The Effect of Self-Position and Posture Information on Reaction Time

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Abstract

In competitive sport, a player's ability to immediately perceive and react to offensive and defensive situations impacts on success. While skilled performers demonstrate a superior ability to pick up crucial cues from the visual information of an opponent's or teammate's position and posture, perception of one's own position and posture may also be important for advanced performance. This study focused on self-position recognition by comparing reaction times (RTs) of karate athletes performing against a virtual opponent's attacks under two test situations; one where visual information about self-position and posture was provided and one where it was not. Differences were examined between karate experts and novices. A virtual karate system using Mixed Reality technology was developed to allow for interaction with a virtual opponent during real-time observation of images of an opponent and oneself. Results showed that novices given self-information had significantly shorter RTs. Experts did not show any change in RTs, with or without the information and consistently produced fast RTs. The results show that inputting self-position and posture information can improve the accuracy of tactical decision making for novice karate athletes but not for expert practitioners.

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