



The Relationship Between Arm Muscle Strength And The Ability To Hit A Kasti Ball Of Class V Students Of Inpres Primary School, Skow Mabo Village, Muaratami District, Ta. 2023/2024.

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Abstract

Physical education is part of the general education program which contributes to the overall growth and development of children. Physical education is one of the learning subjects in the elementary school curriculum. Physical education lessons are provided covering various sports and games. One of the small ball sports is the game of rounders. The game of baseball emphasizes excitement and dexterity. The game of rounders is a team sport played by 2 teams and rounders must master the basic techniques of the game, and be in good physical condition including strength, speed, endurance, explosive power, flexibility, balance, coordination, agility, accuracy and good reactions. The game of rounders is one of the games that is really liked by the children of Impres Elementary School, Skow Mabo Village, although sometimes problems often occur because they get into trouble on the field, namely throwing the ball from the field guard because the ball hitter is not fast or not far from the place where he hits the ball, in the end it is replaced. game happens. The aim of this research was to determine whether there was a relationship between arm muscle strength and the ability to hit a baseball in class V of Impres Elementary School, Skow Mabo Village, Muaratami District. The type of research used in this research is correlational research. The method used in this research is a survey method with data collection techniques in the form of tests and measurements.

Keywords: *Arm Muscle Strength, Hitting Ability, Baseball*

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INTRODUCTION

Physical education is a holistic form of learning and seeks to cultivate students from psychomotor, cognitive and affective aspects. Physical education as a medium to encourage self-management, improve physical and psychological development, improve movement abilities, apply moral values and character, maintain personal safety and environmental health, and understand the concept of physical activity and sports in the environment. The physical education learning process includes various sports and games.

Small ball games are one of the games in physical education, which include small ball games, namely table tennis, badminton and rounders. The game of rounders among elementary

school children is no longer strange because it is already popular among children. The game of rounders is a basic game in learning material which includes throwing, catching and hitting. The game of baseball really emphasizes cooperation, fun and agility. Rounders is a team game played by 2 teams. The tools used in the game of rounders are rounders, bats made of wood. The shape of the baseball playing field is rectangular, 60 – 70 meters long and 30 meters wide, and must be marked with a base or 1.5 meter pole and the boundaries of the field. The basic movements of the game of rounders are throwing the ball, catching the ball, throwing the ball, running, tactics and strategy and game rules.

Apart from the techniques and tactics required in this game of rounders, you must also have good physical condition which includes strength, speed, endurance, explosive power, flexibility, balance, coordination, agility, accuracy and good reactions. Infrastructure is very important for learning to take place and learning objectives to be achieved. Complete and adequate facilities and infrastructure make it easier for students to carry out learning and the learning objectives can be achieved optimally. On the other hand, if the facilities and infrastructure are incomplete and inadequate, it will make the learning process difficult and the learning objectives will not be achieved optimally (Wakhid & Islam, 2023).

The availability of facilities and infrastructure at the Inpres Elementary School in Skow Mabo Village, Muaratami District, does not support the learning process, both the field and equipment to support Kasti learning are still inadequate so that learning is often ineffective (Rio Wakhid, 2023). In the process of learning baseball, we often encounter several students who have not mastered hitting skills, students cannot hit the ball well so they hit the ball in the wrong direction. If each student can determine the stroke correctly then his hitting ability will be good. Likewise, there are still many students who cannot throw the ball on target when they become a guard. Given the problems mentioned above, it is necessary to carry out research with the aim of finding out the relationship between arm muscle strength and the ability to hit a baseball at Impres Elementary School, Skow Mabo Village, Muaratami District.

As with the background above, the aim of this research is to find out "Is there a relationship between arm muscle strength and the ability to hit a baseball?" as for the benefits of the research

There are several benefits that can be stated in this research, namely:

1. For researchers, knowing the relationship between arm muscle strength and the ability to hit a baseball for Impres Elementary School Students, Skow Mabo Village, Muaratami District.
2. For students: Can hone students' ability to hit the ball in the game of rounders, can develop students' interest and talent in the game of rounders, can increase students' knowledge regarding their abilities in playing rounders.
3. For Teachers: Knowing students' abilities in hitting in the game of rounders, teachers have the opportunity to play an active role in developing students' skills in the game of rounders.

