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EFFECT OF COMPLEX TRAINING ON SELECTED PHYSICAL VARIABLES AMONG ENGINEERING STUDENTS

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Abstract:

The purpose of the study was to investigate the effect of complex training on selected physical variables among engineering students. It was hypothesized that there would be significant differences on physical variables due to the effect of complex training among engineering students. For the present study the 30 male engineering students from BIT campus, Anna University, Tiruchirappalli were selected at random and their age ranged from 18 to 25 years. For the present study pre test - post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each. Group 'A' underwent complex training only, group 'B' have not underwent any training. The data was collected before and after twelve weeks of training. The data was analyzed by applying Analysis of Co-Variance (ANCOVA) and scheffe's post hoc test. It was observed that the six weeks of complex training have significantly improved the selected physical fitness variables of engineering students.

Key Words: Complex Training, Speed, Cardio Vascular Endurance, Engineering Students.

Introduction:

Complex training, one of the most advanced forms of sports training, integrates strength training, plyometrics, and sport-specific movement. It consists of an intense strength exercise followed by a plyometric exercise. Complex training is a workout comprising of a resistance exercise followed by a matched plyometric exercise. The logic behind these matched pair of exercises is that the resistance work gets the central nervous system (CNS) into full action so that more Type IIb fibres are available for the explosive exercise, hence a better training benefit. Subjective reports recommend training in this fashion in order to improve muscular power and athletic performance. Recently, several studies have examined complex training (Huw et al. 2009). Complex training activates and works the nervous system and fast twitch muscle fibers simultaneously. The strength exercise activates the fast twitch muscle fibers (responsible for explosive power). The plyometric movement stresses those muscle fibers that have been activated by the strength training movement. During this activated state, the muscles have a tremendous ability to adapt. This form of intense training can teach slow twitch muscle fibers to perform like fast twitch fibers (Graham & Harrison, 1999).

Methodology:

The purpose of the study was to investigate the effect of complex training on selected physical variables among engineering students. It was hypothesized that there would be significant differences on physical variables due to the effect of complex training among engineering students. For the present study the 30 male engineering students from BIT campus, Anna University, Tiruchirappalli were selected at random and their age ranged from 18 to 25 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each. Group 'A' underwent complex training only, group 'B' have not underwent any training. The data was collected before and after twelve weeks of training. The data was analyzed by applying Analysis of Co-Variance (ANCOVA) and scheffe's post hoc test. The level of significance was set at 0.05.

RESULTS:

Table 1: Computation of Mean and Analysis of Covariance Speed of Experimental and Control Groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	6.09	6.07	BG	0.003	1	0.003	0.01
			WG	6.51	28	0.23	
Post Test Mean	5.66	6.01	BG	0.90	1	0.90	8.68*
			WG	2.90	28	0.10	
Adjusted Post Mean	5.66	6.01	BG	0.90	1	0.90	8.51*
			WG	2.87	27	0.10	

* Significant at 0.05 level

Table value for df 1, 28 was 4.20, df 1, 27 was 4.21

The above table indicates the adjusted mean value on speed of experimental and control groups were 5.66 and 6.01 respectively. The obtained F-ratio of 8.51 for adjusted mean was greater than the table value 4.21 for the degrees 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 groups on speed. The above table also indicates that both pre and post test means of experimental and control groups differ significantly.

