Research Paper Physical Education

Effect of Different Trainings on Speed and Dribbling Performance Among Intercollegiate Basketball Players

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ABSTRACT

The purpose of the study was to find out the effect of different trainings on speed and dribbling performance among intercollegiate basketball players. To achieve the purpose of the study, 30 male basketball players were randomly selected as participants from Bharathidasan University affiliated colleges. The selected participants were divided into three groups such as Group I underwent weight training (n=10), Group II underwent plyometric training (n=10) and Group III underwent combined training (n=10). The experimental groups I, II& III was subjected to eight weeks weight training, plyometric training, and combined training respectively. The training was given 3days per week on alternate days every training session lasted for 45 to 60 minutes in addition to their regular training programme. The participants of all groups were tested on Speed and dribbling prior to and after the training period. The data were collected by administering 50 Meters Run for Speed and Johnson basketball skill test for dribbling. The pre-test data were collected two days before the training program and the post-test data were collected two days after the training program. The data collected from pre-test and post-test experimentation on Speed and dribbling before and after the training period and statistically analyzed by using dependent 't' test and analysis of covariance (ANCOVA) was applied to find out significant difference if any between the experimental group. It was concluded that, there was a significant improvement and significant different exist due to the effect of weight training, plyometric training and combined training on speed and dribbling performance among intercollegiate basketball players.

KEYWORDS Plyometrics and Combined training

INTRODUCTION

Basketball players move with great speed over a limited space. It is one of the most vigorous games and requires a great variety of athletic traits. In the game of basketball all the movements are involved like passing, throwing, changing the direction quickly, and sudden stop, jumping for rebound, feinting, maneuvering the opponent while going for offensive move and guarding the opponents in the defensive. All these require rapid movements demanding frequent changes in direction. For one to respond to such situation a player should possess good motor fitness, physiological and psychological qualities.

Basketball is a highly competitive game and it demands high physical qualities. The prime physical qualities are explosive strength, strength endurance, agility, speed, various coordinative abilities etc. Height without fitness or technical ability without endurance becomes a liability. In all court games, including basketball, fast starts, sudden stops, and quick change in direction are basic to good performance **(Griffith and Sian, 2011)**.

Speed is the ability to achieve high velocity. It is a manifestation of explosive force applied to a specific task but is often incorrectly perceived as independent from (or incompatible with) strength. Functional motor skill requiring accelerate as well as declarative speed strength **(Bacechle and Earle, 2000).**

Dribbling is the act of bouncing the ball continuously with one hand, and to move the ball around the court of opponent is a requirement for a player to take steps with the ball. For that, purpose the players required speed quality to tackle the ball and move around the court. Good ball handlers frequently dribble and move fast and switch directions suddenly, making a less predictable dribbling pattern that is more difficult to defend against.

Weight training is used to develop strength of specific areas of the body. It is used to develop muscular strength and power. It also develops muscular endurance, elasticity and coordination. The primary objective of weight training is not to learn to lift as much as weight as possible, but to increase strength and power for application to some other sports.

Plyometrics are training drills that are designed to the quality in the athlete which bridges the gap between sheer strength and the power required to produce explosive reactive movements shown very clearly in activities like jumping, throwing and sprinting. Plyometric drills involve a quick, powerful movement using a pre-stretch or counter-movement that involves the stretch shortening cycle. Classical plyometric exercises include various types of jump training and upper body drills using medicine balls (**Baechle, 2000**).

A combination of plyometric training and weight training yields greater results than either done alone (**Adams et al., 1992**). One needs to train with both heavy and light loads to develop speed-strength, maximum strength and power are not distinct entities, that influenced by train to combine both the strength and speed components for maximum power most of physical activity requires a combination of strength and speed. The relative combination of each depends on the sports and the position of play. Furthermore, light load plyometric training alone will increase maximum strength early in training and then it results in diminished power production over time with heavy weight training.

METHODOLOGY

To achieve the purpose of the study, 30 male basketball players were randomly selected as participants from Bharathidasan University affiliated colleges. The selected participants were divided into three groups such as Group I underwent weight training (n=10), Group II underwent plyometric training (n=10) and Group III underwent combined training (n=10). The experimental groups I, II& III was subjected to eight weeks weight training, plyometric training, and combined training respectively. The training was given 3days per week on alternate days every training session lasted for 45 to 60 minutes in addition to their regular training programme. The participants of all groups were tested on Speed and dribbling prior to and after the training period. The data were collected by administering 50 Meters Run for Speed and Johnson basketball skill test for dribbling. The pre-test data were collected two days before the training program and the post-test data were collected two days after the training program. The data collected from pre-test and post-test experimentation on Speed and dribbling before and after the training period and statistically analyzed by using dependent 't' test and analysis of covariance (ANCOVA) was applied to find out significant difference if any between the experimental group.

