

EFFECT OF INTERVAL TRAINING AND STRENGTH ENDURANCE TRAINING ON SELECTED FITNESS PARAMETER AMONG LONG DISTANCE ATHLETES

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ABSTRACT

Materials and methods: The purpose this studies to find out effect of Interval training and strength Endurance Training on selected fitness parameter among long distance athletes. The selected subjects were the participants of inter collegiate athletic championships. The subjects were selected in alagappa university college of physical education and alagappa government arts college, karaikudi. The students are selected from randomly and their age group between 18 to 23 years. The selected subjects (N=30) were divided into three groups equally and randomly. They were randomly divided into two equal groups for college long distance athletes. Each group consisted of 10 subjects. Experimental Group I underwent Interval training group, Group II underwent Strength Endurance training group and Group III acted as Control Group. The experimental groups were treated with their respective training for one and half hour per day for three days a week for a period of eight weeks. Speed measures in seconds, Cardio respiratory Endurance measures by metres and Muscular Strength measures by counts. The dependent 't' test was applied to determine the difference between the means of groups. To find out whether there was any significance difference between the experimental and control groups. To test the level of significant of difference between the means of 0.05 level of confidence was fixed. **Results:** The result of study shows that, there was a significant improvement take place on Speed, Cardio respiratory endurance and Muscular strength of long distance athletes. **Conclusion:** Improved Speed, Cardio respiratory endurance and Muscular strength after regular practice of Interval and Strength Endurance training is beneficial of the long distance athletes.

Key words: Interval and Strength Endurance Training.

INTRODUCTION

Interval Training

Interval training is catching on in a big way as people start to realise just how beneficial it really is. Before you really decide if this is a form of workout you should be including in your fitness routine, here' what interval training is all about. Interval training alternates short, high intensity bursts of activity with periods of rest and recovery in between. Interval training uses the body's two energy-producing systems: the aerobic and the anaerobic. The aerobic system is the one that allows you to walk or run for long distance and uses oxygen to convert carbohydrates throughout the body into energy. The anaerobic system, on the other hand, draws energy from carbohydrates stored in the muscles for short bursts of activity such as sprinting, jumping or lifting heavy objects. In interval training, the high-intensity periods are typically at or close to anaerobic exercise, while the recovery periods may involve either complete rest or activity of lower intensity. This allows you to work more in a shorter period of time and it's much more comfortable than spending the entire workout at a high intensity. The key is to create workouts that fit what you can handle and what you want from your workouts.

Strength Endurance Training

Strength endurance is the muscles ability to produce strength or resistance over an extended period of time. "Strength endurance is the specific form of strength displayed in activities which require a relatively long duration of muscle tension with minimal decrease in efficiency" (Stiff 2000). Sports that involve strength endurance are numerous from the rower to the swimmer to the wrestler on the mat. Even these examples are differentiated by the abilities expressed, dynamic or static, general or local strength endurance.

Methods:

To achieve the purpose of these study 30 college long distance athletes were selected from alagappa university college of physical education and alagappa government arts college karaikudi, Tamilnadu state, India. Subject is selected randomly as subject and their age group between 18 to 23 years. The selected subjects (N=30) were divided into three groups equally

and randomly. They were randomly divided into two equal groups for college long distance athletes. Each group consisted of 10 subjects. Experimental Group I underwent Interval training group (N=10), Group II underwent Strength Endurance training group(N=10) and Group III acted as Control Group (N=10). The experimental groups were treated with their respective training for one and half hour per day for three days a week for a period of eight weeks. Speed measures in seconds, Cardio respiratory Endurance measures by metres and Muscular Strength measures by counts.

Training Program:

The training programme was conducted for 90 Minutes for session in day, 3 days in a week for a period of eight weeks duration. These 90 minutes included 15 minutes warm up, Interval and Strength endurance exercise and 15 minutes warm down. Every two weeks of training 10 % of intensity of load was increased from 60 % to 90 % of work load. The volume of Interval and Strength endurance training prescribed based on the number of sets and repetition. The equivalent training is the length of the time each action in total three days per week (Monday, Wednesday and Friday).

Statistical Analysis:

The collected data before and after training period of 8 weeks on the above variables due to effect of Interval and Strength Endurance training was statistically analyzed with dependent 't' test to find out significant improvement between pre and post test. In all cases the criterion for statistical significance was at 0.05 level of confidence. ($P < 0.05$)

Table - I

Selection of variables and criterion measures

S.No	Criterion Variables	Test Items	Units of Measurement
1.	Speed	50 Yards Run	In Seconds
2.	Cardio Respiratory Endurance	12 Minutes Run / Walk	In Metres
3.	Muscular Strength	Sit – Ups	In Counts

Table - II

THE SUMMARY OF MEAN AND DEPENDEN 't' TEST FOR THE PRE AND POST TESTS ON SPEED OF INTERVAL TRAINING, STRENGTH ENDURANCE TRAINING AND CONTROL GROUPS