METHOD

The type of research that will be carried out is correlational research. Correlational research is research conducted to describe the degree of relationship between two quantitative variables (Frankel, 1993). The method used in this research is a survey method with data collection techniques in the form of tests and measurements (Yaskar et al., 2024). This research aims to see whether there is a relationship between arm muscle strength and the ability to hit a baseball at Impres Elementary School, Skow Mabo village, Muaratami District.

Arikunto (2006: 130) states that the population is the entire research subject. Kusumawati (2015: 93) states that population is the totality of research objects which can be humans, animals, plants and objects that have similarities to be used as research data. The population in this study was 60 people. Meanwhile, the sample in this study was a saturated sample, namely 60 people.

RESULTS AND DISCUSSION

Result

The results of descriptive analysis of test data on Arm Muscle Strength with the Ability to Hit a Baseball for Class V Students of SD Inpres, Skow Mabo Village, Muaratami District, Academic Year 2023/2024 can be very valuable information, especially for writers to discuss research results and for the purposes of drawing conclusions. A summary of the results of descriptive analysis in this research can be seen in table 4.1.

Table 1: Descriptive Data on the Relationship Between Arm Muscle Strength and the Ability to Hit a Baseball for Class V Students of SD Inpres, Skow Mabo Village, Muaratami District, Academic Year 2023/2024

Table 1. Descriptive Data

	N	Range	Min	Max	Sum	Mean	Std. Deviation
Arm Muscle Strength	60	22,00	8,00	30,00	1199.00	19,98	6,83
Ability to Hit the Baseball	60	20,50	4.00	24,0	793,85	13,23	5,85

Based on Table 4.1 it can be stated that:

- The overall Arm Muscle Strength data is 1199 push-ups so it has an average of 19.98 or 2 push-ups and a standard deviation of 6.83. Judging from the data distribution, then minimum data is 8 push-ups while the maximum data is 30 push-ups so the range is 22 push-ups.
- The overall baseball hitting ability data is 793.85 meters, has an average of 13.23 meters and a standard deviation of 5.85. Judging from the data distribution, the minimum data is 4 meters while the maximum data is 24.50 meters so the range is 20.50 meters.

Test data normality

Research data that will be analyzed statistically must meet the analysis requirements. For this reason, after the relationship between arm muscle strength and the ability to hit a baseball for class V students at Inpres Elementary School, Skow Mabo Village, Muaratami District, 2023/2024 academic year, was collected, then before carrying out statistical analysis for hypothesis testing, a requirement test was first carried out, namely normality using the Kolmogorov Smirnov test. test at a significance level of 5% or $\alpha = 0.05$ (Faisal Waruhu et al., 2023).

From the results of the Kolmogorov Smirnov test carried out, the results obtained are as attached. The calculation results can be seen in the following summary table:

Table 2. Summary of data normality test results on the relationship between arm muscle strength and the ability to hit a baseball for class V students at Inpres Elementary School, Skow Mabo Village, Muaratami District, Academic Year 2023/2024

Table 2. Summary of data normality test results

No	Variable	statistic	Sig	Inf.
1	Arm Muscle Strength	0,105	0.096	Normal
2	Ability to Hit the Baseball	0.098	0.200	Normal

Based on this table, which is a summary of the results of data normality testing for each research variable, it can be described as follows:

- a. In testing the normality of Arm Muscle Strength data, the probability value = 0.096 was obtained, which was greater than the value = 0.05 or at a significance level of 5%. Thus the arm muscle strength data obtained is normally distributed.
- b. In testing the normality of data on the ability to hit a baseball, the probability value = 0.200 was obtained which was greater than the value = 0.05 or at a significance level of 5%. Thus the data obtained on the ability to hit the baseball is normally distributed.

A hypothesis proposed in this research needs to be tested and proven through empirical data obtained in the field through tests and measurements of all the variables studied. Because this research data follows a normal distribution, to test the research hypothesis, parametric statistical analysis was used using linearity analysis. Linearity analysis aims to determine whether two variables have a significant linear or non-linear relationship. One of the requirements for data to be said to be linear is if the Pvalue is greater than 0.05 ($Pvalue > 0.05$) (Indra Siregar et al., 2024).