RESULTS AND DISCUSSIONS

Table – I
Mean and Paired Sample 't' Test of Weight Plyometric and Combined Training Group on Selected Dependent Variables

Name of training groups	Name of dependent variables	Pre test mean	Post test mean	't'
WEIGHT	Speed	6.66	6.41	3.10*
	Dribbling	14.80	19.80	10.11*
PLYOMETRIC	Speed	6.83	6.34	10.17*
	Dribbling	15.2	22.80	8.04*
COMBINED	Speed	6.70	15.20	13.12*
	Dribbling	6.12	25.40	12.98*

Significant of 0.05 level

Table value for level of significant df 9 was 2.262.

The paired sample 't' was compute on selected dependent variables. The results were presented in the above Table I. All the 't' values are significantly higher than the required table value of df 9 at 0.05 level of confidence was 2.262. The result of the study shows that the weight training, plyometric training and combined (weight and plyometrics) training group significantly improved the performance of all the selected dependent variables. The results of the study shows that selected dependent variables speed and dribbling performance significantly improve due to the eight week weight training, plyometric training and combined (weight and plyometrics) training program.

Speed

Table II Presents the results of the ANCOVA for weight training, plyometric training and combined (weight and plyometric) training on Selected dependent variables.

Table – II Analysis of Covariance Computed for Weight Training Plyometric Training and Combined Training for Selected Dependent Variables

Variables	SOURCE	SS	df	MS	F
Speed	Groups	0.504	2	0.252	8.14*
	Error	0.806	26	0.031	
Dribbling	Groups	144.324	2	72.162	15.80*
	Error	118.774	26	4.568	

***Significant at 0.05 level of confidence**

Table value required for significance at 0.05 level of 2 & 26 was 3.37

One way analysis of covariance (ANCOVA) was computed for the dependent variable Speed and dribbling. The independent variables included three training groups, weight training, plyometric training and combined training. The dependent variable was speed and dibbling, the covariate was an initial performance of the 50 meters run and Johnson basketball skill test for dribbling. The ANCOVA 'F' ratio was significant for df (2, 26) = 8.14, p <0.05 (See Table II) for speed and The ANCOVA 'F' ratio was significant for df (2, 26) = 15.80, p <0.05 (See Table II) for dribbling. In order to find out which of the paired means significantly differ scheffe's post hoc test is applied and present in the Table III for three training groups.

Table – III
SCHEFFE'S POST HOC PAIRED MEANS COMPARISONS ON SPEED OF EXPERIMENTAL GROUPS

Group	Adjusted mean	Adjusted mean differences			
		1	2	3	4
Weight	6.458	----			
Plyometric	6.271	0.19	----		
Combined	6.141	0.32*	0.13	----	

***Significant at 0.05 level of confidence Scheffe's C.I value 0.31;**

Follow-up was conducted to evaluate pairwise differences among the adjusted means for experimental groups. The results showed that combined training group (M = 6.141) had significantly better than the plyometric training group (M = 6.271) and weight training group (M = 6.458). Combined training group had better performance over the plyometric training and weight training group. Combined training group and Weight training group shows significant differences on speed performance, combined training group and Plyometric training group do not show any significant differences on speed performance.

Dribbling

One way analysis of covariance (ANCOVA) was computed for the dependent variable dribbling. The independent variables included three training groups, weight training, plyometric training and combined training. The dependent variable was Dribbling and the covariate was an initial performance of the Johnson Basketball skill Test. The ANCOVA 'F' ratio was significant for df (2, 26) = 15.80, p <0.05 (See Table II). In order to find out which of the paired means significantly differ scheffe's post hoc test is applied and present in the Table IV for three training groups.

Table – IV
SCHEFFE'S POST HOC PAIRED MEANS COMPARISONS ON DRIBBLING OF EXPERIMENTAL GROUPS

Group	Adjusted mean	Adjusted mean differences			
		1	2	3	4
Weight	19.944	----			
Plyometric	22.728	2.78	----		
Combined	25.328	5.38*	2.60	----	

***Significant at 0.05 level of confidence Scheffe's C.I value 2.88**

Follow-up was conducted to evaluate pairwise differences among the adjusted means for experimental groups. The results showed that combined training group (M = 25.328) had significantly better than the plyometric training group (M = 22.728) and weight training group (M = 19.944). Combined training group had better performance over the plyometric training group and weight training group. Combined training group and Weight training group shows significant differences on speed performance, combined training group and Plyometric training group do not show any significant differences on Dribbling performance.

CONCLUSIONS

From the study the following conclusions were arrived at.

1. There was significant improvement in weight training, plyometric training and combined training group participants in speed and dribbling performance.
2. The experimental groups namely weight training, plyometric training and combined training groups had significant difference towards improving the participants speed and dribbling performance.
3. Combined training group and weight training group shows significant differences improving the speed and dribbling performance.
4. Combined training group and plyometric training group did not show any significant differences improving the speed and dribbling performance.

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