

The Impact of Drill Exercise and Games Approach on Improving Under-Passing Ability in Adolescent Female Volleyball Athletes

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Abstract

Background: A long-term training process is required to train athletes, which requires systematic, targeted, planned, and repetitive handling. Training methods improve the mastery of fundamental techniques for beginner athletes. Training volleyball methods are essential for beginners as they make the exercise more focused and gradual to improve their under-passing. Coach training methods make it easier to give practical and concentrated exercises to the areas you want to enhance.

Objective: The study aims to determine whether drill exercise and game approach can significantly improve female athletes' use of under-passing volleyball.

Methods: With the type of research being Quasi-Experimental. The research design used was Randomized Control Group Pretest-Posttest Design. A total of 24 athletes were given treatment for two months. The instrument used was the Braddy Volleyball Test, and data analysis used the T-Test.

Results: Results for the drill exercise experimental group were $0.695 > 0.05$, and for the experimental group, the playing method was $0.695 > 0.05$. This means that drill exercises and game approaches significantly improve the skills of passing volleyball.

Conclusion: In experimental groups, I and II, athletes who were given a drill exercise program and game approach both improved their skills in the basic techniques of skills under-passing volleyball. The average posttest results of both groups of experiments are higher than the average pretest results. It shows a difference between the drill exercise program and the game approach.

Keywords: volleyball, under-passing, drill exercise, game approach.

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INTRODUCTION

Training methods have the effect of improving the mastery of essential technical skills in novice athletes. The process of training that can produce success is achievement. In training, there is a goal that becomes a target in a match or competition. Targets in training help athletes clarify their focus and goals (Birnikov et al., 2022). In principle, training is a process of change for the better, namely improving the physical quality, functional ability of body equipment, and psychological quality of athletes (Pratama, 2016). Players who master basic techniques better will find it easier to master advanced or more difficult techniques compared to players whose mastery of basic techniques is still low (Pratama et al., 2022). Knowledge of basic techniques is essential and must be mastered by every player to achieve maximum achievement (Danilova et al., 2022). It can improve athletes' skills, increase insight, and help them become more creative, sportsmanlike, and confident (Isman, 2020). In addition to effective athlete training coaching, high-quality training methods are also needed to support athlete training, one of which is the practice of basic volleyball techniques.

The basic techniques must be developed since children cover all the abilities in the volleyball game and are adapted to the player's abilities (Hidayat et al., 2018). Basic technique is an essential skill that an athlete must possess before reaching proficiency; therefore, basic techniques are needed by athletes to achieve achievements (Dafer et al., 2021). With the practice of basic techniques under the guidance of a trainer, it is easier to provide an effective and focused exercise program for what you want to improve. Improving skills and passing below are many training methods that can be used, one of which is exercise drills and a game approach.

The relationship between drills exercise and the game approach in the volleyball training process is very related. An exercise drill does a specific movement repeatedly without any other direction (Rahmad & Sanusi, 2019). Exercise drills help muscles record activity so that movement automation occurs (Corbett et al., 2018). Exercise with a drill can also improve the discipline and automation of volleyball athletes' movements, train-directed reflexes, and spontaneous attitudes. While the playing method must be packaged in an exciting and fun way so that athletes are more active in training and feel motivated to practice the exercises given by the coach, Fun play will result in a training process for the athlete, and every sport should be done with a sense of pleasure (Isman, 2020).

With drill exercises and a game approach, it can be an effort to overcome, especially regarding improving skills under passing. Under-passing is the athlete's attempt to pass the ball to teammates using both inner arms. In practicing under-passing in a club, of course, you must know the basic techniques and rules of volleyball. This is very important for athletes because it can make practicing the basic technique of under-passing volleyball easier. So many factors explain why the under-passing skills are so lacking. In volleyball under-passing practice, several problems arise, namely: 1) athletes still have difficulty practicing basic under-passing volleyball techniques; 2) athletes do not have the opportunity or are too lazy to move, especially the basic movement of under-passing techniques; 3) coaches pay less attention to athletes' behavior; and 4) in practicing under-passing volleyball, there are still mistakes for various reasons, such as the ill-fitting of the ball in hand.

Previous literature studies found several things. Research conducted by [Susanto et al. \(2021\)](#) showed the effect of drill exercises on improving the passing ability under volleyball in extracurricular students at State Secondary School 2 Karangayung. The habit of repeatedly making under-passes impacts his ability to under-pass in volleyball games, which is improving daily. According to research by [Hidayat et al. \(2018\)](#), based on the analysis of the review article, applying the training passing down with the drill model can improve the ability to pass under volleyball players. Research by [Dafer et al. \(2021\)](#) shows that exercises using play-practice methods can improve under-passing abilities. Factors associated with the exercise process, such as intensity, duration, volume, frequency, and intervals of exercise, all significantly affect the results of the exercise, regardless of the findings of this study.

