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The Effect of Zig-Zag Run and Shuttle Run Training on the Agility of Crescent Kicks of Pencak Silat Athletes in Teluk Jaya Village, Kelekar District

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Abstract

The problem in this study is the low agility of the sickle kick of pencak silat athletes at the school in Teluk Jaya Village, Kelekar District. Therefore, during the match, the attacks carried out are easily read and analyzed by the opponent. The purpose of this study was to determine the effect of zig-zag run and shuttle run training on the agility of the sickle kick of pencak silat athletes in Teluk Jaya Village, Kelekar District. The method used was an experimental study with a two-group pretest–posttest design. This research design aims to determine the causal relationship or the effect of a treatment on the dependent variable. The population of this study was all 20 pencak silat athletes, with 16 training sessions in each group. The sample of this study was divided into two groups, each consisting of 10 teenage boys. The data collection instrument in this study used a test, namely the sickle kick agility test. The test was conducted twice, namely a pretest where the aim was to determine the level of the athlete's initial ability before being given treatment, and a posttest after the zig-zag run and shuttle run training treatment. The data is in the form of the average number of crescent kicks successfully performed in a certain time according to the Bruce kick agility test procedure. The data analysis techniques used consist of descriptive statistical analysis and inferential statistics. Descriptive analysis uses the mean test of pretest and posttest results by processing the data results from each group. Inferential analysis with prerequisite tests uses normality tests and homogeneity tests. The data results are continued with an independent sample t-test to determine the effect of zig-zag run and shuttle run training on the crescent kick agility of pencak silat athletes.

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INTRODUCTION

The basic principle of pencak silat is to defend yourself or defend yourself which has an attacking and defensive aspect. Attacking and defending are traits that must be possessed by pencak silat athletes, this is what determines the quality of a pencak silat athlete. Defending is like avoiding opponents to anticipate the opponent's attack, is the main key in the concept of pencak silat matches (Nandana, 2020)

Pencak silat in the competition category is a pencak silat match between 2 (two) silat fighters from different teams facing each other, some in the blue corner and some in the red corner using elements of defense, defense and attack, namely parrying, evading, attacking the target and knocking down the opponent, using competition techniques and tactics, stamina endurance and fighting spirit, using the pattern rules of Steps according to the rules to get the most value in the specified time (Mujahid, 2021)

Kicking is one of the techniques that has the most points in pencak silat matches compared to hand strikes and has a longer range. Kicks are also very effective and easy to do and combine with other types of attacks. When kicks are used to attack, defending and breaking attacks from opponents is very effective. (Suryadin, 2021)

Agility is very necessary in pencak silat in the competition category and is a support in agility training. This agility exercise is very suitable as a basic training for the sickle kick because it is one of the techniques that is often used in attacking during matches. (Manullang, 2024) Physical aspects such as strength, flexibility, endurance, and coordination should also be evaluated to ensure that the athlete has a strong physical foundation. because for an athlete to have the right sickle kick to get high points in a pencak silat match, the sickle kick is a form of attack that often produces points or numbers that are clearer and more decisive compared to other attacks. (Adeyansyah, 2022)

Agility is very important in pencak silat so the silat player easily moves in all directions while simultaneously doing a sickle kick so that the kick will not be easily caught by the opponent, because therefore agility must be made a priority in training pencak silat martial arts. This aims to train changing the meandering of the body. The zig-zag run exercise is explained in a study (Tofikin, 2020) that the zig-zag run exercise affects the agility of the sickle kick.

The author is interested in conducting this research on the pencak silat sport at the Dicapacita Pencak Silat College, Teluk Jaya Village, Kelekar District, based on the results of initial observations conducted with the coach through interviews. The results of the interviews showed that the training program implemented only focused on increasing strength, without involving an agility training program. In addition, several athletes were found who showed less than optimal sickle kick ability. Some of them seemed slow to make the kick and did not master the technique well.

To find good and effective training results, it is necessary to conduct research on improving agility results, on this occasion the author will research about zig-zag run and shuttle run exercises on the agility of the sickle kick, this exercise method aims to train the ability to change direction quickly and in the shortest possible time The zig-zag run and shuttle run agility training methods are special exercises to improve agility and body balance.

