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EFFECT OF LADDER DRILLS AND CONE DRILLS ON AGILITY AMONG KHO-KHO PLAYERS

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ABSTRACT

The present study aimed to investigate the effect of ladder drills and cone drills on agility among Kho-Kho players. Agility, a critical performance factor in Kho-Kho, requires rapid acceleration, deceleration, and directional changes. A total of 45 intercollegiate Kho-Kho players, aged 17 to 21 years, were randomly assigned into three equal groups: Ladder Drill Group (n=15), Cone Drill Group (n=15), and Control Group (n=15). The experimental groups underwent their respective training protocols for 12 weeks, while the control group did not receive any special training.

Agility was measured using a standard choice agility test before and after the intervention. Statistical analysis was conducted using ANCOVA and paired t-tests, with a significance level set at 0.05. The results showed significant improvements in agility for both the Ladder Drill Group (pre: M = 0.363, post: M = 0.330, t = -8.229*) and Cone Drill Group (pre: M = 0.352, post: M = 0.322, t = -16.08*), while the Control Group did not exhibit significant changes (t = 0.456). However, the comparison between the two experimental groups showed no significant difference (t = 0.798), indicating that both training methods were equally effective in enhancing agility.

In conclusion, both ladder drills and cone drills significantly improved agility among Kho-Kho players. These findings support the inclusion of structured agility drills in Kho-Kho training programs to enhance sport-specific performance.

Keywords: Agility, Ladder Drills, Cone Drills and Kho-Kho players

INTRODUCTION

Agility, defined as the ability to change direction quickly and efficiently while maintaining balance, coordination, and speed, is an essential component of performance in many field and court sports [1][2]. In the game of Kho-Kho, where rapid directional shifts, dodging, and sprinting form the crux of gameplay, agility becomes a cornerstone for success. Players are required to perform frequent starts, stops, and directional changes under pressure, making agility training a critical aspect of their conditioning[3].

Two widely used and effective training techniques for improving agility are ladder drills and cone drills. Ladder drills are designed to enhance foot speed, neuromuscular coordination, and movement precision through repetitive, structured footwork patterns [4]. These drills emphasize quick feet, rhythm, and timing, which are vital in Kho-Kho for dodging opponents and making swift transitions between chasing and running roles.

Cone drills, on the other hand, are more oriented towards improving change of direction, acceleration, deceleration, and body control during angular movements [5]. They mimic sport-specific movement patterns and help athletes practice explosive starts, controlled stops, and sharp cuts – all integral to high-level Kho-Kho performance [6][7]. Together, these drills offer a complementary approach to agility development, addressing both linear and multi-directional movement efficiency.

Research in other team sports like football, basketball, and rugby has shown that these drills not only improve physical performance but also reduce the risk of injury by promoting better body mechanics and balance[8][9]. However, there is limited research focusing on their specific effect on indigenous sports like Kho-Kho, which involves unique movement dynamics including rapid crouching, chasing, zig-zag running, and diving [10]

METHODOLOGY

SELECTION OF SUBJECTS

The purpose of the study is to find out the effect of ladder drills and cone drills on agility among kho-kho players . For these purpose intercollegiate level Kho-Kho players who participated at inter-collegiate level competitions were selected. 45 players in the age group of 17 to 21 were randomly selected as subjects for this study. The subjects were randomly selected into three groups, namely, experimental group I, experimental group II and control group consisting of 15 in each.

The subjects were oriented for the purpose of the study and all the subjects volunteered to undergo the treatments as the research would further enhance their abilities and contribute for the training methods.

SELECTION OF THE VARIABLES

Dependent Variables

1. Agility

Independent Variables

1. 12 weeks Ladder Drills Training
2. 12 Weeks Cone drills Training.

EXPERIMENTAL DESIGN

Find out the study effect of ladder drills and cone drills on agility among kho-kho players .The study was formulated as a true random group design consisting of a pre-test and post test. The subjects (N=45) were randomly assigned to three equal groups of fifteen . The selected subjects were divided into three groups randomly. Experimental group I was considered as 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 obtained data on the pre test scores on agility due to ladder drills and cone drills among kho- kho players were subjected statistical analysis using 't' test is presented in Table I.

Table I

't' RATIO COMPARISIONS ON AGILITY FOR PRE TEST SCORES

Group	Mean	MD	SD	SDM	t'
Ladder drills	0.363	0.010	0.037	0.009	1.148
cone drills	0.352		0.033		
Group	Mean	MD	SD	SDM	t'
Ladder drills	0.363	0.014	0.037	0.008	1.779
Control	0.349		0.022		
Group	Mean	MD	SD	SDM	t'
cone drills	0.352	0.003	0.033	0.007	0.477
Control	0.349		0.022		

Not Significant.

