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## The effect of high intensity interval training on agility among male inter collegiate badminton players

V Sarath Chandu and Dr. P Johnson

### Abstract

The purpose of the study was to find out the effect of high intensity interval training on agility among inter collegiate badminton players. Thirty badminton players were selected as subjects. The selected subjects were divided into two groups of fifteen each (n=15). The ages of the subjects ranged from 18 to 25 years. The experimental group was high intensity interval training group, and a control group. Initial test on shuttle run test was conducted for all the groups and the performance was recorded for these groups. The experimental group was administered for eight weeks training. The control group was not given any treatment. After eight weeks the final test was taken on shuttle run test for experimental group and control group. The collected data was statistically analyzed by using Univariate two way ANOVA. The result of the study was high intensity interval training group was significant improvement in compared to the control group.

**Keywords:** High intensity interval training, badminton, shuttle run

### Introduction

#### Background of the study

Racquet game performance is made up of attributes such as agility, speed, strength, power and endurance. There are many training methods assigned to optimize the racquet player's performance. In the improve performance in racquet type sports, high intensity interval training is one of the best method. (Joe Girard, *et al.*, 2018) [1].

#### High-intensity interval training

High-intensity interval training (HIIT) is a form of interval training, a cardiovascular exercise strategy alternating short periods of intense anaerobic exercise with less intense recovery periods, until too exhausted to continue. The method is not just restricted to cardio and frequently includes weights for the short periods as well. Though there is no universal HIIT session duration, these intense workouts typically last under 30 minutes as it uses the anaerobic energy systems which are typically used for short, sharp bursts. The times vary, based on a participant's current fitness level. Furthermore, traditional HIIT was designed to be no longer than 20 seconds on with no more than 10 seconds off. This would bring in the anaerobic energy system. The intensity of HIIT also depends on the duration of the session.

#### Agility

Agility is a significant quality in numerous games played on court or field. In badminton, agility demonstrates the capacity to move to the moving toward transport with a right footwork. There are a few dexterities execution tests that have been created by the idea of the various games in particular rugby, netball and football which centers around change of course speed and perceptual/dynamic. Be that as it may, explicit agility testing for badminton right now accessible just spotlights on the change of course speed with all tests renouncing the perceptual/decision making angle. (M.F.A Frederick 2014) [2]

#### Statement of the problem

To see how high intensity interval treatment affects the agility among selected two groups of affiliated college male badminton players in Nagarjuna University, Andhra Pradesh, India.

## Methodology

The purpose of the study was to find out the impact of high intensity interval training on agility among inter collegiate badminton players. Thirty badminton players were selected as subjects. The selected subjects were divided into two groups of fifteen each (n=15). The ages of the subjects ranged from 18 to 25 years. The experimental group was high intensity interval training group, and a control group. Initial test on shuttle run test was conducted for all the groups and the performance was recorded for these groups. The experimental group was administered for eight weeks training. The control

group was not given any treatment. After eight weeks the final test was taken on shuttle run test for experimental group and control group. The collected data was statistically analyzed by using Univariate two way ANOVA.

## Results

### Analyzing the ability of Agility

The data collected before and after the experimental period on the ability of agility between pre-test and post test high intensity interval training group and a control group were analyzed and presented in table I.

**Table 1:** The Univariate two way ANOVA for pre and post test data on Agility of the experimental and control group.

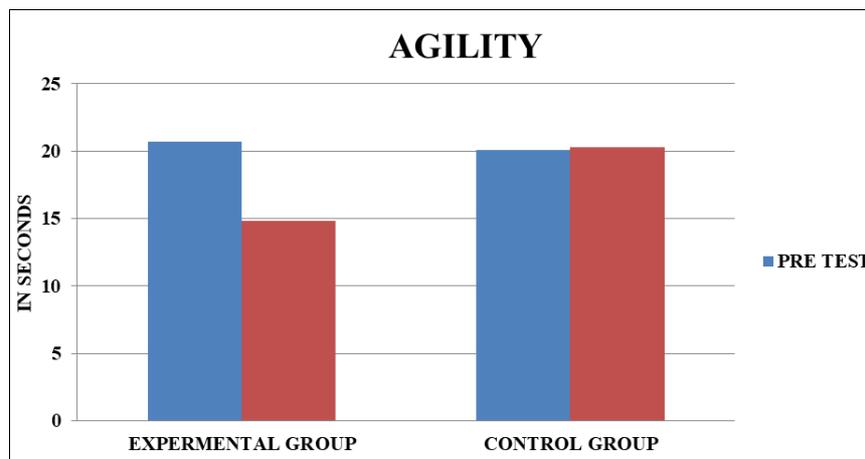
Group	Test	Mean	S.D.	F	T	Sig	Paired 'T' test	Sig. (2-tailed)
Experimental	Pre	20.73	1.71	1.092	1.045	0.305 <sup>NS</sup>	4.184	0.00*
Control		20.06	1.80					
Experimental	Post	14.80	3.67	55.47	7.448	0.00*		
Control		20.31	1.34					

Data expressed as Mean  $\pm$  Standard deviation of Triplicates. \*- Significantly different ( $p < 0.05$ ) and NS-Non significant

Values were means  $\pm$  standard deviation. Value with the same superscripts in a row did not significant ( $p < 0.05$ ) by Univariate analysis of variance (ANOVA).

This table indicates of mean, standard deviation, 'F', 'T' and paired 'T' test results of experimental group and control group of agility of college level men badminton players. The experimental group pre and posttest mean values are 20.73 and 14.80 SD were 1.71 and 3.67. Control group mean values were 20.06 and 13.46, standard deviation values were 1.80 and 1.34. Obtained 't' and 'f' pre value for experimental

group and control group was 1.092 and 1.045. Obtained 't' and 'f' post value for experimental group and control group was 55.47 and 7.448. Obtained 't' value 4.184. The discussion of the study stipulated statistically proved that experimental group showed notable improvement on agility due to impact of high intensity interval training on college level men badminton players.



**Fig 1:** Figure showing the mean values of the experimental and control groups on agility

## Discussion on Findings

The results of the study showed that there was a significant improvement in agility after the high intensity interval training program. Pathmanathan K. Suppiah *et al.*, (2019) [3] studied the "Effects of high intensity functional interval training on selected fitness components among young Badminton Players". This study conducted there was significant difference between experimental group and control for agility.

Kuo-Chin Lin *et al.*, (2020) studied the "cardio respiratory fitness and agility after two week high – intensity footwork interval training in badminton players". This study had similar gain for the agility performance. The trainer may choose one of the two as a high intensity interval training regimes for badminton players.

F Fajrin *et al.*, (2017) [5] studied the "effects of high intensity internal training on increasing explosive power, speed and

agility" this study concluded that exercises of HLIT slightly effect on the development in agility.

Purkhus *et al.*, (2016) studied that "High-intensity training improves exercise performance in elite women volleyball players during a competitive season". This study concluded HILT exercise performance in elite women volleyball players. Martinez *et al.*, (2016) studied that "after-school, high-intensity interval physical activity programme improves health-related fitness". This finding indicated that high intensity programme improved agility.

## Conclusion

1. This study found substantial improvements in the agility after 8 week of HIIT period.
2. There were no significant differences in agility before the high intensity interval training

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