

# The Effect of Polymeric Exercises for Front Speed Kick

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## ABSTRACT

The purpose of this research was to know the effect of squat jump and split jump modification exercise toward front kick speed of male athletes. The type of this research was quasi experimental. The population in this research was male athletes of Tangan Mas Martial Arts Training Centre Lubuk Basung. The sample was taken based on simple random sampling technique, a number of 16 males. The sample was divided into two experimental groups with the way ordinally matched pairing, by ranking from the highest until the lowest score with two forms of different exercise, those were squat jump and split jump modification exercise. The data were taken by doing front kick speed test. The data were analyzed by using t-test. Based on the result of data analysis showed that: 1) There was an effect of squat jump modification exercise method toward front kick speed of athletes pencak silat with mean score in pre test (17,75) and in post test (19,25) with {significant value (0,033) <  $\alpha$  (0,05)}. 2) There was an effect of split jump modification exercise method toward straight kick speed of athletes pencak silat with mean score in pre test (17,75) and in post test (21,5) with {significant value (significant value 0,000) <  $\alpha$  (0,05)}. And 3) There was a different significant effect between squat jump and split jump modification exercise toward front kick speed of athletes pencak silat that was obtained significant value (0,008) <  $\alpha$  (0,05)}. From mean of the data and and t-test proved that split jump modification exercise was better than squat jump modification exercise.

**Keywords:** Polymeric exercises, front speed kick

## 1. INTRODUCTION

Among the many branches of achievement sports that are being developed and maximally improved at this time is pencak silat. The basic principle of a pencak silat match is gaining value by carrying out attacks and defense. In a pencak silat match, an athlete's category must have a good attack pattern whether it's an attack using the hand or an attack using the legs and feet (Ihsan: 2018). The attack that is assessed is an attack that uses a step pattern, is unobstructed, steady, powerful and organized in coordination of good attack techniques. In getting the value of an incoming attack on a legitimate target and not blocked by opposing opponents. In pencak silat, various types of techniques are known, namely punches, kicks, avoidance, favors, and defiance the basic techniques that can be used to obtain this value are approximately 47%, the most dominant being used in matches is kick technique (Nugroho in Ihsan. 2018). Kicks have several advantages including kicks getting a fairly high score of two. The range is longer and has more power than other attacks, ie the punch only gets one value".

In doing kicking techniques a fighter must have good physical condition, if a fighter kicks in the sense of channeling our energy with a kick towards the body (body part) of the opponent, with the process of lifting one leg beginning with a tide and easel, thigh lifted up

followed by a kick in accordance with the shape of the track. Physical conditions greatly support the speed of the front kick, so it must be trained and developed to the fullest and mastery of techniques that require repeated training. Repetition in technical training aims to stabilize and stabilize the technical skills possessed (N, Ihsan 2014). The goal is to get really optimal kick results. Front / straight kick is an attack that uses one leg and leg, the trajectory towards the front with the position of the body facing forward, with kenaannya base of the inner toe with chest targets or solar plexus (Johansyah, 2014).

Some components that really support the speed of kicks include training with weight. Because to increase kick speed will be supported also by the formation of power. Power can be defined as speed multiplied by distance. So that with weight training will increase power, automatically the power (explosive power) will be formed with speed. This kick speed helps to create explosive power. To get the front kick speed requires a proper form of training (Ihsan. 2015). Many forms of training can be done to increase speed, namely plyometrics, weight training, speed ladder, and sprint spacing of 10-20 m. One form of exercise used in increasing the speed of the front kick is plyometrics.

Plyometric is a form of exercise that has been around for a long time among sportsmale. This

Pretest of Kick Speed	
N Valid	8
Missing	0
Mean	17.7500
Median	17.5000
Mode	16.00
Std. Deviation	2.54951
Variance	6.500
Minimum	14.00
Maximum	22.00
Sum	142.00

plyometrics exercise is a form of exercise that can enhance the explosive ability of lower and upper limb muscles, especially the leg muscles, with forms of exercises such as bound, jump and hop. Plyometric is "a method for developing explosive power, which is an important component in the achievement of some athletes" (Radcliffe and Farentinos, 1985: 1). Whereas according to David G. Watts (2012) explained that "plyometric is a training method that emphasizes movements at high speed, plyometric training to apply speed to strength". Many factors can influence the mistakes that occur in doing this front kick technique so that the goal is achieved, seen from internal factors, namely physical conditions such as strength, explosive power, balance, speed, good coordination of motion. In addition, the technique, maleability, nutritional intake, stamina, concentration, anthropometry and self-motivation of the athlete also greatly affect the ability of the athlete to do a good front kick (N Ihsan et.al. 2018). Whereas when viewed from the reality of a match, the low achievement of athletes is also determined by external factors including facilities and infrastructure, trainers, training programs, strategies, motivation, family support and environmental situations (Ihsan. 2014) Method.

**2. METHOD**

This research is a quasi-experimental research (quasi experimental design). This study consisted of one sample group who would do the same form of training (treatment) for 16 meetings. The design of this study is: pretest-posttest two group design. The research samples were 16 male athletes. Samples were taken based on simple random sampling technique. Instruments in collecting data with a front kick test (Johansyah I. 2014). The description of the data and hypothesis testing in this study were processed using SPSS version 16 with a test formula 't' sample bound (Sugiyono. 2010).

