



Influence Of Shadow And Shuttle Run Exercises On Badminton Sports Footwork Aged 13 - 15 Years At Pb Jaya Raya Jakarta

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Abstract

This study was conducted to determine the effect of shadow and shuttle run training on badminton footwork aged 13–15 years at PB Jaya Raya Jakarta. This study uses an experimental method that utilizes a two-group pretest-posttest design. The population studied in this study were PB athletes. Jaya Raya Jakarta has a population of 30 people. A purposive sampling method was used in the study, with the following criteria: (1) At least 75% of players were on the attendance list during the last two months of training (actively involved in training); (2) Participants are PB athletes. (3) Age 13–15 years, (4) Male gender. The sampling test in the form of a foot movement agility instrument is a circuit-based leg exercise tester. The t-test was used in the analysis of the data. The results of the research are: (1) There is an effect of shadow training on the sports footwork of children aged 13–15 years in PB. Jaya Raya Jakarta, with t count 3,289 > t table 2.26 and a significance value of 0.009 < 0.05, resulting in an effect of 9.55% (2) There is an effect of the shuttle run exercise on the badminton footwork of children aged 13–15 years in PB. Jaya Raya Jakarta, with a count of 4.155 > table 2.26 and a significance value of 0.002 < 0.05, resulting in an effect of 10.69%. (3) The shuttle run method is more effective for badminton footwork aged 13–15 years in PB Jaya Raya Jakarta than the shadow method.

Keywords: *Shadow Exercises, Shuttle Run Exercises, Footwork, Badminton*

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A. Pendahuluan

According to ([Poole, 2009](#)) badminton as a recreational and competitive sport is in great demand among young people around the world. According to ([Tony, 2007](#)), badminton is a sport that is famous in the world because badminton is very attractive to people of all ages because of its technical level, both men and women can play it both indoors and outdoors, and can be used as entertainment and entertainment. competitive match. Law No. 3 of 2005 concerning the National Sports System states that all aspects of sports are interrelated in a planned, systematic, integrasude, and sustainable manner as a unit which includes regulation, education, training, management, guidance, development, and supervision to achieve national sports goals. in terms of performance ([Presiden Republik Indonesia, 2005](#)).

According to ([Somantri & Sujana, 2009](#)), badminton is a sport using rackets that are played by two people when playing individually (singles), and four people or two pairs when playing doubles that are opposite each other. The aim of the game of badminton is for the players to try to prevent their opponent from hitting the ball and throwing it into his playing area. The role of the feet in badminton is to support the body so that it moves quickly in all

directions so that the body can be positioned effectively. Foot movement in badminton is usually called footwork.

Footwork according to ([Subardjah, 2000](#)) is the movement of the feet by changing the position of the body in such a way and placing the body more simply to get the appropriate movement in its position. An important component of badminton is that players must perform complex movements such as jumping, quick movements to reach the shuttlecock, or twisting the body and the wide steppingaintain balance. These movements are repeated throughout the game to cause fatigue in the players, which results in undirected strokes, reduced coordination, and weaker strength ([Subardjah, 2000](#)). Badminton players must be physically fit to maintain the consistency of their game. Methods to improve badminton players' footwork are step exercises, sprint shuttle runs,s and shadow.

Shuttle run is running back and forth as quickly as possible with a track length of 9.14 m and a width of 1.2 m ([Iskandar & Tilarso, 1999](#)). The focus of the shuttle run training is on increasing acceleration and deceleration ([Iskandar & Tilarso, 1999](#)). An increase in the acceleration-deceleration ratio will allow for a quick change of direction but not a loss of speed

and improve the foot's ability to move quickly and unexpectedly. The elements of movement in the shuttle run, namely running by changing the direction and position of the body, speed, and balance are an integral part of agility training, so this exercise can be used to increase agility ([Iskandar & Tilarso, 1999](#)). Footwork improvement exercises other than the shuttle run, namely shadow.

