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Effect Of Trans-Sport Training On Agility And Ball Control In Collegiate Football Players Of Rajasthan

Manoj Jat* **Dr. Gajendra Singh Saroha****

*Research Scholar, Tantia University, Sri Ganganagar (Raj.) INDIA
** Assistant Professor, Tantia University, Sri Ganganagar (Raj.) INDIA

Abstract: In modern football, performance is influenced not only by sport-specific training but also by diversified training approaches aimed at enhancing neuromuscular coordination and movement adaptability. Trans-sport training, which involves integrating elements from other sports into structured football training, has gained attention for its potential to improve agility, balance, and ball-handling skills. However, limited empirical evidence exists regarding its effectiveness among collegiate football players in Rajasthan.

The present study aimed to examine the effect of a six-week trans-sport training program on agility and ball control among collegiate football players. A total of 30 players were selected and randomly divided into an experimental group (n=15) and a control group (n=15). The experimental group underwent trans-sport training in addition to regular football practice, while the control group followed conventional training only. Agility was measured using the Illinois Agility Test, and ball control was assessed through a standardized dribbling test. Pre-test and post-test data were analyzed using paired and independent t-tests.

The findings indicated significant improvements in agility and ball control among the experimental group compared to the control group. The study suggests that incorporating trans-sport training methods may enhance performance-related attributes in collegiate football players.

Keywords: Trans-sport training, Agility, Ball control, Collegiate football, Experimental study, Rajasthan.

Introduction - Football is a multidimensional sport that requires rapid changes of direction, dynamic balance, technical precision, and coordinated motor control. Among the essential performance components, agility and ball control play a critical role in competitive success. Agility enables players to accelerate, decelerate, and change direction efficiently under match conditions, while ball control determines the ability to maintain possession, execute dribbles, and respond effectively to defensive pressure.

Traditional football training primarily focuses on sport-specific drills aimed at improving tactical awareness and technical execution. However, modern training methodologies increasingly incorporate diversified approaches to enhance neuromuscular coordination and movement adaptability. One such approach is **trans-sport training**, which involves integrating training elements from other sports—such as basketball footwork, badminton reaction drills, handball passing dynamics, or athletics sprint mechanics—into football conditioning programs.

Trans-sport training is based on the principle of transfer of learning, which suggests that motor skills developed in one activity can positively influence performance in another related activity. Exposure to varied movement patterns may enhance proprioception, coordination, reaction time, and cognitive flexibility. These adaptations are particularly beneficial for collegiate players who are in a developmental phase of performance enhancement.

Agility is influenced by neuromuscular control, lower-body strength, and reaction efficiency. Similarly, ball control requires refined coordination, balance, and timing. Diversified training stimuli may stimulate broader motor adaptation compared to repetitive single-sport drills.

In Rajasthan, collegiate football participation has increased significantly; however, structured experimental research examining innovative training interventions remains limited. Most programs rely heavily on conventional drills without integrating cross-disciplinary training methods.

Therefore, the present study aims to examine the effect of a structured trans-sport training program on agility and ball control among collegiate football players of Rajasthan. The findings may provide practical implications for coaches seeking evidence-based training modifications.

Review Of Literature

The concept of transfer of training has long been discussed in motor learning research. Schmidt and Lee (2011) stated that motor skills developed in one activity may positively influence performance in related tasks when movement patterns share common neuromuscular characteristics.

This theoretical foundation supports the idea of trans-sport training in football.

Young, McDowell, and Scarlett (2001) emphasized that agility is not solely dependent on speed but also on perceptual and decision-making components. Their findings indicated that training programs incorporating varied movement patterns improve agility performance more effectively than repetitive drills alone.

Sheppard and Young (2006) defined agility as a rapid whole-body movement involving change of velocity or direction in response to a stimulus. They highlighted that agility training should integrate reaction-based and coordination-based exercises to maximize performance gains.

In football-specific research, Little and Williams (2005) demonstrated that agility performance significantly differentiates competitive-level players. The authors suggested incorporating multidirectional and reactive drills to enhance game-related movement efficiency.

Regarding cross-training approaches, Bompa and Haff (2009) explained that diversified training stimuli improve neuromuscular adaptation and reduce monotony-related performance stagnation. Exposure to alternative sport movements may enhance balance, coordination, and muscle activation patterns.

