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EFFECT OF HIGH INTENSITY INTERVAL TRAINING ON SELECTED PHYSICAL FITNESS PARAMETERS AMONG COLLEGE MEN STUDENTS

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Abstract:

The purpose of the study was designed to examine the effect of high intensity interval training on leg strength and strength endurance among college men students. For the purpose of the study, thirty college men students from Dr. Sivanthi Aditanar College of Physical Education, Tiruchendur, Tamilnadu, India were selected as subjects. They were divided into two equal groups. Each group consisted of fifteen subjects. Group I underwent high intensity interval training for three days per week for twelve weeks. Group II acted as control who did not undergo any special training programme apart from their regular physical education programme. The following variables, namely leg strength and strength endurance were selected as criterion variables. All the subjects of the two groups were tested on selected dependent variables namely leg strength and strength endurance by using leg lift with dynamometer and bend knee sit-ups at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference if any among the groups. 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 appropriate. The results of the study showed that there was a significant difference between high intensity interval training group and control group on leg strength and strength endurance. And also, it was found that there was a significant improvement on selected criterion variables such as leg strength and strength endurance due to high intensity interval training.

Key Words: High Intensity Interval Training, Leg Strength, Strength Endurance, College Men Students

Introduction:

High-Intensity Interval Training, commonly known as HIIT, is a dynamic and efficient exercise approach that has gained widespread popularity in recent years. Unlike traditional steady-state cardio exercises, High-Intensity Interval Training alternates between short bursts of intense activity and brief periods of rest or lower-intensity exercise. This unique structure not only maximizes calorie burn during the workout but also continues to boost metabolism long after the session ends. The core principle of High-Intensity Interval Training lies in pushing the body to its limits during the high-intensity intervals, creating a significant oxygen debt. This, in turn, leads to the afterburn effect, scientifically known as excess post-exercise oxygen consumption (EPOC). Essentially, the body continues to burn calories post-workout as it works to restore oxygen levels and repair muscle tissue. High-Intensity Interval Training is known for its versatility, allowing individuals to tailor workouts to their fitness levels and goals. Whether you're a beginner or a seasoned athlete, High-Intensity Interval Training can be adapted to suit your needs. The workouts can incorporate various exercises, such as sprinting, jumping jacks, burpees, and strength training, providing a well-rounded approach to fitness. Beyond its effectiveness in burning calories and improving cardiovascular health, HIIT is valued for its time efficiency. With sessions typically lasting 20-30 minutes, it's an excellent option for individuals with busy schedules who still want to achieve meaningful fitness results.

Methodology:

The purpose of the study was designed to examine the effect of high intensity interval training on leg strength and strength endurance among college men students. For the purpose of the study, thirty college men students from Dr. Sivanthi Aditanar College of Physical Education, Tiruchendur, Tamilnadu, India were selected as subjects. They were divided into two equal groups. Each group consisted of fifteen subjects. Group I underwent high intensity interval training for three days per week for twelve weeks. Group II acted as control who did not undergo any special training programme apart from their regular physical education programme. The following variables, namely leg strength and strength endurance were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables namely leg strength and strength endurance by using leg lift with dynamometer and bend knee sit-ups at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference if any among the groups. 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 appropriate.

Analysis of the Data:

Leg Strength:

The analysis of covariance on leg strength of the pre and post test scores of high intensity interval training group and control group have been analyzed and presented in table 1.

Table 1: Analysis of Covariance of the Data on Leg Strength of Pre and Post Tests Scores of High Intensity Interval Training and Control Groups

Test	High Intensity Interval Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	93.47	92.60	Between	5.63	1	5.63	3.20
S.D.	1.50	1.71	Within	49.33	28	1.76	
Post Test							
Mean	95.53	92.93	Between	50.70	1	50.70	12.98*
S.D.	1.02	1.00	Within	109.37	28	3.91	
Adjusted Post Test							
Mean	95.12	93.34	Between	21.25	1	21.25	40.56*
			Within	14.14	27	0.52	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 28 and 2 and 27 are 3.34 and 3.35 respectively). The table 1 shows that the adjusted post-test means of high intensity interval training group and control group are 95.12 and 93.34 respectively. The obtained "F" ratio of 40.56 for adjusted post-test means is more than the table value of 3.35 for df 1 and 27 required for significance at .05 level of confidence on leg strength. The results of the study indicated that there was a significant difference between the adjusted post-test means of high intensity interval training group and control group on leg strength.

Strength Endurance:

The analysis of covariance on strength endurance of the pre and post test scores of high intensity interval training group and control group have been analyzed and presented in table 2.

Table 2: Analysis of Covariance of the Data on Strength Endurance of Pre and Post Tests Scores of High Intensity Interval Training and Control Groups

Test	High Intensity Interval Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	36.53	36.87	Between	0.83	1	0.83	0.33
S.D.	1.59	2.26	Within	71.47	28	2.55	
Post Test							
Mean	44.73	37.07	Between	440.83	1	440.83	22.74*
S.D.	1.50	1.29	Within	542.70	28	19.38	
Adjusted Post Test							
Mean	44.87	36.93	Between	467.74	1	467.74	239.56*
			Within	52.72	27	1.95	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 28 and 2 and 27 are 3.34 and 3.35 respectively). The table 2 shows that the adjusted post-test means of high intensity interval training group and control group are 44.87 and 36.93 respectively. The obtained "F" ratio of 239.56 for adjusted post-test means is more than the table value of 3.35 for df 1 and 27 required for significance at .05 level of confidence on strength endurance. The results of the study indicated that there was a significant difference between the adjusted post-test means of high intensity interval training group and control group on strength endurance.

Conclusion:

- There was a significant difference between high intensity interval training group and control group on leg strength and strength endurance.
- And also it was found that there was a significant improvement on selected criterion variables such as leg strength and strength endurance due to high intensity interval training.

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