



## **Relationship Between Physical Fitness Levels And Physical Education Learning Outcomes Of Grade Viii Students**

**Muhammad Renaldi<sup>1</sup>, Lazuardy Akbar Fauzan<sup>2</sup>, Edwin Wahyu Dirgantoro<sup>3</sup>**

<sup>123</sup>Department of Physical Education, Faculty of Teacher Training and Education, Lambung Mangkurat University, South Kalimantan, Indonesia

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### **Abstract**

The purpose of this study is to determine the relationship between the learning outcomes of Physical Education, Sports, and Health (PJOK) of grade VIII junior high school 1 Sungai Tabuk Banjar Regency and the level of physical fitness. This study combines a correlational strategy with a quantitative approach. Using a simple random selection method, a sample of 30 students was selected from a population of 90 students. The Indonesian Physical Fitness Test (TKJI) is used to measure the level of physical fitness of students aged 13 to 15 years, and the results of odd semester report cards are used to collect data on PJOK learning outcomes. Because the PJOK learning achievement data is not normally distributed, the normality test and the Spearman's rho nonparametric correlation test were used to analyze the data. The results showed that although the good group (83%) dominated PJOK's academic achievement, most of the students' physical fitness levels were in the moderate (43%) and poor (47%) categories. Physical fitness levels and PJOK learning outcomes had a strong and substantial positive relationship, according to the findings of the Spearman correlation test, which showed a coefficient value of 0.710 with a significance level of 0.000. According to these results, students are more likely to obtain the best PJOK learning outcomes if they are fitter.

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\*Corresponding email: [2110122310042@mhs.ulm.ac.id](mailto:2110122310042@mhs.ulm.ac.id)

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## INTRODUCTION

The formal education curriculum includes a variety of subjects, including physical education, or PJOK (Imawat & Maulana, 2021). The elementary, middle, and high school curriculum for Physical Education, Sports, and Health (PJOK) emphasizes the application of information obtained from physical exercise according to (Iksan Mulyana et al., 2024) Research is in line with the findings of (Yulia Sari et al., 2024) Every level of education, from elementary school to high school, requires teaching of Physical Education, Sports, and Health (PJOK). Therefore, the goal of physical education is to help children reach their full potential through physical exercise, not just physical activity alone according to (M. Army Akbar et al., 2020) At all levels of education, from elementary school to high school, Physical Education, Sports, and Health (PJOK) is a compulsory course that emphasizes the application of knowledge through physical exercise as a way to learn and build physical abilities. According to (Raibowo & Nopiyanto, 2020) Various psychomotor exercises based on cognitive knowledge are part of physical education, and along with their implementation, individual attitudes and

behaviors such as self-control, discipline, honesty, and sportsmanship as well as their social behavior such as cooperation and consideration for others will change. The ability to perform physical activities without experiencing extreme fatigue and still have enough energy to perform other tasks is known as physical fitness according to (Ghazali Arief et al., 2021). The same opinion was expressed by (Mahfud et al., 2020) Telling physical conditions including being physically fit. Then emphasized by (Wardani & Nurudin, 2020) A person's ability to do tasks as well as possible without experiencing health problems or excessive fatigue is known as physical fitness, therefore When I was teaching assistant at Junior High School 1 Sungai Tabuk, Banjar Regency, there were several students who experienced fatigue during PJOK learning. This is supported by the opinion of (Kapti & Winarno, 2022) who explains why, given the current situation, Indonesians are not physically fit. In the educational environment, physical activity decreases in schools, which causes students to become obese and less motivated to do physical activity, which makes them lazy and lack the stamina to do heavy physical work. Social and emotional skills,

sportsmanship, competitive spirit, and organ function can all be improved with physical fitness (Faqih, 2017). A person or student who does physical activity in the teaching and learning process at school will obtain optimal health and have strong physical endurance, so that they can carry out all their obligations According to (Sukron Fauzi et al., 2023). Learning is a change in attitude caused by personal interaction with input and reactions (Huda & Fawaid, 2023). Learning outcomes are the goals of education (Mahardika et al., 2021). According to (Rahman, 2021) "Student achievement in assessment is a good indicator of the learning outcomes they have achieved in their skill development efforts, which involve cognitive, affective, psychomotor, and mixed abilities. These results are the result of teaching strategies that involve gradual exposure to new information over time, with the aim of encouraging long-term retention of that information."

