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The Effect of Agility Ladder Training on The Sickle Kick Speed Of Pencak Silat Athletes of The Loyal Heart Brotherhood Terate Ngawi Branch

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Abstrak

Tendangan sabit adalah teknik tendangan yang tidak mudah dilakukan oleh seorang atlet silat, teknik menendang ini lebih sulit dibandingkan dengan tendangan langsung atau tendangan lurus. Tendangan sabit membutuhkan kelenturan dan kecepatan, serta latihan yang tepat. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh metode latihan agility ladder terhadap kecepatan tendangan sabit atlet pencak silat Persaudaraan Setia Hati Terate (PSHT) Kabupaten Ngawi. Jenis penelitian merupakan penelitian eksperimen semu yang menggunakan desain non-equivalent posttest only control group design. Sampel yang digunakan pada penelitian ini sebanyak 10 atlet yang terbagi pada kelas eksperimen dan kelas kontrol. Teknik pengumpulan data ini menggunakn tes dan pengukuran kecepatan tendangan sabit, data yang telah terkumpul diolah dan di analisis dengan statistic deskriptif dan menggunakan uji-t untuk mengetahui hasil hipotesis penelitian. Hasil dari penelitian ini telah ditemukan terdapat adanya pengaruh dari latihan agility ladder terhadap kecepatan tendangan sabit. Hal ini ditunjukkan dengan nilai signiikansi (2-tailed) 0,004 < 0,005 maka H1 diterima dan H0 ditolak. Skor dari hasil tes kecepatan tendangan sabit rata-rata untuk kelompok eksperimen 25 dan untuk kelompok kontrol 20. Sehingga hal ini berarti rata-rata kelompok eksperimen > kelompok kontrol, sehingga dapat disimpulkan metode latihan agility ladder dapat memberikan pengaruh terhadap kecepatan tendangan sabit pencak silat Persaudaraan Setia Hati Terate Kabupaten Ngawi.

Kata Kunci: agility ladder, tendangan sabit, kecepatan, PSHT, pencak silat.

Abstract

Sickle kick is a kick technique that is not easy for a martial arts athlete to do, this kicking technique is more difficult compared to direct kicks or straight kicks. The sickle kick requires flexibility and speed, as well as proper practice. The purpose of this study was to determine the effect of agility ladder training method on the sickle kick speed of pencak silat athletes PerFraternity Setia Hati Terate (PSHT) Ngawi Regency. This type of research is a pseudo-experimental research that uses a non-equivalent posttest only control group design. The sample used in this study was 10 athletes divided into experimental and control classes. This

data collection technique uses tests and measurements of sickle kick speed, the data that has been collected is processed and analyzed with descriptive statistics and uses t-tests to determine the results of research hypotheses. The results of this study have found that there is an effect of agility ladder training on sickle kick speed. This is indicated by a significant value (2-tailed) 0.004 < 0.005 then H1 is accepted and H0 is rejected. Scores from the sickle kick speed test results were average for the experimental group of 25 and for the control group of 20. So this means that the average experimental group > control group, so it can be concluded that the agility ladder training method can have an influence on the speed of the pencak silat sickle kick of the Brotherhood of Loyal Heart Terate Ngawi Regency.

***Keywords**: agility ladder, sickle kick, speed, PSHT, martial arts.*

Introduction

Sport is all forms of physical and spiritual activity, currently a trend or lifestyle for some people, even some others make it a basic need to maintain health and improve the quality of one's life. According to [1] Exercise is a series of life-supporting physical activities with a regular and planned rhythm that maintains and improves mobility (improves quality of life). In its development, exercise is not only to fill free time, but also to maintain fitness.

For teenagers, sports are very necessary because they help increase physical strength and can develop interest and talent for achievement, but it also helps adolescents develop social spirit, increase self-confidence and social communication [2]. In sports reflected the aspirations and noble values of society which translate into the desire to achieve self-fulfillment through sports achievements. We often hear that a country's progress is reflected in its sporting achievements. It is hoped that sports in Indonesia can be used as a social driving engine to produce superior humans, both physically, mentally, intellectually, socially and able to form a whole person.

