

## The Effect of Berberan Exercise Using Resistance Bands on Sickle Kick Ability

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### Abstract

**Background and aim.** This study observes that the ability to perform sickle kicks is still not optimal. Therefore, this study aims to determine the effect of weight training using black Resistance Bands Tube Sets on the sickle kick ability of Putera Muhammadiyah Pencak Silat Tapak Suci athletes at PGRI University, West Sumatra.

**Methods.** This type of research is pre-experiment. Samples were taken using a purposive sampling technique with a sample of 14 young and adult female athletes from Tapak Suci, PGRI University, West Sumatra. The analysis used is the sample dependent t test. The instruments and data collection techniques used in the research were in the form of a crescent kick speed test.

**Results.** The results showed that there was a significant effect of weight training using resistance bands seen from: (a) the average ability to kick on the right leg during the pre-test was 20 kicks and after being given treatment the average athlete performed 21 kicks in the post-test, indicating an increase of 1 kick, with  $t_{count} = 5.551 > t_{table} = 1.771$ ; and (b) the athlete's left foot kick increased by an average of 1 kick, from 18 kicks in the pre-test to 19 kicks in the post-test. This is proven after the "t" test where  $t_{count} = 5.508 > t_{table} = 1.771$ .

**Conclusions.** The use of Resistance Band tube sets is effective in improving the sickle kick ability of pencak silat athletes. Further researchers are recommended to use only one color of resistance band to obtain more consistent training outcomes.

**Keywords:** *Crescent Kick; Resistance Bands Tube Sets Black Color; Silat.*

### 1. Introduction

Pencak Silat is one of the original cultural sports from Indonesia (Abimayu Prabowo Askiti, 2021). Pencak Silat is a martial art form that originates from the ethnic Malays in the Southeast Asian region according to (Aboodarda et al., 2011). Pencak silat is a self-defense system that was passed down by our ancestors as the culture of the Indonesian people, so it needs to be preserved, fostered, and developed (Agus & Fahrizqi, 2020). Pencak Silat has developed into a structured competitive combat sport, with approved tournaments including the Southeast Asian Games (Sea by fighters is the sickle kick technique. A sickle kick is a kick that is often used in matches, a sickle kick is also a kick that is carried out with a curved trajectory from the side like a sickle/sickle (Bergquist et al., 2018).

Putera Muhammadiyah Putera Tapak Suci College at UPGRISBA makes crescent kicks as the

first step for a fighter to learn basic attacking movements, but many athletes do sickle kicks that are not optimally seen during routine training sessions, with that sickle kick technique is one of the factors that really supports athlete achievement. Therefore, this crescent kick technique must be trained properly, programmed in training sessions, and other supporting factors (Brown, 2007).

Therefore, the researchers want to provide a treatment with one of the Resistance Band aids, namely a rubber-shaped tool which will later be used in training sessions (Cakmakci et al., 2017). This Resistance Band is one of the training methods that researchers hope to improve the ability of UPGRISBA Pencak Silat athletes' sickle kicks (Calatayud et al., 2014).

A crescent kick is a kick that traverses a semicircle inward, targeting all parts of the body, with the back of the foot or the toes (Chelly et al., 2009). The definition of a target is an effort to defend

yourself by using your arms (hands) or legs (legs), to hit certain targets on your opponent's body (Chodzko-Zajko et al., 2009). A sickle kick is a kick that is executed like a curved sickle. Because the instep or the base of the toes is an objection to kicking the target (Hass et al., 2001). In the Tapak Suci school, this crescent kick is called the flying fish kick, shaking the fins. This kick is used by athletes who play in the fighting category. This kick is also the most effective and is often used by athletes during competitions (Irawadi, 2018).

According to (Jaya & Fardi, 2018) speed is a person's ability to cover a distance in the shortest possible time. Speed is not only about moving the whole body quickly, but also being able to move the body in the shortest possible time (Kriswanto, 2015). This speed is inseparable from good ability, if there is no ability then speed will be very difficult, this is an aspect of physical fitness which is very dominant in sports activities. Speed and ability are the ability to perform movements within certain units of time to quickly complete a certain distance (Lubis, 2016).

So, it can be concluded that good ability in kicks must have good speed, then speed ability is the ability of the body or the mobility of the central nervous system and muscle apparatus to perform and display movements at a certain speed, both in terms of mechanics. Good kicking ability certainly has speed and strength which are important roles in carrying out a movement in sports (Machado et al., 2014).

