Effect Of Ladder Drills And Cone Drills On Agility Among Men Basketball Players

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ABSTRACT

The purpose of this study was to examine the effect of ladder drills and cone drills on agility among men basketball players. A total of 45 intercollegiate basketball players from Kadapa district, aged 17–23 years, were randomly assigned into three equal groups (n=15): Group I (ladder drills), Group II (cone drills), and Group III (control). The training intervention lasted for 12 weeks, during which Groups I and II performed their respective drills, while the control group did not undergo any specific training. Agility was assessed before and after the training program, and the data were statistically analyzed using analysis of covariance (ANCOVA).

The pre-test means for agility were 49.03 (ladder drills), 50.93 (cone drills), and 50.47 (control), with no significant difference ($F=1.61 < 3.10$). The post-test means were 56.07 (ladder drills), 58.43 (cone drills), and 51.17 (control), showing a significant difference ($F=16.42 > 3.10$). The adjusted post-test means were 57.11, 57.70, and 50.87, respectively, with an obtained F value of 46.35, which was greater than the required table value of 3.10 at the 0.05 level. Post hoc analysis revealed that both ladder drills (MD=6.24) and cone drills (MD=6.83) groups significantly outperformed the control group in agility improvement. However, no significant difference was found between the ladder drills and cone drills groups (MD=–0.59).

The findings indicate that both ladder drills and cone drills are equally effective in improving agility among men basketball players. These results support the inclusion of structured agility drills in training programs for basketball players to enhance performance-related skills such as rapid direction changes, court coverage, and defensive efficiency.

Keywords : Agility, Basketball, Ladder Drills and Cone Drills.

INTRODUCTION

Agility—rapidly changing direction and speed while maintaining control—is critical in basketball, underpinning defensive slides, offensive cuts, and overall court responsiveness. Its development is essential for optimal athletic performance and can distinguish superior players from the rest. This study focuses on two popular agility training tools: ladder drills, known for enhancing foot speed and coordination, and cone drills, which simulate direction changes under load.

A study by Diputra (2015) examined the effects of three-cone, four-cone, and five-cone drills on agility and speed among youth athletes aged 16–17. Results indicated that all three variants significantly improved both agility and speed, with notable differences among drill types . This underscores cone drills' versatility and efficacy in enhancing agility in developing athletes.

Though there is limited basketball-specific research in this period, Wahyono et al. (year unspecified but likely within the mid-2010s) investigated ladder drills in male junior high school students, finding significant pre-to-post improvements in agility (via side-step test), along with strength and speed . While not basketball-targeted, these findings support ladder drills' broader utility for athletic agility.

A systematic review (post-2016) on agility ladders highlighted the scarcity and methodological weaknesses of existing research: few randomized trials, poorly described protocols, and limited multi-dimensional performance measures. While such ladders are popular, the review's authors cautioned that claims of agility enhancement are "premature" given the current evidence. Though slightly outside your 2014–2016 window, this contextualizes the research gap and the need for well-designed studies.

EXPERMENTAL DESIGN

Find out the study effect of ladder drills and cone drills on agility among men basketball players .The study was formulated as a true random group design consisting of a pre-test and post test. The subjects men basketball Players who are participated inter collegiate tournaments in kadapa district (N=45) were randomly assigned to three equal groups of fifteen and their age ranged between 17-23 years . The selected subjects were divided into three groups randomly. Experimental Group I was considered ladder drills group, experimental group II was cone drills group and control group was not involved in any special treatment. Pre test was conducted for experimental Groups I and II and the control group on agility. Experimental groups underwent the respective training for 12 weeks. Immediately after the completion of 12 weeks training, all the subjects were measured of their post test scores on the selected criterion variable. The difference between the initial and final scores was considered the effect of respective treatments. To find out statistical significance of the results obtained, the data were subjected to statistical treatment using ANCOVA. In all cases 0.05 level was fixed to test the significance of the study.

RESULTS ON AGILITY

The statistical analysis comparing the initial and final means of Agility due to ladder drills and cone compared with control group among intercollegiate basketball players presented in Table I

Table I

COMPUTATION OF ANALYSIS OF COVARIANCE OF AGILITY

	LADDER DRILLS GROUP	COAN DRILLS GROUP	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre Test Mean	49.03	50.93	50.47	Between	58.82	2	29.41	1.61
				Within	1586.30	87	18.23	
Post Test Mean	56.07	58.43	51.17	Between	824.16	2	412.08	16.42*
				Within	2183.40	87	25.10	
Adjusted Post Test Mean	57.11	57.70	50.87	Between	858.12	2	429.06	46.35*
				Within	796.10	86	9.26	
Mean Diff	7.03	7.50	0.70					

Table F-ratio at 0.05 level of confidence for 2 and 87 (df) =3.10, 2 and 86 (df) =3.10.

*Significant

As shown in Table I, the obtained pre test means on agility on ladder drills group was 49.03, cone drills group was 50.93 was and control group was 50.47. The obtained pre test F value was 1.61 and the required table F value was 3.10, which proved that there was no significant difference among initial scores of the subjects.

The obtained post test means on agility on ladder drills group was 56.07, cone drills group was 58.43 was and control group was 51.17. The obtained post test F value was 16.42 and the required table F value was 3.10, which proved that there was significant difference among post test scores of the subjects.

Taking into consideration of the pre test means and post test means adjusted post test means were determined and analysis of covariance was done and the obtained F value 46.35 was greater than the required value of 3.10 and hence it was accepted that there was significant differences among the treated groups.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table II.

