

Analysis of Underhand Serve Ability in Volleyball Game Among Extra-Curricular Students at Bahrul Ulum Islamic Boarding School, Pasir Utama, Rokan Hulu Regency

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ABSTRACT

ARTICLE INFO

Article History

Received: 12-03-2026

Accepted: 13-03-2026

Keywords:

Analysis, ability, underhand serve, volleyball, santri islamic boarding school students

The purpose of this research is to investigate and analyze in detail the level of underhand serve ability in the volleyball game among students participating in the extra-curricular activities at Bahrul Ulum Islamic Boarding School, Pasir Utama, Rokan Hulu Regency. The underhand serve is a crucial basic technique used to initiate the first attack in a volleyball match. Based on preliminary observations, there were indications that many students had not yet mastered the basic technique of the underhand serve correctly and properly. The research method used is quantitative descriptive with a survey approach. This method was chosen to capture and describe the real condition of the research subjects' skill levels without providing any intervention or treatment. The population of this study was all students who are members of the Bahrul Ulum Islamic Boarding School volleyball extra-curricular club. The data collection instrument was a volleyball underhand serve ability test, and the collected data were analyzed using descriptive statistical techniques. The analysis results indicate that the level of volleyball underhand serve ability among the extra-curricular students at Bahrul Ulum Islamic Boarding School is distributed across various categories, with the majority of students falling into the Fair and Poor categories. The conclusion of this study is that the level of volleyball underhand serve ability among the extra-curricular students at Bahrul Ulum Islamic Boarding School still needs improvement. It is hoped that these analysis results can provide clear information and insight for the extra-curricular coach to design a more effective and targeted training program, focusing on the refinement of the basic underhand serve technique so that the students' abilities can increase significantly.

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Published by <https://ojs.ucp.ac.id>



 <https://doi.org/10.65943/jikor.2026.v1.i2.69>



INTRODUCTION

Sport is one of the educational media that is widely favored by society because, in addition to promoting physical health, it also contributes to the development of moral values, discipline, and cooperation (Salahudin et al., 2024). One of the sports that is popular and easy to learn is volleyball (Sutriawan & Syafruddin, 2023). Volleyball is played by various groups of people, ranging from children to adults, both in urban and rural areas. This sport is relatively simple because it does not require high costs, large fields, or complex facilities,

making it easily accessible to the wider community.

Volleyball is a complex team sport that requires good movement coordination (Yahya et al., 2026). Success in this game largely depends on the mastery of basic techniques such as serving, passing, smashing, and blocking (Nyatara et al., 2026). A serve is an attempt to send the ball into the opponent's area by hitting it with one hand or arm by a back-row player from the service area (Noerjannah & Sudijandoko, 2016).

Serving, as one of the fundamental techniques, plays a strategic role because it initiates the rally and creates opportunities for a team's attack (Pawlik et al., 2024). The underhand serve is one of the techniques that is relatively easy to learn but plays an important role in effectively building a team's attacking pattern (Hudain et al., 2026). Forearm passing and overhead passing function as connectors between players when constructing attacks, while the smash and block become decisive elements in scoring points or preventing the opponent from scoring (Risma & Bakhtiar, 2024).

At Bahrul Ulum Islamic Boarding School in Pasir Utama, Rokan Hulu Regency, volleyball extracurricular activities are among the non-academic programs favored by students. Based on preliminary observations, the students' underhand serving ability shows considerable variation, with some students not yet mastering the technique properly. This indicates the need for an analysis of underhand serving ability in order to provide coaches with an objective description of the level of technical mastery and to assist them in designing more effective training programs.

Theoretically, individual ability in sports can be understood as a person's capacity or capability to perform various tasks related to physical and intellectual performance (Trecroci et al., 2021). This ability is influenced by training, experience, and habitual engagement in sports activities. More specifically, mastery of basic volleyball techniques, including the underhand serve, requires physical skills, motor coordination, and an understanding of game strategies. According to Kurniawan & Mutiarani (2024) the underhand serve is performed by hitting the ball from below upward to send it into the opponent's area. This technique requires a combination of strength, accuracy, and proper body positioning.

Volleyball itself has a long history. Morgan (1895) created the sport as an alternative to basketball with the aim of providing a team game that was safe and enjoyable. Since then, volleyball has developed into a competitive team sport that requires an understanding of tactics, techniques, and teamwork (Jabbarov, 2024). The main principle of the game is to direct the ball into the opponent's area so that the opponent cannot return it; therefore, each player must understand their position, role, and responsibilities on the court (Abidin & Siregar, 2025).

