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ORIGINAL ARTICLE

INFLUENCE OF STRENGTH TRAINING ON SELECTED SPEED AND STRENGTH PARAMETERS AMONG BASKET BALL PLAYERS

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Abstract:

The study was designed to investigate the impact of strength training on selected strength and speed parameters among basketball players. To achieve the purpose 30 subject, age ranged between 18 and 25 years was selected from Bharathidasan University and Anna University, Tiruchirappalli, Tamil Nadu, India. The subjects (n=30) were randomly assigned to two equal groups of fifteen each. The groups were assigned as experiment group (EG) and control group (CG). The experimental group participate in the in the strength training for a period of six weeks. The subjects of the control group were not participated in any physical activities. The strength training programme was scheduled at 6.30 to 7.30am for three days in week. The post test was conducted for all subjects on strength and speed parameters namely speed, strength, explosive power and muscular endurance. To analyze the data analysis of covariance was used. The result reveals that there was a significant difference on speed, strength, explosive power and muscular endurance of experimental group than control group.

KEY WORDS:

strength training, speed, strength, explosive power, muscular endurance.

INTRODUCTION

Now-a-days, basketball is the second most popular international sport in the world. A key factor underpinning the dearth of research in team sports is the complexity of quantifying the important elements of these sports. Intermittent, high-intensity team sports such as the court sports (e.g. basketball, volleyball, netball) and field sports (e.g. football, field hockey) have many complex demands that require a combination of fitness, skills, team plays, tactics and strategies, and motivational aspects. Despite these complexities, it seems likely that a key area that plays an important role in basketball success is a player's physical fitness and body size. The modern game of basketball has evolved to the point where tall, heavy players are preferentially recruited to key positions close to the basket, while faster and more agile players are chosen for perimeter positions

To demonstrate the importance of strength, power, and muscle mass to basketball players, fitness test scores have been previously linked with basketball level of play, individual player success, playing time, position, and team success. These research outcomes and the practical experience obtained on court has increased the interest of coaches in the size and physical fitness of their players. Given the importance of strength, power, and muscle mass to basketball, players are often prescribed a strength-training program. While many basketball players participate in strength training, the rationale for this element of the physical preparation is widely debated.

Strength as the ability to develop force against an unyielding resistance in a single contraction of

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unlimited duration. This definition of strength as a static measure avoids consideration of the complex interaction of force development and the velocity of concentric and eccentric muscle actions. Strength is operationally defining as the maximal force a muscle or muscle group can generate at a specified or determine velocity.

Strength Training is when you perform exercises with resistance to build muscle mass and strength. Strength training is not running on a treadmill, riding a stationary bike, or using an elliptical machine. Although those types of aerobic machines use "resistance" to increase your workout intensity, it's not the same as strength training. The most common form of strength training is lifting weights. Weight lifting can include free weights, machines, elastic bands, body weight or any other form of resistance. The reason is because muscle tissue is the most metabolically active tissue in the body and burns up to 50 calories per pound! That means if you can add 5 extra pounds of solid muscle to your body, you will burn an extra 250 calories every day just sitting around! In a recent study, researchers found that regular weight training boosts basal metabolic rate by about 15%. Use strength training to turn your body into a fat burning, muscle building machine.

OBJECTIVES

1.To find out the impact of strength training on selected strength parameters among basketball players
2.To find out the impact of strength training on selected speed parameters among basketball players

MATERIALS AND METHODS

To achieve the purpose 30 subject, age ranged between 18 and 25 years was selected from Bharathidasan University and Anna University. The subjects (n=30) were randomly assigned to two equal groups of fifteen in each. The groups were assigned as experiment group (EG) and control group (CG). The experimental group participates in the strength training for a period of six weeks. The subjects of the control group were not participated in any physical activities. The strength training programme was scheduled at 6.30 to 7.30am for three days in week. The post test was conducted for all subjects on strength and speed parameters namely speed, strength, explosive power and muscular endurance. To analyze the data analysis of covariance was used.

