



Effect of plyometric exercises and agility drills on kho-kho game performance among college level men kho kho players

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Abstract

The study was to examine the isolated and combined plyometric exercises and agility drills on kho-kho game performance among college level men kho kho players. Total N=48 (forty eighty) men college level men kho kho players recruited randomly from various college of Andhra Pradesh and their age period ranged from 18 years to 25 years as per subject's school records and, who at least participated college level kho kho games competitions. The chosen kho kho players was randomly recruited into four groups each group n=12 kho 2kho players i.e. empirical groups I kho kho players underwent isolated plyometric exercises (PEG) = 12), empirical group II kho kho players underwent isolated agility training (ATG = 12), empirical group III underwent combined plyometric exercises and agility training (CTG = 12) and control group kho kho players (NTG = 12). NTG was practiced only their respective specialization game. The training period was fixed for 18-week's duration and four sessions in a week. The measurement of kho kho technical skill scores was collected through three coaches Judgment rated scale in numbers Rating scale 1 to 10 points before and after the completion of specific training. The collected score's were analyzed through ANCOVA and level of significant was restricted at 0.05 levels. The study found that isolated, combined plyometric exercises and agility drills program had positive significant impact in improving kho kho game performance of kho kho players of three empirical group's players comparative to control group.

Keywords: Plyometric, exercises, agility, drill, technical and skills

Introduction

The sport training is a process of preparing an individual for any events or an activity. Usually sports training which denotes the sense of preparing sportsperson for the highest level of performance. Sport training is not just a term but it is very important subject that affects each and every individual who takes up physical activity or sports either for health and fitness or for competition at different levels. Hence, sports training is the physical, technical, intellectual, psychological and moral preparation of an athletes or a player by mans of physical exercise.

The fundamental skills of kho kho include chasing, dodging, team coordination, stamina, agility, tagging technique and communication. Speed is crucial as it allows chasers to catch runners and runners to evade being tagged. Agility enabling players to change direction rapidly, avoid being caught, and quickly pursue opponents. Plyometric exercises also known as jump training and throwing exercises to increase power, speed and agility.

Statement of the Research Problem

To analyze the "Effect of plyometric exercises and agility drills on kho-kho game performance among college level men kho kho players".

Objectives of this research study

1. The primary objective of this research study is to evaluate the 18-weeks influence of plyometric exercises and agility drills on kho-kho game performance parameters among college level men kho kho players.
2. The secondary objective of this research are
 - To compare the selected training methods between isolated and combined plyometric exercises and agility drills training method on kho-kho game performance among college level men kho kho players.

- To judge the best suitable training program among selected three treatments for enhancement of kho-kho game performance parameters' of college level men kho kho players.

Research Hypothesis

- There will be a significant improvement of kho-kho game performance of empirical group's kho kho players after the eighteen weeks impact of isolated and combined plyometric exercises and agility drills training when compared with control group kho kho players.
- The combined plyometric exercises and agility drills will be more effective than the isolated training program.

Methodology

The study was to examine the isolated and combined plyometric exercises and agility drills on kho-kho game performance among college level men kho-kho players. Total N=48 (forty eighty) men college level men kho kho players recruited randomly from various college of Andhra Pradesh and their age period ranged from 18 years to 25 years as per subject's school records and, who at least participated college level kho kho games competitions. The chosen kho kho players was randomly recruited into four groups each group n=12 kho kho players i.e. empirical groups I kho kho players underwent isolated plyometric exercises (PEG) = 12), empirical group II kho kho players underwent isolated agility training (ATG = 12), empirical group III underwent combined plyometric exercises and agility training (CTG = 12) and control group kho kho players (NTG = 12). NTG was practiced only their respective specialization game. The training period was fixed for 18- week's duration and four sessions in a week.

The measurement of kho kho technical skill scores was collected through three coaches Judgment rated scale in numbers Rating scale 1 to 10 points before and after the

completion of specific training. The collected scores were analyzed through ANCOVA and level of significant was restricted at 0.05 levels.

Table 1: Analysis of Covariance for kho kho game performance – three coaches Judgment rated scale in numbers (rating scale 1 to 10 points) of the PEG, ATG, CTG and NTG groups for Kho-kho players

Groups	PEG	ATG	CTG	NTG	SOV	Sum of squares	df	Mean Square	F' Ratio
Pre-test mean	5.000	5.875	5.458	5.666	B	2.042	3	0.681	0.689 ^{NS}
SD	1.022	1.150	0.782	0.984	W	43.458	44	0.988	
Post test mean	7.041	6.958	7.416	5.500	B	25.604	3	8.535	12.363*
SD	0.864	0.940	0.596	0.879	W	30.375	44	0.690	
Adjusted mean	6.906	6.890	7.575	5.545	B	26.073	3	8.691	21.344*
					W	17.509	43	0.407	
Mean difference	+2.041	+1.083	+1.958	-0.166	-	-	-	-	-

Note: Table F-ratio value at 0.05 level of confidence for 3 and 44 (df) =2.82, 3 and 43 (df) =2.82 *Significant & NS: Not significant

PEG: Plyometric exercises group.

ATG: Agility training group.

CTG: Combined plyometric exercises and agility training group.

