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# THE EFFECT OF THE TRAINING MODEL AND BALANCE ON STUDENTS' *SEPAK SILA* SKILLS ON *SEPAK TAKRAW* EXTRACURRICULAR IN FIRST MIDDLE SCHOOL

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## Abstract

**Objective:** This study aimed to examine the wall and pair models: (1) the difference in the effect of wall and pair exercises on *Sepak sila* (2) the difference between the high and low balance on *Sepak sila* (3) the interaction of wall and pair models with a high and low balance on *Sepak sila* skills. **Materials and methods:** The method used in this research was a 2x2 factorial experiment. The research participants included 24 male students who took extracurricular *sepak takraw* aged 14-15 years with a height of 153-170± centimeters and a weight of 50-60 kilograms. The instruments used in this study were modified bass test balance instruments and *Sepak sila* instruments. Data collection techniques consisted of observation and tests. The data obtained were analyzed using a two-way Anova with the help of SPSS 20. **Results:** (1) There was a significant difference between the wall-and-pair training model on *Sepak sila* skills with F 19.698 and sig. 0.000 < 0.05. Based on the findings, the paired model was found to be better with an average of 46.17 compared to the model on the wall which obtained an average of 41.50. (2) It was found that there was a significant difference between the high and low balance on *Sepak sila* skills where high balance was better with an average of 46.33 compared to low balance with an average of 41.33. (3) It was found that there was a significant interaction between the wall-mounted and paired exercise models with a high and low balance on *Sepak sila* skills with F 130.251 and sig. 0.000 < 0.05. **Conclusion:** In conclusion, the paired exercise model is better than the wall exercise model. As a result, it is advised to use a paired model to strengthen the fundamental technical skills of *Sepak sila*.

**Keywords:** pair practice, *Sepak sila*, *sepak takraw*, first middle school students

## Introduction

*Sepak takraw* is an original game sport from Asia (Wibisono, Indriarti & Daniati, 2020; Syam, 2019). This game was initially only played in the kingdom, but it developed into a recreational and achievement sport over time (Asmawi, Hanif, & Bon, 2019). "Sepak" means kick "takraw" means ball made of rattan which the word comes from the Thai language (Zarei & Ramkissoon, 2021). The game of *sepak takraw* is played by two competing teams where each team has three players named tekong, feeder, and spiker who are separated by a net (Wibisono, Indriarti & Daniati, 2020).

When it comes to process success, several aspects influence it. Technique mastery is one of the aspects that determine the improvement of achievement in

*sepak takraw*. According to studies, to be successful in *sepak takraw*, players must first master basic methods before learning more advanced strategies (Asmawi, Hanif, & Bon, 2019; oh et al, 2004; Sukmana, Mutohir & Muhyi, 2021). Another study states that to be skilled at playing *sepak takraw*, each individual must master basic techniques including heading, serving, smash, blocking, as well as kicking techniques including sepak badek, sepak kuda, sepak cungkil, and *Sepak sila* (Adrian & Heru, 2020; Rohman Hidayat, 2018; Heriansyah, Adelian & Suhartiwi, 2017; Muhyi et al, 2021).

The main technique in *sepak takraw* is *Sepak sila*. *Sepak sila* is a kicking technique using the inside of the foot (Sucipto & Sugiyanto, 2017). Another theory states that the main basic technique in the game of *sepak takraw* is *Sepak sila*, remembering that when individuals master the technique of *Sepak sila*, it can make it easier for them to receive, control the ball, and withstand the opponent's attacks (Zulman, Umar & Atradinal, 2018). Saputra & Supriyadi (2017) stated that the basic technique that is important to master is *Sepak sila*, because, in the game of *sepak takraw*, most use the *Sepak sila* technique to pass and receive the ball well.

When viewed more closely, the basic practices of *Sepak sila* require balance. Novrianto (2013) conducted a study titled "Study on the association between balance and sila skills in the game of *sepak takraw*." His investigation discovered a substantial link. Thamrin (2011) found that balance and leg muscle endurance contributed to *Sepak sila* in his study. The researcher might conclude from the findings of the two studies that technical skills are directly related to an individual's balance.

Efforts to improve the fundamental techniques of *Sepak sila* in *sepak takraw*, of course, necessitate the use of a good and appropriate program and approach. When testing a method, trainers are required to experiment. The teaching methods with reflections on the wall and the pair training method are two that are frequently used to teach basic concepts in *sepak takraw* (Riska, 2020; Mardela & Rahman, 2017; Tambunan, 2014; Khozali, 2015; Fadli & Yudi, 2019).

The application of the reflection method to the wall and in pairs has been tested and is considered to have a significant effect on improving basic techniques in *sepak takraw*, such as research by Sukarman (2018). From his study, it was found that there was a significant effect of pair passing practice on the skills of passing the ball in takraw extracurricular students. Furthermore, Riska (2020), and Mardela (2017) stated that there was a significant effect of practicing soccer skills using individual and pair training methods. However, other studies have stated that exercises with reflected media on the wall do not have a significant improvement compared to the hanging ball training method (Ermanto, 2013). Although the research from Ermanto (2013) provides strong evidence, Khozali (2015) refutes Ermanto's findings based on the results of his research that the paired method, wall reflecting media, and hanging media have

an equally significant increase. Therefore, it becomes an empirical problem that requires re-testing by applying the exercise method using wall media and pairs supported by observation.

Observations were carried out at four junior high schools that had *sepak takraw* extracurricular activities. Researchers at this stage observe the practice process, the coach gives instructions to students to hold the ball themselves and then play the takraw ball so it doesn't fall with the correct soccer technique. However, additional observation reveals that students' use of the inner foot when performing the sila technique is not flawless. Many students continue to strike the heel, toe, and outside of the foot. Furthermore, motivation to practice versions of the kick model is still very low, as seen by students' mastery of basic movement skills for rocking and kicking during extracurricular activities. Individual exercises with the practice system of holding the ball once and then catching it are also common among students in this case. Kicking or holding the ball is a mandatory requirement that must be mastered by students so that the practice method using reflection media on the wall and in pairs needs to be done to optimize basic techniques, especially silage.

Based on the description described above, it can be understood that there are problems regarding the application, understanding, and motivation to practice the basic techniques of playing *sepak takraw* in first middle school extracurricular participants. To overcome this, the researchers will apply the exercise method with reflection media on the wall and in pairs. The purpose of this study was to test the exercise method with reflections on the wall and the pair practice method to improve the basic techniques of *Sepak sila* in terms of low and high balance in junior high school extracurricular participants in West Sleman Regency, Yogyakarta Province. This study hypothesizes that there are differences in wall exercises and pair exercises on *Sepak sila* skills, there are differences in high balance and low balance on *Sepak sila* skills, and there is an interaction between wall and pair exercises as well as balance on *Sepak sila* skills.

## **Materials and methods**

### *Study participants*

This research is experimental research with field testing (Yulianto & Yudhistira, 202; Wicaksono et al, 2022). The experimental approach used is a 2x2 factorial involving two independent variables given treatment, one dependent variable, and one controlled attribute variable (Collins et al, 2014; Rogers & Revesz, 2020). The sampling technique used was purposive sampling with the criteria (1) participants were extracurricular junior high school (SMP) students in West Sleman Regency, Yogyakarta Province, (2) actively participated in *sepak takraw* training, and (3) male. Based on these criteria, there were 24 takraw extracurricular participants aged 14-15 years with a height of 153-170± and a weight of 50-65± kilograms.

