



Research article

IMPACT OF WEIGHT TRAINING ON SELECTED PHYSICAL FITNESS COMPONENTS AMONG WEIGHT LIFTERS

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Abstract

The purpose of the study was to find out the effect of weight training on selected physical fitness components namely speed, grip strength and agility among male weight lifters. To achieve the purpose of the study thirty male weight lifters have been randomly selected from various colleges in and around Chennai district in the state of Tamil Nadu, India. The age of subjects were ranged from 18 to 25 years. The subjects had past experience of at least three years in weight lifting and only those who had represented their respective college teams were taken as subjects. The subjects were randomly assigned into two groups of fifteen each, such as experimental and control groups. The experimental group participated in the weight training for 3 days a week, one session per day and for 8 weeks each session lasted 45 minutes. The control group maintained their daily routine activities and no special training was given. The subjects of the two groups were tested on selected variables prior and immediately after the training period. The collected data were analyzed statistically through analysis of covariance (ANCOVA) to find out the significance difference, if any between the groups. The 0.05 level of confidence was fixed to test the level of significance difference, if any between groups. The results of the study showed that there was significant differences exist between weight training group and control group. And also weight training group showed significant improvement on speed, grip strength and agility compared to control group.

Key words: weight training, speed, grip strength, agility.

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INTRODUCTION

Weightlifting is seen more widely as a scientific sport practiced by intelligent, reasoned and even intellectual men, a sport which requires for its success the more sophisticated qualities of mental agility and concentration, co-ordination, specific knowledge, skill, technique and speed as well as the more basic ones of strength, endurance and courage.

Training with weight is becoming an increasingly recognized as the key method of training for games for development of good physique. It strengthens the muscles and internal organs and promotes the type of health and vigorous that training is ozone of the factors in improving the speed, ability, strength, endurance, flexibility, body components and anthropometric measurement (James & Karpoulch, 1983). Weight training is use of systematic exercise with weights and its used merely as means to increase resistance of the muscle contraction. The primary objective is not to learn to lift as much weight as possible, but to increase strength and power for application to some other sports. Weight training refers to interest in physical fitness or importance of strength in particular sports (Hook, 1974). The essentials of weight training (Strength training) and regularity and gradual increase in training intensity (principles of over loading) is supported by good nutrition and adequate rest. Unlike endurance training, weight training does not spend many calories. As such, its role of reducing body weight is limited; on the other hand, it reduces weight due to muscle hypertrophy. Strength training does not

mean one will lose flexibility or become muscle bound. Studies on Olympic athletes have shown that only the gymnasts have better flexibility than the weight lifters. Weight training does not slow down muscular movement. It has also been established that increase in muscular speed (Explosive Power) accompanies an increase in muscular strength (Edward L. Fox , et.al., 1989). Relative strength in the back squat and force in the vertical plane has been shown to correlate to faster running speeds (Chelly et al., 2009).

Methodology

To achieve the purpose of the study thirty male weight lifters have been randomly selected from various colleges in and around Chennai district in the state of Tamil Nadu, India. The age of subjects were ranged from 18 to 25 years. The subjects had past experience of at least three years in weight lifting and only those who represented their respective college teams were taken as subjects. The subjects were randomly assigned into two groups of fifteen each, such as experimental and control groups. The experimental group participated in the weight training for 3 days a week, one session per day and for 8 weeks each session lasted 45 minutes. The control group maintained their daily routine activities and no special training was given. The subjects of the two groups were tested on selected variables prior and immediately after the training period. The collected data were analyzed statistically through analysis of covariance (ANCOVA) to find out the significance

difference, if any between the groups. The 0.05 level of confidence was fixed to test

the level of significance difference, if any between groups.

TABLE-I
Criterion measures

S.No	Criterion measure	Test items	Unit of measurement
1	Speed	50 mts dash	In seconds
2	Grip strength	Grip dynamometer	In kg
3	Agility	Shuttle run 4x10	In seconds(1/10)

RESULTS

TABLE – II
DESCRIPTIVE ANALYSIS OF PHYSICAL FITNESS COMPONENTS AMONG EXPERIMENTAL AND CONTROL GROUPS

S.No	Variables	Group	Pre-Test Mean	SD (±)	Post –Test Mean	SD (±)	Adjusted Mean
1	Speed	WTG	7.79	0.19	7.15	0.02	7.15
		CG	7.87	0.01	7.39	0.34	7.39
2	Grip strength	WTG	60.39	0.24	63.50	0.30	63.46
		CG	60.49	0.30	61.97	1.65	62.01
3	Agility	WTG	5.75	0.05	5.62	0.01	5.62
		CG	5.77	0.01	5.71	0.08	5.71

BBTG = Weight training group **CG= Control group**

The table -II shows the pre, post-test means, standard deviations and adjusted means on physical fitness components of weight lifters. The analysis of covariance on selected variables of weight training group and control group is presented in table – III

