



Research article

RELATIVE EFFECT OF PLYOMETRIC BALLISTIC TRAINING AND BASKETBALL DRILLS ON SELECTED PSYCHOMOTOR VARIABLES AMONG SCHOOL LEVEL BASKETBALL PLAYERS

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Abstract

The purpose of the Study was to find out the relative effect of plyometric ballistic training and basketball drills on selected psychomotor variables among school level basketball players. To achieve the purpose of the study, sixty (n=60) School level basketball players from CMC school, Vellor were selected as subjects at random and their age ranged between 16 to 18 years. The selected participants were randomly (simple random sample) assigned to one of four groups of fifteen (n=15) each, such as experimental group I, experimental group II, experimental group III and control group. The group I (n=15) underwent plyometric training, group II (n=15) underwent ballistic training, group III (n=15) underwent Basketball drill for a duration of 12 weeks and the number of sessions per week is confined to three days, in addition to the regular schedule and group IV (n=15) acted as control. Agility was selected as dependent variables for this study. The following independent variables were selected for this study such as plyometric training, ballistic training, and Basketball drill. The pre-test and post-test randomized control group design was used as experimental design. The collected data from the four groups prior to and immediately after the training programme on selected criterion variables were statistically analyzed with analysis of co-variance (ANCOVA) to find out the significant difference between experimental and control groups. Whenever the 'F' ratio for adjusted test was found to be significant, the Scheffe's test was applied as post-hoc test to find out paired mean difference. In all the cases 0.05 level of significant was fixed to test the hypothesis. The plyometric training, ballistic training, Basketball drill training had significantly improved the participants agility. The plyometric training had significantly outperformed than ballistic training, Basketball drill training on the participant's agility.

Key Words: *plyometric training, ballistic training, Basketball drill training*

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INTRODUCTION

Sports' training is done for improving sports performance. The sports performance, as any other type of human performance, is not the product of on single system or aspect of human personality. On the contrary, it is the product of the total personality of the sports person. The personality of a person has several dimensions e.g., physical, physiological, social and psychic. In order to improve sports performance the social and psychic capacities of the sports person also have to be improved in addition to the physical and physiological ones. In other words the total personality of a sportsman has to be improved in order to improve his performance. Sports' training, therefore, directly and indirectly aims at improving the personality of the sportsman. No wonder, therefore, sports training is an educational (i.e., pedagogical) process.

"Sports training is a planned and controlled process in which, for achieving a goal, changes in complex sports motor performance, ability to act and behavior are made through measures of content, methods and organisation". [Martin, 1979].

PURPOSE OF THE STUDY

The purpose of the Study was to find out the relative effect of plyometric ballistic training and basketball drills on selected psychomotor variables among school level basketball players.

METHODS AND MATERIALS

To achieve the purpose of the study sixty (n=60) School level basketball players from CMC school, Vellor were selected as subjects at random and their age ranged between 16 to 18 years. The

selected participants were randomly (simple random sample) assigned to one of four groups of fifteen (n=15) each, such as experimental group I, experimental group II, experimental group III and control group. The group I (n=15) underwent plyometric training, group II (n=15) underwent ballistic training, group III (n=15) underwent Basketball drill for a duration of 12 weeks and the number of sessions per week is confined to three days, in addition to the regular schedule and group IV (n=15) acted as control. Agility was selected as dependent variables for this study. The following independent variables were selected for this study such as plyometric training, ballistic training, and Basketball drill. The pre-test and post-test randomized control group design was used as experimental design. The collected data from the four groups prior to and immediately after the training programme on selected criterion variables were statistically analyzed with analysis of co-variance (ANCOVA) was used to find out the significant difference between experimental and control groups. Whenever the 'F' ratio for adjusted test was found to be significant, the Scheffe's test was applied as post-hoc test to find out paired mean difference. In all the cases 0.05 level of significant was fixed to test the hypothesis.

TRAINING PROGRAMME

PLYOMETRIC TRAINING

Plyometrics, also known as "jump training" or "plyos", are exercises in which muscles exert maximum force in short intervals of time, with the goal of increasing power (speed-strength). This training focuses on learning to move from a muscle extension to a contraction in a

rapid or "explosive" manner, such as in specialized repeated jumping.