Previous studies have shown the importance of evaluating basic technical skills in improving player performance. For example, Syamsuryadin et al. (2021) examined the open smash technique among youth volleyball club athletes and found variations in the mastery of this basic technique, which can serve as a basis for designing more effective training programs. In addition, Pramudya et al. (2022) measured the level of basic volleyball skills such as serving, passing, and smashing among junior female students and confirmed that evaluating fundamental skills is an important component in improving individual abilities. Septiana et al., (2024), also reported that the capability of basic techniques in girls' volleyball extracurricular activities indicates the need for systematic evaluation to improve players'

skills. These findings confirm that measuring basic technical skills can serve as a basis for designing more effective training programs.

However, studies specifically assessing the underhand serving ability of students participating in volleyball extracurricular activities in Islamic boarding schools are still very limited. This represents a clear research gap that this study aims to address.

Therefore, this study aims to analyze the underhand serving ability in volleyball among students participating in extracurricular activities at Bahrul Ulum Islamic Boarding School, Pasir Utama, Rokan Hulu Regency. The results of this study are expected to provide objective information regarding the level of mastery of the underhand serve technique, assist coaches in designing more appropriate training programs, and serve as evaluation material and references for the development of volleyball extracurricular activities in Islamic boarding school educational environments. In addition, this study is expected to provide preliminary data for future research related to basic volleyball technical skills or other team sports among students.

METHOD

Research Design

This study employed a descriptive quantitative approach to describe the underhand serving ability of students participating in volleyball extracurricular activities. According to Sugiyono (2020), descriptive quantitative research is conducted to determine the value of independent variables, either one variable or more, without making comparisons or examining relationships with other variables. This approach was chosen to obtain an initial overview of the level of technical skills without comparing them with other variables.

Time and Place of the Study

The study was conducted in September 2025 at the volleyball court of Bahrul Ulum Islamic Boarding School, Pasir Utama, Rokan Hulu Regency, Riau Province.

Population and Sample

According to Euclides et al. (2022), population refers to the total number of subjects to be studied. The population of this study consisted of all students who participated in volleyball extracurricular activities at the Islamic boarding school ($n = 50$). Meanwhile, Sugiyono (2017) defines a sample as a part of the population that possesses certain characteristics representing the population. The sampling technique used was purposive sampling, resulting in 20 male students who had recently joined the volleyball extracurricular program. These participants were selected under the assumption that they were still in the early stages of learning basic volleyball techniques, particularly the underhand serve.

Research Instrument

A research instrument is a tool used by researchers to collect data systematically and efficiently (Puspasari & Puspita, 2022). The instrument used in this study was an underhand serve ability test. Each participant performed six service attempts, and the score was determined based on the height of the ball crossing the net and the landing area within the target zone. The final score was calculated from the four best attempts. The test was conducted

on a standard volleyball court, using a 3-meter-high net, and a target area marked with scores ranging from 1 to 5.

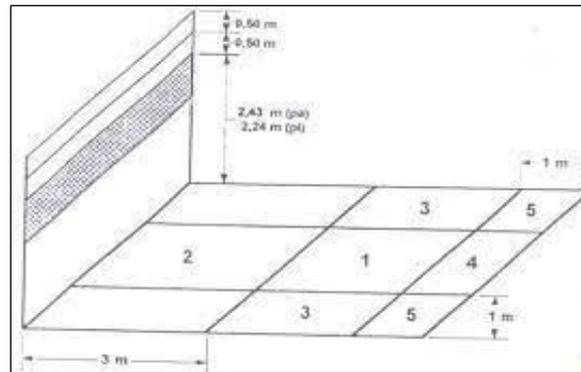


Figure 1. Underhand Volleyball Serve Test
 Source: (Hasan, 2001)

Data Collection Technique

Data collection is one of the most important stages in research because the main objective of research is to obtain data (Fitriyanti & Budiastuti, 2014). Data were collected through an underhand serve skill test to assess the participants' performance. Each participant stood behind the service line holding a volleyball and performed six consecutive underhand serves. The execution of each serve was scored based on accuracy and correctness, with points assigned according to the target zone where the ball landed, ranging from 1 to 5. If the ball landed on the boundary line between two zones, the higher score was given. The four best scores out of six attempts were summed to determine the final score for each participant. The test was supervised by personnel responsible for administering the test, observing the target area, recording the scores, and documenting the process to ensure consistency and replicability.

Data Analysis

The data were analyzed using descriptive quantitative statistics, including the mean, standard deviation, and percentage. The ability categories were determined based on the normative criteria proposed by Sudijono (2007), as presented in Table 1.

