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The Effectiveness of Hurdle Drill and Shadow Exercises to Improve Footwork Skills in Badminton

Indra Ferdiansyah Kurniawan *[1], Ayi Suherman[2], Respaty Mulyanto[3]
[1,2,3] Physical Education of Elementary Teacher Program, Universitas Pendidikan Indonesia, Bandung, Indonesia

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Abstract

This research shows the importance of this type of exercise in badminton to improve footwork skills. The research aimed to determine the effect of hurdle drills and shadow training on footwork and which exercises are the most effective. This research uses a quantitative approach method with a quasi-experimental design. The sample involved in this study consisted of 30 PB athletes. Sampurna Sumedang, aged 10-14, was selected using purposive sampling techniques. This study involved three groups; One control group was a conventional exercise, and two experimental groups were doing hurdle drills and shadow exercises. Pretest and posttest data were obtained using Tohar's badminton footwork research instrument. Data processing and analysis using ANAVA: Sig. value 0.03 < α = 0.05, meaning significant differences from each group to footwork. The post hoc test showed the results of a hurdle drill with a value of 15.30, shadow training with a result of 14.70, and a control group with a value of 13.60. In conclusion, hurdle drill training, shadow training, and conventional training are effective in badminton footwork. The results of this study show that hurdle drill exercises are better than shadow exercises and conventional exercises because they are more varied and efficient.

*Corresponding email : ayisuherman@upi.edu

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INTRODUCTION

Badminton requires a lot of movement on the court to play. Players must be able to change positions suddenly, jump, and pass the entire field (Primary, 2021). In its achievement, players must master good and quality basic techniques, which require fast, strong, and efficient footwork so that hitting the shuttlecock is varied and effective. Fatih Yuksel & Aydos (2017) stated in badminton; there is a saying: if the athlete's foot movements are fast, regular, rhythmic, and harmonious, then he will succeed. The winning player assumes that he has better conditions for the area of the field where the opponent throws shuttlecocks because he can make more movements on the field (Valldecabres et al., 2020). Footwork movements are relatively easy to reach the field with 6 directions, namely to the right and left front court, right and left center court, and right and left backcourt (Chiu et al., 2020). The basic principle for players using the right grip is that the right foot should be at the end of each step. Which is used in badminton to maintain body and movement efficiently. This demands badminton athletes must change their mindset on the court and use flexible footwork agility correctly (Huang &; Zhang, 2021).

Hurdle drill is a facet of motion of obstacles on the track by changing direction quickly and precisely, while emphasizing the body's weight to move up to a certain point, which can help improve the improvisation of movement quality because the exercise is fast and efficient (Baidilllah et al., 2023; Mudariani et al., 2021). This hurdle drill exercise can be adjusted and varied depending on the needs of athletes and creates active and fun learning motivation (Arif et al., 2021; Sham et al., 2023). Obstacles are carried out to the development of various avoidance exercises, changes in body direction, leg power, and coordination that increase stamina, coordination, agility, and speed in various sports (Pamungkas et al., 2023; Pranyoto &. The shadow exercises are intended to train agile leg movements. This includes running after the shuttlecock to the right, left, forward, or backward, stepping fast, and jumping to perform while hitting the shadow (Ihsan et al., 2023). The shadow position is on the field with punches that can improve the physical condition for field endurance, speed, anticipation, and timing (Nirendan &. Hamid & Aminuddin (2019) shadow exercises can also be done by taking a shuttlecock of a certain field point that is moved to the center of the field or on the contrary.

