NEUROCOGNITION & MOBILITY LAB

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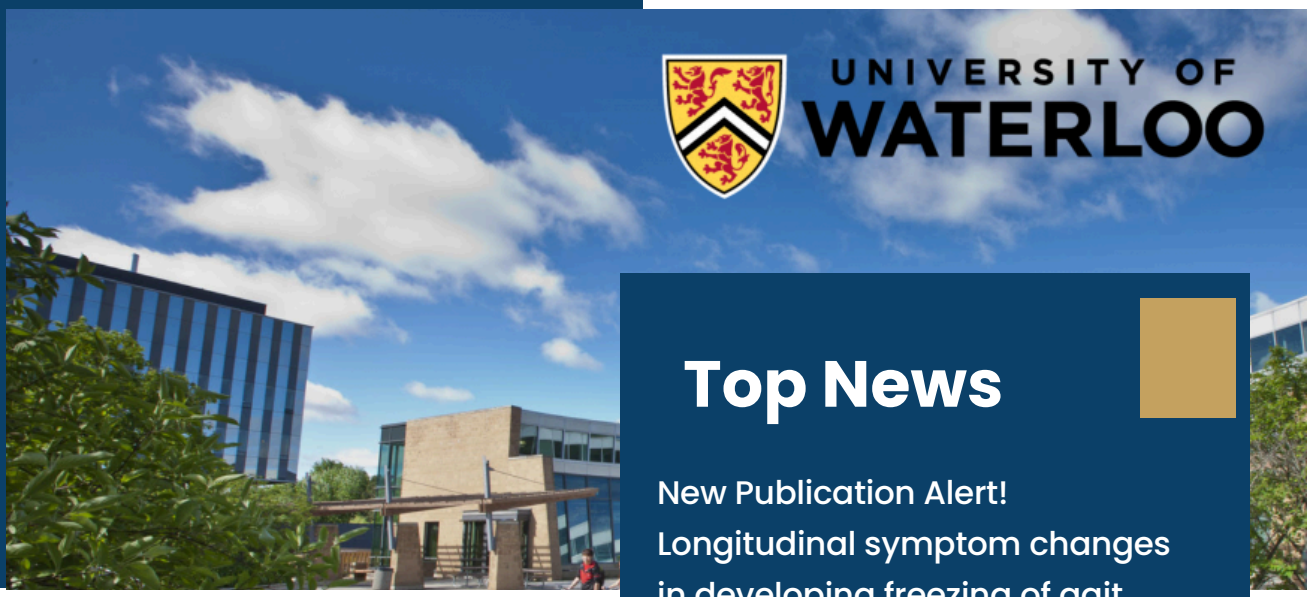
Quarterly Newsletter

April 2025



Top News

New Publication Alert!
Longitudinal symptom changes in developing freezing of gait

Grant funding from Michael J. Fox Foundation to test new therapy for Freezing of Gait

Welcome to Our Newsletter

In honor of Parkinson's awareness month and World Parkinson's Day, this is the first release of our Neurocognition and Mobility lab quarterly newsletter. We hope to use this outlet to help keep you, as members of our UW-Parkinson's Community informed with what we are working on to fulfill our mission of understanding, predicting, preventing neurodegenerative disease to improve functioning and quality of life.

April 11
WORLD PARKINSON'S DAY

Fun fact! World Parkinson's day marks the birthday of James Parkinson, the first to describe Parkinson's as a medical condition.

Led By
Dr. Kaylena Ehgoetz Martens

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Newsletter Highlight

We are pleased to announce that the Michael J. Fox Foundation has awarded our team funding for a multi-site study to test a new medication to treat freezing of gait, a debilitating symptom of Parkinson's disease. Please contact us if you would like more information on how to get involved: neurocognition.mobility.lab@uwaterloo.ca

Highlights & Progress

In the last quarter, we completed **54** study visits and **180** hours of research interaction

5 ongoing research studies:

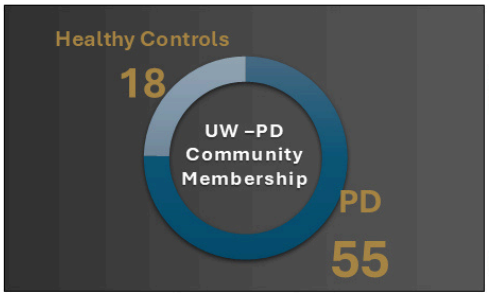
PIGD: validating a new postural instability gait disorders rating scale

FOG-COA: new freezing of gait clinical outcomes tool

PD-Anx: anxiety manifestations in mobility of PD using virtual reality

PD- Emotions: quality of life survey

Plank-DB: freezing of gait management through deep breathing techniques



RECENT FUNDING

$1.4M Michael J. Fox Foundation

Parkinson's Canada **$75k**

Research Sharing and Networking

Our team will be presenting our research this year at the **International Society of Posture and Gait Research** and the **International Consortium of Freezing of Gait** in June and July of 2025.

