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## The effect of squat jump training on leg muscle power with the impact of mawashi geri kicks on teenage athlete Shorinji Kempo

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### Abstract

This study aims to determine (1) The effect of squat jump training on leg muscle power (2) Knowing the ability of mawashi geri kicks in Shorinji Kempo athletes (3) Improving the ability of mawashi geri kicks in teenage Shorinji Kempo athletes.

This research design is an experimental research with the pre-test, post-test design method. The total sampling in this study was 20 athletes.

In this study, there was an increase in squat jump and leg power exercises in the use of mawashi geri kicks of adolescent athletes. The results of the Paired Sample Test on the right leg showed a Sig. (2-tailed) value of  $0.000 < 0.05$ . There is a difference in values with pre-test results while the average gets post-test or  $4.5433-5.3783 = -0.835$ , with a difference and effect between  $-1.03552 > -0.63448$ . Against the results on the left limb there is a Sig. (2-tailed) value of  $0.001 < 0.05$ . As for the difference in the average value of the pre-test with the average post-test results or  $4.7950-5.4300 = -0.635$ , there is a difference in influence between  $-0.87244$  to  $-0.39756$ . The influence on the test is due to the provision of the exercise program as many as 16 times using the standing broad jump test with validity of 0.657 and reliability of 0.520 so that the muscle strength of the mawashi geri kick leg increases.

**Keywords:** Shorinji Kempo, power, mawashi geri, geri kick leg increases

### Introduction

In Kempo matches on randori numbers, kick techniques become weapons in teenage athletes, especially geri mawashi. Mawashi Geri kick is a circular kick technique with a target around the waist. In performing the mawashi geri kick technique on this randori number, the leg used is the instep and the target of the kick is not the opponent's head but the protector located on the chest to the waist of the opponent. The ability of mawashi geri kicks between each kenshi is different even though each kenshi does the same routine exercises and training materials. The difference in mawashi geri kick ability between each kenshi is due to various factors including physical condition factors. This is because the element of physical condition plays a role in doing this kick. One element of physical condition needed for adolescent athletes is power and specifically his leg muscles.

In doing this mawashi geri kick Samhat is important there is continuity between explosive power and balance. In doing a good Mawashi Geri kick and can get points in kempo to form a good strength and balance when swinging in doing a kick can achieve a perfect Mawashi Geri kick. Based on the observations that researchers made for approximately two months in the field, when Shorinji Kempo athletes when playing randori, most of them made kick attacks, but the leg muscle power was still weak / not powerful, so even though kicks always hit the target but still could not produce points, because one of the conditions for generating points in Shorinji Kempo was a kick with a loud sound on body armor (Do).

Based on the background of the above problem, the author conducted a study entitled "The Effect of Squat Jump Training on Leg Muscle Power with the Effect of Mawashi Geri Kick on Shorinji Kempo Teenage Athletes".

This research is important to determine the power of mawashi geri kicks in teenage athlete Shorinji Kempo.

### Research Ethos

The design of this study was an experimental study measured using pretest conducted before treatment and post-test after treatment for 16 meetings.

### Research Subjects

In this study, the population was Shorinji Kempo athletes, totaling 20 people. Comes from Shorinji Kempo athletes in the special region of Yogyakarta. All athletes were 15 to 17 years old. The leg muscle power test instrument uses the Standing Broad Jump test to determine the muscle strength in the legs of Shorinji Kempo athletes.

### Data Analysis

Data analysis in this study used ANAVA with SPSS Statistic 25 for Windows. This type of statistical analysis is the most

appropriate to analyze the meaning of the data obtained after the pretest and posttest are carried out.

### Hiophthetics Test Procedure

The study sample amounted to 20 athletes before testing the results, athletes were given treatment first for 16 meetings. With Squad Jump training to produce leg muscle power in Shorinji Kempo athletes. Before being given training treatment, athletes undergoing initial tests (Pre-test) were divided into two groups each of a group consisting of 10 athletes, a control group and an experimental group. After being given Exercise then carried out post-test to find out the results.

