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The Effect of the Service Challenge Drill Method on Improving Short Services in Badminton

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Abstract

The fundamentals of sport rudiment training involve short service in badminton which is the starting point in the service\control of the rally. However young shuttlers have short service which is the point of the rally control. The purpose of this study is to examine the service challenge drill methods in short service badminton training of young athletes in badminton. The research method used was an experiment with one group pretest-posttest design. The sample of this study were athletes from PB Pemuda Demak which consisted of 30 athletes using total sampling technique. The treatment was the service challenge drill methods in training which was used in 16 training sessions emphasizing repetitive practice and positional targeting and accuracy with variation of footwork and position. The training short service ability test before and after treatment were used to collect data. The data was analyzed using descriptive statistics, normality and homogeneity test and the paired sample t test in SPSS 25. The outcome was indeed there was improvement in short service control rally with the mean score of short service ability test pretest 60.20, and posttest 72.50. The paired sample t test with 0.000 < 0.05 research, service challenge drill methods in training were positive impact in short service ability improvement. These findings suggest that the Service Challenge Drill method is an effective, structured, and practical training approach for improving short service skills in young badminton athletes. This method can be recommended as an alternative training model to enhance technical performance in badminton coaching programs.

How to Cite

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INTRODUCTION

Exercise is an important activity that every human being needs to maintain and improve physical fitness (Kljajevi & Oršoli, 2022). In addition to improving physical condition, exercise is also a means of recreation that can provide peace of mind and reduce stress. On the other hand, sports play a vital role in improving performance, especially for individuals who pursue them seriously. Therefore, sports are a basic necessity that play an important role in maintaining physical health and enabling optimal performance in physical activities (Hasan et al., 2025). One of the popular sports in Indonesia is badminton. Badminton is a popular sport in high demand in Indonesia, loved by people of all ages and genders, from children to the elderly (Mansur et al., 2020).

Badminton is a sport that uses rackets and is played by two or four people, with positions on opposite sides of the court separated by a net (Phomsoupha & Laffaye, 2015). Two people play in the singles category, and four people play in the doubles and mixed doubles categories (Subarkah & Marani, 2020). To be a badminton player, a player or athlete must be able to hit the shuttlecock, both from above and below. Moreover, the existence of badminton has brought Indonesia to the international stage through the achievements of Indonesian athletes (Aisyah & Himawan, 2021). Badminton athletes are people who pursue the sport to learn and deepen their knowledge, aiming to succeed. A badminton athlete needs to train regularly to improve their basic badminton techniques. In badminton, there are several age groups, with junior badminton athletes aged 7–18. Junior badminton athletes compete in age-based tournaments, starting with the «early age» category for athletes under 11. The next category is «children,» which includes athletes under 13 years old. The next category is «teens,» which includes athletes under 17 years old. The last category is «cadets,» which includes athletes under 19 years old. Every athlete must have adequate basic techniques in order to achieve success at the national and international levels.

One of the basic techniques in badminton is the service technique (Setiawan & Warthadi, 2024; Finishia & Adi, 2025). The service is the first shot to start the game. There are two types of serves in badminton: short serves and long serves (Zhang et al., 2024). A short serve is a serve that lands near the net, while a long serve is a serve that flies high and lands behind the back line of the court. The serve is the shot that starts the game and is important in badminton. Therefore, serves require regular and rigorous practice. Service training requires mastery of movements, body position when serving, hands, feet, and other follow-up movements (Edel et al., 2023). Additionally, the service requires good speed and accuracy. A good service must consider the stance when standing, the racket swing, the opponent›s position, and full concentration. (Gusrinaldi et al., 2020). One training method is the drill method. According to Ichsanudin & Aguss (2022), the drill method instructs athletes to perform steps precisely and repeatedly. The drill method is a tool to create a conducive training process, and it is hoped that this method will develop into a training activity (Dewi et al., 2024).

Based on the researcher›s field observations during routine training at the Demak badminton hall, athletes aged 11-13 years made several errors in their short service, resulting in the shuttlecock going out of bounds or to the wrong side (Nugroho et al., 2025). They also made several services that were too high or too low, making it easy for their opponents to hit the shuttlecock. Many shuttlecocks still did not go in the desired direction. Additional short-service training models are needed to improve short-service techniques.

