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VARIATIONS OF DRILL METHODS TO IMPROVE LONG SERVICE TECHNIQUE FOR BADMINTON

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Abstract
Badminton is known to be a sport that heavily uses the wrist, therefore badminton has basic techniques, the first being the serve, which is the initial stroke of the stroke to start the match, followed by the smash, dropshot, netting, and lob. This study uses a quantitative approach with a pre-test and post-test design (Kharisma & Indarto, 2023). This study involved 10 badminton players from PB Surya Gemilang Salatiga. The descriptive statistical results of the pretest and posttest for long badminton serves show a minimum score of 12 and a maximum score of 21. Having a standard deviation of 2.7962 and a mean of 15.6000. Then the minimum posttest score is 28 and the maximum is 40, with a mean of 32.7000 and a standard deviation of 4.19126. The data on the long service results of badminton athletes were tested for normality with an L calculated score of 635 with n 10, and the L table significant α 0.05 which is greater than the L calculated score. The posttest results for the long serve obtained an L calculated score of 142 with n 10, and the significant L table α 0.05 was greater than the L calculated. Thus, it is concluded that the pretest results of the long serve are normally distributed. Based on the homogeneity test, a significance value of 0.501 was obtained. It can be concluded that the data is homogeneous. There is a significant influence between the average score before the treatment and the average score after the treatment, as shown by the paired sample t-test table, where the significance value of 0.01 is less than the significance level (a) of 0.05. Thus, it can be concluded that the drill method can influence the long serve results of badminton athletes from PB Surya Gemilang Salatiga.Variations in drill methods improve the long serve technique of badminton athletes.
Keywords*: Drill Method, Long Serve, Badminton*

INTRODUCTION

Badminton is one of the most popular racket sports, which has attracted millions of people worldwide (Yu et al., 2023). Badminton is a sport that is widely liked by the community. This sport is well-known among both urban and rural communities (Apriyanto et al., 2024). Badminton is a sport that requires participants to perform jumps, attacks, quick direction changes, and fast arm movements. This sport requires a combination of speed, strength, agility, endurance, and technical skills to achieve success (Bottoms et al., 2012). The popularity of badminton has increased since it was included in the 1992 Olympics in Spain. In addition to requiring foot skills, this game also needs basic stroke techniques such as serves, smashes, lobs, and dropshots (Valldecabres et al., 2022). Badminton is played by more than 200 million players of various levels.

This is the fastest racket sport characterized by high-intensity strokes and requiring various specific movements, such as stepping forward, stepping backward, or stepping sideways (Herbaut & Delannoy, 2020). Basically, a badminton game starts with one player serving to their opponent. Then, one or two players are free to direct the shuttlecock into the playing area to stop the opponent's movement and score points (Suwanto, 2024). Unlike in singles play, where the service area is larger and the service receiver is positioned in the middle of the area, it is very possible to perform either a short or long serve (Suwanto, 2024).

One of the badminton clubs in Salatiga, namely PB SGS (Surya Gemilang Salatiga), which is coached by Mr. Joko Susilo, is one of the badminton clubs in the city of Salatiga that has produced many badminton athletes. PB Surya Gemilang Salatiga was officially opened in 2015, and at the beginning, the club had 5 athletes: Rafael, Jordi, Wawan, Kede, and Dupong. Not long after that, PB Surya Gemilang Salatiga developed and produced athletes. At a young age, Rafael had already defeated PB Rajawali Salatiga. After Rafael's victory, the quality of PB Surya Gemilang Salatiga soared high and increased the number of students to 15 athletes. In 2019-2020, PB Surya Gemilang Salatiga experienced a downturn due to Covid-19. All buildings were closed, such as the RW hall and RT hall. In 2021, as COVID began to subside, PB Surya Gemilang Salatiga received a great opportunity to train at Gor Wahid Salatiga. The total number of athletes currently is 35, consisting of 28 male athletes and 7 female athletes. The training schedule for PB Surya Gemilang Salatiga is on Sundays and Tuesdays, with some athletes taking private badminton lessons. Based on the observation results at PB Surya Gemilang Salatiga on July 2, 2024, the researcher conducted an initial test or pre-test, which included short serve, long serve, and smash.

