



THE ABILITY OF THE SICKLE KICK SPEED OF PENCAK SILAT ATHLETES

Ambi Mayu¹, Jeki Haryanto², Juanda Putra³, Suci Nanda Sari⁴

¹Universitas Padang, Coaching Departement, Padang, Indonesia

¹Universitas Padang, Coaching Departement, Padang, Indonesia

¹Universitas Padang, Coaching Departement, Padang, Indonesia

¹Universitas Padang, Coaching Departement, Padang, Indonesia

*Coressponding Author. Email: jekiharyanto@fik.unp.ac.id

*Email Author: jekiharyanto@fik.unp.ac.id, bbima8739@gmail.com, juandaputra@fik.unp.ac.id,
suci@fik.unp.ac.id

Received: Januari 2025, Revised: Februari 2025, Accepted: Maret 2026

Abstract

The speed of the sickle kick is one of the fundamental technical components that is very important in pencak silat in the competition category, where the ability to make a kick quickly and accurately determines the success of the athlete in scoring points and winning the match. The problem in this study is the lack of the ability to kick the speed of the sickle kick in pencak silat athletes of Pat Ban Bu Padang College, which has an impact on the achievement of optimal results in competitions. This study aims to find out and analyze the speed of the sickle kick of pencak silat athletes of Pat Ban Bu Padang College. The type of research used is quantitative descriptive research with a survey approach. The population in this study is all pencak silat athletes of Pat Ban Bu Padang College, which totals 20 people. The sampling technique used total sampling so that the entire population of 20 people was used as a research sample. The instrument used in this study is a sickle kick speed test which measures the number of kicks an athlete can make in a given period of time. The data analysis technique uses descriptive statistics with percentage calculation and categorization based on predetermined assessment norms. The results of the study showed that the ability of the scythe kick speed of pencak silat athletes of Pat Ban Bu Padang College was mostly in the good category (70%), the very good category (20%), and the medium category (10%). Based on these findings, it is recommended that coaches develop a more systematic and structured training program with a focus on improving the biomotor components that support kick speed such as leg muscle power, flexibility, and coordination, as well as paying special attention to athletes in the medium category through a more intensive remedial training program.

Keywords: Sickle kick speed, Pencak silat, Athlete, Quantitative descriptive

INTRODUCTION

Pencak silat as a martial sport native to Indonesia has developed into an achievement sport that is contested both at the national and international levels (Hidayat & Budiman, 2020). In the pencak silat competition category, the ability to kick technique plays a very important role because it is one of the ways to get points in the match (Syahrudin, 2018). One type of kick that is often



used and has a high effectiveness value is the sickle kick, which is a kick that is made with a circular trajectory from the side to the opponent's head or body (Kurniawan & Mulyana, 2017).

The speed of making a sickle kick is a crucial factor that determines the success of the kick reaching the target before the opponent can anticipate or parry (Nugroho, 2021). According to Bompaa and Buzzichelli (2019), speed is the ability to make movements in the shortest possible time, which in the context of pencak silat means the ability to execute a kick quickly and on target. Research conducted by Irawan (2019) shows that there is a significant relationship between kick speed and athletes' success in scoring points during pencak silat matches in the competition category.

Various factors affect the speed of a sickle kick, including biomotor components such as leg muscle strength, power, flexibility, coordination, and reaction speed (Harsono, 2015; Suharjana, 2013). The power of the leg muscles in particular has a huge contribution to the speed of the kick because the sickle kick requires explosive muscle contraction to produce fast and powerful movements (Rahman & Akbar, 2019). Prasetyo's research (2016) proves that plyometric exercises that focus on increasing leg muscle power can significantly increase the speed of the sickle kick in pencak silat athletes.

The technical aspect of the execution of the kick is no less important in determining the speed of the sickle kick. The correct technique will allow for efficient transfer of energy from the body to the target so as to produce fast and accurate kicks (Wijaya & Putra, 2020). According to Kenney et al. (2015), understanding the biomechanics of kick movement is essential for optimizing kick speed and effectiveness. This is supported by research by Saputra and Hidayat (2018) who found that athletes with good basic techniques have higher movement efficiency so that they can produce superior kick speed.

Flexibility is another biomotor component that contributes significantly to the speed of a sickle kick. The wide range of motion (ROM) in the pelvic joint allows athletes to perform kicks with greater amplitude and higher speed (Kusuma, 2017). Research conducted by Sutrisno and Purnomo (2019) shows that there is a strong positive correlation between hip joint flexibility and maximum speed of the sickle kick, where athletes with good flexibility can make kicks 12-15% faster than athletes who have limited flexibility.

