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Influence of Circuit Training on Selected Physical Fitness Components among Volleyball Players

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Abstract

The purpose of the study was to investigate the influence of circuit training on selected physical fitness components among volleyball players. For the purpose of the study 30 college level men volleyball players from Selvam College of Physical Education, Namakkal, Tamilnadu, India and age ranged from18 to 24 years from were selected as subjects. They were further divided into experimental and control group randomly after the preliminary tests taken for the study. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=30) were randomly assigned to two equal groups of fifteen men students each. The groups were assigned as experimental group (EG) and control group (CG) in an equivalent manner. The experimental group participated in the circuit training for a period of six weeks. The training programme was scheduled at 6.30 to 7.30 am for three days in a week. In this study, standing broad jump was conducted to find out the leg explosive power and the unit of measurement was in centimeters, shuttle run was conducted to find out the agility and the unit of measurement was in 1/100 of the seconds, 1 mile run was conducted to find out the Cardio respiratory endurance and the unit of measurement was in 1/100 of the seconds, 50 meters run was conducted to find out the speed and the unit of measurement was in 1/100 of the seconds. The variable used in the present study was collected from all subjects before they had treat with the respective treatments. It was assumed as pre-test. After completion of treatment they were again tested on all variables used in the present study. This test was assumed as post-test. The data pertaining to the influence of circuit training for enhancing performance of selected physical fitness components among volleyball players was examined by paired 't' ratio. It was observed that there was significant improvement in the speed and agility of the experimental group owing to circuit training.

Keywords: Circuit Training, Volleyball, Speed, Agility.

Introduction

Volleyball is played in more than sixty countries and more than sixty million people. In Eastern Europe, Asia and South America top games draws crowds, the size of which rival those at soccer matches. Volleyball is considered as a top level competitive sport in more than twenty countries. The game of Volleyball was invented in 1895 by William G Morgan who worked for the Y.M.C.A in Holyoak, Massachusetts. His early form of the game was designed to provide mild exercise for large groups of businessmen. This original game was very simple any number of players batted a basketball bladder backward and forward over a tennis net which was fixed at a height of six feet. Since then the game has developed and spread worldwide. The main reason of its popularity was it can be played indoors and outdoors, need little space compared to other games, and it can be played by both sexes and over a considerable age range. Play can be tremendously varying standards from a purely recreations level on the beach and in the park, through all levels of clubs and school level competitions, right up to international level.

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. Another variation is "aerobic circuit training". Aerobic stations like a treadmill, rower, bike, or stepper (one to five minutes per station) are interspersed with weight training stations. This protocol has been found to increase aerobic stamina and muscular endurance and endurance.

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Methodology

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Results

Table I. Computation of't' ratio between the pre test and post test means of speed of experimental and control group

S. No	Variable	Mean diff	SD	σ DM	't' ratio
1	Speed	Exp:0.44	Exp:0.39	Exp:0.10	4.34*
		Con:0.16	Con:0.32	Con:0.08	1.97

*Significant at 0.05 level

An examination of table I indicates that the obtained't' ratio for speed of experimental group was 4.34. The obtained't' ratio on speed was found to be greater than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. So it was found to be significant. The obtained't' ratio for speed of control group was 1.97. The obtained't' ratio on speed was found to be lesser than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. So it was found to be not significant. The mean scores of speed of experimental group and control group was shown graphically in figure I.

Figure I. Bar diagram showing the pre mean and post mean of speed of experimental and control group