The scores compared between treatment groups and control group proved that there was no significant differences on means of choice Agility at initial stage as the obtained 't' values were less than the required 't' value.

The obtained data (post test scores) on the variable choice Agility to find out the effect of Ladder drills and cone drills among kho kho players were subjected statistical analysis using 't' test and presented in Table II.

Table II

't' RATIO COMPARISIONS ON CHOICE AGILITY FOR FINAL TEST SCORES

Group	Mean	MD	SD	SDM	t'
Ladder drills	0.330	0.007	0.039	0.009	0.798
cone drills	0.322		0.030		

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Group	Mean	MD	SD	SDM	t'
Ladder drills	0.330	-0.024	0.039	0.008	-2.809*
Control	0.353		0.025		
Group	Mean	MD	SD	SDM	t'
cone drills	0.322	-0.031	0.030	0.007	-4.318*
Control	0.353		0.025		

*** Significant**

The post experimental period scores on variable, choice Agility was presented in Table II. As can be seen there was no significant difference between Ladder drills and cone drills on choice Agility. Further, comparing with the control group, both training effects contributed for significantly alter choice Agility among kho kho players.

The pre test and post mean comparison of choice Agility among the three groups were presented in Table III.

Table III

't' RATIO COMPARISIONS ON CHOICE AGILITY TO DETERMINE TRAINING EFFECTS

DUE TO LADDER DRILLS TRAINING				
Test	Mean	MD	SD	t'
Pre	0.363	-0.033	0.022	-8.229*
Post	0.330			
DUE TO CONE DRILLS TRAINING				
Pre	0.352	-0.030	0.010	-16.08*
Post	0.322			
ON CONTROL GROUP				
Pre	0.349	0.004	0.053	0.456
Post	0.353			

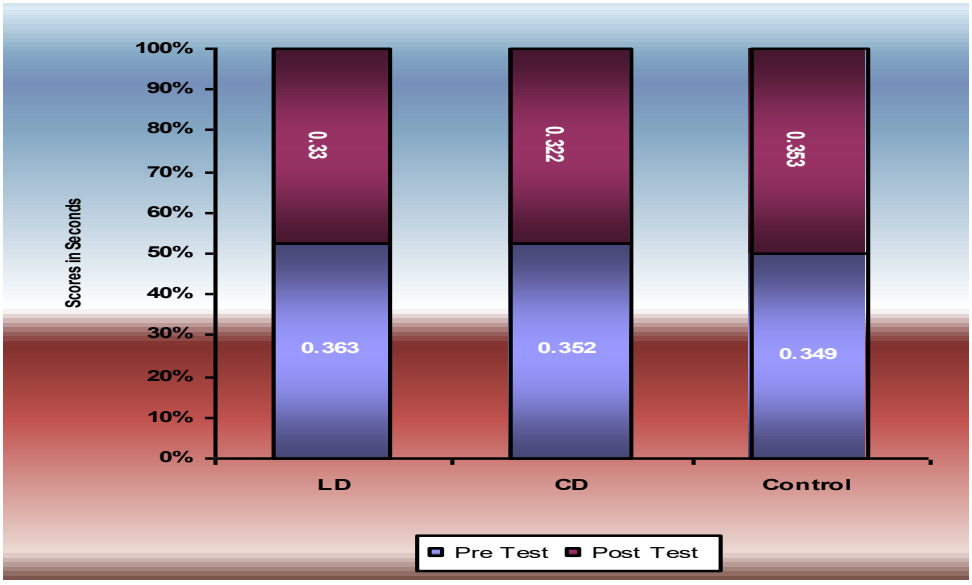
*** Significant**

As can be seen from the results presented in Table III, both the experimental groups namely, Ladder drills group and Cone drills significantly altered due to experimental treatments on variable choice Agility.

The pre and post test scores on choice reaction of the kho kho players are presented in Figure I.

Fig I

Diagraphical Presentation of Pre and Post Test Means on Choice Agility



CONCLUSION

The present study examined the impact of ladder drills and cone drills on agility among Kho-Kho players. The findings revealed that both training interventions led to significant improvements in agility when compared to the control group, which did not undergo any special training. Although there was no statistically significant difference between the effects of ladder drills and cone drills on agility, both methods proved to be effective in enhancing the players' ability to change direction quickly and efficiently.

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