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The Effect of Target Games on the Accuracy of Smash and Lob Shots Among Male and Female Badminton Club Participants at Yogyakarta State University

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ABSTRACT: The purpose of this study is to determine whether target games have a significant effect on the accuracy of smash and lob shots among male and female participants in the Badminton Club at Yogyakarta State University. This study used an experimental method. The subjects of this research were 16 male and female participants in the Badminton Club at Yogyakarta State University. The data analysis technique employed was a t-test with a 5% significance level. The results showed that the calculated t-value (14.669) > t-table (2.36). Thus, it can be concluded that target games have a significant effect on the accuracy of smash shots among male participants in the Badminton Club at Yogyakarta State University. The results also showed that the calculated t-value (32.524) > t-table (2.36), indicating that target games have a significant effect on the accuracy of smash shots among female participants in the Badminton Club at Yogyakarta State University. The results further revealed that the calculated t-value (5.061) > t-table (2.36), which concludes that target games have a significant effect on the accuracy of lob shots among male participants in the Badminton Club at Yogyakarta State University. The results also showed that the calculated t-value (7.754) > t-table (2.36), indicating that target games have a significant effect on the accuracy of lob shots among female participants in the Badminton Club at Yogyakarta State University. The results showed that the calculated t-value (2.332) > t-table (2.144), concluding that there is a difference in the effect of target games on the accuracy of smash shots between male and female participants in the Badminton Club at Yogyakarta State University. The results also indicated that the calculated t-value (2.586) > t-table (2.144), concluding that there is a difference in the effect of target games on the accuracy of lob shots between male and female participants in the Badminton Club at Yogyakarta State University.

KEYWORDS: Lob shot accuracy, smash shot accuracy, Target games.

I. INTRODUCTION

Badminton has become one of the most popular sports worldwide, not only because of its competitive nature but also due to its numerous benefits. According to Subekti and Junaidi (2022), badminton offers significant physical health advantages, such as improved cardiovascular endurance, muscle strength, and flexibility. Additionally, this sport contributes to the development of technical and mental skills essential for players. Mental skills, such as concentration, mental resilience, and the ability to cope with pressure, are crucial in badminton due to the fast-paced and dynamic nature of the game. Basic techniques in badminton, such as the Smash and lob shots, are critical in determining game success. Widodo & Purnama (2023) explain that both types of shots are often used as part of offensive and defensive strategies. The Smash, known for its power, is not only utilized to attack opponents but also often serves to quickly end rallies. This shot requires strength and precise technique to be executed effectively, providing significant advantages during matches. In this context, the ability to perform accurate and powerful Smashes can distinguish successful players from others.

The lob shot, on the other hand, has a different strategic role but remains equally important in badminton. The lob, aimed at directing the shuttlecock to the opponent's backcourt, allows players to control their opponent's position and reorganize their strategy. Nasution (2023) emphasizes that an accurate lob can force opponents to move quickly to the backcourt to receive the shuttlecock, making them vulnerable to counterattacks. By pushing opponents to the backcourt, players can create gaps in the frontcourt that can be exploited for attacking shots, such as a drop shot or a quick Smash. Precision in executing lob shots is crucial

to minimize the risk of the shuttlecock going out of bounds, which could result in points for the opponent. A well-executed lob shot not only helps maintain game control but also enables players to adapt to dynamic game situations. This shot allows players to change the game tempo quickly, shifting from defensive to offensive play without losing court control. In advanced play, the precision of lob shots can determine success in controlling the match's flow. Besides creating opportunities for counterattacks, precise lobs also give players more time to prepare their next strategy, whether for defense or offense.

Differences in the accuracy of Smash and lob shots between male and female members of the Badminton Student Activity Unit (UKM) at Yogyakarta State University may be attributed to various physical, technical, and psychological factors. Physically, male participants tend to have advantages in muscle strength and movement speed. This enables them to produce stronger and faster Smash shots, although sometimes at the expense of accuracy if their technique is less optimal. In contrast, female participants generally excel in consistency and technical control, making their lob shots more measured but often less effective in terms of power compared to male participants.

