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The Effect of Target Pattern Training on Smash Accuracy in Badminton Sports

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Abstract

This study aims to determine the effect of target pattern training on smash accuracy in badminton. Smash accuracy is one of the key factors in the success of badminton, which requires high technical skills and concentration. The method used in this study was an experiment with a pre-test and post-test design. The study sample consisted of 20 badminton athletes who were divided into two groups, namely the experimental group who did target pattern training and the control group who did not receive special treatment. Target pattern training was carried out for 6 weeks with a frequency of 3 times a week. Smash accuracy measurements were carried out before and after the training using a validated smash accuracy test. The data obtained were analyzed using a paired t-test to see the difference in average smash accuracy before and after training. The results showed a significant increase in smash accuracy in the experimental group compared to the control group. Based on these results, it can be concluded that target pattern training has a positive effect on increasing smash accuracy in badminton athletes. The results of the statistical data analysis obtained from the pre-test data test had a P-value (sig) of 0.875. In other words, the test conducted using Kolmogorov Smirnov on the pre-test is greater than $\alpha = 0.05$, which means that the data is normally distributed. And the paired sample t-test obtained a result of 0.000 <0.05. So it can be concluded that there is an effect of target pattern training on smash accuracy in badminton. The results of the initial and final tests showed that there was a significant increase after the treatment was given. This shows that this target smash pattern training method has an effect on improving the quality of reaction speed for the Badminton Student Activity Unit at one of the Universities in West Java, Sumedang Regency.

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INTRODUCTION

Badminton is one of the most popular sports in Indonesia, both at the professional and amateur levels (Federica, 2019). According to (Safari et al., n.d.) sports have a huge impact on human life and can be used as a way to relieve stress for recreation while helping the economy, health, culture, and achievement for those who do it. This game uses a racket as a hitting tool and shuttlecock as an object to hit, the playing field is rectangular and is limited by a net to separate the playing area itself and the opponent's playing area (Yusrifar, 2018). Badminton games are played on a rectangular field.

Badminton is a net game sport using rackets played by two people (for singles) or two pairs (for doubles) facing each other. Badminton is played with players on one side aiming to hit the game ball (kok or shuttlecock) over the net to fall in the opponent's field of play.

The goal of a badminton game is to hit a shuttlecock using a racket, over the net into the opponent's territory around the boundaries of the marked field before the opposing player or partner can hit it back (Email, 2010). There are several factors that make it difficult for athletes to get points, namely on the accuracy of their smash. This is evidenced by the fact that students often only receive drill exercises, so that the activities provided are less varied and less motivating for students. Teaching basic smash shot material using the drill method, namely by using dozens or hundreds of shuttlecocks hit to students without stopping. Drill learning is a form of learning in badminton that is prone to boredom (Alkalah, 2016). Training the accuracy of smash shots is commonly done with the drill method, but apart from the drill method it can also be done with an exercise that may still not be familiar in schools, an exercise that can be done is a target game (Gunawan & Imanudin, 2019).

Smash is one of the basic techniques in badminton that requires a combination of strength, speed, and good body coordination. An effective smash technique can provide a strategic advantage in a match, significantly affecting the outcome of the game. According to Prayadi & Rachman (2013) smash is an overhead (top) punch directed downward and performed with full power. This punch is identical as an attacking pu- kulan. Therefore, the main goal is to kill the opponent. smash hit skills are one of the basic techniques of hitting skills that exist in badminton games. The smash shot skill needs to be concerned about the speed and accuracy of directing the shuttlecock (Sudiadharma & Rahman, 2023). Badminton can also be defined as a high-speed racket sport where elite players are able to hit the shuttlecock with incredible speed and accuracy (Putra et al., 2021). The current Guinness World Record for shuttlecock speed is 421 km/h (Zutshi, 2018). A smash shot is a hard and fast shot. You can hit straight smashes and cross smashes with the same swing. In smashing, the movement that needs to be considered is how to utilize the great power of the muscles that move the legs, shoulders, elbows, and wrists. Therefore, smash shots must be performed with coordinated movements and end with a wrist lunge to release a smash shot that moves in the direction the athlete wants (Hiley, 2020).