Exercises that are suitable for developing strength and speed are endurance exercises, one of which is Resistance Bands with strength and speed training, so strength (explosiveness) automatically develops by itself (Andersen et al., 2017). Weight training has been shown to be effective for developing fitness (Maulana & Wijaya, 2018). Resistance bands are a very effective tool for training and also as an alternative way to do exercises (Nabila et al., 2021). This Resistance Band is an efficient and easy-to-carry fitness tool made of rubber, plastic (Machado et al., 2014).

Resistance Bands is a comfortable and practical option that is very easy to use in sports activities (Nisa & Aji, 2021). Resistance Bands are equipment made of flexible elastic material, therefore this tool is easier to use anywhere and can be done in narrow areas (Nusufi, 2015).

Exercising or exercising using Resistance Bands can improve body composition, physical

fitness, and can improve body fitness, and Resistance Band exercises are also suitable for those who have an environment with limited space and time (Rahmad & Anggara, 2022). This Resistance Band tool provides progressive stimulation to the muscles to build strength and increase muscle mass, both in terms of strength, speed, explosive power and so on (Agus & Fahrizqi, 2020). This Resistance Band training tool is very efficient for exercising in a space that is not too large, and can be used anywhere and can be used in various ways to practice using the Resistance Band (Ramos & Oktavianus, 2020).

According to (Rosmawati & Halimanur, 2019) "Resistance bands are an effective sports training tool that are easy to carry anywhere and are made of rubber. The resistance band has a handle that makes it easy for the user to use. The use of this tool is done by attaching one end of the tool to one of the ankles, and the other end is tied to a pole/friend who holds it (as a support)" (Chelly et al., 2009).

## **2. Materials and Method**

This type of research is pre-experiment (Soo et al., 2018). The population of this study were 21 adult athletes and young men and women from Tapak Suci University of PGRI, West Sumatera. Samples were taken using a purposive sampling technique with a sample of 14 females and adult female athletes. The instrument in this study used the crescent kick ability test and the data collection technique used the sample dependent t test. Hypothesis testing is carried out after fulfilling the requirements of homogeneity and normality analysis.

The results of the t-test analysis stated that there was an effect of weight training using leg weights in the form of Rubber Resistance Bands (X) on crescent kicks (Y) for pencak silat athletes in the training unit at PGRI University, West Sumatra with the results of the t test, where  $t_h$  was obtained on crescent kicks using legs 5.551 on the right and 5.508 sickle kicks using the left foot  $> t_{table} = 1.771$  at a significance level  $\alpha = 0.05$ , it can be concluded that there is a significant effect of weight training using rubber Resistance Bands on sickle kicks in pencak silat athletes at the PGRI University West Sumatra training unit.

## **3. Results and Discussion**

The pre-test results of the 14 samples were the average score of the ability to kick the sickle using the right foot during the initial test of 20 times

with a standard deviation of 1.42. While the Post-test data obtained an average result of 21 and a standard deviation of 1.64. So that there is a 1- fold increase in sickle kick ability, the following table 1 shows the distribution of sickle kick ability using the right foot.

**Table 1.** Distribution of Kick Ability Distribution using right leg

Scale Limit	Many kicks using the right foot		Information
	Pre-test	Post-test	
>24	0	0	Very good
19-23	11	12	Good
16-18	3	2	Fair/Moderate
13-15	0	0	Not enough
<12	0	0	Less Once

Based on table 1. Pre-test and post-test data distribution on kicks using the right foot, the results of the pre-test from 14 samples were that 11 people had crescent kick abilities of 19-23 (good), and 3 people had leg crescent kick abilities. right from 16-22 (enough). Based on the average score of the skill level of sickle kick using the right foot during the initial test of 20 sickle kicks using the right foot. While the post-test data, the results obtained from 14 samples, no one had the ability to kick the right leg sickle 12 times (not very much) and 13-15 times (poor), there were 2 people who had the ability to kick the right leg sickle from 16-18 times (moderate/enough), 12 people have the right leg crescent kick ability of 19-23 times (good), and no one in the right leg sickle kick ability category of < 24 (very good). With an average of 21 kicks so from the data above there is an increase in kicks of 1 time

Results In the initial test experiment with 14 athletes, the highest number of kicks was on the left foot, the highest value was 23 kicks and the lowest number of kicks was using the left foot 15 times. With an average of 18 times the ability to kick using the left foot with a standard deviation of 1.99. After being given treatment. The sickle kick ability has increased with the highest score being the ability to kick using the left foot with 24 kicks, and the lowest being 16 kicks with an average of 19 kicks and a standard deviation of 2.09. The following table 2 shows the distribution of crescent kick abilities using the left foot.