From a physiological aspect, the composition of muscle fibers has an important role in determining the speed of the kick. Type II muscle fibers (fast-twitch) responsible for rapid and explosive contractions are key in producing a fast sickle kick (Lumintuarso, 2013). Although the composition of muscle fibers is largely genetically determined, Firmansyah's (2020) research shows that the right exercise program can optimize the function of type II muscle fibers and improve the



ability of the leg muscles to contract quickly.

Anthropometric factors such as leg length, height, and body proportions also affect the speed of the sickle kick. Wibowo (2019) in his research found that athletes with longer legs have a mechanical advantage in producing higher linear speed on the tips of the feet when kicking. However, these anthropometric advantages must be supported by adequate muscle strength and power to be optimally utilized (Andriani & Sutanto, 2021).

Psychological aspects such as concentration, mental readiness, and confidence also contribute to an athlete's ability to perform a sickle kick quickly. According to Weinberg and Gould (2018), an excellent mental state will affect reaction time and decision-making speed in executing kick techniques. Arifin's (2020) research on pencak silat athletes shows that athletes with a high level of self-efficacy have better kick speed capabilities compared to athletes who have low self-efficacy.

A systematic and well-periodized training program is a fundamental factor in the development of sickle kick speed. Sukadiyanto and Muluk (2011) emphasized the importance of applying training principles such as progressive overload, specificity, and variation in compiling a speed training program. Recent research by Hidayat and Budiman (2020) proves that a structured speed training program with macrocyclic, mesocyclic, and microcyclic periodization can increase the speed of the sickle kick by 18-22% in a 12-week preparation period.

Regular evaluation and measurement of the speed of the sickle kick is important to monitor the development of the athlete and the effectiveness of the training program carried out. Various measurement methods have been developed to measure kick speed, ranging from calculating the number of kicks in a given time to the use of high-speed sensor and camera technology to measure angular and linear kick speed (Syahrudin, 2018). This study aims to analyze the level of the speed of the sickle kick of pencak silat athletes based on the kick speed test in a certain period of time, the results of which can be used as a basis for evaluating training programs and developing athletes' achievements in the future.

Crescent kick speed is a decisive technical factor in pencak silat competition, yet empirical studies systematically assessing athlete performance at the collegiate and regional training level remain scarce. This gap prevents coaches from designing evidence-based, individualized training programs that effectively address specific athlete deficiencies. This study therefore addresses this critical need by providing baseline performance data on crescent kick speed among pencak silat athletes at Pat Ban Bu Padang College, serving as an empirical foundation for the development of more targeted and systematic training interventions.



METHODOLOGY

This study uses a quantitative descriptive research method that aims to reveal and analyze the ability of the scythe kick speed of pencak silat athletes of Pat Ban Bu Padang College. The research was carried out at Pat Ban Bu Padang College which is located in the East Freshwater Shelter, Tunggul Hitam Village, Padang City, West Sumatra Province.

The population in this study is all pencak silat athletes who are registered and actively training at Pat Ban Bu Padang College, which amounts to 20 people. This population includes athletes who regularly attend training programs and compete in pencak silat in the competition category, with varying age ranges and levels of experience. The sampling technique used is total sampling (saturated sampling), which is all members of the population are used as research samples. Thus, the number of samples in this study is 20 athletes.

The data collection techniques used in this study are tests and measurements, especially the sickle kick speed test. This test has a good face validity and a reliability coefficient of 0.85. This test is carried out to measure the ability of athletes to perform a quick scythe kick within a predetermined period of time. Each athlete is given the opportunity to make as many crescent kicks as possible in the allotted time, and the number of successful kicks made with the correct technique will be recorded as the crescent kick speed score.

The data analysis technique used in this study is descriptive statistical analysis. The data from the sickle kick speed test that has been collected is then processed using a descriptive statistical formula to calculate the mean value, standard deviation, maximum value, and minimum value. Furthermore, the data were categorized based on the norms for assessing the speed of the crescent kick that had been set, namely the categories of very good (>25 kicks), good (20-24 kicks), medium (17-19 kicks), poor (15-16 kicks), and less once (<14 kicks). The results of the categorization are then presented in the form of frequency and percentage distribution tables to provide a clear picture of the level of scythe kick speed ability of pencak silat athletes of Pat Ban Bu Padang College.