This study supports the idea that a person's physical work ability increases with their level of physical fitness according to (Dirgantoro & Fauzan, 2021). It can be concluded that Physical Fitness makes a positive contribution to improving body function, health, and

physical work ability that supports the optimization of daily responsibilities and activities.

The purpose of this study was to determine how big or significant the relationship between physical fitness levels and PJOK learning outcomes in students at school, so the author was interested in conducting research on "The Relationship between Physical Fitness Levels and PJOK Learning Outcomes in Class VIII Students of Junior High School 1 Sungai Tabuk, Banjar Regency".

## **METHODS**

Correlational research, a type of quantitative correlation research is the methodology that will be used in this study (Santoso, 2020). According to (Yuniarti, 2022) Sample correlation is a relationship between two or more variables that can be extrapolated to the entire population. In the context of correlation analysis, it will be examined whether the available sample data provides sufficient evidence that the variables and the population from which the sample was taken are related, as well as the strength of the relationship. Population is what is done when someone wants to study all aspects of a research topic (Jeki et al., 2025). The population in this study was ninety eighth grade students of Junior High School 1 Sungai Tabuk, Banjar Regency.

The sample is a portion of the population selected to be used as the main data source in the study (Ansari et al., 2025). The Simple Random Sampling Technique was used in this study, which selected a sample of up to 30 students from the entire population. Each member of the population has an equal chance of being selected as a sample, which is the basic idea behind simple random sampling (Wahab & Junaedi, 2022). The two variables studied in this study are the independent variable (X) physical fitness level and the dependent variable (Y) PJOK learning outcomes. The researcher used the Indonesian Physical Fitness Test (TKJI) for children aged 13 to 15 years as one of the research instruments, along with PJOK learning outcome data.

According to (Arikunto 2010) in (Maulana, 2022) "An instrument is a tool chosen and used by researchers to make their data collection tasks more organized and manageable. The Indonesian Physical Fitness Test (TKJI) for children aged 13–15 years is a tool used to measure physical fitness levels." This test consists of 5 questions, namely a 50-meter running test, a hanging elbow bend test, a 60-second sitting position, a vertical jump and an 800 m run (girls) 1000 m (boys), while the

PJOK learning outcomes use semester 1 report card scores (odd).

### **Participants**

The identification of participants in this study is critical to ensure results that are relevant and representative to the intended population. Participants in this study are grade VIII students Junior High School 1 Sungai Tabuk with the following criteria:

Age: Ranges from 13 to 15 years old (average age of grade VIII students).

Gender: Participants consisted of both males and females.

Education Status: Actively registered as a grade VIII student in the 2024/2025 school year.

Health Status: Have no health conditions that inhibit physical activity.

Socioeconomic Status: Come from a variety of socioeconomic backgrounds.

Special Characteristics: Participants who actively participate in PJOK learning activities at school.

The selection of participants aims to obtain an accurate picture of the relationship between the level of physical fitness and PJOK learning outcomes, especially at the junior secondary education level.

### **Sampling Procedures**

In this study, the participant selection procedure was carried out with the following steps:

#### **Sampling Method:**

This study uses a simple random sampling technique, which is a sampling technique where every individual in the population has an equal chance of being selected. The population in this study is all grade VIII students Junior High School 1 Sungai Tabuk, which totals 90 students. A total of 30 students were randomly selected using a manual lottery or the help of a name shuffling application.

#### **Sample Percentage Participating:**

Out of 90 students, 30 students were randomly selected as a research sample. All selected students expressed their willingness to participate, with a 100% participation rate.

No students voluntarily choose to participate. All participants were the result of a random selection conducted by researchers based on the list of names of all grade VIII students.

#### **Data Collection and Location Settings:**

Data collection was carried out in the Junior High School 1 Sungai Tabuk environment. Physical fitness tests are carried out in the school field using

measurement instruments that are in accordance with standards, while PJOK learning outcome data is obtained from report cards and PJOK teachers' records. Participation in this study is voluntary and does not come with any compensation. The researcher provides explanations to the school, teachers, and students regarding the purpose and procedures of the research, and obtains permission from the principal and parents/guardians of students.

