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Effects of Combination of Basketball Specific Fitness and Strength Training on Speed of College Male Basketball Players

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Abstract

The analysis of the research paper is to evaluate the effects of combination of basketball specific fitness and strength training on speed of male basketball players. The eighty collegiate basketball players are selected from Kovai Kalaimagal Educational Institutions and they were equally allotted in four groups. Group –I Basketball Specific Fitness Training Group (BSFTG) (n=20), Group –II, Strength Training Group (STG) (n=20), Group –III Combination of Basketball Specific Fitness and Strength Training Group (CBSFSTG) (n=20) and Group-IV act as a Control Group (n=20). The intention was to evaluate the speed in 50 meter Dash test, as measured before and after a twelve week training period. The subjects in each training groups were trained 4 days per week, whereas control group subjects did not participate in any training activity. The data were analyzed by't 'ratio, analysis of variance, analysis of co-variance, and Scheffe's post hoc test. The results showed that all the training treatments elicited significant (P<0.05) improvement in all of the tested variables of speed. However, the combination of basketball specific and strength training significantly improved speed.

Keywords: BSFTG- Basketball Specific Fitness Training Group, STG-Strength Training Group, CBSFSTG- Combination of Basketball Specific Fitness and Strength Training Group, Speed.

Introduction

Functional strength training has become somewhat of a cliché over the past decade, being used to describe a variety of exercises that are performed on unstable surfaces with bands or balls while trying to mimic the exact movements of sport (such as weighting down a bat with elastic resistance then trying to mimic the swing). This is NOT the type of functional strength training we are referring to in this post. Trying to mimic exact sporting movements is only possible by performing those specific movements in their natural setting. Any attempt to specifically mimic a sporting action while adding significant amounts of resistance will alter the motor program in which the athlete performs the sporting action. This alteration can be detrimental to the athlete's ability to perform this sporting action with the correct center of gravity, inertia, mechanics and neuromuscular skill required to achieve success on the field, court, track or platform. Our approach to Functional Strength Training is not to mimic sporting action, but rather to prepare the body physically for all sporting actions by laying a foundation of strength, body control and rhythmic synchronization of various movements associated with athletic performance. Movements like: Jumping (single and double leg) Landing (single and double leg), Linear and Lateral Deceleration, Rotation (hitting, punching, throwing, cutting), Acceleration through Hip Extension (vertically, laterally, linearly). To complete the model for a functional approach to strength training, you must look at the cognitive variables as well as the physiological variables. The athlete must posses the ability to take and apply instruction. The athlete needs to be able to subconsciously transition from loaded to unloaded exercises without distortion or alteration of the complex, sport specific action. This means they must already have the motor program for specific sporting actions perfected before adding new stimulus (velocity, complexity or load). Immaturity whether in movement or capacity for applying instruction, will be detrimental to the overall development of the athlete.

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Methodology

The purpose of the study is to evaluate the effects of combination of basketball specific fitness and strength training on speed of male basketball players. The eighty collegiate basketball players are selected from Kovai Kalaimagal Educational Institutions and they were equally allotted in four groups. Pre and post test rondom group design was applied. Group –I Basketball Specific Fitness Training Group (BSFTG) (n=20), Group –II, Strength Training Group (STG) (n=20), Group –III Combination of Basketball Specific Fitness and Strength Training Group (CBSFSTG) (n=20) and Group-IV act as a Control Group (n=20). The intention was to evaluate the speed in 50 meter Dash test, as measured before and

after a twelve week training period. The subjects in each training groups were trained 4 days per week, whereas control group subjects did not participate in any training activity. The data were analyzed by‘t ‘ratio, analysis of variance, analysis of co-variance, and Scheffe’s post hoc test.

Table 1
Significance of mean gains / losses between pre and post test of bsftg on speed of college male basketball players

Variables	Test	Mean	Std. Div.	S.E.M	M.D	‘t’ Ratio
SPEED	Pre-test	7.15	0.39	0.08	0.45	5.20*
	Post –test	6.69	0.35			

** Significant at 0.05 level (Table value2.09)*

Table 1 shows the obtained ‘t’ ratio’s for pre and post test mean difference in the selected variables of Speed. The obtained ’t’ ratio value 5.20 is when compared with the table value of 2.09 for the degrees of freedom (1, 19) it was found to be statistically significant at 0.05 level of confidence.