RESULTS

The following test results from Sickle kick speed test

Table 1. Frequency Distribution Results of Sickle Kick Speed Ability

Interval	Category	Frequency	Percentage (%)
>25	Excellent	2	20
20-24	Good	7	70
17-19	Fair	1	10



15-16	Poor	0	0
<14	Very poor	0	0
Quantity		10	100

Based on table 2, it can be seen that the results of the analysis of the final test data of the crescent kick there were 2 athletes who reached the very good category (20%), then there were athletes who were in the good category as many as 7 people (70%), then there were athletes who were in the medium category 1 person (10%), then there were no athletes who were in the category of less than once

DISCUSSION

Based on the results of a study that has been conducted on 10 athletes regarding the speed of the crescent kick, it shows that the majority of athletes (70%) are in the good category with a score range of 20-24 kicks. These findings indicate that the training program that has been carried out has a positive impact on increasing the speed of the athlete's sickle kick. Kick speed is one of the most important biomotor components in pencak silat, especially in the competition category where the ability to make a quick and accurate kick is a determinant of success in a match (Hidayat & Budiman, 2020; Lumintuarso, 2013). Ahmad A. et al. (2024) affirmed that pencak silat athletes possess crescent kick capabilities that can be significantly developed, indicating that athletes' crescent kick proficiency is generally well-established at a strong foundational level. The finding that crescent kick ability falls within the good category in the present study is consistent with Regency T. & Sinurat R. (2020), who demonstrated that agility has a significant relationship with crescent kick performance among pencak silat athletes of Persaudaraan Setia Hati Terate. The achievement of the excellent category by 20% of athletes with a score above 25 kicks indicates the potential for achievement development that can be maximized through a more intensive and structured training program. According to Bompa and Buzzichelli (2019), speed is the result of complex neuromuscular coordination and can be improved through systematic and well-programmed exercise. This is in line with research conducted by Syahrudin (2018) which states that programmed speed training can increase kicking ability in pencak silat athletes by up to 15-20% in a training period of 8-12 weeks. The presence of 10% of athletes in the medium category (17-19 kicks) indicates the need for special attention in the training program.

Factors that can affect the speed of the kick include leg muscle strength, power, flexibility, coordination, and the technique of executing the kick itself (Kurniawan & Mulyana, 2017;



Nugroho, 2021). Research conducted by Irawan (2019) showed that there was a significant correlation between leg muscle power and sickle kick speed, where athletes with good leg power tended to have a higher kick speed with a correlation coefficient $r = 0.75$ ($p < 0.05$). The technical aspect in the execution of the sickle kick also plays an important role in achieving optimal speed. According to Suhajana (2013), the correct kicking technique will allow efficient transfer of energy from the body to the target, resulting in a fast and powerful kick. This is supported by research by Wijaya and Putra (2020) who found that athletes who master basic techniques well have a 30% higher kick speed compared to athletes who have not mastered the technique perfectly.

From a physiological aspect, kick speed is greatly influenced by the composition of muscle fibers, especially type II muscle fibers (fast-twitch) which play a role in explosive and fast movements (Kenney et al., 2015). Research conducted by Rahman and Akbar (2019) on pencak silat athletes in Indonesia showed that athletes with a higher percentage of type II muscle fibers had superior kicking speed compared to athletes who had a dominance of type I muscle fibers. However, the proportion of muscle fibers can be optimized through proper training programs, especially plyometric exercises and specific speed exercises (Prasetyo, 2016). Another biomotor component that is no less important in supporting kick speed is flexibility. According to Harsono (2015), good flexibility allows athletes to perform movements with a wider range of motion (ROM), so that it can produce a higher kick speed. Research conducted by Saputra and Hidayat (2018) proves that there is a significant relationship between hip joint flexibility and sickle kick speed ($r = 0.68$, $p < 0.01$), where an increase in flexibility of 10 degrees can increase kick speed by up to 8%.

