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# Impact of endurance training on aerobic fitness and speed endurance of inter-collegiate cricket players

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**Abstract**
This study was designed to investigate the impact of endurance training on aerobic fitness and speed endurance of Inter-Collegiate cricket players. To achieve the purpose of the study 30 Inter-Collegiate cricket players were selected from Bharathiar University, Coimbatore. The subjects was randomly assigned to two equal groups (n=15). Group- I underwent endurance training and Group - II was acted as control group. The training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of six weeks. The control group was not be given any sort of training except their routine work. Aerobic fitness was measured by Yo-Yo test and unit of measurement was in levels. Speed endurance was measured by 150mts/dash unit of measurement was Seconds. The data collected from the subjects was statistically analysed with 't' ratio to find out significant improvement if any at 0.05 level of confidence. The result of the aerobic fitness and speed endurance improved significantly due to impact of endurance training with the limitations of (diet, climate, life style) status and previous training the result of the present study coincide findings of the investigation done by different experts in the field of sports sciences. Endurance training significantly improved aerobic fitness and speed endurance of inter-collegiate cricket players.

**Keywords:** Endurance training, aerobic fitness and speed endurance

## Introduction
Endurance exercise is traditionally viewed as the primary means of increasing aerobic capacity. Resistance exercise, in contrast, is not typically viewed as a means for improving cardio respiratory endurance. The absence of cardio respiratory adaptation may be explained by the fact that a session of resistance exercise has been shown to correspond to an oxygen uptake of only 36% to 45% of $Vo_2$ max. These values are lower than what is commonly recommended to elicit improvements in aerobic capacity. In sport, endurance is the ability to sustain a specific activity for a prolonged period. The fundamental requirement for any endurance sport is the ability to sustain a submaximal work rate for a prolonged period (Fallowfield, 1999) [1].
The hypothesis argued in this paper is that inter collegiate cricket players can significantly increase the aerobic fitness and speed endurance by combining normal technical and tactical sessions with an endurance training program over a consecutive 6 weeks period. Therefore, the object of this study was to investigate the changes in the aerobic fitness and speed endurance produced during 6 weeks of endurance training in 15 cricket players.

## Methods
### Experimental Approach to the Problem
In order to address the hypothesis presented herein, we selected 30 Inter-Collegiate cricket players from Bharathiar University, Coimbatore. The subjects were randomly assigned in to two equal groups, namely, endurance training group (n=15) and control group (n=15). The respective training was given to the experimental group the 3 days per week (alternate days) for the training period of six weeks. The control group was not given any sort of training except their routine.

### Design
To evaluate the aerobic fitness were Yo-Yo test (beep test) and the unit of measurement was in levels and speed endurance were assessed by 150mts dash run the unit of measurement was in sec. The aerobic fitness and speed endurance were measured at baseline and after 6 weeks of endurance training were examined.

**Training programme**

The training programme was lasted for 45 minutes for session in a day, 3 days in a week for a period of 6 weeks duration. These 45 minutes included 10 minutes warm up, 15 endurance training for 25 minutes and 10 minutes warm down. Every three weeks of training 5% of intensity of load was increased from 65% to 80% of work load. The volume of endurance training is prescribed based on the number of sets and repetitions. The endurance training is the length of the time each action is held for and the number action in total 3 day per weeks (Monday, Wednesday and Friday).

**Statistical analysis**

The collected data on above said variables due to the impact of endurance training was statistically analyzed with 't' test to find out the significant Improvement between pre and post test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P < 0.05$)

**Table 1:** Computation of t ratio on aerobic fitness and f speed endurance of cricket players on experimental group

| Experimental Group | | | | | | |
|---|---|---|---|---|---|---|
| | | Mean | N | Std. Deviation | Std. Error Mean | T ratio |
| Aerobic fitness | Pre test | 14.77 | 15 | 0.55 | 0.03 | 13.54* |
| | Post test | 15.18 | 15 | 0.51 | 0.03 | |
| Speed endurance | Pre test | 21.79 | 15 | 0.95 | 0.12 | 5.9* |
| | Post test | 21.02 | 15 | 0.74 | 0.12 | |

*significant level 0.05 level (degree of freedom 2.14,1 and 14)

Table I reveals the computation of mean, standard deviation and 't' ratio on aerobic fitness and speed endurance of experimental group. The obtained 't' ratio on aerobic fitness and speed endurance were 13.54 and 5.9 respectively. The required table value was 2.14 for the degrees of freedom 14 at the 0.05 level of significance. Since the obtained t values were greater than the table value it was found statistically significant.

