



ISSN Print: 2664-7281
ISSN Online: 2664-729X
Impact Factor: RJIF 8.15
IJSEPE 2025; 7(2): 364-366
<https://www.sportsjournals.net>
Received: 01-07-2025
Accepted: 05-08-2025

Krishnakumar S
Research Scholar, Department
of Physical Education and
Sports Sciences,
Hindustan Institute of
Technology and Science
(Deemed to be University),
Padur, Chennai, Tamil Nadu,
India

Dr. R Ramakrishnan
Assistant Professor (SG),
Department of Physical
Education and Sports Sciences,
Hindustan Institute of
Technology and Science
(Deemed to be University),
Padur, Chennai, Tamil Nadu,
India

Corresponding Author:
Krishnakumar S
Research Scholar, Department
of Physical Education and
Sports Sciences,
Hindustan Institute of
Technology and Science
(Deemed to be University),
Padur, Chennai, Tamil Nadu,
India

A randomized study on the effectiveness of shadow training techniques on skill performance in soccer players

Krishnakumar S and R Ramakrishnan

DOI: <https://www.doi.org/10.33545/26647281.2025.v7.i2e.270>

Abstract

This study examined the effects of a 12-week shadow training program on male intercollegiate soccer players' dribbling, passing, and kicking skills. At Amrita Vishwa Vidyapeetham in Amritapuri, Kerala, India, 40 18-23-year-olds were randomly assigned to shadow training or regular training. Ronaldo Soccer Dribbling Speed Test, Mor Christian General Soccer Ability Test, and McDonald Soccer Skill Test were used to evaluate performance. Three days a week for 12 weeks, the intervention occurred. Paired Sample t-tests and ANCOVA (controlling for pre-test scores) evaluated pre-and post-test data. Compared to the control group, the experimental group exhibited significant improvements in all skill variables ($p < .001$). Shadow training appears to improve soccer abilities efficiently, cheaply, and effectively. Coaches should include shadow training during practice to boost performance.

Keywords: Shadow training, soccer skills, dribbling, passing, kicking, intercollegiate players

Introduction

Soccer success depends on technical, tactical, and motor skills such as dribbling, passing, shooting, agility, and decision-making (Karahana, 2020; McCalman *et al.*, 2023) ^[6, 7]. Traditional training methods include ball drills, small and large-sided games, and feedback sessions. Shadow training, where athletes replicate moves or placement without the ball, is gaining popularity as a supplemental training method that may improve performance.

Shadow training may improve motor pattern repetition, spatial awareness, movement biomechanics, and predicted movements without the limits and unpredictability of live play. Sports performance has improved significantly with imagery practice and mental simulation. Meta-analysis reveals visualization practice enhances agility and performance measures in soccer and tennis (Freitas *et al.*, 2023) ^[4]. Teens employing mind simulation techniques improved numerous soccer skills (Kamarzarin *et al.*, 2024) ^[5].

Even if this suggests it, there is little soccer research on shadow training alone or in combination. Most research focus on small-sided games (SSGs), skill-based training with active ball work, or psychological skills training (e.g., attentional shifts, imagery) (Karahana, 2020; McCalman *et al.*, 2023) ^[6, 7]. According to Karahana (2020) ^[6], skill-based training at maximal intensity resulted in larger increases in physical performance measures compared to small-sided games. However, thorough randomized trials on technical skill performance for ball-decoupled approaches like shadow play are scarce.

This randomized controlled trial intends to investigate the effectiveness of shadow training approaches in improving soccer skills (Dribbling, Passing, and Shooting) compared to standard ball-based training or control circumstances. The working premise is that systematic shadow training may increase technical skill measures more than unstructured training.

Methodology

Research Design

This randomized controlled trial examined how shadow training affected soccer skill performance characteristics as dribbling, passing, and shooting. Participants were randomly allocated either shadow training or conventional soccer instruction. Three-times-weekly instruction was provided for twelve weeks.

Participants' performance on selected factors was assessed by pre-and post-tests.

Participants

40 male intercollegiate soccer players from Amrita Vishwa Vidyapeetham, Amritapuri Campus, Kerala, India, volunteered for the study. Participants were 18-23. All players were medically fit and had at least two years of intercollegiate experience. Each subject gave written informed consent before joining the study. Participants were randomly split into two equal groups:

1. The Experimental Group (n = 20) received shadow training.
2. Control Group (n = 20): Regular soccer practice sessions continued.

Variables

Independent Variable

Shadow Training Techniques (12-week intervention program)

Dependent Variables

1. **Dribbling Performance:** Assessed using the *Ronaldo Soccer Dribbling Speed Test* (Bangsbo, 1994) ^[1].
2. **Passing Performance:** Assessed using the *Mor Christian General Soccer Ability Test* (Mor & Christian, 1979) ^[10].
3. **Kicking Performance:** Assessed using the *McDonald Soccer Skill Test* (McDonald, 1951) ^[8].