Previous research predominantly used one exercise model in adolescents aged 14-17 years and focused on extracurricular activities in school only. This study used two training models adjusted for the age of female athletes 10-15 years (puberty) and conducted in volleyball clubs. Physical development at this age has already entered the skill development stage at 7–14 years. Basic balance skills, locomotive movements, and manipulation are improved, combined, and trained in various situations. So, with appropriate training based on the characteristics of athletes, the training will affect and improve the basic technique of under-passing volleyball in female athletes aged 10-15 years.

METHOD

Study Design

This research is quantitative by approach Quasi-Experimental. The research design used in this study is a Randomized Control Group Pretest-Posttest Design for grouping athletes using ordinal pairing, where later, the research subjects will be grouped according to the test results from the best to the lowest.

Participants

The population in this study was female athletes aged 10-15 years at Bintang Mas Munjungan Club, totaling 24 participants. The exercise program that researchers provide for athletes is a drill exercise and game approach.

Research Instruments

The research was conducted using tests, namely the Braddy Volleyball Test. The Braddy Volleyball Test intends to assess an individual's skills in playing volleyball. Braddy Volleyball Test. This modified one is shown for female athletes aged 10-15 years at the Bintang Mas club, and data analysis uses the T-Test.

Data Analysis

The One-way ANOVA test was used to analyze the data that did not provide the parametric test assumptions. $p < 0.05$ was considered significant. The statistical package SPSS 22.0 for windows was used to analyse all data.

RESULTS AND DISCUSSION

Drill Exercise

[Table 1](#), drill exercise as a variable treatment has a mean or average value of 46.8750, which means that the average contribution of drill exercise to under-passing skills is 46.8% with a maximum value of 60.0%. With a standard deviation of 7.39570, which means that the maximum increase in the average of the drill exercise variable is +7.39570, while the maximum decrease from the average variable drill exercise is -7.39570, or it can be said that the average deviation value of the drill exercise variable is 7.39%. From the data above, the data on improving the Experiment I drill exercise on under-passing skills is categorized as very good.

Table 1. Descriptive Drill Exercise for Under-Passes

Experiment	Test	Descriptive				
		Mean	Median	Std Deviation	Min	Max
Drill Exercise	Pretest	30.6250	31.5000	7.11010	20.00	39.00
	Posttest	46.8750	46.5000	7.39570	38.00	60.00

Game Approach

Table 2 shows that the game approach as a variable treatment has a mean or average value of 42.3750, which means that the average contribution of the game approach to under-passing skills is 42.3%, with a maximum value of 58.0%. With a standard deviation of 9.31876, which means that the maximum increase in the average of the game approach variable is +9.31876, while the maximum decrease from the average variable game approach is -9.31876, or it can be said that the average deviation value of the game approach variable is 9.31%. From the above data, the improvement data of the experiment II game approach against under-passing skills is categorized as very good.

Table 2. Descriptive Game Approach for Under-Passes

Experiment	Test	Descriptive				
		Mean	Median	Std Deviation	Min	Max
Game Approach	Pretest	29.0000	27.5000	7.11136	18.00	39.00
	Posttest	42.3750	41.5000	9.31876	30.00	58.00

Control Group

Table 3 Control as a variable without the treatment given has a mean or average value of 33.0000, which means that the average contribution of control to under-passing skills is 33.0% with a maximum value of 40.0%. With a standard deviation of 5.34355, which means that the maximum increase in the average of the control is +5.34355, while the maximum decrease from the average power is -5.34355, or it can be said that the average deviation value of the power is 5.34%. From the above data, the improvement data of Experiment III, the control of the skills under-passing, is much different from the two previous experimental groups.

Table 3. Descriptive Control Group for Under-Passes

Experiment	Test	Descriptive				
		Mean	Median	Std Deviation	Min	Max
Control Group	Pretest	27.5000	30.5000	6.27922	18.00	37.00
	Posttest	33.3750	33.0000	5.34355	26.00	40.00

Hypothesis Testing

T- Test

The t-test measures the game approach's effect and the test step's drill exercise program.

Table 4. Test Result Data for Each Group

Experiment	Pair	T Count	Sing (2-tailed)	Status
Drill Exercise	Pretest – Posttest	-7.638	.000	Different
Game Approach	Pretest – Posttest	-5.909	.001	Different
Control	Pretest – Posttest	-1.641	.145	Different

Table 4 shows the differences after and before the treatment for each variable, dependent on the drill exercise group and the game approach group. The significant levels of each variable are 0.000 and 0.001, or $p < 0.05$. So, there is a difference between the drill exercise program and the game approach to under-passing. However, compared to both experimental groups, there were slight differences in the control group.

One Way Anova

Table 5. Test Results One Way Anova

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	675.083	2	337.542	7.044	.005
Within Groups	1006.250	21	47.917		
Total	1681.333	23			

Table 5 shows that the significant level of each variable is 0.05 or, in other words, $P < 0.05$. So, there is a difference after being given a training program with drills and a game approach towards improvement.