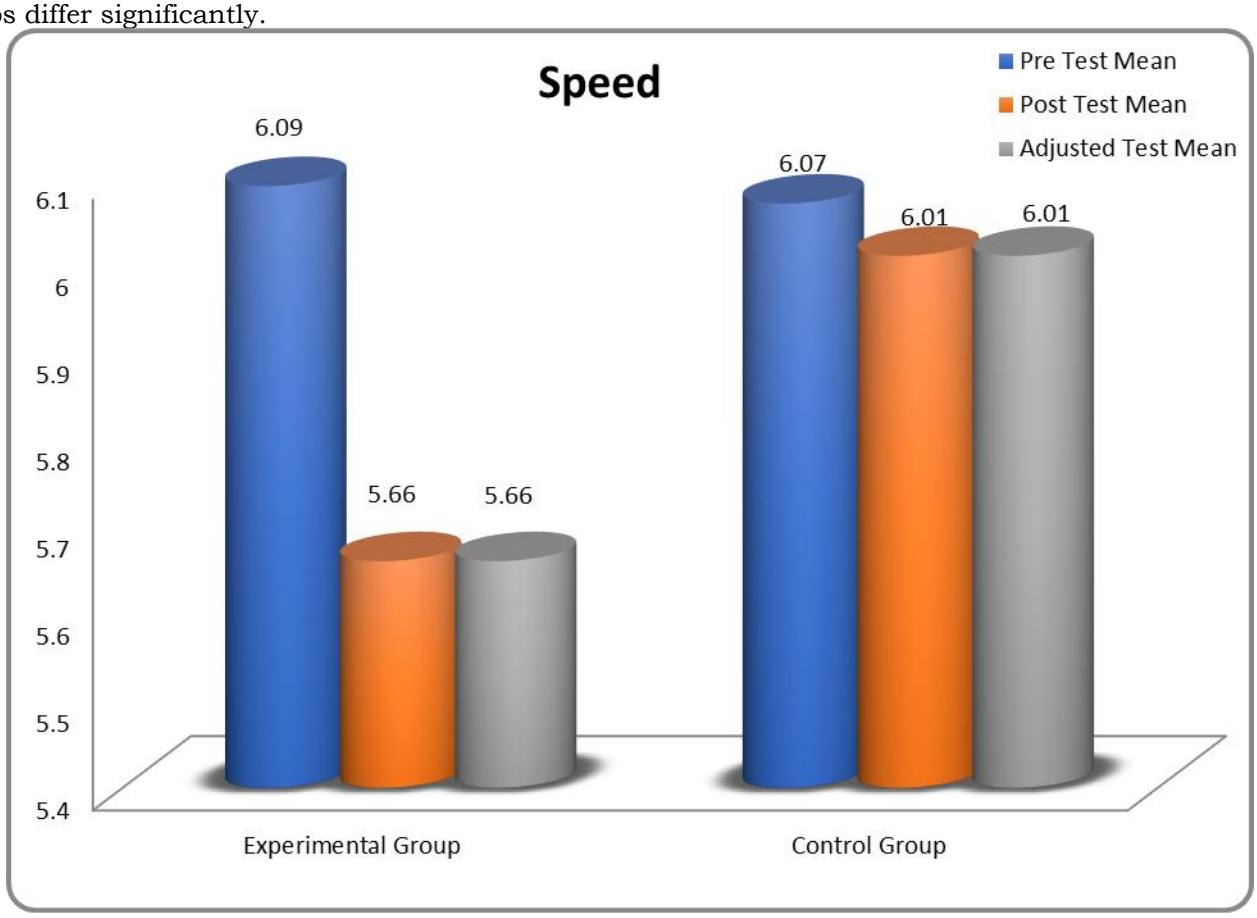

Figure 1: Show the Mean Values on Speed of Complex Training and Control Groups

Table 2: Computation of Mean and Analysis of Covariance on Cardiovascular Endurance of Experimental and Control Groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	6.00	6.06	BG	0.03	1	0.03	0.05
			WG	16.93	28	0.60	
Post Test Mean	7.86	6.13	BG	22.53	1	22.53	20.05*
			WG	31.46	28	1.12	
Adjusted Post Mean	7.86	6.13	BG	222.27	1	22.27	19.27*
			WG	31.19	27	1.15	

* Significant at 0.05 level

Table value for df 1, 28 was 4.20, df 1, 27 was 4.21

The above table indicates the adjusted mean value of cardiovascular endurance of experimental and control groups were 7.86 and 6.13 respectively. The obtained F-ratio of 19.27 for adjusted mean was greater than the table value 4.21 for the degrees 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 groups on cardiovascular endurance. The above table also indicates that both pre and post test means of experimental and control groups also differ significantly.

