
EFEKTIVITAS KEBUGARAN DAN STATUS GIZI TERHADAP HASIL BELAJAR MAHASISWA

EFFECTIVENESS OF FITNESS AND NUTRITIONAL STATUS ON LEARNING OUTCOMES IN STUDENTS

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Abstrak

Penelitian ini bertujuan untuk menginvestigasi hubungan antara kebugaran fisik dan status gizi dengan hasil belajar mahasiswa pendidikan jasmani FKIP Universitas Islam Riau. Metode penelitian yang digunakan adalah studi deskriptif kuantitatif. Populasi sampel yakni kelas 5A dan 5B mahasiswa pendidikan jasmani (penjas) FKIP Universitas Islam Riau. Teknik penarikan sampel *purposive sampling*. Tes pengukuran kebugaran fisik menggunakan Cooper tes 2,4 km dan tes status gizi digunakan melalui tinggi badan, berat badan dan di cari indek masa tubuh sedangkan prestasi belajar melalui indek prestasi kumulatif. Teknik analisis data menggunakan teknik analisis berganda dengan menggunakan SPSS 22. Hasil penelitian terdapat efektifitas kebugaran fisik dan status gizi terhadap prestasi belajar mahasiswa sebesar 24.10%. Penemuan ini memiliki implikasi penting dalam konteks pendidikan, khususnya dalam program studi pendidikan jasmani. Mendorong mahasiswa untuk menjaga kebugaran fisik dan status gizi yang optimal dapat meningkatkan hasil belajar. Oleh karena itu, disarankan agar institusi pendidikan mempertimbangkan integrasi program kebugaran fisik dan pendidikan gizi dalam kurikulum untuk meningkatkan prestasi akademik mahasiswa.

Kata kunci: kebugaran jasmani; status gizi, prestasi belajar

Abstract.

This study aims to investigate the relationship between physical fitness and nutritional status and the learning outcomes of physical education students at FKIP Riau Islamic University. The research method used is a quantitative descriptive study. The sample population is class 5A and 5B physical education (penjas) students at FKIP Riau Islamic University. Purposive sampling technique. The physical fitness measurement test uses the 2.4 km Cooper test and the nutritional status test uses height, weight and body mass index, while learning achievement uses the cumulative achievement index. The data analysis technique uses multiple analysis techniques using SPSS 22. The research results show that the effectiveness of physical fitness and nutritional status on student learning achievement is 24.10%. These findings have important implications in the educational context, especially in physical education study programs. Encouraging students to maintain optimal physical fitness and nutritional status can improve learning outcomes. Therefore, it is recommended that educational institutions consider integrating physical fitness and nutrition education programs in the curriculum to improve student academic performance.

Keywords: physical fitness; nutritional Status; learning achievement

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INTRODUCTION

In the current educational context, students are faced with increasingly high academic demands and greater pressure. Physical health and nutrition are key factors that can influence their ability to face these challenges successfully (Basak & Dutta, 2016). Good physical health, including an adequate level of fitness, can increase students' energy, endurance, and concentration (Feng et al., 2013). In other words, physically healthy students tend to have a better ability to engage in effective and productive learning (Sa'adah et al., 2014). Conversely, physical health problems such as chronic fatigue or lack of fitness can hinder the ability to learn

Proper nutritional status is also important in ensuring that students have the nutrients needed for the brain and body (Miko & Pratiwi, 2017). Good nutrition can improve cognitive function, memory, and mental endurance, all of which play a role in successful learning outcomes (Supariasa et al., 2016). Thus, in the competitive era of modern education, a deep understanding of the relationship between physical health, nutrition, and student learning outcomes is the key to optimizing the educational experience and helping to achieve full academic potential (Merryana, 2012).

Research shows that factors such as duration of electronic device use, physical activity, diet, and sleep quality are significantly related to nutritional status in adolescents (Kumala et al., 2019). Research shows that the correlation between diet, physical activity, and sleep quality can influence nutritional status (Nabawiyah et al., 2021). Furthermore, the relationship between physical fitness and nutritional status, and academic achievement has been explored, highlighting the importance of factors such as stress, eating habits, and physical activity in influencing students' nutritional status and academic performance (Multazami, 2022). The similarity of physical fitness and nutritional status to academic achievement has been studied in various populations, including athletes, students, and school children, emphasizing the importance of these factors in different educational contexts (Ramadhan et al., 2020; Padriyani et al., 2014). These studies collectively underscore the complex interactions between physical fitness, nutritional status, and academic achievement, emphasizing the need for a holistic approach to supporting students' overall well-being and academic success.