Table 2
Significance of mean gains / losses between pre and post test of stg on speed of college male basketball players

Variables	Test	Mean	Std. Div.	S.E.M	M.D	‘t’ Ratio
SPEED	Pre-test	7.12	0.51	0.01	0.08	6.18*
	Post –test	7.03	0.50			

** Significant at 0.05 level (Table value2.09)*

Table 2 shows the obtained ‘t’ ratio’s for pre and post test mean difference in the selected variables of Speed. The obtained ’t’ ratio value 6.18 is when compared with the table value of 2.09 for the degrees of freedom (1, 19) it was found to be statistically significant at 0.05 level of confidence.

Table 3
Significance of mean gains / losses between pre and post test of cbsfstg on speed of college male basketball players

Variables	Test	Mean	Std. Div.	S.E.M	M.D	‘t’ Ratio
SPEED	Pre-test	7.12	0.47	0.11	0.86	4.25*
	Post –test	6.26	0.31			

** Significant at 0.05 level (Table value2.09)*

Table 3 shows the obtained ‘t’ ratio’s for pre and post test mean difference in the selected variables of Speed. The obtained ’t’ ratio value 4.25 is when compared with the table value of 2.09 for the degrees of freedom (1, 19) it was found to be statistically significant at 0.05 level of confidence.

Table 4
Significance of mean gains / losses between pre and post test of cg on speed of college male basketball players

Variables	Test	Mean	Std. Div.	S.E.M	M.D	‘t’ Ratio
SPEED	Pre-test	7.1420	.41082	.04000	.04000	1.000
	Post –test	7.1020	.32783			

Table 4 shows the obtained ‘t’ ratio’s for pre and post test mean difference in the selected variables of Speed. The obtained ’t’ ratio value 1.000 is when compared with the table value of 2.09 for the degrees of

freedom (1, 19) it was found that statistically not significant at 0.05 level of confidence.

Table 5
The table shows the mean values of pre, post and adjusted post test of BSFTG, STG, CBSFSTG and control group on speed

Mean	BSFTG	STG	CBSFSTG	CG	Source of variance	Sum of square	df	Mean square	**'f'**
Pre-test	7.15	7.12	7.12	7.14	**B.G**	0.012	3	0.004	0.020
					W.G	15.58	76	0.205	
Post –test	6.69	7.03	6.26	7.10	**B.G**	8.90	3	2.968	20.17*
					W.G	11.18	76	0.147	
Adjusted post test	6.68	7.04	6.26	7.09	**B.G**	8.77	3	2.926	35.77*
					W.G	6.13	75	0.082	

** Significant at 0.05 level (Table value2.72)*

Table 5 reveals that the obtained 'F' value on pre – test means of speed was 7.15 for experimental group – I, 7.12 for experimental group – II, 7.12 for experimental group – III and 7.14 for control group. The obtained 'F' ratio 0.020 was lesser than the table value 2.72. Hence the pre test means were found to be insignificant at 0.05 level of confidence for the degree of freedom 3 and 76. The post - test means were 6.69 for experimental group – I, 7.03 for experimental group – II, 6.26 for experimental group – III and 7.10 for control group. The obtained 'F' ratio 20.17 was higher than the table value 2.72. Hence the post – test means were found to be significant at 0.05 level of confidence for degree of freedom 3 and 76. The adjusted post – test means were 6.68 for experimental group – I, 7.04 for experimental group – II, 6.26 for experimental group – III and 7.09 for control group. The obtained 'F' ratio 35.77 was higher than the table value 2.72. Hence the adjusted post test means were found to be significant at 0.05 level of confidence for the degrees of freedom 3 and 75. It was concluded that there was a significant mean difference among the Basketball Specific Fitness Training Group, Strength Training Group, Combination of Basketball Specific Fitness and Strength Training Group and Control Group in developing the speed of the college male basketball players.