Table 1. Norm-Referenced Assessment Criteria

Norm	Category
$\geq M + 1,5 SD$	Very High
$M + 0,5 SD$ s/d $M + 1,5 SD$	High
$M - 0,5 SD$ s/d $< M + 0,5 SD$	Moderate
$M - 1,5 SD$ s/d $< M - 0,5 SD$	Low
$< M - 1,5 SD$	Very Low

Where M represents the calculated mean and SD represents the calculated standard deviation. After the data were classified into each category, the percentage of each category was calculated. According to Arikunto (2010), relative frequency or percentage tables present frequencies in percentage form rather than absolute numbers. Therefore, the following formula was used to calculate the percentage of respondents:

$$P = \frac{F}{N} \times 100\%$$

where:

P = percentage; F = frequency, dan N = total number of respondents.

RESULT AND DISCUSSION

Results

Data Description

Data presentation is an important step in research to ensure that research findings are easily understood and analyzed. The data presented should be simple and clear so that readers can interpret the results effectively. In this study, the data analysis technique used was descriptive statistics. This analysis aims to provide a general overview of the data, including the mean, standard deviation, variance, range, maximum and minimum values, as well as frequency tables and graphs.

These descriptive data are used to present the results of the analysis of underhand serving ability in volleyball among students participating in extracurricular activities at Bahrul Ulum Islamic Boarding School, Pasir Utama. The results of the analysis are presented in the form of percentage-based descriptive statistics to facilitate interpretation.

Table 2. Descriptive Statistics of Underhand Serve Ability

Variable	N	Mean	Min	Max	Variance	Range	Std. Deviation
Underhand Serve	20	5.40	0	17	15.62	17	3.95

Based on Table 2, from the 20 students who participated as samples, the average score of underhand serve ability was 5.40. This value indicates that, in general, the students' underhand serving ability is relatively low. The standard deviation of 3.95 and variance of 15.62 indicate a relatively wide distribution of data. This suggests that there are considerable differences in serving ability among the students. The range value of 17, with a minimum score of 0 and a maximum score of 17, further highlights the large variation in skill levels among the participants. Some students were unable to successfully perform the underhand serve, while others demonstrated relatively good proficiency.

Frequency Distribution Based on Norm Criteria

Descriptive statistical calculations aim to provide a clear picture of the condition of all respondents related to the studied variable. The distribution of the percentage frequency of underhand serve ability among volleyball extracurricular students at Bahrul Ulum Islamic Boarding School can be seen in Table 3.

Table 3. Frequency Distribution of Underhand Serve Test Results

Interval	Frequency	Percentage (%)	Category
≥ 11	2	10%	Very Good
7-10	5	25%	Good
4-6	5	25%	Moderate
2-3	6	30%	Poor
≤ 1	2	10%	Very Poor
Total	20	100%	

Based on the results of the data analysis and the presented graph, the study on underhand serving ability among volleyball extracurricular students at Bahrul Ulum Islamic Boarding School shows that the majority of students fall into the poor and very poor

categories. Out of the total 20 students, 6 students (30%) were categorized as having poor ability, and 2 students (10%) were categorized as very poor. Meanwhile, 2 students (10%) were categorized as very good, 5 students (25%) as good, and 5 students (25%) as moderate. Overall, it can be concluded that the average underhand serving ability of the students is relatively low, with a mean score of 5.40. The percentage distribution of the underhand serve test results is illustrated in the histogram shown in Figure 2.

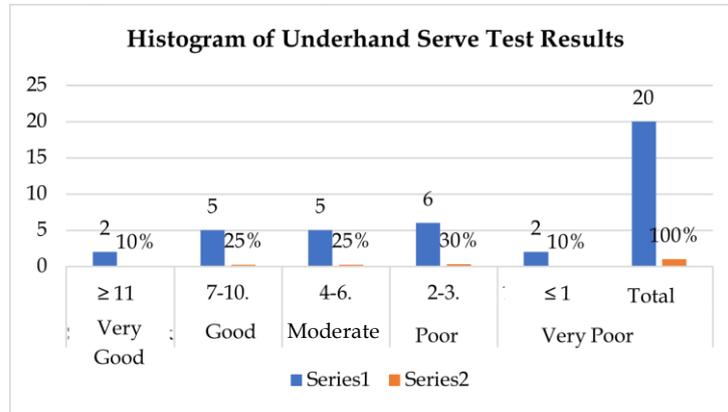


Figure 2. Percentage Distribution of Underhand Serve Test Results

Discussion

The results of this study indicate that the underhand serving ability of the 20 volleyball extracurricular students at Bahrul Ulum Islamic Boarding School varies considerably. The mean score obtained was 5.40, indicating that the overall level of underhand serving ability among the students is still relatively low. This finding suggests that the mastery of basic underhand serving techniques among the students needs to be improved through more structured and systematic training (Marsuki et al., 2025).

