

The Effect of Resistance Band Training on Front Kick Speed in Pencak Silat PSHT Rayon Pojok Ranting Ngantru Branch Tulungagung

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Abstract

This study aims to determine the effect of resistance band exercise on the speed of the front kick at the PSHT rayon Pojok Rantau Ngantru branch, Tulungagung. This study used an experimental method with a one-group pretest-posttest design. The study population comprised 30 members of the PSHT Pojok Rantau Ngantru branch. Sampling in this study was carried out by total sampling. The instrument used in this study was to measure the speed of the front kick, namely the 10-second kick test. The results of the study obtained a t-value of -38.780 with a significance value (sig, 2-tailed) of 0.000 because the significance value is smaller than 0.05 ($0.000 < 0.05$). This study concludes that there is an effect of front kick speed on training resistance band at the PSHT Pojok sub-district, Ngantru branch, Tulungagung branch.

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1. INTRODUCTION

Sport is an activity frequently associated with everyday life, both individually and in groups. [1] explain that sport is a form of structured physical exercise that aims to improve functional abilities within the body. Sports activities can be carried out in daily life for various purposes, ranging from entertainment and recreation, maintaining health, generating economic benefits, and also being used as a means of achievement.

Law of the Republic of Indonesia No. 3 of 2005 explains that the national sports system, Chapter VII, Article 25 paragraph 6 states, "To grow and develop achievements in sports, especially in educational institutions, can be formed through sports activity units, coaching and training centers, sports schools, as well as holding tiered and sustainable sports competitions for its members." Based on the statement above, it can be interpreted that one of Indonesia's big visions is to produce brilliant achievements in the national and international sports arena, one of which is in pencak silat.

Silat experts and champions believe that Malay people have developed and practiced pencak silat since prehistoric times. This confirms this martial art as one of Indonesia's original cultures. This is in line with the explanation given in [2]. Generally, pencak silat is a self-defense system for personal

safety. Over time, its function has transformed. No longer merely a method of self-protection, this martial art has evolved into a popular competitive sport.

[3] explain that in competitive sports, pencak silat has a variety of physical skills, techniques, instruments, and even training equipment tailored to the needs and targets of the sport being pursued, just like in gymnastics. Like sports in general, pencak silat also integrates several crucial aspects in its training, one of which is technical mastery. According to [4], the main focus of technical training is optimizing mastery of specific movements needed to master the sport proficiently. Considering that this process plays a very important role in boosting basic physical capabilities, the preparation of a measurable and systematic technical training program is essential to support the progress of a silat athlete's abilities.

[5] state that, in pencak silat, there are also points from the match, namely point 1 is obtained from a punch that enters the opponent's target area, point 2 is obtained from a kick that hits the target absolutely, and point 3 is obtained from knocking the opponent down. Most points are obtained by using kicks; kicks also have many variations of movements, one of which is often used is the front kick. The front kick is applied by pushing the leg forward in a linear manner, while the anatomical position of the body remains upright, facing straight towards the opponent [6].

One of the most influential pencak silat schools in East Java is the Persaudaraan Setia Hati Terate (PSHT). In Ngantru sub-district, Tulungagung regency, specifically in Pojok Village, Ngadirejo Hamlet, there is a training center, commonly called a rayon, with a sizable number of members. The rayon teaches manners and social skills, garnering high levels of enthusiasm from its members. Furthermore, this rayon has produced many accomplished members, but it still lacks in skill, particularly in the front kick.

Based on the researcher's observations conducted at the PSHT training in the Pojok Trang Ngantru area, by observing and assessing the front kick practice using one-on-one combat tactics, the kick was still lacking, making it vulnerable to being caught and taken down. The limited training program specifically for speed training was an external factor causing the front kick to be less than optimal. Considering this problem, a modification of the load using a *resistance band* is highly recommended as a form of training intervention that is considered capable of boosting the acceleration and quality of the front kick of a silat athlete and is also said to be effective in honing kick acceleration [7]. Similar findings on the effectiveness of resistance band training for improving pencak silat kick speed have also been reported in national and international studies [8], [9].

