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Impact of circuit training on selected physical fitness among college level football players

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Abstract

The purpose of this study was to investigate the Impact of Circuit Training on Selected Physical Fitness among College Level Football Players. 40 male subjects (20 control & 20 experimental group) from Inter-Collegiate football players of Ch. Charan Singh University Meerut. Age ranged 18-23 year were selected at random sample selection. The subjects 50 yard dash, SEMO agility and 12 minute run walk and their initial performance was recorded. Then the group was administered the programmed of circuit training, for a period of six weeks. Selected exercises were regularly done in the morning, there circuits a day and thrice in a week. At the end of the experimental period of six weeks, again the subjects were asked to do 50 yard dash, SEMO agility and endurance and their final performance was recorded. The level of significance to test the hypothesis in term of 't' ratio obtain was chosen as 0.05 level. Speed t-ratio 0.07, Agility t-ratio 0.51., and Endurance t-ratio 0.65 there was not significant at 0.05 Significance level.

Keywords: Kho-Kho, circuit training, speed, agility, endurance

Introduction

Fitness is the ability of the individual to live a full and balanced life. It involves physical, mental and emotional and spiritual factors and the capacity for their wholesome expression. Man's existence and effectiveness depend upon his Muscles. Muscular efficiency including strength and endurance is essential to man. Man needs vigorous exercise for growth and development. A muscle must be overload in order to be strengthened. If not it will become weak and degenerate. It is a biological principle that function builds structure and structure decides function.

States that the primary object of training is to become strong. The word "strong" to means everything that goes into athletic performance outside of technique. Practice of the event itself is one way of getting strong but the athlete's full potential may also be developed by subsidiary form of exercise, Such as weight training or circuit training.

Circuit training method was originally by Morgan and Adamson about 1957 at the University of Levels England.

It is a scientific arrangement of proven exercise are performed system automatically and repeatedly as corrupt the circuit".

Circuit training is a program in an athlete moves from one exercise station to another planned sequence and in the shortest possible form. In planning a circuit training programme exercise are chosen to fit the needs of the individuals each of these exercise them numbered and assigned to a certain area called station.

A combination of the techniques of weight lifting with the principles of "circuit training" results in a system of continuous exercise which brings about significant improvement in cardiovascular respiratory efficiency and muscular endurance. Through circuit training the athletes may increasing their strength and endurance by in area sing the repetitions of exercise at each station or by doing the required frequencies of exercise in a shorter length of form. If the work load is kept constant, the athletes can develop strength and endurance by gradually decreasing the time taken to go through the circuit.

Soccer is a team sports it helps the participants to understand others to adjust with other groups to appreciate.

Soccer requires players to perform numerous actions that require strength, power, speed, agility, balance, stability, flexibility and endurance. The physical conditioning of players is a complex process. During a soccer match, players cover about 10 km in total, which includes a sprint every 90 seconds (11% of overall activity) with each action lasting on average of 2 to 4 seconds and covering a distance of 15 m. Although speed represents a very important component of fitness for a soccer player, quickness is probably more important. This is because sprints in soccer are mainly performed over short distances undertaken at maximal intensity although the longest distances tend to be about 40 m and usually involves several changes in direction. Circuit training is one of the well-known training methods to improve the physical fitness due to its nature of the activity. The present study was intended to assess the effect of circuit training on the selected physical fitness qualities of speed, agility and endurance among inter collegiate Football players.

Statement of the problem

Impact of Circuit Training on Selected Physical Fitness among College Level Football Players.

Significance of the study

1. This study will be helpful to the coaches and physical education teachers on training athletes to improve their Speed, Agility and Endurance.
2. It may help in formulating suitable circuit training in a conditioning schedule for the athletes to improve the performance in track and field events.
3. This training program may be used as a motivational factor other than interval training and for the are concerned with improving speed.

Hypothesis

1. There would be significant effect of circuit training on speed among Football Players.
2. There would be significant effect of circuit training on agility among Football Players.
3. There would be significant effect of circuit training on endurance among Football Players.

Methodology

The 40 students of Inter-Collegiate Football players of Ch. Charan Singh University Meerut were selected as subjects by random sample selection. 20 control & 20 experimental group their age ranged from 18 to 23 years were selected. The data were collected before the training programme and after the completion of six weeks of training programme by administering some selected exercises. The exercise include in the circuit training program were originated by Don Schmidt had been slightly modified and were as follows. 1. Squat jumps;, 2. Burpees;, 3. High knees;, 4. Sit ups;, 5. Bicycle kicks;, 6. Single leg kic kbacks. The test was administered at the 400 mts. track Ch. Charan Singh University Meerut. The statistical analysis of the data consisting of raw scores made by the subjects by constructing a motor fitness (3 item), 1) 50 yard dash - To measure Speed., 2) Shuttle run - To measure Agility, 3) 12 Minutes Run Walk-To measure Endurance, test by the help of AAHPERD Fitness Test. The level of significance to test the hypothesis in term of 't' ratio obtain was chosen as 0.05 level of confidence. The obtain raw scores in each test items were converted into standard scores with the help of 't' scale and composite score was formed, which were subjected to 't' test to find out the

overall significant difference between the two groups i.e. pre-test and post-test.