Another novelty in this research is the study in the context of the subject, theoretical vacuum, experience, and application of research, namely pencak silat athletes at the Dicapacita Pencak Silat College, Teluk Jaya Village, Kelekar District, who previously did not implement an agility training program. Therefore, this research provides a theoretical contribution in testing the truth whether agility training specifically can improve the quality of technique but is not carried out because it has experienced a long scientific vacuum or is considered irrelevant to the real-life context being lived. In fact, this research is indeed new and until now has not been found much in previous research. Another form of novelty in this research is using a two-group pretest–posttest experimental design with a controlled number of treatments, thus enabling a more accurate analysis. The results of this study are expected to be used as a scientific reference by pencak silat coaches at the training process stage so that sickle attacks are not easily read or taken by opponents.

Seeing the reality of the observation results, the exercise with the zig-zag run and shuttle run agility methods is the author's definition for that, the author feels the need to research scientifically regarding "The Effect of Zig-Zag Run and Shuttle Run Exercises on the Agility of the Sickle Kick of Pencak Silat Athletes in the Capacity of Teluk Jaya Village, Kelekar District".

METHODS

According to (Sugiono P., 2019) research methods are a scientific way to obtain data that

has certain purposes and uses. The statement shows that the research method is not just a technical step, but a scientific procedure used to ensure that the data obtained is valid, reliable, and accountable. This study is an experimental study that aims to find out how much the zig zag run (X1 variable) and shuttle run (X2 variable) affect the agility of the sickle kick (Y variable). This research is a quantitative research that uses an experimental method defined as a systematic method to build relationships that contain causal-effect relationships (Sukardi, 2015: 178). The design used in this study is "Two Groups Pretest-Posttest Design". The design can be described as follows:

In this study, the population used was all Pencak Silat Athletes in Teluk Jaya Village. The population is 25 athletes, consisting of 20 male athletes and 5 female athletes. Members who were chosen because they were considered to have characteristics that were in accordance with the needs of the research, especially related to agility ability and sickle kick techniques which will be measured through the treatment of zig-zag run and shuttle run exercises. By using the entire population, this study is expected to be able to produce more representative and accurate data.

The sample size in this study was 20 male athletes aged 14-16 years at the Pencak Silat School, Teluk Jaya Village. The selection of male athletes in the 14-16 year age range in this study because this age group has relatively homogeneous physical abilities and is in a developmental phase that is in accordance with the agility training program. Data in this study were collected through tests and measurements, using a crescent kick agility test. Data collection was carried out in two stages, namely a pretest to determine the athlete's abilities before being given treatment and a posttest to determine the increase in crescent kick agility after being given treatment, namely zig-zag run and shuttle run training. The data collected was the frequency of touching the crescent kick within a certain period of time according to the test procedures that had been given to the athletes. The data analysis techniques used consisted of descriptive analysis and inferential statistical analysis. Descriptive analysis was used to obtain the mean value, the highest value, the lowest value and the standard deviation in the pretest and posttest of each group. Inferential statistical analysis will begin with prerequisite tests, namely the data normality test and data homogeneity. If the data obtained meets the normality and homogeneity tests, a t-test will be conducted to determine the effect of zig-zag run and shuttle run training on the agility of pencak silat athletes' crescent kicks.

RESULTS AND DISCUSSION

Table 1 summarizes the sickle kick ability scores in both groups (n=10 per group). The zig zag run group increased from a pretest average of 19.20 (min–max: 18–20) to a posttest average of 24.60 (23–27). The shuttle run group increased from a pretest average of 20.90 (19–22) to a posttest average of 26.30 (24–30).

Table 1. Summary of straight kick agility scores (n=10 per group)

Group	Pretest (Mean ± SD) Min–Max	Posttest (Mean ± SD) Min–Max	Explanation
Zig zag run	19.20 (18–20)	24.60 (23-27)	Normal
Shuttle run	20.90 (19-22)	26,30 (24-30)	Normal

Normality testing using the Shapiro Wilk test showed that the pretest data were both normally distributed ($p>0.05$) for the zig zag run group (Pretest results of descriptive analysis showed that both groups experienced an increase in average values from 19.60 to 24.60. Meanwhile, the shuttle run group experienced an increase in average score from 20.90 to 26.30.