Based on the references provided, it appears that there is a significant relationship between nutritional status, physical fitness, and student learning outcomes. A finding states that insufficient energy and macronutrient intake is associated with normal nutritional status (Rokhmah et al., 2017). Similarly, research (Pratama & Winarno, 2022; Suciana et al., 2021) highlights the importance of understanding adolescent nutritional adequacy and physical health as a solution to declining student learning outcomes due to nutritional status and physical fitness. Then, research (Arifin, 2018) shows that students' physical fitness increases after participating in physical fitness training three times a week. Furthermore, research (Mustakim & Surury, 2020) highlights the positive impact of physical activity and sport on academic performance, showing that participation in physical activity and sport can improve academic performance. These findings collectively underscore the link between nutritional status, physical fitness, and academic performance.

The impact of physical fitness and nutritional status on student learning outcomes has been the subject of extensive research. Research shows that physical fitness training, such as gymnastics, contributes to improving students' physical fitness, which in turn can have a positive impact on learning outcomes (Arifin, 2018). Furthermore, a relationship has been established between physical fitness and student learning outcomes, which shows that there is a strong correlation between physical fitness and academic achievement (Destriana et al., 2022). Then, a literature review underscored the importance of the relationship between nutritional status, physical fitness, and learning outcomes among secondary school students, emphasizing the holistic impact of these factors on students' academic performance (Pratama & Winarno, 2022). Likewise, the relationship between physical fitness and students' academic

performance has been explored, emphasizing the importance of physical fitness in improving learning outcomes (Aprilia & Januarto, 2022). These findings collectively highlight the important role of physical fitness and nutritional status in influencing students' academic performance and learning outcomes (Kadir & Laudi, 2015; Ariyana & Bestary, 2018).

The approach that will be used in this research will be an important tool for collecting relevant data on the physical fitness and nutritional status of physical education students. This research will allow for the collection of extensive information from the relevant student population. Furthermore, recording academic results will provide a complete Figure of the relationship between the variables studied in this research. This research can provide more in-depth and detailed results about the factors that influence learning outcomes. This research has great significance because it focuses on the well-being and academic achievement of students at the tertiary level. This introduces a specific perspective related to health and its impact on learning outcomes.

This article will increase understanding of the relationship between physical fitness, nutritional status, and physical education student learning outcomes, providing valuable insight into student well-being and potential interventions to improve student learning experiences. This research will explore in more depth the relationship between three key factors, namely physical fitness, nutritional status, and physical education student learning outcomes. In doing so, this article will provide a more comprehensive understanding of how these three factors are related to each other. That is, the importance of this research is to understand how physical fitness and nutritional status influence the academic achievement of physical education students, opening up and providing useful understanding for the development of better educational policies and practices.

METHOD

This type of research uses quantitative methods with a descriptive approach (Sugiyono, 2018). The sample population is class 5A and 5B physical education students at FKIP Riau Islamic University. Purposive sampling technique. The physical fitness measurement test uses a 2.4 km test cover (Millah & Priana, 2020) and the nutritional status test uses height, weight, and body mass index (BMI) (Pranata, 2019), while learning achievement uses the achievement index. cumulative (Daely et al., 2013).

The research procedures that will be carried out on physical education students are as follows; a) the first step is to carry out a physical fitness test which will be measured using a running fitness test (2.4 km Cooper test), b) then, the second step is to test the nutritional status of students using anthropometric parameters such as body mass index (BMI), c) next, for the final step, taking student learning achievement results using the cumulative achievement index (GPA). Student learning achievement data is collected through student academic score records. This data will include grades in various subjects that reflect student learning achievements. The collected data is analyzed using appropriate statistical methods. Correlation or linear regression will be used to analyze the relationship between physical fitness and nutritional status, and student learning achievement. In addition, descriptive statistical analysis will be used to see the distribution and characteristics of research variables with the help of the SPSS 22 program.

