

The mechanics of a parkour landing

March 26 2018



Massey researchers are investigating the movements used in parkour - a French-developed discipline using movement developed from military obstacle courses training. Credit: Massey University

Have you ever watched a person leaping from buildings or vaulting over railings and wondered, "How did they do that?"

Massey University researchers are looking at the movements used in parkour, a French-developed discipline using movement developed from military obstacle course training, and how it affects the forces placed on the body, particularly when landing.

The research, which is being led by Master of Sport and Exercise Science student Marcel Austmann under the supervision of Dr. Sarah Shultz from the School of Sport, Exercise and Nutrition, may help in the design of conditioning programmes and injury prevention strategies for the activity that is often considered an extreme sport with high risks.

Due to the relative infancy of parkour there is less information about how parkour athletes distribute forces during landings, which has potential links to injury, Mr Austmann says.

Ground reaction force measures the magnitude of stress placed on the body when it connects with the ground, while rate of [force](#) development looks at the time it takes for the body to absorb those forces. Both factors can greatly increase risk associated with injury, but it has been shown that experienced parkour athletes may be able to lessen these forces significantly through landing techniques," he says.

"This study is unique in that it investigates the forces as well as muscular activity associated with parkour landings during a variety of obstacles found in a natural training environment. We anticipate that the valuable findings would add to the current knowledge base of landing biomechanics in parkour."

Specifically, this study will look to support previous research that suggested parkour precision landing was a safe [landing](#) strategy. "By moving beyond the lab and into the more common gym setting, we can better understand how parkour athletes naturally land and how much influence experience level plays in injury risk," Mr Austmann says.

The study is looking for 12-24 healthy and [injury](#) free adults between the age of 18-35 who participate in parkour. Experience levels can vary as comparisons will be made between beginner and experienced athletes. Participants need to be Auckland-based, as the study is being carried out at Flow Academy of Motion, in Albany.

Provided by Massey University

Citation: The mechanics of a parkour landing (2018, March 26) retrieved 26 June 2024 from <https://phys.org/news/2018-03-mechanics-parkour.html>

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