Moreover, the ability to coordinate and master basic techniques plays a vital role. Female participants often focus more on precision and game strategy, reflected in their ability to maintain the accuracy of lob shots to control their opponents' positions. On the other hand, male participants tend to be more aggressive, relying on Smash shots as their primary weapon. However, this aggressive approach can sometimes lead to a lack of consistency in accuracy, especially under high-pressure situations or when stamina decreases. Experience also influences these differences. Male participants may frequently engage in intensive training or sparring that emphasizes the strength of their shots, while female participants often focus more on developing techniques and defensive strategies. This gap highlights the need for more balanced training methods to address these differences by emphasizing the improvement of both Smash and lob shot accuracy for both groups.

In addition to physical and technical aspects, psychological factors such as confidence, emotional control, and focus during matches also impact shot accuracy. Female participants tend to maintain concentration more consistently, supporting the accuracy of their lob shots but may lack confidence in performing high-risk, power-driven Smash shots. Conversely, male participants, while more daring in executing aggressive shots, often experience reduced accuracy due to a lack of focus on technical details. Therefore, it is essential to explore training methods that not only address these gaps but also provide equal opportunities for all participants to improve. One promising approach is the use of target games as a training method. Target games, which involve setting clear and specific goals, can help participants focus on their techniques and shot accuracy. In the context of badminton, target games offer participants an enjoyable and competitive way to practice, enhancing basic technical skills such as Smash and lob shot precision. This approach also trains players' decision-making abilities and adaptability in dynamic game situations. By integrating target games into training programs, coaches can create a dynamic and competitive training environment where each session becomes more engaging and challenging. This method not only helps participants develop technical skills like shot accuracy but also builds confidence. Confidence is crucial for participants as it gives them the assurance that they can achieve the set targets, making them better prepared for actual match situations.

II. METHODS

A. Population and Sample

The population refers to the group targeted or studied in the research (Hermawan, 2019). The population in this study consists of 37 male and female participants from the Badminton Student Activity Unit (UKM) at Yogyakarta State University. As with population characteristics, a sample that represents the population is one carefully selected to match the characteristics of the population. A sample is a subset of the population chosen using a sampling technique (Hardani et al., 2020). The sampling in this study was conducted using purposive sampling. Based on these criteria, 8 male participants and 8 female participants met the requirements. All samples underwent a pretest measuring the accuracy of Smash and lob shots.

B. Instrument

An instrument is defined as a measuring tool used in research to observe variables (Sugiyono, 2018). The test instrument used for initial (pretest) and final (posttest) measurements of Smash shot accuracy refers to the instrument developed by Saleh (2010), which has a validity value of 0.926 obtained through the round-robin tournament criterion and a reliability of 0.89 obtained using the even-odd method refined with the Spearman-Brown formula. Meanwhile, the test instrument for measuring the accuracy of lob shots (both pretest and posttest) is based on the instrument by French in Collin and Patrick (1949). This instrument, using the half-competition ranking criterion, has a validity of 0.60 and a reliability of 0.98 achieved through the even-odd method. The research process lasted 16–18 sessions, excluding pretest and posttest.

C. Data Analysis

Before testing the hypothesis, prerequisite tests must be conducted. This study performed normality and homogeneity tests. Before proceeding to the t-test, researchers must ensure that the data being analyzed is normally distributed; thus, normality and homogeneity tests are necessary (Arikunto, 2019).

