



Pencak Silat Front Kick Speed Reviewed From Leg Length and Leg Power (Correlation Study on Pencak Silat Extracurricular Students MTs Sudirman Jatiyoso)

Bibit Waluyo^{1*}, Eko Sudarmanto²

^{1,2} Sports Education, Teacher Training and Education Faculty, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

Article Info

Article History :

Received : January 2023

Revised : March 2023

Accepted : March 2023

Keywords:

Front Kick Speed,
Leg Length,
Leg Power,
Pencak Silat

Abstract

The purpose of the research is to find out how big the speed of the front kick of martial arts is reviewed from the length of the legs and the power of the legs of the Pencak Silat extracurricular students at MTs Sudirman Jatiyoso. The population of this study was 20 extracurricular students of pencak silat MTs Sudirman Jatiyoso. Sampling in this study used the total sampling method, which is to take a sample as a whole, with condition 1). Attendance above 80% and 2) Included in the two teams that have participated in the match, so that 20 MTs Sudirman Jatiyoso were obtained as research samples. The variables of this study are Limb Muscle Power and Speed. The data collection method uses the sports measurement test method. The data were analyzed using descriptive statistics and the computerized system of the SPSS 16.00 program. The results of data processing and analysis, the author concludes that: 1). From the results of the analysis of Pearson correlation calculation data between limb power and front kick results in extracurricular martial arts painters obtained the value r count (r_o) = 0.082 ($P < 0.05$), Then H_0 is rejected and H_1 is accepted means that there is a significant relationship between Limb Power and Front Kick results in Extracurricular martial arts painters. 2). From the results of Pearson's correlation calculation analysis between Kecepatan and Front Kick in martial arts extracurriculars, the value r count (r_o) = 0.913 ($P < 0.05$), Then H_0 is rejected and H_1 is accepted means that there is a significant relationship between Speed and Front Kick in martial arts Extracurriculars in MTs Sudirman Jatiyoso. 3). From the results of the analysis of Power Limb and Speed data obtained 0.890 ($P < 0.05$), it means that there is a significant relationship between Power Limbs and Speed to Front Kicks in martial arts extracurriculars at MTs Sudirman Jatiyoso.

INTRODUCTION

Indonesia is a country rich in nature, rich in art, culture, one of the ancestral cultural arts of this country is martial arts. A "martial art" that has long been known to the people of ancient times before this nation existed. Martial arts is not just a technique or move aimed at knocking down an opponent, defeating an enemy, or just a move to shut down an opponent. For in martial arts there is a more important value, namely race a thank God Almighty, and acknowledge His greatness, majesty. Pencak silat in Indonesian history is a martial arts sport native to the cultural heritage of the Malay community (Aziz, Tan, & Teh, 2002; Subekti et al, 2021). The words pencak and silat became compound words for the first time when an organization of unity and martial arts colleges and martial arts colleges in Indonesia was formed which was named the Indonesian Pencak Silat Association, abbreviated as IPSI in 1948 in Surakarta et al, 2018.

Recently, martial arts has become popular in various countries such as in Asia, America, Australia, Europe and in various other foreign countries. It is proven that in various championships many martial artists from various countries participated in the competition arena. In addition, there are many martial arts championships at the ASEAN level and even the world level, where in the championships there are always many enthusiasts ranging from children, teenagers, to the elderly. At the Asean Game level, in 2002 martial arts was included in the agenda of the Sport Cultural Event di Busan South Korea. And for now, martial arts has been included in the educational curriculum in

schools. In addition, martial arts is a sport that has quite a lot of uses, including for martial arts, health, and also for achievement. His high achievement in martial arts is something that every martial artist yearns for, including students of Siswi Extracurricular Pencak Silat MTs Sudirman Jatiyoso. To achieve high achievements, various conditions are expected to be met. In an effort to obtain high achievements, a martial artist must have good physical, technical, tactical, and mental characteristics.

