

Drag Shot Shooting Skills in the University of Jambi Floorball Team in 2025

Micheal Tri Ananda Mufti^{1A-E*}, Atri Widowati^{2B-D}, Yusra Dinafi^{3B-D}, Yonifia Anjanika^{4B-D}

^{1,2,3,4} Universitas Jambi, Jambi, Indonesia

trianandamuftimicheal@gmail.com¹, atri.widowati@unja.ac.id², yusra.dinafi@unja.ac.id³,
yonifia.anjanika@unja.ac.id⁴

ABSTRACT

This study aims to analyze the drag shot shooting technique skills of the Universitas Jambi floorball team in 2025. Drag shot shooting is a fundamental and decisive technique in floorball, as it directly contributes to goal scoring and overall match success. Mastery of this technique requires effective coordination, balance, and precise control of the stick and ball, making it essential to be evaluated systematically. The study employed a quantitative descriptive research design using a percentage-based analysis approach to objectively describe athletes' technical skill levels. The research sample consisted of 18 athletes, selected using a total sampling technique, representing the entire Universitas Jambi floorball team. Data were collected using a drag shot shooting skill assessment instrument developed based on ten observable technical indicators, including starting position, footwork, stick grip, gaze direction, weight transfer, ball dragging, motor coordination, stick-to-ball contact, shot accuracy, and follow-through. The results of the analysis showed that 33.33% of athletes were classified in the very good category, 27.78% in the good category, 27.78% in the moderate category, and 11.11% in the poor category. No athletes were classified in the very poor category, indicating that all participants possessed at least a basic level of drag shot shooting proficiency. In conclusion, the drag shot shooting skills of the Universitas Jambi floorball team in 2025 are generally categorized as very good, reflecting a solid technical foundation among the athletes. These findings suggest that regular and structured training contributes positively to technical mastery. Continuous technical evaluation and targeted training interventions are recommended to further improve consistency and optimize competitive performance.

ARTICLE HISTORY

Received: 2026/01/08
Accepted: 2026/02/04
Published: 2026/02/08

KEYWORDS

Floorball;
Drag Shot Shooting;
Technical Skills;
Performance Analysis;
University Athletes.

AUTHORS' CONTRIBUTION

A. Conception and design of the study;
B. Acquisition of data;
C. Analysis and interpretation of data;
D. Manuscript preparation;
E. Obtaining funding

Cites this Article : Mufti, M.T.A.; Widowati, A.; Dinafi, Y.; Anjanika, Y. (2026). Drag Shot Shooting Skills in the University of Jambi Floorball Team in 2025. **Competitor: Jurnal Pendidikan Kepeatihan Olahraga**. 18 (1), p.0441-0451

INTRODUCTION

Floorball is an indoor team sport that has experienced rapid global development over the last two decades. Originating from Scandinavia, the sport is now played in more than 80 countries under the governance of the International Floorball Federation (IFF), reflecting its increasing international recognition and competitive expansion (Kirsilä,

2023; IFF, 2024). The game is characterized by high tempo, continuous transitions, and frequent offensive-defensive exchanges, requiring athletes to demonstrate a combination of technical proficiency, physical fitness, and rapid decision-making abilities (Samsudin et al., 2024; Laaksonen et al., 2020). In Indonesia, floorball has been officially organized since the establishment of the Indonesian Floorball Association (IFA) in 2009, yet systematic research on performance-related technical skills remains limited, particularly at the university and developmental levels.

Within the structure of floorball performance, mastery of fundamental techniques—passing, dribbling, and shooting plays a decisive role in determining match outcomes. Among these, shooting is consistently identified as the most decisive technical action because it directly contributes to goal scoring, which is the primary determinant of victory (Priyanto, 2020; Lupo et al., 2019). Empirical evidence from invasion sports suggests that teams with higher shooting efficiency tend to dominate match results regardless of ball possession percentages (Gómez et al., 2018; Sarmento et al., 2020). Consequently, improving shooting accuracy and effectiveness constitutes a central objective in athlete development programs.

