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ORIGINAL ARTICLE

# EFFECT OF SPECIFIC CIRCUIT TRAINING ON SELECTED MOTOR FITNESS OF COLLEGE WOMEN BASKETBALL PLAYERS

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**Abstract:**

*The purpose of the study was to investigate the effect of specific circuit training on selected motor fitness of college's women basketball players. Twenty-four women basketball players selected as subjects from the Madurai Kamaraj University. The age, height and weight of the subjects ranged from 18 to 25 years. The selected subject randomly assigned into two equal groups of 12 subjects each. Specific circuit training group – I, Control group – II. The data collected from the two groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA).*

**KEY WORDS:**

Specific circuit training, Speed, Power, Agility.

## INTRODUCTION

Women's sports include amateur and professional competitions in virtually all sports. Female participation in sports rose dramatically in the twentieth century, especially in the last quarter, reflecting changes in modern societies that emphasized gender parity. Although the level of participation and performance still varies greatly by country and by sport, women's sports have broad acceptance throughout the world. An important aspect about women's sports is that women usually do not compete on equal terms against men.

Training adaptation is the sum of transformations brought about by systematically repeated exercises. These structural and physiological changes results from a specific demand that athletes place on their bodies by the activity they pursue depending on the volume, intensity and frequency of training. Physical training is beneficial as long as it forces the body to adapt to the stress of the effort (Bompa, 1999).

A circuit is a group of stations or areas where specific tasks or exercises performed. The task or exercise selected for each station and the arrangement of the stations determined by the objective of the circuit. Circuits designed to provide exercise to groups of soldiers at intensities that are suitable for each person's fitness level. Circuits can promote fitness in a broad range of physical and motor fitness areas. These include Cardio respiratory endurance, muscular endurance, strength, flexibility, and speed. Circuits can design to concentrate on sports skills. In addition, circuits can be organized to exercise all the fitness components in a short period. A little imagination can make circuit training an excellent addition to a units total physical fitness program.

The sports performance is the result and expression of the total personality of the sportsman or woman. Training involves periodic assessment of the athletes/players status and progress. Training varies regular increase in the difficulty of task performance. Training suggest, some form of gradual increase in performance output over an extended period of time, specific physical fitness is a readiness of each system of the body to meet special demands (Ramaswami, 1992). Training is a programme of exercise designed under various categories based upon different kind of scientific principles to improve the skills of a particular game/athletic event and increase the capacities of the energy of an athlete or players.

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## METHODOLOGY

Twenty-four women basketball players selected as subjects from the Madurai Kamaraj University. The age of the subjects ranged from 18 to 25 years. The selected subject randomly assigned into two equal groups of 12 subjects each. Specific circuit training group – I, Control group – II. The experimental group subjects were participated in specific circuit training at the level of 60 to 65% HR max, three days per week and 40 minutes (including warm up and warm down) per day for twelve weeks. Once in two weeks the load was increased 5% for the training group. Motor fitness variables such as speed measured by 50 m run, explosive power was measured by sergeant vertical jump and agility was measured by shuttle run test. The data collected from the two groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA).

## RESULTS

**Table - I**
**ANALYSIS OF COVARIANCE ON SPEED OF SPECIFIC CIRCUIT TRAINING AND CONTROL GROUPS**

| | Specific Circuit Training | Control Group | SoV | Sum of Squares | df | Mean squares | 'F' ratio |
|---|---|---|---|---|---|---|---|
| Pre test Mean | 8.05 | 8.04 | B | 0.01 | 1 | 0.01 | 0.01 |
| SD | 0.13 | 0.11 | W | 0.34 | 22 | 0.16 | |
| Post test Mean | 7.86 | 8.03 | B | 0.17 | 1 | 0.17 | 12.19* |
| SD | 0.09 | 0.14 | W | 0.31 | 22 | 0.014 | |
| Adjusted Post test Mean | 7.86 | 8.03 | B | 0.17 | 1 | 0.17 | 12.05* |
| | | | W | 0.30 | 21 | 0.14 | |

(The required table value for significance at 0.05 level of confidence with degrees of freedom 1 and 23 is 4.28 and degree of freedom 1 and 24 is 4.26.)
*Significant at .05 level of confidence

It was found from the result of this study that significant differences existing between experimental and control groups, since the obtained 'F' ratio value of adjusted post test means of 12.05 on speed was greater than the required table value of 4.28 for degrees of freedom 1 and 23 at 0.05 level of confidence. Hence, it concluded that due to the effect of twelve weeks of specific circuit training the speed of the subjects were significantly improved.

