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CHIEF EDITOR – PRAMOD PRAKASHRAO TANDALE

**“ Effects Of Circuite Training On Cardiovascular Fitness And Body
Mass Index In Collegite Athlete”**

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Abstract

The purpose of the research was to effects of Circuit training on Cardiovascular Fitness and Body Mass Index among collegiate Athletes .The 50 collegiate Athletes as an experimental group who were playing intercollegiate track and field Competition in Amravati and their age ranged between 18-28 years. Exclusion criteria were the presence of chronic medical conditions such as asthma, heart disease or any other condition that would put the subjects at risk when performing the experimental tests. Cardiovascular fitness was assessed using 12 minute run test. Participants were ruined for 12minutes, and the total distance covered is recorded. Walking was allowed.BMI was calculated by Quetelet equation. The Circuit training was planned as 12 weeks 5 days a week and 60 min. The result reveals a statistically significant effects was found on body mass Index ($t < .05$) However The result reveals a statistically significant effects was found on cardiovascular Fitness ($t < .05$) on Collegiate students . The results of present study showed that cardiovascular fitness was better after circuit training.

Introduction

Body mass index (BMI) is a reliable indicator of health and nutritional status of human being (Garrow and Webster, 1985). Body Mass index also known as the quetlet's index" express the relationship between the two mostly widely used parameters to monitor linear and ponderal growth, viz., height and weight. BMI does not measure fat directly, but has shown that BMI correlates to direct measures of body fat, such as by under water weighing and dual energy X-ray absorptiometry (Mei et. al. 2002).

The importance of cardiovascular fitness to health for all athletes has been welldocumented. Cardiovascular fitness of an individual is mainly dependent on lifestyle related factors such asdaily physical activity levels. It was believed that the low cardiovascular fitness level of an athletes isassociated with poor performance For Cardiovascular fitness, the activity components included are not only for muscular development and endurance training. The lungs, heart, and circulatory system are also the focal points in health and fitness. The reason for this is to improve stamina, immune system, and maintain good body composition. Cardiovascular fitness reduces the risk of cardiovascular diseases and other diseases like hypertension,Diabetes obesity, and may cure respiratory problems like asthma (Amusa, & Goon ,2011).

Cardiovascular fitness of our citizens is a vital prerequisite to a country's realization of its full potentials a nation (Lamb et.al. 1988). Cardiovascular fitness recognized as an important component of health and it may be important for the performance of functional activities and quality of life (Maria et. al., 2003), .

Material and Methods

The 50 collegiate Athletes as an experimental group who were playing intercollegiate track and field Competition in Amravati and their age ranged between 18-28 years. The Circuit training was planned as 12 weeks 5 days a week and 60 min. Only training was given to the experimental groups. Voluntary to participate in the Circuit training programmes. Exclusion criteria were the presence of chronic medical conditions such as asthma, heart disease or any other condition that would put the subjects at risk when performing the experimental tests. The subjects were free of smoking, alcohol and caffeine consumption, antioxidant supplementation and drugs during the programmes. They completed an informed consent document to participate in the study. The age, height, weights, power ability of all subjects were measured.

Research Design:

The design in a research study refers to "the researcher's overall plan for answering the researcher's question or testing the research hypotheses" (Polit et al, 2001, p.167). This study involves the effects of Circuit training on Power ability on collegiate athletes as quasi experimental design.

Training Programme: The exercise session should consist of the following

- 1) A warm-up period of approximately 10 minutes this should combine calisthenics' type stretching exercises and progressive aerobic activity that should increase the heart rate close to the prescribed heart rate for the session.
- 2) A cool-down period of 5-10 minutes. Training program would be planned as 12 weeks 5 days a week and 60min. Day the level of training intensity is increased from initial 50% to 70% during twelve weeks students were trained according to protocol of three sets, 8-12 repeat and 3-5 minutes break between each set training programs were created in the frame of these criteria.

Assessment of Cardiovascular Fitness Tests

12 minute Run: Cardiovascular fitness was assessed using 12 minute run test. Place markers at set intervals around the track to aid in measuring the completed distance. Participants were run for 12 minutes, and the total distance covered is recorded. Walking was allowed.

Body Mass index measurement: For measurement of this factor, samples height and weight were measured in two phases (Pre test and Post test). Samples height and weight were calculated by body scale tool Electronic weight machine for weight measure and Meter tape for height. Then for calculation BMI formula is seen in below was used. Samples height is in meter and weight is in kilogram (MacKay, N.J.2010)

$$BMI = \text{wt (kg)} / \text{Height (m)}^2$$

Statistical analysis: The Statistical Package for the Social Sciences (SPSS; version 18.0) was used for the data analysis. Independent t tests were used to assess overall differences between Rural and Urban students. The level of significant set up at 0.5 level of confidence.

Results: The data have been systematically analyzed in the form of Mean Scores, Standard Deviations and t-ratios.

Mean Scores and Standard Deviations of Morphological characteristics of the Collegiate students

Sr. No.	Components	Means Scores	Standard Deviation
1.	Age (Year)	21.07	4.61
2.	Weight (Kg)	66.19	5.22
3.	Height (cm)	171.60	9.56

Mean Score (S.Ds.) age of collegiate was 21.07 (4.61) years, mean score (S.Ds.) weight was 66.19 (5.22) kg., mean score (S.Ds.) and height was 171.60 (9.56) cm,

Table-1, Mean Scores and Standard Deviations of Pre and Post-test of Body

Mass Index among Experimental group.

Variable	Test	Number	Mean	S.D.	T-ratio
Body Mass Index	Pre test	50	20.10	3.89	*
	posttest	50	19.04	3.23	

*Significant

Table -1 Showsthat **Pre and Post-test of Body Mass Index among Experimental group.** With regards to pre and post-test of body mass index in collegiate Athletes they have obtained mean value(SDs) were 20.10(3.89) and 19.04 (3.23)respectively, the result reveals astatistically significant effects of circuit training on body mass Index ($t < .05$) was found collegiate athletes. After twelves week of circuit training , BMI decreased

Table- 2

Table-2, Mean Scores and Standard Deviations of Pre and Post-test of Cardiovascular

Fitness among Experimental group.

Variable	Test	Number	Mean (Mts.)	S.D.	T-ratio
Cardio vascular Fitness	Pre-test	50	1745.60	20.17	*
	Post test	50	2040.20	22.43	

Table -2 Shows that **Pre and Post-test of Cardiovascular Fitness among Experimental group.** With regards to pre and post-test of Cardiovascular Fitness in collegiate Athletes they have obtained mean value (SDs) were 1745.60 (20.17) and 2040.20 (22.43) respectively, the result reveals a statistically significant effects of circuit training on Cardiovascular Fitness ($t < .05$) was found collegiate athletes. After twelves week of circuit training, Cardiovascular Fitness enhanced.

Discussion of findings

- The results of present study showed that cardiovascular fitness performance was better after 12 weeks of circuit training,
- Our findings are in agreement with other study that has examinedcardiovascular fitness levels in African-American adults. According to observations of theAmsterdam Growth and Heath Longitudinal Study, physical activity levels affect cardiovascular capacityduring puberty and later in life. Thus, we assumed thatcircuit traininglevels of our studyparticipants were similar as earlier in their life and consequently their Cardiovascular capacity resultedfrom longterm engagement in a given circuit training.

- The research has provided early information to help the students understand their physical fitness. It will motivate them to be involved in sports. The information can be applied as criteria in selecting or choosing athletes. It is also a source to assist physical education teachers, sports directors, physical educationist and sports trainer to be proactive and change their perspective in order to improve the cardiovascular fitness

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