The selection of 30 students from 90 populations was considered adequate for the correlational analysis. The simple random sampling technique increases objectivity and external validity, so that the results of the research can be generalized to the entire population of grade VIII students in the school.

### **Materials and Apparatus**

In this study, the materials and equipment used include:

#### **1. Material: TKJI Test Observation Sheet:**

This sheet is used to record the measurement results of each item in the Indonesian Physical Freshness Test (TKJI) for the age of 13–15 years, which consists of: 50-meter run: measure speed. Bend elbow hanger (pull-up for men/hang for women): measures the strength and endurance of

the arm and shoulder muscles. Lie down for 60 seconds (sit-up): measure the strength of the abdominal muscles. Vertical jump: measures the explosive power of the leg muscles. 800 meters (women) / 1000 meters (men): measures heart and lung endurance. PJOK Value Documentation: The value of student learning outcomes in PJOK subjects is taken from the final semester score obtained from the subject teacher as an indicator of student cognitive achievement. Informed Consent Sheet: Consent sheets are provided to students and guardians to explain the objectives, procedures, and rights of participants in this study. Participation is voluntary with no pressure or reward.

2. Equipment: Stopwatch: Used to measure time in the 50-meter run, 800/1000-meter run, and 60-second sitting duration. Meter/Tape Measure: Used to ensure the accuracy of running distance and measure jump height in the upright jump test. Pull-Up Bar: Used for bending elbow hanging test to measure arm and shoulder muscle strength. Mattress: Used in the seated lie test to provide comfort and safety while students perform movements. Laptops and Calculators: It is used to

input, process, and analyze data using statistical software such as Microsoft Excel or SPSS. Clipboard and Stationery: Used for manual recording of results during the implementation of tests in the field.

3. instrument Reliability: The TKJI test is an official instrument of the Ministry of Youth and Sports of the Republic of Indonesia and has been widely used in physical education research in schools. This instrument has high validity and reliability as a measuring tool for adolescent physical fitness. Before the main implementation, the researcher conducted an initial trial on several students outside the sample to ensure the readiness of the tools and the participants' understanding of the instructions.

### Procedures

This research was carried out by following a systematic procedure, including variable identification, participant selection, researcher roles, and activities carried out by participants. Here are the main elements of the research procedure: Variables Measured: Independent Variables: The level of physical fitness of grade VIII students, which was measured using the Indonesian

Physical Freshness Test (TKJI) with five items: running 50 meters, hanging bent elbows, lying down for 60 seconds, jumping upright, and running 800/1000 meters. Dependent Variables: PJOK learning outcomes obtained from the student's final semester grade, given by the PJOK subject teacher. All participants came from class VIII of Junior High School 1 Sungai Tabuk. They were not divided into experimental or control groups, but were compared based on their physical fitness level and PJOK scores. The purpose of the comparison is to see whether there is a relationship between the two variables. This study did not use random group assignments. The sample was selected using a simple random sampling technique from a total population of 90 grade VIII students, and 30 students were selected as samples.

Each student represents an individual unit of analysis in this correlational research. Researchers play the role of data collectors and analysts. Carry out physical fitness tests directly in the field. Document test results and collect PJOK score data from teachers. Analyze the relationship between the two variables using the correlational statistical method. Before taking the test, participants were given an explanation of the research

objectives and procedures for implementing TKJI. Instructions include: Procedures for the implementation of each test item (running, hanging, sit-up, jumping, etc.). Obligation to wear sportswear. The importance of following instructions for safety and accuracy of results. Participants were also told that test results did not affect their academic scores. Activities Carried Out by Participants: Participants underwent five physical fitness test items during one data collection session, which was carried out in the school field. After the test, the scores of their PJOK learning outcomes are collected from the homeroom teacher or PJOK teacher.

The test time lasts for one day in the schedule of extra-class activities. Participant Consent: Before the implementation of the research, the researcher conveyed the purpose and objectives of the activity to the principal, PJOK teachers, and participants. A letter of approval for participation is sent to the parent/guardian for signature. All participants and guardians are given the right to refuse or withdraw from research activities at any time without any consequences. This approval is not part of the core data collection, but it is important to maintain research ethics.