Target pattern training is an exercise where the player will get a score if the ball or other similar projectile is thrown or hit in a directed manner at a predetermined target and the fewer hits to the target the better. This game is actually the basis for other games, because almost every game has a target or goal that is targeted (Sari et al., 2020). This shows that the sharper the direction of the blow, the less time the opponent has to react. The smash has an important meaning that can give the opponent little time to prepare or counter every short ball attack he hits. This shows that the sharper the direction of the blow, the less time the opponent has to react. However, in reality in the field, there are not a few coaches who give less attention to children who are trained to do directed smash (target). In fact, in the badminton game, directional smash is very important for the players (Ade Rahmat, 2021). Various training methods have been developed. One of the training methods that is considered potentially effective is the target pattern. Target pattern games are exercises that involve determining certain goals or targets that must be achieved by the player, both in terms of position, direction, and stroke strength. This concept has been used in various sports as a means of improving accuracy and precision. (El-Gizawy.H, 2014)

Currently, almost all badminton schools and educational institutions through extracurricular activities in Indonesia teach basic smash shot material using the drill method, which is by using dozens or hundreds of shuttlecocks hit to students without stopping. Drill learning is a form of learning in badminton that is prone to boredom, this is because in drill learning there is no variety of movements and tends to be monotonous. Seeing this phenomenon, it is very necessary to find a smash learning method that is more fun, but the principle of benefits remains

the same or even exceeds the drill method. The learning method is the smash accuracy learning method using target pattern training.Outline, in the background loading results in field or problems or observations and findings data, theories that support earlier research, and explain whether or not there are similarities/differences with previous research, formulation the problem, objective research.

Researcher observations in the field show that badminton instruction is still monotonous and lacks target practice, students are only given drill exercises and not many variations of training. The accuracy of smash is still a lot less precise when doing smash to the opponent, students are only given drill exercises and not many variations of training. As a result, they cannot direct the opponent's target and are lacking in smash accuracy and tend to be monotonous. In fact, there are still many players when smashing shuttlecocks concerning the net and even out of the field. A smash shot should be a weapon for each player to get points or kill the opponent. The smash training pattern is also not given much attention, the training is more focused on pattern and physical training.

Therefore, the results of preliminary observations made, this study will examine the effect of target pattern training on smash accuracy in badminton sports. So that by doing this research, there are many benefits that will be given to the object or to the researcher himself. With researchers conducting this research, the benefits of target pattern training on the accuracy of badminton smash will be proven. The results of this study can provide a strong basis for proving whether the influence that will be useful and can be implemented on badminton members that researchers will make objects.

METHODS

This research is a quantitative study with a pre-experiment design experimental research method design. This research was conducted in order to see how much influence the Target Pattern had on the accuracy of smash in badminton athletes before and after being treated. Pre-Exsperimen design, used in this study is "one group pretest posttest design", experimental research method is a research method used to seek the effect of certain treatments on others under controlled conditions. According to Charismana (2022) Experimental research can be interpreted as a research method used to find the effect of treatment that has been given to something under controlledconditions.

RESULTS AND DISCUSSION

This research is a quantitative research with a pre-experimental design experimental research method design. This research was conducted to see how much influence the Target Pattern has on the accuracy of smashes in badminton athletes before and after being treated. The pre-experimental design, used in this study is "one groups pretest posttest design", the experimental research method is a research method used to find the effect of certain treatments on others under controlled conditions. According to Waruwu (2023) Experimental research can be interpreted as a research method used to find the effect of the treatment that has been given to something under controlled conditions. Furthermore, after the training method given has been carried out which is carried out for 12 meetings, the researcher will conduct a return test called a post-test to find out the development that exists after the treatment is carried out and produce the value that you want to study. Below is a table of data exposure results of a pretest and posttest test produced after conducting a study that has taken place. The results of the smash accuracy research of members of the Indonesian Education University Sumedang Campus are described as follows **Table 1.**

Table 1. Pretest Data Results

Sample	Pretest	Posttest
1.	25	85
2.	18	79
3.	13	60
4.	35	95
5.	18	75
6.	14	73
7.	30	88
8.	19	79
9.	14	75
10.	14	73
11.	11	60
12.	30	87
13.	27	82
14.	15	65
15.	21	82
16.	21	79
17.	20	75
18.	26	85
19	27	82
20	16	60

This study's data analysis was carried out to determine the mean, median, mode, standard deviation, smallest value, largest value, and difference from the pretest and posttest results. Below are the results of the data analysis carried out on the pretest and posttest results.

Table 3.

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
pretest	20	24	11	35	20.70	6.744	45.484
posttest	20	35	60	95	76.95	9.774	95.524
Valid N (list-wise)	20						

In **Table 3**, it can be seen that the average value of the pretest is 20.70, for the average of the posttest is 74.95. For the median value of the pretest is 24 and for the posttest value 35.