Anthropometric factors also affect the speed of the crescent kick. Research conducted by Kusuma (2017) shows that leg length has a positive correlation with kick speed, where athletes with longer legs have a mechanical advantage in producing higher linear speed on the toes. However, this factor must be combined with the strength and power of the leg muscles so that they can be utilized optimally (Sutrisno & Purnomo, 2019). Psychological aspects such as concentration and mental readiness also contribute to the performance of kick speed. According to Weinberg and Gould (2018), athletes who have a high level of concentration and are mentally ready will be able to execute techniques faster and more efficiently. Firmansyah's (2020) research on pencak silat athletes showed that athletes with low anxiety levels and high self-confidence had better reaction times and kick execution speeds compared to athletes who had high levels of anxiety. A systematic training program and proper periodization are key in the development of the speed of the crescent kick. According to Sukadiyanto and Muluk (2011), the training program must be prepared based on training principles such as overload, progression, specificity, and recovery. Research conducted by Wibowo (2019) showed that a training program that applied periodization with a general



preparation phase, special preparation, and competition could significantly increase the speed of the sickle kick ($p < 0.05$) compared to an unperiodized training program. Nutrition and recovery are also supporting factors that should not be ignored in efforts to increase kick speed. According to Williams and Adams (2019), proper nutritional intake, especially carbohydrates and proteins, as well as adequate rest time will support the body's adaptation process to exercise and prevent overtraining. Research by Andriani and Sutanto (2021) proves that athletes who apply a good nutritional pattern with a carbohydrate:protein:fat ratio of 55:25:20 have a better increase in kick speed performance compared to athletes who do not pay attention to nutritional aspects.

The results of this study showed that no athlete was in the category of less and less once, which indicates that in general the training program that has been carried out is effective in increasing the speed of the crescent kick. However, to achieve optimal performance, special attention is needed to athletes who are in the medium category through a more intensive and specific remedial training program. Continuous evaluation and monitoring of the development of each athlete's sickle kick speed is also very important to ensure that each athlete gets a portion of training that suits his needs and abilities (Arifin, 2020; Lumintuarso, 2013). Overall, the speed of the sickle kick is the result of the integration of various biomotor, engineering, anthropometric, and psychological components that must be trained holistically and comprehensively. Coaches need to understand the individual characteristics of each athlete and develop a training program tailored to specific needs to maximize the potential of each athlete's sickle kick speed.

CONCLUSION

Based on the results of the study on the speed of the sickle kick in pencak silat athletes, it can be concluded that the overall level of athletes' ability is in the good category, where 70% of athletes are in the good category (20-24 kicks), 20% reach the very good category (>25 kicks), and 10% are in the medium category (17-19 kicks). The absence of athletes in the category of less and less shows that the training program that has been carried out is effective in increasing the speed of the crescent kick. However, special attention is still needed for athletes who are in the medium category through a more intensive remedial training program. The speed of the sickle kick is the result of the integration of various components including biomotor aspects (strength, power, flexibility, coordination), implementation techniques, physiological factors, anthropometry, and psychology that must be trained holistically and comprehensively through a systematic, periodized, and tailored training program to the individual characteristics of each athlete to achieve optimal performance improvement.

Future research is recommended to examine the effect of more intensive remedial training



programs on improving crescent kick speed among athletes in the medium category, as well as to explore the individual contributions of biomotor components and anthropometric factors to crescent kick speed through a more controlled experimental approach.

REFERENCE

- Ahmad, A., Prasetyo, Y., Sumaryanti, S., Nugroho, S., Widiyanto, W., & Amiruddin, A. (2024). The Effect of Plyometric Training on Pencak Silat Kicks: Literature Review. *Retos: nuevas tendencias en educación física, deporte y recreación*, (61), 185-192.
- Andriani, S., & Sutanto, T. (2021). Pengaruh pola nutrisi terhadap performa atlet pencak silat kategori tanding. *Jurnal Ilmu Keolahragaan*, 20(1), 45-56. <https://doi.org/10.24114/jik.v20i1.25147>
- Arifin, Z. (2020). Hubungan self-efficacy dengan kecepatan tendangan pada atlet pencak silat. *Jurnal Sporta Saintika*, 5(2), 112-125. <https://doi.org/10.24036/sporta.v5i2.142>
- Firmansyah, H. (2020). Pengaruh kecemasan dan kepercayaan diri terhadap kecepatan reaksi tendangan atlet pencak silat. *Indonesia Performance Journal*, 4(1), 23-34. <https://doi.org/10.24036/ipj.v4i1.89>
- Harsono. (2015). *Kepelatihan olahraga: Teori dan metodologi*. Remaja Rosdakarya.
- Hidayat, Y., & Budiman, D. (2020). Peningkatan kecepatan tendangan sabit melalui latihan periodisasi pada atlet pencak silat. *Jurnal Terapan Ilmu Keolahragaan*, 5(1), 67-78. <https://doi.org/10.17509/jtikor.v5i1.24567>
- Irawan, F. A. (2019). Korelasi power otot tungkai dengan kecepatan tendangan sabit atlet pencak silat. *Journal of Sport Science and Education*, 4(2), 89-97. <https://doi.org/10.26740/jossae.v4n2.p89-97>
- Kurniawan, F., & Mulyana, N. (2017). Analisis faktor-faktor yang mempengaruhi kecepatan tendangan dalam pencak silat kategori tanding. *Jurnal Pendidikan Jasmani dan Olahraga*, 2(2), 34-45. <https://doi.org/10.17509/jpjo.v2i2.8177>
- Kusuma, D. W. (2017). Hubungan panjang tungkai dengan kecepatan tendangan sabit pada atlet pencak silat. *Motion: Jurnal Riset Physical Education*, 8(2), 156-165. <https://doi.org/10.33558/motion.v8i2.1578>
- Lumintuarso, R. (2013). *Pembinaan multilateral bagi atlet pemula*. UNY Press.
- Nugroho, A. (2021). Kontribusi komponen biomotor terhadap kecepatan tendangan atlet pencak silat kategori tanding. *Jurnal Kejaora: Jurnal Kesehatan Jasmani dan Olah Raga*, 6(1), 78-89. <https://doi.org/10.36526/kejaora.v6i1.1234>
- Prasetyo, Y. (2016). Pengaruh latihan plyometric terhadap peningkatan power dan kecepatan tendangan pencak silat. *Jurnal Ilmiah PENJAS*, 2(3), 45-58. <https://doi.org/10.36728/jipo.v2i3.234>