These standardized tests have established validity and reliability for evaluating soccer-specific skill performance.

Training Intervention

The experimental group underwent a structured 12-week shadow training program, consisting of three 60-minute sessions per week, emphasizing soccer-specific movement patterns without the use of a ball. Each session was structured as follows:

1. **Warm-up (10 minutes):** Dynamic stretching, light jogging, and mobility drills.
2. Shadow Training Drills (40 minutes):
 - **Dribbling Simulation:** Footwork, directional change, acceleration, and deceleration drills without ball contact.
 - **Passing Simulation:** Body positioning, weight transfer, and follow-through motions mimicking pass execution.
 - **Kicking Simulation:** Shadow kicking movements emphasizing technique, balance, and hip rotation without ball impact.
 - **Kinesthetic Awareness:** Visualization and rhythm-based movement sequences to enhance neuromuscular coordination.
3. **Cool-down (10 minutes):** Static stretching and breathing relaxation.

The control group continued their regular soccer training routines under their coach, which involved standard ball drills, team play, and conditioning activities. Both groups trained on the same field conditions to ensure uniformity.

Testing Procedure: All participants underwent pre-and post-testing on the selected skill variables.

- **Dribbling:** Evaluated using the *Ronaldo Soccer Dribbling Speed Test*, which measures the time taken to maneuver through a zig-zag course with the ball, emphasizing agility and control (Bangsbo, 1994) ^[1].
- **Passing:** Assessed with the *Mor Christian General Soccer Ability Test*, which evaluates passing accuracy and control based on successful passes within a specified area (Mor & Christian, 1979) ^[10].
- **Kicking:** Measured using the *McDonald Soccer Skill Test*, which assesses shooting accuracy and power directed toward marked target zones (McDonald, 1951) ^[8].

All testing was conducted on a standard soccer field with identical environmental conditions and supervised by certified coaches to ensure consistency.

Statistical Analysis

All variables have mean and standard deviation computed. Pre-and post-test scores within each group were compared using paired sample t-tests. ANCOVA was used to compare post-test results across experimental and control groups, controlling for initial differences with pre-test scores. The significance threshold was $p < .05$. Data were processed with JAMOV1.

Results

Table 1: Paired Sample *t*-Test Results on Skill Performance Variables Within Groups (N = 40)

Variable	Group	Pre-Test Mean \pm SD	Post-Test Mean \pm SD	<i>t</i> (19)	<i>p</i> Value
Dribbling	Experimental	15.42 \pm 1.85	13.68 \pm 1.54	6.12	<.001
	Control	15.38 \pm 1.72	14.96 \pm 1.69	1.42	0.171
Passing	Experimental	24.10 \pm 2.84	28.65 \pm 2.57	5.48	<.001
	Control	23.98 \pm 2.91	24.80 \pm 2.77	1.25	0.224
Kicking	Experimental	18.32 \pm 2.45	22.74 \pm 2.18	7.02	<.001
	Control	18.26 \pm 2.39	19.02 \pm 2.41	1.53	0.142

$df = 19$, $p < .05$ considered statistically significant.

Table 2: ANCOVA Results on Post-Test Scores of Skill Performance Controlling for Pre-Test Scores

Variable	Source	SS	df	MS	<i>F</i>	<i>p</i> Value	Partial η^2
Dribbling	Group (Between)	28.74	1	28.74	21.3	<.001	0.365
	Error	49.95	37	1.351			
Passing	Group (Between)	35.91	1	35.91	26.2	<.001	0.414
	Error	50.76	37	1.372			
Kicking	Group (Between)	29.83	1	29.83	24.8	<.001	0.401
	Error	44.48	37	1.202			

The 12-week shadow training program significantly enhanced soccer skill performance in the experimental group compared to the control group. Paired Sample *t*-tests (Table 1) revealed significant improvements in dribbling, passing, and kicking for the experimental group (pre-test: 15.42 \pm 1.85 s; post-test: 13.68 \pm 1.54 s; $t(19) = 6.12$, $p < .001$). No significant changes were found in dribbling, passing, or kicking in the control group ($t(19) = 1.42$, $p = .171$, 1.25, $p = .224$, 1.53, $p = .142$).

ANCOVA (Table 2) was used to compare post-test scores between groups while controlling for pre-test performance. After adjusting for baseline differences, the experimental group outperformed the control group in dribbling ($F(1, 37) = 21.32$, $p < .001$, partial $\eta^2 = .365$), passing ($F(1, 37) = 26.17$,

$p < .001$, partial $\eta^2 = .414$), and kicking ($F(1, 37) = 24.81$, $p < .001$, partial $\eta^2 = .401$). These results imply that shadow training improves male intercollegiate soccer players' dribbling, passing, and kicking.