To overcome this problem, it is necessary to conduct exercises that improve short-service skills, namely through the drill method. The method to be used is the service challenge drill method, in which the sample performs a short service towards a target assigned a value. The goal is to place as many shuttlecocks as possible towards the target. This is varied by moving to the right and left sides of the court. The purpose of this study is to determine the improvement in short service skills through the Service Challenge Drill method among child athletes at the PB Remaja Demak club. This method will make it easier for coaches to provide short service training to players so that they can more easily and quickly grasp what the coach is teaching, thereby achieving maximum results. The novelty of this research lies in using the Service Challenge Drill as a target-scoring-based short-service training model that emphasizes accuracy, control, and positional variation in a more measurable way than conventional repetition methods. While previous studies have focused more on improving short service through routine training or basic technique modification, this study offers a training model that is more competitive, measurable, and responsive to the types of errors commonly made by children-category athletes, resulting in a more

applicable and practical coaching approach.

METHOD

This study used a One-Group pretest-posttest design. In this design, there is one experimental group that is deliberately assigned to the treatment. Before treatment, the research subjects are given a pretest to assess their initial abilities. After the treatment is delivered over 16 meetings, the subjects are given a posttest. Comparing pretest and posttest results determines the effect of the treatment on the variables studied.

The population is the entire research object that has specific characteristics and is relevant to the research objectives (Waruwu et al., 2023). The study population consisted of all 30 athletes from PB Remaja Demak. Given the relatively small population, a total sampling approach was used, with all members of the population included as the research sample. Thus, the sample consisted of 30 athletes aged 10–15 years .

The instrument used in this study was a short service ability test to measure the athletes' ability to direct short service balls accurately and precisely toward the target. The instrument was selected based on its suitability with the characteristics of badminton and its relevance to the research objectives. The following instruments are required for the short service **Figure 1.**

The total score is then converted to the following **Table 1.**

Table 1. Short serve assessment norms

Interval	Category
80-100	Very Good
66-80	Good
56-65	Moderate
40-55	Poor
<40	Very Poor

The first of the research steps was to conduct a pretest that was used to assess the participants' short service skills prior to the implementation of the treatment. The participants were then given treatment in the form of a training program that was developed to suit the needs of the research. Once all the treatment sessions were done, a posttest was given to assess the short service skills of the participants to see if the skills had changed. The treatment of the participants in this study was analyzed using the pretest and posttest scores to assess the value of the treatment in enhancing the participants' short service skills. The first step of the data analysis in this study was a description of the data to give a summary of the data that was collected from the research which included the lowest score, the highest score, the average score, and the standard deviation from the pretest and posttest scores, and this was done using the statistical analysis software known as SPSS version 25. Additionally, before the hypothesis was tested, the data was analyzed using the normality and homogeneity tests as a pre-

