

## **Anticipation in young badminton players: Differences between real and virtual tasks and the influence of playing and training experience**

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In many sports, a high-level of action anticipation is crucially for different performances, such as in badminton where it is necessary to be able to predict where the shuttlecock goes after the opponent hits it. By the fast nature of badminton, some authors have developed behavioral tasks in order to evaluate anticipation in this sport or in visual tasks using badminton videos or images. The aim of the work reported here is to: 1) compare the accuracy and reaction time of young competitive players in the training of real shuttlecock returns for three ability levels of young recreational players and 2) compare players' responses to a real-execution badminton task with a video snapshot task using a computer.

Thirty-eight, 14-17 years old, badminton players were divided in three different groups depending on their experience in badminton championships (group 1 had the most and group 3 the least experience) and then evaluated on two different tasks, one real and the other virtual. As expected, groups 1 and 2 had better reaction time in the real execution test, but they committed more anticipation errors. For the virtual test, there was no difference between groups for both reaction time and accuracy. However, when we analyzed the contralateral error (where the participant's response was to the wrong side of the court) group 3 had significantly more errors than the other groups.

In conclusion, our preliminary results have shown that more experienced young badminton players have better performance in controlled real-execution experiment. They react faster and had greater accuracy. However, they committed more anticipation errors. This suggests that the more-experienced players “read” opponents' body movements better and respond properly to the outcomes. Nevertheless, in a virtual version of the same test there were no difference in reaction time and accuracy between groups, suggesting that when the level of participants is close, virtual tasks are ineffective in the evaluation of anticipation. In the virtual experiment, the less-

experienced participants (group 3) committed more contralateral error, suggesting that they are more subject to major mistakes than other groups.