Hoff and Helgerud (2004) examined conditioning methods in soccer and found that varied training interventions contribute to improved technical execution under dynamic conditions. Improved motor control was associated with better ball-handling consistency.

Similarly, Chaouachi et al. (2014) reported that agility-based and coordination-focused training significantly improved dribbling speed and ball control in competitive football players. The study emphasized that neuromuscular efficiency plays a central role in ball-handling performance. Although several studies have investigated agility and coordination training in football, limited experimental research has examined the direct impact of trans-sport training among collegiate football players in Rajasthan. Therefore, the present study seeks to experimentally evaluate the effectiveness of trans-sport training on agility and ball control.

Objectives Of The Study:

1. To determine the effect of trans-sport training on agility among collegiate football players of Rajasthan.
2. To examine the impact of trans-sport training on ball control performance among collegiate football players of Rajasthan.
3. To compare the post-test performance of the experimental and control groups in selected variables.

Hypotheses Of The Study: The following null hypotheses were formulated for the study:

1. H_{01}: There will be no significant difference between pre-test and post-test agility scores of the experimental group.
2. H_{02}: There will be no significant difference between pre-test and post-test ball control scores of the experimental group.
3. H_{03}: There will be no significant difference between the experimental and control groups in post-test agility scores.
4. H_{04}: There will be no significant difference between the experimental and control groups in post-test ball control scores.

Methodology

1. Research Design: The present study employed a **pre-test and post-test randomized group experimental design** to examine the effect of trans-sport training on agility and ball control among collegiate football players of Rajasthan. The design included two groups: an experimental group that received trans-sport training in addition to regular football practice, and a control group that continued conventional football training without additional intervention.

2. Population and Sample: The population of the study consisted of collegiate football players representing colleges in Rajasthan.

A total of **30 male collegiate football players** were selected using purposive sampling technique. The selected participants were randomly divided into two equal groups:

1. Experimental Group (n = 15)
2. Control Group (n = 15)

All participants were between **18–23 years of age** and met the following criteria:

1. Minimum two years of competitive football experience
2. Regular participation in college-level tournaments
3. Medically fit and free from injury
4. Consistent attendance during the training period

Table 1: Distribution of Subjects

Group	Number of Players	Training Type
Experimental Group	15	Trans-Sport Training + Conventional Training
Control Group	15	Conventional Football Training Only
Total	**30**	Collegiate Football Players

3. Variables of the Study

The study included the following variables:

- **Independent Variable:** Trans-Sport Training Program
- **Dependent Variables:**

i. Agility
ii. Ball Control

4. Description of Tests

4.1 Agility Test: Agility was measured using the **Illinois Agility Test**, which evaluates speed and directional change ability. Time taken to complete the course was recorded in seconds using a digital stopwatch.

4.2 Ball Control Test: Ball control was assessed using a standardized dribbling test. Players were required to dribble

a football through a series of cones arranged at fixed intervals. The time taken to complete the course was recorded. Lower completion time indicated better ball control efficiency.

5. Training Protocol: The experimental group underwent a **six-week trans-sport training program**, conducted three days per week in addition to regular football practice. The training program included:

i. Basketball footwork drills (lateral movement & quick direction change)
ii. Badminton reaction drills (rapid response movements)
iii. Handball passing coordination exercises
iv. Sprint mechanics drills from athletics

Each session lasted approximately 45 minutes.

The control group continued their conventional football training routine without additional trans-sport components.

6. Procedure of Data Collection: Pre-test measurements for agility and ball control were conducted for both groups before the commencement of the training program. After six weeks, post-test measurements were recorded under similar environmental conditions.

Adequate warm-up sessions were conducted prior to testing. All tests were administered by trained personnel to ensure reliability and consistency.

7. Statistical Treatment of Data: The collected data were analyzed using:

1. Mean and Standard Deviation
2. Paired t-test (for pre-test and post-test comparison within groups)
3. Independent t-test (for comparison between experimental and control groups)

The level of significance was set at **0.05**.

Statistical Analysis: The data collected from the agility and ball control tests were systematically tabulated and prepared for statistical evaluation. Descriptive statistics, including mean and standard deviation, were calculated to determine the average performance levels and variability within both experimental and control groups during pre-test and post-test phases.