Table 1. Pre-Test

No	Name	Short Serve	Long Serve	Smash
1	ZDN	23	13	22
2	FTN	19	13	29
3	FK	25	14	24
4	MZ	22	18	33
5	STR	21	16	26
6	NND	18	21	22

7	ARTR	18	16	19
8	ALB	19	12	28
9	CTK	13	18	31
10	LTG	19	15	23
	Average	19,7	15,6	25,7

From several tests, the less favorable result was the long serve. After conducting observations, the researcher also interviewed Mr. Joko Susilo, who explained that several players continue to use the incorrect long serve technique, such as improper shuttlecock contact or straightening the arm while hitting. In addition, many players continue to perform long serves, but the shuttlecock goes out of bounds. This shows that the long serve still lacks in terms of technique and precision. Most of the athletes' long serves veer too far to the right, left, and back during play. Every player should be able to use a long serve to start the match and score points, but because they often make mistakes, the opposing player gains an advantage. This research was conducted using the drill method because this method has proven effective in improving the quality of motor skills, particularly in the long serve technique in badminton. The drill method was chosen because it provides repetitive and structured practice that can help PB Surya Gemilang Salatiga players master the technique better and more consistently.

The drill method is a method of repeating and practicing movement examples provided by a coach or researcher. The drill method has the advantage of improving athletes' memory, which results in better athletic performance. In addition, athletes can receive supervision, guidance, and direct correction from coaches or researchers (Fanani, 2020). The drill method is capable of improving athletes' mastery of the basic long serve technique by practicing and repeating the technique according to the researcher's instructions (Setiawan & Warthadi, 2024). The advantages of the drill method include the formation of habits that make complex and intricate movements automatic (Aini et al., 2023).

Based on previous research, (Marsheilla et al., 2023) applying the drill method with treatments in the form of exercises using target network drills and field target drills, conducted over 14 sessions. Next, in the research conducted by (Aini et al., 2023), The population in this study consists of all badminton extracurricular participants at MTS Sirojul Athfal, totaling 24 students. Lastly, the

research (Agustini, 2023) using classroom action research (CAR) design as an approach to solve the research problem. The difference with this research is that the treatment in this study uses measured line targets, the population in this study consists of 10 athletes at PB Surya Gemilang Salatiga, and the research design used by the researcher is the pre-test and post-test design. The purpose of this research is to determine the effect of Variation in Drill Methods to Improve the Long Serve Technique of PB Surya Gemilang Salatiga Athletes. Based on the background above, the proposed hypothesis is that there is a significant effect of long serve training using the long serve drill method on the accuracy of long serves by badminton athletes at PB Surya Gemilang Salatiga.

METHOD

In this study, the researchers used a quantitative approach and conducted experiments with a pre-test and post-test design (Kharisma & Indarto, 2023). This research involves ten badminton players from PB Surya Gemilang Salatiga. If there is data collection, the research can be considered accurate. Pre-test: The initial test aims to determine the player's ability to perform a long serve technique before being given treatment to see whether the treatment is effective or not. Treatment: The treatment used in this study is the drill training model. This training model will be conducted over 16 sessions. Post-test: The implementation of the post-test is the same as the implementation of the pre-test after the experimental group receives the treatment. The data analysis technique used in this research. This method is based on experimental activities that begin with a test to examine the initial condition of the test sample, then treatment is given to the subjects, and finally, a test is conducted to determine the effect of the treatment. This study uses the "One Group Pretest-Post-Test Quasi-Experimental Design," which means taking a pre-test before the treatment and a post-test after the treatment. Quasi-experiments involve placing experimental units in groups (Syaiuddin & Indardi, 2023).