A total of 24 participants will be divided into four groups by testing the modified bass balance test (Jazi et al, 2012). The results of the balance test will apply the Match Subject Ordinal Pairing (MSOP) pattern with the A-B-B-A pattern so that the group becomes balanced. Based on the test, it was found that 12 students who had high and low balance would be given *Sepak sila* training with bouncing the ball against the wall media, and 12 other students were given *Sepak sila* training with media where students pair up with each other. In detail, one group consists of 12 students who are divided into 2 teams, each consisting of 6 students who have a low balance and 6 students who have high balance *Sepak sila* practice by bouncing the ball against the wall media and in pairs. The factorial design is presented in the table below:

Table 1. Factorial Experiment Design 2x2

<b>Practicing (L)</b>		
<b>Balance (K)</b>	<i>Sepak sila</i> Practice with Walls (L1)	<i>Sepak sila</i> Practice in Pairs (L2)
<b>High (K1)</b>	(L1K1)	(L2K1)
<b>Low (K2)</b>	(L1K2)	(L2K2)

Where:

L1: *Sepak sila* Practice with Walls

L2: *Sepak sila* Practice in Pairs

K1: High balance.

K2: Low balance.

(L1K1): *Sepak sila* practice with the wall on high balance.

(L1K2): *Sepak sila* practice with the wall on low balance.

(L2K1): *Sepak sila* practice in pairs on high balance.

(L2K2): *Sepak sila* practice in pairs on low balance.

The next procedure is to do a pretest on the *Sepak sila* group with wall media and in pairs. The instrument used was a *Sepak sila* skills test instrument from Futra (2015) with a validity coefficient of 0.71 and a reliability of 0.68. The study explains that the *Sepak sila* skills test validity coefficient with a value of 0.70 and above has a level of measurement accuracy (Guntur et al, 2020; Dewangga & Tomoliyus, 2020; Yudhistira et al, 2021), while a reliability coefficient of 0.6 to 0.7 indicates moderate accuracy (Choubin et al, 2010). 2019). Therefore, the test of *Sepak sila* skills can be used in research. The procedure for the *Sepak sila* test is presented in the table below:

Table 2. Instructions for the *Sepak sila* Skills Test Implementation

**Facilities used**

a. Spacious and flat *sepak takraw* field

- 
- b. Takraw ball
  - c. Net
  - d. Stopwatch
  - e. Meter
  - f. Duct tape
  - g. Stationary
  - h. Whistle
- 

### **Implementation**

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- a. The ball is kicked using a *Sepak sila* technique (inner foot)
  - b. The ball that falls to the ground can be used again, but the score on the second shot is determined from the start and is valid every time after the ball has fallen until the available time runs out.
  - c. Balls that are kicked using other techniques (other than *Sepak sila*) can still be used but the score does not count and as long as the ball has not fallen to the floor
  - d. The ball that counts must be at chest level
  - e. The area of the control field is not limited
  - f. The time limit applied is one minute
- 

### **Scoring**

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- a. The score is taken from the number of *Sepak sila* that can be taken in one minute
  - b. Every three kicks are counted with a value of one and so on
  - c. Kicks that are not at chest level will not count
  - d. The overall score is obtained by adding up all the kick scores that have been divided by three
- 

### *Study organization*

The participants were 24 students divided into two groups so each group consisted of 12 students. Students are given treatment using wall media by bouncing the ball on the wall and in pairs with the number of training frequencies 3 times a week for 16 meetings. The researcher was assisted by four assistants to observe the pretest time during the exercise in 16 meetings and the post-test was taken after the 16th training meeting. The exercise program is presented in the table below:

Table 3. Practicing program of *Sepak sila*

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<i>Sepak sila</i> Practice in Pairs	<i>Sepak sila</i> Practice with Walls	<b>Meeting</b>
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<p>a. Flexibility training</p> <p>b. The ball is thrown with a parabolic dish to the student who is the partner. The partner accepts and kicks the ball with <i>Sepak sila</i> 1 time and catches it. The ball is thrown back to the opponent.</p> <p>c. Dosage: 20 minutes. 3 sets x 8 reps, 30 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>a. Flexibility training</p> <p>b. The ball is bounced off the wall and then juggled once with the <i>Sepak sila</i> technique before being caught.</p> <p>c. Dosage: 20 minutes. 3 sets x 8 reps, 30 seconds recovery</p> <p>d. 15 minutes Games</p>	1,2
<p>a. Flexibility Training</p> <p>b. The ball is thrown with a parabolic dish to the student who is the partner. The partner accepts and juggles the ball with <i>Sepak sila</i> 1 time and catches it. The ball is thrown back to the opponent.</p> <p>c. Dosage: 20 minutes. 3 sets x 11 reps, 30 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>a. Flexibility training</p> <p>b. The ball is bounced off the wall and then juggled once with the <i>Sepak sila</i> technique before being caught.</p> <p>c. Dosage: 20 minutes. 3 sets x 11 reps, 30 seconds recovery</p> <p>d. 15 minutes Games</p>	3,4
<p>a. Flexibility training</p> <p>b. The ball is thrown with a parabolic dish to the student who is the partner. The partner accepts and juggles the ball with <i>Sepak sila</i> 2 times and catches it. The ball is thrown back to the opponent.</p> <p>c. Dosage: 20 minutes. 4 sets x 13 reps, 35 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>a. Flexibility training</p> <p>b. The ball is bounced off the wall and then juggled 2 times with the <i>Sepak sila</i> technique before being caught.</p> <p>c. Dosage: 20 minutes. 4 sets x 13 reps, 35 seconds recovery</p> <p>d. 15 minutes Games</p>	5,6
<p>a. Flexibility training</p> <p>b. The ball is thrown with a parabolic dish to the student who is the partner. The partner accepts and juggles the ball with <i>Sepak sila</i> 2 times and catches it. The ball is thrown back to the opponent.</p> <p>c. Dosage: 20 minutes. 4 sets x 16 reps, 35 seconds recovery</p>	<p>a. Flexibility training</p> <p>b. The ball is bounced off the wall and then juggled 2 times with the <i>Sepak sila</i> technique before being caught.</p> <p>c. Dosage: 20 minutes. 4 sets x 16 reps, 35 seconds recovery</p> <p>d. 15 minutes Games</p>	7, 8

d. 15 minutes Games		
a. Flexibility training	a. Flexibility training	
b. The ball is thrown with a parabolic dish to the student who is the partner. The partner accepts and juggles the ball with <i>Sepak sila</i> 3 times and catches it. The ball is thrown back to the opponent.	b. The ball is bounced off the wall and then juggled 3 times with the <i>Sepak sila</i> technique before being caught.	9, 10
c. Dosage: 20 minutes. 5 sets x 18 reps, 40 seconds recovery	c. Dosage: 20 minutes. 5 sets x 18 reps, 40 seconds recovery	
d. 15 minutes Games	d. 15 minutes Games	
d. 15 minutes Games		
a. Flexibility training	a. Flexibility training	
b. The ball is thrown with a parabolic dish to the student who is the partner. The partner accepts and juggles the ball with <i>Sepak sila</i> 3 times and catches it. The ball is thrown back to the opponent.	b. The ball is bounced off the wall and then juggled 3 times with the <i>Sepak sila</i> technique before being caught.	11, 12
c. Dosage: 20 minutes. 5 sets x 21 reps, 40 seconds recovery	c. Dosage: 20 minutes. 5 sets x 21 reps, 40 seconds recovery	
d. 15 minutes Games	d. 15 minutes Games	
d. 15 minutes Games		
a. Flexibility training	a. Flexibility training	13, 14
b. The student juggles the ball using the <i>Sepak sila</i> technique 2 times and then feeds it to his partner and juggles it 2 times without the ball falling	b. The ball bounces off the wall and juggles it parabolically 3 times and horizontally 1 time	
c. Dosage: 20 minutes. 6 sets x 23 reps, 45 seconds recovery	c. Dosage: 20 minutes. 6 sets x 23 reps, 45 seconds recovery	
d. 15 minutes Games	d. 15 minutes Games	
d. 15 minutes Games		
a. Flexibility training	a. Flexibility training	
b. The student juggles the ball using the <i>Sepak sila</i> technique 2 times and then feeds it to his partner and juggles it 2 times without the ball falling	b. The ball bounces off the wall and juggles it parabolically 3 times and horizontally 1 time	15,16
c. Dosage: 20 minutes, 6 sets x 25 reps, 45 seconds recovery, 25 reps x 2 sets of target serve behind, overhead, and in front.	c. Dosage: 20 minutes. 6 sets x 25 reps, 45 seconds recovery	
d. 15 minutes Games	d. 15 minutes Games	



d. 15 minutes Games

*Statistical analysis*

The data was processed with the help of SPSS version 20 (Wicaksono et al, 2022). The data analysis used was a two-way ANOVA analysis. If there is an interaction, the analysis will be continued using the Tukey test with a significance level of 0.05 (Liang, Hiley & Kanosue, 2019). However, before applying the analysis, it is necessary to carry out prerequisite tests including tests for normality and homogeneity of the data. Thus, when the data is said to be normal and homogeneous, the test can be continued.