Welcome onboard, Bella!

Bella is a 4th year student in Kinesiology at the University of Waterloo. She joined the Neurocognition and Mobility Lab in January 2025 as an undergraduate research assistant. Her research interests include exploring neural and cognitive mechanisms underlying functional gait disorders, and how we can apply it to therapy.

Outside of the lab, Bella enjoys playing lacrosse, cooking, and volunteering as a student therapist for UW's varsity teams.

Featured Research Study - Can Visual Cues help Freezing?

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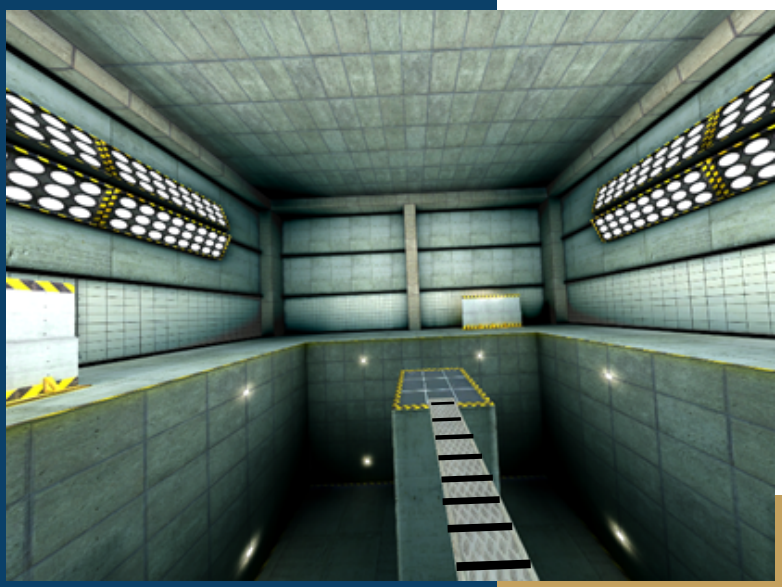
Freezing of gait (FoG) in Parkinson's disease (PD) worsens with anxiety, making movement harder. Visual cues, like lines on the ground, can help, but their effectiveness under stress is unclear.

This study used a virtual reality headset to test 13 people with PD by having them walk across a virtual plank on the ground and at a height to induce anxiety, on half the trials there were visual cues (horizontal lines on the ground) present (see figure below).

Anxiety was measured using self-reports and heart rate. Video recordings captured freezing of gait while participants walked in a virtual environment.

Anxiety increased at height, leading to more freezing while walking on the plank. However, visual cues reduced the overall number of freezing episodes, the duration of freezing episodes and percentage of time spent frozen.



"My research focuses on understanding various emotional and cognitive contributions to FOG and how we can reduce FOG prevalence!"

This study, funded by a NSERC doctoral scholarship, was conducted by Pershia Norouzian (PhD Candidate), Dr. Simon JG Lewis (University of Sydney), & Dr. Kaylena A Ehgoetz Martens, 2025

These findings suggest visual cues can help reduce freezing of gait, even in stressful situations.

Where do we go from here?

It is important to examine how highly anxious individuals may respond to cues under threatening or anxiety inducing conditions. Based on this current work, we can now focus on determining whether we can gain the benefits of cueing through alternative anxiety-reduction techniques like deep breathing.

Our Gratitude and Appreciation

A big thank you to all the volunteers who have taken strides in supporting our research. Your time and effort are essential to our research. Each step you've contributed moves us closer to a better future for all!

Sincerely,

The Neurocog Team

Publication Alert

Our most recent publication in the journal of Neurology titled "Motor, affective, cognitive, and perceptual symptom changes over time in individuals with Parkinson's disease who develop freezing of gait" discusses motor and non-motor symptom changes to help reveal new predictors of those who might develop freezing of gait in the future

Participant Feedback

"I would just like to say how much I enjoyed working with you on the PD FoG and anxiety clinical testing recently. You are all ultimately professional and respectful. I do hope you garnered a lot of useful information. I would be glad to participate in other PD related research. Keep up the great work. Thank you"

-Steve

Where you can find our group next?

We will be attending the annual Living Well Conference series hosted by Parkinson's Southwestern Society of Ontario (www.psso.ca). This is a wonderful community conference. Please come by and see us on **April 9th** in Brantford and or **April 23rd** in Walkerton!

Register here

Interested in joining our Research Community?

Scan this QR code

519-888-4567 ext 36954

neurocognition.mobility.lab@uwaterloo.ca