### Results and Discussion

#### T-test results pre-test and post-test data for right leg muscle power measurement

##### Paired Samples Test

**Table 1:** Showing t-test results pre-test and post-test data for right leg muscle power measurement

		Paired Differences				T	DF	Sig. (2-tailed)	
Mean		Std. Deviation	Std. Error Mean	95% Confidence interval of the difference					
						Lower	Upper		
Pair	Pre-test Post-test Kanan	-.83500	.19108	.07801	-1.03552	-.63448	-10.704	5	.000

### The hypotheses used

**H0:** There was no increase in leg muscle power in the use of athlete Shorinji Kempo's mawashi geri kick on the right leg before and after being given a squat jump exercise.

**H1:** There is an increase in leg muscle power in the use of

mawashi geri kicks of athlete Shorinji Kempo on the right leg before and after being given squat jump training.

#### T-test results pre-test and post-test data measurement of left leg muscle power

##### Paired Samples Test

**Table 2:** Showing T-test results pre-test and post-test data measurement of left leg muscle power

		Paired Differences				T	DF	Sig. (2-tailed)	
Mean		Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
						Lower	Upper		
Pair 1	Pre-test Post-test Kanan	-.63500	.22625	.09237	-.87244	-.39756	-6.875	5	.001

**H0:** There was no increase in leg muscle power in the use of athlete Shorinji Kempo's mawashi geri kick on the right leg before and after being given squat jump training.

**Ha:** There is an increase in leg muscle power in the use of athlete Shorinji Kempo's mawashi geri kick on the right leg before and after being given squat jump training.

Based on the table of "Paired Samples Test" results above, it is known that the value of Sig. (2-tailed) is  $0.001 < 0.05$ , then  $H_0$  is rejected and  $H_a$  is accepted. So it can be concluded that there is an average influence on the results of squat jump training before (Pre-test) with after (Post-test) squat jump training is carried out, meaning that there is an influence of the squat jump model on leg muscle power on the impact of mawashi geri kick athlete Shorinji Kempo. From the table of results above also contains information about the value of "Mean Paired Difference" is -0.63500. This value shows the difference between the average results of the pre-test squat jump exercise model with the average post-test squat jump training results or  $4.7950 - 5.4300 = -0.635$  and the difference in influence between -0.87244 to -0.39756 (95% Confidence Interval of the Difference Lower and Upper).

### Conclusion

The pre-test data on the right leg had an average of 4.5433 and the post-test data had an average of 5.3783. Based on the table of "Paired Samples Test" results above, it is known that

the value of Sig. (2-tailed) is  $0.000 < 0.05$ , then  $H_0$  is rejected and  $H_a$  is accepted. So it can be concluded that there is an average influence of the results of squat jump training before (Pre-test) with after (Post-test) done, it can be seen that there is an influence of pre-test and post-test results on the right leg. Thus, it can be explained that there is an effect of squat jump training on increasing leg muscle power on the use of mawashi geri kicks of athlete Shorinji Kempo. This influence is due to the provision of training (treatment) as many as 16 meetings, so that the strength of the leg muscle power in the impact of mawashi geri kicks on average has increased.

### Results of research on the left leg

Based on the results of research that there is an effect of the squat jump training model on increasing leg muscle power on the imposition of mawashi geri kicks of athlete Shorinji Kempo. Evidenced by pre-test data and post-test data. The pre-test data on the left leg had an average of 4.7950 and the post-test data had an average of 5.4300. Based on the table of "Paired Samples Test" results above, it is known that the value of Sig. (2-tailed) is  $0.001 < 0.05$ , then  $H_0$  is rejected and  $H_a$  is accepted. So it can be concluded that there is an average influence of the results of squat jump training before (Pre-test) with after (Post-test) done, it can be seen that there is an influence of pre-test and post-test results on the right leg. Thus, it can be explained that there is an effect of squat jump

training on increasing leg muscle power on the use of mawashi geri kicks of athlete Shorinji Kempo. This influence is due to the provision of training (treatment) as many as 16 meetings, so that the strength of the leg muscle power in the impact of mawashi geri kicks on average has increased.

### **The results of the study on the right leg and left leg**

After obtaining the results of the pre-test data, then given treatment for 16 treatments, and obtained post-test data on both legs, the data was then processed and obtained statistical data results as mentioned above. The data above mentioned that there is an effect of squat jump training on increasing leg muscle power on the use of mawashi geri kicks of athlete Shorinji Kempo.

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