## RESULT

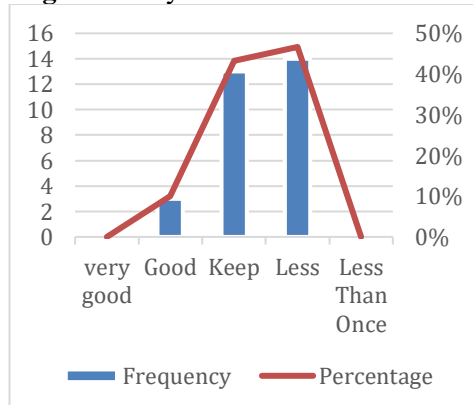
The following information was collected by measuring the physical fitness level of grade VIII students at Junior High School 1 Sungai Tabuk, Banjar Regency, using the Indonesian Physical Fitness Test (TKJI).

**Table 1.** Physical Fitness Level Results

Yes	Category	Frequency	Percentage
1	Very good	0	0%
2	Good	3	10%
3	Keep	13	43%
4	Less	14	47%
Less Than			
5	Once	0	0%
Sum		30	100

The following bar chart provides more specific information about the degree of physical fitness of grade VIII students at Junior High School 1 Sungai Tabuk, Banjar Regency.

**Figure 1.** Physical fitness level bar chart



Based on the above statistical data, "grade VIII students Junior High School 1 Sungai Tabuk, Banjar Regency have a physical fitness level of 0% in the very good category, 10% in the good category, 43% in the medium category, 47% in the poor category, and 0% in the less category."

The following results are based on the analysis of the value of the Indonesian Physical Freshness Test (TKJI) for each item item in grade VIII Junior High School 1 Sungai Tabuk, Banjar Regency.

### 50 Meter Running Test Results

The results of the 50-meter running test for grade VIII students Junior High School 1 Sungai Tabuk, Banjar Regency were obtained as in the following table.

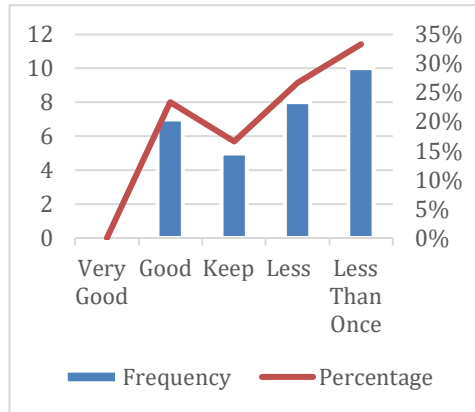
**Table 2.** 50-meter running test results

Yes	Category	Frequency	Percentage
1	Very good	0	0%
2	Good	7	23%
3	Keep	5	17%
4	Less	8	27%
Less Than			
5	Once	10	33%
Sum		30	100

The following bar chart provides more specific information about the results of the 50-meter run.



**Figure 2.** Bar chart of 50-meter running test results



Based on the data above, it can be seen that "the results of the 50-meter running test of grade VIII students Junior High School 1 Sungai Tabuk Regency are (0%) in the very good category, (23%) in the good category, (17%) in the medium category, (27%) in the poor category, (33%) in the less category."

### Results of the Bending Elbow Hanging Test

The results of the bending elbow hanging test for grade VIII students Junior High School 1 Sungai Tabuk, Banjar Regency were obtained as in the following table.

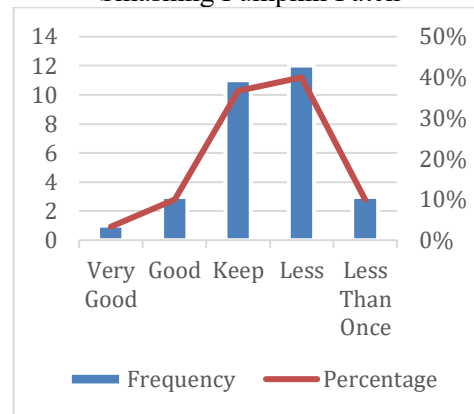
**Table 3.** Results of the Bending Elbow Test

Yes	Category	Frequency	Percentage
1	Very good	1	3%
2	Good	3	10%
3	Keep	11	37%
4	Less	12	40%

Less Than			
5	Once	3	10%
Sum		30	100

The following bar chart provides more specific information about the hanging effect of bending elbows.

