

The Relationship Between Leg Muscle Strength and The Ability of The Pencak Silat Sickle Kick

Kurniawan Firdaus, Jufrianis

Universitas Pahlawan Tuanku Tambusai, Indonesia

*Corresponding Author: krnwnfds01@gmail.com

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Abstract

Background and Aim. physical components such as leg muscle strength play an important role in determining the effectiveness of kicking techniques, particularly the sickle kick. However, the relationship between physical strength indicators and kicking ability is still not fully understood. Therefore, this study aims to determine the relationship between leg muscle strength and the ability to perform sickle kicks among Muhammadiyah Bangkinang Middle School students.

Methods. This study uses a multiple correlation research design. The population consisted of 22 students, and the sampling technique employed was total sampling. Data were collected through observation, literature study, and test or measurement techniques. Data analysis was conducted using correlation tests to examine the relationship between variables with interval or ratio data.

Results. The results indicate a significant relationship in the opposite direction between vertical jump performance and sickle kick ability, with a correlation coefficient of 0.579. The significance value (Sig. 2-tailed) is smaller than $\alpha = 0.001$ ($0.000 < 0.001$), with a contribution percentage of 80%.

Conclusion. There is a significant and inverse relationship between vertical jump performance and sickle kick ability among Muhammadiyah Bangkinang Middle School students.

Keywords: *Fighting Arts; GTFA, Institution; Institutionalisation; Organisation; Physical Culture.*

1. Introduction

Sports is an activity that is widely carried out by a person, both from young to elderly, now sports are no longer underestimated but have become an activity that is often done by the community. Because sports have become part of people's lives.

Exercise is an activity that has become a need for a person, because with regular, measurable, and directed exercise, it will make a person's soul and body healthy and strong. Sports are not only for health, but as a means of education and achievement. Sports are always used to improve the physical quality of humans by maintaining health, fitness and achieving high achievements in order to make the nation proud.

Law of the Republic of Indonesia No. 3 of 2005 concerning the National Sports System article 25 paragraph 4 reads as follows "Coaching and development of sports is carried out through the stages of sports introduction, guidance, as well as talent development and achievement improvement and also explains that national sports aims to maintain and improve health and fitness.

Based on the description of the article above, one of the sports coaches is pencak silat. Pencak silat is a sport that requires elements of strength, endurance, coordination, and mastering good and correct techniques. Pencak silat is one of the sports that is favored by the public to protect themselves from the dangers that come.

Kicks are very powerful foot attacks in dealing with opponents, because they have greater power and a longer range compared to punches. To support to achieve the desired goal, good and correct strength training is needed. So that the speed of the kick can be done well during practice and matches.

The need for good physical condition is due to the intensity of the movement when performing attack techniques in pencak silat is very high, such as doing leg attacks, namely kicks, especially scythe kicks. Physical condition is also one of the requirements for an athlete, especially pencak silat athletes and also physical condition can be said to be an achievement sport.

According to Hanif (2015) Training or training is a systematic process of practicing or working, which is carried out repeatedly, with increasing the amount of training or work load day by day. Systematic is, planned,

according to a schedule, according to a specific pattern and system, methodical from easy to difficult, regular exercises, from simple to more complex. Likewise, Fox and Bowers are of the same view, that exercise is a physical activity training program designed to improve some skills and increase a person's energy capacity in special activities.

Harsono in Amrullah (2015) "training is a systematic process rather than practicing or working together repeatedly, with increasing the burden or work day by day". while according to Ulfah (2019) Training is a systematic process to improve physical quality and aims to improve sports performance.

2. Materials and Methods

The type of research used in this study is the correlational research method. According to Sugiyono (2012), correlational research is a study that aims to determine the relationship between two or more variables. In this study, the free variable is the strength of the leg muscles and as the bound variable (Y) is the ability of the Sickle Kick.

3. Results and Discussion

Result

The description of the research data is intended to provide an overview of the variables or samples studied, the results of this study are data obtained through a series of tests and measurements on 22 samples, namely Muhammadiyah Bangkinang Junior High School which took the *vertical jump* test, and the sickle kick.

Table 1 Vertical Jump Description

Statistics		
Vertical Jump		
N	Valid	22
	Missing	0
Mean		62.32
Std. Error of Mean		1.562
Median		59.00
Mode		59
Std. Deviation		7.325
Variance		53.656
Range		25
Minimum		47
Maximum		72

The descriptive statistical *vertical jump* can be seen as a minimum of 47, a maximum of 72, an average of 25, a variance of 53,656, and a standard deviation of 7,325.

Table 2 Vertical Jump Frequency Distribution Test

Vertical Jump					
		Frequency	Percent	V alid Percent	Cumulative Percent
V alid	4	2	9.1	9.1	9.1
	7	11	50.0	50.0	59.1
	5	5	22.7	22.7	81.8
	8	4	18.2	18.2	100.0
	2	4	18.2	18.2	100.0
T otal		22	100.0	100.0	

Frequency distribution of 22 samples, as many as 2 samples had a relative frequency of 9.1% with an interval range of 46-47, 11 samples had a relative frequency of 50% with an interval range of 58-59, 5 samples had a relative frequency of 22.7% with an interval range of 67-68, 4 samples had a relative frequency of 18.2% with an interval range of 71-72.

The percentage of *vertical jump* was as many as 2 people in the sample had a relative frequency of 9.1% with a range of 46-47, 11 people in the sample had a relative frequency of 50% with an interval range of 58-59, 5 people in the sample had a relative frequency of 22.7% with an interval range of 67-68, 4 people in the sample had a relative frequency of 18.2% with an interval range of 71-72.

