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Effect Of Circuit Training On Muscular Endurance Among Table Tennis Players

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ABSTRACT

The purpose of the study was to find out the effect of circuit training on muscular endurance among table tennis players. To achieve the purpose of the present study, thirty table tennis from different schools in New Delhi were selected as subjects at random and their ages ranged from 15 to 17 years. The subjects were divided into two equal groups at random. The subjects were divided into two equal groups of fifteen subjects each. Group I acted as Experimental Group (Circuit Training) and Group II acted as Control Group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. Pre test was conducted for all the subjects on muscular endurance. This initial test scores formed as pre test scores of the subjects. The groups were assigned as Experimental Group and Control Group in an equivalent manner. Experimental Group was exposed to circuit training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 6 weeks. After the experimental treatment, all the thirty subjects were tested on their physical fitness components. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences. In all cases 0.05 level of significance was fixed to test hypotheses. It was observed that the six weeks of experimental group have significantly improved the muscular endurance of table tennis players.

Key Words: Circuit Training, Muscular Endurance, Table tennis Players.

INTRODUCTION

Circuit training is an efficient and challenging form of conditioning. It works well for developing strength, endurance (both aerobic and anaerobic), flexibility and coordination. Its versatility has made it popular with the general Public right through to elite athletes. For sports men and women, it can be used during the closed season and early pre - season to help develop a solid base of fitness and prepare the body for more stressful subsequent training. Circuit training is an effective organizational form of doing physical exercises for improving all physical fitness components. Before and after training, the initial and final tests were conducted for the variables such as speed, agility, power, co-ordination, static balance and dynamic balance for the experimental and control groups. Circuit training is an exercise program that develops overall fitness. Performed regularly, circuit training will simultaneously improve muscular strength, endurance, cardiovascular fitness, and flexibility. Circuit training was invented in 1953 as an efficient way for coaches to train many athletes in a limited amount of time with limited equipment. The exerciser moved through a series of weight training or calisthenics arranged consecutively. It was a fast-paced workout of 15 to 45 seconds per station with little (15 to 30 seconds) or no rest between stations. Today, this is known as ―circuit weight training‖. Research has shown that it can increase muscular strength and endurance. There is a mild improvement in aerobic stamina but only if the rest periods are kept very short.

METHODOLOGY

The purpose of the study was to find out the effect of circuit training on muscular endurance among table tennis players. To achieve the purpose of the present study, thirty table tennis players from different schools in New Delhi were selected as subjects at random and their ages ranged from 15 to 17 years. The subjects were divided into two equal groups at random. The subjects were divided into two equal groups of fifteen subjects each. Group I acted as Experimental Group (Circuit Training) and Group II acted as Control Group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. Pre test was conducted for all the subjects on muscular endurance. This initial test scores formed as pre test scores of the subjects. The groups were assigned as Experimental Group and Control Group in an equivalent manner. Experimental Group was exposed to circuit training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 6 weeks. After the experimental treatment, all the thirty subjects were tested on their physical fitness components. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences. In all cases 0.05 level of significance was fixed to test hypotheses.

RESULTS

TABLE – I

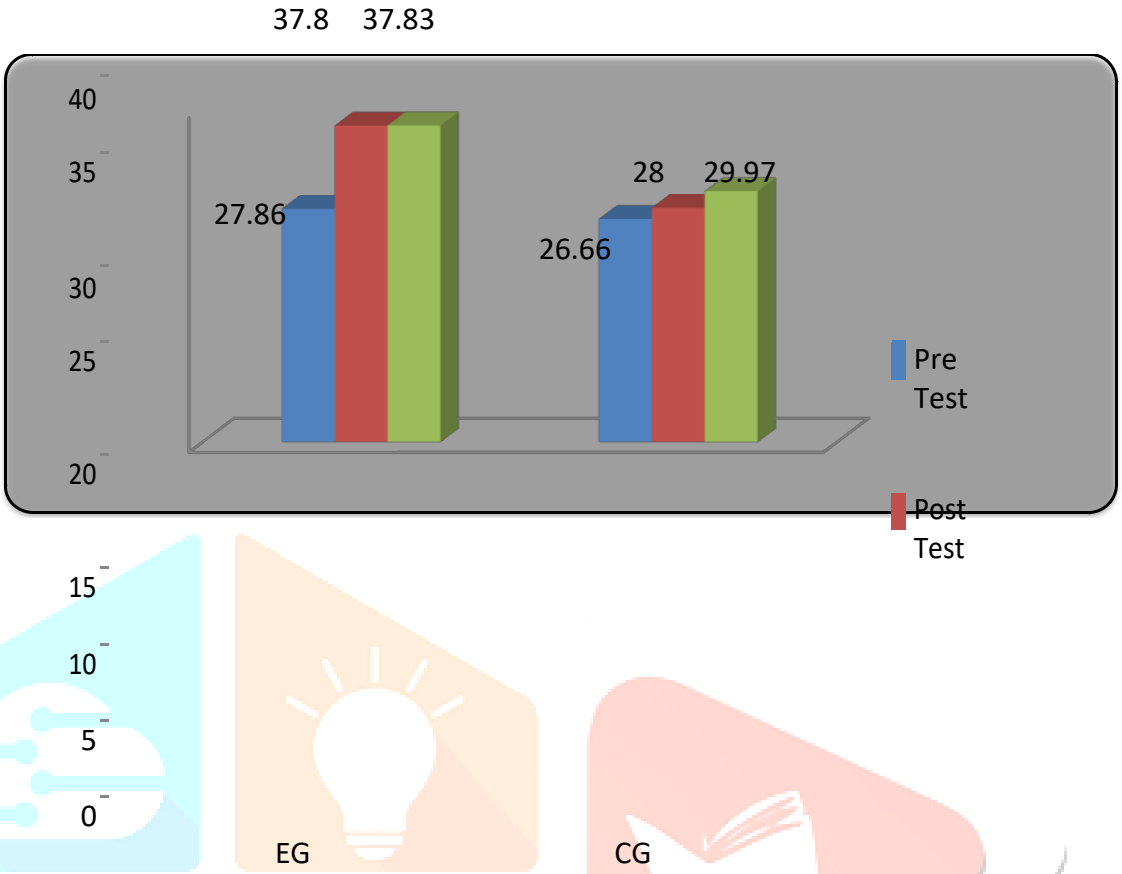
COMPUTATION OF MEAN AND ANALYSIS OF COVARIANCE OF MUSCULAR ENDURANCE OF EXPERIMENTAL AND CONTROL GROUPS

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	27.86	26.66	BG	10.80	1	10.80	1.81
			WG	167.06	28	5.96	
Post Test Mean	37.80	28.00	BG	720.30	1	720.30	152.32*
			WG	132.40	28	4.72	
Adjusted Post Mean	37.83	29.97	BG	684.92	1	684.92	140.12*
			WG	131.97	27	4.88	

* Significant at 0.05 level Table value for df 1 and 28 was 4.20, 1 and 27 was 4.21

The above table indicates the adjusted mean value of muscular endurance of experimental and control groups were 37.83 and 29.97 respectively. The obtained F-ratio of 140.12 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 muscular endurance. The above table also indicates that both pre and post test means of experimental and control groups differ significantly. The pre, post and adjusted post mean values of muscular endurance of both experimental and control groups are graphically represented in the figure-I.

FIGURE – I
SHOWS THE MEAN VALUES ON MUSCULAR ENDURANCE OF EXPERIMENTAL GROUP AND CONTROL GROUPS



CONCLUSIONS

It was observed that the six weeks of experimental group have significantly improved the muscular endurance of table tennis players.

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