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Gyaku Tsuki Punching Techniques For Karate Athletes At The Akasia Dojo

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ABSTRACT

The Gyaku Tsuki striking technique is one of the most dominant striking techniques in kumite karate, requiring the integration of strength, speed, coordination, and precision. Mastery of this technique is a key indicator of successful karate athlete development, particularly at the dojo level. This study aims to analyze the skill level of Gyaku Tsuki striking techniques among karate athletes at the Akasia Dojo. The study used a quantitative descriptive approach with a survey method using a technical skills test. The subjects were 20 karate athletes actively training at the Akasia Dojo. The research instrument was a Gyaku Tsuki striking skills test validated by experts, with assessments covering three main stages: initial stance, movement execution, and follow-up movements. Data were collected through structured observations using a technique assessment rubric. Data were then analyzed using descriptive statistics in percentage form to illustrate the athletes' skill mastery level. The results showed that 8 athletes (40%) were in the good category, 6 athletes (30%) were in the adequate category, and 6 athletes (30%) were in the poor category. Overall, the skill level of Dojo Akasia karate athletes' Gyaku Tsuki striking techniques was considered good, but there was still variation in technique mastery among athletes. These findings indicate that although the implemented training program has yielded positive results, more specific and sustainable improvements in training quality are still needed, particularly in aspects of stance stability, hip rotation, and motor coordination. This research is expected to serve as an evaluative basis and empirical reference for coaches in developing more targeted, effective, and evidence-based Gyaku Tsuki technique training programs.

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INTRODUCTION

Sport is understood as structured, planned, and consciously performed physical activity to improve the body's functional capacity and an individual's mental well-being. From a modern sports science perspective, sport is not solely oriented toward developing physical aspects, but also encompasses psychological, motor, and neuromuscular dimensions that are integrated into athletic performance (Bangsbo et al.,

2018; McGuigan, 2021). In martial arts, including karate, these demands become even more complex because athletes must combine strength, speed, coordination, precision, and emotional control in dynamic competitive situations (Chaabène et al., 2015; Loturco et al., 2019).

Karate is a Japanese martial art that relies on empty-hand techniques, with a philosophy of self-mastery, efficient movement, and technical precision. In the context of performance, karate particularly the kumite event requires mastery of basic techniques as the primary foundation for effective and consistent performance (Pozo et al., 2016). One of the most dominant striking techniques in kumite is the gyaku tsuki strike, which biomechanically involves the coordination of stance, hip rotation, force transfer from the lower to upper extremities, and the speed and accuracy of the striking hand (Turner et al., 2017; Kim et al., 2020).

Gyaku tsuki demands not only arm muscle strength but also explosive power, the result of integrating strength and speed in a short period of time. Research shows that the effectiveness of a strike in martial arts is greatly influenced by postural stability, core strength, and the efficiency of the kinetic chain from the lower body to the upper extremities (Iide et al., 2018; Rossi et al., 2022). However, in regional coaching practices, inconsistencies in athlete technique are still frequently found, which directly impacts the effectiveness of strikes and the potential for points in matches.

This condition was also found in karate athletes at the Akasia Dojo in Central Sulawesi. According to coaches' observations, athletes still exhibited weaknesses in stance stability, hip rotation, and movement synchronization when performing gyakutsuki. This issue highlights the need for objective and systematic technique evaluation as a basis for improving training programs based on scientific evidence.

Recent studies in competitive karate indicate that striking performance is influenced by biomechanical factors, physical condition, and the quality of basic technique. Biomechanical research reveals that pelvic and shoulder rotation contribute significantly to punch speed and impulse (Cesari & Bertucco, 2018; Sbriccoli et al., 2020). Furthermore, stance stability plays a crucial role in maintaining balance and efficient force transfer during strikes (Tabben et al., 2019).

Physiologically, muscle explosiveness and reaction speed have been shown to positively correlate with the effectiveness of striking techniques in kumite (Loturco et al., 2016; Chaabène et al., 2020). Other studies confirm that athletes with good mastery of basic techniques tend to demonstrate higher performance consistency and a lower risk of technical errors during competition (Pozo et al., 2016; Kim & Petrakis, 2021).

However, most of these studies have focused on international elite athletes or used experimental approaches based on training interventions, while diagnostic studies mapping the mastery levels of specific techniques—such as gyaku tsuki—in regionally trained athletes are still relatively limited, particularly in the Indonesian context.

Although the literature demonstrates the importance of gyakutsuki techniques in kumite, there is a research gap in objectively analyzing technical skills at the club or dojo coaching level. Most studies focus primarily on the relationship between physical

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variables and match performance, without a detailed evaluation of technical quality as the primary variable (Turner et al., 2017; Rossi et al., 2022).

Furthermore, research integrating technical observations with the local coaching context—which has different training characteristics, facilities, and athlete backgrounds than international elite level coaches—remains very limited. As a result, coaches often rely on subjective judgments to evaluate athlete technique, potentially hindering evidence-based coaching improvements (McGuigan, 2021).

