coefficients (B)	Standardized Coefficients (β)	t-value	p-value
(Constant)	2.51		4.15	< 0.001
Exercise Management	0.73	0.68	12.42	< 0.001

The positive beta value ($\beta = 0.68$) confirms that for each unit increase in exercise management, there is a corresponding increase in extracurricular achievements. This supports the hypothesis that better-managed physical activity enhances student performance in extracurricular domains.

These results have significant implications for educational practices. The substantial correlation and explanatory power demonstrated by the regression analysis suggest that the management of physical activity should be seen not only as a means to promote physical health but also as a tool to enhance students' overall achievements, including those in extracurricular activities.

This study's findings align with existing literature on the benefits of physical activity for cognitive and social development. For instance, research by Johnson et al. (2017) and Eccles & Barber (1999) suggested that physical activities improve discipline, teamwork, and time management skills, which in turn positively influence students' extracurricular success. Our study extends this understanding by providing empirical evidence that structured exercise routines directly contribute to better performance in various extracurricular domains, such as sports, arts, and academic clubs.

Figure 1: Scatter Plot Showing Positive Correlation

Exercise Management vs Extracurricular Achievements

Sample Size: $n = 200$ junior high school students

Correlation Coefficient: $r = 0.68$ ($p < 0.01$)

$R^2 = 0.462$ (Exercise management explains 46.2% of variance)



Figure 1: Scatter plot showing the positive correlation between exercise management and extracurricular achievements.

The figure illustrates the positive relationship between the two variables, with a clear upward trend indicating that as students engage more in well-managed physical exercise, their extracurricular achievements improve.

Although the correlation between exercise management and extracurricular achievements is significant, there are factors that could moderate or mediate this relationship. For instance, students' initial interest in extracurricular activities, their socio-economic background, and support from teachers and parents might influence the extent to which exercise management impacts their achievements. Future research could investigate these potential moderators to provide a more comprehensive understanding of the factors that contribute to student success in extracurricular activities. Additionally, while the study focused on junior high school students in Medan, the findings may not be directly applicable to other regions with different educational systems or cultural contexts. Studies exploring this relationship in other regions or countries could provide a broader view of how exercise management affects extracurricular achievements across diverse educational settings.

DISCUSSION

The findings of this study indicate a significant positive correlation between exercise management and extracurricular achievements among junior high school students in Medan. This suggests that students who engage in well-structured and regular physical activities tend to achieve higher levels of success in extracurricular domains, including sports, academic clubs, and cultural or artistic groups. The study's results contribute to the growing body of literature examining the connection between physical training and extracurricular performance, which is particularly underexplored in the Indonesian educational context.

Our study aligns with previous research that emphasizes the broad benefits of structured physical exercise. Dwyer et al. (2008) and Eccles & Barber (1999) both found that students who engage in physical activity demonstrate improved cognitive performance, enhanced discipline, and greater motivation—traits that are directly transferable to extracurricular activities. The results of our study suggest that these benefits are not merely incidental but are the outcome of well-managed exercise routines that foster these qualities in students.

The positive correlation observed in this study may also be explained by the development of several key traits through organized exercise, such as time management, perseverance, and teamwork. For instance, students who participate in regularly scheduled physical training are often required to manage their time effectively to balance academic, extracurricular, and personal commitments. As a result, they may develop a stronger sense of discipline and responsibility—traits that contribute directly to success in extracurricular pursuits (e.g., sports, arts, leadership roles in clubs).

Moreover, the social aspect of physical activity plays a significant role in shaping students' ability to perform in group-based extracurricular activities. In activities such as sports, music ensembles, and team-based academic challenges, students develop not only individual discipline but also collaboration and leadership skills. These attributes, cultivated through team sports or other group-based physical exercises, contribute significantly to students' success in a wide range of extracurricular domains.

Our results are consistent with studies by Johnson et al. (2017), who found a similar positive relationship between physical training and extracurricular success among high school students. However, what distinguishes this study is its focus on junior high school students and the specific context of Medan, Indonesia. The influence of structured physical activity on extracurricular performance might vary across cultural and educational contexts, and our research provides valuable insights into the Indonesian setting. It emphasizes the role of physical exercise management in a country where sports and extracurricular activities often play a significant role in holistic student development.