Many novice martial artists have always practiced martial arts kicks at one of the martial arts colleges, but the results achieved have not been optimal. Some novice martial artists who perform exercises are not able to optimally prove their achievements. Many martial artists have imperfect physical abilities and techniques, such as weak limb power when they attack with kicks, tank techniques and the ability to use an opponent's weaknesses to counterattack because they do not have sufficient kicking speed. The length of the limbs that are owned also helps to reach the target so that it supports the ability to kick in the sport of martial arts. Although the martial artists have good kicking techniques, but not supported by limb power will make it difficult to perform 6 moves to the maximum. Kicks in martial arts must be carried out hard accompanied by the ability to reach the target so that the opponent is difficult to do the tanking and avoid. Kicks that are done weakly due to insufficient limb power accompanied by short limbs, will be easily anticipated by the opponent by tanking, avoid onent to counterattack quickly and suddenly. According to the Sacred Site martial arts coach at MTs

Sudirman Jatiyoso, there has been no contribution of achievements in a martial arts championship given by martial arts extracurricular students, this is because most of the students who take part in extracurricular activities are students who are new to the basic martial arts techniques (Nugroho et al. 2021). So in this case, the coach only gives exercises on basic martial arts techniques, without paying attention to the training of the student's physical condition such as power limbs (Lubis and Wardoyo 2014; Rozalini and Rahmat 2020). Limb power can affect the speed of the front kick because the power of the limbs can be used to support the mobility of the contracting muscles and joints that work when doing the front kick in martial arts (Iswanto & Wahyudi, 2018; Suhardinata & Indrahti 2021). If the leg muscles are strong enough, it will support the effectiveness of kick movements in martial arts sports. In addition, the coach also pays less attention to the high physical condition of the student's low posture, usually students who are tall followed by long limbs and vice versa (Fatoni, et al, 2019; Suyudi, et al, 2020). The length of the limbs affects the speed of the Front kick, because the longer the student's limbs, the farther the student's ability to kick in martial arts sports and vice versa (Aziz et al. 2002; Soo et al. 2018).

Therefore, a martial arts coach is basically required to not only give exercises in basic martial arts techniques but also power, and pay attention to the short length of a student's limbs. In addition, there are many other factors that affect the speed of the front kick. The length of the limbs, the power of the limbs and the speed of the front kick between each other seem to be related (Jariono, et al. 2020; Jariono, et al. 2020; Jariono & Subekti 2020). Based on the description above and the absence of

research in Mts Sudirman Jatiyoso which concerns limb length, limb power and front kick speed, the researcher intends to conduct a study to find out whether there is a significant relationship between limb length and limb power with the speed of students' front kicks in the extracurricular MTs Sudirman Jatiyoso. Therefore, researchers are interested in conducting a study entitled "The Speed of Pencak Silat Front Kicks in Review of Leg Length and Leg Power (Correlation Study in Extracurricular Students of Pencak Silat MTs Sudirman Jatiyoso)"

METHODS

This study is a correlation study that aims to determine the relationship of limb length and limb power with the speed of the Front kick. Correlational research is research that aims to find out the relationship between or more variables, without any effort to influence, then the data is valid because there is no manipulation of variables (Sugiyono 2017).

Participants

The sample in this study was an extracurricular pencak silat participant at MTs Sudirman Jatiyoso, Karanganyar, the number of students who were recorded was 8 male students and 12 female students. In this study, the entire population was used as a research sample so that this study was a population study.

Sampling Procedures

Sampling In this study took the total sampling technique using all members of the population as samples, thus the sample was taken 20 samples.

Materials and Apparatus

The materials used in this study were: Stationery, Meter, Metered board,

Chalk powder, samsak (expected 50 Kg)/ target (hand box), and stopwatch.

Procedures

The data collection technique used in this study is by measuring leg length, measuring leg power, measuring front kick speed. The procedures are:

- Researchers are looking for data on Students who take part in martial arts extracurriculars.
- Researchers conducted tests measuring leg length, leg power, and martial arts front kick speed at MTs Sudirman Jatiyoso.
- After getting the results, researchers can process the data and draw conclusions and suggestions.

