



The Impact of Pacing Pad-Based Service Speed Training on Physical Education Students' Sepak Takraw Service Capabilities at Tadulako University in Palu

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Abstract
<p>Objectives. To enhance the speed of service training through pacing on the sepak takraw service skills of physical education students at Tadulako University, Palu.</p> <p>Materials and Methods. The study involved a total of 8 athletes occupying the roles of servicer or tekong, thus the sample for this research was derived from the complete population of these 8 athletes. Therefore, the sampling technique employs total sampling. The method of data collection involves administering a test, specifically a sepak takraw service speed test. The equipment utilized for the experiment includes a sepak takraw field, a sepak takraw ball, and a stopwatch. The procedure involves measuring the duration from the moment the ball is struck until it makes contact with the floor of the sepak takraw court. Following the pre-test, the sample underwent a service speed training intervention utilizing a pacing pad over the course of 16 sessions. After that, the sample was given a posttest with the same procedure as the initial test or pre-test. Once all the data had been gathered, the next step involved employing the data analysis technique.</p> <p>Results. The data analysis revealed that the investigation into the impact of service speed training utilizing pacing pads on the service speed of sepak takraw athletes at Tadulako University, Palu, yielded significant findings.</p> <p>Conclusion. This study demonstrates that the training method utilizing pacing pads can markedly enhance service speed in sepak takraw. It is advisable to conduct additional studies to investigate the effectiveness of varying training durations, the different applications of pacing pads, and to compare this method with alternative training strategies to enhance athlete performance. Furthermore, studies involving a larger sample size and a broader range of ability levels are necessary to enhance the generalizability of the findings.</p>
Keywords : Pacing Pad-Based Training, Service Speed, Sepak Takraw Capabilities

Introduction

Sepak takraw is a sport played on a 13.40 m x 6.1 m field. The ball can be played with all parts of the body except the hands. Sepak takraw is a unique, semi-acrobatic, and exciting game and very interesting to watch but rather difficult to practice for those who are not trained (Lestari, 2020) . According to Engel in (Setiawan et al., 2015) Sepak takraw is a fast and action-packed sport played on a field with two teams facing each other separated by a net.

Sepak takraw is a sport that can be developed from an early age, both in schools and in the community (Rengge et al., 2022) . With a unique game, it can be said that sepak takraw is a very aesthetic traditional sport and needs to be socialized so that it becomes popular among children and adolescents.

The aesthetic elements in sepak takraw are the movements of the players when passing or hitting the ball, such as when serving, smashing, and even passing the ball. These are the techniques used in sepak takraw. According to (Novrianto, 2013) sepak takraw consists of several basic techniques, including Sepak Sila, Sepak Kuda (Sepak Kura), Sepak Cungkil, Menapak, Sepak Simpuh or Sepak Badek, Main Kepala (heading), Mendada, Memaha, and Membahu. In addition to these basic techniques, players must master advanced techniques, namely serving, smashing, passing the ball, and blocking.

This advanced technique usually each player does not have to master all of these techniques but each player has one technique that is mastered. This is because the movements in each advanced technique are half-acrobatic movements that require expertise and need to be trained seriously and have a high level of difficulty. However, there are also sepak takraw players who master several advanced techniques in the sepak takraw game.

One of the most important techniques in sepak takraw is service. (Murti et al., 2020) service in sepak takraw also functions as an attack to destroy the opponent's defense so that it can thwart attacks that have been designed by the opponent to win the match. For this reason, the service technique must be trained well so that it is well mastered by players in the position of servicer or called tekong.

Service in sepak takraw game can make a team score points, and with service a team can lead the match according to the type desired by the serving team, service is the first attack against the opposing team (Wiyaka, 2017) . Thus, service is the first step for a team to set a game strategy. To master good service techniques, there are many influencing elements such as flexibility, leg muscle strength, leg muscle speed, ankle coordination.

Of course, this needs to be trained with various methods. One of the training methods that can be used is sepak takraw service training using a pecing pad. A pecing pad is a tool used as a target for punches or kicks. The basic concept of this pecing pad training model is to perform a service movement with a fixed, static target in a still target position (Marpaung, 2020) . The pecing pad training model is a service training model that aims to train the ball to hit a fixed or static target (Hanif, 2015) .

Training using pecing pad is a service training that can be done repeatedly so that the service movement becomes automated. This training can also be adjusted to the needs of the athlete, meaning that training using pecing pad can be done to train speed, endurance or service strength. This can be adjusted to the training program that has been made. Service training using pecing pad is often used in sepak takraw clubs.

The coaching of sepak takraw athletes at Tadulako University Palu is carried out continuously, but the achievements are not yet prominent. Judging from the training activities carried out, there is no training method that is focused on training the athlete's service ability. Athletes do service training by *drilling* as usual. There is no training program to increase speed and service strength. So it is necessary to have further training in the form of sepak takraw service training using *pecing pads* to increase service speed.

The Importance of This Research, Although the coaching of sepak takraw athletes at Tadulako University continues to be carried out, the athletes' achievements are still not optimal, especially in the service aspect. Observations show that the training program implemented has not specifically focused on increasing service speed. Athletes still use conventional training methods without a structured training strategy to increase service speed and strength. This shows the need for innovation in training methods, one of which is the use of pecing pads, which can help improve the accuracy, speed, and effectiveness of athletes' services.

