

Impact of Weight Training and Complex Training on Selected Motor Fitness Parameters among College Handball Players

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ABSTRACT

This study was designed to investigate the impact of weight training and complex training on selected motor fitness parameters among college handball players. To achieve the purpose of the study (N=45) forty five men handball players were selected from SKSS Arts College, Thirupanandal, Tamilnadu, India as subjects. The age of the subjects ranged from 19 to 25years. The selected subjects were divided into three equal groups (N=15). Group I underwent weight training. Group II underwent complex training. Group III acted as control group who did not undergo any specialized training program other than their daily routine. The motor fitness parameters such as speed, agility and leg explosive power were selected as dependent variables and they were assessed by 50 yards dash, Illinois agility test and standing broad jump respectively. The subjects were concerned with their particular training for a period of six weeks, alternatively three days per week. The collected data from three groups prior to and immediately after the training programme on selected criterion variables were statistically analyzed with analysis of covariance (ANCOVA). The level of confidence was fixed at 0.05 for all the cases to test the hypothesis. The result of the study reveals that the weight training and complex training groups achieved significant improvement on selected motor fitness parameters such as speed, agility and leg explosive power of college men handball players.

Keywords: Weight Training, Complex Training, Speed, Agility and Leg Explosive Power.

Introduction

Weight Training

Weight training is a common type of strength training for developing the strength and size of skeletal muscles. It utilizes the force of gravity in the form of weighted bars, dumbbells or weight stacks in order to oppose the force generated by muscle through concentric or eccentric contraction. Weight training uses a variety of specialized equipment to target specific muscle groups and types of movement (**Lon Kilgore (2005)**).

Complex training

Complex training is a well-researched training method that is frequently applied in realworld contexts and has been the subject of several evaluations [Eben WP, 2002; Docherty D et al. 2004; Ebben WP et al. 1998; Jeffreys I, 2008]. Although the majority of sports scientists and coaches concur that athletes' regimens should include both resistance training (RT) and plyometric training (PT) to develop greater

muscular power [Ebben WP et al. 1997], the evidence regarding the effectiveness of complex training as a suitable training modality is still unclear. Complex training has been the subject of prior research that has shown benefits in athletic performance [Comyns TM et al. 2007; Evans AK et al. 2000; GÄžllich A et al. 1996], however, the converse has also been noted [Jones P et al. 2003; Scott SL et al. 2004]. The role of variables like the intensity and manner of the preload exercise and the rest period between the resistance and plyometric components of complex training could be one explanation for these inconsistent findings. The advantages of complicated training may also depend on the participants' gender, training status, age at training, and strength levels [Docherty D et al. 2004; Robbins DW, 2005].

Handball

Handball is a team sport in which two teams of seven players each (six out court players and a goalkeeper) pass a ball using their hands with the aim of throwing it into the goal of the other team. A standard match consists of two periods of 30 minutes and the team that scores more goals wins (Laver, L. Landreau, 2018).

Objectives

This study was designed to investigate the impact of weight training and complex training on selected motor fitness parameters among college handball players.

Methodology

To achieve the purpose of the study (N=45) forty five men handball players were selected from SKSS Arts College, Thirupanandal, Tamilnadu, India as subjects. The age of the subjects ranged from 19 to 25years. The selected subjects were divided into three equal groups (N=15). Group I underwent weight training. Group II underwent complex training. Group III acted as control group who did not undergo any specialized training program other than their daily routine. The motor fitness parameters such as speed, agility and leg explosive power were selected as dependent variables and they were assessed by 50 yards dash, Illinois agility test and standing broad jump respectively. The subjects were concerned with their particular training for a period of six weeks, alternatively three days per week. The collected data from three groups prior to and immediately after the training programme on selected criterion variables were statistically analyzed with analysis of covariance (ANCOVA). The level of confidence was fixed at 0.05 for all the cases to test the hypothesis.

Results

Table 1: Computation of Analysis of Covariance of Means of Weight Training, Complex Training and Control Group on Speed, Agility and Leg Explosive Power (In Seconds and Meters)

Variables	Test	Weight Training (WTG)	Complex Training (CTG)	Control Group (CG)	Source of Variance	Sum of Square	df	Mean Squares	'F' Ratio
Speed	Pre Test	8.27	8.24	8.29	Between	0.13	2	0.04	0.34
					Within	6.89	42	0.12	
	Post Test	7.45	8.00	8.29	Between	5.94	2	1.98	15.33*

					Within	7.24	42	0.13	
	Adjusted Post Test	7.42	8.00	8.25	Between	5.55	2	1.85	71.82*
					Within	1.42	41	0.03	
Agility	Pre Test	16.03	15.57	15.57	Between	.08	2	.02	0.19
					Within	7.863	42	.14	
	Post Test	15.69	14.60	14.03	Between	26.15	2	8.71	27.18*
					Within	17.96	42	.32	
	Adjusted Post Test	15.53	14.81	14.25	Between	11.95	2	3.98	47.52*
					Within	4.61	41	.08	
Leg Explosive Power	Pre Test	51.46	50.13	50.73	Between	13.65	2	4.55	0.43
					Within	587.33	42	10.48	
	Post Test	51.53	54.86	57.20	Between	253.13	2	84.37	9.20*
					Within	513.46	42	9.16	
	Adjusted Post Test	50.96	55.46	57.27	Between	325.19	2	108.39	91.00*
					Within	65.50	41	1.19	

*Significant at 0.05 level of confidence. (Table value with df 2 and 42 and 2 and 42 are 2.77 respectively).

