

The Effect of Pair Training Program (Pair Training) on Athletes' Passing Accuracy in Sepak Takraw

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Keywords

Feeding Accuracy
Drill Partner; Sepak
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Abstract

The purpose of this study was to investigate the effect of partner training programs on the accuracy of precept graduation in early age athletes. The low accuracy of the bait due to the lack of variety in the exercise is the main background of this study. The research method used was an experiment with a One-Group Pre-test-Posttest design. The research sample consisted of 30 athletes of the Citra Kartika Sepak Takraw Club aged 8-13 years old who were determined through purposive sampling techniques. The research instrument uses a feeding precision test with a target zone system to measure the accuracy of the direction and control of the ball. Data analysis was conducted using paired t-tests to compare athletes' abilities before and after the intervention over 12 meetings. The results showed a significant increase in average score from 26.43 on the pretest to 32.07 on the posttest, with a significance value of $0.000 < 0.05$. These findings suggest that paired exercises are effectively able to improve the coordination of movements and accuracy of athletes' passes. In depth, the program provides hands-on feedback that accelerates the process of improving technique and increases the social engagement and motivation of athletes. In conclusion, paired training programs are an effective training instrument because they offer a realistic and interactive experience, making them particularly relevant to be applied in the golden age phase to optimize motor skills and basic sepak takraw techniques holistically.

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INTRODUCTION

Sepak takraw is one of the sports that requires mastery of qualified basic techniques, supported by high coordination of movements and precision. Among the various basic techniques in this sport, the ability to graduate, Especially through ethical football techniques, occupies a very important position. Accuracy in passing has a strategic role in building attacks and maintaining the continuity of the team's game. Athletes who have the ability to pass well will be able to control the course of the game effectively and create more optimal attack opportunities (Irawan et al., 2021; Kurniawan et al., 2022).

Various previous studies have proven that training methods have a great influence in improving engineering skills. The right training method will be able to reduce the mistakes made by a player (Jati et al., 2024). multimedia evaluation consisting of content, display, learning, and programming (Adi et al., 2023). (Prasetyo et al., 2021) shows that target-based training is visibly able to improve passing accuracy. Meanwhile, (Kurniawan et al., 2022) found that soccer practice was effective in improving passing accuracy. The training method has also been shown to improve basic technique skills through the repetition of structured movements (Hidayat et al., 2022). Other research has revealed that variations of exercises such as wall passing can significantly improve the control and accuracy of the Passing (Putra et al., 2023). At the international level, the repetition-based training approach and interaction between players has also proven effective in improving basic technical skills as well as movement coordination (Clemente et al., 2021; Davids et al., 2022; Ford et al., 2021).

However, most research still focuses on individual exercise, exercise methods in general, or the use of specific exercise media. Studies that specifically examine partner training programs to improve passing accuracy in early age athletes are still very limited. In fact, paired training has great potential to develop interaction, coordination, and passing accuracy through direct involvement between players in training sessions.

Based on initial observations made at Citra Kartika Sepak Takraw Club, this research is important considering that the age of 8-13 years is a sensitive period in the formation of basic motor skills, so technical weaknesses that are not handled appropriately in this phase have the potential to hinder the development of athletes at the next level (Putra et al., 2023). On the other hand, the training approach that is still centered on individual activities is considered not able to accommodate the needs of developing coordination, timing, and passing accuracy in real game situations. The lack of variety in training methods and the limited scientific studies that specifically discuss the development of basic technical skills of sepak takraw in the early age group further strengthen the urgency of this research. Thus, this research is expected to make a theoretical and practical contribution in an effort to improve the quality of coaching of early age sepak takraw athletes in a systematic and structured manner.

In the process of coaching athletes from an early age, there are still various obstacles related to low passing accuracy. Many athletes are unable to direct the ball accurately, both in terms of direction, strength, and consistency of movement. This condition is generally caused by a lack of variety in the training approach, a lack of creativity in the training program, and a lack of mastery of the basic principles of optimal football (Hidayat et al., 2022; Saputra et al., 2021). This indicates that the training method applied has not been fully able to develop engineering skills to the maximum.