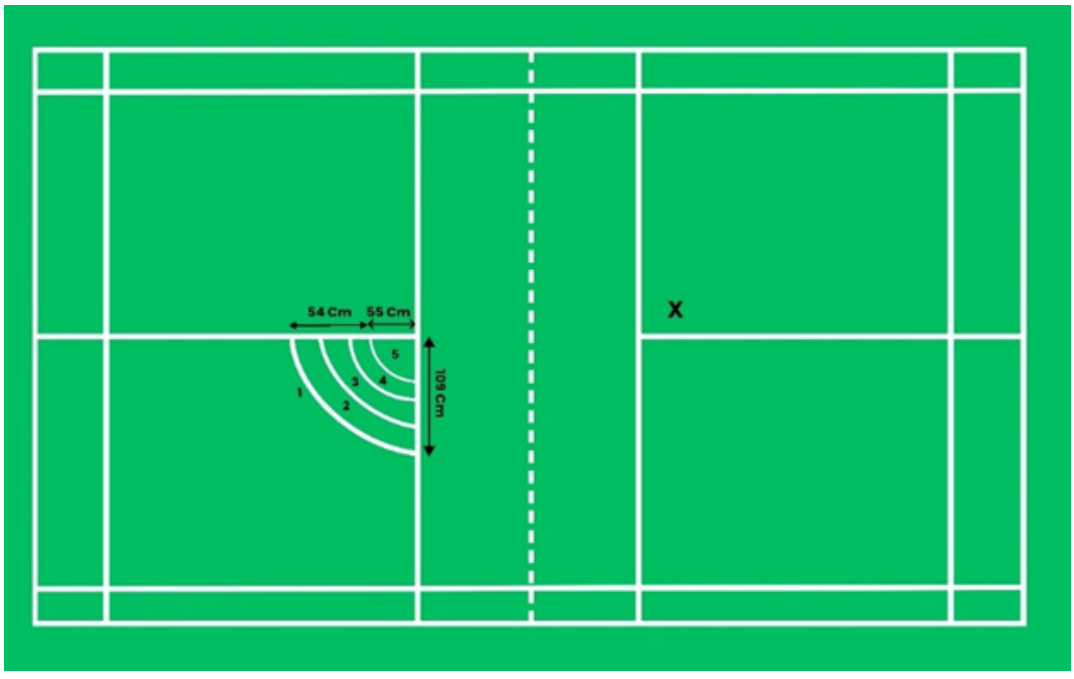

Figure 1. Short Service Field Instrument

requisite. When the data statistically passed the prerequisite tests, the paired samples t test was utilized to present the level of difference between two means which in this study were the posttest and pretest scores, as a measure of the level of change that took place due to the treatment. The basis for decision-making was that if the p-value was greater than 0.05, the null hypothesis (H_0) was accepted and the alternative hypothesis (H_0) was rejected. If the significance value is less than 0.05, H_0 is rejected, and H_0 is accepted, indicating a significant difference.

RESULTS AND DISCUSSION

Statistical data analysis on a sample of thirty athletes is presented in **Table 2.**

Table 2. Statistical Descriptive Analysis

Variable	N	Min	Max	Mean	Std. Dev	Description
PreTest	30	38	75	60,20	10,44	Moderate
PostTest	30	57	86	72,50	8,15	Good

The descriptive statistics **Table 2** shows the pretest results with a sample size of 30 people, with a minimum value of 38 and a maximum value of 75, with an average value of 60.20 and a standard deviation of 10.44. Meanwhile, in the posttest, the minimum score increased to 57 and the maximum score to 86, with an average score of 72.50 and a standard deviation of 8.15. The data shows an increase in the average score of 12.3 after the treatment was given.

Table 3. Clasification Body Mass Index

Classification	Skor Range	F	Percentage
Underweight	< 18.5	4	13,33 %
Normal	18.5-22.9	15	50 %
Overweight	23-24.9	8	26,67 %
Obese I	25-29.9	2	6,67 %
Obese II	> 30	1	3,33 %
Total		30	100

Based on **Table 3**, which shows the Body Mass Index (BMI) classification, most of the 30 respondents were in the normal BMI category, namely 15 people (50%). Next, the overweight category was in second place with 8 people (26.67%), followed by the underweight category with 4 people (13.33%). Respondents in the Obese I category numbered 2 people (6.67%), while the Obese II category was the smallest with 1 person (3.33%). Overall, the distribution of respondents' BMI shows that the majority of respondents are in the normal weight category, although there is still a proportion of respondents who are overweight and obese who need attention.

Table 4. Normality Test

Variable	Statistic	df	Sig.	Description
PreTest	.933	30	.061	Normal
PostTest	.937	30	.076	Normal

Based on **Table 4** of the normality test results, it is known that the PreTest data has a significance value of 0.061, while the PostTest data has a significance value of 0.076. Both significance values are greater than 0.05, so it can be concluded that the PreTest and PostTest data are normally distributed. Thus, the research data meets the normality assumption and is suitable for analysis using parametric statistical tests.

Tabel 5. Test of Homogeneity

Test of Homogeneity of Variance		Levene Statistic	df1	df2	Sig.	Description
Service Challenge Drill Results	Based on Mean	1.245	1	58	.269	Homogeneous

Based on **Tabel 5**, the results of the homogeneity test for the service challenge drill PB Remaja Demak in the children's category, the significance value based on the mean is 0.269 > 0.05. Therefore, it can be concluded that the data is homogeneous or passes the homogeneity test.

The paired sample t-test, also known as the t-test, aims to examine the proposed hypothesis with a significance level of 0.05 (5%). Hypothesis testing is conducted to determine whether the hypothesis is accepted or rejected. The results of the hypothesis testing can be seen in **Table 6.**

Table 6. Paired Sample T-Test

	Mean	Std. Deviation	Std. Error Mean	t	df	Sig.	Description
Pretest - Postest	-12.300	4.364	0.797	-15.438	29	0.000	Significant

Based on the results **Table 6** of the data analysis, a significance value of 0.000 < 0.05 was obtained, meaning that Ha is accepted and Ho is rejected. If Ha is accepted, it means that there is a significant effect of the service challenge drill method between the pretest and posttest variables.

