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A Comparative Study of Static and Dynamic Ball Drill Training on Flick Shooting Performance in Field Hockey

Riskin Nawati[1]✉, Baiq Satrianingsih[2], Tiassari Janjang Suminar[3]

Universitas Pendidikan Mandalika, Mataram, Nusa Tenggara Barat, Indonesia[123]

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Abstract

The flick is a complex scoring skill in field hockey, and the sequence of its instruction may influence beginner performance. This study examines how training order affects shooting ability in novice players. 24 novice students from the Physical Education, Health, and Recreation program at Universitas Pendidikan Mandalika took part in a quantitative experiment using a pretest–posttest approach. They were divided into two groups. One group practiced flicks starting from a stationary ball before progressing to a moving ball, while the other group trained in the opposite order. Shooting ability was evaluated using the Bobby Charlton shooting test, and the results were analyzed with paired-sample t-tests. Both groups showed clear improvement after the training program ($p < 0.05$). However, the players who began with moving-ball flick drills improved more and achieved higher final scores than those who started and stationary ball practice. Overall the findings show that both training approaches can help beginners develop flick shooting skills. Still introducing movement earlier in the training seems to give better results. This suggests that not only the type of exercise but also the sequence in which it is taught plays an important role in building technical shooting skills.

How to Cite

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✉ Correspondence Author:
E-mail: riskin.nawati.5e.99@gmail.com

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INTRODUCTION

In field hockey, clear scoring opportunities do not happen very often. Because of that, players need to be able to take advantage of every chance they get. One technique that is commonly used in these situations is the flick. This technique allows the player to lift the ball with good accuracy while still keeping control, even when being pressured by defenders. However, performing a good flick is not only about knowing the basic technique. Players must coordinate their body movements, manage their timing, and make clean contact with the ball at the right moment during the game. For this reason, the way training sessions are designed and repeated over time plays an important role in mastering this skill (Kwarizmi & Faruk, 2022).

In general, performance in hockey is influenced by several factors, including physical fitness, technical skills, tactical understanding, and mental readiness. Ideally, all of these aspects should develop together, since weakness in one area can reduce overall performance. In practice, however, mental preparation often receives less attention compared to physical and technical training (Rusandi et al., 2025). When exercises are planned in a structured way and practiced repeatedly, movements that initially feel difficult can become more natural and automatic. Athletes also show better progress when the training load increases gradually, allowing them to adapt to higher levels of difficulty and physical demand step by step (Mudzakir et al., 2025).

From a technical perspective, shooting is one of the fundamental skills in hockey, especially during attacking play. There are different types of shooting techniques, such as the push, flick, and hit, and each one has a specific tactical purpose (Risyanto & Yulianto, 2025). In outdoor hockey, all three techniques are commonly used. In indoor hockey, however, hitting is restricted, so players rely more on the push and flick . Even so, the flick remains one of the main techniques for scoring goals in both formats of the game, which makes it essential to train (Artiluhung & Yulianto, 2025).

The flick itself can be seen as a movement that combines elements of a push and a scoop. During matches, it is not only used for shooting at goal but also for passing under pressure or lifting the ball over defenders to maintain attacking momentum (Eskiyecek et al., 2018). Because of its many functions, players are expected to execute the flick consistently, both in training sessions and in real competition (Antonov, 2021).

Despite its importance, the flick is considered a challenging technique, especially for beginners. It requires strong coordination between body position, stick handling, and precise timing when contacting the ball (Hashmi et al., 2020). Therefore, this skill usually does not improve simply by playing games. It requires focused, structured, and repetitive practice. Since the flick is frequently used in goal-scoring situations, specific training that emphasizes flick shooting ability is necessary (Yulianto, Saputra, et al., 2025).

Several training methods are commonly applied to improve flick shooting skills. One method is static-ball flick training, where the ball remains still and the player repeatedly practices lifting it toward the goal. This approach helps players understand the basic mechanics and improve accuracy (Satrianingsih & Yulianto, 2025). Another method is dynamic-ball flick training, often referred to as the drag flick, where the ball is moving during execution. This technique generally requires more power and better timing, and it reflects real match situations because the player approaches and moves past the ball before completing the flick (Saputra & Yulianto, 2025).

Both types of drills are widely used by coaches. Static drills focus on movement control and consistency, while dynamic drills require more adjustment and coordination. However, studies that directly compare the effectiveness of the two training methods are still limited, especially among regional athletes such as players from Nusa Tenggara Barat (NTB) (Primayanti et al., 2025) . The novelty of this study lies in its direct experimental comparison of static and dynamic flick training methods while specifically examining the effect of training order on shooting performance among beginner athletes from Nusa Tenggara Barat (NTB), a regional population that has received limited empirical attention.

Based on this situation, this study aims to analyze the effect of static-ball and dynamic-ball drill training on flick shooting performance of NTB hockey athletes in 2026. The results are expected to help coaches choose training methods that are closer to actual performance needs and also add reference to research on hockey skill development at the regional level.

METHOD

The study used a quantitative experimental design with pretest and posttest measurements. Shooting performance was assessed before the training program and again after the intervention

period to capture any changes associated with the training activities (Sugiyono, 2013). Two forms of flick training were implemented during the intervention: static-ball flick drills and dynamic-ball flick drills. In this experimental study, the treatment can be conducted three times per week over four weeks, resulting in a total of 12 training sessions. This duration is considered sufficient to produce measurable improvements in beginner athletes' flick shooting ability while maintaining consistency and experimental control. The study involved 24 novice hockey players from the Physical Education, Health, and Recreation program at Universitas Pendidikan Mandalika, with all available athletes included as participants (n = 24). The participants were typically in the age range of 18–22 years, representing university-level beginner players. In this experimental design, the static and dynamic flick training drills served as the independent variables, while shooting performance functioned as the dependent (outcome) variable. Shooting accuracy was evaluated using the Bobby Charlton shooting test, which involves shooting at a goal divided into numbered target zones. Each participant completed four shooting attempts during both testing sessions, and the scores were recorded for analysis. Pretest and posttest scores were compared using a t-test.

