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EFFECTIVENESS OF THE METHOD DRILL AND PRACTICE IN IMPROVING BASIC KICKING TECHNIQUES IN KARATE SPORTS

Galih Dwinanda Gumilar [1] , Oman Hadiansa [2]
[1] Muhammadiyah University of Kuningan, Indonesia
[2] Universities Muhammadiyah Kuningan, Indonesia
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Abstract

This study aims to analyze the effectiveness of the application of the drill and practice method in improving basic kicking techniques in karate athletes. The research method used is an experiment with a One Group Pretest-Posttest Design , involving 20 karate athletes from the Kuningan Karate School. Data were collected through direct observation, skill tests, and measurements before (pretest) and after (posttest) the training intervention. The results of the descriptive statistical analysis showed an increase in the average value from 65.45 (pretest) to 72.60 (posttest). The normality test (Kolmogorov-Smirnov and Shapiro-Wilk) and homogeneity (Levene's test) ensured that the data were normally distributed and homogeneous (p > 0.05). The paired sample t-test confirmed a significant difference between the pretest and posttest (t (19) = -19.227; p = 0.000), with a mean difference of -7.15 and a 95% confidence interval (-7.928 to -6.372). These findings prove that the drill and practice method significantly improves the basic kicking techniques of karate athletes, especially in terms of speed, accuracy, and strength. The implications of the study support the use of this method in karate training to strengthen muscle memory and movement consistency.

Keywords *: drill and practice , basic kicking techniques, karate, motor learning, repetitive practice.*

✉ Correspondence address: Jl. Raya Cigugur, Kuningan, Kec. Kuningan, Kabupaten Kuningan, Jawa Barat 45511
Email:

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INTRODUCTION

Sports activities are an inseparable part of human life, where its development always goes hand in hand with civilization. In principle, humans do sports activities to achieve a level of physical fitness, fill their free time, and improve their self-defense abilities through martial arts. History records that martial arts have existed since prehistoric times, when humans relied on certain techniques to hunt and protect themselves from natural threats. Over time, these simple techniques developed into more sophisticated fighting systems and eventually became a highly valued art in various cultures, especially in Asia. In line with this, (Kristiyandaru, 2021) defines sport as "energetic muscle activity and in that activity athletes demonstrate their movement abilities or performance".

One of the most popular and sought-after martial arts in the world is karate. Karate is a martial art that originated in Japan and has developed into a world-class sport. The origin of its name is explained by (Sagittarius, 2020) who states that "Karate comes from two Kanji letters; kara means empty, while te means hand. The two Kanji letters when combined become karate, which means empty hand". This understanding is reinforced by (Wijaya, 2022) who explains that karate is a martial art that uses empty hands. This "empty hand" philosophy emphasizes that a karateka is not only trained to rely on physical strength, but also to develop mental, spiritual, and noble personality aspects.

In karate practice as a competitive sport, mastery of basic techniques is a fundamental foundation for every athlete. (Simbolon, 2014) emphasized that karate is a sport that prioritizes technique and discipline, where basic kicking techniques are one of the crucial aspects to increase the effectiveness of attacks and defenses. The importance of a technique can be seen in the mawashi-geri kick, where according to (Nenggar, 2014) this kick has good value during the match, so a karateka must have the strength and flexibility to do it perfectly. Strong mastery of basic techniques allows athletes to build more complex movements, implement strategies effectively, and adapt to various situations in the match arena.

Although basic techniques are crucial elements, many athletes, especially at the beginner level, struggle to master them properly. Not understanding or making mistakes in performing basic movements not only hinders the athlete's performance progress but can also increase the risk of injury. This situation highlights the urgent need for effective and structured training methods to help athletes understand and master basic techniques better and faster.

To answer these challenges, one approach that can be applied is the drill training method. According to (Sugiyanto Kusuma 2018) , the drill method instructs athletes to perform steps correctly and repeatedly until technical skills can be mastered optimally. This Drill and Practice approach emphasizes repetition and systematic structured training, so that athletes can improve coordination, strength, and movement accuracy. With this background, this study aims to explore the application of the drill training method in improving mastery of basic karate techniques in beginner athletes, with the hope of contributing to the development of more competitive and skilled karate athletes.

RESEARCH METHOD

This study uses a quantitative method with an experimental research type that applies the *One-Group Pretest-Posttest Design.* (Setiawan, 2021) to measure the effectiveness of the application of the *drill and practice training method* on improving basic karate kicking techniques. The study population was 100 active athletes at the Kuningan Karate School in 2025, from which a sample of 20 people was selected using a *purposive sampling technique* based on certain criteria (Sugiyono, 2020) . Data collection techniques, as the main step of the study (Effendy & Sunarsi, 2020) , were carried out through direct observation and measurement tests at *the pretest* (before treatment) and *posttest* (after treatment) stages. The instruments used to collect data (Sugiyono, 2020) include statistical data forms to record kicking success (*Mae Geri, Mawashi Geri, Uramawashi Geri*) and a SWOT analysis framework. The quantitative data collected were then analyzed using *the Paired Sample T-Test* after passing the prerequisite tests for normality and homogeneity, which aims to test

the hypothesis regarding whether or not there is a significant difference between the basic kicking technique abilities of athletes before and after the intervention is given .