III. RESULTS

Research result The pretest and posttest data on the accuracy of smashes and lobs of male and female participants of the Yogyakarta State University Badminton UKM are described using descriptive statistical analysis as follows:

A. Data on Smash Shots from Men's and Women's UKM Badminton Participants at Yogyakarta State University

Table 1. Accuracy of men's smash strokes

Statistics	***Pretest***	***Posttest***
N	8	8
Mean	70.50	92.62
Median	71.50	94.00
Mode	61.00a	94.00
Std. Deviation	6.07	7.29
Minimum	61.00	79.00
Maximum	78.00	103.00

Table 2. Accuracy of women's smash strokes

Statistics	***Pretest***	***Posttest***
N	8	8
Mean	74.37	92.75
Median	75.00	94.50
Mode	69.00	100.00
Std. Deviation	7.73	8.55
Minimum	61.00	79.00
Maximum	83.00	103.00

B. Distribution of Lob Shot Accuracy Research Data for Men's and Women's UKM Badminton Participants Yogyakarta State University

Table 3. Men's lob shot accuracy

Statistics	***Pretest***	***Posttest***
N	8	8
Mean	74.37	88.25
Median	71.50	88.50
Mode	71.00	85.00
Std. Deviation	8.05	5.26
Minimum	64.00	79.00
Maximum	90.00	95.00

Table 4. Accuracy of women's lob shots

Statistics	***Pretest***	***Posttest***
N	8	8
Mean	72.25	80.37
Median	73.50	81.50

Mode	61.00a	83.00
Std. Deviation	5.70	5.75
Minimum	61.00	70.00
Maximum	80.00	88.00

C. Normality Test

The normality test in this study uses the Kolmogorov-Smirnoff test. The criteria used to determine whether a distribution is normal or not is if p > 0.05 (5%) the distribution is declared normal, and if p < 0.05 (5%) the distribution is said to be abnormal. The results of the normality test can be seen in the table below:

Table 5. Normality test results

Variables	Z	R	Sig 5 %	Information
Smash Shot Accuracy	0.741	0.642	0.05	Normal
Lob Shot Accuracy	0.577	0.893	0.05	Normal

From the results in the table above, it is known that the accuracy data for smashes and lobs obtained p > 0.05. The results can be concluded that the research data is normally distributed.

D. Homogeneity Test

Homogeneity criterialf F count < F table test is declared homogeneous, if F count > F table test is said to be inhomogeneous. The results of the homogeneity test of this study can be seen in the following table:

Table 6. Homogeneity test results

Test	df	F table	F hit	*P*	Information
Smash Shot Accuracy	1:30	4.17	0.169	0.684	Homogeneous
Lob Shot Accuracy	1:30	4.17	0.354	0.556	Homogeneous

Based on the results of the homogeneity test above, the data on the accuracy of smash and lob strokes obtained a calculated F value < F table, with the results obtained it can be concluded that the variance is homogeneous.

E. Hypothesis Test (t-test)

This hypothesis testing was carried out using the t-test (paired sample t test) at a significance level of 5% and using the Independent sample t-test.

1. The effect of target play on the accuracy of men's smash strokes

Table 7. Hypothesis test results 1

Pretest – posttest	Df	T table	T count	P	Sig 5 %
Accuracy of Smash Shots of Male Participants in UNY Badminton UKM	7	2.36	14,699	0,000	0.05

Based on the data analysis, the calculated t value was obtained (14,669) > t table (2.36), and p value (0.000) <0.05, the results indicate that the calculated t value is greater than the t table. Thus it means "there is an influence of the target game on the accuracy of the male participant's smash strokes in the UNY Badminton UKM".

2. The effect of target play on the accuracy of women's smash strokes

Table 8. Hypothesis test results 2

Pretest – posttest	Df	T table	T count	P	Sig 5 %
Accuracy of Smash Shots of Female Participants in UNY Badminton UKM	7	2.36	32,524	0,000	0.05

Based on the data analysis, the calculated t value was obtained (32,524) > t table (2.36), and p value (0.000) <0.05, the results indicate that the calculated t value is greater than the t table. Thus it means "there is an influence of the target game on the accuracy of the smash of female participants in the UNY Badminton UKM".