According to ([Purnama, 2010](#)) shadow is a footwork exercise model in the form of picking up and placing the shuttlecock at the edges of the badminton court, and moving to imitate the shadow movements of the six corners of the field. An attitude in which your right foot is behind you and your hands are pulled back in preparation for hitting the shuttlecock. Tahir Djide in ([Subardjah, 2000](#)) mentions that shadow badminton is one of the exercises in which athletes perform movements as if they were athletes. The player then moves to hit the shuttlecock in any part of the court that the athlete wishes. This kind of exercise must be done in a field, although it is not required. Shadow badminton is associated with the formation of the badminton stride rhythm.

PB. Jaya Raya Jakarta has produced the best athletes for Indonesia. PB. Jaya Raya Jakarta has approximately 150 athletes who are trained by 15 coaches. This club has

produced the best athletes such as Markis Kido, Angga Pratama, Hafidz Faisal, Phita Haningtyas Mentari, and many others who can achieve great achievements in the international arena and make the Indonesian nation proud. The problem with PB Jaya Raya Jakarta in recent years is that many male athletes aged 13-15 years have poor footwork, so when the match results are less than optimal. Lack of variety in practice results in errors in footwork so that during the match they lose control of the field. This shortcoming motivated researchers to develop new footwork exercises and to compare the types of activities that improve footwork.

The shuttle run and shadow exercises affect the footwork of badminton athletes. This is supported by the research of Haris Rizki Amalia (2015) in his research entitled "Shadow Badminton and Ladder Training in Improving the Agility of Badminton Athletes." The results of the research show that both exercise models improve footwork, although the shadow training approach is slightly more effective but not much more effective than the ladder training method. Research by Nur Muhamad (2009) in his research entitled "The Difference in the Effectiveness of Zigzag Running and Shuttle Run Training on the Agility of My 10-12-year-old SSB Students." Data analysis showed that the

shuttle run exercise was more successful in increasing the agility of SSB MBK KU students aged 10–12 years compared to the zigzag running exercise and the control group. Based on the above background, the researchers conducted research on training program activities that were effective in improving footwork with the title "The Effect of Shadow and Shuttlerun Exercises on Footwork of Badminton Sports Ages 13-15 Years PB Jaya Raya Jakarta".

B. Method

This research is a quantitative study to test hypotheses, which are generated by the data obtained in line with the theories and ideas that have been previously determined by using inductive and deductive methodologies. The research design is two groups pre-test-post-test design. The population in this study were PB badminton athletes. Jaya Raya Jakarta has as many as 30 people. The sampling method used purposive sampling, then the sample was determined using the following criteria: (1) a minimum attendance list of 75% (active in training), (2) players including PB badminton athletes. Jaya Raya Jakarta, (3) aged in the range of 13 to 15 years, (4) male gender, (5) minimum training duration for 6 months. According to the criteria above, only 20 male athletes are suitable. All samples obtained from

purposive sampling were subjected to a pretest.

All samples were pre-tested to determine a treatment team, pre-test scores were ranked, then paired using the A-B-B-A pattern, divided into 2 teams, each team consisting of 10 athletes. The sampling technique used in this study was ordinal pairing which was used to divide one team into 2. The sample was divided into 2 groups: team A received shadow training, while team B received shuttle run training.

Utilize the Foot Exercise Test Series to collect data for pre-or post-test. Data analysis in this study includes instrument validity and reliability tests, normality and homogeneity precursor tests, and hypothesis testing using a t -test with the help of SPSS 16 software, namely by comparing the mean values between the pretest and post-test.

C. Result and Discussion

Result

The subjects or participants used in this study were male badminton athletes aged between 13 to 15 years at PB Jaya Raya Jakarta as many as 20 male athletes. Each participant starts by running forward and over the cone, then back, then running zigzag past the cone placed, then back, then running forward and over the cone again, then back, then running forward and over

the cone again towards the finish line. Teams were divided into two, namely team A and team B. Team A was given treatment using the shadow method, while team B was given treatment using the shuttle run method.