One of the most frequently applied shooting techniques in floorball is the drag shot, also referred to as the sweeper shot. This technique involves dragging the ball backward relative to the body before executing a rapid forward motion toward the goal, allowing greater control over ball direction and velocity (Samsudin et al., 2024). The drag shot is particularly effective in close-range situations and during dynamic offensive play because it enables deception and reduces the goalkeeper's reaction time. However, this technique is biomechanically complex and requires precise coordination between lower limb support, trunk rotation, upper limb movement, and stick-ball interaction (Knudson, 2007; Lees, 2016).

Field observations conducted during training sessions of the University of Jambi floorball team revealed that a considerable number of athletes have not yet mastered the drag shot technique optimally. Common errors include improper initial stance, inadequate weight transfer, insufficient trunk rotation, lack of visual focus on the target, and incomplete follow-through. These deficiencies not only reduce shooting accuracy but also increase movement inefficiency, potentially limiting performance improvement over time. According to Bompa and Buzzichelli (2015), persistent technical errors during skill execution may become ingrained motor patterns that hinder long-term athlete development if not systematically identified and corrected. Therefore, an objective and structured analysis of drag shot shooting skills is urgently needed as a foundation for evidence-based coaching interventions.

Recent literature in sports science emphasizes that shooting performance in invasion sports is influenced by an interaction of biomechanical, physiological, and perceptual-cognitive factors (Knudson, 2007; Lees, 2016; McGarry et al., 2022). Studies in ice hockey, field hockey, and floorball indicate that shooting accuracy is strongly associated with effective kinetic chain sequencing, balance control, and optimal force transfer from the lower to upper body segments (Pearson et al., 2019; Pihkala et al., 2021). In floorball specifically, research has demonstrated that successful drag shots are

characterized by efficient trunk rotation, stable base of support, and precise stick-ball contact timing (Laaksonen et al., 2020; Samsudin et al., 2024).

From a motor learning perspective, technical skill is defined as the ability to perform movements accurately, efficiently, and consistently across varying contexts (Schmidt et al., 2019). Skill acquisition is not an instantaneous outcome but rather the result of a structured and continuous training process that integrates feedback, repetition, and task specificity (Maliah et al., 2023; Wulf & Lewthwaite, 2016). Measurement of technical skills, therefore, requires valid and reliable indicators that capture movement quality rather than solely outcome variables such as goal success.

Several studies have proposed observational and biomechanical assessment frameworks to evaluate shooting techniques in team sports. For instance, Gómez et al. (2018) employed performance indicators to assess shooting efficiency in elite competitions, while Sarmiento et al. (2020) highlighted the importance of contextual variables in interpreting technical performance. In floorball, however, empirical investigations have predominantly focused on match analysis, injury epidemiology, and physical demands, with relatively limited attention given to detailed technique-specific assessments, particularly at the developmental level (Pihkala et al., 2021; Kirsilä, 2023).

Furthermore, existing assessment approaches often rely on general performance outcomes, such as shot speed or goal percentage, without systematically examining the underlying movement components that determine technical quality. Sugiono (2016) emphasizes that technical skill evaluation should be based on observable movement indicators that are assessed systematically and objectively. This approach allows coaches and researchers to identify specific deficiencies in technique execution and design targeted training interventions accordingly.

Despite the growing popularity of floorball and the recognized importance of shooting skills, several critical research gaps remain evident. First, there is a scarcity of empirical studies that specifically analyze drag shot shooting techniques in floorball athletes using structured and indicator-based assessment instruments. Most existing studies focus on elite-level match statistics or general performance outcomes, leaving a gap in understanding technique execution at the university and developmental levels.

Second, limited research has integrated biomechanical principles with practical observational assessments to evaluate shooting skills in floorball. While biomechanical studies in related sports have demonstrated the importance of kinetic chain coordination, balance, and force transfer, these insights have not been sufficiently translated into applied assessment models for floorball shooting techniques.