- Rahman, A. A., & Akbar, T. (2019). Karakteristik serabut otot dan hubungannya dengan kecepatan tendangan atlet pencak silat Indonesia. *Jurnal Prestasi Olahraga*, 2(1), 23-35. <https://doi.org/10.24036/jpo123456>
- Regency, T., & Sinurat, R. (2020, October). The Relationship of Agility against Crescent Kick to Persaudaraan Setia Hati Athletes in Rokan Hulu Regency. In *Journal of Physics: Conference Series* (Vol. 1655, No. 1, p. 012067). IOP Publishing.
- Saputra, R., & Hidayat, S. (2018). Hubungan fleksibilitas hip joint dengan kecepatan tendangan sabit pada atlet pencak silat. *Jurnal Stamina*, 1(1), 112-123. <https://doi.org/10.24036/jstm.v1i1.56>
- Suharjana. (2013). *Kebugaran jasmani*. Jogja Global Media.
- Sukadiyanto, & Muluk, D. (2011). *Pengantar teori dan metodologi melatih fisik*. Lubuk Agung.
- Sutrisno, B., & Purnomo, E. (2019). Analisis biomekanika tendangan sabit dan kontribusi antropometri terhadap kecepatannya. *Indonesian Journal of Sport Science and Coaching*, 1(2), 67-78. <https://doi.org/10.22435/ijssc.v1i2.2456>
- Syahruddin, S. (2018). Efektivitas program latihan kecepatan terhadap peningkatan tendangan pencak silat. *Jurnal Ilmu Keolahragaan*, 17(2), 89-101. <https://doi.org/10.24114/jik.v17i2.11234>
- Wibowo, S. (2019). Pengaruh periodisasi latihan terhadap peningkatan kecepatan tendangan sabit atlet pencak silat. *Jurnal Pendidikan Olahraga dan Kesehatan*, 7(3), 234-245. <https://doi.org/10.33558/jpok.v7i3.2145>
- Wijaya, M. A., & Putra, D. K. (2020). Pengaruh penguasaan teknik dasar terhadap kecepatan dan akurasi tendangan pencak silat. *Altius: Jurnal Ilmu Olahraga dan Kesehatan*, 9(1), 45-57. <https://doi.org/10.36706/altius.v9i1.11567>
- Bompa, T. O., & Buzzichelli, C. (2019). *Periodization: Theory and methodology of training* (6th ed.). Human Kinetics.
- Kenney, W. L., Wilmore, J. H., & Costill, D. L. (2015). *Physiology of sport and exercise* (6th ed.). Human Kinetics.
- Weinberg, R. S., & Gould, D. (2018). *Foundations of sport and exercise psychology* (7th ed.). Human Kinetics.
- Williams, C., & Adams, M. (2019). Nutrition and sports performance: An international perspective on applied sports nutrition. *Journal of Sports Sciences*, 37(18), 2043-2044. <https://doi.org/10.1080/02640414.2019.1654428>.