3. The effect of target play on the accuracy of men's lob shots

Table 9. Hypothesis test results 3

Pretest – posttest	**Df**	**T table**	**T count**	**P**	**Sig 5 %**
Accuracy of Lob Shots by Male Participants in UNY Badminton UKM	7	2.36	5,061	0,000	0.05

Based on the data analysis, the calculated t value was obtained (5,061) > t table (2.36), and p value (0.000) <0.05, the results indicate that the calculated t value is greater than the t table. Thus it means "there is a significant influence of the target game on the accuracy of the lob strokes of the Male Participants in the UNY Badminton UKM".

4. The effect of target play on the accuracy of women's lob shots

Table 10. Hypothesis test results 4

Pretest – posttest	**Df**	**T table**	**T count**	**P**	**Sig 5 %**
Lob Shot Accuracy of Female Participants in UNY Badminton UKM	7	2.36	7,754	0,000	0.05

Based on the data analysis, the calculated t value was obtained (7,754) > t table (2.36), and p value (0.000) < 0.05, the results show that the calculated t value is greater than the t table, thus meaning "there is an influence of the target game on the accuracy of the lob strokes of female participants in the UNY Badminton UKM".

5. Differences in the influence of target play on the accuracy of smashes between male and female participants

Table 11. Hypothesis test results 5

Smash Shot Accuracy	**Df**	**T table**	**T count**	**P**	**Sig 5 %**
Sons and daughters	14	2,144	2,332	0.035	0.05

Based on the results of the analysis of the independent sample t test, the values of t count (2.332) > t table (2.144) were obtained, these results indicate that the t count value is smaller than the t table. These results indicate that there is a difference in the influence of the target game on the accuracy of the smash between male and female participants in the Badminton UKM, Yogyakarta State University.

6. Differences in the influence of target play on the accuracy of lob shots between male and female participants

Table 12. Hypothesis test results 6

Smash Shot Accuracy	**Df**	**T table**	**T count**	**P**	**Sig 5 %**
Sons and daughters	**14**	2,144	2,586	0.025	**0.05**

Based on the results of the analysis of the independent sample t test, the values of t count (2.586) > t table (2.144) were obtained, these results indicate that the t count value is smaller than the t table. These results indicate that there is a difference in the influence of the target game on the accuracy of the lob stroke between male and female participants in the Badminton UKM, Yogyakarta State University.

IV. DISCUSSION

A. The Influence of Target Games on the Accuracy of Smash Shots of Male and Female Participants in the UNY Badminton UKM

Based on the results of the research on the accuracy of men's smashes, the t-value was obtained (14,669) > t table (2.36), and p value (0.000) < 0.05, the results mean that there is an influence of the target game on the accuracy of the smash of male

participants in the UNY Badminton UKM. The results of the study of female participants obtained a t count value (32,524) > t table (2.36), and p value (0.000) < 0.05, these results also show that there is an influence of the target game on the accuracy of the smashes of female participants in the UNY Badminton UKM".

Smash is one of the hitting techniques in badminton. To have good smash accuracy requires regular practice. Target game training and drilling smash are used in training smash accuracy techniques in badminton. By using the right training method, it is expected that athletes will have good smash accuracy. However, in the game, players often find that their smash accuracy is not good, which should be deadly to the opponent, but instead dies by itself because it goes out of the field and gets caught in the net. With the results of this study, it means that with this target method, players are trained to have good accuracy when doing a smash. According to (Ramadhan *et al.,* 2016) that target training is a training where players will get a score if the ball or other similar projectile is thrown or hit in a targeted manner hitting a predetermined target. Target games are games where players will get a score if the ball or other similar projectile is thrown or hit in a targeted manner hitting a predetermined target and the fewer hits to the target the better, and focuses on game activities that require precision, high accuracy in getting points.