The novelty in this study lies in the use of pecing pads as a structured training aid to improve sepak takraw service speed. Although several previous studies have discussed service techniques, there are still few studies that specifically examine the impact of training using pecing pads on service ability in sepak takraw. Therefore, this study provides a scientific contribution in the field of sports training, especially in improving the service technique of sepak takraw athletes.

The urgency of this research is increasing along with the development of competition in the world of sepak takraw, both at national and international levels. With the increasing demands on athlete performance, a scientific approach is needed in sports coaching to

achieve maximum results. Service is a key element in sepak takraw, so this research provides a concrete solution in improving athlete skills through more effective training methods.

Through the application of training with pecing pads, athletes can improve the accuracy of service, develop variations of strokes, and improve endurance and consistency in the game. This study is expected to be a basis for the development of further training methods, so that sepak takraw athletes at Tadulako University and other institutions can be more competitive in high-level tournaments.

Materials and Methods

Study Participants.

The population in this study amounted to 8 athletes with the position of *servicer* or *tekong*, so the sample used in this study was taken from the entire population of 8 athletes. Thus the sampling method uses *total sampling*.

Study organization.

This study uses an experimental research method with a research design using *one group pretest and posttest*. According to (Sugiyono, 2019, p. 110) the experimental research method, it is one of the quantitative methods used especially if researchers want to conduct experiments to find the effect of independent variables / treatments / certain treatments on dependent variables / results / outputs / in controlled conditions. The place of research was carried out on sepak takraw athletes at Tadulako University, Palu.

In this study, there are two variables, namely independent variables and dependent variables.

Independent variable (X) = Service Speed Training using Peking Pad
Dependent variable (Y) = Sepak takraw service speed

According to Sugiyono (2014:60) "Research variables are basically everything that forms anything that is determined by the researcher to be studied so that information can be obtained about it."

Statistical analysis .

Data collection techniques using tests, the tests conducted are sepak takraw service speed tests. The tools used for the test are sepak takraw fields, sepak takraw balls and stopwatches. The test is conducted by calculating the time when the ball is hit until the ball touches the sepak takraw field floor. After conducting the pre-test, the sample was given a service speed training treatment using a pecing pad for a period of 16 meetings. After that, the sample was given a post-test with the same procedure as the initial test or pre-test. After all the data has been collected, it is continued with data analysis techniques.

Results

a. **Description of the Results of the Service Speed Pretest of Sepak Takraw Athletes at Tadulako University, Palu** The data obtained from the service speed test of sepak takraw athletes before the service speed training treatment using pecing pads were:

Table 1. Results of the Service Speed Pretest of Sepak Takraw Athletes at Tadulako University, Palu

N	Valid Missing
Mean	3.3875
Median	3.37
Mode	3.55
Std. Deviation	0.15294724
Minimum	3.18
Maximum	3.56

Table 2. Posttest Results of the Service Speed of Sepak Takraw Athletes at Tadulako University, Palu

N	Valid Missing
Mean	2.28875
Median	2.29
Mode	2.34
Std. Deviation	0.04580627
Minimum	2.22
Maximum	2.34

b. Results of the Normality Test of Pretest and Posttest Data on the Service Speed of Sepak Takraw Athletes at Tadulako University, Palu

Before data analysis using t-test, data must be tested for normality first. In this study, the normality test used liliefors and can be seen in the table below:

Table 3. Normality Test of Pretest and Posttest Data

N	L COUNT	L TABLE	INFORMATION
PRETEST	0.12969376	0.28	Normal
POSTTEST	0.13160367	0.28	Normal

Thus, the pretest and posttest data are normally distributed and can be continued by analyzing further data.

Result of t-test Data on Sepak Takraw Athletes' Service Speed at Tadulako University, Palu

t-Test: Paired Two Samples for Means

	<i>pretest (in seconds)</i>	<i>posttest</i>
Mean	3.3875	2.28875
Variance	0.023392857	0.002098214

Observations	8	8
Pearson Correlation	0.976212115	
Hypothesized Mean Difference	0	
df	7	
t Stat	28.59387214	
P(T<=t) one-tail	0.000000008228389185	
t Critical one-tail	1.894578605090010000	
t Critical two-tail	2.364624251592780000	

Discussion

Based on the t-test table using *paired two sample for means* that has been done, it can be seen that there is a significant influence between the pretest and posttest data where the sample was tested before and after being given a service training treatment using a pecing pad. The table shows the results of P (T <= t) two-tail, namely 0.0000000016456778370 <0.05. The two data groups have a mean difference of 1.09875. Judging from the results of the study, it can be seen that the service training method using a pecing pad is an effective training method to improve the ability of sepak takraw athletes at Tadulako University, Palu in serving in sepak takraw games. This is in line with research conducted by (Hanafi, 2020) with the results of the study stating that the ability of each individual after being given a service speed treatment using a pecing pad can increase the speed of sepak takraw service.

It is also seen that when doing service speed training using pecing pads, each individual can vary the speed training when serving. In addition to varying the speed training, athletes can also adjust their rhythm when serving and adjust the service placement according to the opponent's weaknesses. So that it is very appropriate to the conditions during the game where athletes must be able to control the ball when serving so that they can adjust slow, medium, or fast balls.

Conclusions

Based on the results of data analysis, it was found that the study of the effect of service speed training using pecing pads on the service speed of sepak takraw athletes at Tadulako University, Palu, Tadulako obtained significant results. That means there is an effect of service speed training using pecing pads on the service speed of sepak takraw athletes at Tadulako University, Palu. Thus, this training method can be used to get better performance, especially in increasing the speed of athlete service. It is also hoped that this can improve the achievements obtained in the future.

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