Third, in the Indonesian context, research on floorball performance remains underdeveloped. There is a lack of locally grounded empirical evidence that reflects the technical characteristics and training realities of Indonesian floorball athletes. This gap limits the ability of coaches and sport institutions to design evidence-based training programs tailored to athlete needs.

Finally, existing studies rarely provide standardized movement indicators that can be used consistently by coaches and researchers to evaluate drag shot proficiency. As a

result, technical evaluation often relies on subjective judgment rather than objective criteria, reducing the reliability of performance assessments and limiting their utility for long-term athlete development.

Based on the identified problems and research gaps, the purpose of this study is to analyze the drag shot shooting skills of floorball athletes using a structured and objective assessment framework. Specifically, this study aims to: (1) identify the level of mastery of drag shot shooting techniques among university-level floorball athletes; (2) analyze technical performance based on observable movement indicators, including initial stance, weight transfer, trunk rotation, stick-ball contact, and follow-through; and (3) provide empirical evidence that can serve as a foundation for targeted coaching interventions.

The novelty of this study lies in its integration of biomechanical principles and systematic observational indicators to evaluate drag shot shooting skills in floorball. Unlike previous research that emphasizes outcome-based measures, this study focuses on movement quality as the core determinant of technical proficiency. In addition, this research contributes original empirical data from the Indonesian floorball context, addressing a significant gap in the literature and supporting the development of evidence-based training models at the developmental level. By offering a structured and replicable assessment approach, this study is expected to enrich the scientific discourse on floorball performance analysis and provide practical implications for coaches, educators, and sport scientists aiming to enhance shooting effectiveness in floorball.

METHODS

Research Design

This study used a descriptive quantitative approach, aiming to objectively describe the drag shot shooting skill levels of athletes on the University of Jambi floorball team in 2025. The quantitative descriptive approach was chosen because it is suitable for identifying, measuring, and classifying the level of mastery of sports technical skills based on systematically observed indicators without manipulation of treatment (Creswell & Creswell, 2018; Sugiyono, 2019). In the context of sports coaching science, this method is widely used to map athletes' technical skill profiles as a basis for planning evidence-based training programs (Bompa & Buzzichelli, 2015; Maliah et al., 2023).

Research Location and Time

The study was conducted on the University of Jambi floorball court, Sports and Health Education Study Program (PORKES), which is the regular training location for the university's floorball team. This location was chosen to ensure that the data collection process took place in ecologically representative conditions, thus reflecting the athletes' technical performance in actual training situations (Davids et al., 2015; McGarry et al., 2022). The study was conducted in 2025, corresponding to the team's development period.

Population and Sample

The population in this study was all 18 athletes from the University of Jambi floorball team in 2025. The sampling technique used total sampling, where all members of the

population were included in the study sample. Total sampling was deemed appropriate because the population was relatively small and all athletes were actively involved in the same training program, allowing for a comprehensive and accurate picture of technical skills (Fraenkel et al., 2019; Thomas et al., 2015).

Research Instrument

The research instrument consisted of a drag shot shooting skill assessment sheet, developed based on a literature review of biomechanics, motor learning, and technical analysis in sports. This instrument covers ten key technical indicators: (1) starting position, (2) footwork, (3) stick grip, (4) gaze direction, (5) weight transfer, (6) ball dragging, (7) motor coordination, (8) stick-to-ball contact, (9) shot accuracy, and (10) follow-through.

The determination of these indicators is based on the principles of the kinetic chain, body segment coordination, and movement efficiency, which have been widely discussed in biomechanics studies of sports technique (Knudson, 2007; Lees, 2016; Pearson et al., 2019). Previous research has shown that shooting success in invasive sports is significantly influenced by initial postural stability, effective force transfer from the lower to upper extremities, and follow-through quality (Gómez et al., 2018; Laaksonen et al., 2020; Pihkala et al., 2021).

The instrument is structured as an observational rating scale, allowing each indicator to be directly observed and assessed against technical performance criteria. This observational approach aligns with recommendations for evaluating technical skills in sports, which emphasize observing movement quality, rather than solely the final result (Sugiono, 2016; Schmidt et al., 2019).

