

## Full Length Article

**Physiology Effect of Circuit Training on Strength Speed and Flexibility Among Fast Bowlers in Cricket****M. Kumar<sup>a,\*</sup>**Received 02<sup>th</sup> February 2016,  
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**Abstract:** The purpose of the present study was the effect of circuit training on strength, speed and flexibility among fast bowlers in cricket. The study was administered on 10 fast bowlers of men cricket team in the age group of 18 to 25 years from Various Engineering colleges affiliated to Anna University, Villupuram. To find the impact of circuit training on the development of strength, speed and flexibility, the pre and post-test had been conducted. The present study makes an attempt to assess the influence of circuit training on strength, speed and flexibility development. It is well understood that several factors are highly inter-related to training and Physical fitness. This application is a significant contribution to the field of physical education and sports in relation to develop Physical fitness of sports persons. The t ratio value of strength (8.249), speed (4.113) was higher than the required table value of 2.262, which proved that there was significant difference on strength and speed among fast bowlers in cricket and flexibility (2.084) was lesser than the required table value of 2.262, which proved that there was no significant difference on flexibility among fast bowlers in cricket. The four weeks circuit training has facilitated the higher performance of the fast bowlers. This clearly indicates that the physical fitness of fast bowlers in cricket was improved after training.

**Keywords:** Circuit training**Introduction**

The overall prevalence of overweight and obese children in southern Taiwan is higher than in other Asian countries. Circuit training is a great way to improving the fitness. It's especially effective when cricketers have less time to train because they can get a lot done in a short time. Circuits are a method of fitness training. The format is very flexible, usually involving 6-10 exercises that are completed in a row or a 'circuit' one after another. Each exercise is performed for a number of reps or a set time before moving on. There is a fixed rest period (anything from 0 to 60 seconds) between exercises and a slightly longer rest period between circuits. This has been shown to develop muscular strength, speed and flexibility.

Circuit training in cricket is a simple method of giving a player a variety of exercises that will improve the three main functions relating to his performance on the field. These are strength,

endurance and mobility. Circuit training suits the cricketers very well in that it is realistic and enables the player to keep within his physical capabilities [1].

**Methodology**

For this study 10 fast bowlers of men cricket team in the age group of 18 to 25 years were selected on random basis from Various Engineering colleges affiliated to Anna University, Villupuram. The selected sample's physical fitness was measured in strength, speed and flexibility. Further, the sample was underwent circuit training for four weeks continuously during morning hours, and at every weekend there is a rest day. The circuit training will give three days (alternately) per week and on alternate days players will do bowling skill. After the training, physical fitness was again measured in terms of performance of the players in the tests used in pre-training condition. Thus the performance of the sample's before and after training conditions was

taken to assess the effect of circuit training on strength, speed and flexibility. The data of both pre and post- test conditions were analyzed statistically.

**Statistical Analysis**

The data analyzed and compared with the help of statistical procedure in which arithmetic mean, standard deviation and t-test used to compare the data.

**Analysis of Data and Interpretation**

The present study was to assess the effect of circuit training on strength, speed and flexibility among fast bowlers in cricket. The study attempts to examine the differences on strength, speed and flexibility between the pre-training and post-test performance among fast bowlers. The data were

organized, statistically analyzed and presented in the Tables III.