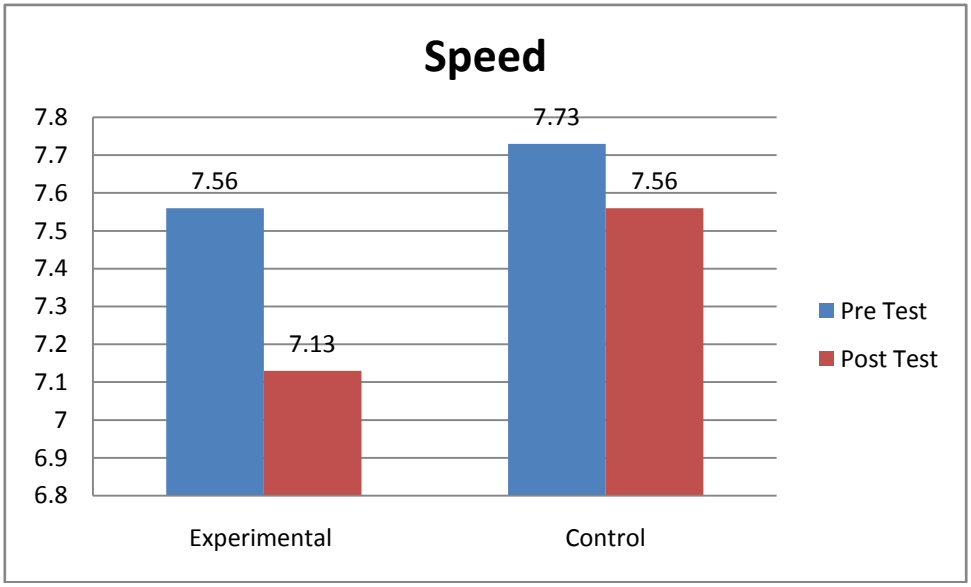


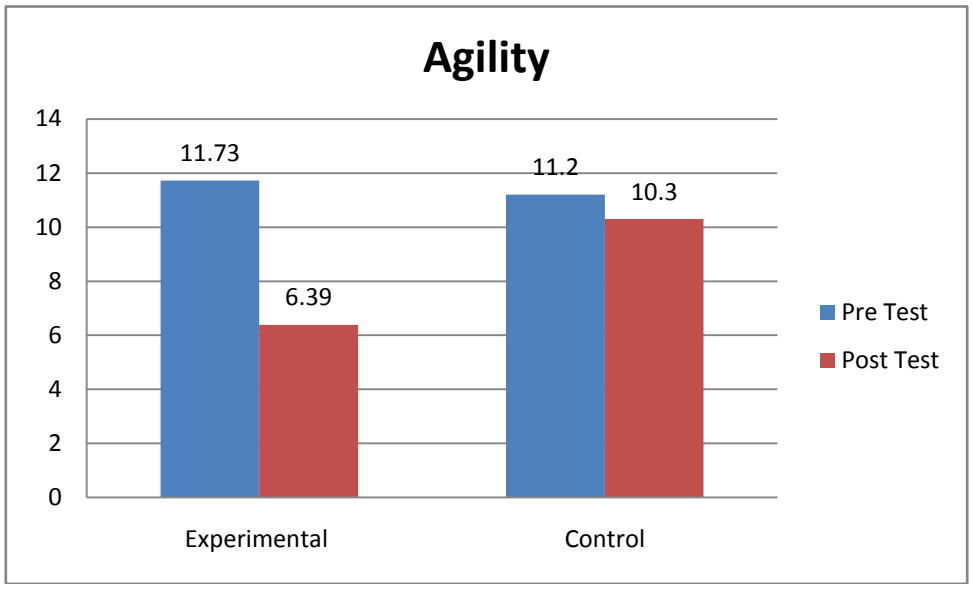
Table II. Computation of‘t’ ratio between the pre test and post test means of agility of experimental and control group

S. No	Variable	Mean diff	SD	σ DM	‘t’ ratio
1	Agility	Exp:5.33	Exp:0.80	Exp:0.21	25.79*
		Con:0.89	Con:1.79	Con:0.46	1.94

*Significant at 0.05 level

An examination of table II indicates that the obtained‘t’ ratio for agility of experimental group was 25.79. The obtained‘t’ ratio on agility was found to be greater than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. So it was found to be significant. The obtained‘t’ ratios for agility of control group was 1.94. The obtained‘t’ ratio on agility was found to be lesser than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. So it was found to be not significant. The mean scores of agility of experimental group and control group was shown graphically in figure II.

Figure II. Bar diagram showing the pre mean and post mean of agility of experimental and control group



Conclusions

Within the limitation of the present study, the following conclusions were drawn.

1. It was observed that there was significant improvement in the speed of the experimental group owing to circuit training.
2. It was observed that there was significant improvement in the agility of the experimental group owing to circuit training.
3. There was no significant improvement in the selected variables of the control group.

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