JURNAL MASTER PENJAS & OLAHRAGA
Volume 7 | Issue 1 | April 2026 | pp. 972-978
p-ISSN: 2725-5660 | e-ISSN: 2722-1202
https://jmpo.stkippasundan.ac.id/index.php/jmpo

Physical and Technical Performance Profiles of Male Class A Pencak Silat Athletes

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Abstrac: This study aimed to analyze match technical characteristics and identify the physical and technical requirements of male Class A pencak silat athletes from East Java. A descriptive case study using notational analysis was conducted on the 2025 PON Beladiri Kudus final. The sample consisted of one male Class A athlete from East Java competing in the final macth. Data were collected using a technical observation sheet based on the classification of pencak silat competition techniques and analyzed descriptively through technique frequency. The result showed that the most dominant techniques were the right-hand straight punch/jab (37,37%), two handed grab (15,15%), left-leg A kick (11,11%), right-leg C kick (7,07%), right-leg T kick (6,06%), and left-leg C kick (5,05%). These findings indicate the importance of speed, strength, powerm coordination, balance, flexibility, and endurance, while technical requirements include mastery of punching, kicking, and grabbing techniques.

Keyword: Pencak Silat, Match Analysis, Physical Requirements, Technical Requirements

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ISSN 2721-5660 (Cetak)
ISSN 2722-1202 (Online)

How to cite this article (APA):
Insaiyah, R., Syafii, I., & Subagio, I. (2026). Technical Characteristics for Identifying Physical and Technical Requirements of Male Class a Pencak Silat Athletes. *Jurnal Master Penjas & Olahraga*, *7*(1), 972–978. https://doi.org/10.37742/jmpo.v7i1.208

Article History:

Submitted : May 2026	Revised : May, 2026	Accepted : June, 2026	Publish : June, 2026

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INTRODUCTION

Competitive pencak silat is a combat sport in which athletes must repeatedly perform a combination of offensive and defensive techniques under high pressure during a match. In the competition category, pencak silat is played by two athletes from different clubs or teams. Both athletes must compete against each other, exchanging attacks and defenses using the fundamental principles of pencak silat (starting stance, footwork, the sequence of attack and defense, and concluding with a starting stance). These two silat practitioners will compete in 3 rounds, each lasting 2 minutes (during this time, the athletes must perform a series of attack-defense movements with the aim of scoring points and defeating their opponent), with a 1-minute rest interval between rounds. In each round, the athletes perform a series of attack-defense movements in an intermittent pattern (a pattern of fast movement interspersed with pauses, then moving again). Mujahid & Subekti, (2021) argues that the competitive category in pencak silat is characterized by complex movements, in which sequences are performed at high intensity and interspersed with brief rest intervals, followed by another series of high-intensity offensive and defensive maneuvers, and so on until the round ends; this requires exceptional stamina due to the nature of the sport, which involves direct physical contact with the opponent (full-body contact).

Based on these characteristics of the competition, it can be concluded that competitive pencak silat demands that athletes deliver their best performance in terms of physical conditioning, tactics, and offensive and defensive techniques during the dynamic flow of a match. An athlete's success in efficiently applying their techniques is not only related to motor skills but is also supported by adequate physical conditioning that meets the demands of each sport's competition. Therefore, analyzing an athlete's performance during a match is crucial as a means of understanding the characteristics of their play while competing. Through match analysis, coaches can identify patterns of play, technical characteristics, and performance demands that emerge during the match, thereby providing a foundation for developing appropriate game strategies and training programs tailored to the athlete's needs (Reza & Isazadeh Hamzeh, 2024).