For the standard deviation value on the pretest which is 6.744 smaller than the mean value which is 20.70, for the posttest standard deviation value is 9.774 which means it is also smaller than the mean value which is 76.95.

Normality Test

The requirement that is fulfilled from this analysis is the significance level = 0.05. data that is said to be normally distributed is the sig value> 0.05 if the data is said to not contribute abnormally is the sig value <0.05. Based on the normality test conducted using the Kolmogorov-Smirnov Test, the normality test results at the time of the pre-test were 0.875, while at the time of the posttest it was 0.808. It can be concluded that the pretest and post-test data are NORMALLY distributed because the significance value obtained > α (0.05).

H0 = Data comes from normally distributed samples

H1 = Data comes from samples that are not normally distributed.

Homogeneity Test

After testing for normality, the next step is to test for homogeneity. This test is carried out to see that the data is variance between the two test results, namely the initial test data (pretest) with the final test data (posttest).

H0 = There is no difference in variation between pretest and posttest.

H1 = There is a difference in variation between pretest and posttest

Based on the results of the homogeneity test on the pre-test and post-test data, the sig value (0.180) > α (0.05) so that the data is HOMOGENIC.

Hypothesis Test

Based on the R Square test of 0.777 found, which shows that the effect of the independent variable on the dependent variable is 77.7%, or R Square x 100. So, the effect of the effect of target pattern training on the accuracy of smash in badminton. by 77.7% in the GOOD category.

Based on the results of the study, there was a significant increase in smash accuracy after being given target pattern training for 12 sessions. The results of the Paired Sample T-test show the value of Sig. (0.000) <0.05, which means there is a significant effect of target pattern training on smash accuracy. Thus, the research hypothesis is accepted, which states that target pattern training has an effect on smash accuracy in badminton. The regression analysis results show that the R Square value is 0.777. This means that 77.7% of the variability in smash accuracy can be explained by target pattern training, while the rest (22.3%) can be influenced by other factors such as individual technique, physical condition, or playing experience.

The results of this study indicate that target pattern training can significantly improve smash accuracy in badminton. This exercise helps players in improving control and coordination of movements when performing smashes, resulting in more accurate and effective shots in the game. From the comparison between pretest and posttest scores, there was an increase in the average score from 20.70 to 76.95. The largest score difference reached 61 points, indicating that some players experienced a huge increase in smash accuracy after undergoing target pattern training. In addition, the results of the normality and homogeneity tests showed that the data obtained had a normal and homogeneous distribution, so the statistical analysis used was reliable and valid.

This study aligns with the theory of motor training in sports, which states that systematic and structured training can enhance movement skills in sports (Federica, 2019). Target pattern training helps athletes develop consistency in their strokes, supporting the theory that repetitive training with proper feedback can improve motor skills. The findings of this study are also consistent with previous research by (Santoso & Hadiwono, 2019). which found that specific technical training in badminton, including target pattern training, can improve stroke accuracy and movement efficiency in athletes. Additionally, research by (Irawan & Prayoto, 2021) also demonstrated that training based on target patterns can enhance precision in various sports that require stroke accuracy.

The results of this study contribute to the field of sports coaching science, particularly in badminton, by providing empirical evidence that target pattern training is an effective method for improving smash accuracy. Thus, these findings can serve as a foundation for coaches and athletes in designing more effective training programs to enhance performance in badminton. Furthermore, this study can also serve as a reference for future research to explore other factors that may contribute to skill improvement in badminton, such as training variations, psychological factors, and game strategies.

CONCLUSION

This study demonstrates that target pattern training significantly enhances smash accuracy in badminton, as indicated by an increase in the average score from 20.70 in the pre-test to 76.95 in the post-test. The expansion in score range, standard deviation, and variance suggests that this training approach effectively improves athletes' technical abilities. The findings align with Schmidt's Motor Schema , Magill's Theory (2011), and Bernstein's Movement Coordination Theory (1967), all of which highlight the role of specialized training in refining motor skills and optimizing movement efficiency. In practical terms, this research serves as a valuable resource for coaches and athletes seeking to implement target pattern training to enhance smash precision. Future studies are encouraged to explore the effects of this method over an extended training period, assess its impact on athletes with varying skill levels, and compare it with alternative training techniques to identify the most effective strategy.

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