

## **The Effects of Circuit Training for the Development of Vertical Jumping Ability, Endurance, Agility and Skill Ability in Football Players' Boys Aged 10 To 12 Years.**

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### **Abstract:**

The main aim of this type of study was to investigate whether additional circuit training will be of any benefit in improving the performance of the students undergoing training in the following events Cardiovascular Endurance, Vertical Jumping Ability, Agility and Muscular Endurance.

40 students of N. L Dalmiya High School, Miraroad, Mumbai were selected at random and were divided in two groups of 20 each by random allotment one of the groups was treated as control group. Circuit training was based on the assumption that could have developmental effect in Cardiovascular Endurance, Vertical Jumping Ability, Agility and Muscular Endurance.

The criterion measures adopted for experimental group were Cardiovascular Endurance, Vertical Jumping Ability, Agility and Muscular Endurance. Initial readings were taken at the commencement of the training. Experimental group followed specifically prescribed circuit training scheduled three days a week for period of eight weeks. Final readings in the criterion measures were taken.

The improvement made in the test items by the two groups were tested for significance by the paired 't' test. The mean gain made by the Experimental Group over the Control Group in Each of the test item were also tested for significance using the 't' test.

### **Introduction:**

Football in India was spread during the days of the British Empire. Many football clubs in India were created during this time, and pre-date many of the organisations and clubs, such as FIFA, which are predominant in the game today. The first recorded game in India took place between 'Calcutta Club of Civilians' and 'The Gentlemen of Barrackpore' in 1854. The game in India is administered by the All India Football Federation (AIFF), which is affiliated to the regional Asian Football Confederation, as well as to the worldwide body FIFA.

The Indian national team has entered into the regional Asian Cup competition as well as the World Cup. The Indian women's national team has also played in various competitions. Youth football is administered by the governmental Sports Authority of India. The game is also administered at state levels by state football associations, some of which predate the AIFF.

The Indian team won the 1951 and 1962 Asian Games gold medals in football. In 1956 the team finished fourth at the Melbourne Olympics. In August 2007, the Indian team won the Nehru Cup for the first time in its history beating Syria 1-0. In August

2008, India defeated Tajikistan 4-1 to lift the AFC Challenge Cup and intern qualified for the 2011 AFC Asian Cup in Qatar but in India it has not been able to achieve any spectacular success in the international competition. This poor performance could be attributed to lack of facilities, absence of advanced scientific coaching, and above all proper physical conditioning in running sports skill is possible only when the learner processes adequate strength, endurance, flexibility and agility.

**Statement of the Problem:**

The purpose of the study is to determine the effects of circuit training for the development of vertical jumping ability, endurance, agility and skill ability in football players boys aged 10 to 12 years.

**Significance of the Study:**

After assessing the effect of circuit training for the development of physical fitness it will be seen whether it has any significant effect on the development of physical fitness and home whether it could be effectively used by coaches and physical education in their training program.

**OBJECTIVES OF THE STUDY:**

- To study the effect of circuit training to change the Physical fitness level of Football players.
- To find out the status in which the athlete lacking in physical fitness level.
- To study the effect of circuit training on health related physical fitness of Football players.
- To study the effect of circuit training on skill ability of on athlete of Football players.

**Limitations:**

- It was not possible to control the day-to-day activities of the subjects selected for the experimental group which included diet, food, habit and rest.
- It was also not possible to control the regularity, punctuality and sincerity of the subject participating on the experiment as all the players were day-scholars.
- Besides their regular football practice no special training was imported to the control group.

**Delimitations:**

- The study is delimited to the promotion of physical fitness as measured by selected physical fitness test.
- The study is delimited to selected training program.
- The study is conducted on a group of Boy's Football players of the 10-12 years age category.
- The period of training was delimited to 8 weeks.
- The study is delimited to the selected physical fitness components.
- Training for the experimental group was limited to only on hour on every days.

**Hypotheses:**

The resent researcher formulated the following hypotheses which are to be tested satisfactorily:

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H<sub>0</sub> There is no significant difference in Fitness and Performance factor of football playing students

H<sub>0</sub> There is no significant difference in fitness factor of football playing students

H<sub>0</sub> There is no significant difference in performance factor of football playing students

**Methodology:**

The main purpose behind this study was to see the effect of Circuit training on selected physical fitness components and skill ability of Boys Football players aged 10 to 12 years.

The methodology adopted by the research scholar for this study has been presented in detail.

- Design of the study

The investigator has used a parallel group method of true experimental design for the present study that consists of one control group and the other experimental group.

- Selection of the subjects

40 subjects were chosen randomly from N. L Dalmiya High School, Miraroad, Mumbai. The selected subjects were divided in to two groups. Experimental group had twenty and control group had twenty subjects with the help of lottery method.

- Selection of variables

After going through the related literature the following dependent and independent variables were chosen to collect the data at pre test and post test and to render training.

- Independent variables

Step up down, Bent knee Sit up, High knee action, Zigzag run, Rope skipping, Push-ups, Shuttle run, Box jump, Dribbling, Split squat jump

- Dependant variables

After the reviewing the available literature and discussion with experts the following dependent variables were chosen for the pre and post-tests.