In various sports, this type of match analysis has been widely conducted; however, in pencak silat, most previous research has focused on analyzing the techniques used by athletes during matches or on identifying the dominance of physical components in isolation. For example, a study conducted by (Bayusro & Sudarjat, 2024) which examines the technical analysis of pencak silat competition matches at the athlete level. In addition, there is also another study by (Renaldi et al., 2025) which examines the physical condition of Balinese pencak silat athletes at the 21st National Sports Week (PON) in Aceh-North Sumatra in 2024. There is also an article that examines the dominant techniques used in pencak silat and relates them to the latest competition rules a study by Rizqi et al., (2024) which still focuses on the technical descriptions that appear. Meanwhile, research examining the integration of competition technique characteristics as a basis for identifying athletes' physical and technical needs remains very limited. In fact, information about the techniques frequently used during competition and the dominant movements that emerge can provide insight into the physical and technical demands that athletes must prepare for through training programs. The dominance of certain techniques throughout a match not only provides insight into an athlete's competitive strategy but also reveals which body segments are most frequently used and the physical demands required to support the optimization of their performance. The limitations of previous research highlight the need for studies that integrate match characteristics with the identification of athletes' physical and technical needs as the foundation for developing more specific training programs. Therefore, this study employs a distinct approach by integrating an analysis of match technical characteristics with the identification of athletes' physical and technical needs based on the techniques that frequently emerge during competition. It is hoped that this approach will provide a more specific basis for developing a training program that meets the demands of the athletes' matches on the field. In fact, the development of a good training program should be based on each athlete's competition characteristics, in accordance with the findings of previous research, namely the study by Mahendra & Bhayu, (2026) which states that designing specific training programs based on performance requirements is a crucial factor in improving athletes' performance. In addition,

providing training that is appropriate and tailored to the athlete's needs based on the demands of the competition can also help prevent sports injuries in that athlete. Athletes who receive training tailored to their specific needs will naturally face a lower risk of injury, as pointed out by Farida et al., (2025) which states that coaches need to understand the characteristics of a match because they are related to the physical demands and the risk of injury to athletes.

The technical characteristics employed by athletes during competition also indirectly reflect the movement requirements and specific body segments involved. The most frequently used techniques also indirectly indicate the physical aspects that require greater attention during training; therefore, identifying and observing physical and technical needs based on competition characteristics can serve as a foundation for designing more appropriate training programs. Given this background, the objective of this study is to analyze the technical characteristics of competition and to identify the physical and technical needs of pencak silat athletes based on the dominant techniques used during the final matches of the 2025 Kuddus Martial Arts PON, using a case study of male Class A athletes from East Java.

METHOD

Research Design

This study employs a quantitative descriptive method using a case study approach. The research was conducted through notational analysis of the final match featuring East Java's Class A male athletes at the 2025 Kudus PON Martial Arts competition, with the aim of identifying the technical characteristics used by the athletes during the match and interpreting their implications for the physical and technical requirements of competitive pencak silat athletes. According to Siregar & Albina, (2025) Notational analysis is an objective observation method that involves noting, recording, and analyzing behavioral movements or specific events.

Participants

The research subjects were the East Java Class A men's athletes who competed in the final of the 2025 Kudus PON martial arts competition in the pencak silat discipline. The analysis was conducted on a single final match consisting of three rounds using match video footage.

Instruments

The research instrument used was a technical observation sheet developed based on the classification of techniques in the competitive category of pencak silat. This instrument was first consulted and discussed with experts in the field of pencak silat to validate the content validity of the observation sheet, ensuring the appropriateness of the technical classifications observed during the match.

Data Analysis

The research data was obtained from video recordings of the final match, which were analyzed using a match technique observation sheet developed based on the classification of pencak silat techniques in the competition category. All techniques used were recorded in accordance with the prepared observation sheet. The data was then analyzed using quantitative descriptive methods by counting the frequency of each attack or defense that occurred throughout the match. The frequency of these techniques was then accumulated to determine which techniques were most dominant. The results of the technical analysis were interpreted to identify the athletes' physical and technical needs based on movement characteristics, the body segments involved in the techniques used, and the biomotor demands required to perform those techniques.

RESULT

The results of a technical analysis of the 2025 Kudus PON Martial Arts Final match by the East Java men's Class A athlete show that the athlete used 99 techniques over the course of three rounds during the match. The distribution of the number of attacks is shown in the following table:

Table 1. Distribution of Attacks

Technique	Round I	Round II	Round III	Total Technique	% Contribution
Right Jab/Straight Punch	7	17	13	37	37,37%
Left Jab/Straight Punch	1	0	0	1	1,01 %
Left A Kicks	3	7	1	11	11,11 %
Right T Kicks	2	2	2	6	6,06 %
Left T Kicks	0	0	1	1	1,01 %
Right C Kicks	4	1	2	7	7,07 %
Left C Kicks	0	5	0	5	5,05 %
Front Lower Cut	0	2	2	4	4,04 %
Back Lower Cut	0	0	1	1	1,01 %
Left Footed-Hook	0	0	1	1	1,01 %
Right Handed Catching	4	0	0	4	4,04 %
Two Handed Catching	0	6	9	15	15,15 %
Right Foot Block	0	1	0	1	1,01 %
Two Handed Outer Block	0	0	2	2	2,02 %
Two Handed Low Block	0	0	3	3	3,03 %
Total Technique				**99**	**100%**