Group	Variables	Mean	N	S.D	't' ratio
Interval Training	Speed	Pre 7.08	10	0.06	14.64*
		Post 6.98		0.05	
	Cardio respiratory Endurance	Pre 30,000	10	336.65	19.00*
		Post 33,800		339.28	
	Muscular Strength	Pre 27.30	10	1.42	23.72*
		Post 32.30		1.34	
Strength Endurance Training	Speed	Pre 7.10	10	0.06	9.00*
		Post 7.05		0.05	
	Cardio respiratory Endurance	Pre 29,400	10	340.57	20.13*
		Post 32,400		350.24	
	Muscular Strength	Pre 27.00	10	1.25	18.81*
		Post 33.30		1.49	
Control	Speed	Pre 7.06	10	0.05	1.41
		Post 7.07		0.04	
	Cardio respiratory Endurance	Pre 28.10	10	1.91	1.18
		Post 27.70		1.77	
	Muscular Strength	Pre 30,500	10	302.77	1.50
		Post 30,100		331.24	

***Significant at 0.05 level**

Table II shows that mean, standard deviation and 't' ratio on selected variables namely speed, cardio respiratory endurance and muscular strength interval training group. The obtained 't' ratio were **14.64***, **19.00*** and **23.72*** respectively. Strength endurance training group mean, standard deviation and 't' ratio on selected variables namely speed,

cardio respiratory endurance and muscular strength were **9.00***, **20.13*** and **18.81*** respectively. The required table value was 2.26 for df 1 and 9 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value. It was found that to be statistically significant. Further the computation mean, standard deviation and 't' ratio on selected variables namely speed, cardio respiratory endurance and muscular strength control group. The obtained 't' ratio were 1.41, 1.18 and 1.50 respectively. The required table value was 2.26 for df 1 and 9 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value. It was found to be statistically not significant.