FACTOR (FITNESS TEST)	TEST
Cardio Vascular Endurance	Tuttle Pulse Ratio Test
Vertical Jumping Ability	Sargent Test
Agility	Shuttle Run
Muscular Endurance	Bent knee Sit Ups
Football Skill Test	30m Running with the Ball

**Analysis and Interpretations of Data:**

The experimental data collected on pre and post test on physical fitness factors and performance test have been presented and analyzed in detail.

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The data were arranged systematically in tabular forms and were interpreted logically considering the scientific values. The results of the study have been presented below in tables 1 to 4.

- Comparison of Control group means of Pre and Post Test of Physical Fitness components and Performance Factor

Table 1.

Variables	Pre Test		Post Test		MD	SE <sub>M</sub>	't'	Significance
	Mean	S D	Mean	S D				
Tuttle Pulse Ratio	2.05	0.04	2.07	0.07	0.02	0.01	1.69	P>0.05
Vertical Jump	33.70	5.35	33.40	5.18	0.30	0.27	1.10	P>0.05
Shuttle Run	11.50	1.28	11.09	2.53	0.41	0.49	0.86	P>0.05
Bent knee Sit Ups	39.53	5.31	39.25	5.54	0.28	0.40	0.07	P>0.05
30m Run with Football	6.52	0.11	6.52	0.113	0.003	0.011	0.32	P>0.05

Significance at 0.05 level, where df=19, 't'=1.729

- Comparison of Experimental group means of Pre and Post Test of Physical Fitness and Performance Factors

Table 2.

Variables	Pre Test		Post Test		MD	SE <sub>M</sub>	't'	Significance
	Mean	S D	Mean	S D				
Tuttle Pulse Ratio	2.046	0.059	1.860	0.126	0.18	0.03	6.57	P<0.05
Vertical Jump	31.00	8.55	34.15	8.55	3.15	0.40	7.89	P<0.05
Shuttle Run	11.47	1.25	11.10	3.41	0.37	0.09	4.21	P<0.05
Bent knee Sit Ups	39.86	5.78	46.15	5.71	6.29	0.60	10.4	P<0.05
30m Run with Football	6.54	0.24	6.13	0.10	0.41	0.05	7.94	P<0.05

Significance at 0.05 level, where df=19, 't'=1.729

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- Comparison of Control and Experimental groups means of Pre Test of Physical Fitness Factors and Performance Factor

Table 3

Variables	Experimental Pre Test		Control Pre Test		MD	SE <sub>M</sub>	't'	Significance
	Mean	S D	Mean	S D				
Tuttle Pulse Ratio	2.04	0.05	2.05	0.04	0.006	0.017	0.37	P>0.05
Vertical Jump	31.00	8.55	32.33	4.66	1.33	2.16	0.62	P>0.05
Shuttle Run	11.51	1.23	11.47	1.25	0.03	0.41	0.09	P>0.05
Bent knee Sit Ups	39.86	5.78	39.53	5.31	0.33	1.83	0.18	P>0.05
30m Run with Football	6.54	0.24	6.52	0.11	0.02	0.05	0.43	P>0.05

Significance at 0.05 level, where df=19, 't'=1.729

- Comparison of Experimental and control group means of Post Test of Physical Fitness and Performance Factors

Table 4

Variables	Experimental Post Test		Control Post Test		MD	SE <sub>M</sub>	't'	Significance
	Mean	S D	Mean	S D				
Tuttle Pulse Ratio	1.86	0.11	2.07	0.07	0.21	0.03	6.85	P<0.05
Vertical Jump	34.15	8.61	32.65	4.37	1.50	0.80	1.87	P<0.05
Shuttle Run	11.16	1.16	11.02	2.54	0.13	0.05	2.39	P<0.05
Bent Knee Sit Ups	46.15	5.71	39.25	5.54	6.90	1.73	3.98	P<0.05
30m Run with Football	6.13	0.10	6.52	0.13	0.39	0.03	11.29	P<0.05

Significance at 0.05 level, where df=19, 't'=1.729

### Conclusion:

- While concluding, it may be stated that, within the limits of the present study, selected circuit training exercises contribute positively towards the improvement of Cardiovascular Endurance, Vertical Jumping Ability, Agility, Muscular Endurance and skill ability of football players as tested by Tuttle pulse Ration Test Sargent test, Shuttle Run test, Bent knee Sit ups Test, 30m Running with the Ball Test and Kicking Accuracy Test
- Associated physical fitness variables of football players were also improved significantly as a result of selected circuit training exercises.

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- Within the limit of the present study it may concluded that selected training of circuit training contributes to improvement in performance of Cardiovascular Endurance, Vertical Jumping Ability, Agility, and Muscular Endurance.

**Recommendations:**

The following recommendations were made in the light of this investigation for further research:

- Circuit training is included as an integral part of training as well as coaching football.
- The subjects in this study belonged to the junior age category. A similar study could be undertaken on senior players.
- The present study has concentrated on the Muscular endurance and Speed endurance. Similar studies could be planned out on the explosive strength which too plays an important role from the fitness point of view.
- The same study can be used for the other game players and athletes, strengthening exercise can increase the explosive strength and endurance of other game players and athletes.
- The subjects were neither professional football players nor they had learnt this game under specific coaching earlier; therefore, further study is essential on trained players along with the well planned programme of specific circuit training exercises with an increase in the training period.

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