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EFFECTS OF CIRCUIT TRAINING ON VO2 MAX OF BASKETBALL PLAYERS

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Abstract

In the words of Johnson and Stolberg (1971), circuit training is a great way to get a good workout while simultaneously improving your motor skills and general health. It's also a fun and creative way to work on all the key components of physical fitness. Without a doubt, circuit training is a practical and efficient method for building strength. Its purpose is to build and enhance stamina and strength in the muscles. (Bucher & Prentice in 1985). The purpose of present study was to scrutinize the Effects of Circuit Training on VO2 Max of Basketball Players. For achieving the purpose of the study, data was collected on 40 Basketball players from Bangalore University, Bang lore of Karnataka State. The subjects were selected randomly. The subjects were purposively divided into two groups: Experimental Group (N2=10) and Controlled Group (N1=20). The Circuit training programme was carried out alternative days only which may be considered as the delimitation of the study. The following two different type of training program will be given Pus-ups, Back Extensions, Squats Jump, Bicycle Kicks, Sit-ups, Burfee, Forward Lunges and One Leg Squat. To compare the effect of Circuit exercises on VO2 Max of Basketball players, mean, standard deviation and t-test were employed with the help of statistical package of SPSS. To test the hypothesis the significance level was set at 0.05 percent. It was found that the Circuit training is an effective means for improving the VO2 Max and no significant improvement in the case of a control group may be a reflection of inactivity, Circuit Training.

Keywords: Circuit Training, VO2 Max and Basketball Players.

Introduction

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 strength and endurance. Appropriate form of training for most sports can be adjusted to suit age, fitness and health of the athlete. Exercises are simple enough to make each athlete feel a sense of achievement in completing them (By Lonnie Sol off, Cleveland Indians‟ Head Trainer). A wide range of exercises will select from which will maintain the athlete’s enthusiasm (Dick, 1997).

Circuit exercise is an exercise schedule that joins cardiovascular wellness and obstruction preparing. It was first proposed in the late 1950s as a technique to create general wellness. The underlying schedules were masterminded around, shifting back and forth between various muscle gatherings (henceforth the name high-intensity exercise), by permitting just a brief rest interim of 30-90 seconds between stations,

cardiovascular wellness is picked up alongside the advantages of opposition preparing. When building up a high-intensity aerobics schedule, a side assortment of activities and gear can be used. A great part of the hardware is generally reasonable and incorporates careful tubing, bounce rope, own body weight, hand weights, prescription balls, physioballs and weight preparing machines. A circuit can comprise of as few as six stations to upwards of 15 stations dependent on the objectives and pre-preparing dimensions of the members.

Circuit stations are for the most part sequenced in a manner to switch back and forth between muscle gatherings, which take into account sufficient recuperation. The rest interim between stations ought to be between 30-90 seconds and 1-3 minutes between circuits. A common place exercise center has a few quality preparing machines and workstations, which empowers the production of a few circuits. This advantage of fluctuation challenges the aptitudes of the member and keeps them intrigued from session to session. Aerobics assumes an essential job in the off-season exercises of numerous expert competitors. It fills in as an approach to keep up general wellness while dodging the high physical requests of in-season sport. High-intensity aerobics likewise fills in as a segue to larger amount fortifying projects in these competitors. The foundations of these circuits are practices that pressure large number and center musculature. A member ought to dependably counsel with a doctor before starting a work out regime. High-intensity exercise is a proficient and testing form of molding. It functions admirably for creating quality, perseverance (both oxygen consuming and anaerobic), adaptability and coordination. Its flexibility has made it prevalent with the overall population directly through to tip top competitors. For games people, it very well may be utilized amid the shut season and early pre-season to help build up a strong base of wellness and set up the body for increasingly upsetting consequent preparing (Dick, 1997).

Statement of the Problem

The purpose of the study is to find the **"Effects of Circuit Training on VO2 Max of Basketball Players".**

Hypothesis

On the basis of available literature, concern with supervisor and scholar's own understanding it was hypothesized that there might be significant effect of Circuit Training on VO2 Max of inter collegiate Basketball Players.

Method and Procedure

Selection of the subject For the purpose of the study 40 Basketball players from Bangalore University, Bang lore of Karnataka State was selected randomly.

Collection of data

Pre-test was taken before the implementation of training programme after 8 week training programme post-test was constructed. There were two groups i.e. experimental and controlled. 20 subjects were participating in each group. The treatment was received by experimental group only.

Selection of test

Cooper 12-minute Run Test

The Cooper 12 minute run is a popular maximal running test of aerobic fitness, in which participants try and cover as much distance as they can in 12 minutes.

Purpose
To test aerobic fitness (the ability of the body to use oxygen to power it while running)

Equipment required
Flat oval or running track, marker cones, recording sheets, stop watch.

Procedure
Place markers at set intervals around the track to aid in measuring the completed distance. Participants run for 12 minutes, and the total distance covered is recorded. Walking is allowed, though the participants must be encouraged to push themselves as hard as they can to maximize the distance covered.

Scoring
There are Cooper test norm tables for general guidelines for interpreting the results of this test for adults. There are also several equations that can be used to estimate VO2max (in ml/kg/min) from the distance score (a formula for either kms or miles): VO2max = (35.97 x miles) - 11.29

Training Protocol
The subjects in the experimental group practiced Circuit Training protocol for 8 days in a week except Sunday for eight weeks. The training protocol lasts for approximately 60 minutes including warming up and cooling down exercises. The Circuit Training protocols consist of practice of Circuit Training at various Exercises. The training sessions were scheduled in the morning from 7:00 AM to 8:00 AM and performed at men Bangalore University, Play Ground.