**Table 2:** Computation of t ratio on aerobic fitness and speed endurance of cricket players on control group

| Control Group | | | | | | |
|---|---|---|---|---|---|---|
| | | Mean | N | Std. Deviation | Std. Error Mean | T ratio |
| Aerobic fitness | Pre test | 14.78 | 15 | 0.55 | 0.032 | 1.65 |
| | Post test | 14.72 | 15 | 0.51 | 0.032 | |
| Speed endurance | Pre test | 21.67 | 15 | 1.002 | 0.12 | 1.14 |
| | Post test | 21.71 | 15 | 0.98 | 0.12 | |

*significant level 0.05 level (degree of freedom 2.14,1 and 14)

Table II reveals the computation of mean, standard deviation and 't' ratio on aerobic fitness and speed endurance of control group. The obtained 't' ratio on aerobic fitness and speed endurance were 1.65 and 1.14 respectively. The required table value was 2.14 for the degrees of freedom 14 at the 0.05 level of significance. Since the obtained t values were lesser than the table value it was found statistically not significant.

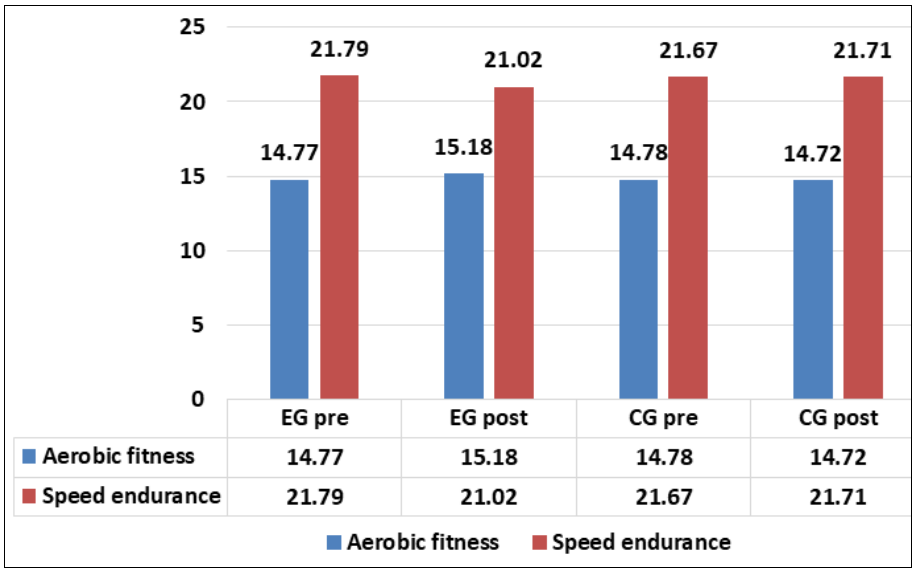


**Fig 1:** Bar diagram showing the mean value on aerobic fitness and speed endurance of inert-collegiate players on experimental and control group

**Discussion and Findings**

The present study experimented the impact of 6 weeks endurance training significantly improved the aerobic fitness and speed endurance of inert-collegiate players. The results of this study indicated that endurance training is more efficient to bring out desirable changes over the aerobic fitness and speed endurance of inert-collegiate. The finding of the present study had similarity with the findings of the investigators referred in this study. The findings of the present study had similarity with the findings of the investigations referred in this study. However the subjects participated in the control group did not improve their aerobic fitness and speed endurance. The results of the present study indicate that the endurance training methods is appropriate protocol to improve aerobic fitness and speed endurance inter collegiate Cricket players. The discrepancy between the result and the result of previous studies might be attributed to several reasons, such as the training experience level of the subjects, the training programme, in intensity used and the duration of the training programme. Several studies have evaluated the effects of endurance training on V. O2 kinetics during cycle exercise. In general, the steady state V. O2 for the same moderate intensity exercise has not been found to change following a period of endurance training, [Davis *et al*., 1979, Hagberg *et al*. 1980] [6, 7] although the primary exponential increase in $VO_2$ at the

onset of exercise may be speeded. [Hagberg *et al*. 1980, Phillips *et al*. 1995] [7, 8] In cross-sectional studies, the $VO_2$ on-kinetic adjustment to the same absolute or relative exercise intensity has been reported to be faster in individuals with higher V. O2max values. [Hagberg *et al*. 1980, Phillips *et al*. 1995] [7, 8] Faster $VO_2$ kinetics at exercise onset, resulting in a more rapid attainment of the requisite steady state oxygen uptake, might be important in reducing the initial oxygen deficit and limiting the early increase in blood lactate. A speeded $VO_2$ on-kinetic response may facilitate the rapid establishment of an intracellular environment that allows tighter metabolic control later in exercise.

## Conclusions

Based on the findings and within the limitation of the study it is noticed that practice of Endurance training helped to improve Aerobic fitness and Speed endurance of inter-collegiate cricket players. It was also seen that there is progressive improvement in the selected criterion variables of experimental group of cricket players after six weeks of training program.

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