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Effects of Varied Intensities of Interval Trainings on Selected Speed and Endurance Parameters

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Abstract

The purpose of the study was to find out the effect of various intensities of interval training on selected speed and endurance parameters such as speed and cardio respiratory endurance To achieve this purpose of the study, forty five men students studying bachelor's degree in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalai nagar, Tamil Nadu, India were selected as subjects at random. The age of the subjects were ranged from 18 to 20 years. The selected subjects were divided into three equal groups of fifteen subjects each, such as high intensity interval training group (Group I), low intensity interval training group (Group II) and control group (Group III). The high intensity interval training group (Group I) and low intensity interval training group (Group II) underwent their respective training programme for three days per week for twelve weeks. Group III acted as control in which they did not undergo any special training programme apart from their regular physical education programme. All the subjects of two groups were tested on selected criterion variable such as speed and cardio respiratory endurance at prior to and immediately after the training programme by using 50 mts run and Coopers 12 min run/walk test respectively. The analysis of covariance (ANCOVA) was used to analysis the significant difference, if any in-between the groups. The level of significant to test the 'F' ratio obtained by the analyses of covariance was tested at .05 level of confidence, which was considered as an appropriate. The results of the study revealed that there was a significant difference between high intensity interval training group, low intensity interval training group and control group on selected speed and endurance parameters such as speed and cardio respiratory endurance. Significant improvements on selected criterion variables were also noticed due to high and low intensity interval trainings.

Keywords: Yogic Practices, Physical Exercise, Leg Strength, Self-Concept, Blood Pressure.

Introduction

High Intensity Interval Training (HIIT) is about mixing high intensity bursts of exercise with moderate intensity recovery periods. It's brutal but has incredible advantages. It's the quickest way to get in fit, lose fat and supercharge for sports performance. It all about increasing your anaerobic threshold and this may be more important than your cardio respiratory endurance. Interval training can supercharge your fitness, boost your metabolism, burn off that extra fat and start reaching those goals that you have set yourself. In order to do this you need information. This site is meant a resource to provide you with everything that you need to get there. It explains what interval training is, and exactly how it works. Interval training is a type of physical training that involves bursts of high intensity work. This high intensity work is alternated with periods of rest or low activity, the eponymous intervals. The term can refer to any cardiovascular workout (e.g. cycling, running, rowing, etc.) that involves brief bouts at near-maximum exertion interspersed with periods of lower-intensity activity.

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Methodology

The purpose of the study was to find out the effect of various intensities of interval training on selected speed and endurance parameters such as speed and cardio respiratory endurance To achieve this purpose of the study, forty five men students studying bachelor's degree in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalai nagar, Tamil Nadu, India were selected as subjects at random. The age of the subjects were ranged from 18 to 20 years. The selected subjects were divided into three equal groups of fifteen subjects each, such as high intensity interval training group (Group I), low intensity interval training group (Group II) and control group (Group III). The high intensity interval training group (Group I) and low intensity interval training group (Group II) underwent their respective training programme for three days per week for twelve weeks. Group III acted as control in which they did not undergo any special training programme apart from their regular physical education programme. All the subjects of two groups were tested on selected criterion variables such as speed and cardio respiratory endurance at prior to and immediately after the training programme by using 50 mts run and Coopers 12 min run/walk test respectively. The analysis of covariance (ANCOVA) was used to

analysis the significant difference, if any in-between the groups. The level of significant to test the 'F' ratio obtained by the analyses of covariance was tested at .05 level of confidence, which was considered as an appropriate.

Analysis of Data

The influence of high and low intensity interval trainings on each speed and endurance parameters were analyzed separately and presented below,

Results

Table I. Analysis of covariance of the data on speed of pre and post tests scores of high intensity interval training group low intensity interval training group and control groups

Test	High Intensity Interval Training Group	Low Intensity Interval Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	7.08	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*****
				Within	0.67	41	0.02	

* Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 1 and 28, 1 and 27 were 4.20 and 4.215 respectively)

The table I shows that the pre-test mean values on Speed of high intensity interval training group, low intensity interval training group and control group are 7.80, 7.80 and 7.80 respectively. The obtained "F" ratio of 1.0 of pre-test scores is less than the table of 3.222 for df 1 and 42 required for significance at .05 level of confidence on speed. The post-test mean values on speed of high intensity interval training group, low intensity 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 greater than the table value of 3.222 for df 1 and 42 required for significance at .05 level of confidence on speed.