The pre, post-test and adjusted post-test mean values of speed on Weight Training Group (WTG), Complex Training Group (CTG) and Control Group (CG) were 8.27,7.45,7.42; 8.24,8.00,8.00; and 8.29,8.29,8.25 respectively.

The pre, post-test and adjusted post-test mean values of agility on Weight Training Group (WTG), Complex Training Group (CTG) and Control Group (CG) were 16.03,15.69,15.53; 15.57,14.60,14.81; and 15.57,14.03,14.25 respectively.

The pre, post-test and adjusted post-test mean values of leg explosive power on Weight Training Group (WTG), Complex Training Group (CTG) and Control Group (CG) were 51.46,51.53,50.96; 50.13,54.86,55.46; and 50.73,57.20,57.27 respectively. The obtained F values of adjusted post-test were greater than the table value of 3.23. Hence it was proved that there were significant improvements on speed, agility and leg explosive power of college men handball players.

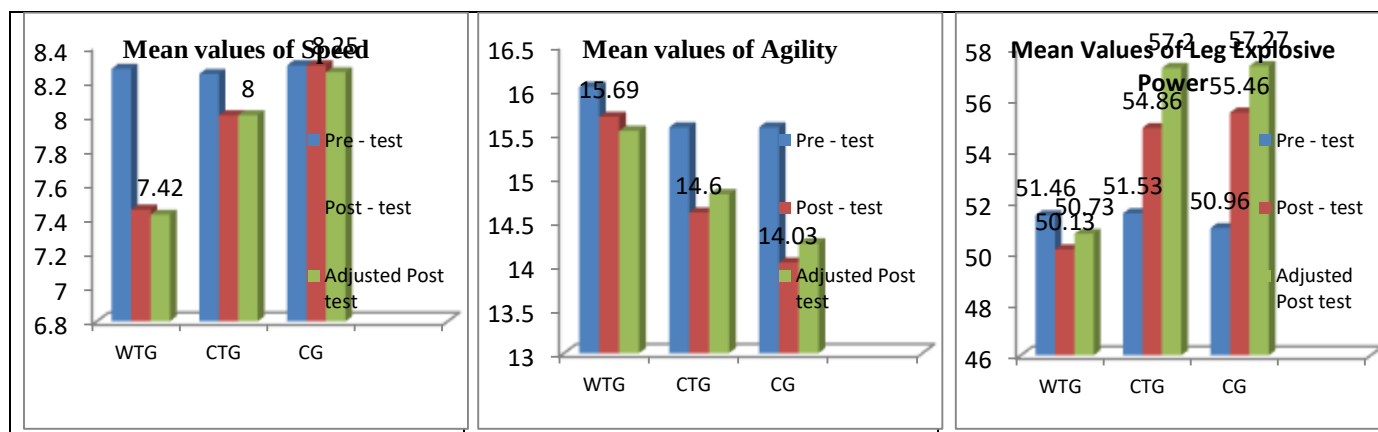


Figure-1: Pre, Post and Adjusted Post Test Means of Weight Training and Complex Training and Control Group on Speed, Agility and Leg Explosive Power.

Discussion of Findings

The result of the study indicates that the experimental group namely as weight training and complex training had significantly improved in the selected dependent variables speed, agility and leg explosive power improvement caused by weight training and complex training. The results of the studies are in line with the studies of **Mathavan, S. B. (2015)**.

Conclusions

The experimental groups namely as weight training and complex training had achieved significant improvement on selected the motor fitness parameters such as speed, agility and leg explosive power when compared to control group.

It was concluded that complex training shown better improvement when comparing to the weight training groups on selected the motor fitness parameters.

It was concluded that college level player should practice both weight training and complex training for positive enhancement of playing.

References

1. Mathavan, S. B. (2015). Short Term Training Programmes Impact on The Variables of Dribbling and Kicking Performance among University Men Soccer Players. *International Journal of Sports and Physical Education*, 1, (1), pp 23-28.
2. Laver, L., Landreau, P., Seil, R., & Popovic, N. (Eds.). (2018). *Handball Sports Medicine: Basic science, injury management and return to sport*. Springer.
3. Mal, Biru, Kapri B.C. (2005). *A to Z Soccer*, New Delhi: Friends Publications (India), Pp.9-91.
4. Arabatzi, F., Kellis, E., & De Villarreal, E. S. S. (2010). Vertical jump biomechanics after plyometric, weight lifting, and combined (weight lifting+ plyometric) training. *The Journal of Strength & Conditioning Research*, 24(9), 2440-2448.
5. Fatouros, I. G., Jamurtas, A. Z., Leontsini, D., Taxildaris, K., Aggelousis, N., Kostopoulos, N., & Buckenmeyer, P. (2000). Evaluation of plyometric exercise training, weight training, and their combination on vertical jumping performance and leg strength. *The Journal of Strength & Conditioning Research*, 14(4), 470-476.