

**UNDERSTANDING THE LINK BETWEEN NUTRITIONAL STATUS  
AND PHYSICAL FITNESS LEVEL AMONG STUDENTS:  
BUILDING FOUNDATION FOR HEALTH**

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**Abstract**

*This research is based on the field reality, particularly in Elementary School 04 Kajai, Pariaman City, where the level of student's physical fitness is still low. There are many factors that contribute to this, and one of the suspected factors is the student's nutritional status. The purpose of this study is to investigate the relationship between student's nutritional status and physical fitness, specifically in Elementary School 04 Kajai, Pariaman City. The research design used in this study is correlational. The population of this research consists of 72 students from Elementary School 04 Kajai, Pariaman City. The sampling technique employed was purposive sampling, resulting in a sample size of 39 students, consisting of 24 male students and 15 female students. This study utilizes primary data obtained from measurements of nutritional status and physical fitness tests, as well as secondary data from school archives. The data collection instruments include measurements of nutritional status based on Body Mass Index (BMI) and physical fitness tests such as a 40-meter run, bent-arm hang, sit and reach, standing long jump, and a 600-meter run. The data was analyzed using correlational statistics through SPSS version 10.0. The research findings indicate that (1) the correlation between nutritional status and physical fitness of male students is  $(r_{xy}) 0.219 < r_{tab} (0.404)$ , (2) the correlation between nutritional status and physical fitness of female students is  $(r_{xy}) 0.220 < r_{tab}(0.514)$ . Based on the research findings, it can be concluded that there is no significant relationship between nutritional status and physical fitness level among both male and female students at Elementary School 04 Kajai, Pariaman City.*

**Keywords:** *Nutritional; Level of Physical Fitness; Students*

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**INTRODUCTION**

Health and well-being of students are of utmost importance in the context of education. One key aspect of health is the nutritional status and physical fitness

level of students. Good nutritional status has a positive impact on students' physical fitness, enabling them to engage in daily activities optimally.

This research focuses on Elementary School Negeri 04 Kajai, located in East Pariaman Subdistrict, Pariaman City. Through this study, we will explore the relationship between nutritional status and the level of physical fitness among students in this school. The aim of this research is to understand whether there is a significant relationship between nutritional status and the level of physical fitness among students at Elementary School Negeri 04 Kajai.

Nutritional status includes important aspects such as nutrient intake, diet balance, and the quality of food consumed by students. Physical fitness includes physical abilities such as strength, endurance, and body flexibility. In this study, we will examine whether there is a correlation between students' nutritional status and their level of physical fitness

Previous studies have indicated that poor nutritional status can have a negative impact on students' physical fitness. For example, nutritional deficiencies can reduce muscle strength and stamina in students, which affects their performance in physical activities. Therefore, it is important for us to understand the relationship between nutritional status and physical fitness among students at SD Negeri 04 Kajai. Through this research, we hope to uncover scientific evidence that supports the correlation between nutritional status and the level of physical fitness.

Physical fitness is a valuable condition for every student in their daily life (Bandy 2011). Especially in participating in lessons, as it will have a positive impact on the students' learning outcomes. Physical fitness is not only a crucial key to having a healthy body but also the foundation for dynamic and creative intellectual activities (Build 2016). Physical fitness is a condition that reflects a person's ability to engage in meaningful activities (Sujoko and Saputra 2021)

Physical fitness is the functional capacity that can enhance the quality of life (Noviardila 2020). Exercise physiologists state that physical fitness is a

quantitative expression of an individual's physical condition(Booth, Roberts, and Laye 2012). Physical fitness can be defined as an individual's ability to perform specific tasks that require muscular work, where speed and endurance are the primary criteria. Physical fitness is the capacity of a person to engage in physical activities without experiencing significant fatigue and still having reserve capacity for subsequent activities.(Saputra et al. 2022).

The function of physical fitness is to develop the abilities, creative power, and self-resilience of each individual, which are beneficial for work performance. (Ine Rahayu Purnamaningsih 2021). Physical activity plays a fundamental role in the prevention and treatment of chronic diseases.(Warren et al. 2010). Physical activity is defined as any bodily movement produced by skeletal muscles that results in energy expenditure(Riyanto 2020).

To obtain physical fitness is a programmed, structured, and planned physical activity program(Ni'mah and Melisa 2021). Besides that, eating good nutritious food, resting, sleeping, relaxing and maintaining adequate health can maintain and improve the degree of physical fitness.(Nurwulandari et al. nd).

Someone who will do physical activity needs to consume nutritious food(Atmaja, Astra Culture, and Suwiwa 2021). The best health for children is eating foods that contain lots of nutrients such as carbohydrates, fats, proteins, vitamins, minerals, water and the most important thing to note is the balance of these nutrients.(2019 Hanur). If you eat an unbalanced diet, it can lead to malnutrition(Ramadhani and Khofifah 2021). Malnutrition can hinder motivation, sincerity and ability to learn, it can even cause children to become apathetic, physically and mentally exhausted(Nadeac 2022).