The adjusted post-test mean values of high intensity interval training group, low intensity interval training group and control group are 7.64, 7.66 and 7.80 respectively. The obtained "F" ratio of 19.0 for adjusted post-test means is greater than the required table value of 3.226 for df 2 and 41 required for significance at .05 level of confidence on speed. The results of the study indicated that there was significance between the adjusted post-test means of high intensity interval training group, low intensity interval training group and control group are on speed. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test 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

High Intensity Interval training Group	Low Intensity 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.

Table II shows that the mean difference values between high intensity interval training group and control group and low intensity 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 high intensity interval training group and low intensity 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 exists between high intensity interval training group and control group and low intensity interval training group and control group on speed. And no significant difference was found between high intensity interval training group and low intensity interval training group on speed. The analysis of covariance on cardio respiratory of the pre and post test scores of high intensity interval group, low intensity interval training group and control group have been analysed and presented in Table III.

Table III. Analysis of covariance of the data on cardio respiratory endurance of pre and post tests scores of high intensity interval training group low intensity interval training group and control groups

Test	High Intensity Interval Training Group	Low Intensity 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	201.074	2	100.54	0.183
S.D.	0.06	0.07	0.07	Within	0.22	42	0.005	
Post Test								
Mean	1550	1564	1542.3	Between	3621.07	2	1810.54	3.35*****
S.D.	20.25	24.71	22.20	Within	22703.0	42	540.55	
Adjusted Post Test								
Mean	1549.3	1563.99	1540.3	Between	5302	2	2651	42.83*****
				Within	2547.43	41	68.69	

* Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 1 and 28, 1 and 27 were 4.20 and 4.215 respectively)

The table III shows that the pre-test mean values on Cardio respiratory endurance of high intensity interval training group, low intensity interval training group and contol group are 1539.67, 1536 and 1541 respectively. The obtained "F" ratio of 0.103 of pre-test scores is less than the table of 3.222 for df 1 and 42 required for significance at .05 level of confidence on cardio respiratory endurance. The post-test mean values on cardio respiratory endurance of high intensity interval training group, low intensity 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 greater than the table value of 3.222 for df 1 and 42 required for significance at .05 level of confidence on cardio respiratory endurance.

The adjusted post-test mean values of high intensity interval training group, low intensity interval training group and control group are 1549, 1563.99 and 1540.3 respectively. The obtained "F" ratio of 42.83 for adjusted post-test means is greater than the required 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 significance between the adjusted post-test means of high intensity interval training group, low intensity interval training group and control group are on cardio respiratory endurance. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table IV.

Table IV. The scheffe's test for the differences between paired means on speed

High Intensity Interval training Group	Low Intensity 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.

Table IV shows that the mean difference values between high intensity interval training group and low intensity interval training group and high intensity interval training group and control group and low intensity 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 0.13 for significance. The results of this study showed that there was a significant difference exists between high intensity interval training group and low intensity interval training group, high intensity interval training group and control group and low intensity interval training group and control group on cardio respiratory endurance.

Conclusions

1. There was a significant difference between high intensity interval training group, low intensity interval training group and control group on speed.
2. There was a significant difference between high intensity interval training group, low intensity interval training group and control group on cardio respiratory endurance.
3. And also it was found that there was a significant improvement on selected criterion variables due to high intensity interval training and low intensity interval training. However, the improvement on speed was in favour of high intensity interval training group and the improvement on cardio respiratory endurance was in favour of low intensity interval training.

References

1. Ajmeer singh, "*Physical Fitness, Training and high level Performance in sports*"1998.
2. Christian Benjamin, "*The effect of addition of specific running programme to selected physical education activities*", *Dissertation Abstracts International*, 35:10 (April 1997).
3. Hardayal Singh, *Science of Sports Training*. New Delhi: The DVS Publications, 1991.
4. Harold A. Barrow and McGee Rosemary, *A Practical Approach to Measurements in Physical Education* Philadelphia: Lea and Febiger Publsihers, 1979.
5. Larry G. Shaver, *Essentials of Exercise Physiology*. U.S.A: Burgess Publishing Company, 1981.
6. Robson, A.K. Uppal and A.K. Bose, "*Variation in Selected Physical Fitness components of Boys and Girls at Different Stages of Elementary School Level*", *SNIPES Journal*, 4 (October, 1981).
7. Sharwood Harger, "*The physiological responses of untrained college man to two frequencies of interval training*", *Dissertation abstracts international* (October 1994).
8. Thorland *et al*., "*Strength and Anaerobic Responses of Elite Young Female Sprint and Distance Runners', Medicine and Science in Sports and Exercise*, 19, 1987.
9. Uppal and V.S. Runidan, "*Comparative effects of different frequencies of endurance training ion cardio-respiratory endurance*", *SNIPES Journal* -7 (January 1984).
10. Watron, *Physical Fitness and Athletic Performance*. New York: Longman Publishing, 1983.