RESULT

The results of the research include measurements of fitness, nutritional status, and student achievement in the physical education study program at FKIP Riau Islamic University. This section will present a description of the measurement data for all research subjects. The research data consists of students' physical fitness variables (X1), nutritional status (X2) as the independent variable, and learning achievement (Y) as the dependent variable. To get a more

detailed **Figure** of the condition of the data in each group, please see the following description: From the test results, the students' fitness results were obtained based on the results of the 2.4 km Cooper run test, the highest (fastest) value was 10.52 and the lowest (slowest) value was 20. Mean 14.79, then standard deviation 1.93. The frequency distribution of students' physical fitness results can be depicted in table 1.

Table 1. Distribution of physical fitness

No	Category	Age (20-19)	Frequency	Relative (%)
1	Very less	> -16.01	7	17.5
2	Not enough	14.01-16.00	23	57.5
3	Moderate	12.01-14.00	7	17.5
4	Good	10.46-12.00	3	7.5
6	Very good	09.45-10.45	0	0

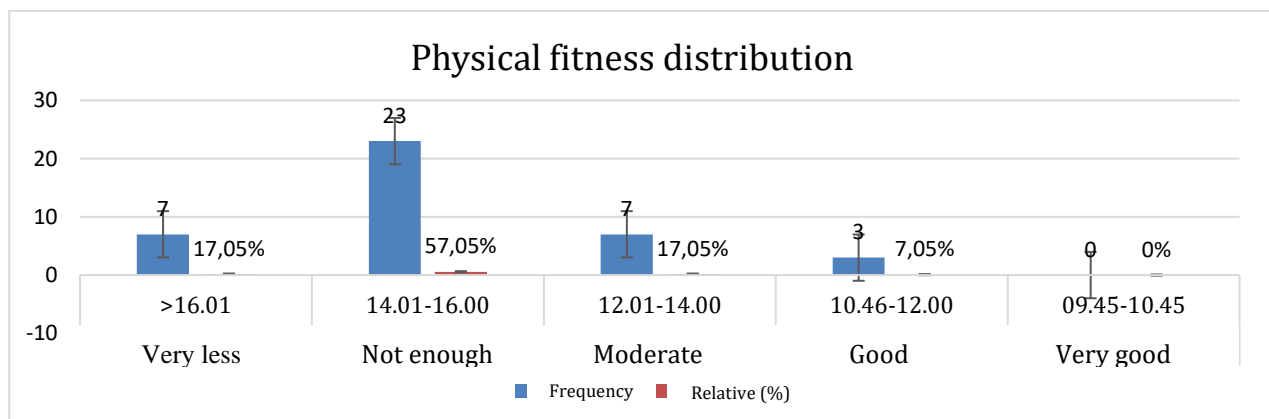


Figure 1. Physical fitness distribution histogram

To be more detailed, an understanding of the condition of the data in each group can be obtained by examining the results of the analysis of students' nutritional status variables. It was found that the average (mean) nutritional status was 21.36, with a standard deviation of 3.15. The highest nutritional value reached 28.63, while the lowest value was 16.02. The frequency distribution can be illustrated in Table 2.

Table 2. Distribution of Students' Nutritional Status

Classification	BMI	Frequency	Relative (%)
Very thin	< 17	2	5
Thin	17 -18.5	2	5
Normal	18.5 - 25	30	75
Fat	>25 - 27	4	10
Obesity	>27	2	5