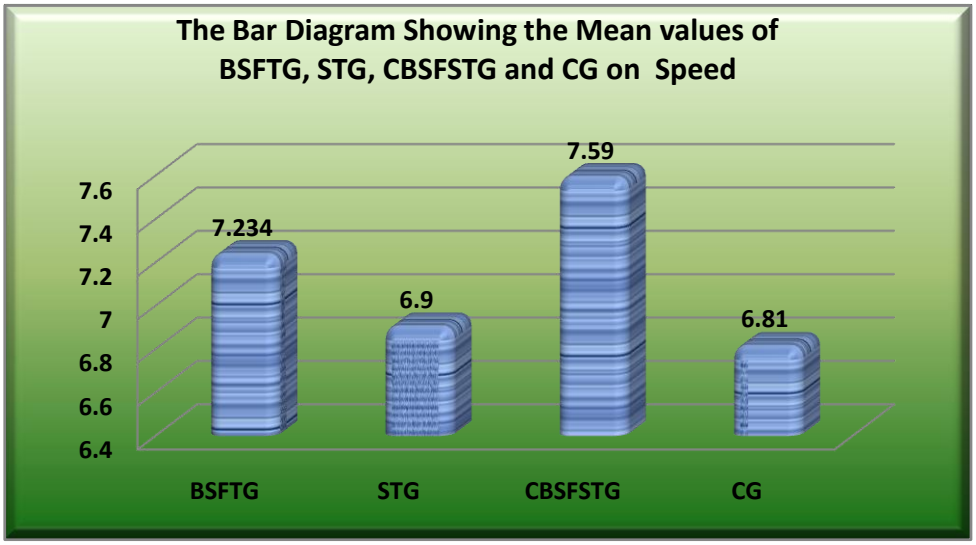
Table 6
The scheffe's test for the differences between paired means on speed

BSFTG	STG	CBSFSTG	CG	**Mean Differences**	**Confidence Interval Value**
6.68	7.04	-	-	0.36	0.254
6.68	-	6.26	-	-0.42	0.254
6.68	-	-	7.09	0.41	0.254
-	7.04	6.26	-	-0.78	0.254
-	7.04	-	7.09	0.05	0.254
-	-	6.26	7.09	0.83	0.254

Table 6 shows the post hoc analysis of obtained order adjusted post test means. The confidential interval mean difference required to be significant was 0.254. It was observed that the mean difference values of Combination of Basketball Specific Fitness Training Group and Strength Training Group in developing the speed was significantly higher than the Basketball Specific Fitness Training Group, Strength Training Group and Control Group. The Basketball Specific Fitness Training Group developed the speed better than the Strength Training Group and Control Group. The Strength Training Group developed speed better than the

Control Group.

Bar Diagram



Basketball Specific Fitness Training Group, Strength Training Group, Combination of Basketball Specific Fitness and Strength Training Group significantly showed improvement in speed from pre test to post test. The speed decreased in the BSFTG group from pre test (7.15 ± 0.39) to post test (6.69± 0.35); STG group from pre test (7.12 ± 0.51) to post test (7.03 ± 0.50); CBSFSTG group from pre test (7.12 ± 0.47) to post test (6.26 ±0.31) and there were no change in control group from pre test (7.14 ± 0.41) to post test (7.10 ± 0.32). The speed significantly showed improvement from pre test to post test in the three Treatment groups and there was no changes in control group.

The present study demonstrated that an increase in Speed of 6.29 %, 1.12 %, 12.07 % and 0.56 % was estimated with 50 meter dash for the Basketball Specific Fitness Training Group, Strength Training Group, Combination of Basketball Specific Fitness and Strength Training Group and Control Group respectively. The Combination of Basketball Specific Fitness and Strength Training significantly showed improvement in Speed by 12.07 % better than the Basketball Specific Fitness Training Group 6.29 %, Strength Training Group 1.12 % and Control Group 0.56 %. The Basketball Specific Fitness Training Group improved in Speed by 6.29% better than the Strength Training Group 1.121 % and control group 0.56 %. The Strength Training Group improved in Speed by 1.12 % better than the Control Group 0.56%.

Result of the Study

1. It was resulted that the Basketball Specific Training significantly improved the speed of college male basketball players.
2. It was resulted that the Strength Training significantly improved the speed of college male basketball players.
3. It was resulted that the Combination of Basketball Specific Fitness and Strength Training significantly improved the speed of college male basketball players.
4. It was resulted that the Combination of Basketball Specific Fitness and Strength Training significantly improved the speed better than the Basketball Specific Fitness Training and Strength Training of college male basketball players.

Conclusion

It was concluded that the Combination of Basketball Specific Fitness and Strength Training is the best training to develop the speed of college male basketball players.

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