The novelty of this study lies in the application of *the partner drill* training method specifically designed to improve the passing accuracy of sepak takraw athletes aged 8-13 years. In contrast to conventional drill approaches that tend to be individual and repetitive, *the partner drill* method integrates direct interaction between players in each training session, so that coordination, timing, and passing accuracy can be trained simultaneously in situations that are closer to real game conditions. As far as the research is concerned, there has not been a study that specifically applies *the partner drill* method for the development of passing skills in sepak takraw sports in the early age group, so this research is expected to be a new reference for the development of sports coaching science, especially in the context of coaching young sepak takraw athletes.

This issue is important to study more deeply considering that passing accuracy is one of the main cornerstones in the game of sepak takraw. If this ability is not optimized early, the

impact will be felt in the long term on athlete performance. In addition, the age of 8-13 years is a crucial phase in the formation of motor skills and basic sports techniques, so effective, structured, and harmonious training methods are needed to meet the developmental characteristics of athletes at that age (Alesi et al., 2022; Rahman & Firmansyah, 2024).

As an alternative solution, a partner drill paired training program can be applied as a more interactive and effective training method. This approach allows athletes to perform continuous repetition of movements with direct feedback from their partner, potentially improving coordination, ball control, and passing accuracy. In addition, this method is closer to the actual game conditions so that it is expected to optimize the overall performance of the athlete (Alesi et al., 2022; Clemente et al., 2021).

Based on the description above, this study aims to determine the effect of the partner drill paired training program on the graduation accuracy of Citra Kartika Sepak Takraw Club athletes aged 8-13 years. Although previous research has proven the effectiveness of various training methods in improving passing accuracy in sepak takraw, such as target-based exercises (Hanafi, 2020) and exercises with centralized or random objectives (Mother, 2022), studies generally focus on conventional training models without emphasizing an interactive approach. In addition, existing research has not specifically examined the implementation of paired training programs that integrate technical, social, and situational dimensions in roles. The majority of previous studies have also been conducted in general or adult athlete populations, with little attention to early age athletes, especially those aged 8–13 years who are in an important phase of motor skill development (Hulteen et al., 2022). This condition reflects a lack of empirical evidence that considers the developmental characteristics of young athletes. Therefore, this study seeks to fill the gap by investigating the influence of sports programs on pairs training pairs on the passing accuracy of young sepak takraw athletes aged 8-13 years at Citra Kartika Sepak Takraw Club.

METHODS

This study uses a quantitative approach that focuses on the use of data in the form of numbers and statistical analysis to test hypotheses and influences between variables. The type of research applied is experimental research, mainly using Pre-Experimental Design with a Pretest-Posttest One Group Design model. The design involved a group of subjects who were given a pretest before treatment, and a posttest after treatment to see the impact of the intervention given. The use of this method aims to determine the influence of independent variables on bound variables in a measurable manner.

The subjects in this study involved athletes from the Citra Kartika Sepak Takraw Club in Kendal Regency. From a total population of 53 athletes aged 8-13 years, 30 athletes were selected as a research sample determined through purposive sampling techniques based on the criteria of active training, physical health, and attendance levels. The purpose of this sample determination is so that the data obtained can represent the characteristics of the population in accordance with the research objectives to improve basic sepak takraw skills at an early age.

To obtain research data, an instrument was used in the form of an accuracy test of football passing with a target zone system adapted from standard procedures in the sport of sepak takraw. This test is carried out to measure the accuracy of the direction and control of the ball by 10 times the chances to pass towards the goal that have been determined by the score. In addition to the main data in the form of field test results (primary data), this research is also supported by secondary data in the form of club profiles and related literature to strengthen the foundation of the analysis of the results of the pair (partner drill).

The data analysis in this study was carried out through several statistical stages. Before hypothesis testing, the data first goes through a prerequisite test, which is a normality test using the Shapiro-Wilk method to ensure the distribution of data. The core data analysis technique uses a paired t-test to compare the average score between the pretest and the posttest. In addition, the N-Gain Score calculation is also used to determine the level of effectiveness or the amount of improvement in athletes' passing ability after being given a paired training program for 12 meetings.

RESULTS

This study was conducted to test the effect of partner training programs on the accuracy of passing sepak paraka in Citra Kartika Sepak Takraw Club athletes aged 8-13 years. The researcher collected data through two main stages, namely a pretest to determine the athlete's initial ability and a posttest to measure the athlete's ability after being given an exercise intervention for 12 meetings. Based on the results of the study on 30 athletes, a significant increase in passing accuracy scores was obtained.