Based on initial observations conducted by researchers at the PSHT Pojok Rantau Ngantru sub-district, there was an urgent need to assess the quality of front kicks at that location. Therefore, this study was designed by implementing a training method based on *resistance bands* as a real effort to boost the acceleration of the front kicks of the martial artists in the PSHT training in the Pojok Sub-district, Ngantru Branch, Tulungagung.

2. METHOD

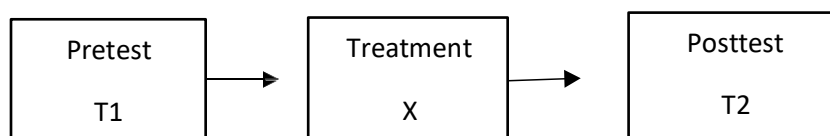
This study employed an experimental quantitative approach with a total of 30 respondents as the research sample. This quantitative approach was applied to test the causal relationship between the independent variable (intervention) and the dependent variable (output) in a controlled setting.

The focus of observation was directed at both variables. In line with the research design, the data collected included front kick speed before and after the intervention, as explained in [10].

The study population used a total sampling technique, namely all PSHT pencak silat students in the Pojok Ranting Ngantru rayon. [11] state that the determination of this population was based on certain characteristics and criteria determined by the researcher to be studied, developed, and ultimately draw a conclusion. The population in the study included 30 pencak silat students (respondents) in the Pojok Ranting Ngantru rayon who were still actively practicing, and all 30 were used as the research sample.

The research instrument used data from the front kick speed achieved before and after the intervention was measured. The quantitative data collection process was conducted through a front kick speed test converted to seconds, both in the first phase and second phase *pretest and posttest*. Evaluate the results of the training program using a *resistance band*. This is carried out after the athletes have completed a total of 16 meeting sessions. [12] with a testing scheme in the form of a 10-second kick test repeated 3 times, and analyzed using descriptive percentage techniques with IBM SPSS Statistics version 22.

Figure 2.1 Research method



Information

T1 : Initial test

T2 : Final test

X : Training model *resistance band*

3. RESULTS

All samples did a pretest and posttest to determine the effect of the training *resistance band* on the speed of the front kick at the PSHT Pojok Rantau Ngantru branch of the Tulungagung branch. Based on the results of this study, the following data were obtained:

Table 3.1 Descriptive Statistics *Pretest*

Statistics	
N	30
Mean	20,5
Median	20,5
Modus	20
Standard Deviation	1,613

Minimal	17
Maximal	24

Based on the results of descriptive data analysis of the *pretest* influence of training *resistance bands* regarding the speed of the front kick, the number of data obtained (N) was 30, the average value (*mean*) was 20.5, the *median value* was 20.5, the *mode value* was 20, the minimum value was 17, the maximum value was 24, and the standard deviation was 1.613. This finding shows that the initial capacity of the front kick speed at PSHT rayon Pojok ranting Ngantru is in the sufficient and good category with quite diverse data variations.

Table 3.2 Frequency distribution *pretest*

No	Category	Mark	F	Percentage
1.	Enough	17 - 19	8	27%
2.	Good	20 - 24	22	73%
	Total			100%

Based on Table 3.2 frequency distribution *pretest*, the speed of the front kick was in the good category. There were 8 students (27%) in the sufficient category and 22 students (73%) in the good category.

Table 3.3 Descriptive Statistics *Posttest*

Statistics	
N	30
Mean	24
Median	24
Modus	24
Standard Deviation	1,648
Minimal	20
Maximal	27

Based on the results of descriptive data analysis *posttest* the effect of resistance band training on front kick speed obtained the number of data (N) = 30, the average value (*mean*) 24, *median value* 24, mode value *modus* 24. Minimum 20, maximum value 27, and standard deviation 1.648.