Validity and reliability tests were carried out before data analysis. Validity refers to the capacity of an assessment tool or instrument to accurately measure what is to be assessed. The validity of the tests based on thought and experience is classified into two categories: logical validity and empirical validity.

In this study, logical validity was used to determine the validity of the test. While

the reliability test is used to determine the dependence of the instrument. The reliability test used is a rest test from the pretest value data with the help of SPSS 16 software. Based on the output, the correlation coefficient value is 0.913. So the reliability of this instrument is also stated to be very high because 0.913 is between 0.80-1.00.

The groups were divided into two, namely team A and team B. Team A was given treatment using the shadow method, while Team B was given treatment using the shuttle run method. The results of the frequency distribution for team A can be seen in the following table.

Table 1. Frequency distribution of team A

<i>Pretest</i>					<i>Posttest</i>				
No	Grade	Category	f	%	No	Grade	Category	F	%
1	18-19.19	Very well	3	30%	1	17.25-17.88	Very well	4	40%
2	19.2-20.39	Well	3	30%	2	17.89-18.52	Well	4	40%
3	20.4-21.59	Currently	3	30%	3	18.53-19.16	Currently	1	10%
4	21.6-22.79	Not enough	0	0%	4	19.17-19.8	Not enough	0	0%
5	22.8-23.99	Less once	1	10%	5	19.81-20.44	Less once	1	10%
Total			10	100%	Total			10	100%

Source: SPSS, 2021

Referring to table 1, it can be seen that there is a difference in the number of students who have increased scores on the post-test compared to the pretest scores. This occurs in the range of values of 18-19.19 and the range of values from 19.2-

20.39, an increase from 30% to 40%. Meanwhile, the results of the frequency distribution for team B can be seen in the table below.

Table 2. Frequency distribution of team B

<i>Pretest</i>					<i>Posttest</i>				
No	Grade	Category	f	%	No	Grade	Category	f	%

1	18.16-19.19	Very well	4	40%	1	17-17.48	Very well	4	40%
2	19.2-20.23	Well	2	20%	2	17.49-17.97	Well	2	20%
3	20.24-21.27	Currently	2	20%	3	17.98-18.46	Currently	2	20%
4	21.28-22.31	Not enough	1	10%	4	18.47-18.95	Not enough	1	10%
5	22.32-23.35	Less once	1	10%	5	18.96-19.44	Less once	1	10%
Total			10	100%	Total			10	100%

Source: SPSS 2021

Referring to table 2, there is no difference in the number of students who experienced an increase in the score on the post-test compared to the pretest score. The results of the pretest and posttest scores have a value that is stagnant or the same.

Data Analysis Results

Data analysis begins with testing the

Table 3. Normality Test

Group	P	Sig.	Description
Pretest team A	0,989	0,05	Normal
Posttest team A	0,914	0,05	Normal
Pretest team B	0,960	0,05	Normal
Posttest team B	0,953	0,05	Normal

Source: SPSS, 2021

The data has a normal distribution if p has a significance value of 0.05. Referring to the results from the table, it is known that the p values in the Pretest Team A, Posttest Team A, Pretest Team B, and Posttest Team B categories all have a value > 0.05, meaning that the data has met the normality test, which is normally distributed. The homogeneity test was then carried out. The

normality of the data. This test is used to determine whether the distribution of data in a data set or variables is distributed regularly or not. This calculation uses the Kolmogorov-Smirnov Z formula with data processing using SPSS 16 software, as can be seen in the following table.

homogeneity test is used to determine the similarity of the sample, namely whether the sample variance is uniform or not. The homogeneity rule is if the p-value is > 0.05, the result is that the data is said to be homogeneous. The results of the homogeneity test of the pretest and posttest of this study can be seen in Table 4.

