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## Effect of 12 weeks long distance training and pranayama practices on speed endurance performance of athletes

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### Abstract

The purpose of the study was designed to find out the effect of 12 weeks long distance training and pranayama practices on speed endurance performance of athletes. To attain the purpose, Forty five (N=45) athletes who have participated Visvesvaraya Technological University, Belagavi, Karnataka inter-collegiate athletic meet during the academic year 2017-2018 were selected randomly as subjects. Their age ranged from 18 to 21 years. The subjects were assigned at random into three groups of fifteen each (n=15). Group-I underwent Long Distance Training (n=15), Group-II underwent Pranayama Practice (n=15) and Group-III acted as Control. Among various athletic performance parameters Speed endurance only selected and it was assessed through 150 meters run test. The Experimental groups underwent their respective training for 12 weeks duration. And the number of session was conformed into five days per week. All the subjects were tested prior to and immediately after the training for the selected variable. Data were collected and statistically analyzed using ANCOVA. Scheffe's post hoc test was applied to determine the significant difference between the paired means. In all the cases 0.05 level of significance was fixed. The results of the study showed that there was a significant difference among all the Experimental groups' namely Long Distance Training and Pranayama Practices. Further the results showed Long Distance Training group was found to have greater impact on the group concerned than the Pranayama Practices group and Control group in enhancing the performance of Speed endurance.

**Keywords:** Long distance training, pranayama practices, speed endurance

### Introduction

Long-distance running, in athletics (track and field), footraces ranging from 3,000 metres through 10,000, 20,000, and 30,000 metres and up to the marathon, which is 42,195 metres (26 miles 385 yards). It includes cross-country races over similar distances. Olympic events are the 5,000- and 10,000-metre races, held on a track, and the marathon, contested on roads. Like the middle-distance races (800 and 1,500 metres in the Olympics), long-distance races are run at a strategic pace, but less seldom is a final spurt, or kick, needed by the winning racer (Driskell *et al.*, 2004) [2].

Long distance running and especially marathon running has become increasingly popular during the last 15 years. A great number of marathon events is arranged every year and a large group of elite marathon runners has developed. They represent a category of very dedicated and hard working athletes who are training at the limit of their physical capacity (Holmich *et al.*, 1988) [3].

Pranayama may assist the singer who must contend with excessively active stage movement and performance anxiety. Iyengar mentions that a slower, rhythmic pattern of breathing strengthens the respiratory system, eases the nervous system, and allows for better concentration.

Pranayama may be practiced on a daily basis so the singer might witness physical and mental benefits. The act of breathing in performance may be involuntary rather than a conscious action and, technically helpful or not, possibly become a habitualized response for many singers as they vocally mature. Singers may know how to breathe for singing and still not breathe appropriately on stage.

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Through the study of pranayama and with conscious attention to their breathing, singers can benefit by becoming more aware of their breathing habits and improve their performance (Bellur, 1966) [1].

**Methodology**

Forty five (N=45) athletes who have participated Visvesvaraya Technological University, Belagavi, Karnataka inter-collegiate athletic meet during the academic year 2017-2018 were selected randomly as subjects. Their age ranged from 18 to 21 years. The subjects were assigned at random into three groups of fifteen each (n=15). Group-I underwent Long Distance Training (n=15), Group-II underwent Pranayama Practice (n=15) and Group-III acted as Control. Among various athletic performance parameters Speed endurance only selected and it was assessed through 150 meters run test. The Experimental groups underwent their respective training for 12 Weeks duration. And the number of

session was conformed into five days per week. All the subjects were tested prior to and immediately after the training for the selected variable.

**Analysis of the Data**

The data collected from the experimental groups and control group on prior and after experimentation on selected variables were statistically examined by analysis of covariance (ANCOVA) was used to determine differences, if any among the adjusted post test means on selected criterion variables separately. Whenever they obtained f-ratio value was significant the Scheffe’s test was applied as post hoc test to determine the paired mean differences, if any. In all the cases 0.05 level of significance was fixed.

The Analysis of covariance (ANCOVA) on Speed endurance of Experimental Groups and Control group have been analyzed and presented in Table -1.

**Table 1:** Analysis of Covariance of Pre Test, Post Test and Adjusted Post Test On Speed Endurance of Experimental Groups and Control Group

Test	Long Distance Training Group	Pranayama Practices Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Mean	28.73	28.80	28.27	Between groups	2.53	2	1.27	0.09
				Within groups	590.27	42	14.05	
Post-Test Mean	40.20	37.80	28.33	Between groups	1180.98	2	590.49	41.88*
				Within Groups	529.13	42	14.10	
Adjusted Post-Test Mean	40.12	37.67	28.54	Between sets	1112.16	2	556.08	63.49*
				Within Sets	359.12	41	8.76	

\* Significant at 0.05 level of confidence

Table value for df (2, 42) at 0.05 level = 3.22 Table value for df (2, 41) at 0.05 level = 3.23

(Speed endurance scores are in Seconds)

The table-1 shows that the pre-test mean values on speed endurance of Long Distance Training group, Pranayama Practices group and Control group are 28.73, 28.80 and 28.27 respectively. The obtained ‘F’ ratio of 0.09 for pre-test scores was less than the table value of 3.22 for degrees of freedom 2 and 42 required for significance at 0.05 level of confidence on Speed endurance.