NTG: Non-training group players.

The above table-I shows that there is a significant difference on kho kho game performance among the four groups such as isolated plyometric training group (PEG), isolated agility training group (ATG), combined plyometric and agility

training group (CTG) and control group kho kho players (NTG). Since the 'F' value required being significant at 0.05 level for 3, 44 d/f and 3, 43 are 2.82, but the computation values of kho kho game performance post and adjusted posttest 'F' values are 12.363 and 21.344 respectively. Which are greater than the tabulated value, it shows that training is effective for positive changes in kho kho game performance. Since the obtained 'F' ratio is found significant.

Table 2: The kho kho game performance – three coaches judgment rated scale in numbers (rating scale 1 to 10 points) results of scheffe's method test mean differences between PEG, ATG, CTG and NTG groups for kho-kho players

PEG	ATG	CTG	NTG	MD	CI
6.906	6.890	-	-	0.016 ^{NS}	0.234
6.906	-	7.575	-	0.615*	
6.906	-	-	5.545	1.361*	
-	6.890	7.575	-	0.685*	
-	6.890	-	5.545	1.345*	
-	-	7.575	5.545	2.030*	

Note: * Significant & NS: No significant

PEG: Plyometric exercises group.

ATG: Agility training group.

CTG: Combined plyometric exercises and agility training group.

NTG: Non-training group players.

In above table 2 presented the adjusted final mean variations between the Plyometric exercise group (PEG) and agility training group (ATG), plyometric exercise group (PEG) and control group kho kho player (NTG), agility training group (ATG) and combined plyometric and agility training group (CTG), agility training group (ATG) and control group kho kho player (NTG), combined plyometric exercises and agility training group kho kho players (CTG) and control group kho kho players (NTG) are 0.615, 1.361, 0.685, 1.345 and 2.030 were higher than CI value 0.234. Hence investigator recorded significant variations resulted between training groups and control groups.

Therefore adjusted final mean variations between the Plyometric exercises group (PEG) and agility training group (ATG) is 0.016 value lower than CI value 0.234. Hence investigator recorded no significant variations result.

The prior, final and adjusted post scores results mean of the PEG, ATG, CTG and NTG kho kho player groups for kho kho game performance – three coaches judgment rated scale in numbers (rating scale 1 to 10 points) clearly represented in bar diagram figure: 1.

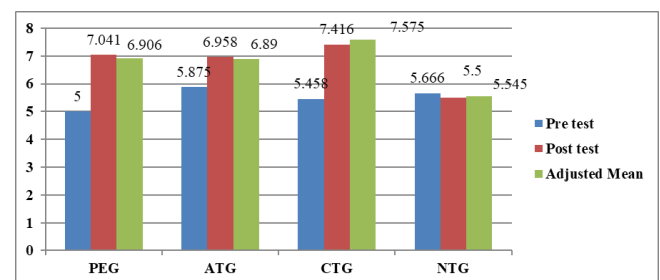


Fig 1: The kho kho game performance – three coaches judgment rated scale in numbers (rating scale 1 to 10 points) pre-post and adjusted post test mean numbers of PEG, ATG, CTG and NTG groups for kho-kho players presented in bar graph

PTG: Plyometric exercises group.

ATG: Agility training group.

CTG: Combined plyometric exercises and agility training group.

NTG: Non-training group players.

Discussion on Hypothesis

- The first hypotheses stated that will be a significant improvement of kho-kho game performance of empirical group's kho kho players after the eighteen weeks impact of isolated and combined plyometric exercises and agility drills training when compared with control group kho kho players. The statistical analysis

proved that isolated, combined yoga practice and circuit training program significantly increased the arms and shoulder strength endurance performance of basketball players. Hence research first hypothesis accepted.

- The second hypotheses stated that combined plyometric exercises and agility drills will be more effective than the isolated training program. The statistical analysis proved combined training is superior to isolated training method. Hence research second hypotheses accepted.

Discussion and findings

The impact of isolated and combined plyometric exercises and agility drills are constructive for improving kho kho game performance of kho kho players comparative with non-training group kho kho players. The studies connected with kho kho skill related parameters results are Guruvupandian (2022) ^[1] study shows that eight weeks of ladder training significantly improved the speed and agility performance of kho kho players. Ashok (2019) ^[2] study concluded that six weeks of interval significantly improved skill related physical variables of kho kho players. Makam *et al.*, (2024) ^[3] found that agility drills and speed resistance training in combination with endurance run is effective for improving kho kho playing abilities of tribal kho-kho players. Sandhyamol *et al.*, (2024) ^[4] findings reveal that both mud and mat surfaces are equally essential, even though the mud has a greater effect in HIIT on the response time and agility of female Kho-Kho athletes. Jaya and Johnson (2021) ^[5] demonstrated that saq training and circuit training are effective for increasing speed parameters of men kho kho players.

Conclusions

The study concluded that 12-weeks experiment of isolated and combined plyometric exercises and agility training effective for improving the kho kho game performance comparative to control group kho kho players. The combined plyometric exercises and agility training group kho kho players resulted better in kho kho game performance than isolated training groups. Finally, isolated plyometric exercises group and agility training group are equally effective for improving kho kho game performance of kho kho players.

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