TABLE-I
COMPUTATION OF MEAN AND ANALYSIS OF COVARIANCE OF SPEED OF EXPERIMENTAL AND CONTROL GROUPS

Test	Control group	Experimental group	Sum of variance	Sum of squares	df	Mean square	F ratio
Pre test mean SD (±)	3.70	3.84	B,G	0.14	1	0.14	1.73
			W,G	0.41	28	0.01	
Post test mean SD (±)	3.68	3.39	B,G	0.59	1	0.59	48.04*
			W,G	0.35	28	0.01	
Adjusted mean	3.71	3.35	B,G	0.74	1	0.74	98.38*
			W,G	0.2	27	0.01	

* Significant at 0.05 level
(Table value for df 1 and 28 was 4.2, Table value for df 1 and 27 was 4.20)

The above table indicates the adjusted mean value of speed of control and experimental groups were 3.71 and 3.35 respectively. The obtained F-ratio of 98.38 for adjusted mean was greater than the table value 4.20 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among experimental and control group on speed. The above table also indicates that both pre and post test of control and experimental groups have significant difference.

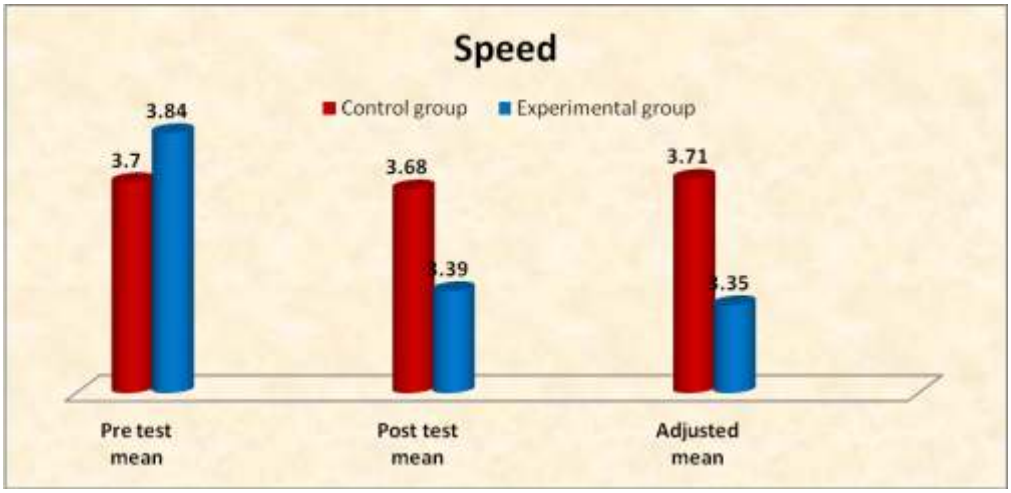

Figure-I
The pre, post and adjusted mean values of speed of both control experimental groups are graphically represented in the Figure I

TABLE-II
COMPUTATION OF MEAN AND ANALYSIS OF COVARIANCE OF LEG STRENGTH OF EXPERIMENTAL GROUPS AND CONTROL

Test	Control group	Experimental group	Sum of variance	Sum of squares	df	Mean square	F ratio
Pre test mean SD (±)	9.12	9.14	B,G	0.0036	1	0.0036	0.33
			W,G	0.31	28	0.01	
Post test mean SD (±)	8.61	9.27	B,G	3.27	1	3.26	79.18*
			W,G	1.16	28	0.04	
Adjusted mean	8.62	9.27	B,G	3.17	1	3.17	75.76*
			W,G	1.13	27	0.04	

* Significant at 0.05 level

(Table value for df 1 and 28 was 4.20, Table value for df 1 and 27 was 4.20)

The above table indicates the adjusted mean value of leg strength of control and experimental groups were 8.62 and 9.27 respectively. The obtained F-ratio of 75.76 for adjusted mean was greater than the table value 4.20 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant different among experimental and control group on leg strength. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference.