B. The Influence of Target Games on Lob Shot Accuracy of Male and Female Participants in UNY Badminton UKM

Based on the research results of the male participants, the calculated t value was obtained (5,061) > t table (2.36), and p value (0.000) < 0.05, the results mean that there is a significant influence of the target game on the accuracy of the lob strokes of the Male Participants in the UNY Badminton UKM. Based on the results of the research on female participants, the t count value (7,754) > t table (2.36), and p value (0.000) < 0.05, the results mean that there is an influence of the target game on the accuracy of the lob strokes of female participants in the UNY Badminton UKM". A player or athlete's lob stroke can be improved through training. Training is an activity or activity carried out to improve an athlete's performance regularly, planned, with increasing loads. Training is a sports activity that is carried out systematically over a long period of time, progressively and individually increased towards the characteristics of physiological and psychological functions to achieve predetermined goals.

Based on the results of the study, it shows that target training also improves lob strokes in participants, thus target training helps children to train accuracy in hitting strokes. target games are a form of throwing or hitting a ball or projectile and the like, directed at a certain target. Scores are obtained if they are able to hit the target. A target game is designed to improve hand-eye coordination, agility, balance, concentration and listening skills to instructions to achieve a predetermined target. So, it can be concluded that target games are a form of game by hitting the shuttlecock with basic smash and lob techniques towards the expected target to get points/scores. Thus, target games-based badminton lob training is thought to have a significant influence on improving the badminton lob stroke ability of players or athletes.

C. Differences in the Influence of Target Games on Smash Shot Accuracy Between Male and Female Participants of Badminton UKM, Yogyakarta State University

Based on the results of the independent sample t-test analysis, the calculated t values (2.332)> t table (2.144) were obtained. These results mean that there is a difference in the influence of the target game on the accuracy of the smash stroke between male and female participants at the Badminton UKM, Yogyakarta State University. The results of the independent sample t-test analysis obtained calculated t values (2.586)> t table (2.144). These results indicate that there is a difference in the influence of the target game on the accuracy of the lob stroke between male and female participants at the Badminton UKM, Yogyakarta State University.

The results show that both exercises provide improvements to male and female participants of the Yogyakarta State University Badminton UKM, so that both have a positive effect. In addition, the differences indicate that the results between the improvements of male and female participants are different, this is because the ability of participants to receive different training, physically for male participants have better physique than female participants. The increase in ability that occurs is due to the association of knowledge obtained by children in previous meetings with new knowledge and the association is stronger when done repeatedly.

V. CONCLUSIONS

Based on the results of previous research and discussions, several conclusions were obtained, namely:

1. The research results obtained a calculated t value (14,669) > t table (2.36), Thus it is concluded that there is an influence of the target game on the accuracy of the smash strokes of male participants in the UNY Badminton UKM".
2. The research results obtained a calculated t value (32,524) > t table (2.36), and p value (0.000) < 0.05, the results concluded that there was an influence of the target game on the accuracy of the smash strokes of female participants in the UNY Badminton UKM.

3. The results of the research obtained a calculated t value (5,061) > t table (2.36), and p value (0.000) < 0.05, the results concluded that there was a significant influence of the target game on the accuracy of the lob strokes of the Male Participants in the UNY Badminton UKM".
4. The research results obtained a calculated t value (7,754) > t table (2.36), and p value (0.000) < 0.05, the results concluded that "there is an influence of the target game on the accuracy of the lob strokes of female participants in the UNY Badminton UKM".
5. The results of the study obtained a calculated t value (2.332) > t table (2.144), the results concluded that there was a difference in the influence of the target game on the accuracy of smashes between male and female participants at the Badminton UKM, Yogyakarta State University.
6. The results of the study obtained a calculated t value (2.586) > t table (2.144), the results concluded that there was a difference in the influence of the target game on the accuracy of lob shots between male and female participants at the Yogyakarta State University Badminton UKM.

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