RESULTS AND DISCUSSION

The research data was assessed using the Bobby Charlton shooting test, which was administered before and after treatment to each group. The overall analysis results are shown in **Table 1.**

Table 1. Description of research data

Training Group	Pre Test Mean	Post Test Mean	Improvement
Group 1	24.17	40.83	16.67
Group 2	22.50	45.83	23.33

Table 1 shows that both training groups demonstrated changes between the pretest and posttest measurements. Differences were observed in each group following the intervention period. In Group 1, which applied static-ball flick training followed by dynamic-ball flick training, the mean pretest score was 24.17. After the intervention, the mean posttest score increased to 40.83, representing a gain of 16.67 points. In Group 2, which applied dynamic-ball flick training followed by static-ball flick training, the mean pretest score was 22.50, while the posttest mean reached 45.83. This corresponded to an improvement of 23.33 points. The effect of stationary ball flick training and moving ball flick training on shooting results can be seen from the t-test analysis, as shown in **Table 2**.

Table 2. Results of the Pre-Test and Post-Test for Shots on Goal for Group 1

Group Eksperimen	t count	t table	Information
Pre Test - Post Test	4.02	2.201	H0 rejected

As seen in **Table 2**, the average score before training was 24.17, and after training, it increased by 16.67, bringing the post-training score to 40.83. Based on the calculated t-test results, the score was 4.02. At a significance level of 5% with db = 12-1 = 11, the t-table value was obtained as 2.201. Since the calculated t-value (4.02) > t-table (2.201), Ho is rejected. In other words, there was a significant increase in the scores of the sample after participating in the stationary ball flick training and the moving ball flick training.

The effect of moving ball flick training and stationary ball flick training on shooting results can be seen from the t-test analysis, as shown in **Table 3.**

Table 3. Results of the Pre-Test and Post-Test for Shots on Goal for Group 2

Group Eksperimen	t count	t table	information
Pre Test - Post Test	4.69	2.07	H0 rejected

As seen in **Table 3**, the average score before training was 22.50, and after training it increased by 23.33, bringing the post-training score to 45.83. Based on the calculated t-test results, the score was 4.69. At a significance level of 5% with db = 12-1 = 11, the t-table value was 2.07. Since the calculated t-value (4.69) > t-table (2.07), Ho is rejected. In other words, there was a significant increase in the scores of the sample after participating in the moving ball flick training and the stationary ball flick training.

The findings of this study indicate that improving flick shooting skills is not only about how many times the movement is repeated, but also about how the skill is introduced at the beginning of training. Both groups showed improvement, which means that repeated practice of the flick movement is already helpful for beginner players. However, the different levels of progress between the groups suggest that the early training experience plays an important role in shaping the learning process (Primayanti et al., 2025).

Players who started with the moving-ball flick seemed to adjust more quickly to situations

that are similar to real matches. From the start, they had to manage balance, timing, and stick control at the same time. Even though this was more challenging, it likely encouraged better overall motor development (Yulianto, Triansyah, et al., 2025). When they later practiced the stationary-ball flick, the task felt easier, so they could focus more on improving accuracy and fine-tuning their movement control (Yulianto, 2025).

On the other hand, players who began with the stationary-ball flick learned the basic technique in a more controlled and stable setting (Shahudin et al., 2024). This approach helped them understand the fundamental mechanics of the movement. However, because the situation was predictable, the level of challenge was lower. When they moved on to the dynamic flick, they were required not only to apply the correct technique but also to adjust to a moving ball (Yulianto et al., 2024). This added complexity may have forced them to reorganize their coordination, which could explain why their improvement was not as fast.

These results support the concept that variation in practice affects motor learning. When athletes are exposed to more varied and challenging conditions early on, they may develop more flexible movement strategies instead of simply memorizing one fixed pattern. As a result, their performance becomes more adaptable when game situations change. From a coaching point of view, this study suggests that beginners do not always have to start with the easiest drills. While simple exercises are useful for building basic understanding, introducing slightly more dynamic tasks at an early stage may help players connect perception and action more effectively. In this case, stationary drills can serve as a phase for refining and stabilizing technique rather than as the first step of learning. In conclusion, the success of a training program depends not only on the type of exercises chosen, but also on how they are sequenced. Organizing practice from more dynamic conditions toward more controlled ones may help beginners develop technique more efficiently and apply it better in actual game situations. This study was limited by a small sample and short intervention period. Individual differences in ability and experience may have influenced results, as some participants improved regardless of training sequence.

CONCLUSION

Overall, both stationary-ball and moving-ball flick exercises were able to improve shooting performance in beginner hockey players. This shows that repeated practice of the flick, in any form, already provides learning benefits at the early stage. However, the group that began training with the moving-ball flick showed greater progress than the group that started with the stationary drills. This indicates that the order of practice plays an important role in how beginners adapt to the skills. Introducing movement variability earlier seems to help players adjust more quickly and makes later technical refinement easier. Therefore, when designing training programs for novice players, coaches should consider not only what exercises are used, but also how they are sequenced so the learning process becomes more efficient.

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