Table 4. Homogeneity Test

Group	df1	df2	Sig.	Description
<i>Pretest</i>	1	18	.993	Homogen
<i>Posttest</i>	1	18	.740	Homogen

Source: SPSS, 2021

Referring to the table, it is known that

the results of the pretest and posttest have a

significance value > 0.05 , meaning that the data has met the homogeneity test or the data is homogeneous. Furthermore, the research hypotheses were tested using paired t-tests and independent t-tests with the help of SPSS 16. The results of hypothesis testing are presented as follows.

Comparison of Pretest and Posttest team

A

Table 5. Results of t-test Pre-Test and Post-Test team A

Group	Average	<i>t-test for Equality of means</i>				
		t. ht	t. tb	Sig	Difference	%
<i>Pretest</i>	20,0520	3,289	2,26	0,009	1,915	9,55%
<i>Posttest</i>	18,1370					

Source: SPSS, 2021

The results of the t-test show that the count is 3.289 and ttable is 2.26 (df 9) and the significance value of p is 0.009. Because tcount $3,289 > ttable 2,26$ and the significance value is $0,009 < 0,05$ so that the results show a significant difference. As a result, the alternative hypothesis (H_a) is accepted, meaning that shadow training has a significant effect on badminton footwork at the age of 13-15 years at PB Jaya Raya Jakarta. From the pre-test data has a mean of 20.0520 then at the post-test it reached 18.1370. The magnitude of the effect of the shadow practice can be seen from the average difference value, which is 1.915

The initial hypothesis reads "there is an effect of shadow training on badminton footwork at the age of 13-15 years in PB Jaya Raya Jakarta", referring to the results of the pre-test and post-test. The conclusion of this study is significant if the value of tcount $> ttable$ and the value of sig < 0.05 (Sig < 0.05), as the results of the analysis, can be seen in table 5.

with a percentage difference of 9.55%.

Comparison of Pretest and Posttest team

B

The second hypothesis reads "there is an effect of shuttle run training on badminton footwork aged 13-15 years at PB Jaya Raya Jakarta", referring to the results of the pre-test and post-test. The conclusion of this study is significant if the value of tcount $> ttable$ and the value of sig < 0.05 (Sig < 0.05), as the results of the analysis, can be seen in table 6.

Table 6. Results of t-test Pre-Test and Post-Test team B

Group	Average	<i>t-test for Equality of means</i>				
		t ht	t tb	Sig	Difference	%
<i>Pretest</i>	20,0160	4,155	2,26	0,002	2,140	10,69%

Posttest 17,8760

Source: SPSS, 2021

Based on the results of the t-test, it is known that the tcount is 4.155 the and ttable is 2.26 (df 9) with a p significance value of 0.002. because tcount 4.155 > ttable 2.26 and a significance value of 0.002 < 0.05 so this result shows a significant difference. As a result, the alternative hypothesis (Ha) is accepted, which means that the shuttle run exercise has a significant effect on badminton footwork aged 13-15 years at PB Jaya Raya Jakarta. The pre-test data has a mean of 20.0160 then at the post-test it reached 17.8760. The magnitude of the effect of the shadow practice can be seen from the difference between the mean

value, which is 2.140 with a percentage difference of 10.69%.

Comparison of posttest team A and team B

This Independent Sample t-Test was used to test the third hypothesis with the sound "The shuttle run training method is more effective in improving badminton footwork at the age of 13-15 years in PB Jaya Raya Jakarta than the shadow training method" which can be known through a post-test between teams A and B. The results are presented in Table 7.

Table 7. Results of t-test of team A and team B

Group	Average	%	<i>t-test for Equality of means</i>			
			t ht	t tb	Sig.	Diff
A	18,1379	9,55%	0,742	2,10	0,468	0,2619
B	17,8760	10,69%				

Source: SPSS, 2021

Referring to the results of the t-test, it can be seen that the tcount is 0.742 the and ttable is 2.10 (df 18) with a p significance value of 0.448. Because the tcount is 0.742 < ttable 2.10 and the significance value is 0.468 > 0.05, this result shows that there is no significant difference between post-test team A and post-test team B.

post-test of Team B is 17.8760, and Team A is 18.1379 with an average difference of 0.2619. With this, the hypothesis reads "The shuttle run training method is more effective in improving the footwork of badminton at the age of 13-15 years in PB Jaya Raya Jakarta than the shadow training method" is accepted.