FIGURE - I

**PRE AND POST TEST ON SPEED ON INTERVAL TRAINING, STRENGTH
ENDURANCE TRAINING AND CONTROL GROUPS**

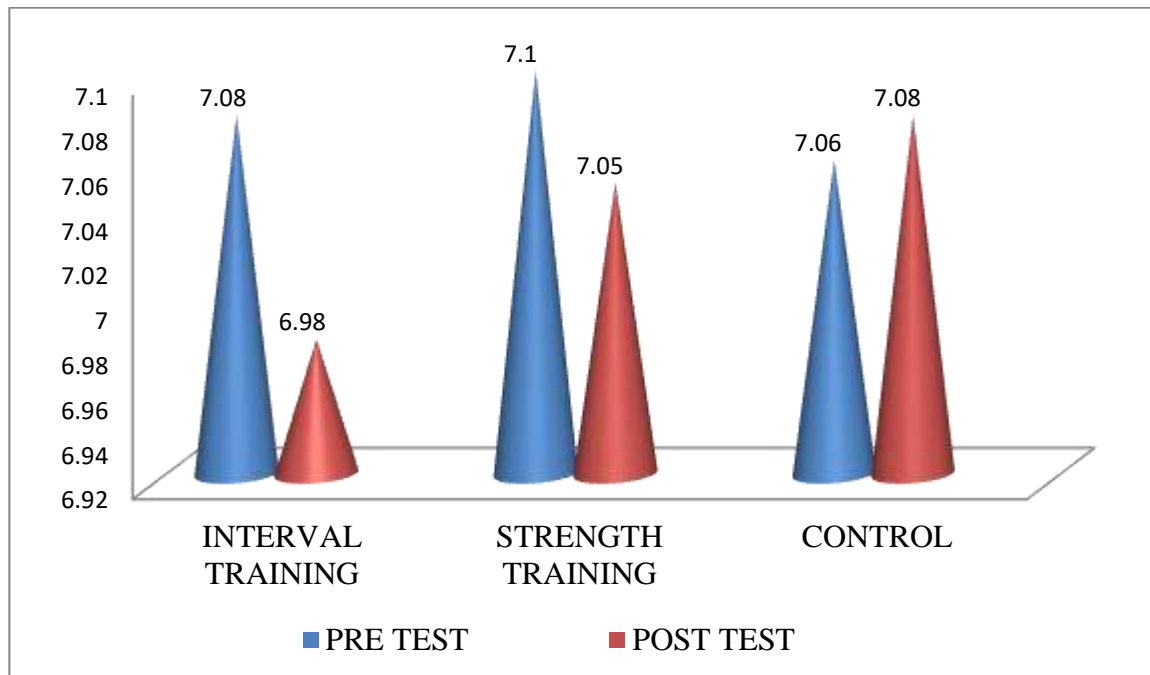


FIGURE - II

PRE AND POST TEST ON CARDIO RESPIRATORY ENDURANCE ON INTERVAL TRAINING, STRENGTH ENDURANCE TRAINING AND CONTROL GROUPS

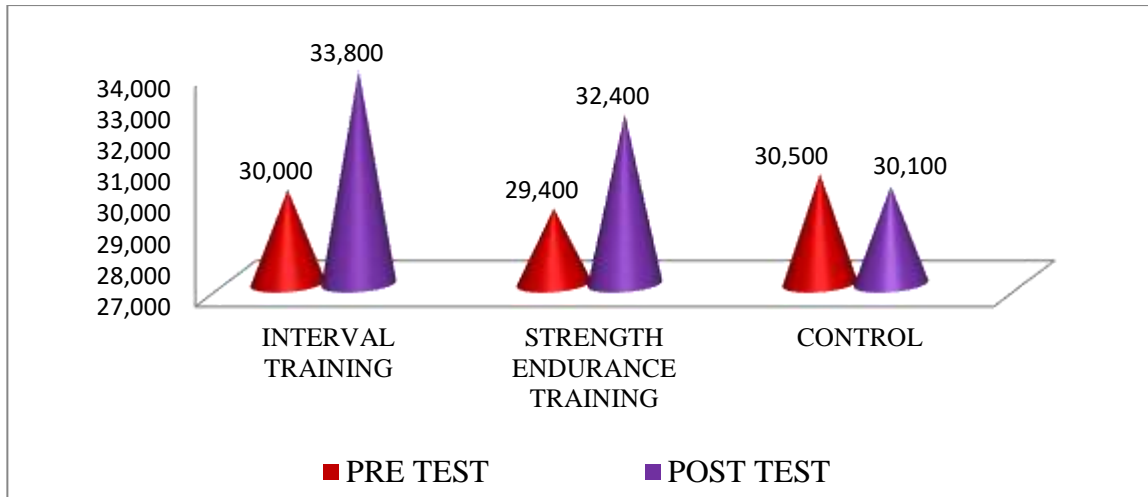
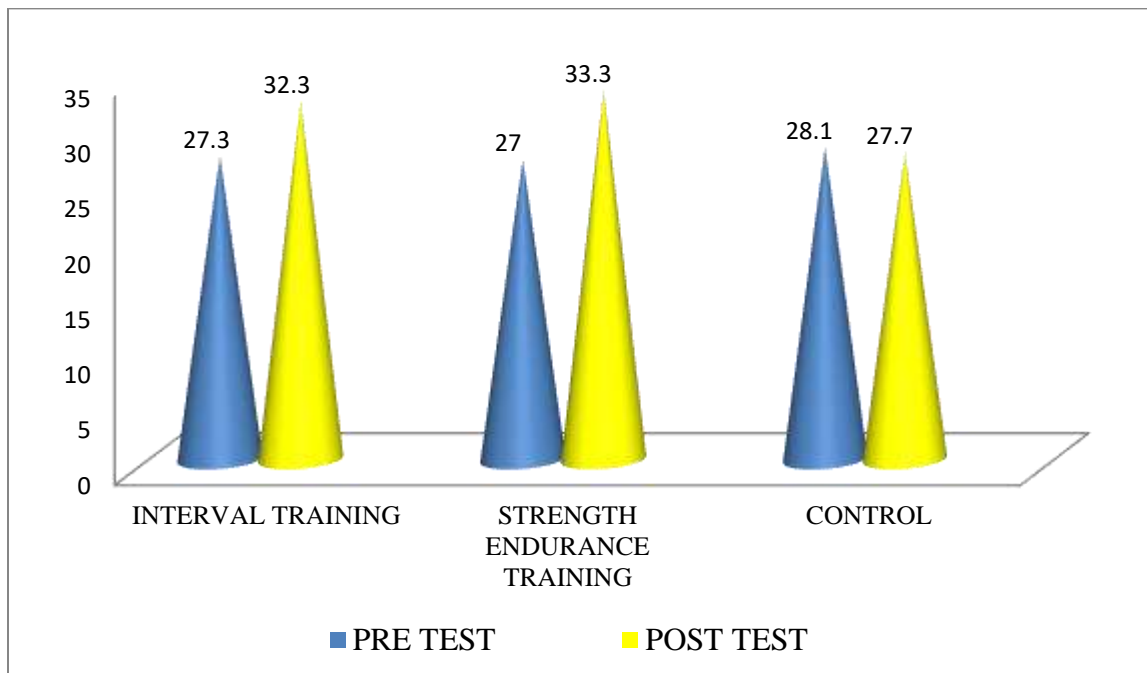


FIGURE - III

PRE AND POST TEST ON MUSCULAR STRENGTH ON INTERVAL TRAINING, STRENGTH ENDURANCE TRAINING AND CONTROL GROUPS



Conclusion

1. There was a significant improvement on selected dependent variable such as speed, cardio respiratory endurance and muscular strength on effect of interval training and strength endurance training on college long distance athletes.
2. There was a significant differences between experimental and control group on speed, cardio respiratory endurance and muscular strength on effect of interval training and strength endurance training on college long distance athletes.

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