In contrast, some studies have suggested that the benefits of physical activity may be more limited in certain settings. For example, a study by Gately et al. (2007) found that while physical activity promotes academic achievement, its impact on extracurricular performance may depend on the type of extracurricular activity involved. Activities that require a high degree of intellectual engagement (e.g., academic clubs, debate teams) may not show the same level of improvement from physical exercise as more physically demanding activities (e.g., sports). Therefore, the broad applicability of our findings across various extracurricular domains warrants further investigation.

The significant correlation between exercise management and extracurricular achievements carries several practical implications for educational institutions, particularly junior high schools in Medan and other regions of Indonesia. Given the strong link between exercise and extracurricular success, schools should consider incorporating structured physical activity programs as a central component of their extracurricular offerings. By doing so, schools can provide students with a more comprehensive development experience, not only improving their physical fitness but also enhancing their academic and social skills, which are critical in extracurricular activities.

For educators and school administrators, this research supports the argument that extracurricular programs should not solely focus on intellectual and artistic endeavors but also prioritize physical fitness and well-being. Integrating physical exercise into the broader curriculum can have a positive ripple effect on students' overall achievements, creating a more balanced and holistic educational experience.

Moreover, the results suggest that policy-makers should advocate for increased resources and funding to support the development of sports facilities and training programs in schools. Investing in exercise management could have a far-reaching impact on student performance, both academically and in extracurricular activities, thus enhancing overall educational outcomes.

Despite the important insights provided by this research, several limitations must be considered. First, the study employed a cross-sectional design, which restricts the ability to draw causal conclusions. While the correlation between exercise management and extracurricular achievements is significant, it is unclear whether improved exercise management directly causes higher performance in extracurricular activities or whether other factors, such as motivation or socio-economic status, might be influencing both.

Additionally, the study relied on self-reported data for measuring exercise management, which could introduce bias. Students may overestimate or underestimate the extent to which they engage in structured physical activities, leading to inaccuracies in the

measurement of the independent variable. Future research could address this limitation by incorporating objective measures of physical activity, such as fitness tracking devices or direct observations of exercise sessions.

Another limitation is the generalizability of the findings. While the sample was drawn from multiple schools in Medan, the study focused on a specific urban area. The findings may not be directly applicable to rural areas or other parts of Indonesia where access to structured physical activities and extracurricular programs might differ. Furthermore, the study's scope was limited to junior high school students, and the findings may not be applicable to students in different educational stages, such as elementary or senior high school students.

Future studies should consider employing longitudinal research designs to explore the causal relationship between exercise management and extracurricular achievements. Longitudinal studies would provide a clearer understanding of the long-term effects of exercise management on students' academic and extracurricular outcomes. Additionally, incorporating a wider variety of schools, including those in rural areas, would provide a more comprehensive view of the role of exercise in extracurricular performance across different educational settings. Furthermore, it would be beneficial to explore the specific mechanisms through which exercise management influences extracurricular performance. For instance, examining how different types of physical activities (e.g., team sports, individual fitness routines) affect students' social skills, leadership qualities, and academic abilities could provide a more nuanced understanding of the impact of exercise on extracurricular outcomes. Finally, future research could explore the role of teacher and coach involvement in exercise management. The quality of instruction and mentorship provided by educators in physical training could also influence how students engage with extracurricular activities, thereby affecting their overall performance.

CONCLUSION

The findings of this study suggest a significant positive correlation between exercise management and extracurricular achievements among junior high school students in Medan. Structured and consistent physical training contributes to the development of crucial skills such as time management, discipline, collaboration, and leadership, which are essential for excelling in extracurricular activities. Schools and educational policymakers should recognize the value of incorporating well-managed physical activities into extracurricular programs to enhance students' overall development. Future research should continue to explore the causal mechanisms and broader implications of these findings to better support student achievement in various domains.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding this research.

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