Test Results of Dependent Differences Between Groups

The mean difference between groups was tested using Analysis of Variance (ANOVA). For the Post Hoc Test using at least three variables, the control data is tested together with the data of the two experiments. The results of Post Hoc Tests with LSD for the three experiments can be seen in Table 6.

Table 6. Post Hoc Test Results With LSD

No	(I) Exercise Method	(J) Exercise Method	Mean Difference (I-J)	Significant (P)
1	Drill Exercise	Game Approach	1.37500	0.695
		Control	11.87500*	0.003
2	Game Approach	Drill Exercise	-1.37500	0.695
		Control	10.50000*	0.006
3	Control	Drill Exercise	-11.87500*	0.003
		Game Approach	-10.50000*	0.006

*. The mean difference is significant at the 0.05 level.

Table 6 shows that there were significant changes among the three experimental groups. The difference can be seen from the significant data above, which gives a meaning of the difference in influence on improving skills under passing between groups; thus, it can be explained that: (1) drill exercise group mean difference = 11.87500 with significant 0.003 (2) group of game approach mean difference = 10.50000 with significant 0.006. For the experimental group, drill exercise and game approach significantly improved the volleyball skills under-passing of female athletes 10-15 years.

DISCUSSION

In a game of volleyball, passing is indispensable if the basic technique of under-passing is good, so it will be easier to design an offensive tactic. Under-passing is the earliest basic technique taught to students or beginner players. To play volleyball well, one must understand and be able to master ball possession techniques (Hidayat et al., 2018). With practice, drills can improve Skills in under-passing volleyball. Drilling is an excellent way to get used to making moves in volleyball (Machado et al., 2021). The game approach is indeed one of the efforts designed to improve volleyball playing skills; although it has little effect, it still has meaning in improving volleyball skills, one of which is basic techniques passing below (Astuti, 2017; Rahmad & Sanusi, 2019).

The provision of drill exercises and a game approach can provide better results than conventional training in volleyball skills under-passing of athletes aged 10-15 years. From the results of the significance test using the post hoc test, it was stated that there was a significant difference between the provision of drill exercise and the game approach. At the same time, the control group had a relatively small effect on improving the skills of athletes aged 10-15 years under-passing volleyball.

Under-passing is a supporting element in the basic volleyball technique that needs to be considered, including a training program with practice drills and a game approach. Passing A well-done under affects the outcome of a volleyball game (Destriana et al., 2020). The existence of an exercise program with drills and a game approach will have a positive influence on improving skills. The volleyball exercise drill and game approach enhance volleyball skills, including the basic techniques described below. Still, each method has a different effect because the exercise program with drills and the game approach has other characteristics (Astuti, 2017).

Athletes who undergo training using the drill method tend to have better skills than others ([Samsudin & Rahman, 2016](#)). The provision of exercises and drills and a game approach can give better results than conventional training of skill passing under volleyball for female athletes aged 10-15 years. The results of the significance test using the post hoc test state that there is a significant difference between the provision of drill training and the game approach to improving the ability of under-passes in volleyball.

A group exercise program with drills shows improvement in skills for under-passing volleyball. Exercise drills show improvement in technique passing. Below is the data from the pretest to the post-test. This is in line with the research of [Rahmad & Sanusi \(2019\)](#) who found that exercise drills can increase underpassing and improve expertise, skills, habits, and good technique in playing volleyball.

The group exercise program game approach from the data pretest to the post-test shows skill improvement under passing volleyball. This is in line with the research of Syarif et al., stating that the method of playing significantly influences improving skills under-passing volleyball ([Hidayat et al., 2018](#)). The control group from pretest to post-test data showed improvement in skills under-passing volleyball, but the improvement was relatively small than in the drill practice group and the game approach group.

Thus, exercise, drills, and game approaches can be used in basic technique training for under-passing volleyball. However, there is a tendency to implement exercise programs with drills. It is more effective in terms of training results after two months. This aligns with Astuti's research, stating that the test results with the drill method are better than those with the game approach ([Astuti, 2017](#)).

CONCLUSION

Based on the results of research conducted on the effect of drill exercise and game approach on improving volleyball skill under passing in athletes aged 10–15 years, Based on the data that has been collected and the tests that have been carried out, the following conclusions can be drawn: 1) drill exercise affects the passing skills of volleyball athletes. 2) Game Approach affects passing skills in volleyball athletes. 3) The control group did not affect the volleyball skills under-passing of athletes.

CONFLICT OF INTEREST

The author officially certifies that there are no conflicts of interest with any party with respect to this research.

AUTHOR'S CONTRIBUTION

Dwi contributed to preparing concepts, formulating methods, and conducting research. Pratama contributed to processing the results, interpreting, and drawing conclusions. Santoso contributed to processing the results, interpreting them, and drawing conclusions. Putro contributed to processing the results, interpreting them, and drawing conclusions.

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