Statistical Analysis
After the collection of relevant data, it was processed and analyzed with descriptive statistics. To compare the subjects mean, standard deviation and t-test was employed with the help of statistical package of SPSS. The significance level was set at 0.05 percent.

Result and Finding
The analysis of dependent's'-test on the data obtained from the experimental and control group for VO2max is analyzed and presented in Table 1 respectively.

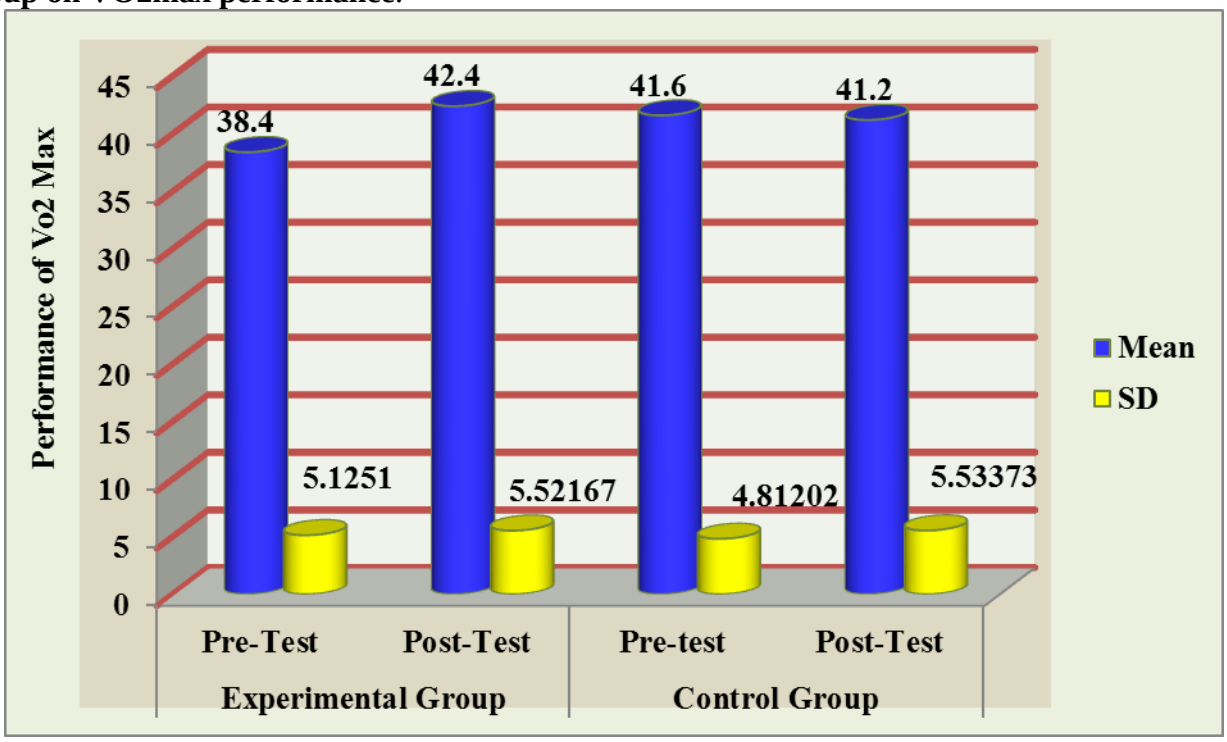
Table1: Pair wise, N, Mean, SD, and t-value of Circuit Training to experimental and control group during Pre-test and post-test on the VO2max of Basketball players.

Group	N	Test	Mean	SD	t-Value	P-Value
Experimental Group	**20**	**Pre-Test**	38.4000	5.12510	7.442	**.000***
		Post-Test	42.4000	5.52167		
Control Group	**20**	**Pre-test**	41.6000	4.81202	1.500	**. 168**
		Post-Test	41.2000	5.53373		

From the table 1, it is evident that the obtained t value 7.442 which are significant at 0.05. Level, with df =9. As the value is greater than tabulate t value 2.182.

Table-1 shows the result about the comparison of VO2max among Circuit Training experimental and control groups obese women. The mean of 20 pre and post-test of Circuit experimental group are 38.4000 and 42.4000 with SD of 5.12510 and 5.52167 respectively. Table1 also reveals that there is the significant difference in the experimental pre-test and post-test observations on the VO2max of male basketball players as the obtained t-value of the experimental group on VO2max is 7.442 and p-value is more than 0.05 level of significance. Whereas in the case of control group Mean and SD on VO2max are not found to be significant at 0.05 level of significance, as they obtained t-value is control group 1.500 and p-value is greater than 0.05 level of significance. The pre-test and post-test mean scores of experimental and control groups for VO2max are graphically presented in figure 1.

Figure No.1.The Pre-test and Post–test for Circuit Training Experimental Group and Control Group on VO2max performance.



The above figure 1. Indicates that the post test values of Experimental group significantly improved the performance of VO2max and also the post test values of VO2max were more than the pre test values due to eight weeks of Circuit Training. The Control group pre- test and post- test performance of VO2max shows no improvement.

Discussion

The raw data was computed and analysis of data showed that the Circuit training improved significantly in the VO2max abilities of experimental group. The reason for better performance in experimental group may be continues participation in training and the load which was experienced by the subjects in the training programme was adequate to produce significant development in the vertical jump. In case of control group it may be due to their non-participation in the training programme. Circuit training is used as the latest methodology for developing the vertical jump abilities. The

activities which activate the stretch reflex mechanism affect the body power and come under the category of Circuit training.

Discussion of Hypothesis

On the basis of the above findings, it is obvious that the treatment contributed to the development of VO2max. Hence, the hypothesis framed for the study is accepted.

Conclusion

Eight weeks of Circuit training has shown significant improvement on VO2max among Basketball players.

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