Nutrition is a very important factor in improving children's achievement(Jirout et al. 2019). The state of nutrition is said to be good or normal if there is a balance between the necessities of life for nutrients and the food they consume(Marshall et al. 2022). The human body also really needs nutrients to obtain energy to carry out daily physical activities, restore body processes and for

growth and development, especially for those who are still growing.(Tardy et al. 2020).

In the Big Indonesian Dictionary, nutritional status consists of the words status and nutrition. Nutritional status is a condition that states the level of a person's nutritional adequacy(Fitriani 2020). while according(Taiyeb et al. 2022)states that, "Nutritional status is the state of health of a group of people caused by consumption, absorption, and use of food nutrients".

The state of healthy nutrition lies in the range of numbers that describe 3 types of physical appearance, namely ideal fat and thin, higher than the fat limit, ideal and thin, does not include healthy nutritional status and is classified as overweight (obese) status(Elia et al. 2010). Evaluation of nutritional status is very important, either to identify whether a person is experiencing nutritional imbalances due to an underlying condition or to assess whether a person is likely to develop pathological conditions due to nutritional imbalances.(Swinburn et al. 2013).

Good and balanced nutrition has an important role in maintaining health and improving one's quality of life. Adequate nutrition provides the energy and nutrients needed by the body to grow, develop and function optimally. Especially during the growth period such as elementary school students, adequate nutrition is an important factor in maintaining health and influencing their level of physical fitness.

Nutritional status refers to the condition of a person's body based on food intake, absorption of nutrients, and use of nutrients by the body. Poor nutritional status, such as a lack of nutrients or excess of certain nutrients, can have a negative impact on the growth and development of children. This can also affect the level of physical fitness of students.

In the context of elementary school students, their nutritional status can be influenced by various factors, including unbalanced eating patterns, unhealthy

food preferences, and a less physically active lifestyle. When the nutritional status is not optimal, the physical fitness potential of students can be disrupted.

Several previous studies have linked nutritional status with the level of physical fitness of students. For example, a study conducted by (Smith, et al. 2018) found that children with poor nutritional status had lower physical performance than children with good nutritional status. Another study by (Johnson, Jones, and Smith 2019) showed that sufficient nutritional intake, including protein, carbohydrates, and vitamins, was positively related to the level of physical fitness in children.

By paying attention to the importance of nutritional status and physical fitness level of elementary school students, this study aims to explore the relationship between nutritional status and physical fitness level of 04 Kajai Public Elementary School, Pariaman Timur District, Pariaman City. Through a deeper understanding of these linkages, it is hoped that effective strategies can be found in improving the nutritional status and physical fitness of students, which will ultimately have a positive impact on their health and achievement in school.

## **METHOD**

This research was conducted with a correlational character which aims to see the relationship between the variables, namely the independent variable (nutritional status) and the dependent variable (physical fitness) of the students of SD Negeri 04 Kajai Kota Pariaman.

The population of this study were 72 students of Public Elementary School 04 Kajai Kota Pariaman consisting of 39 male students and 33 female students. The samples in this study were students in grades IV, V and VI of Public Elementary School 04 Kajai Kota Pariaman. So that the sample in this study was 39 people consisting of 24 male students and 15 female students.

The instrument in this study was a nutritional status test with anthropometric measurements, while the TKJI test was used to see the degree of

physical fitness. The data analysis technique used in this research is descriptive statistics, the goal is to find out the meaning of each variable mathematically

## RESULTS AND DISCUSSION

Processing and analysis were carried out on the relationship between nutritional status (X) and the level of physical fitness (Y). To prove whether the element Nutritional status as an independent variable has a significant relationship to the level of physical fitness, a series of processes (analysis) of data that can be empirically accounted for are needed. The analysis was carried out using the product moment formulation. The details are presented as follows:

### Son

Based on the results of the analysis obtained probability  $0.305 > 0.05\alpha$ , indicating that there is no significant relationship between the two variables significantly. The details can be seen as follows:

**Table 1.** Correlation Analysis of Men's Research Data

Variable	Analysis Statistics	Male Nutritional Status	Men's Physical Freshness
Male Nutritional Status	Pearson Correlation	1,000	.219
	Sig. (2-tailed)	.	.305
	N	24	24
Men's Physical Freshness	Pearson Correlation	.219	1,000
	Sig. (2-tailed)	.305	.
	N	24	24

Based on The table above shows the correlation coefficient between nutritional status and physical fitness level  $r_{xy} = 0.219 < r_{tab} = 0.404$  at a significance level of  $0.05\alpha$ . This means that there is no significant relationship between nutritional status and level of physical fitness. Thus the working hypothesis ( $H_a$ ) proposed cannot be proven.

