THE EFFECT OF LEVEL OF EXPERTISE ON ANTICIPATION SKILL IN BADMINTON PLAYERS

Introduction

Responsive actions and perception of the environment are essential factors in sporting situations; temporally constrained sporting tasks require the athlete to pick up essential visual cues and utilise this information to anticipate as quickly as possible (Shim et al. 2005).

The aim of the study was to look at the effect of skill level (novice/intermediate and expert) on anticipation ability by the use of two performance measures; anticipation and reaction time response/footwork selection.

This suggests that the interaction between perceptual skills and the motor process in interceptive actions commonly used in racquet sports for example are very efficient and accurate (Reniguo, Benguigui and Bardy 2005).

Methods

Participants

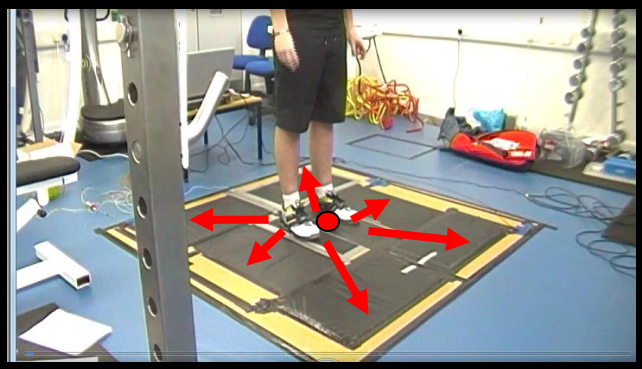
Seventeen (4 females and 13 males) university students with different levels of expertise (9 expert and 7 novice/intermediate players) were recruited non-randomly. A video simulation of an elite badminton player playing a variety of overhead shots was presented
to all the participants. Both anticipation time and response selection were measured in the lab and in an actual game situation.

Measurements

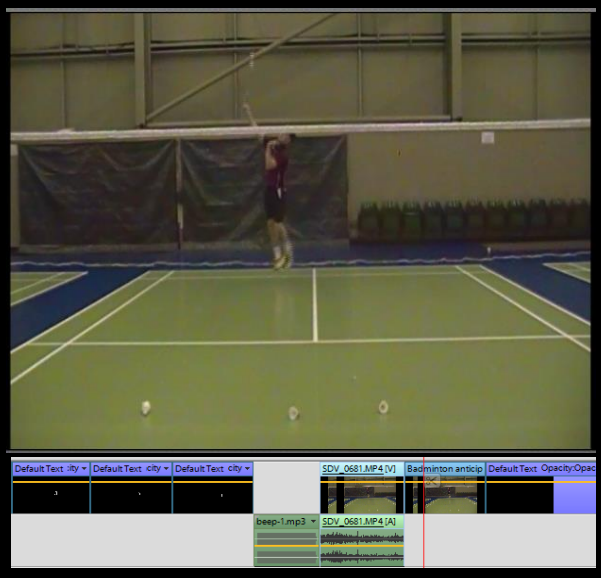
An expert badminton player (national standard) was used for the occluded video simulation which was presented in the lab test. A Panasonic NVGS400 (Mini DV camcorder) was positioned in the centre of the receivers court. This view best represented the normal viewing position of a receiving player. The expert badminton player then executed 3 overhead shots, smash, drop and clear in any direction and in no particular order.

Data Analysis

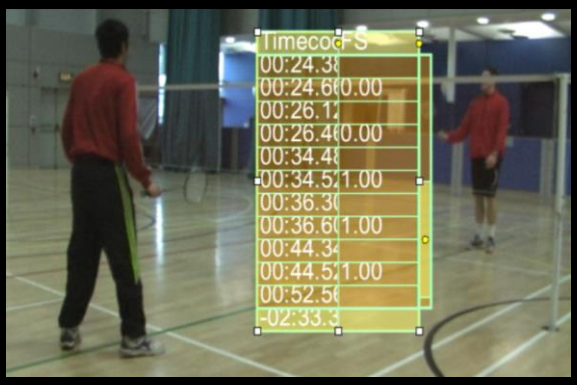
The adobe Premier element (v11) software was used to edit and temporally occlude the video footage of the expert player for the lab test. A custom made (SHU) sensory mat was used to collate participant reaction times.
Video footage for the field test was converted from the tape and imported into the Dartfish v4.5.2.0 software for further analysis. A data table was then created with a time code and an additional column to notate correct/incorrect footwork selection.



1. Lab testing – sensory mat



2. Expert performance video temporal occlusion



3. Field test data analysis

Results

- The results showed better performance by experts relative to novice players in both response selection of the lab test [$F(1, 15) = 5.669$, $p = .031$, $\eta\rho^2 = .274$. and field test $F(1, 15) = 8.495$, $p=0.011$, $\eta\rho^2 = .36$.].
- Mean for anticipation time in the lab test was smaller for experts compared to novices ($M = 5.148$ vs $M = 3.708$).
- Mean averages in the field test was smaller for experts compared to novices ($M = .133$ vs $M = .202$).

Conclusion

· The findings support the notion that high spatial and temporal accuracy is required for high performance in badminton.
· The implication of findings for coaches is to emphasise both spatial and temporal constraints in order to improve performance.

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ESAN Expertise and Skill Acquisition Network

References

- SHIM, J., et al. (2005). The use of anticipatory visual cues by highly skilled tennis players. Journal of motor behaviour, **37** (2), 164-175.
- LE RUNIGO, Cyrille, BENGUIGUI, Nicolas and BARDY, Benoit G. (2005). Perception–action coupling and expertise in interceptive actions. Human movement science, **24** (3), 429-445.