Based on the results of this analysis, it shows that the increase in the percentage of Team B is better than A and the average

Discussion

Improved Team A's Footwork Movement

Based on the analysis, it was shown that the shuttle run exercise had a significant effect on increasing badminton footwork agility at the age of 13-15 years in PB. Jaya Jakarta, with t count 3.289 > t table 2.26 and a significance value of 0.009 < 0.05 with an effect of 9.55%. According to Tahir Djide in ([Subardjah, 2000](#)) "shadow badminton is one of the exercises in which the athlete performs movements as if the athlete is moving to hit the shuttlecock anywhere on the court desired by the athlete." This exercise must be done on a feather court. badminton, but this is not required in the same way as setting the rhythm of steps in badminton, "float like a butterfly, sting like a bee" is a phrase often uttered by former heavyweight boxing champion Muhamad Ali. This is the most accurate explanation of the movements and techniques of hitting badminton. The shadow method is a way of footwork exercise using a racket without a shuttlecock/shadow movement with step movements to the corners of the badminton court ([Poole, 2009](#)).

Improved Movement Team B . Footwork

Based on the analysis, it was shown

that the shuttle run exercise had a significant effect on increasing the footwork agility of badminton at the age of 13-15 years in PB. Jaya Jakarta, where t count 4.155 > t table 2.26, and the significance value is 0.002 < 0.05, with a percentage increase of 10.69%. A shuttle run is a training approach that involves rapid changes in body movement from a straight route while running back and forth ([Marjana et al., 2014](#)).

According to ([Remmy, 1992](#)) The shuttle run exercise, or other names for it, is one of the ways to improve a person's agility or agility. Shuttle running practice involves running back and forth at the fastest speed possible from one place to another while covering a certain distance.

Difference Between Team A and Team B

Based on the results of the t-test, shows that there is no difference between the two types of exercise, where the t count is 0.742 < t table = 2.10 and sig. 0.468 > 0.05, means that there is no difference between post-test teams A and B according to the results of the analysis showing that the increase in the percentage of team B is better than A, and the mean post-test team B is 17.8760, and Team A is 18.1379, with the difference in the mean is 0.2619. With this, the hypothesis which reads "The shuttle run method is more effective for improving

Footwork in badminton at 13-15 years of age than shadow training", is accepted.

It is better for team B, namely the experiment with the shuttle run and shadow training methods, compared to team A, namely the shuttle run training and the shadow reality method that occurs during learning because athletes feel bored because of the exercise being carried out too long compared to team B. Due to this saturation, players are less committed to the sport, producing fewer results compared to team B. The shuttle run exercise with the shadow technique continues to be done with the same amount, which causes the athlete to be more bored while doing the exercise. In addition, athletes are less motivated when doing activities.

D. Conclusion

The study concludes that there is an effect of shadow training on badminton footwork aged 13-15 years at PB Jaya Raya Jakarta, with $t_{count} 3,289 > t_{table} 2.26$, and the significance value is $0.009 < 0.05$ with an effect of 9.55%. There is an effect of shuttle run training on badminton footwork aged 13-15 years PB Jaya Raya Jakarta, with $t_{count} 4.155 > t_{table} 2.26$ and the significance value is $0.002 < 0.05$ with an effect of 10.69%. The shuttle run method is more effective for badminton footwork aged 13-15 years at PB Jaya

Raya Jakarta than the shadow method with an average post-test difference of 0.2619.

The research suggests that it is hoped that PB Jaya Raya Jakarta badminton players, especially those aged 13-15 years, continue to improve their training to improve their badminton playing skills and achieve peak performance. To the badminton coaches of PB Jaya Raya Jakarta to always provide effective and efficient training for their players, especially those that focus on improving footwork.

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E. Conflict of Interest

In the research that has been done, there is no conflict of interest from any party.

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