FINDINGS AND DISCUSSION

To

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	20	55	75	65.45	5,708
POSTTEST	20	65	82	72.60	5,062
Valid N (listwise)	20				

Based on the results of descriptive statistics, it can be seen that the overall **posttest score is higher.** higher than **the pretest** , with an average increase from **65.45** to **72.60** . In addition, the minimum and maximum values on the posttest also increased, indicating that the program implemented had a positive impact on improving participants' abilities. The slightly decreased standard deviation (from **5.708** to **5.062**) indicates that the variation in participants' scores after participating in the program tends to be more even. Thus, it can be concluded that this program is effective in improving participants' learning outcomes.

Tests of Normality

	Kolmogorov-Smirnov [a]			Shapiro Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
PRETEST	,082	20	,200*	,974	20	,840
POSTTEST	,116	20	,200*	,958	20	,514

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the results of **the Tests of Normality** , the significance value (**Sig.**) for both variables (pretest and posttest) **was greater than 0.05** in both tests (Kolmogorov-Smirnov and Shapiro-Wilk). This shows that **the data is normally distributed** , thus meeting the normality assumption for parametric statistical analysis. Thus, further tests such as paired sample t-test can be conducted to test the significance of the difference between the pretest and posttest.

Test of Homogeneity of Variances

		Levene Statistics	df1	df2	Sig.
PRETESTPOSTTEST	Based on Mean	,504	1	38	,482
	Based on Median	,504	1	38	,482
	Based on Median and with adjusted df	,504	1	37,893	,482
	Based on trimmed mean	,504	1	38	,482

The results of the homogeneity of variance test showed a significance value (p-value) of 0.482 for all calculation methods, which is much greater than the general significance level of 0.05. This indicates that there is no significant difference in variance between the pretest and posttest groups ($F(1,38) = 0.504$, $p = 0.482$). Thus, the assumption of homogeneity of variance is met, validating the use of parametric statistical tests that require the assumption of equality of variance in further analysis of this data. This finding strengthens the reliability of the results of the previous analysis which showed a significant increase after the intervention .

Paired Samples Test

	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)

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-7,150	1,663	,372	-7,928	-6,372	-19,227	19	,000

The results of the paired t-test showed a very significant increase between the pretest and posttest scores with an average difference of 7.15 points ($t(19) = -19.227$, $p < 0.001$). The narrow 95% confidence interval (-7.928 to -6.372) and not including the zero value indicated the consistency of the intervention effect. The large t-value reaching -19.227 indicated a very strong effect of the intervention given. This finding statistically proves that the learning program implemented succeeded in significantly increasing participants' understanding, so it is worthy of being re-implemented with confidence in its effectiveness.

DISCUSSION

The results of the study showed a significant increase in the basic kicking technique skills of karate athletes after the application of the drill and practice training method. Descriptively, there was an increase in the average value from 65.45 at the pretest to 72.60 at the posttest. This finding is reinforced by the results of the hypothesis test using the Paired Sample T-Test, which showed a significance value of 0.000 ($p < 0.05$). This figure statistically confirms that the difference between the results before and after treatment is very significant. Thus, it can be concluded that the research hypothesis is accepted: the application of the drill and practice method has a real and positive effect on improving the kicking technique skills of karate athletes.

The success of this method can be explained through the basic principles of the drill itself. As explained by (Sugiyanto Kusuma 2018) , the drill method instructs athletes to perform movements precisely and repeatedly until optimal mastery is achieved. This systematic repetition process directly contributes to the formation of muscle memory and increased neuromuscular coordination. When a movement is repeated consistently, the neural pathways that control the movement become more efficient, so that athletes can perform techniques faster, more accurately, and more powerfully without having to think consciously. This finding is in line with the concept of motor learning put forward by Mustafa and (Mustafa & Sugiharto, 2020) , which states that repetitive practice is the key to achieving stable and precise movement mastery, which is essential in technical sports such as karate.

In more detail, the increase in post-treatment scores not only occurred in aggregate, but also reflected improvements in fundamental components of the kick such as speed, accuracy, and power. Structured repetition allows athletes to correct small errors gradually, creating more automatic and efficient movement patterns. This phenomenon supports the view (Roestiyah, 2010) which states that the drill method effectively encourages participants to master skills through intensive training oriented towards movement perfection. Thus, this study provides empirical evidence that the drill and practice method not only increases the technique mastery score quantitatively, but also contributes to improving the overall quality of movement. These results strengthen the relevance of structured training methods in developing martial arts athletes, as also emphasized by (Yarisma, 2023) in the context of learning other sports techniques through a similar drill approach.

CONSULTATION

Based on the results of the study conducted on the application of *the drill and practice method* in improving basic kicking techniques in the sport of karate, it can be concluded that this method has a significant effect on improving the technical abilities of athletes. This is indicated by an increase in the average value from the pretest of 65.45 to 72.60 in the posttest, as well as the results of the *paired sample t-test* which showed a significance of 0.000 ($p < 0.05$). Thus, training using the *drill and practice method* is effective in improve the speed, accuracy and power of karate athletes' kicks.

This method works optimally through a systematic and structured movement repetition approach, thus forming muscle memory and increasing movement automation. These results strengthen the motor learning theory that

repeated practice can accelerate mastery of technical skills (Mustafa & Sugiharto, 2020)

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