**Results**

Table 4. Analysis Results in Description of Pretest-Posttest

<b>Practicing</b>		<b>Balance</b>	<b>Pretest</b>	<b>Posttest</b>
<b>Sepak Practice Walls</b>	<i>sila</i>	High (L1K1)	35±1,26	38±1,10
	<b>with</b>	Low (L1K2)	35,53±1,37	45±4,15
<b>Sepak Practice in Pairs</b>	<i>sila</i>	High (L2K1)	36±0,89	54,67±0,47
		Low (L2K2)	34,50±1,38	37,67±2,25

If it is displayed in the form of a diagram, the data on *Sepak sila* skills can be presented as shown in the following graph.

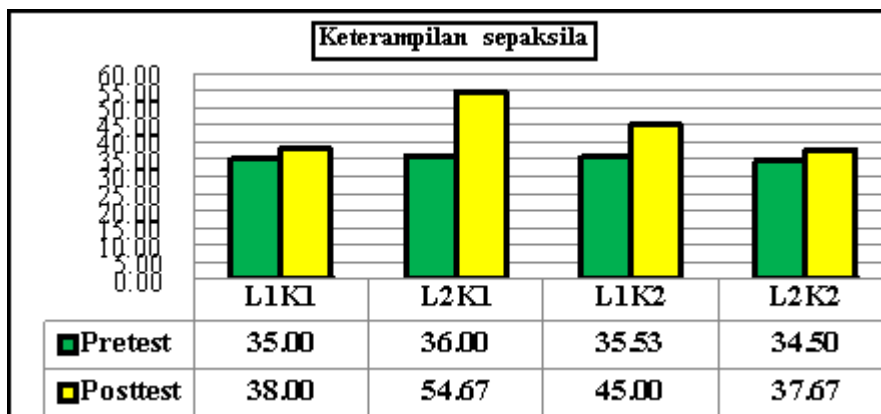


Figure 1. Graphics of soccer skills

Based on the graph above, shows that the *Sepak sila* skills of the group (L1K1) who applied wall media and have high balance obtained an average pretest score of 35.00 and increased at the post-test to 38.00. The group (L2K1) of *Sepak sila* in pairs who has high balance obtained an average pretest score of 36.00 and increased at post-test to 54.67. The group (L1K2) of *Sepak sila* with wall media which has a low balance obtained an average pretest score of 35.53 and increased at post-test to 45.00. The group (L2K2) of *Sepak sila* in pairs who

have low balance obtained an average pretest score of 34.50 which increased to 35.67 at the posttest.

Table 5. Data Normality Test Results

	Group	p	significance	Information
<i>Pretest</i>	L1K1	0,713	0,05	Normal
	L2K1	0,968		Normal
	L1K2	0,801		Normal
	L2K2	0,976		Normal
<i>Posttest</i>	L1K1	0,573		Normal
	L2K1	0,986		Normal
	L1K2	0,996		Normal
	L2K2	0,920		Normal

Based on the statistical analysis of the normality test that has been carried out using the Kolmogorov Smirnov test, it was found that all the pretest and posttest data on *Sepak sila* were normally distributed with a significance value of  $p > 0.05$ .

Table 6. Data Homogeneity Test Results

F	Df1	Df2	Significance
2.134	3	20	0.128

Based on the statistical analysis of the homogeneity test that has been carried out using the Levene test, a significance value of  $> 0.05$  was found. This result indicates that the data has a homogeneous variance.

Table 6. ANOVA Test Results for Paired Exercise and Wall Exercises

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Exercise Method	130.667	1	130.667	19.698	0.000

According to the Anova test, the F value is 19,698 and the significance value is 0.000  $< 0.05$ . In other words, there is a significant difference in the effect between exercises with wall media and in pairs on *Sepak sila* skills. Paired group analysis got a score of 46.17 and the group with wall media got 41.50 so the post-test difference was 4.67. These results indicate that the group with paired exercises produced better results. The first hypothesis, that there is a significant difference in the effect of pair practice and wall media practice on soccer abilities, has thus been proved.

Table 7. ANOVA Test Results on Differences in High Balance and Low Balance on *Sepak sila* Skills

<i>Source</i>	<i>Type III Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>sig</i>
Balance	150.000	1	150.000	22.613	0.000

Based on the ANOVA test above, it is presented that the F value is 22.613 and the significance value is  $0.000 < 0.05$  which indicates a significant difference in influence on the *Sepak sila* skills between extracurricular students who have high balance and low balance. Based on the results of the analysis, students who have high balance get a score of 46.33 and students who have low balance get a value of 41.33, and students who have high balance are better. Thus, the second hypothesis which states that there is a significant difference in the effect between students who have high balance and low balance on *Sepak sila* skills has been proven.

Table 8. ANOVA Test Results on the Interaction of Paired Exercises and Wall Exercises with Balance (High and Low) on *Sepak sila* Skills

<i>Source</i>	<i>Type III Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig</i>
Exercise Method * balance	864.000	1	864.000	130.251	0.000

Based on the ANOVA test results, the F value is 130.251 and the significance value is  $0.000 < 0.05$ , indicating an interaction. The third hypothesis, that there is a substantial interaction between pair practice and wall media exercises with high and low balance on *Sepak sila* skills, has thus been proved.

Table 9. Post Hoc Test Results

<b>Group</b>	<b>Interaction</b>	<b>Mean Difference</b>	<b>Std. Error</b>	<b>Sig</b>
L1K1	L1K2	-7.0000*	1.48698	0,001
	L2K1	-16.6667*	1.48698	0,000
	L2K2	.3333	1.48698	0,996
L1K2	L1K1	7.0000*	1.48698	0,001
	L2K1	-9.6667*	1.48698	0,000
	L2K2	7.3333*	1.48698	0,000
L2K1	L1K1	16.6667*	1.48698	0,000
	L1K2	9.6667*	1.48698	0,000
	L2K2	17.0000*	1.48698	0,000
L2K2	L1K1	-.3333	1.48698	0,996
	L1K2	-7.3333*	1.48698	0,000
	L2K1	-17.0000*	1.48698	0,000

Based on the Tukey test, the asterisk (\*) can be explained that the pair having an interaction. Interactions are found in (1) L1K1-L1K2 (*Sepak sila* practice with

wall media for students with high balance - *Sepak sila* practice with wall media for students with low balance). (2) L1K1-L2K1 (*Sepak sila* practice with wall media for students with high balance –*Sepak sila* practice in pairs for students with high balance). (3) L1K2-L2K1 (*Sepak sila* practice with wall media for students with low balance – *Sepak sila* practice in pairs for students with high balance), (4) L1K2-L2K2 (*Sepak sila* practice with wall media for students with low balance - *Sepak sila* practice in pairs for students with low balance), (5) L2K1-L2K2 (*Sepak sila* practice with wall media for students with low balance - *Sepak sila* practice in pairs for students with low balance).

## **Discussion**

Efforts to improve abilities and skills in *sepak takraw* must be carried out through well-planned exercises and appropriate training methods. This is following several studies which state that training aims to improve competence and skills individually and in teams (Sulistiyono et al, 2021; Khudolii et al, 2020; Henry, 2013). Reinforced by other studies, it is stated that achieving success in the field of sports is the dream of every athlete so maximum coaching and approaches are needed (Nur, Ilham & Kamaruddin, 2021). Moreover, *sepak takraw* is considered a team sport that utilizes the mastery of qualified skills (Musa et al, 2020). The basic technique is important because various movements in *sepak takraw* require a perfect technique to win a match.

