



EFFECT OF LOW INTENSITY INTERVAL TRAINING ON SPEED AND AGILITY AMONG VARSITY WOMEN STUDENTS

Jyothi Mudhiganti* & Dr. M. Sankar**

* Research Scholar, Department of Physical Education, Annamalai University,
Tamil Nadu, India

** Assistant Professor, Department of Physical Education, Annamalai University,
Tamil Nadu, India

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Abstract:

The purpose of the study was designed to examine the effect of low intensity interval training on speed and agility of varsity women students. For the purpose of the study, thirty women students from various departments studying bachelor degree in Kakatiya University, Telangana State, India were selected as subjects. They were divided into two equal groups. Each group consisted of the fifteen subjects. Group I underwent low 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 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 low intensity 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 low intensity interval training.

Key Words: Low Intensity Interval Training, Speed, Agility, Varsity Women Students

Introduction:

In modern sports training, the development of speed and agility is essential for achieving optimal athletic performance, particularly in games and activities that require rapid changes in direction, acceleration, and controlled movement patterns. Traditionally, high-intensity training methods have been emphasised for improving these qualities. However, growing evidence highlights the importance and necessity of Low-Intensity Interval Training (LIIT) as an effective and sustainable approach for enhancing speed and agility, especially among beginners, youth athletes, and during preparatory or recovery phases of training.

Low-Intensity Interval Training involves repeated bouts of exercise performed at sub-maximal intensity levels interspersed with adequate recovery periods. Unlike high-intensity methods, LIIT minimises excessive physiological stress while allowing athletes to repeatedly practise movement patterns with proper technique. This repeated exposure promotes neuromuscular coordination, motor learning, and movement efficiency, which are fundamental prerequisites for speed and agility development (Bompa & Buzzichelli, 2019).

Speed and agility depend not only on muscular power but also on precise timing, balance, and coordination between the nervous and muscular systems. LIIT provides an ideal training environment for reinforcing these qualities by enabling athletes to perform acceleration drills, ladder exercises, shuttle runs, and change-of-direction movements with reduced fatigue. Lower fatigue levels help maintain correct biomechanics, thereby reducing injury risk and improving movement economy (Sheppard & Young, 2006).

Another important need for LIIT with speed and agility lies in its role in long-term athletic development. For novice and developing athletes, high-intensity workloads may cause early fatigue, poor technique, and overuse injuries. LIIT allows gradual progression by building a base of neuromuscular control, joint stability, and aerobic efficiency, which supports more advanced speed and agility training in later phases (Lloyd & Oliver, 2012).

From a physiological perspective, LIIT enhances aerobic capacity and improves recovery between repeated high-speed efforts. Improved aerobic fitness facilitates faster phosphocreatine resynthesis and efficient removal of metabolic by-products, which indirectly contributes to better repeated sprint ability and agility performance (Bishop, Girard, & Mendez-Villanueva, 2011). Thus, LIIT plays a supportive role in maintaining speed performance over extended training sessions and competitive situations.

Furthermore, LIIT is particularly valuable during rehabilitation, off-season conditioning, and tapering phases, where maintaining speed and agility without excessive strain is crucial. Its adaptable nature allows coaches to manipulate work-to-rest ratios, drill complexity, and movement patterns according to individual needs, making it a versatile and athlete-friendly training method.

The need for Low-Intensity Interval Training with speed and agility arises from its ability to enhance movement quality, neuromuscular coordination, and aerobic support while minimising fatigue and injury risk. By integrating LIIT into training programmes, athletes can develop a strong foundation for speed and agility, ensuring sustainable performance improvements and long-term athletic development.

Methodology:

The purpose of the study was designed to examine the effect of low intensity interval training on speed and agility of varsity women students. For the purpose of the study, thirty women students from various departments studying bachelor degree in Kakatiya University, Telangana State, India were selected as subjects. They were divided into two equal groups. Each group consisted of the fifteen subjects. Group I underwent low 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 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 low intensity 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 Low Intensity Interval Training and Control Groups

Test	Low Intensity 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	0.003	1	0.003	0.27
S.D.	0.10	0.11	Within	0.307	28	0.011	
Post Test							
Mean	8.16	8.37	Between	0.333	1	0.333	13.54*
S.D.	0.10	0.11	Within	0.688	28	0.025	
Adjusted Post Test							
Mean	8.15	8.38	Between	0.363	1	0.363	26.21*
			Within	0.271	27	0.010	

* 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 low intensity interval training group and control group are 8.15 and 8.38 respectively on speed. The obtained "F" ratio of 26.21 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 low intensity interval training group and control group on speed.

Agility:

The analysis of covariance on agility of the pre and post test scores of low intensity 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 Low Intensity Interval Training and Control Groups

Test	Low Intensity Interval Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	8.29	8.34	Between	0.021	1	0.021	1.21
S.D.	0.12	0.09	Within	0.493	28	0.018	
Post Test							
Mean	8.13	8.29	Between	0.208	1	0.208	10.66*
S.D.	0.14	0.12	Within	0.547	28	0.020	
Adjusted Post Test							
Mean	8.15	8.27	Between	0.119	1	0.119	35.32*
			Within	0.091	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 low intensity interval training group and control group are 8.15 and 8.27 respectively on agility. The obtained “F” ratio of 35.32 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 low intensity interval training group and control group on agility.

Conclusions:

- There was a significant difference between low intensity 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 low intensity interval training.

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