Table II

Scheffe's Confidence Interval Test Scores on Agility

MEANS				Required . C I
Ladder drills group Group	Cone drills Group	Control Group	Mean Difference	
57.11	57.70		-0.59	1.99
57.11		50.87	6.24*	1.99
	57.70	50.87	6.83*	1.99

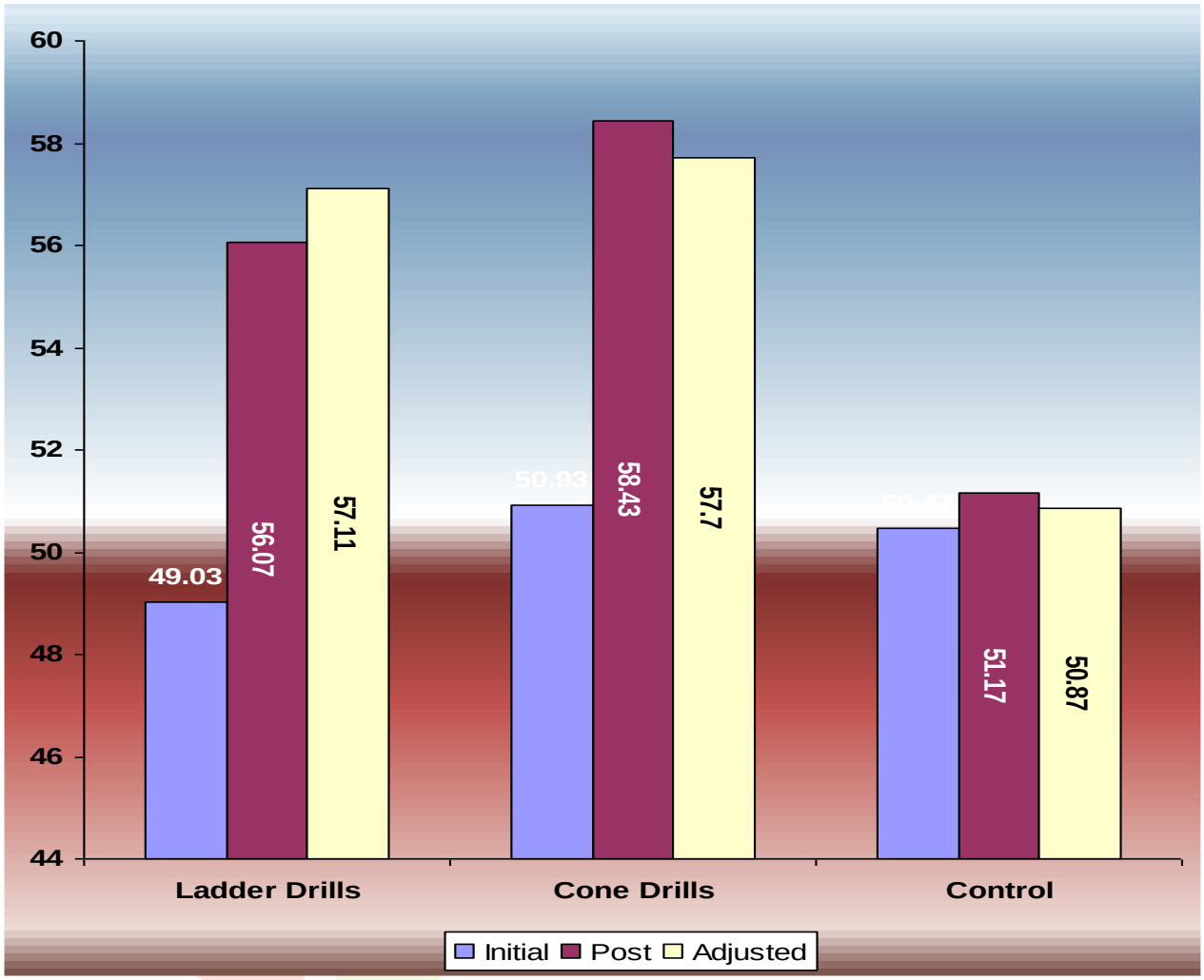
***** Significant

The post hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between ladder drills group and control group (MD: 6.24). There was significant difference between cone drills group and control group (MD: 6.83). There was no significant difference between treatment groups, namely, ladder drills group and cone drills group. (MD: -0.59).

The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure I.

Figure I

BAR DIAGRAM ON ORDERED ADJUSTED MEANS ON AGILITY



DISCUSSIONS AND FINDINGS ON AGILITY

The effect of ladder drills and cone drills on Agility is presented in Table I. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F value 46.35 was greater than the required table F value to be significant at 0.05 level.

Since significant F value was obtained, the results were further subjected to post hoc analysis and the results presented in Table II proved that there was significant difference between ladder drills group and control group (MD: 6.24) and cone drills group and control group (MD: 6.83). Comparing between the treatments groups, it was found that there was no significant difference between ladder drills and cone drills group group among intercollegiate male basketball players.

Thus, it was found that ladder drills group and cone drills were significantly better than control group in improving Agility of the intercollegiate male basketball players .

CONCLUSION

The findings of this study clearly demonstrate that both ladder drills and cone drills produced significant improvements in agility among intercollegiate men basketball players when compared with the control group. Statistical analysis confirmed that the experimental groups outperformed the control group, highlighting the effectiveness of these structured agility training methods. However, no significant difference was observed between the ladder drill group and the cone drill group, indicating that both methods are equally effective in enhancing agility. These results reinforce previous research conducted during 2014–2016, which emphasized the role of sport-specific drills in developing agility and change of direction skills in athletes across various sports.

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