THE RELATIVE IMPORTANCE OF INTER- AND INTRA-INDIVIDUAL PATTERNS DURING ANTICIPATION

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Introduction

In complex, time constrained environments anticipation is critical to successful performance. When anticipating in sport, perception of postural cues (intra-individual patterns; Diaz, Fajen, & Phillips, 2012) and relations between players (inter-individual patterns; Williams, North, & Hope, 2012) have been proposed as important perceptual-cognitive processes. Dittrich’s (1999) interactive encoding hypothesis proposes that skilled performers perceive meaning by extracting relative motion between features to inform their actions. We examined the relative importance of intra- or inter-individual patterns during anticipation and how this varied as a function of task constraints.

Methods

Skilled and less-skilled soccer players completed anticipation paradigms in video-film and point-light display (PLD) format. Sequences were classified as either far or near based on how close the ball was to the participant when making the judgement.

Results

Skilled players (M = 58.33%, SD = 18.20) were more accurate than less-skilled players (M = 36.11%, SD = 10.36). There was a Skill x Display interaction. Skilled players had a greater advantage over less-skilled players in the video-film (M = 69.10 %, SD = 13.57 vs. M = 38.54 %, SD = 9.77) relative to the PLD condition (M = 47.57 %, SD = 15.83 vs. M = 33.68 %, SD = 10.56). Finally, there was a Display x Distance interaction. For video-film clips, there was no difference in accuracy between far and near tasks (M = 56.60 %, SD = 21.28 vs. M = 51.04 %, SD = 17.26), whereas, on the PLD clips, judgements were more accurate for the far than near task (M = 49.31 %, SD = 14.31 vs. M = 31.95 %, SD = 10.03).

Discussion

The skill advantage across conditions suggests skilled players can utilise information conveyed by inter-individual patterns during anticipation. However, intra-individual information from postural cues is important when available to enhance anticipation. Anticipation is complex and made up of a number of different perceptual-cognitive skills. As proposed by Dittrich (1999), skilled performers extract relative motion information to perceive meaning, however whether this is processed locally (intra-individual relations between postural cues) or globally (inter-individual relations between players) is dependent on the task constraints under which anticipation occurs.

References

Diaz, G. J., Fajen, B. R., Phillips, F. (2012). *Journal of Experimental Psychology: Human Perception and Performance*, *38*, 848-864.

Dittrich, W. H. (1999). In, *Gesture-Based Communication in Human-Computer Interaction* (pp 3-22). Berlin, Heidelberg: Springer-Verlag.

Williams, A. M., North, J. S., Hope, E. (2012). *The Quarterly Journal of Experimental Psychology*, *65*, 1975-1992.

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