Table 1. Descriptive Statistics

Variabel	N	Means	SD	Minutes	Max
Prates	30	26.43	5.37	18	37
Post-tests	30	32.07	5.28	23	40

Table 1 above shows the results of descriptive statistical analysis, an overview of pretest scores and posttest graduation accuracy in 30 athletes. In the pretest stage, the lowest score obtained by athletes is 18, while the highest score is 37. The average pretest score was 26.43 with a standard deviation of 5.374. This shows that before being given a structured ethical football training program, the ability to accurately pass athletes was still in the medium category, with varying abilities between athletes. After being given treatment in the form of a structured precept football training program, the posttest results showed improvement. The lowest score increases to 23, while the highest score rises to 40. The average posttest score also increased to 32.07 with a standard deviation of 5.278. An average increase of 5.64 points (32.07 – 26.43) indicates an improvement in the ability to pass accuracy after following the training program.

In addition, the standard deviation value in the posttest which is slightly lower than the pretest indicates that the results of the athlete's ability after training become more even. In other words, in addition to improving average ability, training programs also help reduce the variation in abilities between athletes.

Overall, this descriptive data shows that structured martial arts training programs have a positive impact on improving the accuracy of athletes passing through Citra Kartika Sepak Takraw Club. However, to ascertain whether the increase is statistically significant, further analysis is needed, such as a paired sample t-test.

Table 2. An example of Kolmogorov-Smirnov

Sig Name	Description
Pretest .200	Signifikan
Pascatest .200	Signifikan

Based on the results of the normality test using the Kolmogorov-Smirnov One-Sample, a significance value (Asymp. Sig. 2-tailed) was obtained for the pretest data of 0.200 and for the posttest data of 0.200. The significance value in both data groups was greater than the significance level used, which was 0.05. Thus, according to the decision-making criteria, if the significance value is > 0.05, the data is distributed normally.

Therefore, it can be concluded that the accuracy of athletes' pretest and posttest data is distributed normally. With the fulfillment of the assumption of normality, parametric statistical analysis can be used. In this study, the right test to test the difference in pretest and posttest scores is the pair sample t-test.

Table 3. Paired Sample T-Test Results

Variabel	Average (SD)	t	df	Sig. (2-tailed)
Prates – Pascates	-5.63 (0.89)	-34.672	29	.000

The test results showed that the calculated t-value = -34.672 with the degree of freedom (df) = 29. The significance value (Sig. 2-tailed) is 0.000. Since the significance value is smaller than the significance level of 0.05 ($0.000 < 0.05$), H_0 is rejected and H_1 is accepted. This means that there is a significant influence of the structured precept football training program in improving the accuracy of athletes passing through the Citra Kartika Sepak Takraw Club. Moreover, the 95% confidence interval for the average difference is in the range of -5.966 to -5.301. Since the entire range of intervals does not include zeros, this further reinforces that the difference between pretest and posttest scores is significant.

Thus, it can be concluded that a structured ethical football training program is effective in improving the accuracy of athletes passing through from the Citra Kartika Sepak Takraw Club. This training program has been shown to provide a noticeable improvement in athletes' passing abilities after participating in structured training.

The results showed that the paired training program provided a significant improvement in feeding accuracy. This is in line with the principle in sports training theory that direct interaction can increase the effectiveness of motor learning (Bompa & Buzzichelli, 2019). More specifically, paired exercises create a peer-modeling phenomenon. According to (Bandura & Walters, 2021) In social learning theory, athletes tend to absorb technical skills faster when they can observe, mimic, and compare their movements with peers directly.

This process is supported by the availability of instant feedback (Chow et al., 2020) Explains that the extrinsic feedback from this pair allows the athlete to immediately identify technical errors and make corrections on the next rep. This rapid "action-reaction-evaluation" cycle accelerates the formation of a more precise program motor than self-training. In addition to the feedback factor, this increase in feeding accuracy can be reviewed from the biomechanical aspects of motion formed during the partner's drilling process. In sepak takraw, passing using sepak precept requires limb stability and accuracy of the hit point on the ball. Paired exercises force athletes to consciously adjust the angle of the knee and ankle joints to the arrival of a varied ball (Knudson, 2021). This creates movement efficiency where athletes no longer perform excessive movements, but rather movements that are economical but have high accuracy. This automation process is the result of meaningful representation in semi-static to dynamic situations presented in training programs.