**Figure 3.** A Sample of the Results of the Smashing Pumpkin Patch



Based on the data above, it can be seen that "the results of the bending elbow hanging test for grade VIII students Junior High School 1 Sungai Tabuk Kab. Banjar are (3%) included in the very good category, (10%) included in the good category, (37%) included in the medium category, (40%) included in the less category, (10%) included in the less one category."

### 60 Second Sitting Test Results

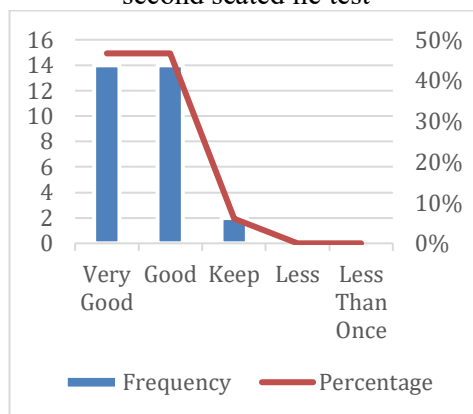
The results of the 60-second sitting test for grade VIII students Junior High School 1 Sungai Tabuk, Banjar Regency were obtained as in the following table.

**Table 4.** 60 Second Sitting Test Results

Yes	Category	Frequency	Percentage
1	Very good	14	47%
2	Good	14	47%
3	Keep	2	7%
4	Less	0	0%
Less Than			
5	Once	0	0%
Sum		30	100

The following bar chart provides a more visual representation of the 60-second sit-down test results data for students at Junior High School 1 Sungai Tabuk.

**Figure 4.** Bar chart of the results of the 60-second seated lie test



Based on the data above, it can be seen that "the results of the 60-second sit-down test for grade VIII students Junior High School 1 Sungai Tabuk Regency, Banjar are (47%) in the very good category, (47%) in the good category, (6%) in the medium category, (0%) in the less category, (0%) in the less category."

## Upright Jump Test Results

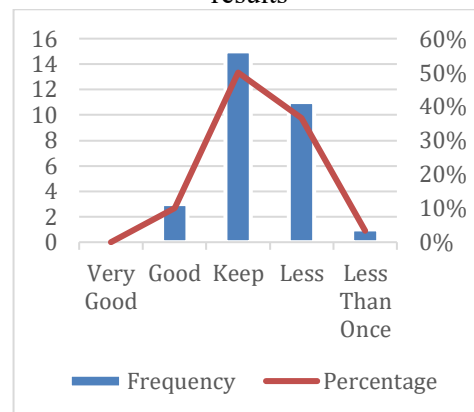
The results of the upright jump test for grade VIII students Junior High School 1 Sungai Tabuk, Banjar Regency were obtained as in the following table.

**Table 5.** Upright Jump Test Results

Yes	Category	Frequency	Percentage
1	Very good	0	0%
2	Good	3	10%
3	Keep	15	50%
4	Less	11	37%
Less Than			
5	Once	1	3%
Sum		30	100

The following bar chart provides a more visual representation of the upright jump test results.

**Figure 5.** Bar chart of upright jump test results



Based on the data above, it can be seen that "the results of the upright jump test for grade VIII students Junior High School 1 Sungai Tabuk Kab. Banjar are (0%) included in the very good category,

(10%) included in the good category, (50%) included in the medium category, (37%) included in the less category, (3%) included in the less category."

### Results of the 800m (Women) 1000m (Men) Running Test

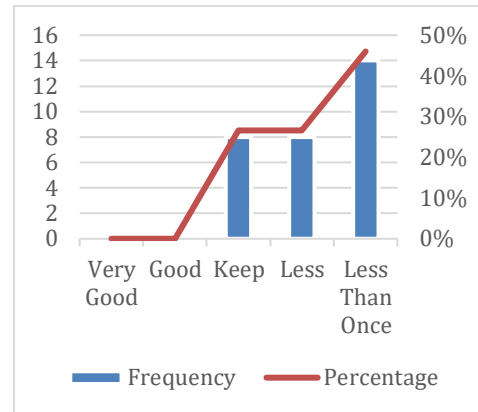
The results of the 800m (women) 1000m (men) running test for grade VIII Junior High School 1 Sungai Tabuk, Banjar Regency were obtained as in the following table.