After calculating the overall significant difference in pre and post test, each item of test was subjected to 't' test to find out the significant difference.

Table 1: Shows statistical comparison of Speed between pre-test and post-test of Experimental group is as under

Group	Mean	SD	T-ratio
Pre-test	7.43	1.32	0.07
Post-test	7.40	1.32	

N = 20

From the above table it is observed that the mean of Experimental group in per-test and post-test is 7.43 and 7.40 respectively. After applying "t" test it is found that the t-ratio is 0.07 which was not significant at the 0.05 level of significance. So the hypothesis was rejected.

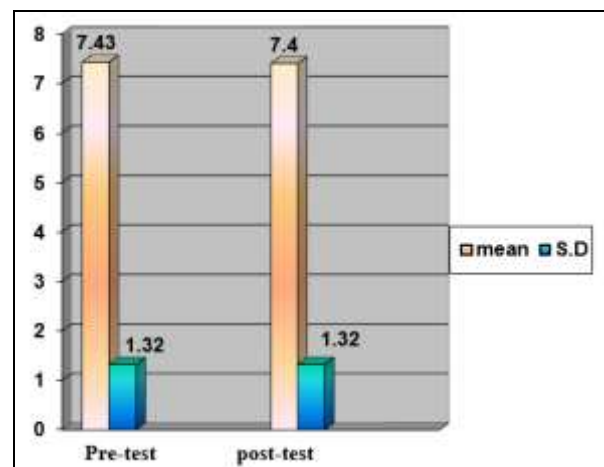


Fig 1: Figure showing the Mean difference of Experimental group in pre and post test on Speed

Table 2: Shows statistical comparison of Speed between pre-test and post-test of Control group is as under

Group	Mean	SD	T-ratio
Pre-test	8.45	2.32	2
Post-test	8.31	2.15	

N = 20

From the above table it is observed that the mean of Control group in per-test and post-test is 8.45 and 8.31 respectively. After applying "t" test it is found that the t-ratio is 2.

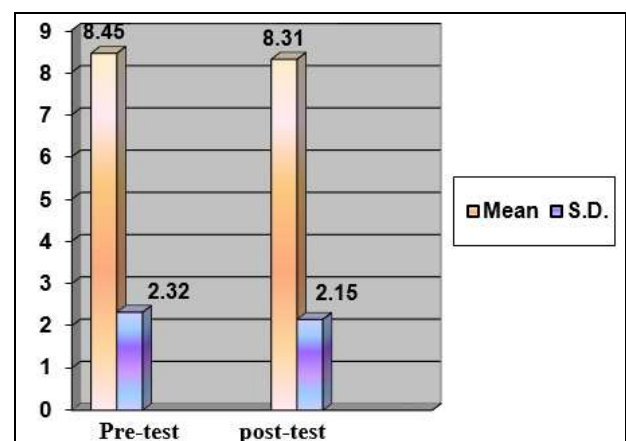


Fig 2: Figure showing the Mean difference of Control group in pre and post test on Speed

Table 3: Shows statistical comparison of Agility between pre-test and post-test of Experimental group is as under

Group	Mean	SD	T-ratio
Pre-test	12.78	1.20	0.51
Post-test	12.59	1.22	

N = 20

From the above table it is observed that the mean of Experimental group in pre-test and post-test is 12.78 and 12.59 respectively. After applying “t” test it is found that the t-ratio is 0.51 which was not significant at the 0.05 level of significance. So the hypothesis was rejected.

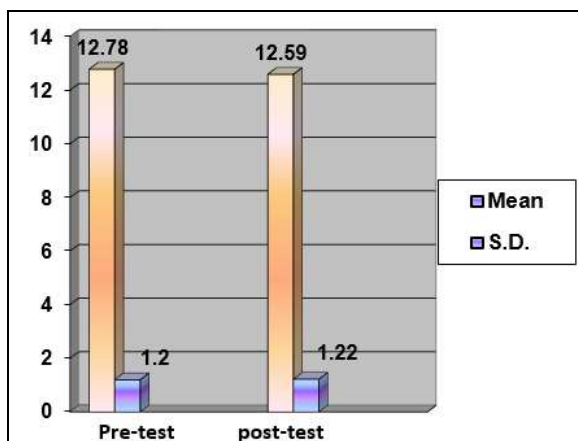


Fig 3: Figure showing the Mean difference of Experimental group in pre and post test on Agility

Table 4: Shows statistical comparison of Agility between pre-test and post-test of Control group is as under

Group	Mean	SD	T-ratio
Pre-test	13.07	0.96	0.25
Post-test	13.17	1.56	

N = 20

From the above table it is observed that the mean of Control group in pre-test and post-test is 13.07 and 13.17 respectively. After applying “t” test it is found that the t-ratio is 0.25.

