

The Correlation of Speed, Flexibility, and Agility on The Kick “T” of Tapak Suci Pencak Silat

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Abstract. The purpose of this study was to determine the contribution of speed and flexibility to the agility of the “T” kick in male pencak silat athletes at Tapak Suci College, SMP Negeri 1 Matesih. The independent variables were speed (X1) and flexibility (X2), with the dependent variable being the “T” kick agility (Y) in pencak silat. The sample consisted of 31 athletes. The analysis was conducted using regression analysis. The results indicated that the significance values for speed and flexibility, both individually and combined, were significant. Therefore, the hypothesis that there is a contribution of speed and flexibility to the agility of the “T” kick in Tapak Suci pencak silat athletes at SMP Negeri 1 Matesih was accepted.

Key words: Speed, Flexibility, Agility, “T” Kick, Pencak Silat

Abstract in Indonesia. Tujuan dari penelitian ini adalah untuk mengetahui kontribusi kecepatan dan kelenturan terhadap kelincahan tendangan “T” pada atlet pencak silat laki-laki di Perguruan Tapak Suci, SMP Negeri 1 Matesih. Variabel bebas adalah kecepatan (X1) dan kelenturan (X2), dengan variabel terikat adalah kelincahan tendangan “T” (Y) dalam olahraga pencak silat. Sampel terdiri dari 31 atlet. Analisis dilakukan dengan menggunakan analisis regresi. Hasil penelitian menunjukkan bahwa nilai signifikansi untuk kecepatan dan kelenturan, baik secara individu maupun bersama-sama, signifikan. Oleh karena itu, hipotesis bahwa ada kontribusi kecepatan dan kelenturan terhadap kelincahan tendangan “T” pada atlet pencak silat Tapak Suci di SMP Negeri 1 Matesih diterima.

Kata Kunci: Kecepatan, Kelenturan, Kelincahan Tendangan T, Pencak Silat

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INTRODUCTION

Pencak silat is a sport in Indonesia that plays a significant role in advancing sports achievements. Pencak silat competitions are held at regional, national, and international levels. To achieve optimal performance, several factors related to pencak silat must be considered. Mastery of basic techniques is essential and can be achieved through repeated practice in prime condition. These techniques include pairs, steps, attacks, and defenses. For this study, we focus on kicks, particularly the “T” kick, which is a crucial leg attack in pencak silat.

The basic techniques of pencak silat that must be mastered are pairs, steps, attacks, and defenses (Rahayuni, 2014). Meanwhile, according to (Siswantoyo & Graha, 2016) the basic techniques of pencak silat consist of: (1) defenses including blocks, evasions, and evasive counters; (2) attacks including punches, kicks, drops, and locks; and (3) the bottom techniques including the bottom sweep, the bottom serkel, and the cutout. In this study, the author will examine kicks, which are leg attacks commonly referred to as kick techniques.

The subjects of the study were the Tapak Suci martial arts athletes at Matesih 1 Public Middle School. Based on experience in the field or when watching a pencak silat match or competition, it is clear that an athlete in the pencak silat sport must have good and precise kicking techniques. Often, kicks that are of good quality, well-aimed, and on target can make it difficult for the opponent, allowing a fighter to score points easily when executing a “T” kick attack. A fast, well-aimed, and accurate “T” kick often knocks the opponent down. Pesilat, who have agility in kicking will often be relied upon in every match by their opponents.

The average pencak silat athlete who takes part in training is 17-24 years old, or the average age of an adult fighter. However, some athletes still have not mastered the basic techniques of pencak silat, both in punching and kicking techniques. When performing the “T” kick technique, their feet are often too slow or not fast enough, and the direction of the kick is not on target due to suboptimal flexibility of the muscles or joints. During flexibility exercises, their legs still shake and cannot last long, indicating that the athletes are not performing stretching exercises optimally to maximize flexibility, which affects their “T” kick technique.

Based on the information above, it is evident that the agility of the “T” kick in pencak silat was not as expected, with issues such as legs not being straight and lacking speed and flexibility. This is because athletes have not been adequately trained in mastering the speed, flexibility, and agility of “T” kicks, and there is no well-programmed exercise routine as coaches often train spontaneously. This condition results in suboptimal kick agility. Athletes should engage in exercises that can increase the speed and flexibility of their “T” kick. Given these problems, the author intends to conduct a study titled “The Relationship between Speed and Flexibility to the Kick Agility of the ‘T’ Pencak Silat Competition Category.”

