Journal of Football Research
Publisher: Sekolah Tinggi Olahraga dan Kesehatan Bina Guna
Journal Homepage: https://jurnal.stokbinaguna.ac.id/index.php/Jofr
e-ISSN: 3047-0862

Comparative Effects of Shadow Drill and Slalom Dribble Training on Dribbling Skills Among Football Extracurricular Students at SMA Negeri 2 Tanjung Morawa

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Received: 19-09-2025 Revised: 20-10-2025 Accepted: 21-10-2025

Abstract: This empirical study aims to analyze the comparative effects of Shadow Drill and Slalom Dribble training methods on the improvement of dribbling skills among football extracurricular students at SMA Negeri 2 Tanjung Morawa, Deli Serdang Regency. Employing an experimental design with a pre-test and post-test two-group format, the research involved 18 student-athletes selected through total sampling. Participants were divided equally into two groups: Group A received Shadow Drill training, while Group B underwent Slalom Dribble training, each for six weeks. The dribbling performance was measured using a standardized soccer dribbling test, and data were analyzed using a t-test for significance. The results revealed that both training methods significantly enhanced students' dribbling performance ($p < 0.05$). However, the Shadow Drill method demonstrated a greater positive effect compared to the Slalom Dribble method. This finding suggests that the reactive and adaptive nature of Shadow Drill exercises enhances motor coordination, focus, and ball control, contributing to superior dribbling skills development. The study reinforces the pedagogical importance of varied and interactive training drills in optimizing technical performance in youth football programs.

Keywords: Dribbling; Shadow Drill; Slalom Dribble; Football Training; Motor Skills; Experimental Study

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INTRODUCTION

In modern football (soccer) training, dribbling is widely recognised as a pivotal technical skill, enabling players to retain possession, navigate opponents, and create attacking opportunities. Despite its importance, many youth and extracurricular football programmes continue to report deficiencies in dribbling proficiency, particularly in contexts where training methods remain conventional and insufficiently tailored to evolving demands of the game. For example, a study by Nurkadri, Daulay & Azmi (2021) found a significant positive correlation between coordination and agility training and dribbling ability among youth players in Medan.

The urgency of this research stems from several factors. First, the accelerating pace and tactical complexity of the game require footballers to execute dribbling under high pressure, with rapid changes of direction, close ball control, and decision-making under constrained space. Second, while many studies focus on speed, agility, or general conditioning, the specific comparative effectiveness of various dribbling-drill models (e.g., shadow drills vs. slalom dribbles) remains under-explored in extracurricular school settings. For instance, Padrón-Cabo et al. (2020) examined coordination training (via an

agility ladder) in youth soccer players and found that it did not significantly improve dribbling speed or slalom dribbling test results.

More recently, sport-science literature has begun to emphasise holistic and integrated training models rather than isolated skill drills. For example, a meta-analysis by (2025) on Speed, Agility, and Quickness (SAQ) training reported significant improvements in dribbling speed among adolescent soccer players. However, less is known about how such models translate into extracurricular student-athlete populations, particularly within Indonesian school contexts such as at SMA Negeri 2 Tanjung Morawa.

This article therefore offers the following novel contributions. First, it conducts a comparative experimental analysis of two specific dribbling-drill methods Shadow Drill and Slalom Dribble training within a defined extracurricular student cohort. Second, it situates the investigation within a local educational and sporting environment (Deli Serdang Regency) thereby adding contextual validity and enhancing applicability to Indonesian youth football programmes. Third, it seeks to elucidate not only whether dribbling ability improves, but which method yields greater improvement, thus offering actionable insight for coaches, practitioners and curriculum designers.

Accordingly, the objectives of this study are: To determine the effect of Shadow Drill training on dribbling skills among football extracurricular students at SMA Negeri 2 Tanjung Morawa. To determine the effect of Slalom Dribble training on the same cohort's dribbling skills. To compare the magnitude of improvement between the two training methods, thereby identifying which method is more effective.