TABLE – III
COMPUTATION OF ANALYSIS OF COVARIANCE ON PHYSICAL FITNESS COMPONENTS AMONG WEIGHT LIFTERS

S.No	Variables	Test	Sum of variance	Sum of squares	Df	Mean square	F ratio
1	Speed	Pre-test	B.G.	0.04	1	0.04	2.37
			W.G.	0.54	28	0.01	
		Post-test	B.G.	0.44	1	0.44	7.34*
			W.G.	1.70	28	0.06	
		Adjusted means	B.S.	0.40	1	0.40	6.34*
			W.S.	1.70	27	0.06	
2	Grip strength	Pre-test	B.G.	0.06	1	0.06	0.81
			W.G.	2.13	28	0.07	
		Post-test	B.G.	17.57	1	17.57	12.45*
			W.G.	39.51	28	1.41	
		Adjusted means	B.S.	15.40	1	15.40	10.95*
			W.S.	37.99	27	1.40	

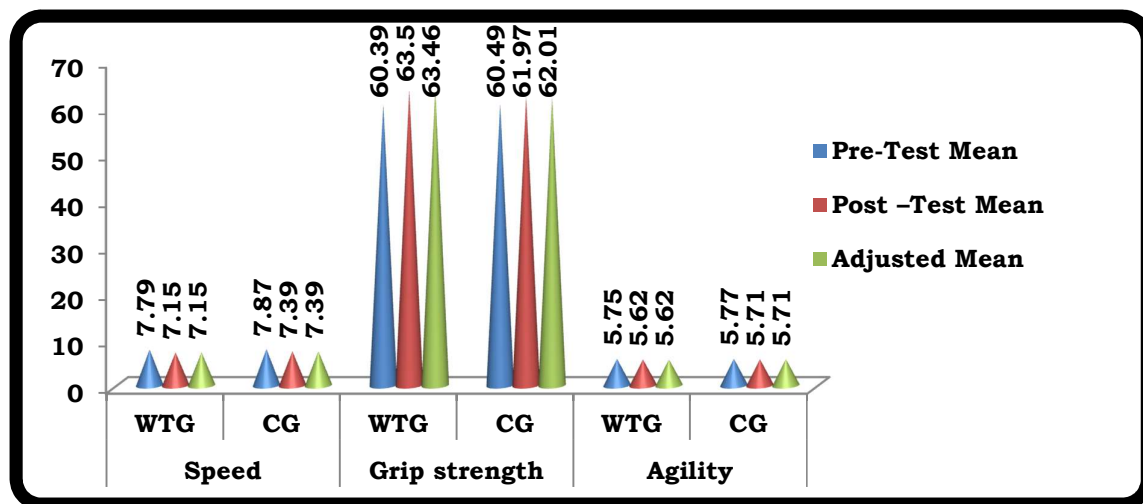
3	Agility	Pre-test	B.G.	0.002	1	0.002	1.25
			W.G.	0.04	28	0.002	
		Post-test	B.G.	0.05	1	0.057	16.09*
			W.G.	0.09	28	0.004	
		Adjusted means	B.S.	0.05	1	0.05	14.33*
			W.S.	0.09	27	0.004	

*Significant at 0.05 level of confidences
 (The table values required for significance at 0.05 level of confidence for 1 & 22 and 1 & 21 are 4.30 and 4.33 respectively).

In the table the results of analysis of covariance on speed, grip strength and agility. The obtained 'F' ratio of 2.37, 0.81 and 1.25 for Pre-test means was less than the table value of 4.20 for df 1 and 28 required for significance at 0.05 level of confidence on speed, grip strength and agility. The obtained 'F' ratio of 7.34, 12.45 and 16.09 for post-test means was greater than the table value of 4.28 for df 1 and 22 required for significance at 0.05 level of confidence on speed, grip strength and agility. The obtained 'F'

ratio of 6.34, 10.95 and 14.33 for adjusted post-test means was greater than the table value of 4.21 for df 1 and 27 required for significance at 0.05 level of confidence on speed, grip strength and agility. The result of the study indicated that there was a significant difference among the adjusted post test means of weight training group and control group on speed, grip strength and agility. And also weight training group showed significant improvement on speed, grip strength and agility compared to control group.

FIGURE-I
THE PRE, POST AND ADJUSTED MEAN VALUES OF SPEED, GRIP STRENGTH AND AGILITY OF BOTH EXPERIMENTAL AND CONTROL



Discussion on findings

The results of the study indicate that the experimental group which underwent weight training had showed significant improvement in the selected variables namely speed, grip strength and agility when compared to the control group. The control group did not show significant improvement in any of the selected variables. The past studies on selected physical fitness components

revealed by Guy et al. (2016), Granacher et al. (2016), Zweifel et al. (2015), Chelly et al. (2010).

Conclusions

The experimental group weight lifters showed significant improvement in all the selected variables such as speed, grip strength and agility than the control group.

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