Performance improvement is also closely related to the application of progressive sports through the principle of progressive overload. By manipulating variables such as distance and pass speed, the athlete's neuromuscular system is forced to constantly adapt (Davids et al., 2022). Paired training presents a dynamic challenge referred to as affordances – opportunities for action that arise from the interaction between athletes, equipment, and the environment (Gibson, 2021). Variety in training also helps athletes adapt to different game situations that are close to real conditions (Práxedes et al., 2021).

In contrast to conventional methods that are often robotic, this interactive method trains "kinetic intelligence" in which athletes must adjust the power of the kick based on the dynamic position of their partner. This explains why the t-value of the calculations in this study was higher, suggesting that cognitive engagement in paired exercises was much more intensive than static methods (Hanafi, 2020; Mamu, 2022).

It is also important to note that pairing training indirectly trains the perceptual-cognitive abilities of young athletes. Feeding is not just a gross motor skill, but the result of a rapid cognitive process: seeing a partner's position, measuring distance, and determining the strength of touch. According to (Williams & Ford, 2022), athletes who train with interactive methods have better anticipatory abilities than those who train in isolation. Athletes aged 8-13 years are in the concrete to formal operational stage, where their ability to solve simple tactical problems on the field begins to develop through interaction with their training partners.

Subjects in the age range of 8-13 years are in the golden age phase of motor development. Neurophysiologically, this period is characterized by a very high level of synaptic plasticity, which allows the brain to form new neural pathways more efficiently (Hulteen et al., 2022). Structured exercises at this age are essential because they are the basis for complex eye-foot coordination. In addition, according to (Schmidt & Lee, 2023) In Schema Theory, paired training helps athletes build a broader "motor schema" through exercise variability. The experience of facing different types of bounces and ball directions from the pair enriches the athlete's motor memory, so that when competing, they have a richer "library of movements" to respond to field situations.

From a psychological aspect, pairing exercises meet basic human needs for social attachment (relatedness). (Opstoel et al., 2020) emphasizes that social interaction increases intrinsic motivation. When athletes feel happy and emotionally engaged, the cognitive load felt when learning difficult techniques is reduced, so the process of internalizing techniques becomes smoother (Swelling, 2021). Comprehensively, paired training programs have a positive impact not only on the technical skills of operators, but also on neurocognitive aspects, psychological resilience, and teamwork skills.

More broadly, the success of this program is also influenced by the creation of a supportive training climate. In sports psychology, the concept of co-orientation explains that mutual understanding between two athletes training together can build collective confidence (Jowett, 2023). At Citra Kartika Club, the atmosphere of paired training eliminates the psychological stress that usually arises in individual testing. The satisfaction of keeping the ball bouncing with your partner is a positive reinforcement that makes athletes more comfortable doing large amounts of reps without feeling mentally exhausted quickly.

Significant results on t-values also showed a strong skill retention effect. Exercises that involve active and emotional involvement, such as partner exercises, tend to result in more permanent motor memory. This reinforces the theory that active and social learning is much more effective for early-age athletes than authoritarian one-way instruction (Light & Harvey, 2019). Thus, the improvement in passing accuracy obtained by athletes is predicted to become a permanent skill that will continue to develop as they grow in age and flight hours. The effectiveness of this method proves that the mastery of sports skills is not just a matter of physical mechanics, but the result of complex interactions between the nervous system, social dynamics, and environmental adaptation.

CONCLUSION

This study concluded that the *partner drill training program* had a significant effect on improving the accuracy of precept passing in Citra Kartika Sepak Takraw Club athletes aged 8–13 years, which was evidenced by an increase in the average score from 26.43 in the pretest to 32.07 in the posttest with a significance value of $0.000 < 0.05$. These findings are in line with Rahman & Firmansyah (2024) who assert that structured training methods that involve direct interaction between players have been shown to be more effective in developing basic technical skills than individual training approaches. The results of this study also strengthen the view of Alesi et al. (2022) that the age of 8–13 years is a crucial phase in the formation of motor skills, so that the application of training methods that are in accordance with the characteristics of athletes' development in this phase has a more optimal impact. The effectiveness of the *partner drill* method in this study stems from its ability to provide a realistic, interactive, and contextual training experience, so that coordination, timing, and passing accuracy can develop simultaneously in situations that are close to real game conditions. Therefore, coaches and sports practitioners are advised to consider the application of the *partner drill* method as part of a structured training program, especially for early age sepak takraw athletes.

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