**Table - II**
**ANALYSIS OF COVARIANCE ON EXPLOSIVE POWER OF SPECIFIC CIRCUIT TRAINING AND CONTROL GROUPS**

| | Specific Circuit Training | Control Group | SoV | Sum of Squares | df | Mean squares | 'F' ratio |
|---|---|---|---|---|---|---|---|
| Pre test Mean | 34.42 | 34.66 | B | 0.37 | 1 | 0.37 | 0.15 |
| SD | 1.72 | 1.37 | W | 53.58 | 22 | 2.43 | |
| Post test Mean | 44.33 | 34.91 | B | 532.04 | 1 | 532.04 | 159.07* |
| SD | 2.34 | 1.08 | W | 73.58 | 22 | 3.34 | |
| Adjusted Post test Mean | 44.28 | 34.97 | B | 516.37 | 1 | 516.37 | 170.20* |
| | | | W | 63.71 | 21 | 3.03 | |

(The required table value for significance at 0.05 level of confidence with degrees of freedom 1 and 23 is 4.28 and degree of freedom 1 and 24 is 4.26.)
*Significant at .05 level of confidence

It was found from the result of this study that significant differences existing between experimental and control groups, since the obtained 'F' ratio value of adjusted post test means of 170.20 on explosive power was greater than the required table value of 4.28 for degrees of freedom 1 and 23 at 0.05 level of confidence. Hence it was concluded that due to the effect of twelve weeks of specific circuit training the explosive power of the subjects was significantly improved.

**Table - II**
**ANALYSIS OF COVARIANCE ON SPEED OF SPECIFIC CIRCUIT TRAINING AND CONTROL GROUPS**

| | Specific Circuit Training | Control Group | SoV | Sum of Squares | df | Mean squares | 'F' ratio |
|---|---|---|---|---|---|---|---|
| Pre test Mean | 10.18 | 10.21 | B | 0.01 | 1 | 0.01 | 0.08 |
| SD | 0.37 | 0.25 | W | 2.24 | 22 | 0.10 | |
| Post test Mean | 9.46 | 10.17 | B | 2.98 | 1 | 2.98 | 28.06* |
| SD | 0.37 | 0.26 | W | 2.34 | 22 | 0.11 | |
| Adjusted Post test Mean | 9.47 | 10.16 | B | 2.81 | 1 | 2.81 | 33.16* |
| | | | W | 1.78 | 21 | 0.08 | |

(The required table value for significance at 0.05 level of confidence with degrees of freedom 1 and 23 is 4.28 and degree of freedom 1 and 24 is 4.26.)
*Significant at .05 level of confidence

It was found from the result of this study that significant differences existing between experimental and control groups, since the obtained 'F' ratio value of adjusted post test means of 33.16 on agility was greater than the required table value of 4.28 for degrees of freedom 1 and 23 at 0.05 level of confidence. Hence, it was concluded that due to the effect of twelve weeks of specific circuit training, the agility of the subjects were significantly improved.

