

## **SPEED ACCURACY RELATIONSHIP IN TEAM HANDBALL PLAYERS ACCORDING TO AGE AND SKILL LEVEL**

Tomás Urbán, Héctor Hernández-Davó, Álvaro Coves,  
Carla Caballero, Francisco Javier Moreno and Juan Antonio García

Sport Research Centre, Miguel Hernandez. University of Elche, Alicante, Spain.

Correspondence: t.urban@umh.es

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### INTRODUCTION

The relationship between speed and accuracy has been topic of study in sport sciences. In handball throws, both variables are needed to perform optimally (van den Tillaar and Ettema, 2006). Several studies have showed differences in throwing velocity in handball according to the skill level of the player, but the relation between velocity and accuracy is still under research (Wagner et al., 2010a). The aim of this study was to analyze the relationship between velocity and accuracy in two skill levels and three age stages in team handball.

### METHOD

123 handball players were divided in different groups according to the skill level (57 expert and 66 novel players) and age (10-12 years old (n=41), 14-16 years old (n=37) and over 18 years old(n=45)). All participants carried out thirty throws towards a target (40cm x 40cm square) located in the top right corner of the goal. Throwing speed (Stalker Pro) and radial error (video digitized) were recorded to assess the performance. Two-way ANOVA and correlation analysis were carried out to analyze the relationship between velocity and accuracy in each group.

### RESULTS

The two-way ANOVA did not show significant differences between the age groups or skill level in accuracy. We found significant differences on velocity of throwing according to skill level ( $p<.001$ ). Regarding age, we found significant differences between group 10-12 and groups 14-16 and +18 years ( $p<.001$ ), but there were no differences among 14-16 and +18 years groups.

### DISCUSSION

The results in accuracy show that high-skilled level and low-skilled players could throw accurately. These results are in the same line with recent studies in team-handball (Wagner et al., 2010; van den Tillaar and Ettema, 2006). The differences in velocity according to the skill level follow the same trend to those

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found in other studies in which the level of skill influenced decisively on the velocity of throwing (Bayios & Boudolos, 1998, Wagner & Müller, 2008), but these differences were not found between 14-16 and +18 groups.

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