**Reliability of Data**

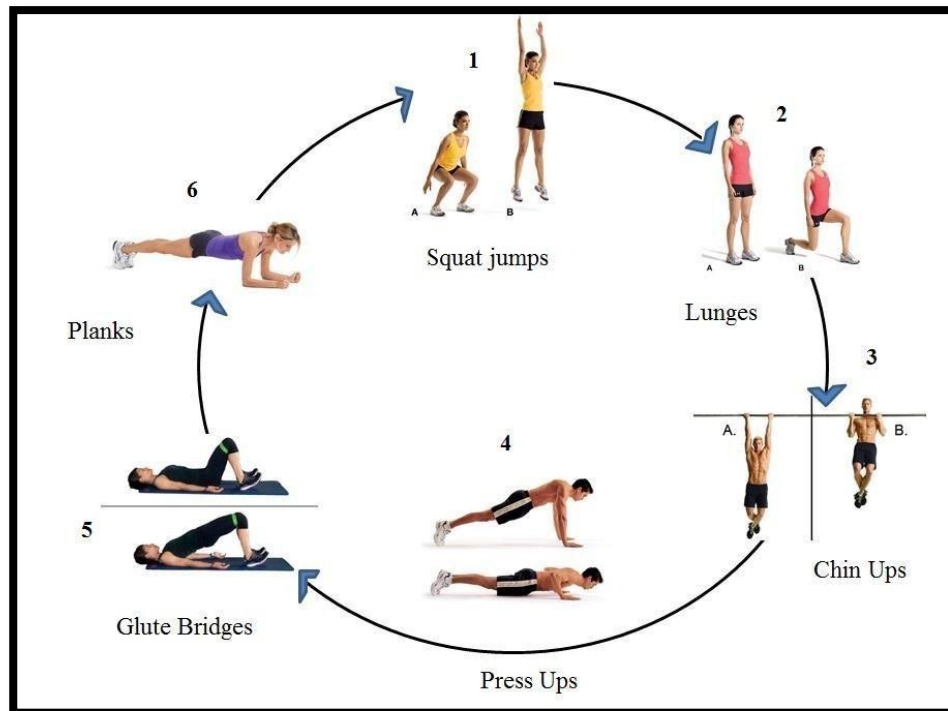
Test and retest method of establishing reliability was employed to determine the reliability of the performance of the subjects on various tests. For the purpose the performance of the subjects on strength, speed and flexibility were recorded twice on two different conditions with a gap of four weeks. The level of significance of two tailed test thus obtained in significant beyond 0.05(2.262).

**Table I Physical Fitness Tests**

Sl. No	Variables	Test/Tools	Unit of Measurement
1	Strength	IRM ( Chest Press)	Kg
2	Speed	50 Meter dash [2]	Seconds
3	Flexibility	Sit and Reach test	Cm

**TRAINING SCHEDULE**

Four week circuit training schedule for fast bowlers in cricket



**Fig 1: Fast Bowling Circuit**

After a good warm up, the key to a good circuit was design it around the main movements of the body. This gives each group of muscles enough rest; the following circuit training has done on Monday, Wednesday and Friday.

**Station 1:** Power: Squat jumps

**Station 2:** Knee dominant: Lunges

**Station 3:** Pulling: Chin Ups

**Station 4:** Pushing: Press Ups

**Station 5:** Hip Dominant: Glute Bridges.

**Station 6:** Core: Planks

After a good warm up, the fast bowlers have bowled 25 balls per set in the nets and each set have 5 minutes rest; has done on alternate days

(Tuesday, Thursday and Saturday). Sunday have rest.

**Table II**

Day	Workout			Circuits	
	Circuit training / Bowling	Duration	Rest	Numbers	Rest
Monday	Each station (1-6)	30 seconds	30 seconds	2-3	1 minutes
Tuesday	25 balls / set	1 hour		3-4	5 minutes
Wednesday	Each station (1-6)	30 seconds	30 seconds	2-3	1 minutes
Thursday	25 balls / set	1 hour		3-4	5 minutes
Friday	Each station (1-6)	30 seconds	30 seconds	2-3	1 minutes
Saturday	25 balls / set	1 hour		3-4	5 minutes
Sunday	Each station (1-6)	30 seconds	30 seconds	2-3	1 minutes
Sunday	Rest				

