

Effects of Intensive Interval Training and Extensive Interval Training on Speed and Cardio Respiratory Endurance

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Abstract – The purpose of this study was to find out the effects of intensive interval training and extensive interval training on speed and cardio respiratory endurance. To realize the objective of the present study 45 male students in the age group of 18-24 years, studying at Annamalai University's Department of physical education were randomly selected as subjects. The selected subjects were divided into three groups of fifteen each. Group I was subjected intensive interval training, group II was subjected to extensive interval training and the group III was the control group. The intensive interval training group and extensive interval training group underwent their respective trainings for three days per week for twelve weeks in which the control group did not participate any special training program apart from their regular physical education as pre required by their curriculum. Speed and cardio respiratory endurance were considered as criterion variable for the present study. The necessary data were collected by subjecting all the individuals to the tests on selected dependent variables both pre and post training period. The analysis of covariance was used to analyze the significant difference, if any among the groups. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted posttest was found to be significant, the Scheffe's test to find out the paired mean differences, if any. The .05 level of confidence was fixed as the level of significance to test the 'F' ratio obtained by the analysis of covariance, which was considered as an appropriate. The results of the study showed that there was a significant difference among intensive interval training group extensive interval training group and control group on speed and cardio respiratory endurance.

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INTRODUCTION

Today life mostly depends upon science technology. In such circumstance people need more exercise to keep the body and mind fit to execute the activity efficiently. Physical activity is an important and essential element in human health and well-being and its importance has achieved widespread acceptance by the public, professionals organizations and medical community. A sport is in man's blood, sport is recreation as well as competition. Basically, sports are individual activities relating and revitalizing in nature and meant to provide opportunities to the individual to make two 'fullest' and the most intelligent use of leisure time.

METHODOLOGY

The purpose of this study was to find out the effects of intensive interval training and extensive interval training on speed and cardio respiratory endurance. To realize the objective of the present study 45 male students in the age group of 18-24 years, studying at Annamalai University's Department of physical education were randomly selected as subjects. The

selected subjects were divided into three groups of fifteen each. Group I was subjected intensive interval training, group II was subjected to extensive interval training and the group III was the control group. The intensive interval training group and extensive interval training group underwent their respective trainings for three days per week for twelve weeks in which the control group did not participate any special training program apart from their regular physical education as pre required by their curriculum. Speed and cardio respiratory endurance were considered as criterion variable for the present study. The necessary data were collected by subjecting all the individuals to the tests on selected dependent variables both pre and post training period. The analysis of covariance was used to analyze the significant difference, if any among the groups. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted posttest was found to be significant, the Scheffe's test to find out the paired mean differences, if any. The .05 level of confidence was fixed as the level of significance to test the 'F' ratio

obtained by the analysis of covariance, which was considered as an appropriate.

ANALYSIS OF THE DATA

The influence of intensive interval training and extensive interval training on each criterion variables were analyzed separately and presented below.

SPEED

The analysis of covariance on speed of the pre and post test scores of intensive interval training group, extensive interval training group and control group have been analyzed and presented in Table I.

TABLE I

ANALYSIS OF COVARIANCE OF THE DATA ON SPEED OF PRE AND POST TESTS SCORES OF INTENSIVE INTERVAL TRAINING EXTENSIVE INTERVAL TRAINING AND CONTROL GROUPS

Test	Intensive Interval training group	Extensive Interval training group	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	7.80	7.80	7.80	Between	0.01	2	0.005	1.0
S.D.	0.06	0.07	0.07	Within	0.22	42	0.005	
Post Test								
Mean	7.60	7.70	7.80	Between	0.46	2	0.23	46.0*
S.D.	0.08	0.07	0.07	Within	0.19	42	0.005	
Adjusted Post Test								
Mean	7.64	7.66	7.80	Between	0.75	2	0.38	19.0*
				Within	0.67	41	0.02	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The table I shows that the pre-test mean values on speed of intensive interval training group, extensive interval training group and control group are 7.80, 7.80 and 7.80 respectively. the obtained "F" ratio of 1.0 is not significant at 0.05 level of confidence as it is less than the table of 3.222 for df 2 and 42 required for significance at .05 level of confidence in the selected variable speed. The post-test mean values on speed of intensive interval training group, extensive interval training group and control group are 7.60, 7.70 and 7.80 respectively. the obtained "F" ratio of 46.0 for post test scores is more than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on speed.

The adjusted post-test means of intensive interval training group, extensive interval training group and control group are 7.64, 7.66 and 7.80 respectively. The value obtained as per the 'F' ratio being 19.0 for the adjusted post means, which is higher than the table value of 3.226 for df 2 and 41 is significant at 0.05 level of confidence in the selected variable speed.