Testing the linearity of the Arm Muscle Strength variable on the ability to hit a baseball was carried out to determine whether arm muscle strength and the ability to hit a baseball had a linear relationship or not (Usman et al., 2022). The results of variable linearity testing can be seen in the following table:

Table 3 Linearity Test Results of the Relationship Between Arm Muscle Strength and the Ability to Hit a Baseball for Class V Students of Inpres Elementary School, Skow Mabo Village, Muaratami District, Academic Year 2023/2024.

Table 3. Linearity Test Result				
Variable	Fcount	P	α	Information
Arm Muscle Strength Ability to Hit the Baseball	1,621	0,097	0.05	Linear

Based on the table above, it can be seen that the results of the linearity test of the arm muscle strength variable with the ability to hit the baseball obtained an Fcount value of 1.621 and a linearity value of 0.097, because the linearity value of the data is greater than 0.05 ($0.097 > 0.05$) it can be concluded that arm muscle strength and the ability to hit a baseball have a linear relationship.

The correlation coefficient shows the relationship between the independent variable (arm muscle strength) and the dependent variable (ability to hit a baseball). Based on the results of the Pearson Correlation analysis test between variable These results indicate that there is a correlation

between variable X (arm muscle strength) and variable Y (ability to hit a baseball), which is indicated by a sig (p) value < 0.05 . In addition, the coefficient of determination (R^2) = 0.241 was obtained. This R^2 value shows that the contribution of arm muscle strength to the ability to hit a baseball is 24.1%. Therefore, the ability to hit a baseball is 75.9% influenced by other factors.

Discussion

Based on the results of hypothesis testing, it shows that the hypothesis is accepted, namely that there is a significant relationship between arm muscle strength and the ability to hit a baseball (Febrianto et al., 2022). The results of data analysis and the correlation value between leg muscle strength and the ability to hit a baseball are 0.491. Based on the Colleation test, the significant contribution of arm muscle strength to the ability to hit a baseball is 24.1%, so that the results of data analysis through statistics require a standard theoretical discussion on the theories and theoretical studies of this research. In the ability to hit a baseball, there are many factors that influence it including arm muscle strength, hand eye coordination, balance and so on, but in this study it was proven that arm muscle strength is related to the ability to hit a baseball with a contribution of 24.1%.

CONCLUSION

As a final follow-up to a scientific work, conclusions are drawn. The direction of a clear conclusion can make it easier for readers to understand the essence of the previous problem. The conclusion in this research is that there is a significant relationship between arm muscle strength and the ability to hit a baseball in class V students at Inpres Elementary School, Skow Mabo Village, Muaratami District, Academic Year 2023/2024 with a correlation coefficient of 0.491 with a sig of $0.000 < 0.05$. With the contribution of arm muscle strength to the ability to hit a baseball of 24.1%, and 75.9% is influenced by other factors such as hand eye coordination, balance.

REFERENCES

- Andi Samsudin (2008:2) Dalam Pembelajaran Pendidikan Jasmani Dan Kesehatan Umum. Yogyakarta: IKIP Yogyakarta.
- Bawa, A.A.W. (2018). Pendidikan Jasmani, Olahraga, dan Kesehatan. Solo: PT Tiga Serangkai.
- BSNP (2006/2007). Pendidikan Jasmani Olahraga dan Kesehatan. Jakarta. Depdikbud. (1995/1996). Pengajaran Permainan di Sekolah Dasar. Jakarta.