Data Collection Procedure

Data was collected through a structured drag shot shooting skills test. Each athlete was asked to perform a drag shot according to a predetermined procedure. During the test, researchers observed each technical indicator using a prepared assessment sheet. To increase objectivity and consistency of assessment, observations focused on movement sequences and technique alignment with basic biomechanical principles (Knudson, 2007; Davids et al., 2015).

The direct observation approach was chosen because it has proven effective in assessing technical skills in sports, particularly in disciplines that require complex coordination and precise movement (Sarmiento et al., 2020; Maliah et al., 2023). All data collected was recorded and summarized for subsequent analysis.

Data Analysis Technique

The observational data were analyzed using descriptive percentage analysis, with the aim of classifying the athletes' drag shot shooting skill levels into very good, good, adequate, and poor categories. Descriptive analysis is widely used in sports coaching research to present a clear and easily understood picture of athletes' technical performance for both coaches and practitioners (Thomas et al., 2015; Creswell & Creswell, 2018).

The analysis results are presented in percentages and skill category distribution tables, thus providing a basis for technical evaluation and decision-making in training program planning. This approach allows for the identification of technical aspects that have been

mastered well, as well as movement components that still require improvement through focused and continuous training (Bompa & Buzzichelli, 2015; Wulf & Lewthwaite, 2016).

RESULTS AND DISCUSSION

Result

This study aimed to determine the drag shot shooting skill level of athletes on the University of Jambi floorball team in 2025. Data were obtained through a drag shot shooting skills test administered to 18 athletes as study subjects. Assessment was conducted using an observation sheet consisting of ten indicators of drag shot shooting technique.

Based on the data processing results, an overall score of 130 was obtained, with an average score of 7.22, a median of 7.5, a standard deviation of 2.34, a minimum score of 3, and a maximum score of 10. These scores indicate variation in drag shot shooting skills among athletes, but generally within the good category.

The results of the drag shot shooting skill assessment for each athlete showed that some athletes received very high, medium, and low scores. The athlete with the highest score received a score of 10, while the lowest score was a 3. This variation in scores indicates differences in the level of drag shot shooting technique mastery among athletes on the University of Jambi floorball team.

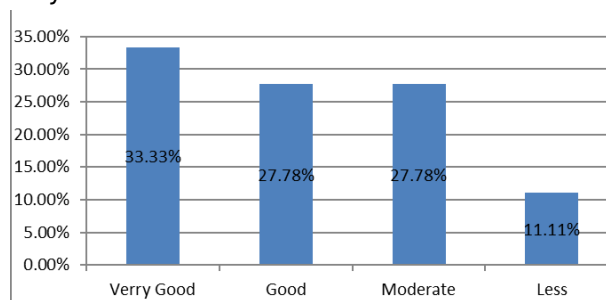


Figure 1.

Distribution of drag shot shooting skills of UNJA 2025 floorball team

Based on the table, it can be seen that the drag shot shooting skills of the University of Jambi floorball team athletes are predominantly in the "very good" category, with 6 athletes (33.33%). Furthermore, 5 athletes (27.78%) are in the "good" and "moderate" categories, respectively. Meanwhile, 2 athletes (11.11%) are in the "poor" category, and no athletes are in the "very poor" category.

Visually, the diagram shows that the "very good" category has the highest bar, followed by the "good" and "moderate" categories, while the "poor" category has the lower bar. This confirms that, in general, the athletes on the University of Jambi floorball team have good drag shot shooting skills.

The results of this study indicate that the drag shot shooting skills of the University of Jambi floorball team athletes in 2025 are in the "very good" category. This is believed to be influenced by the frequency of routine training, three times a week, and coaching support in shooting technique. Therefore, athletes' drag shot shooting skills can be an important asset in improving team performance during matches.

Table 1.