The first of the research steps was to conduct a pretest that was used to assess the participants' short service skills prior to the implementation of the treatment. The participants were then given treatment in the form of a training program that was developed to suit the needs of the research. Once all the treatment sessions were done, a posttest was given to assess the short service skills of the participants to see if the skills had changed. The treatment of the participants

in this study was analyzed using the pretest and posttest scores to assess the value of the treatment in enhancing the participants' short service skills. The first step of the data analysis in this study was a description of the data to give a summary of the data that was collected from the research which included the lowest score, the highest score, the average score, and the standard deviation from the pretest and posttest scores, and this was done using the statistical analysis software known as SPSS version 25. Additionally, before the hypothesis was tested, the data was analyzed using the normality and homogeneity tests as a prerequisite. When the data statistically passed the prerequisite tests, the paired samples t test was utilized to present the level of difference between two means which in this study were the posttest and pretest scores, as a measure of the level of change that took place due to the treatment.

This improvement aligns with the drill method's emphasis on consistent repetition of movements. According to Ghivari et al., (2021), the drill method is highly effective for improving basic technical skills because athletes are trained to perform movements repeatedly until they become automated. In the context of this study, the Service Challenge Drill not only repeats the service movement but also adds a challenge element through target scoring, encouraging athletes to improve their focus and accuracy. The success of striking techniques in badminton is greatly influenced by movement coordination, concentration, and mastery of basic techniques (Subarkah & Marani, 2020; Maulana et al., 2025). The Service Challenge Drill allows athletes to correct common mistakes that often occur in short services, such as the shuttlecock being too high, going out of bounds, or failing to pass the net perfectly. With target-based training, athletes can immediately evaluate the results of their shots.

In addition, the distribution of respondents' BMI, which was mainly in the normal category (50%), also supported the success of the training. Relatively ideal physical conditions allowed athletes to train at appropriate intensities without obstacles. This aligns with research by Wirdati et al., (2025), which found that good physical condition supports the effectiveness of technical training in badminton, especially for young athletes and children. From a psychological perspective, the Service Challenge Drill method provides a more competitive and enjoyable training experience compared to conventional drill methods (Ramadhan et al., 2024). The elements of challenge and scoring can increase athletes' intrinsic motivation to train more seriously. This is important for children, as monotonous training approaches tend to reduce interest and concentration. Thus, this method not only impacts technical aspects but also athletes' motivation.

The findings of this study are also consistent with those of Manalu et al., (2024), which emphasize the importance of mastering basic techniques as a foundation for achievement in badminton. The short service, as the opening shot of the game, plays a strategic role because it can determine subsequent attack and defense patterns. Therefore, improving short-service skills through appropriate training methods will significantly improve overall game performance.

This study has several limitations, including the use of a one-group pretest–posttest design without a control group, so that the results of the improvement in short service skills cannot be fully compared with other training methods, as well as the limited sample size to only one club and one age category, so that the generalization of the research results is still limited. In addition, this study did not control for other factors, such as individual motivation, playing experience, and variations in training intensity outside the research program. Nevertheless, the results of this study have important practical implications, namely that the Service Challenge Drill method can be used as an alternative training model that is effective, measurable, and applicable to improve short service skills in child-age badminton athletes, and can be a reference for coaches in developing target- and challenge-based training programs. Theoretically, this study also enriches the field of badminton coaching research on the effectiveness of innovative drill methods. It can serve as a basis for further research with a stronger experimental design and broader sample coverage.

CONCLUSION

Based on the study's results, the Service Challenge Drill method is effective in improving the short-service skills of children's athletes at PB Remaja Demak. This is evidenced by an increase in the average score from the pretest to the posttest and is further supported by the paired-samples t-test, which shows a significant difference ($p < 0.05$). The training method, which emphasizes structured repetition, target placement, and variation in court position, has been proven to improve the accuracy, control, and consistency of short service shots. Therefore, the Service Challenge Drill method can be used as a practical, applicable training model for coaches to develop basic short-service techniques, especi-

ally for young athletes, and contributes to the systematic, measurable improvement of badminton training quality.

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