Table 2. Treatment

Meeting	Core Exercise	Set	Repetition	Rest
1-2	Basic swing technique and positioning practice, shadow swing without shuttlecock	3	40 Swing	1-2 menute
3-4	Wrist strengthening exercises, serving with a racket	3	12	1-2

	weighing 80-84 grams		Service	menute
5-6	Long serve practice 100 times, focus on consistency	5	20 Service	1-2 menute
7-8	Training to place the shuttlecock in the target area on the court	3	30 Service	1-2 menute
9-10	Long serve practice 150 times, focus on consistency	3	30 Service	2 menute
11-12	Wrist strengthening exercises, serving with a racket weighing 80-84 grams	5	12 Service	1-2 menute
13-14	Long serve practice 200 times, focus on consistency	5	40 Service	2 menute
15-16	Training to place the shuttlecock in the target area on the court	5	30 Service	1-2 menute

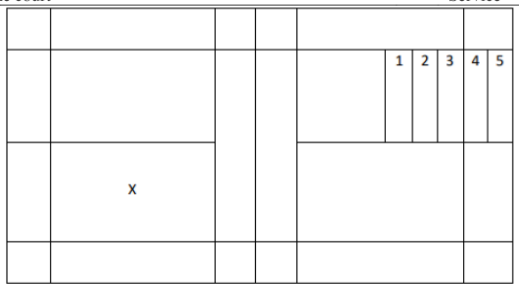

Figure 1. Long Service Test Court (Marsheilla et al., 2023)

Explanation:
X: The test site is providing service

1. Target no 5 then score 5
2. Target no 4 then score 4
3. Target no 3 then score 3
4. Target no 2 then score 2
5. Target no 1 then score 1

RESULT AND DISCUSSION

Result

The implementation of this research consists of 18 meetings, with the first meeting being a pretest and the last meeting being a posttest. The treatment was conducted over 16 sessions, which included the remaining sessions with a training frequency of twice a week, held on Sundays and Tuesdays. The post-test results of the players from PB Surya Gemilang Salatiga are as follows:

Tabel 3. Post-Test

No.	Name	Score	Category
1.	ZDN	35	Very High
2.	FTN	34	Very High

3.	FK	39	Very High
4.	MZ	40	Very High
5.	STR	30	High
6.	NND	30	High
7.	ARTR	29	High
8.	ALB	28	High
9.	CTK	30	High
10.	LTG	32	Very High
	Average	32,7	

In this study, the pretest and posttest data used a sample of 10 athletes from PB Surya Gemilang Salatiga, and this data will be processed using SPSS 29 for Windows. The aim is to determine or analyze the descriptive statistics of the obtained data, as shown in the following table

Table 4. Descriptive statistics results of the pretest and posttest

	N	Minimun	Maximum	Mean	Std. Deviation
Pretest	10	12,00	21,00	15,6000	2,79682
Posttest	10	28,00	40,00	32,7000	4,19126

Based on the descriptive statistical results of the pretest and posttest long serve in badminton obtained from 10 athletes of PB Surya Gemilang, the minimum pretest score was 12 and the maximum was 21, with a mean of 15.6000 and a standard deviation of 2.79682. Then the minimum posttest score was 28 and the maximum was 40, with a mean of 32.7000 and a standard deviation of 4.19126. The posttest serves as the final sequence to conclude the training activities. The Normality Test is a normality calculation used to determine whether a dataset can be considered normal or not. To test the normality of data, the Kolmogorov-Smirnov test can be used by first determining the test hypothesis.

Table 5. Results of the Normality Test

	Statistik	df	Sig.	Statistik	df	Sig.
Pretest	,143	10	,200*	,947	10	,635
Posttest	,240	10	,106	,883	10	,142

Based on the table above, it can be seen that the results of the normality test of the pretest long serve results of the badminton athletes of PB Surya Gemilang Salatiga The pretest data of the long serve results of the PB Surya Gemilang badminton athletes obtained a calculated L score = 635 with n = 10, and the table L at the significance level α = 0.05 is greater than the calculated L. Meanwhile, the posttest data of the long serve results of the badminton athletes from PB Surya Gemilang Salatiga obtained a calculated L score = 142 with n =

10, and the table L score at the significance testing level α = 0.05 is greater than the calculated L score. Thus, it can be concluded that the posttest data of the long serve results of the PB Surya Gemilang Salatiga badminton athletes are normally distributed.