One sport that can increase endurance, social and achievement is pencak silat. Pencak Silat is one of the typical martial arts of Indonesian society, which is a legacy from ancestors who have been attached to Indonesian society. Pencak silat comes from two words, namely 'pencak' and 'silat'. The definition of pencak is the basic movement of martial arts and is bound by rules. While silat means perfect martial movements that originate from spirituality [3]. According to [4] Pencak silat is a game (skill) in self-defense with the skills to parry, attack and defend yourself using or without weapons. Pencak silat or known as silat is a traditional Indonesian martial art that pays attention to the art of beautiful movements in every move [5]. Pencak Silat is basically a form of unification of reason, spirituality and human dimensions into God's creatures, forming 4 aspects, namely soul, art, martial arts and sports [6].

Pencak silat sports there are 4 categories in Pencak Silat competitions, namely the sparring category, the single art category, the double art category, and the team art category. The sparring category is a category that features two fighters who are distinguished in the red and blue camps to compete for points by attacking and defending each other by kicking, punching, and slamming [7]. Single art category is a category that features a fighter demonstrating his skills in Single Standard Moves correctly, precisely, and steadily, full of soul, with bare hands and armed and subject to the rules and regulations applicable to a single category

[8]. While the double art category featuring 2 (two) Pesilat from the same team, demonstrating the skills and richness of their martial attack techniques [9] and for the team art category, the Pencak Silat competition category which features three fighters from the same camp demonstrating their skills in standard team moves correctly, precisely, steadily, soulfully and compactly with their bare hands [10].

Pencak silat in Ngawi district is a sport that always has competition. Through these competitions, the fighters in Ngawi district grew and developed their achievements. The development of pencak silat in Ngawi district is currently quite good, as evidenced by the many pencak silat colleges in Ngawi district. One of them is the Terate Loyal Heart Brotherhood (PSHT). Facilities and infrastructure to facilitate training in PSHT Ngawi district are good and complete so as to encourage athletes to excel. The athletes train 3 times a week, namely on Monday, Thursday, and Saturday. Through observation on March 10, 2023 which was carried out through direct observation.

When researchers were making direct observations, researchers saw that athletes who were applying the scythe kick that was whipped up looked still easy to anticipate, so that the kick could not be caught by opponents during trial training or competition. Therefore, it takes a good sickle kick speed so that the kick is not easy to anticipate by the opponent. The sickle kick is a movement performed with one foot or the other foot up while the other foot acts as a pedestal, by slashing the kick at the target waist and legs where the target is from the side and its impact at the time of kicking is the instep [11]. According to [12] The sickle kick is a kick that has the advantage of being faster, more practical, and has a clear impact because it makes the loudest sound when the kick hits the target compared to other kicks.

According to [13] In martial arts, the physical condition of agility is very decisive for the fighter because it determines the success of the attack (sickle kick ability) along with other elements of physical condition. The sickle kick technique requires the athlete's kicking and dodging skills, and can also be required in counterattack techniques by waiting for the opponent's attack, then stepping sideways and stopping the opponent's attack. Many training methods are used by trainers to increase speed and agility, one of which is the agility ladder. According to [14] Agility ladder training is essential for conditioning speed, agility, and coordination.

The above factors have a strong effect on increasing the torque of muscle contraction, thereby improving the coordination of motor system movements, which can affect the development of mobility. This exercise is implemented through the medium of a ladder box or helicopter ladder called agility ladder. In this study, the exercises used were High knee run and Icky Shuffle because these exercises used simple movements and were easy to understand and do. The reason researchers use both forms of variant of the agility ladder training method for high knee run when the foot is moved straight forward, athletes more easily lift their legs before doing a sickle kick, while for the icky shuffle variant this variant is a sideways zigzag movement. Thus, this variation is useful when the athlete executes or launches a sickle kick or launches a counterattack where the execution is sideways to avoid the attack and is ready to retaliate or launch an attack.

Previous research conducted by [15] Those who apply the agility ladder and cone drills training methods to the skill of

the martial arts sickle kick have a significant influence. However, agility ladder exercises are more effective than cone drills as seen from t count greater than t table with numbers 3.414 > 2.210 with mean values of Xa > Xb which is 83.42 > 80.53. So the purpose of this research is to see the effect of agility ladder training on the speed of pencak silat sickle kicks in athletes of the Brotherhood Setia Hati Terate (PSHT) of Ngawi regency.