Coaches play an important part in the success of *sepak takraw* extracurricular students because *sepak takraw* extracurricular require specific attention not only for complete attendance but also for achievement sports. According to Nur, Ilham, and Kamaruddin (2021), sport is intended to give broader educational engagement and contribution, which necessitates an improvement in sports achievement in schools.

According to a previous study, coaches become like heroes with variable roles who can become facilitators, motivators, and parents, and always update knowledge so that the athlete's competence can dramatically rise (Wicaksono et al, 2022). According to Tirtawirya, Tomolius, and Sudarko (2020), getting better at sporting activities is not easy, and it is required to pay attention to numerous elements such as physically, physically, and technically setting up an exercise program.

One of the most important basic techniques in *sepak takraw* is soccer. The study explains that the *Sepak sila* technique is the mother of the *sepak takraw* game because of its very vital function, namely to receive kicks from the opponent's service, feed to teammates, and as a ball carrier to the opponent (Suprayitno, 2018). Therefore, the role of the coach is needed to develop a good method to optimize the basic techniques of this *Sepak sila* in *sepak takraw*.

There are numerous training methods used in team sports that are carried out in certain games. That is, the training method used is appropriate for the competitive conditions (Said, & Syam 2022). The media training method of

bouncing the ball against the wall and the pair training method are utilized in *sepak takraw*. These are two options for improving the fundamental techniques of *sepak takraw*, particularly the *Sepak sila* technique. According to a prior study, the exercise strategy used alone and in pairs attempts to develop the technique to be reached (Said, & Syam 2022).

Based on the ANOVA test, the first hypothesis which states that there is a significant difference in the effect between pair practice and wall media practice on *Sepak sila* skills has been proven with an F value of 19,698 and a significance value of  $0.000 < 0.05$ . The analysis of the post-test results in the group with pair practice got a score of 46.17 and the group with wall media got a score of 41.50. Thus, the posttest difference is 4.67. In other words, the training method in the group with paired exercises produces better results.

Based on the Anova test, the second hypothesis which states that there is a significant difference in influence between students who have high balance and low balance on *Sepak sila* skills has been proven, which is indicated by an F value of 22,613 and a significance value of  $0.000 < 0.05$ . In the analysis of post-test results, students who have high balance get a score of 46.33, and students who have low balance get a score of 41.33. These results indicate that students who have high balance are better than students who have low balance in doing the silage technique.

Based on the Anova test, the third hypothesis which states that there is a significant interaction between pair exercise and exercises with wall media with high and low balance can be said to have been proven with an F value of 130.251 and a significance value of  $0.000 < 0.05$ . Based on the Tukey test, the interacting groups are (1) L1K1-L1K2 (*Sepak sila* practice with wall media for students with high balance - *Sepak sila* practice with wall media for students with low balance). (2) L1K1-L2K1 (*Sepak sila* practice with wall media for students with high balance – *Sepak sila* practice in pairs for students with high balance). (3) L1K2-L2K1 (*Sepak sila* practice with wall media for students with low balance – *Sepak sila* practice in pairs for students with high balance), (4) L1K2-L2K2 (*Sepak sila* practice with wall media for students with low balance - *Sepak sila* practice in pairs for students with low balance), (5) L2K1-L2K2 (*Sepak sila* practice with wall media for students with low balance - *Sepak sila* practice in pairs for students with low balance). In the end, the results have been obtained that all the hypotheses proposed by the researcher have been proven. This is reinforced by a study from Jaka (2014) which explains that training with individual and pair methods has a significant effect on soccer skills where the paired method is found to be better.

## **Conclusions**

Based on the results and discussion above, the researchers found that (a) there was a significant effect between exercises with wall media and pairs on *Sepak sila* skills where training with the paired method was found to have better

results, and (b) there was a significant effect between students who have a high and low balance on the *Sepak sila* skills where high balance results in better performance, (c) there was a significant interaction between training with wall media and paired with high and low balance. The findings of this study can be used as a reference that to improve the basic technical skills of *Sepak sila*, it is recommended to use the paired method.

### **Acknowledgment**

The researchers would like to thank the Yogyakarta State University and Junior High School institutions in West Sleman for allowing this research to be carried out and completed successfully.

### **Conflict of interest**

All authors declare no conflict of interest.

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# 1 THE EFFECT OF THE TRAINING MODEL AND BALANCE ON 2 STUDENTS' *SEPAK SILA* SKILLS ON *SEPAK TAKRAW* 3 EXTRACURRICULAR IN FIRST MIDDLE SCHOOL

## 4 5 **Abstract**

6 **Objective:** This study aimed to examine the wall and pair models: (1) the difference in the  
7 effect of wall and pair exercises on *Sepak sila* (2) the difference between the high and low  
8 balance on *Sepak sila* (3) the interaction of wall and pair models with a high and low balance  
9 on *Sepak sila* skills. **Materials and methods:** The method used in this research was a 2x2  
10 factorial experiment. The research participants included 24 male students who took  
11 extracurricular *sepak takraw* aged 14-15 years with a height of 153-170± centimeters and a  
12 weight of 50-60 kilograms. The instruments used in this study were modified bass test balance  
13 instruments and *Sepak sila* instruments. Data collection techniques consisted of observation  
14 and tests. The data obtained were analyzed using a two-way Anova with the help of SPSS 20.  
15 **Results:** (1) There was a significant difference between the wall-and-pair training model on  
16 *Sepak sila* skills with F 19.698 and sig. 0.000 <0.05. Based on the findings, the paired model  
17 was found to be better with an average of 46.17 compared to the model on the wall which  
18 obtained an average of 41.50. (2) It was found that there was a significant difference between  
19 the high and low balance on *Sepak sila* skills where high balance was better with an average  
20 of 46.33 compared to low balance with an average of 41.33. (3) It was found that there was a  
21 significant interaction between the wall-mounted and paired exercise models with a high and  
22 low balance on *Sepak sila* skills with F 130.251 and sig. 0.000<0.05. **Conclusion:** In  
23 conclusion, the paired exercise model is better than the wall exercise model. As a result, it is  
24 advised to use a paired model to strengthen the fundamental technical skills of *Sepak sila*.

25 **Keywords:** pair practice, *Sepak sila*, *sepak takraw*, first middle school students  
26

## 27 **Introduction**

28 *Sepak takraw* is an original game sport from Asia (Wibisono, Indriarti & Daniati,  
29 2020; Syam, 2019). This game was initially only played in the kingdom, but it  
30 developed into a recreational and achievement sport over time (Asmawi, Hanif,  
31 & Bon, 2019). "Sepak" means kick "takraw" means ball made of rattan which the  
32 word comes from the Thai language (Zarei & Ramkissoon, 2021). The game of  
33 *sepak takraw* is played by two competing teams where each team has three  
34 players named tekong, feeder, and spiker who are separated by a net (Wibisono,  
35 Indriarti & Daniati, 2020).

36 When it comes to process success, several aspects influence it. Technique  
37 mastery is one of the aspects that determine the improvement of achievement in  
38 *sepak takraw*. According to studies, to be successful in *sepak takraw*, players  
39 must first master basic methods before learning more advanced strategies  
40 (Asmawi, Hanif, & Bon, 2019; oh et al, 2004; Sukmana, Mutohir & Muhyi,  
41 2021). Another study states that to be skilled at playing *sepak takraw*, each  
42 individual must master basic techniques including heading, serving, smash,  
43 blocking, as well as kicking techniques including sepak badek, sepak kuda, sepak  
44 cungkil, and *Sepak sila* (Adrian & Heru, 2020; Rohman Hidayat, 2018;  
45 Heriansyah, Adelian & Suhartiwi, 2017; Muhyi et al, 2021).