**Table 6.** Test results 800m (Women) 1000m (Men)

Yes	Category	Frequency	Percentage
1	Very good	0	0%
2	Good	0	0%
3	Keep	8	27%
4	Less	8	27%
Less Than			
5	Once	14	46%
Sum		30	100

The following bar chart provides more specific information about the results of the 800 meters (women's) and 1000 meters (men's) runs.

**Figure 6.** Bar chart of test results 800m (Women) 1000m (Men)



Based on the data above, it can be seen that "the results of the 800m (women) 1000m (boy) running test for grade VIII students Junior High School 1 Sungai Tabuk Regency are (0%) in the very good category, (0%) in the good category, (27%) in the medium category, (27%) in the poor category, (46%) in the category in the least category."

### PJOK Learning Outcomes

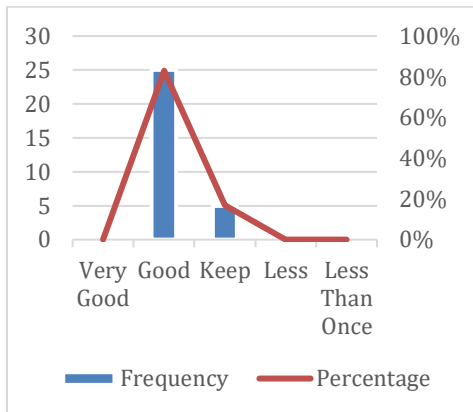
The learning outcomes of PJOK students in grade VIII of Junior High School 1 Sungai Tabuk, Banjar Regency can be seen in the following table.

**Table 7.** PJOK Learning Outcomes

Yes	Category	Frequency	Percentage
1	Very good	0	0%
2	Good	25	83%
3	Keep	5	17%
4	less	0	0%
Less than			
5	once	0	0%
Sum		30	100

More details of the PJOK learning outcomes data for grade VIII students Junior High School 1 Sungai Tabuk, Banjar Regency can be presented graphically in the following bar chart.

**Figure 7. PJOK Learning Results Bar Chart**



The picture above shows that "PJOK learning outcomes (0%) are in the very good category, (83%) are in the good category, (17%) are in the medium category, (0%) are in the poor category, (0%) are in the less than one category."

**Data Analysis**

The relationship between PJOK learning outcomes and the level of physical fitness of grade VIII students Junior High School 1 Sungai Tabuk was known through data analysis in this study. Initial data analysis, including normality tests using SPSS 27.0, was conducted prior to data analysis.

**Table 8.** Normality Test

**Tests of Normality**

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
TKJI						
RESUL	131	0	200	966	0	426
TS						
PJOK						
RESUL	160	0	049	923	0	032
TS						

a. Lilliefors Significance Correction

The normality test uses two statistical methods, namely:

1. Kolmogorov-Smirnov (with Lilliefors correction).
2. Shapiro-Wilk.

According to (Biu, Nwakuya & Wonu, 2019) the Shapiro-Wilk test is more accurate when used on small samples, but the Kolmogorov-Smirnov test is more suitable for larger samples or those with more than 40 in number. (Ahadi & Zain, 2023)

Two sets of data were tested: TKJI results and PJOK results, each with a total of 30 data (df).

**Normality Test Results:**

1. TKJI Results

Kolmogorov-Smirnov:  
significance (sig.) = 0.200

Shapiro-Wilk: Significance (Sig.) = 0.426

The TKJI findings are normally distributed because both Sig. values are greater than 0.05.

## 2. PJOK RESULTS

Kolmogorov-Smirnov:  
significance (sig.) = 0.049

Shapiro-Wilk: Significance (Sig.) = 0.032

Because both Sig. values are below 0.05, the data from the PJOK analysis is not normally distributed.

TKJI Result: Normal

PJOK Results: Abnormal

### Hypothesis Test

To find out whether they accept or reject a hypothesis to answer the question, a researcher might conduct a hypothesis test (Waluyo et al., 2024). Because one of the data is abnormal, the correlation analysis uses the spearman's rho nonparametric correlation alternative, this is supported by the opinion (Nelvidawati & Kasman, 2023) that explains that the variables in this correlation study do not need to be distributed regularly or come from

ordinal data, nor do the data sources used need to be identical.