Frequency Distribution of Drag Shot Shooting Skills of the UNJA Floorball Team in 2025

Class Interval	Category	Frequency	Percentage
9-10	Very Good	6	33,33
7-8	Good	5	27,78
5-6	Average	5	27,78
3-4	Poor	2	11,11
1-2	Very Poor	0	0,00
Total		18	100,00

Discussion

The results of the study indicate that the drag shot shooting skill level of athletes from the University of Jambi floorball team in 2025 was generally in the high category, with the largest proportion of athletes in the very good category (33.33%), followed by good and fair categories at 27.78% each. Only a small proportion of athletes were in the poor category, and no athletes were found in the very poor category. These findings indicate that the majority of athletes have a strong technical foundation for drag shot shooting, both in terms of motor coordination, stick control, and shooting accuracy.

The dominance of the very good and good categories can be understood as the result of structured and consistent training. Sports coaching literature confirms that mastery of sport-specific technical skills is highly dependent on training frequency, the quality of program planning, and the continuity between technical training and physical conditioning (Bompa & Buzzichelli, 2015; Turner, 2016; Maliah et al., 2023). The three-times-a-week routine practiced by the University of Jambi floorball team allows for neuromuscular adaptation and the development of relatively stable movement patterns, enabling athletes to execute drag shots with a high degree of consistency.

From a biomechanical perspective, the drag shot is a shooting technique that requires efficient energy transfer through the kinetic chain, starting with the stability of the supporting foot, through torso rotation, and through to the acceleration of the arm and stick in the final phase of the shot (Knudson, 2007; Lees, 2016). Recent research in floorball and similar invasive sports shows that quality weight transfer, stick-ball contact timing, and optimal follow-through contribute significantly to shot accuracy and speed (Laaksonen et al., 2020; Pihkala et al., 2021; McGarry et al., 2022). The high percentage of athletes in the excellent category in this study indicates that most athletes have effectively integrated these biomechanical components.

These findings also align with the results of a study by Samsudin et al. (2024) stated that the drag shot offers a higher level of control than other shooting techniques because it allows for longer and more targeted stick-ball contact. Therefore, athletes who master this technique tend to be able to control the direction and speed of the ball more precisely, especially in dynamic and high-pressure game situations. Research by Radtke et al. (2021) and Lupo et al. (2019) also confirms that the quality of shooting technique is a primary determinant of goal-scoring success in floorball and similar team games.

However, the presence of athletes in the adequate and inadequate categories indicates that disparities in technical mastery persist within teams. Athletes in these

categories may experience difficulties in body segment coordination or movement consistency, particularly in the transition phase from ball dragging to shot contact and follow-through. Knudson (2007) explains that technical errors often occur when energy transfer from the lower to upper extremities is suboptimal, or when athletes fail to maintain dynamic balance during movement execution. This finding is supported by the findings of Pearson et al. (2019) and Gómez et al. (2018) who stated that a small deficit in one movement component can significantly impact overall shooting quality.

From a motor learning perspective, variations in skill levels between athletes reflect differences in skill mastery stages. Athletes in the excellent category tend to be in the autonomous stage, where movements can be performed stably with low cognitive demands. Conversely, athletes in the adequate and poor categories are still in the associative stage, characterized by performance fluctuations and the need for more intensive feedback (Schmidt et al., 2019; Wulf & Lewthwaite, 2016). Therefore, an individualized and corrective training approach is crucial to bridging this skill gap.

The absence of athletes in the "very poor" category is a positive finding, indicating that all athletes have at least a basic understanding of the drag shot technique. This indicates the effectiveness of the coaches' basic technique development. Sugiyono (2016) and Thomas et al. (2015) emphasize that systematic and ongoing skill evaluation allows for early detection of technical errors and prevents the formation of inefficient movement patterns. In this context, the use of a movement indicator-based assessment instrument, such as the one used in this study, makes a significant contribution to the quality of technique evaluation.

Empirically, the results of this study are consistent with previous studies confirming the relationship between shooting technique mastery and match performance. Sarmiento et al. (2020) and Gómez et al. (2018) showed that athletes with high levels of technical skill are more likely to produce effective shots in competitive situations. Although this study is descriptive in nature and does not directly link drag shot skills to match data, the findings provide an initial indication that the University of Jambi team has good technical potential to develop to a higher level of performance.