METHODS

The research method used was survey research with a correlational design aimed at investigating the causal relationship between the independent variables, namely speed (X1) and flexibility (X2), and the dependent variable “T” (Y) kick agility in the sport of pencak silat. The subjects of the study were the Tapak Suci pencak silat athletes at SMP Negeri 1 Matesih. The sample consisted of Tapak Suci pencak silat athletes at Matesih 1 Public Middle School aged 17 and over, totaling 30 individuals. Data were retrieved from measurement results to obtain variable data on speed (X1), flexibility (X2), and the ability to kick “T” (Y). The side kick speed test, or “T” kick, was cited from the basic skills test of pencak silat (Lubis & Wardoyo, 2016). The flexibility test used the side splits test, quoted from tests and measurements (Ismaryati, 2018). The ability to kick “T” was tested using measurements cited from tests and measurements (Lubis & Wardoyo, 2016).

The data analysis technique used was product moment correlation statistical analysis. The correlations examined included simple correlation and multiple regression. The final step involved determining the relative contribution (SR) and effective contribution (SE) of each predictor. After identifying the correlation of each independent variable with the dependent variable and establishing the regression equation, it was also necessary to determine the relative contribution and effective contribution of each predictor.

RESULTS AND DISCUSSION

The research was conducted on Tapak Suci Pencak Silat athletes at Matesih 1 Public Middle School, located at Jalan Matesih-Tawangmangu Number 1 Moyoretno Rt 02/07, Matesih, Karanganyar, Central Java, Indonesia. The research took place from February 20 to March 5, 2023. This study used 31 samples, which were Tapak Suci Pencak Silat athletes at SMP Negeri 1 Matesih. Data were collected using tests conducted on 31 athletes (respondents). The indicators studied included speed, flexibility, and kick agility. The results of the data analysis are as follows:

Table 1. Description of research results

Indicator	Speed	Flexibility	T Kick Agility
Mean	15.61	11.60	14.77
Median	16.33	12.00	14.67
Mode	17	15	16
Minimum	11	6	12
Maximum	19	21	19
Sum	484	360	458

Table 1 provides a comprehensive overview of three distinct variables: Speed, Flexibility, and T Kick Agility. In the analysis of these variables, a total of 31 valid data points were considered for each variable, indicating that there were no missing values. Looking at the measures of central tendency, the mean values for Speed, Flexibility, and T Kick Agility are approximately 15.61, 11.60, and 14.77, respectively. The median values, which represent the middle values in the data set, are 16.33 for Speed, 12.00 for Flexibility, and 14.67 for T Kick Agility. Meanwhile, the mode values, denoting the most frequent values, are 17 for Speed, 15 for Flexibility, and 16 for T Kick Agility. Examining the range of values, the minimum value observed for Speed is 11, for Flexibility is 6, and for T Kick Agility is 12. On the other end, the maximum values are 19 for Speed, 21 for Flexibility, and 19 for T Kick Agility. The sum of all valid data points in each variable adds up to 484 for Speed, 360 for Flexibility, and 458 for T Kick Agility. This collection of statistical data offers insights into the distribution, central tendencies, and variability of the three variables: Speed, Flexibility, and T Kick Agility.

Table 2. Speed Regression Coefficient

Variable	Constant	Coefficient	t	Sig.	Information
Speed*Agility T Kick	7.399	.473	4.571	0.000	Significant

The constant obtained is 7.399. This means that if the speed variable (X1) does not exist, the athlete's kick agility (Y) has a base value of 7.399. The speed variable regression coefficient (X1) is 0.473. This means that if there is an increase in the athlete's speed by 1 unit, it will partially affect the increase in the athlete's kick agility by 0.473 units. The coefficient is positive, meaning there is a unidirectional relationship between the two variables.

Table 3. Regression Coefficient of Flexibility Variables

Variable	Constant	Coefficient	t	Sig.	Information
Flexibility* T Kick Agility	11.520	.280	4.273	0.000	Significant

The constant obtained is 11.520. This means that if the flexibility variable (X2) does not exist, the athlete's kick agility (Y) has a base value of 11.520. The regression coefficient of the flexibility variable (X2) is 0.280. This means that if there is an increase in the athlete's flexibility by 1 unit, it will partially affect the increase in the athlete's kick agility by 0.280 units. The coefficient is positive, meaning there is a unidirectional relationship between the two variables.