The results of the study indicated that there was a significant difference between the adjusted post-test

means of intensive interval training group, extensive interval training group and control group on speed.

Since, three groups were compared, whenever the obtained 'F' ratio for adjusted posttest was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table II.

TABLE II

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON SPEED

Intensive Interval training group	Extensive Interval training group	Control Group	Mean Differences	Confidence Interval Value
7.64	7.66	-	0.02	0.13
7.64	-	7.80	0.16*	0.13
-	7.66	7.80	0.14*	0.13

* Significant at .05 level of confidence.

The table II shows that the mean difference values between intensive interval training group and control group and extensive interval training group and control group 0.16 and 0.14 respectively on speed which were greater than the required confidence interval value 0.13 for significance. And the mean difference value between intensive interval training group and extensive interval training group 0.02 on speed which was lesser than the required confidence interval value 0.13 for significance.

The results of this study showed that there was a significant difference exist between intensive interval training group and control group and extensive interval training group and control group on speed. And no significant difference was found between intensive interval training group and extensive interval training group on speed.

CARDIO RESPIRATORY ENDURANCE

The analysis of covariance on cardio respiratory endurance of the pre and post test scores of intensive interval training group, extensive interval training group and control group have been analyzed and presented in Table III.

TABLE III

**ANALYSIS OF COVARIANCE OF THE DATA ON
 CARDIO RESPIRATORY ENDURANCE OF PRE
 AND POST TESTS SCORES OF INTENSIVE
 INTERVAL TRAINING EXTENSIVE INTERVAL
 TRAINING ND CONTROL GROUPS**

test	Intensive Interval training group	Extensive Interval training group	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F Ratio
Pre Test								
Mean	1539.67	1536	1541	Between	201.07	2	100.54	0.183
S.D.	20.04	26.41	20.99	Within	23093.3	42	549.04	
Post Test								
Mean	1550	1564	1542.3	Between	3621.07	2	1810.54	3.35*
S.D.	20.25	24.71	22.20	Within	22703.3	42	540.55	
Adjusted Post Test								
Mean	1549.3	1563.99	1540.3	Between	5302	2	2651	42.83*
				Within	2537.43	41	68.09	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The table III shows that the pre-test mean values on cardio respiratory endurance of intensive interval training group, extensive interval training group and control group are 1539.67, 1536 and 1541 respectively. the obtained "F" ratio of 0.103 for pre-test scores is less than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on cardio respiratory endurance. The post-test mean values on cardio respiratory endurance of intensive interval training group, extensive interval training group and control group are 1550, 1564 and 1542.3 respectively. the obtained "F" ratio of 3.35 for post test scores is more than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on cardio respiratory endurance.

The adjusted post-test means of intensive interval training group, extensive interval training group and control group are 1549.3, 1563.99 and 1540.3 respectively. the obtained "F" ratio of 42.83 for adjusted post-test means is more than the table value of 3.226 for df 2 and 41 required for significance at .05 level of confidence on cardio respiratory endurance.

The results of the study indicated that there was a significant difference between the adjusted post-test means of intensive interval training group, extensive interval training group and control group on cardio respiratory endurance.

Since, three groups were compared, whenever the obtained 'F' ratio for adjusted posttest was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table VI.

TABLE IV

**THE SCHEFFE'S TEST FOR THE DIFFERENCES
 BETWEEN PAIRED MEANS ON CARDIO
 RESPIRATORY ENDURANCE**

Intensive Interval training group	Extensive Interval training group	Control Group	Mean Differences	Confidence Interval Value
1549.30	1563.99	-	14.69*	2.98
1549.30	-	1540.30	9.0*	2.98
-	1563.99	1540.30	23.69*	2.98

* Significant at .05 level of confidence.

The table IV shows that the mean difference values between intensive interval training group and extensive interval training group, intensive interval training group and control group and extensive interval training group and control group 14.69, 9.0 and 23.69 respectively on cardio respiratory endurance which were greater than the required confidence interval value 2.98 for significance.

The results of this study showed that there was a significant difference exists between intensive interval training group and extensive interval training group, intensive interval training group and control group and extensive interval training group and control group on cardio respiratory endurance.

CONCLUSIONS

1. There was a significant difference among intensive interval training group extensive interval training group and control group on speed and cardio respiratory endurance.
2. There was a significant improvement on selected criterion variables due to intensive interval training and extensive interval training. However, the improvement on speed and was in favour of intensive interval training group and the improvement on cardio respiratory endurance was in favour of extensive interval training.

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