Based on the analysis of the PON Martial Arts final in Kudus by the East Java Men's Class A athletes, the technique used most frequently was the right-hand straight jab. In addition, two-handed grabs and several types of kicks also contributed more to the attack than other techniques. These findings explicitly illustrate that the technical patterns that emerged and were used by the athletes during the three rounds of the final match were predominantly straight punches, kicks, and grabs. This indicates that these six most frequently appearing and used techniques accounted for approximately 81.81% of the total techniques used during the three rounds of the final match, suggesting that the athletes' predominant match patterns were formed by a combination of punching, kicking, and two-handed grappling techniques, along with several.

DISCUSSION

Based on the analysis of the 2025 PON Kudus Men's Class A Final Martial Arts competition involving athletes from East Java, attacks were dominated by the right-hand jab/straight punch technique (37,37%), followed by the two-handed grab technique (15,15%), left-leg A kick (11,11%), right-leg C kick (7,07%), right-leg T kick (6,06%), and left-leg C kick (5,05%). The dominance of these techniques indicates that athletes' match patterns rely more on offensive strategies rather than defensive ones, combining direct hand strikes with kicks and two-handed grabs to score points against opponents. This aligns with the characteristics of the competitive pencak silat discipline, which requires athletes to attack using effective, fast, and repetitive techniques to score points (Mujahid & Subekti, 2021).

The findings of this study are consistent with previous research on the analysis of competitive pencak silat matches, which indicates that striking, kicking, and throwing/grappling techniques are used more frequently than other techniques. Research conducted by Yulianto et al., (2023) found that takedown/grappling techniques were the most dominant techniques in matches following the implementation of the latest competition regulations by PERSILAT, while kicking techniques also remained the primary techniques used to score points during competition. In another study conducted by Ardhana & Evriansyah, (2025) the study of the PON Papua matches also revealed that kicking and striking techniques were the most frequently used techniques during competition. The differences in the proportions of technique usage observed in this study are believed to be due to several influencing factors, such as the individual

characteristics of the athletes, the game strategies employed, and the situational demands that arose during the final matches.

The dominance of the right-handed straight punch/jab (37,37%) indicates that athletes more frequently rely on their upper body strength to generate fast and accurate attacks. This punching technique requires arm speed, strength, and power, coordination between the eyes and hands, as well as arm muscle power endurance so that athletes are able to maintain attack frequency throughout the match. This is supported by previous research conducted by Hasyyati, (2021) also noted that arm strength, power, and coordination are significantly related to striking techniques in pencak silat. In addition, by Subekti et al., (2020) also states that in order to execute a punch, one needs hand-eye coordination, upper-body strength, and arm strength. (Putra et al., 2023) He also noted that arm muscle endurance is necessary to maintain the efficiency of movements and attacks and to minimize any decline in performance during competition.

The dominance of the two-handed catch (15,15%) indicates that athletes do not rely solely on a continuous attacking style of play, but also control their opponents' movements to create opportunities to score points through the two-handed catch. To execute this technique, athletes must possess strong hand grip strength so that the ball does not easily slip out during the catch; in addition, they must also have strong arm strength, well-developed core muscles to support body stability, and good coordination between the upper and lower body. The better an athlete's ability to maintain these physical components, the greater the opportunity created to turn a defensive situation into a counterattack that results in points.

The dominance of the left-footed kick (11,11%) highlights the importance of the lower extremities in the athletes' attacking patterns. The ability to execute a high-quality A-kick technique is influenced by leg speed, leg muscle power, dynamic balance, eye-foot coordination, and good hip flexibility so that the resulting kick is not easily anticipated by the opponent. This is supported by previous studies by Subekti et al., (2020) which states that eye-foot coordination affects the precision of movement as well as the accuracy of that movement. In another study conducted by Sayfullah et al., (2023) states that lower-body muscle strength and agility are strongly correlated with pencak silat kicks.