46 The main technique in *sepak takraw* is *Sepak sila*. *Sepak sila* is a kicking  
47 technique using the inside of the foot (Sucipto & Sugiyanto, 2017). Another  
48 theory states that the main basic technique in the game of *sepak takraw* is *Sepak*  
49 *sila*, remembering that when individuals master the technique of *Sepak sila*, it can  
50 make it easier for them to receive, control the ball, and withstand the opponent's  
51 attacks (Zulman, Umar & Atradinal, 2018). Saputra & Supriyadi (2017) stated  
52 that the basic technique that is important to master is *Sepak sila*, because, in the  
53 game of *sepak takraw*, most use the *Sepak sila* technique to pass and receive the  
54 ball well.

55 When viewed more closely, the basic practices of *Sepak sila* require balance.  
56 Novrianto (2013) conducted a study titled "Study on the association between  
57 balance and sila skills in the game of *sepak takraw*." His investigation discovered  
58 a substantial link. Thamrin (2011) found that balance and leg muscle endurance  
59 contributed to *Sepak sila* in his study. The researcher might conclude from the  
60 findings of the two studies that technical skills are directly related to an  
61 individual's balance.

62 Efforts to improve the fundamental techniques of *Sepak sila* in *sepak takraw*, of  
63 course, necessitate the use of a good and appropriate program and approach.  
64 When testing a method, trainers are required to experiment. The teaching  
65 methods with reflections on the wall and the pair training method are two that are  
66 frequently used to teach basic concepts in *sepak takraw* (Riska, 2020; Mardela &  
67 Rahman, 2017; Tambunan, 2014; Khozali, 2015; Fadli & Yudi, 2019).

68 The application of the reflection method to the wall and in pairs has been tested  
69 and is considered to have a significant effect on improving basic techniques in  
70 *sepak takraw*, such as research by Sukarman (2018). From his study, it was found  
71 that there was a significant effect of pair passing practice on the skills of passing  
72 the ball in takraw extracurricular students. Furthermore, Riska (2020), and  
73 Mardela (2017) stated that there was a significant effect of practicing soccer skills  
74 using individual and pair training methods. However, other studies have stated  
75 that exercises with reflected media on the wall do not have a significant  
76 improvement compared to the hanging ball training method (Ermanto, 2013).  
77 Although the research from Ermanto (2013) provides strong evidence, Khozali  
78 (2015) refutes Ermanto's findings based on the results of his research that the  
79 paired method, wall reflecting media, and hanging media have an equally  
80 significant increase. Therefore, it becomes an empirical problem that requires re-  
81 testing by applying the exercise method using wall media and pairs supported by  
82 observation.

83 Observations were carried out at four junior high schools that had *sepak*  
84 *takraw* extracurricular activities. Researchers at this stage observe the practice  
85 process, the coach gives instructions to students to hold the ball themselves and  
86 then play the takraw ball so it doesn't fall with the correct soccer technique.  
87 However, additional observation reveals that students' use of the inner foot when  
88 performing the sila technique is not flawless. Many students continue to strike

89 the heel, toe, and outside of the foot. Furthermore, motivation to practice versions  
90 of the kick model is still very low, as seen by students' mastery of basic movement  
91 skills for rocking and kicking during extracurricular activities. Individual  
92 exercises with the practice system of holding the ball once and then catching it  
93 are also common among students in this case. Kicking or holding the ball is a  
94 mandatory requirement that must be mastered by students so that the practice  
95 method using reflection media on the wall and in pairs needs to be done to  
96 optimize basic techniques, especially silage.

97 Based on the description described above, it can be understood that there are  
98 problems regarding the application, understanding, and motivation to practice the  
99 basic techniques of playing *sepak takraw* in first middle school extracurricular  
100 participants. To overcome this, the researchers will apply the exercise method  
101 with reflection media on the wall and in pairs. The purpose of this study was to  
102 test the exercise method with reflections on the wall and the pair practice method  
103 to improve the basic techniques of *Sepak sila* in terms of low and high balance in  
104 junior high school extracurricular participants in West Sleman Regency,  
105 Yogyakarta Province. This study hypothesizes that there are differences in wall  
106 exercises and pair exercises on *Sepak sila* skills, there are differences in high  
107 balance and low balance on *Sepak sila* skills, and there is an interaction between  
108 wall and pair exercises as well as balance on *Sepak sila* skills.

109

## 110 **Materials and methods**

### 111 *Study participants*

112 This research is experimental research with field testing (Yulianto & Yudhistira,  
113 202; Wicaksono et al, 2022). The experimental approach used is a 2x2 factorial  
114 involving two independent variables given treatment, one dependent variable,  
115 and one controlled attribute variable (Collins et al, 2014; Rogers & Revesz,  
116 2020). The sampling technique used was purposive sampling with the criteria (1)  
117 participants were extracurricular junior high school (SMP) students in West  
118 Sleman Regency, Yogyakarta Province, (2) actively participated in *sepak takraw*  
119 training, and (3) male. Based on these criteria, there were 24 takraw  
120 extracurricular participants aged 14-15 years with a height of 153-170± and a  
121 weight of 50-65± kilograms.

122 A total of 24 participants will be divided into four groups by testing the modified  
123 bass balance test (Jazi et al, 2012). The results of the balance test will apply the  
124 Match Subject Ordinal Pairing (MSOP) pattern with the A-B-B-A pattern so that  
125 the group becomes balanced. Based on the test, it was found that 12 students who  
126 had high and low balance would be given *Sepak sila* training with bouncing the  
127 ball against the wall media, and 12 other students were given *Sepak sila* training  
128 with media where students pair up with each other. In detail, one group consists  
129 of 12 students who are divided into 2 teams, each consisting of 6 students who  
130 have a low balance and 6 students who have high balance *Sepak sila* practice by

131 bouncing the ball against the wall media and in pairs. The factorial design is  
 132 presented in the table below:

133 Table 1. Factorial Experiment Design 2x2

<b>Practicing (L)</b>		
<b>Balance (K)</b>	<i>Sepak sila</i> Practice with Walls (L1)	<i>Sepak sila</i> Practice in Pairs (L2)
<b>High (K1)</b>	(L1K1)	(L2K1)
<b>Low (K2)</b>	(L1K2)	(L2K2)

134

135 Where:

136 L1: *Sepak sila* Practice with Walls

137 L2: *Sepak sila* Practice in Pairs

138 K1: High balance.

139 K2: Low balance.

140 (L1K1): *Sepak sila* practice with the wall on high balance.

141 (L1K2): *Sepak sila* practice with the wall on low balance.

142 (L2K1): *Sepak sila* practice in pairs on high balance.

143 (L2K2): *Sepak sila* practice in pairs on low balance.

144

145 The next procedure is to do a pretest on the *Sepak sila* group with wall media and  
 146 in pairs. The instrument used was a *Sepak sila* skills test instrument from Futra  
 147 (2015) with a validity coefficient of 0.71 and a reliability of 0.68. The study  
 148 explains that the *Sepak sila* skills test validity coefficient with a value of 0.70 and  
 149 above has a level of measurement accuracy (Guntur et al, 2020; Dewangga &  
 150 Tomoliyus, 2020; Yudhistira et al, 2021), while a reliability coefficient of 0.6 to  
 151 0.7 indicates moderate accuracy (Choubin et al, 2010). 2019). Therefore, the test  
 152 of *Sepak sila* skills can be used in research. The procedure for the *Sepak sila* test  
 153 is presented in the table below:

154 Table 2. Instructions for the *Sepak sila* Skills Test Implementation

**Facilities used**

- a. Spacious and flat *sepak takraw* field
- b. Takraw ball
- c. Net
- d. Stopwatch
- e. Meter
- f. Duct tape
- g. Stationary
- h. Whistle

**Implementation**

- a. The ball is kicked using a *Sepak sila* technique (inner foot)