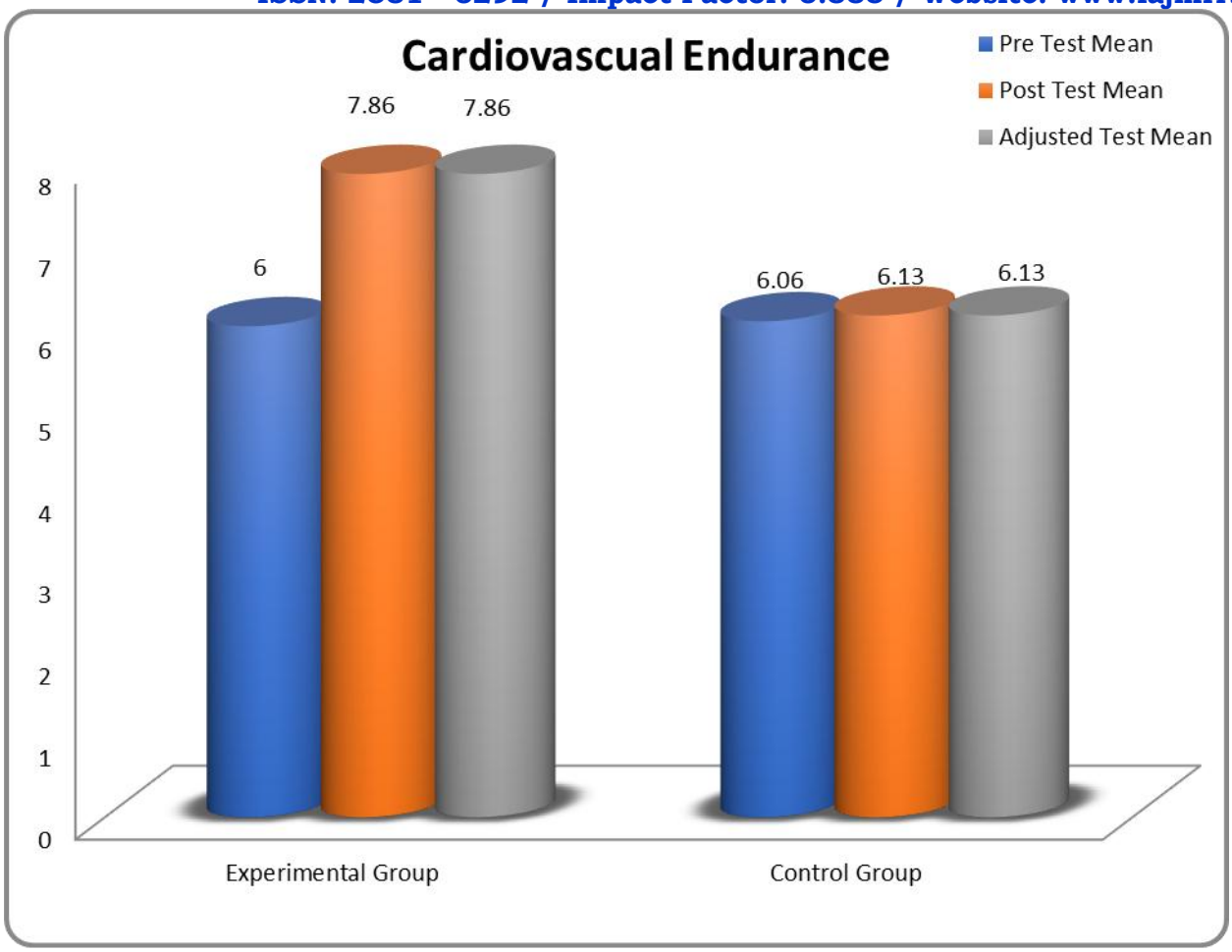

Figure 2: Show the Mean Values on Cardio-Vascular Endurance of Complex Training and Control Groups

Conclusions:

- It was observed that the six weeks of complex training have significantly improved the selected physical fitness variables of engineering students.
- The experimental group had achieved significant improvement due to complex training and has significantly improved the selected physical fitness variables of football players when compared to control group.

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