Table 4. Multiple Regression Coefficients

Variable	Constant	Coefficient	t	Sig.	Information
Flexibility	8.018	.163	2.145	.041	Significant
Speed		.312	2.533	.017	

Based on the coefficient table formula, the multiple regression formula that emerges from the results of this study is as follows:

$$\gamma = \alpha + \beta_1 X_1 + \beta_2 X_2$$

$$\gamma = 8.018 + 0.1963 X_1 + 0.312 X_2$$

The constant obtained is 8.018. This means that if the speed variable (X1) and flexibility variable (X2) do not exist, the athlete's kick agility (Y) has a base value of 8.018. The regression coefficient of the speed variable (X1) is 0.1963 and the flexibility variable (X2) is 0.312. This means that if there is an increase in the athlete's speed by 1 unit, it will affect the increase in the athlete's kick agility by 0.1963 units. Meanwhile, the flexibility variable affects the increase in the athlete's kick agility by 0.312 units. The coefficient is positive, meaning there is a unidirectional relationship between the independent variable and the dependent variable. To interpret the value of the coefficient of determination, the result of the significance test in multiple linear regression analysis must be significant.

Table 5. The Coefficient of Determination

Model Summary^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.708 ^a	.501	.465	1.256

a. Predictors: (Constant), Speed, Flexibility

b. Dependent Variable: T Kick Agility

Based on Table 5, it is known that the coefficient of determination or R Square is 0.501. The R Square value of 0.501 is the square of the correlation coefficient or “R” value, which is 0.708. Therefore, the magnitude of the coefficient of determination 0.501 equals 50.1%. This means that the athlete's flexibility and speed jointly affect the athlete's kick agility by 50.1%, while 49.9% is influenced by other variables not examined in this study.

Table 6. Significance Values

Variable	Sig Value
Speed	0.00
Flexibility	0.00
Speed and Flexibility	0.00

Based on the research results above, it shows that the speed level of Tapak Suci pencak silat athletes at SMP Negeri 1 Matesih has an average score (mean) of 16, with the lowest score (minimum) being 11 and the highest score (maximum) being 19. The flexibility value has an average score (mean) of 12, the lowest value (minimum) is 6, and the highest value (maximum) is 21. Meanwhile, the kick agility value has an average score (mean) of 15, the lowest value (minimum) is 12, and the highest value (maximum) is 19. The data shows the variation in scores between athletes with high scores and athletes with low scores. From this data, the majority of Tapak Suci pencak silat athletes at SMP Negeri 1 Matesih have adequate abilities. The number of athletes whose scores are above the average indicates a gap in ability between athletes with adequate abilities and those with low abilities.

There are still athletes with low mastery of basic techniques, indicating that some athletes are ignorant of this. According to Irawan et al., (2021), the basic technique of kicking in pencak silat is often ignored due to considerations of increasing the athlete's level rather than focusing on competence or expertise. The gap that occurs can also be caused by the absence of early identification of the athlete's ability. According to Syaifullah & Doewes (2020), one of the determining factors for high athletic achievement is talent. A child's talent can be identified through an identification program. Another factor to consider is the physical fitness of each athlete. According to Kuswanti et al., (2019), good physical fitness is essential for achieving maximum results in applying techniques in martial arts. Additionally, a good diet is necessary for maintaining physical condition, which affects the ability to master kicks in pencak silat athletes (Lubis et al., 2022).

Based on the first regression analysis, the results show that there is a partial contribution of speed to the agility of the “T” kick in Tapak Suci martial arts athletes at Matesih 1 Public Middle School. These results reinforce the theory that speed is a person's ability to react by moving as fast as possible towards a predetermined target. Speed is essential in martial arts, especially when performing a “T” kick. Thus, a martial arts athlete with high speed will easily move, making it difficult for the opponent to anticipate the kick attack. However, the data obtained also show that some athletes have low speed values, which results in low kick agility. These results align with research by Akhmad et al. (2021) and Purba (2017), indicating that an athlete's speed significantly influences their agility in kicking.

Based on the second regression analysis, the results show that there is a partial contribution of flexibility to the agility of the “T” kick in Tapak Suci martial arts athletes at Matesih 1 Public Middle School. These results indicate that the perfection of all movements of the flexibility of the torso (strike) and hip joints during the “T” kick is determined by whether the joints and muscles of the legs, hips, and lower back are elastic. Body flexibility is crucial for pencak silat because it allows a segment of the muscles to move as much as possible according to the movement possibilities. The number of athletes whose scores are above the average dominates this variable. However, there is a considerable gap in scores between athletes with high scores and those with low scores. These results reinforce the research

by Sinurat (2020) and Kamarudin et al., (2023), indicating that flexibility significantly influences the agility of athletes' kicks.