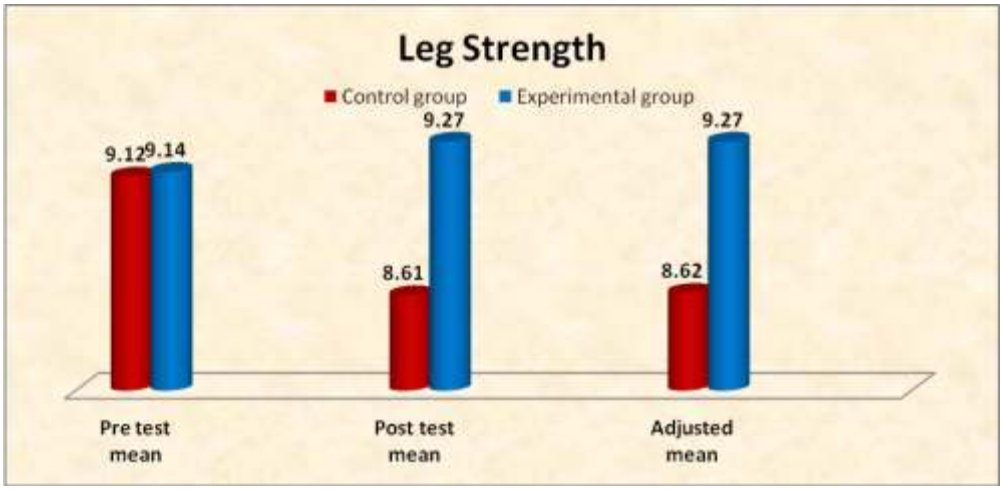

Figure-II
The pre, post and adjusted mean values of leg strength of both control experimental groups are graphically represented in the figure-ii

TABLE-III
COMPUTATION OF MEAN AND ANALYSIS OF COVARIANCE OF VERTICAL JUMP OF CONTROL AND EXPERIMENTAL GROUPS

Test	Control group	Experimental group	Sum of variance	Sum of squares	df	Mean square	F ratio
Pre test mean SD (±)	47.67	48.53	B,G	16.13	1	16.13	1.04
			W,G	432.66	28	15.45	
Post test mean SD (±)	46.87	54.13	B,G	396.03	1	396.03	18.38*
			W,G	603.47	28	21.55	
Adjusted mean	47.58	53.42	B,G	246.54	1	246.54	34.37*
			W,G	193.69	27	7.17	

* Significant at 0.05 level

(Table value for df 1 and 28 was 4. 20, Table value for df 1 and 27 was 4.20)

The obtained F-ratio of 34.37 for adjusted mean was greater than the table value 4.20 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant different among experimental and control group on vertical jump. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference. The pre, post and adjusted mean values of vertical jump of both control experimental groups are graphically represented in the Figure-III

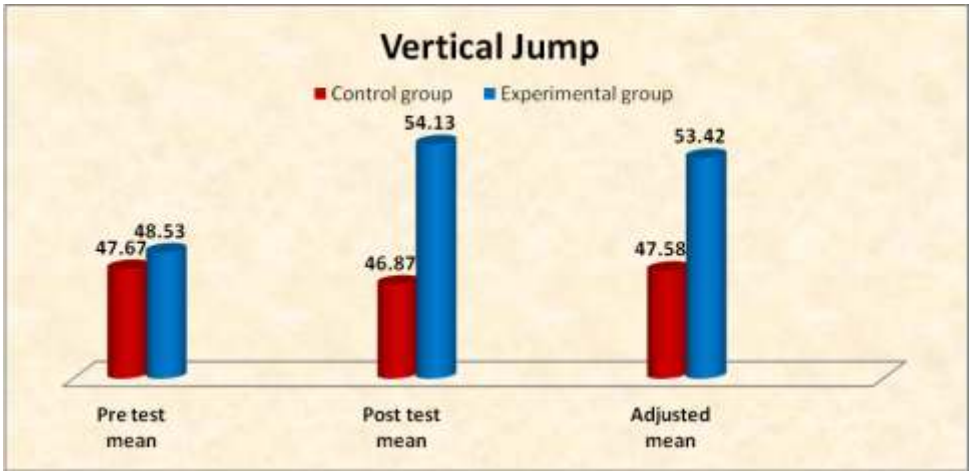

Figure-III
The pre, post and adjusted mean values of vertical jump of both control experimental groups are graphically represented in the figure-iii