- Depdiknas Balitbang (2002), Kurikulum Berbasis Kompetensi; Rumpun Pelajaran Pendidikan Jasmani, Jakarta, Depdiknas.
- Faisal Waruhu, A., Sagala, R., Yusril Mahendra, A., Averina, L., & Kepelatihan Olahraga, P. (2023). Effects of Arm Muscle Training on Hand Back Strokes on the Tennis Court. *Jurnal Pendidikan Jasmani (JPJ)*, 4(2). <https://jurnal.stokbinaguna.ac.id/index.php/JPJ/article/view/1564/947>
- Febrianto, D., Resita, C., Gustiawati, R., Kesehatan, P. J., Rekreasi, D., Keguruan, F., & Pendidikan, I. (2022). The Effect of Traditional Games on Cooperation in Class VIII Junior High School 4 Purwadadi. *JPJ*, 3(2), 2723–2816. <https://jurnal.stokbinaguna.ac.id/index.php/JPJ/article/view/660/531>
- Ghozali, I. (2013). Aplikasi Analisis Multivariate dengan Program IBM SPSS 21 Update PLS Regresi. Semarang: Badan Penerbit Universitas Diponegoro.
- Harsono, (2018). Latihan Kondidi Fisik. Bandung: PT Remaja Rosdakarya Offset.
- Husdarta (2009) Manajexmen Pendidikan Jasmani, Penerbit. Alfabeta. Bandung.
- Indra Siregar, Y., Arima, P., Kepelatihan Olahraga, P., Ilmu Keolahragaan, F., Negeri Medan, U., William Iskandar Ps, J. V, Baru, K., Percut Sei Tuan, K., & Deli Serdang, K. (2024). Effect Of Ladder Drill And Saq Training (Speed, Agility, And Quikness) On Speed Running For Unimed Female Athletes Hockey Club. *JPJ*, 5(1). <https://jurnal.stokbinaguna.ac.id/index.php/JPJ/article/view/2199/1320>
- Irianto, D.P (2002) “Dasar Kepelatihan Olahraga”. FIK UNY
- Kementrian Negara Pemuda Dan Olahraga, (2005). Panduan Penetapan Parameter Tes Pada Pusat Pendidikan dan Pelatihan Pelajar dan Sekolah Khusus Olahragawan. Jakarta: Kementrian Negara Pemuda dan Olahraga Republik Indonesia.
- Kravitz, L. (2001), Panduan Lengkap Bugar Total. Divisi Buku Sport PT Rajagrafindo Persaja Jakarta.
- Kristiyandaru, A. (2010). Manajemen Pendidikan Jasmani dan Olahraga. Surabaya: Unesa University Press.
- Kurniadi, D dan Prapanca,S.(2010).BSE.Pendidikan Jasmani Olahraga dan Kesehatan untuk SD/MI Kelas V. Jakarta: Pusat PerbukuanKementerian Pendidikan Nasional.
- Kurniadi, D & Prapanca, S. (2010). Penjas Orkes, Untuk Sekolah Dasar/Madrasah Ibtidaiyah Kelas V. Jakarta: CV Thursina.
- Mitranto, E. S dan Slamet. (2010). Penjas Orkes Untuk SD/MI Kelas IV. Jakarta: CV Adi Perkasa 55.
- Muhajir (2017). Pendidikan Jasmani, Olahraga, dan Kesehatan.Jakarta: Pusat Kurikulum dan Perbukuan, Balitbang, Kemendikbud.
- Nurhasan. (2005). Aktivitas Kebgaran Jakarta: Depdiknas.
- Rio Wakhid. (2023). The Influence of Traditional Sports Invitation on Interest in Learning Physical Education Junior High School Students in Jayapura City. *Journal of Physical Education*, 12(2), 187–193. <http://journal.unnes.ac.id/sju/index.php/peshr>
- Sutrisno, H. (2004). Analisis Regresi. Yogyakarta.
- Suharsimi, A. (2010). Prosedur Penelitian Suatu Pendekatan Praktek. Jakarta: Rineka Cipta.
- Usman, K., Karo-Karo, D., Silalahi, W., & Irfan, M. (2022). Outcome Based Education Design in Elementary School Physical Education Lectures. In *JPJ* (Vol. 3, Issue 2). Online. <https://jurnal.stokbinaguna.ac.id/index.php/JPJ/article/view/668/512>
- Widiastuti, 2015.Tes Dan Pengukuran Olahraga. Jakarta: Pt Raja Grafindo Persada Wikipedia Ensiklopedia Bahasa Indonesia.

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- Wakhid, R., & Islam, H. (2023). Invitasi Olahraga Tradisional Tingkat Smp Di Kota Jayapura 2023. *Communnity Development Journal*, 4, 7816–7822. <https://Journal.Universitaspahlawan.Ac.Id/Index.Php/Cdj/Article/View/19116/13942>
- Yaskar, W., Usman, A., & Suyudi, I. (2024). The Influence Of Kinesthetic Perception, Balance, Ankle Coordination And Motivation On Players' Drifting Skills Luwu Football School 2020. *JPJ*, 5(1). <https://jurnal.stokbinaguna.ac.id/index.php/JPJ/article/view/2694/1327>