An Investigation into the Expert-Performance Approach Using Tests of Visual and Motion Perception

**Method**

- **UFOV**
- **MIDS**
- **DOMIDS**

**Statistical Analysis:**
- RM ANOVA's conducted on the change in UFOV scores between the sub-tests.
- Independent samples t-tests conducted for the MIDS & DOMIDS tests.

**Results**

- **UFOV:** No sig. difference in changes in UFOV scores between A and D tests. Sig. difference in change from DT to DTWD for the N test compared to both the A and D tests.
- **MIDS:** Sig. higher threshold in the fast sub-test (A) for fast-sport participants compared to slow-sport participants.
- **DOMIDS:** Sig. higher threshold in the horizontal sub-test (D test & A/D collapsed) for horizontal-sport participants compared to vertical-sport participants.

**Discussion**

- **Key points:**
  1. Matching the stimulus image to that of the participant’s sport did NOT affect performance in any aspect of the UFOV test.
  2. Individuals who play fast-paced sports (i.e. cricket & tennis) have a GREATER threshold sensitivity for high speeds when compared to those who play slow-paced sports (i.e. football & rugby).
  3. Individuals who play horizontal-based sports (i.e. football & rugby) have a GREATER threshold sensitivity for horizontal directions when compared to those who play vertical-based sport (i.e. cricket & tennis).

**Introduction**

The Expert-Performance (EP) Approach is "a guiding framework for those interested in furthering knowledge and understanding of expertise and expert performance".

In order to obtain the most accurate reflections of human behaviour, scientific experiments must employ designs that replicate the natural environment as closely as possible.

Sport science research has often neglected this in favour of more controlled, replicable studies, though this is beginning to change...

**Aim:** Examine whether athletes perform better on tests of visual/motion perception that replicate their natural environment than ones which do not.

**Key Points**

- Lee et al (2013) – No difference in RT but increased visual fixations of opponent in 2D condition.
- Spittle et al (2010) – No difference in decision-making accuracy of basketball players.
- Vignais et al (2009) – No difference in response time or accuracy of GK’s but kinematics of motion did differ.
- Memmert (2006) – Basketball players less prone to inattentional blindness only in basketball scenario.

**Notes:**

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- 60 participants with average experience of >11yrs in either rugby, football, cricket, tennis, or hockey
- Performed 3 tests of visual-motion perception
  - Useful-Field-Of-View (UFOV)
    - 3 sub-tests: single-task (ST), dual-task (DT), & dual-task-with-distracters (DTWD)
  - Motion-In-Depth-Sensitivity (MIDS)
    - 2 sub-tests: fast & slow
  - Direction-Of-Motion-In-Depth-Sensitivity (DOMIDS)
    - 2 sub-tests: horizontal & vertical
- Three versions of each test were performed:
  - Associate (A)
  - Dissociate (D)
  - Neutral (N)

**Discussion**

**TAKE HOME MESSAGE:** There is some support for employing the EP approach in tests of visual perception, with particular emphasis on the importance of motion.

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