

Research finds karate masters a cut above

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A study by Murdoch's School of Psychology and Exercise Science and RMIT University has found that karate masters can anticipate how an opponent will strike even before that opponent has moved a muscle.

The work was done by former RMIT (now Curtin University) researcher Dr Simon Rosalie and Murdoch's Dr Sean Müller as part of the Dr Rosalie's PhD.

The study compared novices, near-experts (state level competitors) and experts (international level competitors) and involved blocking their vision at three different stages of an opponent's attack: at the stance position; during preparatory head movement; and after initiation of a strike.

Results supported the hypothesis that experts and near-experts gathered vital visual information earlier than novices, but the sheer level of mastery by experts was unexpected.

"Expert Karateka, but not near-experts, had a unique ability to use information from an opponent who was completely still in the stance position, even before the preparatory head movement," Dr Müller said.

"Their blocks were successful at a level above what you'd see from guessing alone, showing that expert competitors gather [visual cues](#) earlier to block an attack than near-experts."

Dr Müller said further research was needed to locate the subtle cues in the stance position used by experts, which may include small variations in limb positioning.

He said understanding how such [visual information](#) was gathered by [elite athletes](#) could provide an enormous advantage in training.

"In the world of professional sports, the difference between standing on the podium and being on the sidelines comes down to milliseconds and centimetres, so athletes need every advantage they can get," Dr Müller said.

"I've also been working with Cricket Australia to look at how, and at what point, a batsman recognises the bowler's delivery, with the results showing differences between expert and less skilled players.

"If we can understand how an elite cricketer can recognise, say, a bouncer, we can arm coaches with methods to help up and coming batsmen reach their maximum potential."

Dr Müller is also doing work with the Perth Heat of the Australian Baseball League looking at transfer of visual cue pick-up from baseball to cricket and how experts strike a baseball.

The paper by Dr Simon Rosalie and Dr Sean Müller can be found [here](#).

Provided by Murdoch University

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