**Table 2.** Distribution of Sickle Kick Ability using left leg

Scale Limit	Many kicks using the right foot		Information
	Pre-test	Post-test	
>24	0	1	Very good
19-23	8	9	Good
16-18	5	4	Fair/Moderate
13-15	2	0	Not enough
<12	0	0	Less Once

Post-test data on kicks using the left foot obtained the Pre- test results from 14 sample people in the <12 category, none of them had crescent kick abilities, as many as 8 people had sickle kick abilities from 19- 23 (good), and 5 people have left leg crescent kick ability of 16-22 (enough), 1 person has crescent kick ability of 13-15 (poor), and no one has kick ability > 24 (very good). So that on average in the initial test there are 18 times the ability to kick using the left foot. As for the final test/post-test of left leg sickle kick ability, 1 person has left leg sickle kick ability of >24 (very good). 9 people have left leg crescent kick ability of 19-23 times (good).

This study aims to determine the effect of weight training using Resistance Bands on the sickle kick ability of Putera Muhammadiyah Putera Muhammadiyah Pencak Silat Silat athletes at PGRI University, West Sumatra. Based on the results of the study, it was shown that in the measurement of the sickle kick test with the data that had been obtained in the field as well as the overall results of the research on the ability of the left and right leg crescent kicks at the PGRI University West Sumatra training unit, training using rubber Resistance Bands with this type of Resistance Band Tube Set after being trained use of the 14 samples is very effective in increasing sickle kick ability, it is evident from the results of the study that the hypothesis proposed is accepted. This was proven after the "t" test was carried out, the t count results on sickle kicks using the right foot were 5, 551 and sickle kick using the left foot 5.680 and > ttable = 1.771. With an average kick using the right foot in the pre-test, which was 20 and during the post-test, it was 21 so that it increased by 1 kick, on the other hand, with the left foot, the average pre-test was 18 kicks and in the post-test, 19 times, so that the sickle kick ability increased by 1 kick. With that the Resistance Bands tool is very effective for increasing the ability of sickle kicks.

Exercise using rubber Resistance Bands besides being able to improve kicking ability (Sutopo, 2021), both increasing speed, power and explosive power, which is also a supporting factor for good kick results by carrying out exercises using

a well-planned and well-planned training program, one of which is by how to increase the load gradually as well as the intensity, volume and duration of the exercise. The preparation of the program agrees (Yulisa & Jalil, 2023) which states "for effective results, resistance training is carried out in such a way that athletes must expend maximum or almost maximum energy to hold, lift, push or pull the load, as well as the load must be bit by bit increase the beat so that the progress of the exercise is guaranteed".

However, in carrying out weight training using Resistance Bands, the researchers carried out exercises using black Resistance Bands with a weight of 11.33 Kg carried out in 16 meetings, When doing this one leg is tied at the ankle, and the other tie is held by a friend or placed on a pole. In every meeting, of course, there is a different program too. Each meeting has a different program as well. On the field, not all athletes showed an increase in their kicks because some athletes were not serious about carrying out the training, which resulted in the athlete's kicking speed not increasing during the final test. This also shows that the factors of concentration and enthusiasm are also influential in producing maximum kick ability (Yustiana Nabila, 2021). In the implementation there were also athletes who had more dominant left kick abilities than their friends. So that the kick of the left foot is better than the results of the ability of the right foot.

#### **4. Conclusion**

Based on the results of research conducted in the field, weight training using rubber resistance bands with the type of tube set, it was found that training using rubber resistance bands proved effective in increasing crescent kick ability, judging from the research results that the hypothesis proposed was accepted. This was proven after the "t" test was obtained, the t-count results on crescent kicks using the right foot were  $5.551 > t_{table} = 1.771$ , with an average kick in the initial test 20 kicks and after being given treatment the average athlete kicked 21 times so that there is an increase from the initial test and the final test as much as 1 kick. The result of t count on sickle kick using the right foot is  $5.508 > t_{table} = 1.771$ .

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