

**BWF**

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# DIFFERENCES IN REACTION TIME AND ANTICIPATION BETWEEN ELITE AND SUB-ELITE BADMINTON PLAYERS.



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# RESEARCH



**All racquet sports require athletes to process information and make decisions in a short period of time by means of reaction or anticipation.**

(Williams et al., 2011).



# RESEARCH

**Reaction time is the time required to respond to a visual stimuli.**

**Anticipation occurs when the reaction has started before the stimulus is available.**

(Bhahbor et al., 2013).

# AIMS

- **To investigate reaction times of badminton players of different expertise levels.**
- **To investigate the relative contribution of contextual information on reaction time and anticipation.**

# HYPOTHESES

**Elite players would display the fastest reaction times compared to other groups as they have the ability to extract useful information earlier**

(Abernethy & Zawi, 2007; Abernethy & Zawi & Jackson, 2008; Abernethy et al., 2000).

**All groups would have faster and more accurate reactions when presented with both kinematic and contextual information.**

Triolet et al. (2013)

# PARTICIPANTS

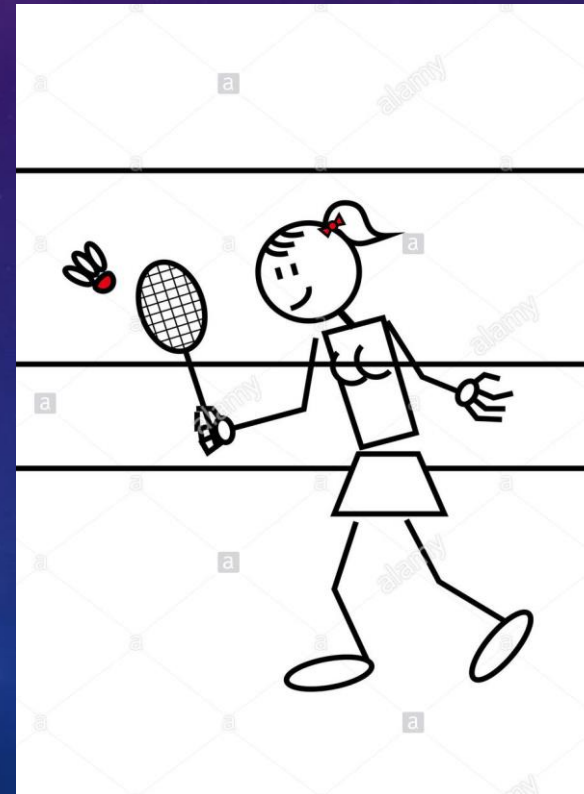
**5 Elites**



**10 Sub-elites**



**11 Recreational**



**6 Novices**





# EXPERIMENTAL DESIGN

200 ms before shuttle/racquet contact

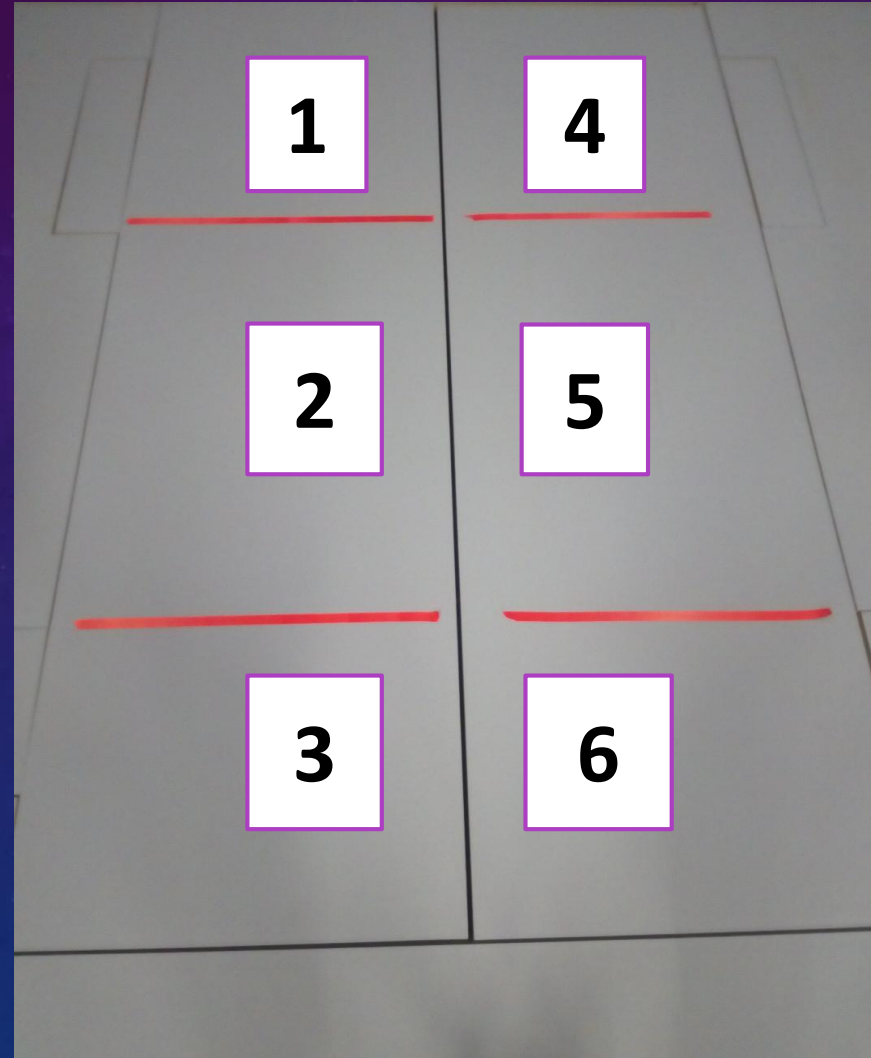
100 ms before shuttle/racquet contact

On the moment of shuttle/racquet contact

200 ms after shuttle/racquet contact

100 ms after shuttle/racquet contact

# REACTION TIME & ACCURACY



# RESULTS

**Reaction times of novices tended to be slightly faster than the recreational ( $p = 0,095$ ) and sub-elite ( $p = 0,083$ )**

**Novices have a similar search pattern compared to elites but are not able to extract the same useful information due to an underdeveloped ability to recognize and recall specific movement patterns.**

**(Abernethy & Russell, 1987; Goulet et al., 1989)**

**Novices have to guess more where the shuttle is being played. Their insufficient knowledge tends to result in an 'all or nothing' action characterized by an early start.**



# ACCURACY

**It is presumed that players are more likely to anticipate when they perceive that if they wait any longer, they would not physically be able to properly return the opponent's stroke**

(Triolet et al., 2013).

# ACCURACY

These fast and risky decisions lead to a *'speed-accuracy'* tradeoff that novices have the lowest accuracy rate and thus make the poorest decisions.

# LIMITATIONS AND FUTURE

- Low number of available elites and sub-elites.
- Non-badminton specific reaction time exercises.
- Inclusion of a psychological component.





# CONCLUSION

- Coaches can find this information very useful for their training programmes.
- It is also of significant importance to place emphasis on where one places their *visual attention* when reacting as opposed to solely that of movement execution.

Thank You

