

## Analysis of Speed and Agility Among Different Levels of Handball Players



### Physical Education

**KEYWORDS :** Speed, Agility, 50 yards dash, Shuttle run, Handball, Players

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### ABSTRACT

*The purpose of our study is to analyse speed and agility among different levels of handball players. Sixty (60) male handball players were selected as subjects from AGM Higher secondary school, Thuraiyur. These players were classified into three groups namely junior (20), senior (20) and super senior (20). These players were tested on speed and agility which was selected as criterion variables and measured by 50 yards dash and shuttle run. Analysis of variance (ANOVA) was computed and revealed a significant difference on speed ( $F = 8.82, p < 0.05$ ) but failed to show difference on agility ( $F = 0.87, p > 0.05$ ). The Scheffé S post hoc test showed that super senior boys show difference with junior and senior boys. We concluded that speed significantly differ among different level male handball players in school may be due to experience and physiological changes.*

### Introduction

Modern handball is a fast body contact game, characterised by incredible athletic performances by athletes. In fact, modern handball players are able to perform many different moves, jumps, running, change of directions and technical movements in very short time and with an order determined by the tactical situation. During the game players run with and without the ball, in line and with different paths, jumping, throwing, passing and receiving in motion or during flight represent the technical characteristics of a modern top handball player (Ziv and Lidor 2009).

Sprint and agility were reported to be similar between elite and amateur handball players by Gorostiaga *et al.* (2005), and no differences in sprint performance were observed

in elite players throughout one season (Gorostiaga *et al.* 2006). According to the authors of the latter study, the low-intensity aerobic-type training used during the season may have inhibited sprint performance. It was suggested that more high-intensity endurance running and leg strength training should be incorporated to improve sprinting performance, whereas low-intensity endurance running should receive less attention (Gorostiaga *et al.* 2006).

Today handball requires greater refinement in all dimensions, particularly in young handball players who are trained and groomed into a player. The capacity of school level handball players to perform speed and agility are vital, which assist them during their handball game. The players in schools at different level tend to possess difference in level maturity. Maturation has been described as the process of being mature, or progress toward the mature state (Malina *et al.* 2004). The changes in the physical fitness, morphological and physiological parameters also changes with growth and maturation. Therefore, variations in growth and maturation of a child can have profound effects upon aspects of physical activity, physical fitness and physical performance. Therefore the purpose of the study is to analyse the speed and agility among different levels of handball players.

### Methods

#### Subjects

Sixty (60) male handball players were selected as subjects from AGM Higher secondary school, Thuraiyur. These players were classified into three groups namely junior (20), senior (20) and super senior (20). The subjects age range between 10 to 17 years were selected.

#### Variables and tests

These players were tested on speed and agility which was selected as criterion variables and measured by 50 yards dash and shuttle run. They were tested after providing sufficient warm up and finished with proper warm down.

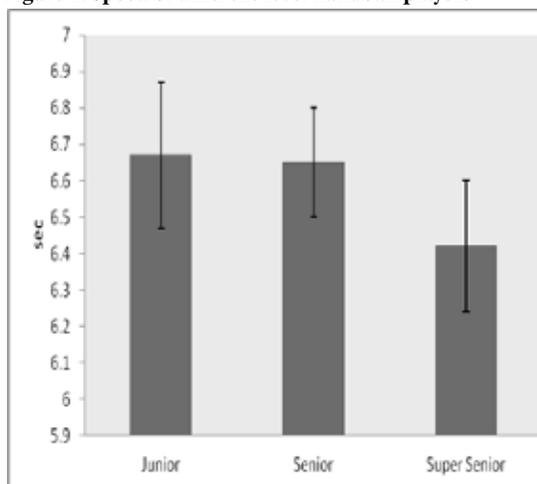
### Statistical technique

Analysis of variance (ANOVA) test was used to compare the mean differences between the three groups. When  $F$  is found to be significant Scheffé S post hoc test was applied. The level of significance was fixed at 0.05. This was considered to be adequate for the purpose of this study.

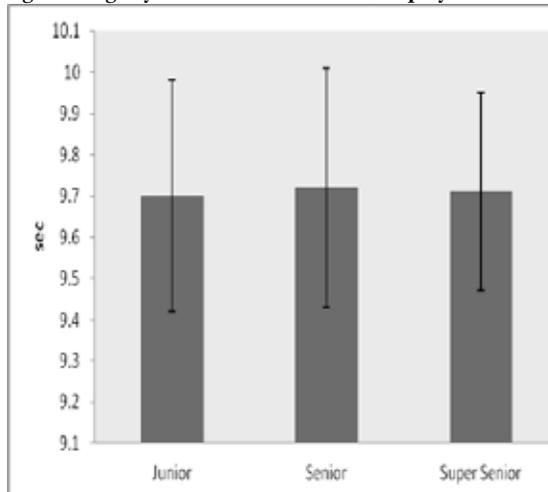
### Results

The mean and standard deviation of speed and agility of junior, senior and super senior boys are presented in Figure 1 and 2.

**Figure 1: Speed of different level handball players**

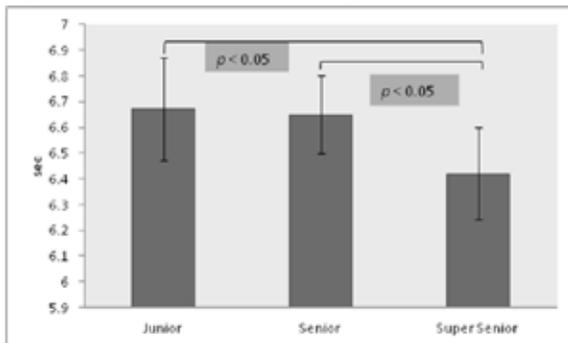


**Figure 2: Agility of different level handball players**



The ANOVA revealed a significant difference on speed ( $F = 8.82$ ,  $p < 0.05$ ) but failed to show difference on agility ( $F = 0.87$ ,  $p > 0.05$ ). The mean value clearly show that super senior boys found to be faster than junior and senior level handball players (Figure 1) but in agility they all remain same (Figure 2). The Scheffé S post hoc test showed that super senior boys show difference with junior and senior boys (Figure 3).

**Figure 3: Scheffé S Post hoc test on Speed**



### Discussion

The present study showed that speed differed significantly among junior, senior and super senior handball players in

schools. The post hoc comparison elicited significant difference of 3.74% between junior – super senior and 3.45% between senior - super senior. Noutsos and his colleagues (2008) observed that sprint times showed no difference among junior (age 15.59 years) handball players (4.4 s), similar results are obtained in the present study. The reason for the difference may be because of luteinizing hormone secretion induces the secretion of testosterone by the testes. This hormone has anabolic effect which increases the muscle mass and size which leads to increase in muscle strength. The muscle strength and speed has a significant relationship as a result the super senior boys has better performance in speed than others. The result may also indicate some influence of training especially on the more complex motor tasks before puberty. The fitness package given was not even since age and growth was kept in mind. This might have also influenced so this difference was found among these handball players (Bencke, *et al.* 2002).

### Conclusion

We conclude that before prescribing training the maturation level of the boys has to be considered. The training should not be of equal for all the students. This study clearly showed that speed varies among junior, senior and super senior boys.

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