From a practical perspective, the results of this study have direct implications for coaches and trainers. Training programs should be maintained for athletes in the excellent and good categories, while specific interventions should be implemented for athletes in the fair and poor categories. Biomechanics-based training, the use of drag shot drills with varying angles and distances, and simulated match conditions are considered effective in improving technical consistency (Davids et al., 2015; Turner, 2016; McGarry et al., 2022). Furthermore, providing visual or video-based feedback can help athletes understand movement errors more concretely.

As a limitation, this study did not integrate match performance variables such as goal effectiveness or shot rate, and did not quantitatively test inter-rater reliability. Therefore, future research is recommended to combine technical skill analysis with competition data and use longitudinal or experimental designs to directly evaluate the impact of drag shot training on match performance.

Overall, this discussion confirms that the drag shot shooting skills of the 2025 Jambi University floorball team athletes are at a good to excellent level, with structured training, a systematic evaluative approach, and consistent technique coaching as key supporting factors. These findings strengthen the literature on the importance of movement indicator-based technique analysis and provide an empirical basis for the development of more effective and evidence-based floorball shooting training models.

CONCLUSION

Based on the findings of this study, it can be concluded that the drag shot shooting skills of the Jambi University floorball team in 2025 are generally at a high level of proficiency. The predominance of athletes classified in the very good and good categories indicates that most players have developed a solid technical foundation in executing the drag shot, encompassing key components such as body positioning, weight transfer, coordination, stick-ball control, and follow-through. This overall performance profile reflects the positive impact of a structured and consistent training program implemented by the team.

The distribution of skill levels further demonstrates that regular, systematic training contributes substantially to athletes' ability to perform drag shot shooting with adequate balance, coordination, and accuracy. Although a limited number of athletes were categorized in the moderate and poor levels, the absence of athletes in the very poor category suggests that all team members possess at least a basic mastery of the technique. This finding underscores the effectiveness of foundational technical training and ongoing coaching supervision in preventing severe deficiencies in skill execution.

Importantly, the results of this study highlight that well-developed drag shot shooting skills can serve as a strong performance base for enhancing competitive outcomes in floorball, given the central role of shooting accuracy and efficiency in scoring. Nevertheless, the variation observed across skill categories indicates the need for continuous technical evaluation to identify specific movement deficiencies at the individual level. Targeted and corrective training interventions especially for athletes in the moderate and poor categories are recommended to improve technical consistency and optimize shooting performance.

In conclusion, the Jambi University floorball team demonstrated a commendable level of drag shot shooting proficiency. Sustaining structured training, integrating objective skill assessment, and implementing individualized technical refinement are essential strategies to further elevate athlete performance and support long-term competitive development.

Acknowledgment

The authors would like to express their sincere gratitude to all parties who contributed to the completion of this study. First and foremost, appreciation is extended to the Universitas Jambi, particularly the Program Studi Pendidikan Olahraga dan Kesehatan

(PORKES), for providing academic support and facilitating the implementation of this research. The availability of facilities and the conducive research environment greatly supported the data collection process and overall research activities.

Special thanks are addressed to the floorball coaching staff of the Universitas Jambi team for their cooperation, openness, and professional support throughout the research process. Their willingness to provide access to training sessions and their valuable insights into athlete development significantly enriched the quality of this study. The authors are also deeply grateful to all athletes of the Universitas Jambi floorball team, whose active participation, discipline, and commitment made this research possible. Their cooperation during data collection was essential in obtaining accurate and meaningful results.

The authors also acknowledge the contributions of colleagues and peers who provided constructive feedback, academic discussions, and methodological suggestions during the preparation of this manuscript. Such scholarly exchanges were instrumental in refining the research design, analysis, and interpretation of findings.

Finally, appreciation is extended to all parties who indirectly supported this research, whether through technical assistance, administrative support, or moral encouragement. It is hoped that the findings of this study will contribute to the development of evidence-based training practices in floorball and serve as a reference for future research in sports coaching and performance analysis.

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