**3. RESULT AND DISCUSSION**

Effect of Modified Squat Jump Exercise (X1) on Front Kick Speed (Y)

Pretest data of Front Kick Speed

The results of front kick speed pretest data were as follows: highest score 22, lowest score 14 with average 17.75, standard deviation 2.54 and variance 6.50.

Table 1. Distribution of Pre Test on Frequency Kick Speed Tests.

Post test Data of Front Kick Speed

The results of front kick speed post test are as follows: highest score 24, lowest score 17 with an average of 19.25 standard deviation 2.37 and variance 5.643.

Table 2. Frequency Distribution of Front Kick Post test.

	Front Kick Speed Test with the Squat Jump Modification Exercise
N Valid	8
Missing	0
Mean	19.2500
Median	18.5000
Mode	17.00(a)
Std. Deviation	2.37547
Variance	5.643
Minimum	17.00
Maximum	24.00
Sum	154.00

Effect of Split Jump (X2) Modification Exercises on Front Kick Speed (Y)

The research hypothesis that has been proposed matches the problem, namely: "there is a significant effect of the Split Jump modification exercise with the results of the front kick speed (Y). Based on the analysis of t test obtained by tcount of 22.913, with a sign value  $< \alpha$  (0,000  $<$  0.05), then  $H_0$  is rejected and  $H_a$  is accepted. It can be concluded that there is a significant influence between the Split Jump (X2) modification exercise with the results of the front kick speed (Y) in the Male of Pencak Silat Hand Athletes at Lubuk Basung Mas Agam Regency at an alpha level of 0.05 with a 95% confidence level.

Differences in the Effect of Modified Squat Jump Exercises (X1) and Modified Split Jump (X2) Exercises on Front Kick Speed (Y)

The research hypothesis that has been proposed matches the problem, namely: "there are differences in the effect of the Squat Jump modification exercise and Split Jump modification exercises that are significant

with the results of the front kick speed (Y). Based on the analysis of t test, it is obtained that  $t_{counted}$  equal to 3,631 with a sign value  $< \alpha$  (0,008  $<$  0,05), then  $H_0$  is rejected and  $H_a$  is accepted. It can be concluded that there is a significant difference in effect between the Squat Jump (X1) modification training and the Split Jump (X2) modification exercise with the results of the front kick speed (Y) on the Male Athletes at the Pencak Silat Hand Mas Lubuk Basung Agam Regency at an alpha level of 0.05 with a confidence level of 95%

#### Discussion

The effect of the Squat Jump (X1) modification exercise with the results of the front kick speed (Y) in the Lubuk Basung Mas Male School of Pencak Silat Hand Athletes in Agam Regency shows that there is significant influence between the two variables above. Hypothesis testing results show that there is influence of the Squat Jump modification exercise on front kick speed. It illustrates that the results of the front kick speed affect the Squat Jump modification training needed to support the speed of the front kick in martial arts. To achieve the desired goals in training, a good training program is needed from a coach. Thus, the success of the objectives to be achieved will be influenced by the application of the principles of training needed in making the training program. One of them is the Squat Jump modification exercise. Squat Jump is a form of plyometric training. Modified Squat Jump exercises are basic exercises to develop leg and hip strength that apply to many sports. The main emphasis is to reach the maximum height with each movemalet carried out, so that it will produce explosive power that is needed by pencak silat to increase the speed of the front kick. To determine the front kick speed category at the Lubuk Basung Mas Male Athletes in Pencak Silat Hand Agam District. Based on the results of the discussion above, it can be concluded that the provision of the Squat Jump modification exercise was able to provide a change in the increase in front kick in martial arts athletes. This training method should be applied to every training of martial arts athletes so that their ability to do front kicks can be faster and maximum.

The hypothesis testing results show that there is an effect of Split Jump modification exercise on front kick speed, this illustrates that the results of the front kick speed affect the Split Jump modification training needed to support the speed of the front kick in the martial arts martial arts. So in this case the training material that needs to be applied to the martial arts of Pencak Silat is the Split Jump modification exercise.

The effect of the Squat Jump modification training and the Split Jump modification exercise showed significant differences with the results of the front kick speed (Y). Based on the analysis of t test, it is obtained thitung equal to 3,631 with a sign value  $< \alpha$  (0,008

$<$ 0,05), then  $H_0$  is rejected and  $H_a$  is accepted. It can be concluded that there is a significant difference in effect between the Squat Jump (X1) modification training and the Split Jump (X2) modification exercise with the results of the front kick speed (Y) on the Male Athletes at the Pencak Silat Hand Mas Lubuk Basung Agam Regency at an alpha level of 0.05 with a confidence level of 95%.

Based on the results of the study, it was found that from the two training methods applied, the Split Jump (X2) modification exercise had a higher effect than the Squat Jump (X1) modification exercise on the front kick speed increase with the average score when the squat jump test post (19.25) and when the split jump test post (21.50). And from the results of the mean data and t-test it is proved that the split jump modification exercise is better than the modified squat jump exercise.

#### 4. CONCLUSIONS

Based on the findings and processing of the data carried out, it can be concluded that plyometric training (jump and split jump squat) shows significant results on front kick speed (Y) with the average score at the Squat Jump test post (19.25) and when the Split Jump test post (21.50) with  $(0.008) < \alpha (0.05)$  which means that  $H_0$  is rejected and  $H_a$  is accepted. Furthermore, the mean data and t-test proved that the split jump modification exercise is better than the squat jump modification exercise.

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