The development of an outstanding athlete is greatly influenced by footwork, so coaches must be careful in providing the right training program to produce results (Aryanti et al., 2022; Putra et al., 2023). In the end, all those forward, backward, and sideways movements can be directed, but players will often fall because they are tripping on their own feet if they are not proficient in using Suharto's footwork techniques (Pratama, 2021). The performance of good physical condition is needed to improve if they can run and change direction quickly and precisely without losing balance Praja et al., (2020). But many players still have not been able to perform optimally because of the lack of effectiveness of the footwork itself. The Badminton Championship was organized by PBSI Sumedang x Eagle CUP 2023 during this new competition. Such conditions can cause difficulties in coordinating footsteps when the opponent makes a punch or attack. The return of the opponent's punch is often late and if the return of the ball is successful then it will usually be liable. Then in chasing the shuttlecock, it will be bounced back because it moves to the corner of the court, and the power will be quickly drained. Players will lose the opportunity to earn points if they do not pay attention to this. Therefore, footwork in badminton should be the main focus when playing and practicing. Athletes must be trained thoroughly to move

their legs systematically and with proper movements (Chandrakumar &; Ramesh, 2015). Solutions to the problems raised above can be found, namely hurdle drills and shadow exercises. Hamid & Aminuddin (2019) examined that using footwork exercises affects speed in PBSI Tanah Laut badminton players aged 12-15. The footwork exercise used is shadow 6. Nirendan & Murugavel (2019), in their research, showed the influence of shadow training results on the motor fitness component of badminton players. Sely (2021), in his research did not show a significant difference between 6-inch hurdle training and 12-inch hurdle training on footwork in badminton players.

Players can do hurdle drills and shadow exercises for improved footwork by applying the exercises to badminton. The novelty contained in this study is that no one has examined the urgency of hurdle drills and shadow training on the footwork of badminton players. In this study, researchers tried to prove that hurdle drill and shadow training methods and compared which exercises were most effective for improving footwork. The goal is to have implications for footwork training methods in athlete training and encourage an increase in the competitive level of badminton players.

METHODS

This researcher used a quantitative approach with a Quasi quasi-experimental design research design. This experimental and control group design did not use random techniques (Mukhid, 2021). Researchers tried to prove each group's training in 30 PB male and female athletes. Mutiara Sampurna Sumedang has an age range of 10-14 years. Purposive sampling with criteria of athletes who have received physical training and athletes who have been training for 1 year. Match Subject uses group balancing with ordinal pairing with ranking such as Sutrisno Hadi's ABBA pattern (Pratama, 2021). Tohar's footwork instrument has a validity of 0.706 and a reliability of 0.808 (Ihsan et al., 2023). Tools and Equipment: (1) Stopwatch and whistle, (2) Plaster or ribbon, (3) Test form and stationery. During the footwork test, players stepped into 6 points, namely forward right-left, sideways right-left, and backward right-left for 30 seconds. This study was conducted for 14 meetings, including pretest-posttest and treatment using hurdle drills and shadow exercises as well as conventional exercises for the control group. According to Juliantine, Yudiana, and Subarjah (Ardhia et al., 2022) the frequency of exercising is at least three times a week, and the duration of exercise is at least four to six weeks. For training intensity, it uses the principle of the overload loading paradigm proposed by Bompa & Gregory (Wiyanto, 2020). Test normality and homogeneity with the level of Sig. $\alpha = 0.05$. Effect test used with ANAVA using IBM SPSS Statistic 20 for windows

RESULT

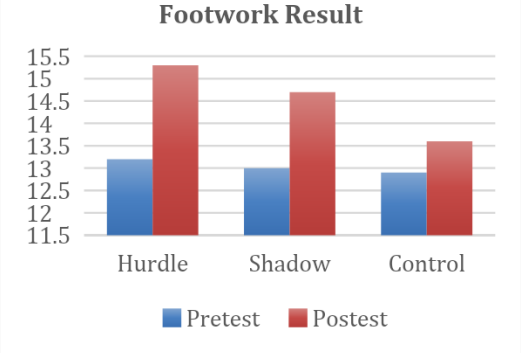

Fig 1. Graphic footwork result

Based on the table analysis above, the footwork results in badminton games show the lowest score of 10 and the highest score of 17. The average result of the hurdle drill training group at the time of the pretest was 13.2, and at the time of the post-test, it was 15.3. The average results of the shadow exercise group at the time of the pretest were 13, and at the time of the posttest, it was 14.7. The average result of the control

group at the time of the pretest was 12.9 and at the time of posttest was 13.6. Acquisition of research data in the field with results from pretest and posttest. A normality test is performed, then a homogeneity test, and a hypothesis test using statistics. The results of Shapiro Wilk's normality test are as follows.