Method

This type of research is quantitative research with experimental methods that use Non EquivalentPost-test Only Control Group Design. The experimental group was treated with agility ladder training while the control group was given training treatment using a patching pad.

The population of this study is Ngawi Regency PSHT athletes totaling 35 people. While the sample used in this study was only 10 people, where the researcher used the purposive sampling method, which is sampling with certain considerations [16]. This consideration researchers determine 1) Pencak silat athletes of male gender 2) Sparring athletes of PerFraternity Setia Hati Terate Ngawi Branch 3) athlete age 15-18 years. Of the 10 people who have been determined to be samples, then divided into two, namely five people into experimental groups and five people into control groups.

Data collection techniques in this study used test and measurement techniques. The instrument in this study, the test and measurement of athletes kicking with the right foot and returning to the starting position by touching the floor behind the line, then continuing the right kick as quickly as possible for 10 seconds as well as the left foot. The implementation was carried out for 3 times and the best time was taken.

Test result data were analyzed using descriptive statistics. For prerequisite tests using normality, homogeneity, and research hypothesis tests using t-tests. The sickle kick speed assessment category can be presented in the following table:

Table 1. Sickle Kick Speed Assessment Category

Category	Son
Very Good	>25
Good	20-24
Enough	15-19
Less	10-14
Not Good	<9

(Source: [17])

Results and Discussion

Result

Research data from the results of sickle kick speed tests on athletes using the agility ladder training method in the experimental group can be presented in the following table:

Table 2. Experimental Class Pretest and Posttest Results

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-test	5	16	20	18	1.581
Post-test	5	20	25	23	1.871

Based on the analysis of calculation data conducted in the experimental class, the average score on the pretest 18 in the Sufficient category was obtained, after being treated using the agility ladder training method increased to Good with an average value of 23. The results of data analysis conducted in the control class of the sickle kick speed test on athletes using the patching pad training method can be presented in the following table:

Table 3. Control Class Pretest and Posttest Results

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-test	5	15	18	16,8	1.304
Post-test	5	17	20	19	1.225

Based on the analysis of calculation data carried out in the control class, the average score on the pretest was 16.8 in the Sufficient category, after being treated using the patching pad exercise method increased with an average score of 19 which was still in the Sufficient category.

Before knowing the hypothesis of the effect of Agility ladder drills on sickle kick speed in PSHT pencak silat athletes in Ngawi district, prerequisite tests were carried out which included normality tests and homogeneity tests. Data normality tests were performed on the entire unit of the experimental class and the control class. Data analysis for normality testing in this study used the Shapiro-Wilk test. The results of the data normality test conducted in each analysis group were carried out with the SPSS software program version 26 with a significance level of 5% or 0.05. The data is normally distributed if the significance number obtained is more than 0.05 at a significance level of 5%. The results of the normality test of the experimental and control groups are presented in the following table:

Table 4. Test Results of Normality of Data Distribution of Experimental Class and Control Class

Class	Shapiro Wilk		
	Statistic	df	Sig.
Pretest Control group	0,221	5	0,200
Posttest Control Group	0,300	5	0,161
Pretest Experimental Group	0,136	5	0,200
Posttest Experimental group	0,300	5	0,161

Based on the results of pretest and posttest calculations of the experimental group and the control group, the analysis output shows a Shapiro_Wilk value with probability (Sig.) obtained from the normality test results of Sig. significance value data. > 0.05, which means the data is normally distributed.

The homogeneity test of variance was carried out based on data from the sickle kick speed test results in the experimental class and control class. Test homogeneity of variance between groups using test F. It is said to have the same variance value if the significance level is ≥ 0.05 and if the significance level is < 0.05 then the data is concluded not to have the same / different variance value (not homogeneous). Here are the homogeneity test results presented in table 5:

Table 5. Test Results of Homogeneity of Experimental Class and Control Class

F	df1	df2	Sig.
0,207	3	16	0,890

Based on the summary of the data, the variance homogeneity test results for both groups showed that the significance values were 0.890 ≥ 0.05. This means that in the data group has homogeneous variance.

