



INFLUENCE OF ANAEROBIC INTERVAL TRAINING ON SPEED AND AGILITY AMONG NOVICE UNDER GRADUATE WOMEN STUDENTS

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Abstract:

The purpose of the study was designed to examine the effect of anaerobic interval training on speed and agility of novice under graduate women students. For the purpose of the study, thirty men students from various departments in Annamalai University, Annamalai Nagar, Chidambaram, Tamil Nadu, India were selected as subjects. They were divided into two equal groups. Each group consisted of the fifteen subjects. Group I underwent anaerobic 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 speed and agility were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables by using 50 mts run and shuttle run respectively 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 anaerobic interval training group and control group on speed and agility. And also it was found that there was a significant improvement on speed and agility due to twelve weeks of anaerobic interval training.

Key Words: Anaerobic Interval Training, Speed, Agility, Novice Under Graduate Women Students

Introduction:

Anaerobic interval training is a high-intensity workout method designed to improve speed, power, endurance, and overall athletic performance by focusing on short bursts of intense activity followed by brief recovery periods. Unlike aerobic exercise, which relies on oxygen to sustain activity over long durations, anaerobic training primarily uses stored energy sources within the muscles, such as adenosine triphosphate (ATP) and glycogen, to generate rapid bursts of power.

This type of training is commonly used in sports and fitness programs to enhance explosive strength, increase lactate threshold, and develop the body's ability to perform at high intensities without fatigue. It is particularly beneficial for athletes in sports requiring quick bursts of speed and agility, such as sprinting, basketball, soccer, and weightlifting.

Anaerobic interval training involves structured work-to-rest ratios that challenge the body's ability to recover efficiently. Work periods typically last between 10 seconds to 2 minutes at near-maximal effort, followed by short recovery intervals that allow partial replenishment of energy stores. The intensity of the exercise pushes the body beyond its aerobic capacity, stimulating muscle growth, increasing metabolism, and improving cardiovascular efficiency.

One of the most well-known forms of anaerobic interval training is High-Intensity Interval Training (HIIT), which alternates between short periods of maximum effort and low-intensity recovery. Other variations include Tabata training, sprint intervals, and resistance-based circuits, all of which help develop power, endurance, and muscular efficiency.

Due to its demanding nature, anaerobic interval training requires proper warm-up, technique, and recovery strategies to prevent injury and optimize results. While highly effective, it is best incorporated into a balanced workout regimen tailored to an individual's fitness level and goals.

Anaerobic interval training is a powerful tool for improving athletic performance, burning fat efficiently, and enhancing overall fitness. Its ability to push the body's limits and build resilience makes it an essential component of any high-performance training program.

Methodology:

The purpose of the study was designed to examine the effect of anaerobic interval training on speed and agility of novice under graduate women students. For the study, thirty men students from Various departments in Annamalai University, Annamalai Nagar, Chidambaram, Tamil Nadu, India were selected as subjects. They were divided into two equal groups. Each group consisted of fifteen subjects. Group I underwent anaerobic 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 speed and agility were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables by using 50 mts run and shuttle run respectively 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:

Speed:

The analysis of covariance on speed of the pre and post test scores of anaerobic interval training group and control group have been analyzed and presented in table 1.

Table 1: Analysis of Covariance of the Data on Speed of Pre and Post Tests Scores of Anaerobic Interval Training and Control Groups

Test	Anaerobic Interval Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	8.41	8.39	Between	0.001	1	0.001	0.10
S.D.	0.11	0.10	Within	0.359	28	0.013	
Post Test							
Mean	8.19	8.37	Between	0.243	1	0.243	12.58*
S.D.	0.11	0.10	Within	0.541	28	0.019	
Adjusted Post Test							
Mean	8.19	8.37	Between	0.259	1	0.259	31.36*
			Within	0.223	27	0.008	

* 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 anaerobic interval training group and control group are 8.19 and 8.37 respectively on speed. The obtained "F" ratio of 31.36 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 speed.

The results of the study indicated that there was a significant difference between the adjusted post-test means of anaerobic interval training group and control group on speed.

Agility:

The analysis of covariance on agility of the pre and post test scores of anaerobic interval training group and control group have been analyzed and presented in table 2.

Table 2: Analysis of Covariance of the Data on Agility of Pre and Post Tests Scores of Anaerobic Interval Training and Control Groups

Test	Anaerobic Interval Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	8.32	8.35	Between	0.008	1	0.008	0.68
S.D.	0.10	0.10	Within	0.341	28	0.012	
Post Test							
Mean	8.16	8.31	Between	0.176	1	0.176	10.98*
S.D.	0.11	0.10	Within	0.450	28	0.016	
Adjusted Post Test							
Mean	8.17	8.30	Between	0.121	1	0.121	37.14*
			Within	0.088	27	0.003	

* 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 anaerobic interval training group and control group are 8.18 and 8.40 respectively on agility. The obtained "F" ratio of 92.27 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 agility.

The results of the study indicated that there was a significant difference between the adjusted post-test means of anaerobic interval training group and control group on agility.

Conclusions:

- There was a significant difference between anaerobic interval training group and control group on speed and agility.

- And also it was found that there was a significant improvement on selected criterion variables such as speed and agility due to anaerobic interval training.

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