

## Research Paper

**INFLUENCE OF INTERVAL TRAINING AND STAIRCASE TRAINING  
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[djamilavvv@gmail.com](mailto:djamilavvv@gmail.com)**Abstract**

The purpose of the study was to find out Influence of interval training and staircase training on speed. To achieve this purpose of the study to forty five hockey players of M.S.University affiliated colleges players, Tirunelveli, Tamilnadu. The selected subjects were aged between 18 to 21 years. They were divided into three equal groups of fifteen each, Group I underwent Interval training, Group II underwent Staircase training and Group III acted as control that did not participate in any special training apart from their regular curricular activities. The subjects were tested on selected criterion variable such as speed prior to any immediately after the training period. The selected criterion variable such as speed was measuring by 50 mts run test. The analysis of covariance (ANCOVA) was used to find out the significant differences if any, between the experimental group and control group on selected criterion variable. In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as an appropriate. The result of the present study has revealed that there was a significant difference among the experimental and control group on speed.

Keywords: Interval training, Staircase training, speed, ANCOVA

**Introduction**

high intensity training results in greater physio-logic benefit than lower intensity training.(Casaburi,etal,1997).Several authors have attempted to determine whether interval training, in which periods of higher intensity are alternated with periods of lower intensity, can achieve superior physiologic benefits Compared to constant work rate (continuous).exercise training. In healthy subjects some, (Chilibeck, et al, 1998., Gorostiaga,et al,1991). Ambrosino reviewed

the physio-logic effects of interval training and found that it results in greater increase in peak oxygen consumption and peak work rate, a greater improvement in lactate threshold, and it is more easily accepted, especially in elderly people (Ambrosino, et al, 2004). No clear superiority of high intensity bilevel interval training had been demon-strated.(Yohannes,etal,2004).Interval training consists of repeated bouts of moderate to high intensity exercise interspersed with periods of rest or reduced

intensity exercise (Wilmore, 2008). The German coach Wolde man Gerschler has been credited with formalizing interval training in the 1930's. Interval training is based on the concept that a greater amount of work can be performed at higher exercise intensities with the same or less fatigue compared to continuous training (Gibala, 2006 et al.). Athletes can perform a considerably greater volume of exercise by breaking the total exercise period into shorter more intense bouts with rest or active recovery intervals inserted between the intense bouts (Wilmore, 2008). Examined the effect of the distribution of rest periods on the efficacy of interval sprint training (Parra et al., 2000). Using competitive male and female triathletes compared the physiological, metabolic and perceptual responses during 4 different interval training (IT) Sessions (Zuniga et al., 2005)

### Methodology

The study involved a single dimensional design with three groups assigned with different training approaches. For this purpose, forty five hockey players of M.S. University affiliated colleges players, Tirunelveli, Tamilnadu was randomly selected as subjects. The age of the selected subjects ranged from 18 to 21 years. The selected groups divided into two experimental groups and a control group. In the experimental group, the first group (n = 15, IT) performed the Interval training, the second group (n = 15, ST) performed the Staircase training the third group (n = 15 CG) acted as the control group. In the study, two different training approaches were adopted as independent variables, i.e., Interval training (IT) and Staircase training (ST). The muscular endurance was chosen as a criterion

variable. It was measured by 50 mts Run test and unit of measurement was in seconds.

**Table - 1**  
**Analysis of covariance of pre-test post test and adjusted post test on speed of different groups (scores in seconds)**

T e s t	Ex p. Gr o u p I	Exp . Gr o u p II	Con t r o l Gr o u p	Sour ce of Vari ance	Sum of Squ ares	d f	Me an Squ ares	'F' Rat io
Pretest								
M e a n	7.53	7.53	7.55	Betw een	0.0040	2	0.0020	0.10
S. D	0.14	0.14	0.13	With in	0.8440	42	0.0201	
Post test								
M e a n	7.25	7.33	7.52	Betw een	0.5924	2	0.2962	13.09*
S. D	0.12	0.14	0.17	With in	0.9507	42	0.0226	
Adjusted Post test								
M e a n	7.25	7.33	7.51	Betw een	0.5016	2	0.2508	85.73*
S. D	0.11	0.14	0.17	With in	0.1199	42	0.0029	

\* 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 3.22 and 3.23 respectively).

### Results of speed

Table I shows the analysed data on speed. The pre-test means of speed were 7.53 for experimental group I, 7.53 for experimental group II and 7.55 for control group. The obtained "F" ratio of 0.10 was lesser than the table F-ratio 3.22. Hence the pre-test was not significant at 0.05 level of confidence for the degrees of freedom 2 and 42. The post-test means of speed were 7.25 for experimental group I, 7.33 for experimental group II and 7.52 for control group. The obtained "F" ratio of 13.09 was higher than the table F-ratio 3.22. Hence the

post-test was significant at 0.05 level of confidence for the degrees of freedom 2 and 42. The adjusted post-test means of speed were 7.25 for experimental group I, 7.33 for experimental group II and 7.51 for control group. The obtained “F” ratio of 85.73 was higher than the table F-ratio 3.22. Hence the adjusted post-test was significant at 0.05 level of confidence for the degrees of freedom 2 and 41. Since, three groups were compared, whenever they obtained ‘F’ ratio for adjusted post test was found to be significant, the Scheffé’s test to find out the paired mean differences and it was presented in Table I (a).

**Table - 1(a)**

**Scheffe’s post hock test mean differences on speed among three groups (scores in seconds)**

Experi mental Group I	Experi mental Group II	Con trol Gro up	Mean Differ ences	Confi dence Interv al Value
7.25	7.33	-	0.08*	0.049
7.25	-	7.51	0.26*	0.049
-	7.33	7.51	0.18*	0.049

\* Significant at .05 level of confidence.

Table - I (a) shows the scheffé’s post-hoc test results. The ordered adjusted final mean difference for speed of experimental groups I, II and control group were tested for significance at 0.05 level of confidence against confidential interval value. The mean differences between experimental group I and experimental group II, experimental group I and control group and experimental group II and control group were 0.28, 0.26 and 0.18 respectively and it was seen to be greater than the confidential interval value of 0.049. Hence the above comparisons were significant.

## Discussion on findings

Hockey is very intense, intermittent sport. The typical player performs for 15 to 20 min of a 60 min game. This high-intensity bursts with rapid changes in velocity and duration a wide variety of motor skills and a high level of fitness to complete successfully at an elite level. As any coach or physical educator knows, one of the primary objectives of a training program is to obtain the greatest possible workload with the smallest physiological strain. The fact that this can best be achieved through the methods of interval training is well supported on heart rate and blood lactate data. One of the advantages that interval training has is that it is very flexible and can be adopted for developing not only aerobic endurance, but also anaerobic endurance as well as the ATP-CP system or all three systems equally as well. Stair running is a great, high-intensity workout that helps to build speed, power and cardiovascular fitness. Stair running is also a great addition to any agility training program because it builds quickness and foot speed while getting an excellent sprint workout. Running stairs provides a cardiovascular benefit similar to that of running and is a great way to build sprint power. Many athletes run stairs at a stadium, but you can also look for a local outdoor stairway or a stairwell in a building with about a hundred steps. The twelve weeks of Interval training and Staircase training programmes have improved the speed on the sample population. The interval training programme had greater influence than the staircase training group and control group. The staircase training group is the next best group. Control group did not show any improvement.

**Conclusion**

The interval training has produced significant improvement on speed of college men hockey players. The staircase training has produced significant improvement on speed of college men hockey players.

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