With the help of SPSS 27.0, this hypothesis test uses nonparametric Spearman's rho correlation. The following table is derived from the results of the calculations carried out.

**Table 9.** Correlation Test  
**Nonparametric Correlations**

		Correlations	
		TKJI RESU LTS	PJOK RESUL TS
Spearman' s rho	TKJI RESUL TS	Correlation Coefficient ,000	710**
		Sig. (2-tailed)	,000
		N	0
PJOK RESUL TS	Correlation Coefficient .710**	,000	
		Sig. (2-tailed)	,000
		N	0

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

### Nonparametric correlation test: Spearman's RHO

Interpretation

Correlation Coefficient ( $\rho = 0.710$ )

The significance value (Sig. = 0.000) is smaller than 0.01, so this relationship is statistically significant at the significance level of 1% (0.01).

**Table 10.** Interpretation of correlation coefficients

Interval coefficients	Relationship level
0,00 – 0,199	Very Low
0,20 – 0,399	Low
0,40 – 0,599	Keep
0,60 – 0,799	Tall
0,80 – 1,000	Very high

(Kuncoro, 2021)

The value  $r = 0.710$  is included in the high requirement according to the interpretation table. Thus, there is a strong relationship between TKJI and PJOK outputs.

## DISCUSSION

### Physical Fitness Level

The results of physical fitness measurements showed that "the majority of students were in the medium and less category: medium category: 43.3%, poor category: 46.7%, none of the students reached the good category once or less once."

This shows that the level of physical fitness of students is still relatively low. It can also be seen from the

results of each TKJI test item: the 50 m running test: "the majority were in the category of less and less once (60%), the bend elbow hanging test: 50% were in the category of less and less once, the 60-second lying down test showed quite good results, with 94% of students in the good and very good category, the upright jump test and the long distance run (800m/1000m) again showed the majority of students in the medium to less category."

This shows an imbalance in the physical fitness component, especially the strength of the abdominal muscles which is better than the endurance and strength of the arm muscles.

### PJOK Learning Outcomes

The learning outcomes of PJOK students were dominated by the "good" category of 83% and "medium" of 17%. No student received "less" or "less" scores. This shows that even though the level of physical fitness is less than optimal, students' academic scores in PJOK subjects are relatively good.

### **Normality Test**

One of the tests used to determine whether the distribution of data in a set of data or variables is regularly distributed is called a normality test (Dodiy Fahmeyzan et al., 2018).

TKJI data is normally distributed (Sig. > 0.05).

PJOK data is not normally distributed (Sig. < 0.05). Because one of the data is abnormal, a nonparametric Spearman's rho test is used.

### **Hypothesis Test (Spearman's rho correlation)**

The results of Spearman's correlation show a coefficient of 0.710 with a significance of 0.000. This means: "There is a strong and significant positive relationship between physical fitness level and PJOK learning outcomes."

### **CONCLUSION**

The results of the study showed that in grade VIII students Junior High School 1 Sungai Tabuk, Banjar Regency, there was a positive and substantial correlation between the level of physical fitness and the learning outcomes of PJOK. Although most of the students' physical fitness is in the moderate to low range, their PJOK learning outcomes are mostly in the good range. The Spearman

correlation test showed a coefficient of 0.710 which indicated a strong relationship, meaning that the better the physical fitness of the students, the more likely they were to achieve higher PJOK learning outcomes. These findings affirm the importance of physical fitness coaching in supporting the achievement of optimal learning outcomes in PJOK subjects.

### **ACKNOWLEDGEMENT**

The author would like to thank the Principal, PJOK teachers, and all parties at Junior High School 1 Sungai Tabuk for providing permission and support during the implementation process of this research. Thank you also to grade VIII students who have been willing to participate in data collection and show enthusiasm in participating in the entire series of physical fitness tests.

Sincere thanks are also addressed to the supervisors who have provided direction, advice, and motivation during the writing process of this article. The author also appreciates the contributions of colleagues who have provided constructive input in the improvement of the manuscript.

Hopefully this research can make a positive contribution to the world of

physical education, especially in understanding the importance of physical fitness to student learning outcomes.

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