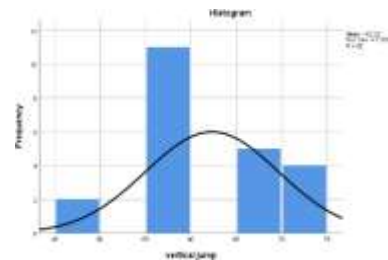


Table 3 Description of Sickle Kick Data

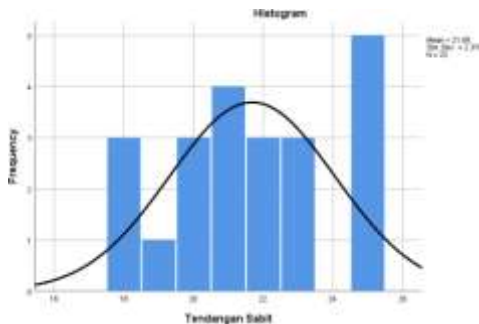
Statistics		
Sickle Kick		
N	Valid	22
	Missing	0
Mean		21.68
Std. Error of Mean		.507
Median		21.50
Mode		25
Std. Deviation		2.378
Variance		5.656
Range		7
Minimum		18
Maximum		25

The descriptive statistics of the sickle kick can be seen as a minimum of 18, a maximum of 25, an average of 7, a variance of 5.656, and a standard deviation of 2.378.

Table 4 Frequency of Sickle Kicks

Sickle Kick					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	3	13.6	13.6	13.6
	19	1	4.5	4.5	18.2
	20	3	13.6	13.6	31.8
	21	4	18.2	18.2	50.0
	22	3	13.6	13.6	63.6
	23	3	13.6	13.6	77.3
	24	5	22.7	22.7	100.0
	Total	22	100.0	100.0	

Frequency of Sickle Kick as many as 3 people sample had a relative frequency of 13.6% with an interval range of 17-18, 1 sample person had a relative frequency of 4.5% with an interval range of 19, 3 sample people had a relative frequency of 13.6% with an interval range of 20, 4 sample people had a relative frequency of 18.2% with an interval range of 21, 6 sample people had a relative frequency of 13.6% with an interval of 22-23, The 5 sample people had a relative frequency of 22.7% with an interval of 25.



3 sample people had a relative frequency of 13.6% with an interval range of 17-18, 1 sample had a relative frequency of 4.5% with an interval range of 19, 3 sample people had a relative frequency of 13.6% with an interval range of 20, 4 sample people had a relative frequency of 18.2% with an interval range of 21, 6 sample people had a relative frequency of 13.6% with an interval of 22-23, 5 sample people had a relative frequency of 22.7% with an interval of 25.

Table 5 Normality Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		22
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	1.93920497
Most Extreme Differences	Absolute	.178
	Positive	.178
	Negative	-.079
Test Statistic		.178
Asymp. Sig. (2-tailed)		.067c

About the results of the normality test using the *One-Sample Kolmogorov-Smirnov Test*. It can be seen that the value of the sig results in the vertical jump and sickle kick is $0.067 > 0.05$. So it can be concluded that it is normally distributed.

Table 6 Homogeneity Test

Test of Homogeneity of Variances					
		Levene Statistic	df1	DF2	Sig.
Vertical Jump	Based on Mean	23.252	1	42	.000
Sickle Kick	Based on Median	7.859	1	42	.008
	Based on Median and with adjusted df	7.859	1	23.111	.010
	Based on trimmed mean	24.854	1	42	.000

About the results of the homogeneity test using the *test of homogeneity of variances*. It can be seen that the value of the result of the sig on dribbling and eye-foot is $0.00 > 0.05$. Therefore, it can be concluded that there is no homogeneity distribution.

Table 7. Hypothesis Test

Vertical Jump	Pearson Correlation	1	.579**
	Sig. (2-tailed)		.005

	N	22	22
Sickle kick	Pearson Correlation	.579**	1
	Sig. (2-tailed)	.005	
	N	22	22

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

about the results of the correlation test using *correlations*. It can be seen that the value of the result of the sig on the Vertical Jump and the sickle kick is 0.579. So it can be concluded that there is a very, very low relationship between vertical jump and sickle kick.

Discussion

This research started from the vertical jump which was carried out in September. This research took 1 month to be conducted at Muhammadiyah Junior High School, Bangkinang District, Kampar Regency, Riau Province. A total of 22 people sampled.

From the results of the hypothesis test that shows a relationship between vertical jump and sickle kick. From the results of the test of the sickle kick hypothesis there is a value of 0.579 which means that the coordination contribution is sufficient between the vertical jump to the sickle kick so that it can be concluded that there is a relationship between the vertical jump and the sickle kick.

From the results of previous research (Sefri Hardiansyah, 2019), "The Contribution of Endurance, Strength and Explosiveness of Leg Muscles to Athletes' Front Kick Ability

Pencak Silat UNP Sports Activity Unit". The results of the study: (1) The endurance of leg muscle strength contributed by 22.9%, (2) the explosive power of the leg muscles contributed by 21.3%, (3) the endurance of the strength and explosiveness of the leg muscles together contributed by 31%.

Then (Anse, 2017), "The Relationship between Leg Muscle Power and Pencak Silat Straight Kick Ability at the White Shield Club, East Kolaka Regency". The results obtained from the hypothesis test are that the strength of the leg muscles has a relationship with the ability of straight kicks, where $r_{xy} = 0.65$ is greater than the r table in the alpha (0.05: 20) = 0.444 and belongs to the high category with a determinant of 42%. From the results obtained, it can be concluded that there is a significant relationship between the leg muscles and the ability of pencak silat straight kicks in the White Shield Club, East Kolaka Regency.

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