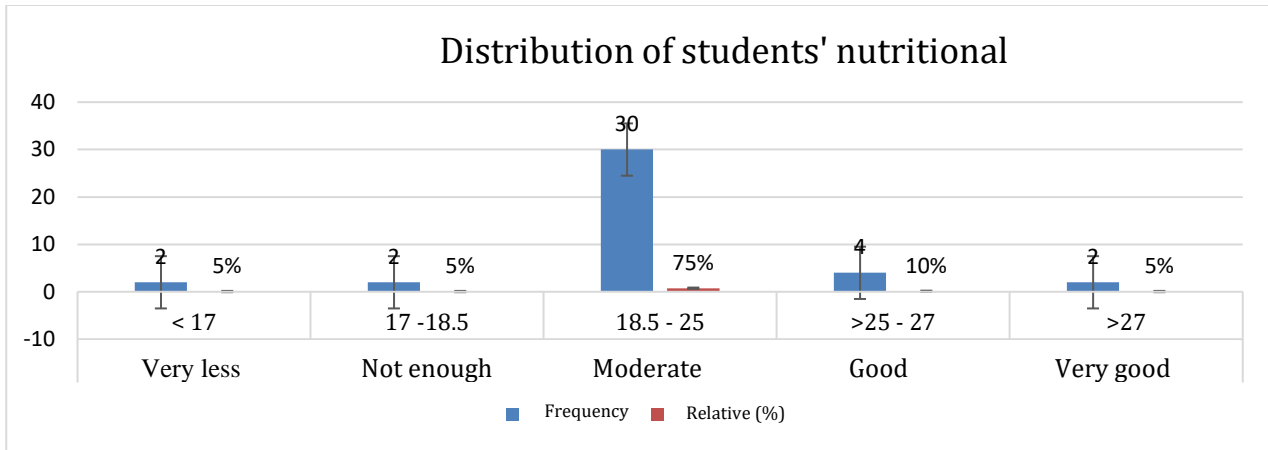


Figure 2. Histogram of distribution of students' nutritional status

Student Learning Achievement (Y)

From the evaluation results of student learning achievements, the highest score after being converted to a hundred scale was 93.75, while the lowest score was 72. The average (mean) learning achievement reached 84.35, with a standard deviation of 5.63. The frequency distribution of Student Physical Fitness results can be explained in table 3.

Table 3. Distribution of learning achievement

Classification	Interval Class	Frequency	Relative (%)
Very good	> 85	20	50
Good	81 - 85	10	25
Moderate	77 - 80	6	15
Not enough	74 - 76	2	5
Very less	<73	2	5

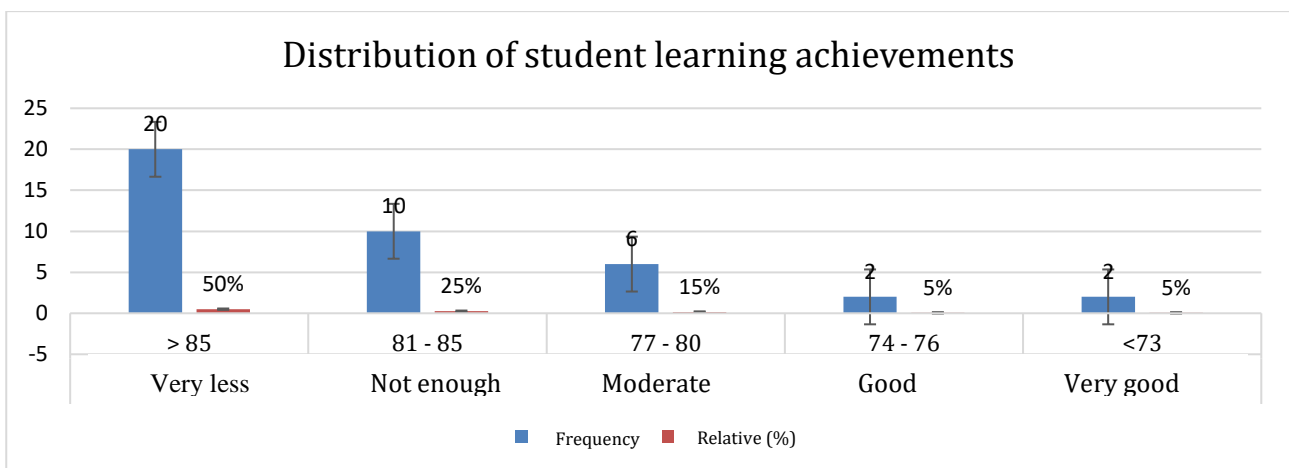


Figure 3. Histogram of the distribution of student learning achievements

After ensuring that the data shows a normal distribution, the next step is to carry out a multiple correlation test using SPSS statistical software. Decision-making in the multiple correlation test can be done by comparing the probability value of 0.05 with the significance probability value (sig). The results of multiple correlation analysis can be seen in the table below:

Table 3. Multiple correlation test results

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	297.928	2	148.964	5.871	.006 ^b
Residual	938.873	37	25.375		
Total	1236.802	39			

- a. Dependent Variable: Learning Achievement
 b. Predictors: (Constant), Fitness and Nutritional status

Tabel 4. Model summary r square

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.491 ^a	.241	.200	5.03736

- a. Predictors: (Constant), Kebugarn dan Status Gizi

Based on this table, it can be concluded that the relationship between nutritional status and physical fitness on the learning achievement of physical education students has a correlation coefficient of 0.491. This shows a moderate level of influence. Meanwhile, the contribution of nutritional status and physical fitness variables to learning achievement was 24.10%, while 75.89% was explained by other variables.

To assess the overall level of significance of the correlation coefficient, a hypothesis test was carried out. The research hypothesis consists of:

1. Ho: There is no simultaneous and significant relationship between nutritional status and physical fitness on student learning achievement
2. Ha: There is a simultaneous and significant relationship between nutritional status and physical fitness on student learning achievement

DISCUSSION

Based on the model summary in the table, the probability value (Sig. F change) is obtained at 0.006. Because of the Sig value. F change of 0.006 is smaller than 0.05, so we can reject the null hypothesis (Ho) and accept the alternative hypothesis (Ha). Thus, it can be concluded that physical fitness and nutritional status are simultaneously and significantly related to learning achievement. Nutrition plays an important role in different stages of life and is associated with different nutritional priorities.

The World Health Organization (WHO) says that nutrition is important for health and well-being throughout the life cycle. It is broadly defined as the way animals use food through various processes, such as digestion, absorption, transportation, storage, metabolism, and excretion of nutrients to survive, reproduce, carry out the normal functions of body organs, and produce energy. Therefore, it is important to regulate your diet well to meet the body's energy needs (Annas, 2011). Physical fitness is a person's ability to carry out activities without getting tired and still have sufficient energy sources to overcome fatigue.

Cardiorespiratory fitness, muscle strength, muscle endurance, flexibility, and body composition are five components of physical fitness that are related to health (Ortega, 2008). Physical health is very important for various community activities. Factors related to lifestyle, especially the amount of physical activity carried out every day, greatly influence a person's level of physical fitness. The ability to complete physical tasks in a variety of environments is also known as physical fitness (Basak & Dutta, 2016). Then (Abduh et al., 2020) said that the

better an individual's level of physical fitness will support learning outcomes. Several studies have found that there is a relationship between physical fitness and student learning outcomes (Welis & Afrinaldi, 2021; Asmilyadi & Yendrizal, 2020; Chan, 2021; Miller et al., 2004). Furthermore, it is explained that learning outcomes are related to nutritional status. Nutritional status is a condition where there is balance and adequacy between the nutritional intake received and the body's needs (Par'i, Wiyono & Harjatmo, 2017).

A literature review (Pratama & Winarno, 2022) equally emphasizes the significant relationship between physical fitness and academic achievement in students. Similarly, research (Aprilia & Januarto, 2022) highlights the importance of physical fitness concerning student learning outcomes. Furthermore, research (Destriana et al., 2022; Abadi et al., 2022) provides insight into the relationship between physical fitness and student learning outcomes. These studies collectively underscore the importance of physical fitness and its impact on student learning outcomes in the context of physical education.

The relationship between nutritional status and physical fitness has become a significant concern in various studies. Research (Gultom et al., 2022) highlights the relationship between nutritional status and the ability to perform daily physical tasks. Meanwhile (Rasmin et al., 2023) emphasize the need to explore the relationship between nutritional status, physical activity, type of work, and smoking activity with fitness levels. Citation (Lu et al., 2022) explores trends in physical fitness and nutritional status among school-aged children. The relationship between nutritional deficits and physical performance in the elderly has been explored and revealed mixed findings in the literature (Lu et al., 2021). Furthermore, the relationship between 25(OH)D status and changes in performance and physical strength in older adults has been investigated, thus clarifying the impact of nutritional factors on physical abilities (Houston et al., 2012). The importance of nutrition education and its influence on body composition and physical performance has been highlighted in various studies (Sánchez-Díaz et al., 2020). The role of depression as a mediator in the relationship between nutritional status and physical and mental quality of life in the elderly has been investigated, showing the direct impact of nutritional status on physical and mental well-being (Nho & Kim, 2022).