- b. The ball that falls to the ground can be used again, but the score on the second shot is determined from the start and is valid every time after the ball has fallen until the available time runs out.
- c. Balls that are kicked using other techniques (other than *Sepak sila*) can still be used but the score does not count and as long as the ball has not fallen to the floor
- d. The ball that counts must be at chest level
- e. The area of the control field is not limited
- f. The time limit applied is one minute

---

**Scoring**

- a. The score is taken from the number of *Sepak sila* that can be taken in one minute
  - b. Every three kicks are counted with a value of one and so on
  - c. Kicks that are not at chest level will not count
  - d. The overall score is obtained by adding up all the kick scores that have been divided by three
- 

155

156 *Study organization*

157 The participants were 24 students divided into two groups so each group  
 158 consisted of 12 students. Students are given treatment using wall media by  
 159 bouncing the ball on the wall and in pairs with the number of training frequencies  
 160 3 times a week for 16 meetings. The researcher was assisted by four assistants to  
 161 observe the pretest time during the exercise in 16 meetings and the post-test was  
 162 taken after the 16th training meeting. The exercise program is presented in the  
 163 table below:

164

Table 3. Practicing program of *Sepak sila*

<i>Sepak sila</i> Practice in Pairs	<i>Sepak sila</i> Practice with Walls	<b>Meeting</b>
a. Flexibility training b. The ball is thrown with a parabolic dish to the student who is the partner. The partner accepts and kicks the ball with <i>Sepak sila</i> 1 time and catches it. The ball is thrown back to the opponent. c. Dosage: 20 minutes. 3 sets x 8 reps, 30 seconds recovery d. 15 minutes Games	a. Flexibility training b. The ball is bounced off the wall and then juggled once with the <i>Sepak sila</i> technique before being caught. c. Dosage: 20 minutes. 3 sets x 8 reps, 30 seconds recovery d. 15 minutes Games	1,2
a. Flexibility Training b. The ball is thrown with a parabolic dish to the student	a. Flexibility training b. The ball is bounced off the wall and then juggled once	3,4

<p>who is the partner. The partner accepts and juggles the ball with <i>Sepak sila</i> 1 time and catches it. The ball is thrown back to the opponent.</p> <p>c. Dosage: 20 minutes. 3 sets x 11 reps, 30 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>with the <i>Sepak sila</i> technique before being caught.</p> <p>c. Dosage: 20 minutes. 3 sets x 11 reps, 30 seconds recovery</p> <p>d. 15 minutes Games</p>	
<p>a. Flexibility training</p> <p>b. The ball is thrown with a parabolic dish to the student who is the partner. The partner accepts and juggles the ball with <i>Sepak sila</i> 2 times and catches it. The ball is thrown back to the opponent.</p> <p>c. Dosage: 20 minutes. 4 sets x 13 reps, 35 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>a. Flexibility training</p> <p>b. The ball is bounced off the wall and then juggled 2 times with the <i>Sepak sila</i> technique before being caught.</p> <p>c. Dosage: 20 minutes. 4 sets x 13 reps, 35 seconds recovery</p> <p>d. 15 minutes Games</p>	5,6
<p>a. Flexibility training</p> <p>b. The ball is thrown with a parabolic dish to the student who is the partner. The partner accepts and juggles the ball with <i>Sepak sila</i> 2 times and catches it. The ball is thrown back to the opponent.</p> <p>c. Dosage: 20 minutes. 4 sets x 16 reps, 35 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>a. Flexibility training</p> <p>b. The ball is bounced off the wall and then juggled 2 times with the <i>Sepak sila</i> technique before being caught.</p> <p>c. Dosage: 20 minutes. 4 sets x 16 reps, 35 seconds recovery</p> <p>d. 15 minutes Games</p>	7, 8
<p>a. Flexibility training</p> <p>b. The ball is thrown with a parabolic dish to the student who is the partner. The partner accepts and juggles the ball with <i>Sepak sila</i> 3 times and catches it. The ball is thrown back to the opponent.</p> <p>c. Dosage: 20 minutes. 5 sets x 18 reps, 40 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>a. Flexibility training</p> <p>b. The ball is bounced off the wall and then juggled 3 times with the <i>Sepak sila</i> technique before being caught.</p> <p>c. Dosage: 20 minutes. 5 sets x 18 reps, 40 seconds recovery</p> <p>d. 15 minutes Games</p>	9, 10
<p>a. Flexibility training</p> <p>b. The ball is thrown with a</p>	<p>a. Flexibility training</p> <p>b. The ball is bounced off the</p>	



<p>parabolic dish to the student who is the partner. The partner accepts and juggles the ball with <i>Sepak sila</i> 3 times and catches it. The ball is thrown back to the opponent.</p> <p>c. Dosage: 20 minutes. 5 sets x 21 reps, 40 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>wall and then juggled 3 times with the <i>Sepak sila</i> technique before being caught.</p> <p>c. Dosage: 20 minutes. 5 sets x 21 reps, 40 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>11, 12</p>
<p>a. Flexibility training</p> <p>b. The student juggles the ball using the <i>Sepak sila</i> technique 2 times and then feeds it to his partner and juggles it 2 times without the ball falling</p> <p>c. Dosage: 20 minutes. 6 sets x 23 reps, 45 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>a. Flexibility training</p> <p>b. The ball bounces off the wall and juggles it parabolically 3 times and horizontally 1 time</p> <p>c. Dosage: 20 minutes. 6 sets x 23 reps, 45 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>13, 14</p>
<p>a. Flexibility training</p> <p>b. The student juggles the ball using the <i>Sepak sila</i> technique 2 times and then feeds it to his partner and juggles it 2 times without the ball falling</p> <p>c. Dosage: 20 minutes, 6 sets x 25 reps, 45 seconds recovery, 25 reps x 2 sets of target serve behind, overhead, and in front.</p> <p>d. 15 minutes Games</p>	<p>a. Flexibility training</p> <p>b. The ball bounces off the wall and juggles it parabolically 3 times and horizontally 1 time</p> <p>c. Dosage: 20 minutes. 6 sets x 25 reps, 45 seconds recovery</p> <p>d. 15 minutes Games</p>	<p>15,16</p>

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*Statistical analysis*

The data was processed with the help of SPSS version 20 (Wicaksono et al, 2022). The data analysis used was a two-way ANOVA analysis. If there is an interaction, the analysis will be continued using the Tukey test with a significance level of 0.05 (Liang, Hiley & Kanosue, 2019). However, before applying the analysis, it is necessary to carry out prerequisite tests including tests for normality and homogeneity of the data. Thus, when the data is said to be normal and homogeneous, the test can be continued.

**Results**

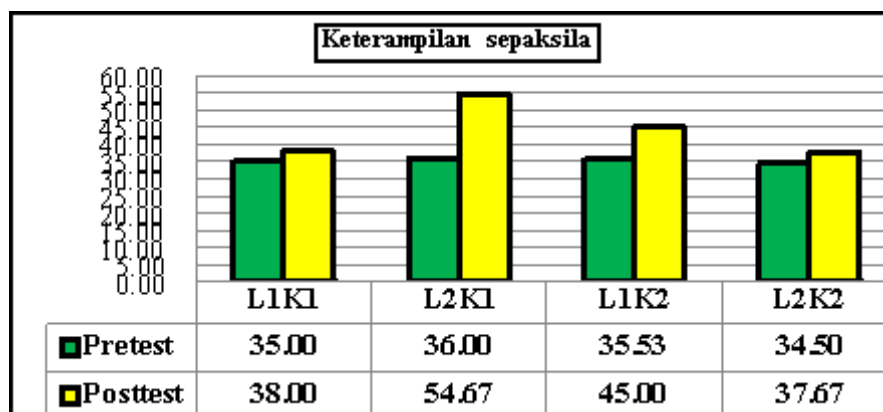
Table 4. Analysis Results in Description of Pretest-Posttest

<b>Practicing</b>	<b>Balance</b>	<b>Pretest</b>	<b>Posttest</b>
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<i>Sepak sila</i>	High (L1K1)	35±1,26	38±1,10
<b>Practice with Walls</b>	Low (L1K2)	35,53±1,37	45±4,15
<i>Sepak sila</i>	High (L2K1)	36±0,89	54,67±0,47
<b>Practice in Pairs</b>	Low (L2K2)	34,50±1,38	37,67±2,25

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If it is displayed in the form of a diagram, the data on *Sepak sila* skills can be presented as shown in the following graph.