Table 3.4 Frequency Distribution *Posttest*

No	Category	Mark	F	Percentage
1.	Good	20-24	22	73%

2.	Very well	>25	8	27%
	Total			100%

The results of the frequency distribution are known. *Posttest* front kick speed was categorized as good. Twenty-six students (87%) were in the good category, and four students (13%) were in the excellent category. The next test involved a normality test, as follows.:

Table 3.5 Normality test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Say.	Statistic	df	Say.
pretest	.122	30	.200*	.971	30	.565
posttest	.133	30	.183	.939	30	.083

Based on the output of the normality test using the *Shapiro-Wilk method*, it is noted that the significance value (Sig.) for the *pretest data* is 0.565, while the *posttest data* shows a figure of 0.083. Considering that the significance of the two data groups exceeds the threshold value of 0.05 (Sig > 0.05), it is concluded that the data variation between *pretest* and *posttest* has a normal distribution. To review the results of the data homogeneity test, the results are presented in the table below:

Table 3.6 Homogeneity Test

Levene Statistic	df1	df2	Say.
.573	4	24	.685

Based on Table 3.6, the results of the homogeneity test are known with *Levene's statistic*. The speed of the front kick obtained a significance value of 0.685, which means it is greater than 0.05 (0.685 > 0.05), so it is concluded that the variance of the study data is homogeneous.

Table 3.7 Test Paired Samples Test

		Paired Differences					t	df	Say . (2- tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pretest – posttest	-3.300	.466	.085	-3.474	-3.12	-38.780	29	.000

					6			
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Referring to the analysis output of the *paired samples t-test*, the calculated t value was found to be -38.780, with a significance level (Sig. 2-tailed) of 0.000. Statistical testing shows that the probability value is below the threshold of 0.05 ($0.000 < 0.05$), so H_0 is rejected, and H_1 is accepted. These results prove that there is a real and significant difference between the performance of the *pretest* and *posttest* on the effectiveness of the exercise *resistance band* on front kick ability.

Based on the findings of the research analysis, a significant increase was found in the sample. The exercise program intervention with a *resistance band* has a significant effect on increasing the speed of the front kick at the PSHT Pojok ranting Ngantru area. The series of systematic stages applied to reach the conclusion drawing stage includes: (1) implementation of a *pretest* at the start of the session, which is used to measure and identify the initial capacity of the subject's front kick speed. (2) Implementation of the training program: *resistance band* for as many as 16 meetings, 3 times a week. (3) Then the last one was held as a *posttest* to see whether or not there is an effect of increasing the ball kicking skills of the research subjects who underwent intervention. To see the effect of training with resistance bands on training *resistance band* against the front kick was measured through a t-test. The results of the t-test (*pretest* and *posttest* on the front kick) show a significant influence, because the *pretest* and *posttest* Front kick speed increased after undergoing training with *resistance bands*.

The findings confirm that there is a significant difference between the results *Pré-test* and *post-test*, which represents a significant increase in performance. This is also supported by previous research that showed that in PSHT Rayon Maskerebet members, a sample of 20 athletes with a design of *pretest-posttest* also concluded that there was a real influence of the exercise *resistance band* on the speed of the sickle kick, which is also proven by the very high t-value compared to the t-table [7]. In other research results, according to [13], research on PSHT athletes from the Bermani Ulu Raya Branch who used the T-kick also reported similar results, namely training *resistance band* proven to have a positive impact on kicking speed, with better kicking performance compared to before treatment. Consistent with these findings, elastic resistance training has also been shown to significantly enhance kicking velocity and impact scoring among Taekwondo athletes [14], as well as to improve muscular strength and power in student-athletes, including those from martial arts disciplines [15]. Similar improvements following resistance-based strength training have likewise been reported among junior pencak silat athletes [16], further reinforcing the training approach adopted in this study. Based on the data analysis, the hypothesis formulated in this study was accepted, so it can be concluded that the training *resistance band training* affects the front kick at PSHT rayon Pojok ranting Ngantru.

4. CONCLUSION

Based on the study findings obtained through data analysis and hypothesis testing, it can be concluded that there is a significant influence of exercise. *resistance band* on front kick speed at PSHT rayon Pojok ranting Ngantru. The t-value obtained was -38.780 with a significance value (Sig.

2-tailed) of 0.000. Because the significance value is smaller than 0.05 ($0.000 < 0.05$). Based on empirical data, the accumulation of scores in the *pretest phase* was recorded at 615 points with an average score of 20.5 points. When this achievement is compared with the results of *posttest* A total of 714 points (average 24 points) was found, with a margin of improvement of 101 points. This positive differentiation indicates that resistance band training for front kicks at the Pojok Trang Ngantru PSHT sub-district experienced greater improvement.

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