**Figure -I**
**PYRAMID DIAGRAM ON SPEED OF SPECIFIC CIRCUIT TRAINING AND CONTROL GROUPS**

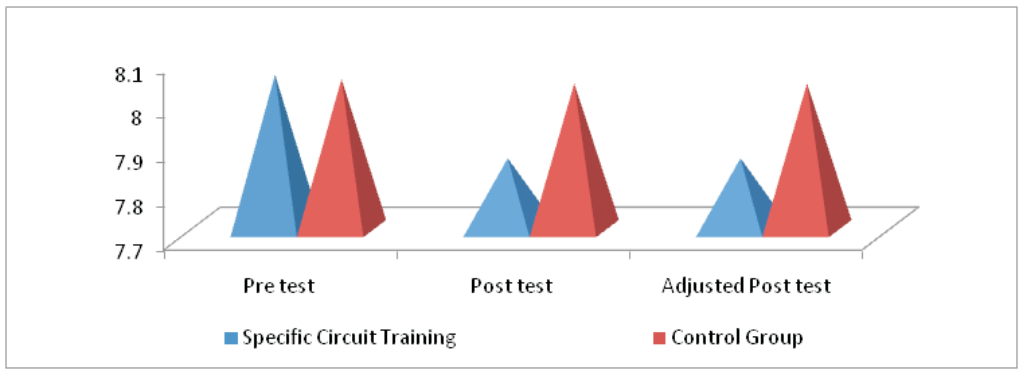



**Figure -II**
**PYRAMID DIAGRAM ON EXPLOSIVE POWER OF SPECIFIC CIRCUIT TRAINING AND CONTROL GROUPS**

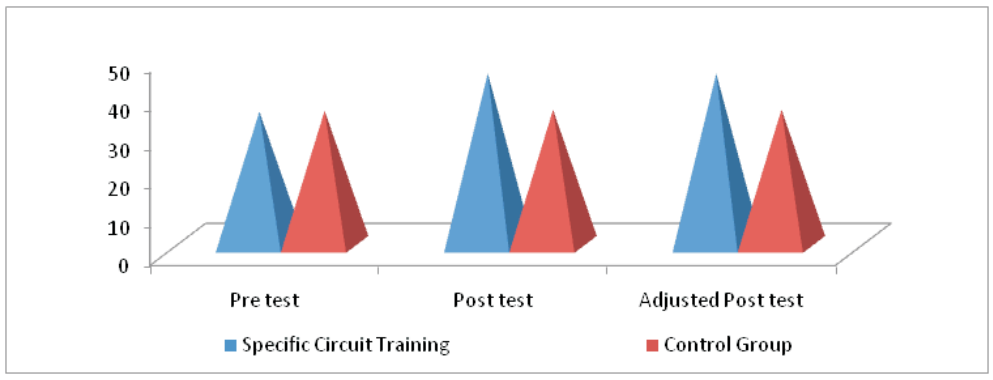
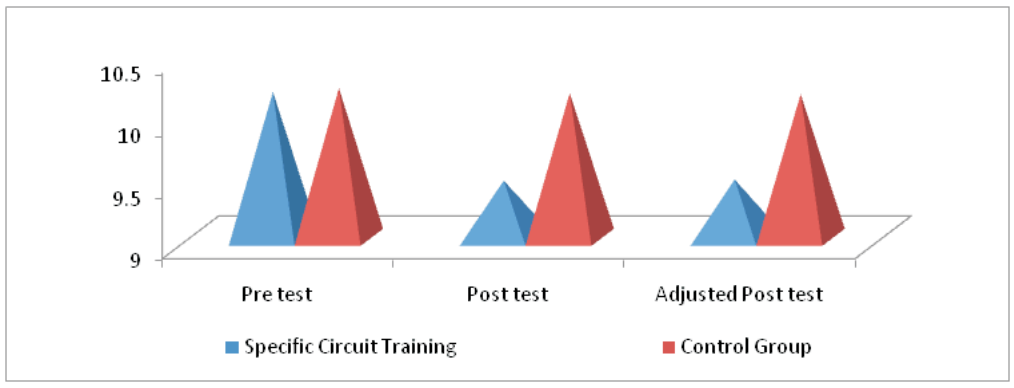



**Figure -III**
**PYRAMID DIAGRAM ON AGILITY OF SPECIFIC CIRCUIT TRAINING AND CONTROL GROUPS**



## DISCUSSION AND FINDINGS

The results of the study showed that there was a significant difference between specific circuit training and control groups on speed, explosive power and agility. The following studies are supporting with my study results. Bride, et., al., (2002) conducted a study with agility and strength parameters and found the significant changes due to heavy Vs light load Jump squat. Manickam (2013) stated that varied intensities of circuit training on selected strength and Endurance parameters improve the Leg strength and strength Endurance of women Basket Ball players. Berdejo, et, al., (2008) stated that the specific training would also increase the training load, which has been proved to be directly linked with body composition and fitness level in the high level.

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