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Figure 1. Graphics of soccer skills

Based on the graph above, shows that the *Sepak sila* skills of the group (L1K1) who applied wall media and have high balance obtained an average pretest score of 35.00 and increased at the post-test to 38.00. The group (L2K1) of *Sepak sila* in pairs who has high balance obtained an average pretest score of 36.00 and increased at post-test to 54.67. The group (L1K2) of *Sepak sila* with wall media which has a low balance obtained an average pretest score of 35.53 and increased at post-test to 45.00. The group (L2K2) of *Sepak sila* in pairs who have low balance obtained an average pretest score of 34.50 which increased to 35.67 at the posttest.

Table 5. Data Normality Test Results

	Group	p	significance	Information
<b>Pretest</b>	L1K1	0,713	0,05	Normal
	L2K1	0,968		Normal
	L1K2	0,801		Normal
	L2K2	0,976		Normal
<b>Posttest</b>	L1K1	0,573		Normal
	L2K1	0,986		Normal
	L1K2	0,996		Normal
	L2K2	0,920		Normal

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196 Based on the statistical analysis of the normality test that has been carried out  
 197 using the Kolmogorov Smirnov test, it was found that all the pretest and posttest  
 198 data on *Sepak sila* were normally distributed with a significance value of  $p > 0.05$ .

199 Table 6. Data Homogeneity Test Results

<b>F</b>	<b>Df1</b>	<b>Df2</b>	<b>Significance</b>
2.134	3	20	0.128

200  
 201 Based on the statistical analysis of the homogeneity test that has been carried out  
 202 using the Levene test, a significance value of  $> 0.05$  was found. This result  
 203 indicates that the data has a homogeneous variance.

204 Table 6. ANOVA Test Results for Paired Exercise and Wall Exercises

<b>Source</b>	<b>Type III Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig</b>
Exercise Method	130.667	1	130.667	19.698	0.000

205  
 206 According to the Anova test, the F value is 19,698 and the significance value is  
 207  $0.000 < 0.05$ . In other words, there is a significant difference in the effect between  
 208 exercises with wall media and in pairs on *Sepak sila* skills. Paired group analysis  
 209 got a score of 46.17 and the group with wall media got 41.50 so the post-test  
 210 difference was 4.67. These results indicate that the group with paired exercises  
 211 produced better results. The first hypothesis, that there is a significant difference  
 212 in the effect of pair practice and wall media practice on soccer abilities, has thus  
 213 been proved.

214  
 215 Table 7. ANOVA Test Results on Differences in High Balance and Low  
 216 Balance on *Sepak sila* Skills

<b>Source</b>	<b>Type III Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>sig</b>
Balance	150.000	1	150.000	22.613	0.000

217  
 218 Based on the ANOVA test above, it is presented that the F value is 22.613 and  
 219 the significance value is  $0.000 < 0.05$  which indicates a significant difference in  
 220 influence on the *Sepak sila* skills between extracurricular students who have high  
 221 balance and low balance. Based on the results of the analysis, students who have  
 222 high balance get a score of 46.33 and students who have low balance get a value  
 223 of 41.33, and students who have high balance are better. Thus, the second  
 224 hypothesis which states that there is a significant difference in the effect between  
 225 students who have high balance and low balance on *Sepak sila* skills has been  
 226 proven.

227 Table 8. ANOVA Test Results on the Interaction of Paired Exercises and Wall  
 228 Exercises with Balance (High and Low) on *Sepak sila* Skills

<i>Source</i>	<i>Type III Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig</i>
Exercise Method * balance	864.000	1	864.000	130.251	0.000

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Based on the ANOVA test results, the F value is 130.251 and the significance value is 0.000 < 0.05, indicating an interaction. The third hypothesis, that there is a substantial interaction between pair practice and wall media exercises with high and low balance on *Sepak sila* skills, has thus been proved.

Table 9. Post Hoc Test Results

<b>Group</b>	<b>Interaction</b>	<b>Mean Difference</b>	<b>Std. Error</b>	<b>Sig</b>
L1K1	L1K2	-7.0000*	1.48698	0,001
	L2K1	-16.6667*	1.48698	0,000
	L2K2	.3333	1.48698	0,996
L1K2	L1K1	7.0000*	1.48698	0,001
	L2K1	-9.6667*	1.48698	0,000
	L2K2	7.3333*	1.48698	0,000
L2K1	L1K1	16.6667*	1.48698	0,000
	L1K2	9.6667*	1.48698	0,000
	L2K2	17.0000*	1.48698	0,000
L2K2	L1K1	-.3333	1.48698	0,996
	L1K2	-7.3333*	1.48698	0,000
	L2K1	-17.0000*	1.48698	0,000

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Based on the Tukey test, the asterisk (\*) can be explained that the pair having an interaction. Interactions are found in (1) L1K1-L1K2 (*Sepak sila* practice with wall media for students with high balance - *Sepak sila* practice with wall media for students with low balance). (2) L1K1-L2K1 (*Sepak sila* practice with wall media for students with high balance - *Sepak sila* practice in pairs for students with high balance). (3) L1K2-L2K1 (*Sepak sila* practice with wall media for students with low balance - *Sepak sila* practice in pairs for students with high balance), (4) L1K2-L2K2 (*Sepak sila* practice with wall media for students with low balance - *Sepak sila* practice in pairs for students with low balance), (5) L2K1-L2K2 (*Sepak sila* practice with wall media for students with low balance - *Sepak sila* practice in pairs for students with low balance).

## Discussion

Efforts to improve abilities and skills in *sepak takraw* must be carried out through well-planned exercises and appropriate training methods. This is following several studies which state that training aims to improve competence and skills individually and in teams (Sulistiyono et al, 2021; Khudolii et al, 2020; Henry,

253 2013). Reinforced by other studies, it is stated that achieving success in the field  
254 of sports is the dream of every athlete so maximum coaching and approaches are  
255 needed (Nur, Ilham & Kamaruddin, 2021). Moreover, *sepak takraw* is considered  
256 a team sport that utilizes the mastery of qualified skills (Musa et al, 2020). The  
257 basic technique is important because various movements in *sepak takraw* require  
258 a perfect technique to win a match.

259 Coaches play an important part in the success of *sepak takraw* extracurricular  
260 students because *sepak takraw* extracurricular require specific attention not only  
261 for complete attendance but also for achievement sports. According to Nur,  
262 Ilham, and Kamaruddin (2021), sport is intended to give broader educational  
263 engagement and contribution, which necessitates an improvement in sports  
264 achievement in schools.

265 According to a previous study, coaches become like heroes with variable roles  
266 who can become facilitators, motivators, and parents, and always update  
267 knowledge so that the athlete's competence can dramatically rise (Wicaksono et  
268 al, 2022). According to Tirtawirya, Tomoliyus, and Sudarko (2020), getting  
269 better at sporting activities is not easy, and it is required to pay attention to  
270 numerous elements such as physically, physically, and technically setting up an  
271 exercise program.

272 One of the most important basic techniques in *sepak takraw* is soccer. The study  
273 explains that the *Sepak sila* technique is the mother of the *sepak takraw* game  
274 because of its very vital function, namely to receive kicks from the opponent's  
275 service, feed to teammates, and as a ball carrier to the opponent (Suprayitno,  
276 2018). Therefore, the role of the coach is needed to develop a good method to  
277 optimize the basic techniques of this *Sepak sila* in *sepak takraw*.