The hypothesis in this study that was tested was the difference in the speed of the sickle kick of PSHT silat athletes between athletes who were given agility ladder and patching pad training methods. To test the proposed hypothesis using an independent t-test. The terms of the independent t-test are determined by looking at significance. If the Significance or Sig. (2-tailed) value > 0.05, then H0 is accepted and H1 is rejected and if the Significance or Sig. (2-tailed) value < 0.05, then H0 is rejected and H1 is accepted. Here are the t-test results:

Table 6. Hypothesis Test Results

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					
									95% Confidence Interval of the Difference
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil	Equal variances assumed	0,333	0,580	4,000	8	0,004	4,000	1,000	1,694	6,306
	Equal variances not assumed			4,000	6,897	0,005	4,000	1,000	1,628	6,372

Discussion

The results of this study found that there was a difference in the results of sickle kick speed between the group of children who were treated using the agility ladder training method and the group using the patching pad training method. Descriptively, the experimental class's sickle kick speed results were higher than those of the control class. These results are based on the average score of sickle kick speed results between the experimental class and the control class. The average experimental class of sickle kick speed results was 23 in the good category. Meanwhile, the control group on sickle kick speed results were 19 in the sufficient category.

Based on the results of the significant value in the hypothesis test that the Sig (2-tailed) value < 0.05 so that H1 is accepted and H0 is rejected. So this can be interpreted that there is a significant difference in the speed results of sickle tendans using the agility ladder training method with the patching pad training method in Ngawi Regency Loyal Heart Terate (PSHT) athletes.

Athletes who have been given the agility ladder training method obtain better sickle kick speed results compared to using the patching pad training method because this exercise focuses on developing leg speed. By practicing fast and precise footwork through ladder lines, athletes can improve their ability to produce sickle kicks at higher speeds. Movements that involve rapid changes in the direction and position of the feet. This helps improve the athlete's agility, so the athlete can easily adjust the position of the foot when launching a sickle kick. This exercise requires good coordination between the eyes, brain, and feet so that the athlete can develop a better sensitivity in coordinating foot movements, and most importantly to produce an accurate and powerful sickle kick.

Although patching pads can also be used to train sickle kick speed, agility ladder exercises provide additional benefits in terms of developing foot speed, agility, foot coordination,

concentration, and core strength. So this is a better choice to improve the overall sickle kick ability.

In line with previous research by [18] There is a significant difference from agility ladder training and cone drills t-value calculated 3,414 > t table 2,210, in this study agility ladder training method is better than cone drills with an average value of 83.42 > 80.53. Moreover [19] Also stated that agility ladder training has a good influence on the speed of sickle kicks in the Cuyusika White Heron pencak silat college, it is known that there is an increase of 14.71% from pretest and posttest scores. In addition to increasing the speed of the sickle kick, agility ladder training also provides a damapk to the agility of the sickle kick, this is proven by research [20] evidenced from the results of pretest-posttest research significance values (2-tailed) 0.001 < 0.05 which means there is a significant influence of agility ladder training on the agility of the Pagar Nusa pencak silat sickle kick in Surabaya. Previous research.

From some of the research mentioned above, it can be concluded that agility ladder training can increase the speed of the pencak silat sickle kick of the Brotherhood Setia Hati Terate (PSHT) of Ngawi Regency. This is also based on internal factors such as the seriousness of athletes in training, when given treatment, and martial artists' self-awareness to be disciplined in following training. Apart from internal factors, external factors also have an influence such as the enthusiasm shown by the coach, motivation from the closest people to be disciplined and diligent in participating in training.

Consclusion

Based on the results of research that has been conducted to determine the effect of agility ladder training on increasing the speed of pencak silat sickle kicks of the Brotherhood of Loyal Heart Terate (PSHT) of Ngawi Regency, there is a significant influence of agility ladder training on sickle kick speed. Training using a patcing pad also has an influence on sickle kick skills, but in this study agility ladder training is better than patching pad training in increasing sickle kick speed. In other words, if the coach wants to increase the speed of his sickle kick, he can use the agility ladder training method but with a planned, systematic and measurable training program the load will increase day by day as needed in the physical condition of the existing athlete.

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