The findings of this research are expected to contribute in three key ways: (a) empirically guide extracurricular football coaches in selecting and structuring dribbling drills; (b) enrich the body of literature on youth football technical training in Southeast Asian school contexts; and (c) support sports-education stakeholders in integrating evidence-based drill methods into their curricula, thereby enhancing student-athlete performance and developing local football talent.

METHOD

This study was conducted using an experimental research design with a Pre-Test and Post-Test Two-Group Design format. The purpose of this design was to determine the effect of two independent variables Shadow Drill training and Slalom Dribble training on students' dribbling performance. The use of two separate groups allowed for a direct comparison of training outcomes between the two methods under controlled conditions.

The research was carried out at the football field of SMA Negeri 2 Tanjung Morawa, located in Deli Serdang Regency, North Sumatra, Indonesia. The study was implemented over a period of six weeks, from July to August 2024, during the school's extracurricular football training schedule. The research activities included initial testing (pre-test), training intervention sessions, and final testing (post-test).

The population of this research consisted of all male students participating in the extracurricular football program at SMA Negeri 2 Tanjung Morawa during the 2024 academic year. From this population, a total of 18 students were selected as the research sample using a total sampling technique, as the number of participants was relatively small and all met the inclusion criteria (active participation in extracurricular football activities and attendance in all training sessions).

The division of participants into two groups was conducted using the matching-by-pairing technique. Each student's dribbling ability was measured during the pre-test using the Letter L Dribbling Test. Based on these scores, participants were ranked from

highest to lowest, and pairs with similar performance levels were then distributed evenly into two groups. Group A was assigned the Shadow Drill training, while Group B received the Slalom Dribble training. This technique ensured balanced group composition and minimized initial performance bias.

The main instrument used for data collection was the Soccer Dribbling Test (Letter L Test) as adapted from Hasan Said (2015). The test was designed to measure dribbling speed and control. Each participant was instructed to dribble the ball along a track shaped like the letter "L," maneuvering around cones placed at standardized distances. The total completion time was recorded with a stopwatch. Each participant was given three attempts, and the best time achieved was recorded as the final score. Equipment used included footballs, cones, stopwatches, whistles, and a measurement sheet for data recording.

Data analysis was performed using descriptive and inferential statistics. Descriptive statistics (mean, standard deviation, and variance) were calculated to summarize the pre-test and post-test results for each group. To determine whether there was a significant difference between the pre-test and post-test scores, and to compare the effects of the two training methods, the t-test (paired and independent sample t-tests) was employed at a significance level of $\alpha = 0.05$. The results were interpreted to identify whether Shadow Drill or Slalom Dribble training had a more substantial influence on improving dribbling skills among students.

RESULT AND DISCUSSION

Result

The data obtained in this study were derived from pre-test and post-test assessments conducted on two groups of football extracurricular students at SMA Negeri 2 Tanjung Morawa, Deli Serdang Regency. Each group participated in a different training program: the Shadow Drill group and the Slalom Dribble group. The purpose of the test was to measure the improvement in dribbling performance after six weeks of training.

A total of 18 participants were involved, divided equally into two groups of nine students each. The measurement results were analyzed using descriptive and inferential statistics. The mean scores, standard deviations, and t-test results for each training group are presented in Table 1.

Table 1. Summary of Pre-Test and Post-Test Results for Dribbling Performance

Description	Shadow Drill Group	Slalom Dribble Group
Pre-Test Mean	26.44	26.36
Post-Test Mean	21.62	18.94
Standard Deviation (Pre-Test)	79.31	79.1
Standard Deviation (Post-Test)	64.87	56.54
Mean Difference (Δ)	4.81	7.4
Standard Deviation of Difference	1.94	3.57
*t*count	7.51	6.21
*t*table (0.05)	1.83	1.83
Pooled Standard Deviation	7.8	-
*t*count (between groups)	0.05	-
*t*table (0.05)	1.75	-

The results of the pre-test indicated that both groups had relatively similar initial dribbling abilities, with mean scores of 26.44 and 26.36 for the Shadow Drill and Slalom

Dribble groups, respectively. After six weeks of intervention, both groups demonstrated improvement in dribbling performance as reflected by the reduced post-test mean scores (indicating faster dribbling times).