Design or Data Analysis

The data analysis technique used in this study is correlation analysis. Correlation analysis is a technique to measure the strength of relationships between variables to one another and also to be able to find out the form of relationships between variables. The variables are, the length of the student's limbs, the strength of the student's limb power and the speed of the student's front kick.

Categorization using Mean and Standard Deviation. Azwar (2016: 163) states to determine the score criteria using the Norm Referenced Assessment (NRA) in table 1 as follows:

Tabel .1 Front Kick Assessment

Category	Male	Female
Very Good	>23	>25
Good	19-22	20-24
Enough	14-18	15-19
Less	8-13	10-14
Less Than Once	<7	<9

RESULT

The research was conducted on December 10, 2022 – December 30, 2022. The subjects of the study were participants of the E martial arts curriculum at MTs Sudirman Jatiyoso which amounted to 8 male students and 12 female students. In detail the results of the research data of each variable are presented in table 2 as follows::

Tabel 2 . Data Descriptive

Variabel	Mean ± SD
Leg Length (X1) (cm)	91,05 ± 6,86
Limb Muscle Power (X2) (cm)	34,95 ± 8,07
Front Kick Speed	28,05 ± 2,74

- Leg Length (X1) (cm) Has variables with an average value of 91.05 and Standard deviation = 6.86
- Limb Muscle Power (X1) (cm) has variables with an average of 34.95 and Standard foreign exchange = 8.07
- Front Kick Speed has Variable with an average value of 28.05 and Foreign Exchange Standard = 2.74

DISCUSSION

1. Hypothesis test results

The analysis of research data used to test hypotheses consists of a simple correlation analysis. To clarify the relationship between free variables and bound variables, a multiple regression analysis was carried out as follows,;

- Relationship between limb length and front kick speed

The first hypothesis test is "there is a significant relationship between the length of the limbs and the speed of the front kick of the extracurricular students of martial arts mts sudirman jatiyoso. Results hypothesis test using correlation regression analysis can be seen in table 2 below:

Table 3 . Correlation coefficient of limb length (x_1) with front t speed (y)

corre latio n	r count	r table (df 12;0.05)	infor matio n
$x_1. y$.423	0,179	signifi cant

Based on the results of the analysis above, the correlation coefficient of limb length with the front kick speed of 0.746 is positive, meaning that the greater the value that affects, the greater the result value. The test of the significance of the correlation coefficient is carried out by consulting the price $r_{calculate}$ with r_{table} , at $\alpha = 5\%$ with $n = 12$ obtained r_{table} of 0.532. Since the correlation coefficient between $r_{x_1.y} = 0.746 > r(0.05)_{(12)} = 0.532$, it means that the correlation coefficient is significant. Thus the hypothesis that reads "there is a significant relationship between the length of the limbs and the speed of the front kick of the extracurricular student of martial arts mts sudirman jatiyoso", is accepted.

- b. Relationship between limb muscle power and front kick speed

Table 3 . Correlation of limb power correlation (x_2) with front kick speed (y)

correlatio n	r count	r table (df 12;0.05)	inform ation
$x_2. y$	0,082	2,628	signific ant

Based on the results of the analysis above, the correlation coefficient of limb power with a front kick speed of 0.890 is positive, meaning that the greater the value that affects, the greater the value of the result. The test of the significance of the terse correlation coefficient was carried out by consulting the price r_{count} with r_{table} , at $\alpha = 5\%$ with $n = 12$ obtained r_{table} of 0.532. Since the correlation coefficient between $r_{x_2.y} = 0.890 > r(0.05)_{(12)} = 0.532$, it means that the correlation coefficient is significant. Thus the hypothesis that reads "there is a significant relationship between the power of the limb muscles and the speed of the front kick of the extracurricular student of Pencak Silat MTs Sudirman Jatiyoso, is accepted.