That all data were normally distributed ($p>0.05$), while the homogeneity test showed that the variance of the two groups was homogeneous ($p > 0.05$). The results of the t-test paired test showed that zig zag run ($t = 8.491$; $p < 0.05$) and shuttle run ($t = 11.180$; $p < 0.05$) had a significant effect on increasing the agility of the sickle kick.

The results of the sample t t-test identification test showed a difference in influence between the two exercise groups ($p = 0.039$). The average posttest score of the shuttle run group was higher than that of the zig zag run group and the shuttle run exercise was proven to be more effective.



Figure 1. sickle kick research

From the results of the study it can be concluded that zig-zag run and shuttle run training have a significant effect on improving the agility of the crescent kick of Dicapacita pencak silat athletes. The hypothesis is maintained. These results are in line with the theory of physical condition training which states that agility is a very vital technical ability in martial arts due to the ability to change the direction of the participant's body movement quickly and accurately in various angles of the body construction plane. With good agility, it will greatly help participants to perform kick attacks simultaneously by avoiding a series of gaol responses more than single participants in the game effort, which is an important aspect in improving the performance of the crescent kick technique. (Adeyansyah et al., 2022; Manullang & Aliriad, 2024).

Based on the statistical test results, it can be concluded that shuttle run training provides greater agility improvements compared to zigzag run training. This is demonstrated by higher post-test scores and t-test results in the shuttle run group. This difference is influenced by the characteristics of the shuttle run movement pattern, which emphasizes repeated rapid acceleration and deceleration, thereby more effectively improving athletes' change of direction and neuromuscular responses (Adeyansyah R.H., 2022) (Tofikin, 2020).

Shuttle run training also has a high level of suitability for the physical demands of competitive pencak silat, which is characterized by explosive, intermittent, and high-intensity movement patterns over relatively short durations. Pencak silat requires dominance of the anaerobic energy system and the ability to change direction quickly and controlled, especially when alternating attacks and defenses (Mujahid, 2021). Therefore, shuttle run training is considered capable of accommodating the physiological and biomechanical needs of athletes in competition situations.

Furthermore, under conditions of physical fatigue, shuttle run training contributes to increased agility endurance, enabling athletes to maintain the quality of movement and effectiveness of their crescent kick technique throughout the match. This aligns with the findings of Manullang and Aliriad (2024), who stated that high-intensity change-of-direction training significantly impacts movement stability and kicking performance in pencak silat athletes.

Therefore, it can be concluded that zigzag run and shuttle run training are both effective in improving crescent kick agility. However, shuttle run training has a more specific training transfer to the movement demands, technical load, and playing patterns of pencak silat competition. These findings emphasize the importance of selecting training methods that align with the technical characteristics and competition requirements to optimize pencak silat athlete performance (Adeyansyah R.H., 2022).

CONCLUSION

Based on the results of the study and the purpose of the study is to find out. The effect of zig-zag run and shuttle run training on the agility of the crescent kick of pencak silat athletes at the Dicapacita Pencak Silat School, Teluk Jaya Village, Kelekar District, it can be seen that there is an effect of the training, there is an influence of the results of the training on the research subjects. Therefore, the determining factor is that both training methods can be said to have the ability to improve the agility of the crescent kick, However, when compared, structured agility training can relatively have an impact where athletes are able to perform actions to change the direction of movement quickly, continuously and quickly when demonstrating and factors that successfully maintain the direction of movement. can be held more accountable without changing the rules or style. Thus it is more adequate as far as the context of the pencak silat competition is concerned. Shuttle run training provides an impact in the form of more optimal improvements. This shows that training in which sprints lead to high-intensity back and forth running movements and rapid changes in direction are more suitable in its aspects that serve fast and specific movements, often difficult to predict by the opponent. Thus, the objectives and research questions have been answered in this study, namely that agility or physical range training through weights and methods plays a role in the quality of crescent kick technique. This study also provides a standard for coaches in determining training methods that are effective and easy to implement.

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