The post test mean values on speed endurance of Long Distance Training group, Pranayama Practices group and Control group are 40.20, 37.80 and 28.33 respectively. The obtained ‘F’ ratio of 41.88 for post-test scores was higher than the table value of 3.22 for degrees of freedom 2 and 42 required for significance at 0.05 level of confidence on Speed endurance.

The adjusted post-test means on Speed endurance of Long Distance Training group, Pranayama Practices group and Control group are 40.12, 37.67 and 28.54 respectively. The obtained ‘F’ ratio of 63.49 for adjusted post-test scores was higher than the table value of 3.23 for degrees of freedom 2 and 41 required for significance at 0.05 level of confidence on Speed endurance.

The results of the study indicate that there are significant differences among the adjusted post test means of Long Distance Training group, Pranayama Practices group and Control group in Speed endurance performance.

To determine which of the paired means have a significant difference, the Scheffe’s test is applied as Post hoc test and the results are presented in Table – 2.

**Table 2:** Scheffe’s Test for The Difference between Paired Means on Speed Endurance

Long Distance Training Group	Pranayama Practices Group	Control Group	Mean Difference	Confident Interval Value
40.12	37.67	---	2.44	2.75
40.12	---	28.54	11.57*	
---	37.67	28.54	9.13*	

\*Significant at 0.05 level of confidence.

Table-2 shows that the mean difference values of Long Distance Training group and Control group, Pranayama Practices group and Control group are 11.57 and 9.13 respectively, which are greater than the confidence interval value of 2.75 on Speed endurance at 0.05 level of confidence. Further the table-2 shows that the mean difference values of Long Distance Training group and Pranayama Practices group, is 2.44 respectively, which is less than the confidence interval value of 2.75 on Speed endurance at 0.05 level of confidence.

The results of the study showed that there was a significant difference between Long Distance Training group and Control group, Pranayama Practices group and Control group. Further the study showed that there was no significant difference between Long Distance Training group and Pranayama Practices group,

The above data also reveal that Long Distance Training group had shown better performance than Pranayama Practices group and Control group in Speed endurance.

The adjusted post mean values of Long Distance Training group, Pranayama Practices group and Control group on Speed endurance are graphically represented in the Figure -1.

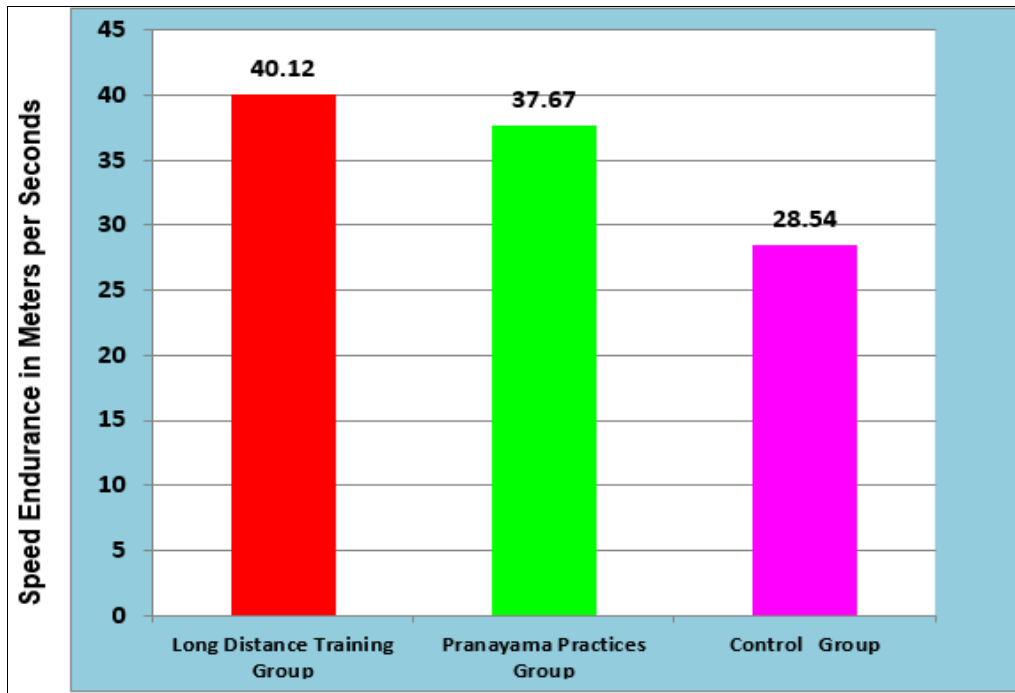


Fig 1: The Adjusted Post Test Mean Values of Long Distance Training group, Pranayama Practices group and Control group on Speed endurance

### Conclusion

From the analysis of the data, the following conclusions were drawn.

1. Significant differences in achievement were found between Long Distance Training group, Pranayama Practices group and Control group in Speed endurance.
2. The Experimental groups namely, Long Distance Training group and Pranayama Practices group had significantly increased in Speed endurance.
3. The Long Distance Training group was found to be better than the Pranayama Practices group and Control group in increasing Speed endurance.

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