The distribution of the data also indicates variations in ability among the respondents. Although the average score tends to be low, several students have demonstrated relatively good mastery of the technique. However, most students fall into the poor and very poor categories. This condition suggests that coaches are dealing with a group of players with heterogeneous skill levels, where some students already possess a basic technical foundation while others still experience difficulties in mastering the fundamental movements of the serve.

This observation aligns with studies by Sutriawan & Syafruddin (2023) and Pramudya et al. (2022), who reported similar disparities in basic volleyball skills among beginner athletes. This supports the idea that individualized and progressive training approaches are necessary to address differences in skill levels.

The underhand serve is one of the most important basic techniques in volleyball, especially for beginner players. This technique is relatively easier to learn compared to the overhand serve because it does not require complex movement coordination. According to Kurniawan & Mutiarani (2024), successful execution of the underhand serve is influenced by several factors, including proper body position, controlled arm swing, and accurate contact between the hand and the ball.

The findings of this study are consistent with those reported by Sutriawan & Syafruddin (2023), who found that underhand serve ability among volleyball extracurricular participants

was generally in the moderate to low category. This indicates that mastery of basic techniques among beginner players typically requires a continuous and structured training process.

However, the results of this study emphasize that the relative simplicity of the technique does not automatically guarantee mastery. The data show that many students still experience difficulties in executing the underhand serve correctly. The main problems identified include a lack of understanding of proper technique, such as body positioning, arm swing mechanics, and the correct point of contact with the ball. These issues often result in serves that are inaccurate or fail to cross the net.

The relatively low ability level may also be influenced by several factors. Limited training experience specifically focused on underhand serving or less varied training methods may contribute to this condition (Risma & Bakhtiar, 2024). In addition, psychological factors such as nervousness or lack of confidence when performing the serve may also affect performance outcomes. Training programs that emphasize gradual repetition of fundamental movements can help overcome these challenges (Risma & Bakhtiar, 2024). The current findings are consistent with broader motor learning research, which highlights that repeated practice, constructive feedback, and gradual progression are essential for skill acquisition (Trecroci et al., 2021).

In the context of competition, the underhand serve does have certain limitations. The ball produced by this technique tends to be slower and easier for opponents to anticipate, making it less effective for scoring direct points or putting pressure on the opposing defense (Pawlik et al., 2024). At higher levels of play, the underhand serve is often replaced by more aggressive serves such as the jump float serve or spike serve. However, for students who are still at the beginner stage, mastering the underhand serve is an important prerequisite before progressing to more complex techniques.

Therefore, the results of this study can serve as a basis for coaches to evaluate existing training programs. Coaches need to design more specific and measurable training sessions to improve underhand serving ability. Training should focus on proper movement understanding, consistent repetition, and constructive feedback. Through this approach, students are expected to develop a strong technical foundation that will facilitate the learning of more advanced volleyball techniques.

Ultimately, this study highlights the importance of mastering basic techniques. Although it appears simple, the underhand serve plays a crucial role as the starting point of every rally in volleyball. Failure to master this technique can hinder the overall development of players. Therefore, serious and structured training from the early stages is essential to improve the quality of volleyball performance at Bahrul Ulum Islamic Boarding School.

CONCLUSION

Based on the results of the data analysis and the discussion presented earlier, it can be concluded that the underhand serving ability of students participating in volleyball extracurricular activities at Bahrul Ulum Islamic Boarding School is generally still in the low category. The majority of students have not yet mastered the basic technique of the underhand serve properly. These findings indicate the need for improvements and adjustments in the extracurricular training program, with greater emphasis on the teaching and repeated practice of the basic underhand serve technique so that students' abilities can improve significantly.

Based on these conclusions, coaches are advised to evaluate the existing training programs and increase the proportion of training specifically focused on underhand serve techniques. In addition, coaches are encouraged to apply more interactive and structured teaching methods, such as providing direct feedback and repeated demonstrations. Coaches should also consider the differences in students' skill levels and provide training that is tailored to the needs of individuals or small groups. For future researchers, it is recommended to conduct similar studies using different variables, such as examining the effect of specific training methods on improving underhand serve ability.

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