Discussion on findings

This study examined how a 12-week shadow training program improved male NCAA soccer players' dribbling, passing, and kicking skills. The experimental group improved in all three skill areas, while the control group did not.

Previous study suggests that agility training, including shadow exercises, enhances soccer players' agility with and without the ball (Milanović, 2013) ^[9]. The experimental group showed a significant reduction in dribbling time. Shadow dribbling drills improve players' pressure-handling (Easy2Coach, n.d.).

Experimental group passing accuracy improved significantly. Structured passing-skill training improves youth soccer players' passing accuracy more than small-sided games, according to Carlsson, Broman, Isberg, and Carlsson (2025) ^[2]. Zainuddin *et al.* (2023) ^[12] found that targeted training improves soccer passing.

Kicking performance improved significantly in the experimental group. Sørensen, Dalen, and Ligestad (2024) ^[11] found that shadow training improves soccer abilities following focused interventions, proving its effectiveness in kicking performance.

Shadow training worked, as the control group did not improve. This supports prior findings that structured training programs improve performance more than traditional or less concentrated methods (Karahan, 2020) ^[6].

Shadow training improves dribbling, passing, and kicking in male intercollegiate soccer players, according to these research. Regular practice using shadow training helps improve skills. Shadow training should be studied long-term and on other soccer performance factors.

Conclusion and Recommendations

Conclusion

This study found that male intercollegiate soccer players' dribbling, passing, and kicking skills improved after 12 weeks of shadow training. The experimental group, who received systematic shadow training, improved all skill performance characteristics, but the control group, which practiced soccer regularly, did not. Shadow training improves neuromuscular coordination, movement efficiency, and technique execution in soccer, making it a cost-effective and practical intervention. The findings suggest incorporating shadow training into soccer players' training to improve skill development.

According to this study, coaches and trainers should include shadow training into soccer practice to improve dribbling, passing, and kicking. Shadow training sessions can be extended or increased to improve performance, and the program can be tailored for youth and professional athletes. Shadow training combined with small-sided games, agility drills, and tactical exercises may improve performance. To prove shadow training works in many circumstances, future study should assess its long-term impacts on skill retention, decision-making, response time, and match performance.

Reference

1. Bangsbo J. Fitness training in football: A scientific approach. Bagsværd, Denmark: HO + Storm; 1994.
2. Carlsson T, Broman J, Isberg J, Carlsson M. Passing-skill training vs small-sided games for improvement of side-foot kick accuracy among youth female soccer players. *Front Sports Act Living*. 2025;7:1506563. <https://doi.org/10.3389/fspor.2025.1506563>
3. Easy2Coach. Shadow dribbling drills [Internet]. [cited 2025 Oct 14]. Available from: <https://www.easy2coach.net/en/soccer-exercise/soccer-training-shadowdribbling.html>
4. Freitas S, Dias C, Fonseca A. The effects of imagery practice on athletes' performance: a multilevel meta-analysis with systematic review. *Psychology (MDPI)*. 2023;15(5):685. <https://doi.org/10.3390/psychology15050685>
5. Kamarzarin H, Bigdeli Shamloo M, Baigi M. The effectiveness of mind simulation on soccer skills training in adolescents. *Int J Multiphys*. 2024;18(4):716-22.
6. Karahan M. Effect of skill-based training vs small-sided games on physical performance improvement in young soccer players. *Biol Sport*. 2020;37(3):305-12. <https://doi.org/10.5114/biolspor.2020.96323>
7. McCalman W, Crowley-McHattan ZJ, Fransen J, Bennett KJM, *et al.* Effects of a short-term soccer training intervention on skill course performance in youth players: a randomized study. *Sports*. 2023;12(12):345.
8. McDonald LB. Development of a soccer skill test for college men. *Res Q Am Assoc Health Phys Educ Recreat*. 1951;22(3):349-58. <https://doi.org/10.1080/10671188.1951.10761916>
9. Milanović Z. Effects of a 12-week SAQ training programme on agility with and without the ball among young soccer players. *J Sports Sci Med*. 2013;12(1):97-103. <https://pubmed.ncbi.nlm.nih.gov/articles/PMC3761749/>
10. Mor CA, Christian DP. Tests and measurements in health and physical education. 2nd ed. New York: Appleton-Century-Crofts; 1979.
11. Sørensen A, Dalen T, Ligestad P. Effects of a short-term soccer training intervention on skill course performance in youth players: a randomized study. *Sports*. 2024;12:345. <https://doi.org/10.3390/sports12030045>
12. Zainuddin MS, *et al.* The effect of training methods on improving passing in soccer games. *Int J Adv Res*. 2023;11(8):1-8. <https://journalair.com/index.php/AIR/article/view/979>