BALLISTIC TRAINING

Ballistic training, also called power training, is a form of strength training in which an athlete lifts, accelerates, and then releases the weight, rather than slowly lowering it as in other forms of weight training, Ballistic training

is commonly used by athletes to develop explosiveness and power.

BASKETBALL BALL DRILL

Regardless of the style of basketball your team plays, all players need to be able to handle the ball. The best way for a player to gain confidence in ball handling is through hours of practice. When doing ball-handling drills

ANALYSIS OF DATA

TABLE – I
THE RESULTS OF ANALYSIS OF COVARIANCE ON
AGILITY OF DIFFERENT GROUPS

Test Conditions		G- 1	G- 2	G-3	G-4	S V	SS	Df	MS	'F' Ratio
Pre test	Mean	6.28	6.30	6.29	6.31	B	0.0055	3	0.0028	0.78
	S.D.	0.06	0.06	0.05	0.05	W	0.2017	56	0.0035	
Post test	Mean	6.12	6.08	6.30	6.28	B	0.4904	3	0.2452	57.52*
	S.D.	0.07	0.07	0.05	0.05	W	0.2430	56	0.0043	
Adjusted post test	Mean	6.12	6.07	6.15	6.31	B	0.5121	3	0.2560	147.15*
						W	0.0974	57	0.0017	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 3 and 56 and 3 and 57 are 3.16). B-Between, W-Within, SS-Sum of Square, Df-Degrees of Freedom, MS-Means Square

RESULTS OF AGILITY

The pre test mean and standard deviation on agility of G1, G2, G3, and G4 were 6.28 ± 0.06 , 6.30 ± 0.06 , 6.29 ± 0.05 and 6.31 ± 0.05 respectively, the obtained pre test F value of 0.78 was lesser than the required table F value of 3.16. Hence the pre test mean value plyometric training, ballistic training, Basketball drill and control group on agility, before start of the respective treatments were found to be insignificant at 0.05 level of confidence for the degrees of freedom 3 and 56. Thus this analysis

confirmed that the random assignment of subjects into four groups were successful.

The post test mean and standard deviation on agility scores of G1, G2, G3, and G4 were 6.12 ± 0.07 , 6.09 ± 0.07 , 6.30 ± 0.05 and 6.28 ± 0.05 respectively. The obtained post test F value of 57.52 was greater than the required table F value of 3.16. Hence the post – test mean value of agility, showed significant at 0.05 level of confidence for the degrees of freedom 3 and 56. Thus the result obtained proved that the interventions namely plyometric training, ballistic training, Basketball drill on agility produced significantly different

improvements between the training groups.

The adjusted post test mean on agility scores of G1, G2, G3, and G4 were 6.12, 6.07, 6.15 and 6.31 respectively. The obtained adjusted post-test F value 147.15 was greater than the required table F value of 3.16. Hence the post test mean value of agility, showed significant at 0.05 level of confidence for the degrees of freedom 3 and 56.

The end results of analysis of covariance prove that there was significant difference on the selected three trainings and control group on agility. In order to find out which intervention programme used in the present study was the source for the significance of adjusted mean was tested by Scheffe's post hoc test.

TABLE - II
THE RESULTS OF SCHEFFE'S POST HOC TEST MEAN DIFFERENCES
ON AGILITY AMONG FOUR GROUPS

PT	BT	BBDT	C.G	Mean Differences	Confidence Interval Value
6.12	6.07			0.05*	0.04
	6.07		6.31	0.26*	0.04
6.12			6.31	0.16*	0.04
	6.07	6.15		0.08*	0.04

* Significant at .05 level of confidence.

RESULTS OF POST - HOC TEST ON AGILITY

The table II shows that the pair wise comparisons of between the groups on agility. The paired mean differences of group 1 and 2, group 1 and 3, group 2 and 3 group 2 and 3 were 0.05, 0.26, 0.16, and 0.08 greater than the confidential interval value of 0.04. Hence all three comparisons show the significant. The overall observations of the pair wise comparisons indicate that, the selected three training proved better performance on agility compared with control group. Further, between the three

trainings the plyometric training confirms that best in agility performance, rather than other trainings.

CONCLUSIONS

The following conclusions were derived from the present Study

The plyometric training, ballistic training, Basketball ball drill training had significantly improved the participants agility. The plyometric training had significantly outperformed than ballistic training, Basketball drill training on the participant's agility.

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