Previous research has explored various aspects, including the impact of nutritional status on physical fitness. Factors such as body mass index (BMI), dietary intake, and micronutrient deficiencies have been studied in terms of their impact on physical fitness (Nhantumbo et al., 2013). The role of nutritional counseling and dietary interventions in improving fitness levels and overall health has received attention, emphasizing the importance of a balanced diet in supporting physical well-being (Knox A et al., 2004). The relationship between nutritional status and certain health conditions, such as asthma, has also been studied, highlighting the impact of dietary factors on the management of health problems (Šćepanović et al., 2013). Additionally, the impact of the COVID-19 pandemic on nutritional status and fitness levels has been an area of recent exploration, with research investigating the relationship between malnutrition, obesity, and physical well-being in the context of the pandemic (Fedele et al., 2020). Overall, theories of fitness and nutritional status encompass a variety of factors, including dietary intake, physical activity, micronutrient deficiencies, and their collective influence on an individual's physical fitness and overall health.

The implications of this research can help universities in designing and implementing more effective health programs for Physical Education students. This includes physical training programs, nutritional health services, and the provision of adequate sports facilities. Then Physical Education students can become more aware of the importance of maintaining physical fitness and good nutritional status to improve their learning outcomes. These implications may motivate them to take more proactive steps regarding their health. Educational institutions may consider integrating education about physical health and nutrition into their curricula. This will help students understand the relationship between their health and academic

performance. The results of this research can underscore the importance of a holistic well-being approach in higher education. Focus not only on academic aspects but also on students' physical and mental health. The implications of this research may also pave the way for further research on how certain interventions can influence physical fitness, nutritional status, and student learning outcomes in more detail.

Research recommendations for the development of an integrated fitness program by designing a fitness program that is tailored to the needs of Physical Education students and providing adequate facilities and time for routine physical activities. Furthermore, holding workshops on balanced nutrition and its impact on academic and physical performance and providing healthy food options in the campus canteen. Then carry out regular fitness and nutritional status assessments as part of the curriculum. Uses data from assessments to adjust learning and fitness programs and also collaborates with nutrition and fitness experts to provide input on fitness and nutrition education programs on campus. After that, apply learning methods that integrate physical activity to improve concentration and understanding of the material. Provide access to nutrition and fitness counseling for students who need it. Encourage activities that support mental health, which is also important for optimal learning outcomes.

As a recommendation for researchers to further study, examine the influence of other variables such as age, gender, and background on the relationship between fitness, nutritional status, and learning outcomes and conduct a study of fitness and nutritional status on the learning outcomes of physical education students over a longer time (Kurniawan & Farapti, 2021). Then examine the psychological impact of fitness and good nutritional status, such as increasing self-confidence and motivation, on learning outcomes (Lolowang et al., 2023). It further examined the long-term influence of physical fitness and nutritional status on academic and career success after graduating from a physical education program (Ghimire et al., 2018). By considering these recommendations for further study, researchers can help develop effective interventions and educational strategies that will improve physical education student learning outcomes through improving fitness and nutritional status.

CONCLUSION

The research data analysis results indicate that, with an effectiveness level of 24.10%, there is a direct and significant relationship between students' learning achievement in the physical education study program at FKIP Riau Islamic University and their nutritional status and physical fitness. These findings have significant ramifications for educational settings, particularly for study programs involving physical education. Learning results can be enhanced by encouraging pupils to maintain their ideal levels of physical fitness and nutrition. To enhance students' academic performance, educational institutions are advised to think about including physical fitness and nutrition education programs in the curriculum.

This research concludes that efforts to improve the physical fitness and nutritional status of physical education students must be prioritized in the educational environment. Implementing an integrated fitness program and balanced nutrition education can provide great benefits in supporting optimal learning outcomes and improving the quality of physical education. However, it is important to note that the resources and programs implemented must be appropriate to the needs and characteristics of the physical education student population in question. Additionally, further research is needed to explore specific aspects that may moderate the relationship between fitness, nutritional status, and learning outcomes.

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