Based on multiple regression analysis, it was found that there is a contribution between speed and flexibility to the agility of the “T” kick in Tapak Suci martial arts athletes at Matesih 1 Public Middle School. This means that speed and flexibility are components of the physical condition needed to support the agility of the pencak silat “T” kick. From the research data obtained, athletes with good speed and flexibility have good kick agility. Likewise, athletes with poor speed and flexibility have suboptimal kick agility.

The analysis of the coefficient of determination obtained 50.1%. This shows that the ability of athletes in kick agility is influenced by speed and flexibility. Compared to other factors, speed and flexibility are crucial for athletes to master if they want to achieve maximum results in the agility of “T” kicks.

CONCLUSION

The significance value of the speed variable (X1) on kick agility (Y) is 0.00, which is less than 0.05. It can be concluded that the hypothesis is accepted, indicating that there is a partial contribution of speed to the “T” kick agility in Tapak Suci athletes at SMP Negeri 1 Matesih. The significance value of the flexibility variable (X2) on kick agility (Y) is 0.00, which is less than 0.05. It can be concluded that the second hypothesis is accepted, indicating that there is a partial contribution of flexibility to the “T” kick agility in Tapak Suci athletes at SMP Negeri 1 Matesih. The significance value of the speed and flexibility variables simultaneously on kick agility is 0.00, which is less than 0.05. Therefore, it can be concluded that the third hypothesis is accepted, indicating that there is a contribution of both speed and flexibility to the agility of the “T” kick in Tapak Suci athletes. Athletes with low scores should emulate the training methods of other members to close the gap in ability. There is a need for more extensive research with additional variables. This research was conducted on a limited number of subjects and variables.

REFERENCES

- Akhmad, I., Nugraha, T., & Sembiring, P. (2021). Speed, Agility, and Quickness (SAQ) training of the circuit system: How does it affect kick speed and agility of junior taekwondo athletes? *Journal Sport Area*, 6(2), 175–182.
- Irawan, F. A., Nomi, M. T., & Peng, H. (2021). Pencak Silat Side Kick in Persinas ASAD: Biomechanics Analysis. *International Journal of Human Movement and Sports Sciences*, 9(6), 1230–1235.
- Ismaryati. (2018). *Tes Dan Pengukuran Olahraga*. Sebelas Maret University Press.
- Kamarudin, K., Zulraflia, Z., & Irma, A. (2023). Latihan Pliometrik dan Kecepatan Terhadap Kemampuan Tendangan Sabit. *Jambura Health and Sport Journal*, 5(1), 66–73.
- Kuswanti, E., Sugiyanto, S., & Liskustyawati, H. (2019). The Effect of Basic Pencak Silat and Breathing Technique Practices on the Improvement of Physical Fitness in Male Athletes Viewed from Body Mass Index (An Experimental Study on Perguruan Pencak Silat Merpati Putih Maos Cilacap. *International Journal of Multicultural and Multireligious Understanding*, 6(5), 542–549.
- Lubis, J., Thongdaeng, N., Haqiyah, A., Sukur, A., Abidin, D., Irawan, A., & Hanief, Y. N. (2022). The Effect of Five-Week Aerobic Interval Training on The Body Composition of Pencak Silat Elite Athletes. *International Journal of Kinesiology and Sports Science*, 10(2), 16–24.
- Lubis, J., & Wardoyo, H. (2016). *Pencak silat*. Raja Grafindo Persada.
- Purba, P. H. (2017). Hubungan kelentukan dan kelincahan terhadap kecepatan tendangan mawashi gery chudan pada karateka perguruan wadokai dojo UNIMED. *Jurnal Prestasi*, 1(1).
- Rahayuni, K. (2014). *Pencak Silat*. Universitas Negeri Malang d/h IKIP Malang.
- Sinurat, R. (2020). Zig-Zag Run: Metode Latihan Kelincahan Tendangan Sabit Pencak Silat. *Journal Sport Area*, 5(2), 177–185.
- Siswantoyo, S., & Graha, A. S. (2016). Pengembangan Coloring Book And Puzzle Teknik Dasar Pencak Silat. *Jorpres (Jurnal Olahraga Prestasi)*, 12(1).
- Syaifullah, R., & Doewes, R. I. (2020). Pencak silat talent test development. *International Journal of Human Movement and Sports Sciences*, 8(6), 361–368.