Furthermore, the prevalence of right-footed C kicks (7,07%) and left-footed C kicks (5,05%), as well as right-footed T kicks (6,06%), illustrates that the variety of kicks used is also a crucial component of a match. These three techniques require pelvic stability, agility, and good neuromuscular coordination between the eyes and feet. The nature of the match, which involves repeated use of these techniques throughout the game, also highlights the importance of good muscular endurance to ensure that the techniques remain consistent until the end of the match.

The dominance of punching, kicking, and catching techniques using both hands also explicitly demonstrates the involvement of different body segments during a match. In punching techniques, the upper body is more heavily involved, particularly the arms and shoulders, as well as the core, which supports the execution of the punch. In kicking techniques, the lower body is more heavily involved specifically the hips, thighs, and legs though these movements are also supported by the role of the core muscles. Meanwhile, in grappling techniques, there is greater emphasis on coordination between the upper body and overall body stability. These findings indicate that training programs for athletes must consider the development of physical abilities based on the involvement of specific body segments, consistent with the demands encountered during competition.

In addition to physical requirements, this match analysis also identifies the need for technical training that should be prioritized during practice sessions. The prevalence of offensive techniques primarily the right-handed straight punch or jab indicates that mastering punching techniques should be the primary focus during training, as this technique is the most frequently used in offensive maneuvers. Additionally, the frequent use of two-handed takedown techniques indicates a need to improve movement skills and takedown techniques, as well as effective opponent control, so that a successful takedown can be followed by a takedown follow-through, and a smooth transition to an effective counterattack if the takedown attempt fails to result in a takedown. Meanwhile, for kicking techniques A, C, and T, the data indicates that the ability to vary the use of kicking techniques is required, with accuracy, speed, and good targeting also needing

to be prioritized. In particular, Kick A is used more frequently than Kicks C and T, so coaches must also consider how to ensure that each Kick A results in a point. Thus, the technical training program for the East Java Class A men's athletes competing in the 2025 Kudus PON Martial Arts event should not be focused solely on a single specific technique, but should be directed toward strengthening combinations of striking, blocking, and kicking techniques in accordance with the characteristics that emerge during matches.

Broadly speaking, the technical characteristics of competition are dominated by striking, kicking, and grappling techniques, indicating that the physical requirements for competitive pencak silat athletes do not focus solely on a single specific aspect of physical conditioning but rather on a combination of speed, power, coordination, balance, and muscular strength. This information can serve as a basis for coaches to design physical training programs that are more specifically tailored to the demands of competition, thereby ensuring that the athlete development process proceeds more effectively and purposefully.

However, this study also has limitations, as it only examines the dominance and frequency of techniques that appear during matches, which are then linked to the athletes' specific physical and technical training needs. In future research, it is recommended to further examine several aspects, such as the analysis of the success and failure of the techniques used, as well as the court layout during competition, to identify factors that may influence an athlete's game tactics.

CONCLUSION

Based on the results of the analysis of the technical characteristics of matches involving men's Class A pencak silat athletes from East Java at the 2025 Kudus PON Martial Arts Competition, the matches were dominated by the use of straight punches/jabs, two-handed grabs, and variations of kicks A, C, and T. These findings illustrate that the prevailing match patterns tend to involve attacking with the hands and legs, as well as controlling opponents through two-handed grabs. These characteristics indicate that athletes require physical conditioning that includes speed, strength, power, coordination, dynamic balance, flexibility, agility, hand grip strength, power endurance, and strong core muscles as supporting elements. From a technical standpoint, mastery of punches, kicks, and grabs requires greater attention during training, as these are the techniques athletes use most frequently during competition.

The results of this study can serve as a basis for coaches when designing physical and technical training programs that are more specifically tailored to the demands of competition, so that the training process can be more specific and targeted

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to Surabaya State University for the institutional support provided throughout this study. Appreciation is also extended to the organizers of the 2025 PON Martial Arts event in Kudus for facilitating access to match data and competition documentation. The authors are grateful to the pencak silat experts and practitioners who contributed to the validation of the research instrument and provided valuable insights during the study process. Finally, the authors would like to thank all parties who supported the completion of this research.

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