278 There are numerous training methods used in team sports that are carried out in  
279 certain games. That is, the training method used is appropriate for the competitive  
280 conditions (Said, & Syam 2022). The media training method of bouncing the ball  
281 against the wall and the pair training method are utilized in *sepak takraw*. These  
282 are two options for improving the fundamental techniques of *sepak takraw*,  
283 particularly the *Sepak sila* technique. According to a prior study, the exercise  
284 strategy used alone and in pairs attempts to develop the technique to be reached  
285 (Said, & Syam 2022).

286 Based on the ANOVA test, the first hypothesis which states that there is a  
287 significant difference in the effect between pair practice and wall media practice  
288 on *Sepak sila* skills has been proven with an F value of 19,698 and a significance  
289 value of  $0.000 < 0.05$ . The analysis of the post-test results in the group with pair  
290 practice got a score of 46.17 and the group with wall media got a score of 41.50.  
291 Thus, the posttest difference is 4.67. In other words, the training method in the  
292 group with paired exercises produces better results.

293 Based on the Anova test, the second hypothesis which states that there is a  
294 significant difference in influence between students who have high balance and  
295 low balance on *Sepak sila* skills has been proven, which is indicated by an F value

296 of 22,613 and a significance value of  $0.000 < 0.05$ . In the analysis of post-test  
297 results, students who have high balance get a score of 46.33, and students who  
298 have low balance get a score of 41.33. These results indicate that students who  
299 have high balance are better than students who have low balance in doing the  
300 silage technique.

301 Based on the Anova test, the third hypothesis which states that there is a  
302 significant interaction between pair exercise and exercises with wall media with  
303 high and low balance can be said to have been proven with an F value of 130.251  
304 and a significance value of  $0.000 < 0.05$ . Based on the Tukey test, the interacting  
305 groups are (1) L1K1-L1K2 (*Sepak sila* practice with wall media for students with  
306 high balance - *Sepak sila* practice with wall media for students with low balance).  
307 (2) L1K1-L2K1 (*Sepak sila* practice with wall media for students with high  
308 balance –*Sepak sila* practice in pairs for students with high balance). (3) L1K2-  
309 L2K1 (*Sepak sila* practice with wall media for students with low balance – *Sepak*  
310 *sila* practice in pairs for students with high balance), (4) L1K2-L2K2 (*Sepak sila*  
311 practice with wall media for students with low balance - *Sepak sila* practice in  
312 pairs for students with low balance), (5) L2K1-L2K2 (*Sepak sila* practice with  
313 wall media for students with low balance - *Sepak sila* practice in pairs for students  
314 with low balance). In the end, the results have been obtained that all the  
315 hypotheses proposed by the researcher have been proven. This is reinforced by a  
316 study from Jaka (2014) which explains that training with individual and pair  
317 methods has a significant effect on soccer skills where the paired method is found  
318 to be better.

319

## 320 **Conclusions**

321 Based on the results and discussion above, the researchers found that (a) there  
322 was a significant effect between exercises with wall media and pairs on *Sepak*  
323 *sila* skills where training with the paired method was found to have better results,  
324 and (b) there was a significant effect between students who have a high and low  
325 balance on the *Sepak sila* skills where high balance results in better performance,  
326 (c) there was a significant interaction between training with wall media and paired  
327 with high and low balance. The findings of this study can be used as a reference  
328 that to improve the basic technical skills of *Sepak sila*, it is recommended to use  
329 the paired method.

330

## 331 **Acknowledgment**

332 The researchers would like to thank the Yogyakarta State University and Junior  
333 High School institutions in West Sleman for allowing this research to be carried  
334 out and completed successfully.

335

## 336 **Conflict of interest**

337 All authors declare no conflict of interest.

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# Physical Education Theory and Methodology



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Submission accepted.

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2022-12-06 09:52 PM

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**Notifications****[TMFV] Editor Decision**

2022-12-06 09:52 PM

Yudanto Yudanto, Dewangga Yudhistira:

Dear Authors,

We'd like to inform you that your article "The Effect of the Training Model and Balance on Students' Sepak Sila Skills on Sepak Takraw Extracurricular in First Middle School" has been approved for publication in *Physical Education Theory and Methodology*.

Our publishing policy includes a publication fee, which is charged after acceptance of an article for publication. To continue the submission processing, please pay the publication fee, which is 200 USD. This fee reimburses our costs for publishing the journal.

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Best regards,

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Taras Tkachenko (tkachenko)

Yudanto Yudanto (yudanto2022)

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Dear authors!  Please provide a link to the source Futra (2015)?  "The instrument used was a <i>Sepak sila</i> skills test <b>instrument from Futra (2015)</b> with a validity coefficient of 0.71 and a reliability of 0.68."  Taras Tkachenko	tkachenko 2022-12-07 07:33 PM
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## ABSTRACT

The study addressed the subject of observation level of validity and reliability test sila football skills and smash kedeng. Engineering skills in sepak takraw is important to be controlled. The purpose on this study was to reveal how much the level of validity and reliability test sila football skills and smash kedeng. The research method used is descriptive method. This research conducted in sepak takraw Pengcab club Bandung using purposive sampling data retrieval technique of athletes Bandung as many 11 people. Based on processing and analysis of research data, it is obtained that the sila football skills test results have the validity of  $r = 0,71$  belongs to high criteria and the results are significant, and the reliability test of  $r = 0,68$  included into high criteria and the results of significance. While for the skill test smash kedeng have the validity of  $r = 0,75$  belongs to the high criteria and the results are significant, and have a level of reliability test of  $r = 0,71$  included into high criteria and the result and of significant. Based on the results of processing and analysis of data, can be concluded that the sila football skills tests can be used as a measurement reference test engineering skills coaching sepak takraw because it has validity and reliability of the same high. Be advised to use a different number of samples or test other skills to maximize a test to help trainers to get the coaches to get evaluates the training process through the data of test results. Keywords : Validity, Reliability, Test Techniques Sila Football and Smash Kedeng

## REFERENCES

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Igor Kornijchuk (igor)

Yudanto Yudanto (yudanto2022)

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<p>Dear Authors,</p> <p>Your submission, "The Effect of the Training Model and Balance on Students' Sepak Sila Skills on Sepak Takraw Extracurricular in First Middle School", to <i>Physical Education Theory and Methodology</i> now needs to be proofread. We uploaded the galley of the article. Please review the file in section Galleys on the journal's website.</p> <p>If you find any errors (printing and formatting), please inform us about them.</p> <p>Best regards, Igor Kornijchuk / TMFV Journal igor@ovc.kharkov.ua</p>	igor 2022-12-21 07:17 PM
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#### Prefix

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#### Title

The Effect of the Training Model and Balance on Students' Sepak Sila Skills on Sepak Ta

#### Subtitle

#### Abstract

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**Study purpose.** This study aimed to examine the wall and pair models: (1) the difference in the effect of wall and pair exercises on Sepak sila (2) the difference between the high and low balance on Sepak sila (3) the interaction of wall and pair models with a high and low balance on Sepak sila skills.

**Materials and methods.** The method used in this research was a 2x2 factorial experiment. The research participants included 24 male students who took



Score



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website: lppm.uny.ac.id e-mail:lppm@uny.ac.id

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**ETHICS APPROVAL STATEMENT**  
No. B/3.2/UN34.21/TU/2020

To whom it may concern,

This statement is to inform that the ethics committee at the Institute of Research and Community Service (Lembaga Penelitian dan Pengabdian pada Masyarakat), Universitas Negeri Yogyakarta, has approved a study:

**Title: Pengaruh Model Latihan dan Keseimbangan terhadap Keterampilan Sepak Sila Siswa Ekstrakurikuler Sepak Takraw di Sekolah Menengah Pertama.**

Author's name(s):

- (1) Dr. Yudanto, M.Pd.
- (2) Muhammad Sigit Antoni, M.Or.

The procedure and instruments of the research has satisfied the ethics requirement to conduct and collect data from January,6 - February, 25 2020.

Yogyakarta, 5 January 2020

Vice Director



Prof. Dr. Siswantoyo, S.Pd., M.Kes.  
NIP. 197203101999031002