- c. Relationship between limb length and limb muscle power with front kick speed

The third hypothesis test is "there is a significant relationship between limb length and limb muscle power with the front kick speed of mts sudirman jatiyoso martial arts. The results of the hypothesis test using multiple regression analysis can be seen in table 3 below.

Table 4. Coefficient correlation between tungkai length and limb power with front kick speed

correlati on	count	count	f table (0.05, 2;9)	infor matio n
$x_1. x_2. y$	0,913	2,425	4,25 6	signifi cant

Based on the results of the aforementioned analysis, the correlation coefficient between limb length and limb muscle power with a front kick speed of 0.913 was obtained. The correlation coefficient significance test

is carried out by consulting the price f calculate $22.425 > f$ table at a significance level of 5% and a degree of freedom of 2;9 which is 4.256, and $r_{y(x_1, x_2)} = 0.913 > r_{(0.05)(12)} = 0.532$, meaning that the correlation coefficient is significant. Thus the hypothesis that reads "there is a significant relationship between limb length and limb muscle power with the speed of the front kick of the extracurricular student of martial arts MTs Sudirman Jatiyoso", is accepted.

The amount of contribution of limb length and limb muscle power with the speed of the front kick of MTs Sudirman Jatiyoso martial arts extracurricular students is known by means of an r value ($r^2 \times 100\%$). The value of r^2 was 0.833, so the amount of contribution was 83.3%, while the remaining 16.7% was influenced by other factors that were not studied in this study, namely psychological factors or mental maturity. This study aims to determine the relationship between limb length and limb muscle power with the front kick speed of mts sudirman jatiyoso martial arts extracurricular students. The results of the study are described as follows:

1. The relationship of limb length to front kick speed

Based on the results of the study, it was shown that there was a significant relationship between the length of the limbs and the front kick speed of the MTs Sudirman Jatiyoso martial arts extracurricular students with a value of $r_{x1,y} = 0.746 > r_{(0.05)(12)} = 0.532$. The contribution of limb length to the speed of the front kick is 20.28%.

2. Relationship of limb muscle power to front kick speed

Based on the results of the study, it was shown that there was a significant relationship between the power of the

limb muscles and the front kick speed of the extracurricular students of martial arts mts sudirman jatiyoso, with a value of $r_{x2,y} = 0.890 > r_{(0.05)(12)} = 0.532$. the contribution of limb power to the speed of the sickle kick is 63.15%. Power is the ability of muscles to exert maximum strength in a very fast time (Kardjono 2008). Power is the product of the times between power and speed (Bompa and Buzzichelli 2018). Explosive power (power) is the ability of the body that allows a muscle or group of muscles to work explosively (wahjoedi, 2001: 61).

3. Limb length and limb muscle power to front kick speed

Oriented to the results of the study found that there was a significant relationship between limb length and limb muscle power with the speed of kick front of extracurricular students of martial arts mts sudirman jatiyoso with $r_{y(x_1, x_2)} = 0.913 > r_{(0.05)(12)} = 0.532$. Pencak Silat is one of the martial arts sports that today is in great demand by the public. Where martial arts has advantages is as a provision for oneself to be able to have the ability to protect yourself with the art of motion. Each sport has its own specificities that must be curable but all must go through good practice. The provision of talents and interests is no exception as the main factor for achieving skills and achievements.

CONCLUSION

The results of data analysis and discussion, the conclusions are :

1. There is a relationship between leg length and front kick speed
2. There is a relationship between leg muscle power and front kick speed
3. There is a relationship between leg length and leg muscle power on front kick speed

ACKNOWLEDGEMENT

We would like to express our deepest gratitude to the Faculty of Teacher Training and Education, Sports Education Study Program for providing full support to researchers and MTs Sudirman Jatiyoso Students as respondents in this study.