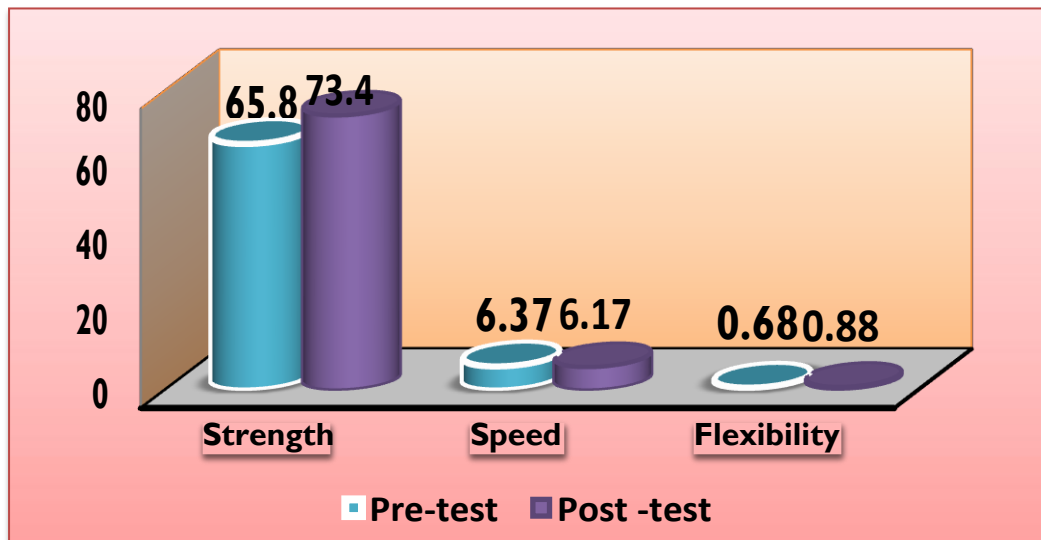
**Table III** Mean, SD and t-values of strength, speed and flexibility among fast bowlers

S.No.	Physical Fitness Variables	Fast bowlers (N = 10)		T-ratio
		Pre-test	Post -test	
1	Strength	65.80±5.03	73.40±6.99	8.249*
2	Speed	6.37±0.20	6.17±0.11	4.113*
3	Flexibility	0.68±1.13	0.88±0.93	2.084

\*Significant at 9 df at 0.05 level 2.262

As shown in Table III, the mean scores of strength, speed and flexibility in two conditions. It can be observed that the mean scores of strength, speed and flexibility in pre-test were 65.80, 6.37 and 0.68 while the mean score in post -test were 73.40, 6.17 and 0.88. This showed that the fast bowlers have taken more time to complete the given task in pre -test while less time was taken on post- test condition. The t ratio value of strength (8.249), speed (4.113) was higher than the required table value of 2.262,

which proved that there was significant difference on strength and speed among fast bowlers in cricket and flexibility (2.084) was lesser than the required table value of 2.262, which proved that there was no significant difference on flexibility among fast bowlers in cricket. The four weeks circuit training has facilitated the higher performance of the fast bowlers. This clearly indicates that the physical fitness of fast bowlers in cricket was improved after training.



**Figure 2** Mean values of fast bowlers on strength, speed and flexibility. The Mean value was improvement of Post-test due to the effect of four week circuit training

**Discussion on finding**

Overall circuit training is the jack of all fitness trades. If bowlers have a very obvious weakness (such as strength) it can help the bowlers to start training but long term they will need to do more specific work. But circuits are the answer for the fast bowler who needs to get their fitness done quickly, effectively and with minimal equipment.

The result of the study is similar to the studies conducted that the effort of circuit training upon cardio vascular condition and motor performance [3]. The circuit training showed statistically significant mean improvement on cardio vascular variables and motor fitness variables.

**Conclusion**

There was a significant effect of circuit training on the development of strength, speed and flexibility among fast bowlers. After the circuit training among fast bowlers showed significantly higher performance on strength, speed and flexibility were compared to the before training.

- The significant difference was found on strength between pre and post -test; the strength performance was increased after the circuit training.
- The significant difference was found on speed between pre and post -test; the speed performance was increased after the circuit training.
- No significant difference was found on Flexibility between pre and post -test; the flexibility performance was increased after the circuit training.

Hence there was an effect of four week circuit training will improve on the performance of fast bowlers.

**References**

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