### Daughter

Based on the results of the analysis obtained probability  $0.431 > 0.05\alpha$ , indicating that there is no significant relationship between the two variables significantly. The details can be seen as follows:

**Table 2.** Correlation analysis of female research data

Variable	Analysis Statistics	Daughter's Nutritional Status	Princess Physical Freshness
Daughter's Nutritional Status	Pearson Correlation	1,000	.220
	Sig. (2-tailed)	.	.431
	N	15	15
Princess Physical Freshness	Pearson Correlation	.220	1,000
	Sig. (2-tailed)	.431	.
	N	15	15

Based on the table above shows the correlation coefficient between nutritional status and physical fitness level  $r_{xy} = 0.220 < r_{tab} = 0.514$  at a significance level of  $0.05\alpha$ . This means that there is no significant relationship between nutritional status and level of physical fitness. Thus the working hypothesis ( $H_a$ ) proposed cannot be proven.

## Discussion

This research was designed to study the relationship and how much the nutritional status contributes to the physical fitness of students, is reflected using the correlational methodology of the two variables above. In its implementation, it uses a paradigm with a morphological concept. The use of this paradigm is intended to facilitate the solving of research problems, because the morphological physiology paradigm is a model of thinking based on changes in physiology in order to achieve a better condition, through patterns of functional adaptation of various elements of physical fitness. Applying a research concept is intended to sharpen research results.

In this study, nutritional status was used as the independent variable while physical fitness was the dependent variable. Maximum ability in this study was obtained based on the results of measurements of nutritional status and physical fitness tests. Based on the test results, the nutritional status and physical fitness of each sample can be determined. The sample consisted of 24 male students and 15 female students at Public Elementary School 04 Kajai Kota Pariaman. After the sampling process was complete, data was collected on the results of calculating Body Mass Index (BMI) and conducting the Indonesian Physical Fitness Test (TKJI) which included running 40 meters, lifting the body for 30 seconds, lying

down for 30 seconds, jumping upright and running 600 meters against research variable.

Based on the measurements, a normality test was carried out. The results show that all data are normally distributed. In this study, correlation analysis was used, bearing in mind that the relationship between the two variables studied was the relationship between nutritional status and physical fitness. With this analysis, it is hoped that it will be able to explain how much the relationship between nutritional status and physical fitness is in the students of SD Negeri 04 Kajai Kota Pariaman.

Based on the analysis, the male sample has a correlation coefficient ( $r_{xy}$ ) 0.219 and female ( $r_{xy}$ ) 0.220, both of which are smaller than the  $r_{tab}$ , and this means that there is no significant relationship between nutritional status and physical fitness in students of Elementary School 04 Kajai Kota Pariaman.

Seeing this fact can be interpreted as an increase in the nutritional status of students is not always in line with an increase in the physical fitness of students, conversely the low physical fitness of students is not always followed by a decrease in the nutritional status of students. This may be caused by several factors, including: (1) The environmental conditions of the students, (2) The educational background of the parents of the students, (3) The economics of the parents of the students, (4) Lack of student motivation, (5) Innate factors since born, (6) students' eating patterns are irregular or wrong, (7) physical activities or sports are carried out too little and (8) facilities and infrastructure are inadequate.

Based on some of the possibilities above, it is better if the teachers of Public Elementary School 04 Kajai Kota Pariaman can choose a good teaching method in giving lessons, it is hoped that this method students can easily or be able to master the subject matter, besides that the Physical Education teacher also needs to pay attention to the level of intelligence, comprehension, and absorb from each such student.



Next according (Henjilito 2019) argues that a person has physical fitness if his organs have efficient strength, ability, ability, and endurance without significant fatigue. They still have energy reserves after activities and can still have a good time.

To improve physical fitness, one of the influencing factors is the nutritional status of students, because the energy used in carrying out elementary school student activities comes from nutrients consumed daily, as stated by (Rismayanthi 2019) namely "the energy that a person uses in carrying out daily movements or activities is obtained from the metabolism of food ingredients or nutrients consumed daily". This means that a person has sufficient energy to carry out activities sourced from the nutrients he consumes. Likewise with the consumption of nutrients needed by students at Public Elementary School 04 Kajai Kota Pariaman.

## CONCLUSION

Based on the results of research on the relationship between nutritional status and physical fitness of students in grades IV, V and VI of SD Negeri 04 Kajai Kota Pariaman, it can be concluded as follows that out of 24 male students it was shown that there was no significant relationship between nutritional status and level of physical fitness at Public Elementary School 04 Kajai Kota Pariaman, as evidenced by the correlation coefficient  $r_{xy} = 0.219 < r_{tab} = 0.404$ , while from 15 female students it was shown that there was no significant relationship between status and level of physical fitness at Public Elementary School 04 Kajai Kota Pariaman, as evidenced correlation coefficient  $r_{xy} = 0.220 < r_{tab} = 0.514$ .

Based on the previous description and the conclusions above, the following suggestions can be put forward; To the school and related agencies in order to improve the ability and functional of teachers to improve the quality of education in the future. Physical education teachers should know the nutritional status of students by measuring the nutritional status of students once a semester and explaining nutritional status to students and parents. Students to be more creative in learning physical fitness, so as to improve physical fitness. To the community,

especially those who live around the school to be able to participate in efforts to support the implementation of school programs, especially those that refer to improving the nutritional status and physical fitness of students, one of which is by paying attention to the bad habits of students in an environment that will interfere with the student's personal health. To other researchers,

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