REFERENCES

- Aisah, R. P. (2018). The Relationship Between Leg Length And Crescent Kick Speed In Pencak Silat Sport. *International Journal Of Sports Sciences & Fitness*, 8(2).
- Aziz, A. R., Tan, B., & Teh, K. C. (2002). Physiological responses during matches and profile of elite pencak silat exponents. *Journal of sports science & medicine*, 1(4), 147.
- Bompa, T. O., & Buzzichelli, C. (2018). Periodization-: theory and methodology of training. *Human kinetics*.
- Fatoni, M., Nugroho, H., & Subekti, N. (2019, October). Antropometri Factors Determinants of Pencak Silat Tanding Category. In *4th Progressive and Fun Education International Conference (PFEIC 2019)* (pp. 44-48). Atlantis Press.
- Iswanto, T., & Wahyudi, A. R. (2018). Tingkat Pemahaman Atlet Terhadap Peraturan Pertandingan Pencak Silat Kategori Tanding Hasil Munas Ipsi Tahun 2012 (Studi Pada Atlet Unit Kegiatan Mahasiswa Pencak Silat Universitas Negeri Surabaya). *Jurnal Prestasi Olahraga*, 1(2).
- Jariono, G., Subekti, N., Indarto, P., Hendarto, S., Nugroho, H., & Fachrezzy, F. (2020). Analisis kondisi fisik menggunakan software Kinovea pada atlet taekwondo Dojang Mahameru Surakarta. *Transformasi: Jurnal Pengabdian Masyarakat*, 16(2), 133-144.
- Jariono, G., & Subekti, N. (2020). Sports Motivation Survey And Physical Activity Students Of Sport Education Teacher Training And Education Faculty FKIP Muhammadiyah University Surakarta. *Kinestetik: Jurnal Ilmiah Pendidikan Jasmani*, 4(2), 86-95.
- Jariono, G., Subekti, N., Indarto, P., Hendarto, S., Nugroho, H., & Fachrezzy, F. (2020). Analisis kondisi fisik menggunakan software Kinovea pada atlet taekwondo Dojang Mahameru Surakarta. *Transformasi: Jurnal Pengabdian Masyarakat*, 16(2), 133-144.
- Kardjono. (2008). *Modul Pembinaan Kondisi Fisik*.
- Johansyah, L., & Hendro, W. (2014). *Pencak Silat-Edisi Kedua*. Jakarta: PT RajaGrafindo Persada.
- Saryanto, M. M. A. S. (2018, October). Pencak Silat Sebagai Hasil Budaya Indonesia Yang Mendunia. In *Prosiding Seminar Nasional Bahasa dan Sastra Indonesia (SENASBASA)* (Vol. 2, No. 2).
- Nugroho, H., Gontara, S. Y., Angga, P. D., Jariono, G., & Maghribi, I. L. (2021). Quality of physical condition of youth pencak silat athletes reviewed from speed, power, and strength. *Kinestetik: Jurnal Ilmiah Pendidikan Jasmani*, 5(1), 154-162.
- Soo, J., Woods, C. T., Arjunan, S. P., Aziz, A. R., & Ihsan, M. (2018). Identifying the performance characteristics explanatory of fight outcome in elite Pencak Silat matches. *International Journal of Performance Analysis in Sport*, 18(6), 973-985.
- Subekti, N., Fatoni, M., & Syaifullah, R. (2021). Meningkatkan Kompetensi Pelatih Pencak Silat Berbasis Sport Science Dan Tuntutan Aktifitas Pertandingan Pada Pelatih IPSI Se-Kabupaten Demak. *Jurnal Abdidas*, 2(4), 767-773.
- Sugiyono, D. (2013). Metode penelitian pendidikan pendekatan kuantitatif, kualitatif dan R&D.
- Suhardinata, S., & Indrahti, S. (2021). Kiprah IPSI sebagai Organisasi Pencak Silat Terkemuka di Indonesia, 1948-1997. *Historiografi*, 2(1), 32-41.