Therefore, research specifically analyzing the mastery level of gyakutsuki striking techniques among karate athletes in the local coaching context is needed to fill this gap in the literature.

This study aims to objectively analyze the gyaku tsuki striking techniques of karate athletes from the Akasia Dojo, Central Sulawesi, covering aspects of stance, hip rotation, movement coordination, speed, and target accuracy. The results are expected to provide a clear picture of the athletes' level of technical mastery as a basis for formulating more targeted and effective training programs.

The novelty of this study lies in the diagnostic approach to specific gyaku tsuki techniques within the context of regional dojo coaching, a practice rarely explored in previous literature. This research not only contributes to the development of karate coaching science but also provides relevant empirical evidence for coaches to improve training quality based on measurable and contextual technique analysis.

METHODS

This study used a quantitative descriptive approach, aiming to objectively describe the level of mastery of the Gyaku Tsuki striking technique in karate athletes without any specific training interventions or treatments. The quantitative descriptive approach was chosen because it is effective in mapping athletes' technical skill profiles based on measurable numerical data that can be analyzed systematically (Creswell & Creswell, 2018; Thomas et al., 2021). This method is widely used in evaluative studies of sports techniques to obtain an initial picture of skill quality before developing or implementing training program interventions (Pozo et al., 2016; Chaabène et al., 2020).

The study was conducted at the Akasia Dojo, Palu City, in March 2025, taking into account routine training conditions representative of the athlete development process. The study subjects consisted of 20 karate athletes who actively participated in training and were registered members of the Akasia Dojo. Subject selection was conducted using a total sampling technique, considering the relatively limited population and to ensure optimal representation of all athletes who met the inclusion criteria. Inclusion criteria included athletes who had been actively training for at least one year, had participated in competitions, and were in good health at the time of data collection. This approach aligns with research on technique evaluation at the club or training dojo level (Tabben et al., 2019; Kim et al., 2020).

The research instrument was a gyakutsuki striking technique skill test developed based on biomechanical principles and karate technique pedagogy. This instrument

underwent an expert validation process involving certified karate coaches and academics in the field of sports coaching to ensure content validity and the appropriateness of the assessment indicators. Instrument validation is a crucial step in sports skills research to ensure that the measurement tool accurately represents the quality of the technique being assessed (Morrow et al., 2016; McGuigan, 2021).

Gyakutsuki technique assessment encompasses three main aspects: (1) initial stance, which includes stance readiness, body position, and balance; (2) movement execution, which includes hip rotation, limb coordination, speed, and force transfer; and (3) advanced movement, which assesses final movement control, postural stability, and readiness to transition to the next technique. This division of aspects aligns with the modern martial arts technique analysis framework, which emphasizes kinetic chain integration and movement efficiency (Iide et al., 2018; Rossi et al., 2022). Each aspect is assessed using a graded scoring scale, allowing for a more objective and standardized assessment.

The data collection procedure was conducted through direct observation of athletes performing the gyaku-tsuki test according to standardized instructions. To enhance objectivity, each athlete was given equal opportunity to complete the test, and assessments were conducted systematically based on a predetermined rubric. This approach is consistent with the practice of assessing technical skills in competitive martial arts (Turner et al., 2017; Loturco et al., 2019).

The data obtained were analyzed using descriptive statistics, calculating percentages and categorizing the results into good, adequate, and poor categories. Descriptive analysis was used to provide a comprehensive overview of the distribution of athletes' gyaku-tsuki technique mastery levels. This approach is considered relevant for diagnostic research that aims to provide an empirical basis for trainers in developing more targeted and evidence-based training programs (Bangsbo et al., 2018; Chaabène et al., 2020).

RESULTS AND DISCUSSION

Result

The data analysis of the Gyaku Tsuki striking technique skills of Dojo Akasia karate athletes was obtained based on measurements of 20 athletes who participated in a comprehensive technical skills test. Assessments were conducted using a Gyaku Tsuki skills test instrument that covers three main aspects: initial stance, movement execution, and follow-up movements, which were then classified into skill level categories.

Based on descriptive data processing, the distribution of skill levels was as follows: 8 athletes (40%) were in the good category, 6 athletes (30%) were in the fair category, and 6 athletes (30%) were in the poor category. This distribution indicates that the proportion of athletes with Gyaku Tsuki technique skills in the good category is greater than the other categories, although the percentage difference is not significant between the fair and poor categories.

Overall, these results indicate that the Gyaku Tsuki striking technique skills of Dojo Akasia karate athletes are in the good category. However, the presence of athletes in the

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fair and poor categories indicates variation in the level of technique mastery among the athletes studied. This variation reflects that not all athletes possess an even level of technical skill, so some athletes still require ongoing coaching and skill improvement.