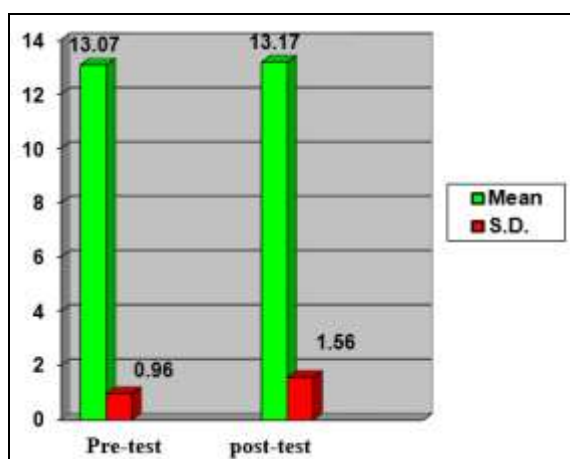


Fig 4: Figure showing the Mean difference of Control group in pre and post test on agility

Table 5: Shows statistical comparison of Endurance between pre-test and post-test of Experimental group is as under

Group	Mean	SD	T-ratio
Pre-test	1755	446.45	0.65
Post-test	1845	423.64	

N = 20

From the above table it is observed that the mean of Experimental group in pre-test and post-test is 1755 and 1845 respectively. After applying “t” test it is found that the t-ratio is 0.65 which was not significant at the 0.05 level of significance. So the hypothesis was rejected.

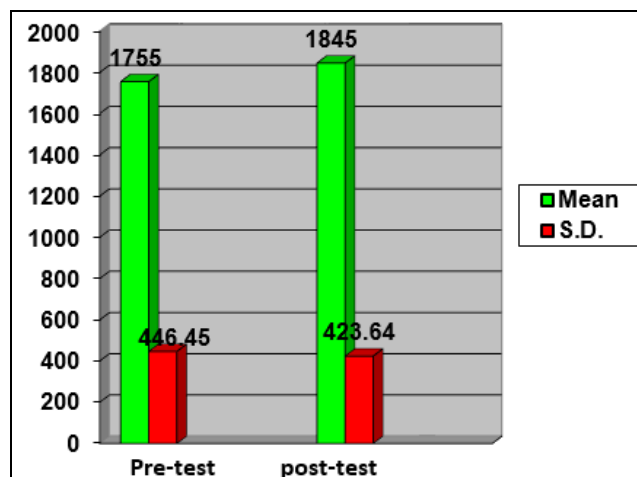


Fig 5: Figure showing the Mean difference of Experimental group in pre and post test on Endurance

Table 6: Shows statistical comparison of Endurance between pre-test and post-test of Control group is as under

Group	Mean	SD	T-ratio
Pre-test	1845	471.03	2.18
Post-test	1530	438.29	

N = 20

From the above table it is observed that the mean of Control group in pre-test and post-test is 1845 and 1530 respectively. After applying “t” test it is found that the t-ratio is 2.18.

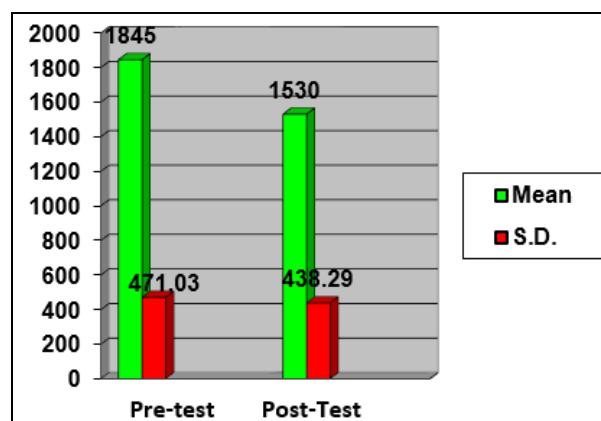


Fig 6: Figure showing the Mean difference of Control group in pre and post test on Endurance

Discussion of hypothesis

1. The first Hypothesis was that there would be significant effect of circuit training on Speed among Football Players. in table no 1, should that the t-ratio 0.07. This was not significant at 0.05 Significance level. Thus the Hypothesis was rejected.
2. The Second Hypothesis was that there would be significant effect of circuit training on Agility among Football Players in table no3, should that the t-ratio 0.51. This was not significant at 0.05 Significance level. Thus the Hypothesis was rejected.
3. The third Hypothesis was that there would be significant effect of circuit training on Endurance among Football

Players in table no5, should that the t-ratio 0.65. This was not significant at 0.05 Significance level. Thus the Hypothesis was rejected.

Conclusion

On the basis of statistical result the following conclusions were drawn within the limitation of the study.

1. There was no significant effect of speed between control group and experimental group among Football Players.
2. There was no significant effect of Agility between control group and experimental group among Football Players.
3. There was significant effect of Endurance between control group and experimental group among Football Players.

Recommendation

The following recommendations have been drawn:

4. Circuit training may be considered as a vital part of the physical education programmed in all Universities to improve the speed of the students.
5. Circuit training may be included in the training schedule of the speed, Agility and Endurance with suitable exercises along with other training methods.
6. This study may be conducted in a more elaborate and extensive manner to cover different age groups and sex.
7. Circuit training needs specialized research studies relation to its contribution to muscular power, co-ordination, and flexibility.

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