Table 1. Normality test

Hasil Tes	(p-value)	Shapiro Wilk
Pretest Hurdle	.225	Normal
Posttest Hurdle	.140	Normal
Pretest Shadow	.341	Normal
Posttest Shadow	.102	Normal
Pretest Control	.646	Normal
Postest Control	.198	Normal

The normality test shown in the posttest data was obtained after treatment and calculated using Shapiro Wilk's formula with the IBM SPSS 20 program. The data can be normally distributed if the significant value obtained is greater than Sig. > 0.05, then Ho is accepted.

Tabel 2. Homogeneity test

Levene statistic	df1	df2	Sig.
.071	2	27	.932

The results of statistical analysis of variance similarity data between pretest and posttest are greater than 0.05, which shows that the data of this study are homogeneous.

Table 3. Multiple correlation test

Change Statistics				
R Square Change	F Change	df1	df2	Sig. F Change
.520	3.786	2	7	**.077**

a. Predictors: (Constant), Shadow, Hurdle

The above values show Sig. 0.077 > 0.05, meaning there is no significant relationship. This is a prerequisite test, so the data is said to be random or unrelated.

Tabel 4. Anova

Posttest					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14.867	2	7.433	3.816	.035

In the one way anova analysis test, table 4 shows the results of Sig. 0.034 > 0.05, so it can be concluded that there are significant differences from the three groups in this study. Based on the hypothesis analysis, the value of the three groups exceeds the significance value of the hypothesis, namely Sig. α = 0.05, which means there are significant differences in the groups: Hurdle drills, shadow drills, and controls.

Tabel 5. Post Hoc

Posttest			
Tukey HSD			
Kelompok	N	Subset	
		1	2
Control	10	13.60	
Shadow	10	14.70	14.70
Hurdle	10		15.30
Sig.		.201	.607

a. Uses Harmonic Mean Sample Size = 10.000.

In the analysis of the post hoc test using the Tukey method from the post-test results, the average results of the hurdle drill exercise experimental data were obtained with a value of 15.30, shadow exercise with a value of 14.70, and the control group with a value of 13.60. The chart can be seen in the picture below:

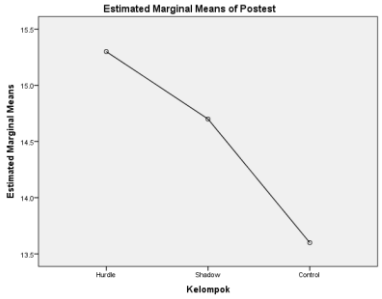

Fig. 2 . Graph of the Average Results of the Third Posttest of Exercise

The graph shows the differences and comparisons between groups: Hurdle drill with a score of 15.30, shadow exercise with a result of 14.70, and a control group with a value of 13.60. The analysis showed that the hurdle drill and shadow training groups were more effective than the control group. With the results of hurdle drill training of 15.30, it can be interpreted that the results are more effective than the results of shadow training on footwork in badminton games.

DISCUSSION

Footwork is considered a basic motion in the game of badminton. It is to determine the right foot position to take the shuttlecock. The feet are used in badminton games to support the body and allow efficient movement (Nugraha et al., 2018). In every exercise group program, some movements can help badminton players improve foot technique, as this type of exercise requires the ability to change body position quickly while staying in the most appropriate foot position. The results of the data analysis showed an increase in each group from the footwork results of athletes in the PB children's age group. Sampurna Sumedang Pearl. The exercise program given is quite varied and not boring, each group has enough exercise programs to attract the attention of athletes. Sex differences also stand out in terms of results. Namely, men show better results compared to women, according to the criteria at the age of the sample of 10-14 years with a period of growth, men tend to have greater strength and endurance (Wiyanto, 2020).