The results of this study provide an empirical overview of the gyaku tsuki technical skill profile of karate athletes at the Akasia Dojo and can serve as a baseline for evaluating and planning more targeted technical training programs.

Discussion

The research results show that the skill level of the Gyaku Tsuki striking technique of Dojo Akasia karate athletes is generally in the good category. This finding indicates that the training process implemented has positively contributed to the athletes' mastery of basic techniques. In the context of martial arts development, mastery of basic techniques is the primary foundation for determining the effectiveness of an athlete's performance in competitive situations, particularly in kumite, which demands speed, precision, and efficiency of movement (Pozo et al., 2016; Chaabène et al., 2015).

Conceptually, the Gyaku Tsuki strike is an attacking technique that relies on the integration of the body's kinetic chain, starting with stance stability, hip rotation, and core muscle activation, leading to arm extension and final control of the movement. Biomechanical research indicates that optimal force transfer from the lower to upper extremities significantly determines the speed and power of a strike in karate (Iide et al., 2018; Cesari & Bertucco, 2018). Therefore, the "good" category achieved by most Akasia Dojo athletes reflects relatively adequate technical and neuromuscular adaptations resulting from repeated and structured training.

However, the presence of athletes in the "fair" and "poor" categories indicates variation in the level of technical mastery among athletes. This variation confirms that training success is determined not only by training frequency, but also by the quality of training, the specificity of the material, and consistent technical supervision (McGuigan, 2021; Turner et al., 2017). In this study, the most prominent weaknesses were in stance, hip rotation, and motor coordination, which are crucial components in producing effective gyakutsuki strikes.

From a sports biomechanics perspective, an unstable stance will hinder force transfer and decrease punch efficiency, resulting in decreased speed and accuracy (Sbriccoli et al., 2020; Rossi et al., 2022). Suboptimal hip rotation also contributes to low punching impulse, as the pelvis serves as the central link between lower extremity strength and arm movement (Kim et al., 2020; Loturco et al., 2019). Furthermore, immature motor coordination reflects suboptimal synchronization of the nervous and muscular systems, a key characteristic of athletes with higher levels of technical skill (Bangsbo et al., 2018; Chaabène et al., 2020).

Empirically, several previous studies have confirmed that karate athletes with inconsistent technical mastery tend to experience decreased attack effectiveness and an increased risk of technical errors during competition (Tabben et al., 2019; Kim & Petrakis, 2021). This reinforces the findings of this study, which demonstrate that, despite generally being in the good category, efforts are still needed to improve the quality of training to reduce the skill gap between athletes.

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Consistent, targeted, and repetitive training is a key factor in improving gyakutsuki technical skills. The principles of specific and progressive training have been proven effective in improving the quality of martial arts techniques, especially when accompanied by accurate feedback from the trainer (Bompa & Buzzichelli, 2019; McGuigan, 2021). Furthermore, the integration of core stability training, coordination exercises, and biomechanically-based technical drills is recommended to improve hip rotation and movement control (Iide et al., 2018; Rossi et al., 2022).

The findings of this study align with the views of experts who state that technical skills in martial arts cannot be achieved instantly, but rather through a systematic and continuous training process (Chaabène et al., 2015; Pozo et al., 2016). Therefore, the results of this study have practical implications for karate trainers at the Akasia Dojo, who can use technical analysis as the basis for developing more focused, individualized, and evidence-based training programs.

Overall, this discussion confirms that although the level of gyaku tsuki technique skills of Dojo Akasia athletes is quite good, optimization of training in key technical aspects is still needed to achieve more consistent and competitive performance, especially in facing the demands of modern kumite matches.

CONCLUSION

Based on the research results, it can be concluded that the skill level of the Gyaku Tsuki striking technique among karate athletes at the Akasia Dojo is generally in the good category. This finding indicates that the training program implemented has positively contributed to the athletes' mastery of basic techniques, particularly in the aspects of initial stance readiness, movement execution, and subsequent movement control. Empirically, the distribution of skill categories shows that 40% of athletes are in the good category, 30% in the fair category, and 30% in the poor category, reflecting variations in the level of technical mastery among athletes.

This variation confirms that mastery of the Gyaku Tsuki technique is not yet fully distributed and requires further, more targeted coaching. Although the majority of athletes have demonstrated adequate technical skills, the presence of athletes in the fair and poor categories indicates the need to improve movement consistency, particularly in aspects of stance stability, hip rotation, and movement coordination, which are key components of striking effectiveness. Conceptually, technical skills in martial arts are the result of a systematic, continuous training process based on the principles of biomechanics and motor control.

Therefore, the results of this study emphasize the importance of regular technique evaluation as a basis for improving training quality. The practical implication of these findings is the need for coaches to develop more specific, progressive, and individualized training programs to improve the quality and consistency of the gyaku tsuki striking techniques of karate athletes at the Akasia Dojo.

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