To examine the effectiveness of the trans-sport training program within each group, a **paired samples t-test** was applied to compare pre-test and post-test scores of agility and ball control. This statistical technique was appropriate for determining significant improvements over the six-week training period.

Further, an **independent samples t-test** was employed to compare post-test scores between the experimental and control groups to determine whether the observed improvements were significantly greater in the experimental group.

The level of significance was fixed at **0.05** for all statistical tests. Statistical interpretation was carried out carefully to ensure validity and reliability of the results.

Results

Table 2: Mean, Standard Deviation and t-values of Agility and Ball Control

Variable	Group (Mean ± SD)	Pre-Test (Mean ± SD)	Post-Test	t-value
Agility (sec)	Experimental	17.85 ± 0.62	16.90 ± 0.55	4.12*
	Control	17.78 ± 0.58	17.50 ± 0.60	1.21
Ball Control (sec)	Experimental	14.60 ± 0.70	13.40 ± 0.65	4.35*
	Control	14.55 ± 0.68	14.20 ± 0.66	1.18

*Significant at 0.05 level

Interpretation of Results: The results indicate that the experimental group demonstrated significant improvement in both agility and ball control following the six-week trans-sport training program. The calculated t-values for agility (4.12) and ball control (4.35) were found significant at the 0.05 level. In contrast, the control group showed marginal improvements that were not statistically significant. These findings suggest that trans-sport training had a positive impact on agility and ball control among collegiate football players of Rajasthan.

Discussion: The results of the study indicate that trans-sport training significantly improved agility and ball control among collegiate football players in the experimental group. The improvement suggests that diversified movement patterns enhanced neuromuscular coordination and directional efficiency. These findings support the concept of transfer of training, where skills developed through varied sports activities positively influence football performance. In contrast, the control group showed minimal improvement, indicating that conventional training alone may not produce substantial short-term gains. Overall, the study highlights the effectiveness of incorporating trans-sport training methods to enhance performance-related attributes.

Conclusion:

1. The present study examined the effect of trans-sport training on agility and ball control among collegiate football players of Rajasthan.
2. Significant improvements were observed in agility and ball control within the experimental group following the six-week training program.
3. The control group showed only marginal improvements, which were not statistically significant.
4. The findings indicate that diversified trans-sport training contributes positively to neuromuscular coordination and movement efficiency.
5. Incorporating cross-sport training elements may enhance performance outcomes beyond conventional football training methods.
6. Trans-sport training can be considered an effective supplementary approach for collegiate-level football development.

Recommendations For Further Studies:

1. Future research may involve a larger sample size including players from multiple universities across Rajasthan to enhance the external validity of findings.

2. Long-term intervention studies may be conducted to examine sustained effects of trans-sport training over an entire competitive season.
3. Future studies may include additional performance variables such as reaction time, sprint speed, and balance for a more comprehensive analysis.
4. Comparative research between junior, collegiate, and elite-level football players may provide insights into developmental adaptability to trans-sport training.
5. Biomechanical analysis and video-based performance evaluation may further validate improvements in ball control and agility under match conditions.

References:-

1. Bompa, T. O., & Haff, G. G. (2009). *Periodization: Theory and methodology of training* (5th ed.). Human Kinetics.
2. Chaouachi, A., Manzi, V., Chaalali, A., Wong, D. P., Chamari, K., & Castagna, C. (2014). Determinants analysis of change-of-direction ability in elite soccer players. *Journal of Strength and Conditioning Research*, 28(4), 1049–1056.
3. Hoff, J., & Helgerud, J. (2004). Endurance and strength training for soccer players. *Sports Medicine*, 34(3), 165–180.
4. Little, T., & Williams, A. G. (2005). Specificity of acceleration, maximum speed, and agility in professional soccer players. *Journal of Strength and Conditioning Research*, 19(1), 76–78.
5. Schmidt, R. A., & Lee, T. D. (2011). *Motor control and learning: A behavioral emphasis* (5th ed.). Human Kinetics.
6. Sheppard, J. M., & Young, W. B. (2006). Agility literature review: Classifications, training and testing. *Journal of Sports Sciences*, 24(9), 919–932.
7. Young, W., McDowell, M., & Scarlett, B. (2001). Specificity of sprint and agility training methods. *Journal of Strength and Conditioning Research*, 15(3), 315–319.

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