TABLE-IV
COMPUTATION OF MEAN AND ANALYSIS OF COVARIANCE OF SIT UP'S OF CONTROL AND EXPERIMENTAL GROUPS

Test	Control group	Experimental group	Sum of variance	Sum of squares	df	Mean square	F ratio
Pre test mean SD (±)	32.07	32.6	B,G	2.13	1	2.13	0.61
			W,G	98.53	28	3.51	
Post test mean SD (±)	26.53	33.8	B,G	396.03	1	396.03	97.16*
			W,G	114.13	28	4.08	
Adjusted mean	26.77	33.57	B,G	339.42	1	339.42	237.38*
			W,G	38.61	27	1.43	

* Significant at 0.05 level
(Table value for df 1 and 28 was 4.20, Table value for df 1 and 27 was 4.20)

The above table indicates the adjusted mean value of sit up's of control and Experimental groups were 26.77 and 33.57 respectively. The obtained F-ratio of 237.3 for adjusted mean was greater than the table value 4.20 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant different among experimental and control group on sit up's. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference.

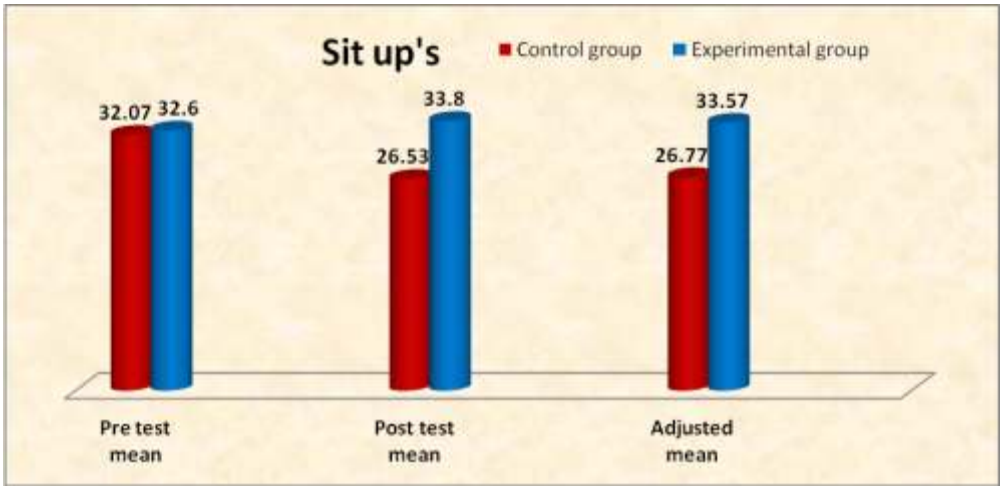

Figure-IV

The pre, post and adjusted mean values of sit up's of both control experimental groups are graphically represented in the figure-iii

DISCUSSION OF FINDINGS

The results of the study indicates that the experimental group which underwent strength training programme had significantly improved on all the selected dependent variables such namely speed, leg strength, explosive power and muscular endurance, when compared to the control group. The results of the study corroborates with the results of present study Maffiuletti (2000), Ahmad (2014) and Hoffman (1996).

CONCLUSIONS

From the analysis of data, the following conclusions were drawn.

1.The experimental group basketball players improved significantly in all the selected variables namely strength, speed, explosive power and sit-up.
2.The control group did not improve significantly in all the selected parameters.

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