Gaze Behaviour that gives a Badminton Player an Edge over an Opponent

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Introduction

Expert sports people are better at anticipating the actions of their opponents and tend to use earlier visual cues than non-experts (Singer & Janelle, 1999). Vickers (2011) provided evidence that gaze control is critical for skills requiring precise cue selection and optimal timing.

A common method to study human vision is through eye tracking. An eye-tracker provides data about the observer's gaze patterns and focus points (Bergstrom, 2014; Blomqvist, 2006). A small, low power, infrared light emitting diode (LED) illuminates the eye. The LED generates a corneal reflection which is used in conjunction with the pupil through specialized image-processing software to identify and locate the point of gaze.

The objective of this research is to determine the specific gaze behaviour that gives good badminton players an edge over their lesser-skilled opponents.

Methods

The gaze behaviour of three badminton players who represented their country on international level, three senior league players and three junior players were recorded by using the Tobii Glasses 1 eye-tracker. Players of different ages, experience, and gender were included in the study. Two singles games per pair of players were recorded with each player wearing the eye tracker for one game. Qualitative frame-by-frame analysis was done to determine if the gaze behaviour of good and lesser-skilled players differ. For this paper, a specific stroke, namely a clear shot to the forehand of the opponent, was analysed.

Results

It was found that each player exerted the same behaviour every time that the same kind of shot was played. The gaze of lesser-skilled players, including senior league players, were focused on the shuttle until it started to descend. Thereafter, their gaze moved to several scattered focus points between the shuttle and the racket head of the opponent where it stayed until the shuttle got there. This pattern was repeated until the opponent hit the shuttle.

The gaze of the international players were also focused on the shuttle until it started to descend, but thereafter their gaze moved to the racket head of the opponent and stayed there until the shuttle came into their peripheral vision. Their gaze then moved back to the shuttle until the opponent hit the shuttle.

Discussion & Conclusion

By keeping their gaze at the racket head of the opponent, the good players could see the racket-, arm- and body angle of the opponent and they could anticipate the next shot that the

opponent would probably play. The player could then prepare for the opponent's next shot and move to another position on the court in time if necessary.

Abernethy (1999) found that the anticipatory skills of sportsmen can be enhanced with practice. By coaching lesser-skilled players to take a page from the gaze behavior of good players, they could end up having more time to get into position and play their shots.

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