Based on the results of the normality test of the pretest and posttest distributions, both data distributions are normal, so the analysis continues with the homogeneity test. The homogeneity test was conducted using SPSS 29 for Windows, with the decision-making basis that a significant value or sig. below 0.05 indicates a non-homogeneous data distribution, while a significant value or sig. above 0.05 indicates a homogeneous data distribution. The table below shows the results of the homogeneity test analysis after data processing.

Table 6. Homogeneity Test

	Sum of squares	df	Mean	F	Sig.
Between grup	57,733	7	8,248	1,302	,501
Within grup	12,667	2	6,333		
Total	70,400	9			

There is a significance value of 0.501, which indicates that the significance value is greater than 0.05, suggesting that the data is homogeneous. After the normality and homogeneity tests are completed, the athletes' results in the pretest and posttest will be tested with a paired t-test. This test is conducted to ensure that the initial variable and the final variable are significantly different. This test is assisted using SPSS 29 for Windows.

Table 7. Results of the Paired Sample Test

					95% Confidence Interval of the Difference				Significance
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	One-side p
Pair 1	Pretest Posttest	-17,10000	5,21643	1,64958	-20,831611	-13,36839	-10,366	9	<,001

Based on the paired t-test table, HO is rejected and HI is accepted because the significance value = < 0.01 is less than the significance level (α) = 0.05. This indicates that there is a significant effect between the average scores before and after the treatment. The t-table shows a negative t-value, namely -10.366, which indicates that the average before the treatment is lower than the average after the

treatment. Therefore, it can be concluded that the drill method can influence the long serve results of the badminton athletes of PB Surya Gemilang Salatiga.

Discussion

The application of the drill method to each movement will accelerate students in mastering motor skills. The drill method can improve the results of long serve strokes with continuous practice (Artha, 2021). To produce an optimal long badminton serve, good arm muscle strength is required as one of the main physical components (Nur et al., 2018). (Akbar firdaus & Kurniawan, 2023) saying that practice is a habituation technique used to maintain consistency and repetition of something and is done with the intention of improving relationships or competence. This is related to the serve, as there are several factors that can influence serving ability, racket grip, and racket contact with the shuttlecock, which can affect badminton strokes (Setyawan, 2024). For this research, an experimental method was used with a one-group pretest and posttest research design. The use of the appropriate method is important because it is expected to achieve the research objectives. (Rhaditya et al., 2022).

Badminton is a sport that has a high level of difficulty in executing the basic techniques, one of which is the long serve (Singal et al., 2022). The basic technical skills possessed by these athletes will help them perform at their best. This is because mastering the long serve skill in badminton is very important as this shot is the opening shot in the game used as a basis to score points (Hakim, 2024). The strength of the arm muscles is used to push the punch. A harder punch is made with greater arm muscle strength (Lubis, 2024). A long serve is often performed by singles players or is commonly called a deep single serve (Akbar et al., 2020). Many things need to be mastered to win in badminton, including physical skills, techniques, and tactics (Rafli Marwan et al., 2022).

A player who cannot serve correctly will incur a fault. For that reason, serving plays an important role for athletes, because if the serve hits the net or goes out, the opponent will score a point (Ayuningrum et al., 2021). However, a common weakness in executing a long serve is that the shuttlecock ends up floating and landing in the middle of the opponent's court, making it easier for the

opponent to launch an attack (Eriandi, 2024). Continuous training has the advantage that when techniques are taught gradually, the athletes' memory will be well retained (Sumintarsih & Saptono, 2022). Therefore, according to (Ramadhan, 2021) the ability to perform long serves must be improved and developed in order to achieve optimal long serve results. This research is conducted to the best of its ability, therefore it is expected that badminton players master the long serve technique properly and correctly (Yohana Zai, 2022).

CONCLUSION

Variations in drill methods improve athletes' long serve badminton techniques. Future research suggestions include involving samples from various badminton clubs to broaden the scope of the results. In addition, the use of technology such as video analysis or motion sensors can be applied to improve the accuracy in measuring the quality of long serves. Variations in drill methods also need to be explored to determine the most effective training approaches in improving player performance.

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