Data processing by IBM SPSS 20 for windows showed significant differences from the three groups of training methods. With the one-way anova test and post hoc test of the hurdle, shadow, and conventional training group, there is an effect on improving footwork in badminton players. This can be seen in Table 4. In the one-way test, ANOVA showed a significance value of 0.3, smaller than 0.5. Then, the post hoc test from Table 5 showed the results of hurdle training of 15.30 greater than the control group, which got a value of 13.60. This corresponds to the naivety on the pretest average of 13.2 and at the time of the posttest of 15.3. So, hurdle training influences footwork in badminton players. Table 5 also shows the results of shadow training with values of 14.70 > 13.60 in the control group. This is evidenced by the average pretest of 13 and 14.7 during the posttest. So, the effectiveness of shadow training on footwork in badminton games. The difference in comparison results between the hurdle drill training group was higher than that of the shadow training group, with results of 15.30. These differences are listed in Fig 1. Shows the existence of a graph of differences between the 3 groups. It can be stated that the results of hurdle drill training are more effective than shadow training on footwork in badminton games.

The research results, supported by carefully planned exercises and conducted under the guidance and supervision of a coach, are the only way to achieve optimal performance. Continuous and systematic coaching is needed to improve overall sports achievement (Ardhia et al., 2022). Lengkana et al., (2020) If achievement sports are done from a young age, it can be successful, but it is done in a sustainable and coordinated manner with guidance from sports coaches. To achieve maximum achievement and good mastery skills, the players must have been given basic technique training starting from an early age.

The hurdle drill training method has advantages regarding variety and innovation for athletes, so athletes will be challenged and interested in completing training sessions (Ismoko &; Sukoco, 2013). Players can adjust to the direction of motion of their footwork position, meaning that when they hold the racket with their right hand, the appropriate step to apply is

to propagate on the right foot, which is the final support when he does footwork. Moves such as jump smashes and drop shots in hurdle drills are similar to jumps performed while playing on the court. The shadow training method increases the efficiency of footwork in badminton players. This method is done with the help of a shuttlecock that is stored at a certain point so that the athlete moves to and fro while still paying attention to the direction of the pedestal toe. Various shadow lob partner exercises can train athletes' reactions in doing footwork. This is related to when he is on the badminton court.

As a result, the training program results in the direction of footwork in the field. Anticipation and late reactions can cause irregular setting of the step towards the shuttlecock. The help of hurdle and shadow training methods showed improvement when he showed good results in the final test. This means that the forehand position can be done by improvising movements from the results of the exercises of the two methods because it is considered that the position of every corner of the field has been mastered. Every position that becomes difficult for athletes' footwork is the backhand position because it moves towards the back corner of the opponent's fulcrum, that is, the backhand. Players must step as little as possible in the direction in which the shuttlecock comes to intercept the direction of the shuttlecock to deliver a blow in the desired direction (Luo et al., 2022).

These training methods can be applied to each category, namely beginners to achievements. However, the hurdle drill training method cannot be applied to the beginner category because it is a movement on a track involving jumping feet, so it is a little difficult for athletes without physical training. (2013) states that athletes must have good strength and speed before training with hurdle drills because the risk of injury will increase. Hurdle drills will be suitable for athletes who have received physical training and are at an advanced level of achievement.

CONCLUSION

Based on the discussion of the research data results, the conclusion is that hurdle drills and shadow training are effective in badminton footwork. In increasing the effectiveness of each group, the results of hurdle training were superior to conventional exercises, and shadow exercises were somewhere in between. This is because more efficiently performed, innovative, and challenging obstacle courses are recommended for advanced and accomplished athletes (non-beginners). The results of this study are expected to be useful regarding training techniques that can help athletes achieve better levels of achievement. Based on this research can be used in all categories of beginner to achievement players, but hurdle drills are recommended for advanced and achievement athletes (non-beginners)

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