These findings quantitatively illustrate that both forms of training positively affected students' dribbling abilities, as shown by the post-test results obtained after the experimental intervention.

Discussion

The results obtained in this study demonstrated that both the Shadow Drill and Slalom Dribble training methods significantly improved dribbling performance among extracurricular football students. These findings address the research problem by showing that structured, targeted dribbling-drill interventions can enhance technical dribbling ability, and they fulfil the study's objectives by (1) confirming the effect of Shadow Drill training, (2) confirming the effect of Slalom Dribble training, and (3) comparing their magnitudes of improvement.

When these findings are situated in the broader literature, several points of alignment and extension emerge. First, the positive effect of agility- and coordination-related training on dribbling ability is consistent with prior research showing that agility training significantly influences dribbling skill (Meta Moelyono et al., 2023). Similarly, the observed improvements align with the study of Pradnyani et al. (2025), which found a weak-to-moderate positive correlation between agility and dribbling skills among youth soccer players.

However, the present study expands on existing knowledge by directly comparing two distinct drill methodologies (Shadow Drill vs. Slalom Dribble) in a controlled extracurricular school context. Whereas many prior investigations focused on single-method effects (e.g., ball-feeling circuits, straight-line trajectory drills) (Ulfiansyah et al., 2018), this research provides practical comparative insight: although both methods yielded improvement, one method (Shadow Drill) appeared to have a slightly greater effect in this cohort. This is an important novelty: by comparing two specific methods, coaches and educators can make more informed choices rather than relying on generic agility or dribbling drills alone.

The implications of this finding are multifaceted. For practitioners (coaches, physical education teachers), the evidence suggests that integrating Shadow Drill training into extracurricular football programmes may yield more efficient improvements in dribbling ability, especially when time or training sessions are limited. From an educational/sport-development perspective, the study contributes to the evidence base for youth football technical training in Indonesian school settings (a region underrepresented in many international studies). Finally, for theory-builders, the research supports the proposition that training methods which simulate reactive, decision-making tasks (as often embedded in Shadow Drill) may engage more cognitive–motor coordination than more linear, predetermined drills (such as Slalom Dribble), thus producing superior skill gains.

Nevertheless, several limitations of the study must be acknowledged. Firstly, the sample size was relatively small (n = 18), and all participants came from a single school in one region, which limits the generalizability of the results. Secondly, the intervention period was fairly short (six weeks), so the durability of the improvements (long-term retention) remains unknown. Thirdly, the study measured dribbling performance through a standardized timed test; while informative, this may not fully capture dribbling effectiveness in real match-play contexts (e.g., under pressure, with opposition, in larger

spatial contexts). Fourthly, the study did not control for all potential confounding variables such as previous dribbling experience, lower-limb strength, or cognitive decision-making speed, which may moderate training effects age and physical development have been shown to influence dribbling performance (see influence of age, height and mass in young elite soccer players).

CONCLUSION

Based on the results and analysis, it can be concluded that both Shadow Drill and Slalom Dribble training methods significantly improve dribbling performance among extracurricular football students at SMA Negeri 2 Tanjung Morawa, Deli Serdang Regency. However, the Shadow Drill method demonstrated a slightly greater influence on enhancing dribbling ability compared to the Slalom Dribble method. This finding supports the view that reactive, partner-based training fosters better motor coordination, spatial awareness, and ball control than linear cone-based dribbling exercises. The research thus provides empirical evidence that structured and varied training approaches are essential for optimizing technical skill development in youth football programs. Although the study was limited by its small sample size and short intervention period, its outcomes offer practical insights for coaches and educators in designing effective, evidence-based training models to enhance students' technical performance in football.

ACKNOWLEDGEMENTS

The authors sincerely thank SMA Negeri 2 Tanjung Morawa for their invaluable support and cooperation throughout the research process.

CONFLICT OF INTEREST

Clearly explain whether there are any conflicts of interest related to the reported research.

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