



[Home](#) [About Us](#) [Parkinson's Disease](#) [Events](#) [Programs & Services](#) [How To Help](#) [News & Media](#) [Contact Us](#)



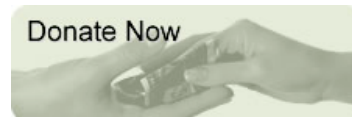
Research



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- [What is Parkinson's?](#)
- [Treatment](#)
- [Research](#)
 - [Research - Dr. Gordon Rintoul](#)
 - [Research - Dr. Frank Lee](#)
 - [Psychosocial Doctoral Award - Kaitlyn Roland](#)
 - [Cycling and PD](#)
 - [Research - Dr. Stephanie Borgland](#)
- [New Diagnosis](#)
- [Young Onset Parkinson's](#)
- [Living with Parkinson's](#)
- [Caregiving](#)
- [Cognitive Health](#)
- [Glossary of Terms](#)
- [Frequently Asked Questions](#)
- [External Links](#)

[Parkinson's Disease](#) / [Research](#) / Psychosocial Doctoral Award - Kaitlyn Roland

[Print Page](#)

Text Size



Assessing sex and stage differences in muscle activity using portable electromyography in Parkinson's disease

One of the differences between the way men and women experience Parkinson's disease is that more women develop uncontrollable movements, known as dyskinesias, as a side-effect of the medication they take to treat the illness.

At the University of British Columbia Okanagan, Kaitlyn Roland studies the sex differences in those involuntary muscle movements as people with Parkinson's perform real-life daily tasks.

Roland compares the responses of men and women by having people go about their usual daily routines at home, while wearing electrodes attached to portable packs the size of Walkmans. These packs, called electromyography devices, measure the electrical impulses people's muscles generate.

"We're measuring the muscle activity during the day to see how Parkinson's disease is influencing different alternations in muscle and nerve function," Roland says.

As they age, women lose more skeletal muscle and lower limb strength relative to men. Roland wants to know if this sex-specific difference is also reflected in the muscle activity patterns of people with Parkinson's. By graphing the electrical impulses from muscles, she hopes to determine how the progression of Parkinson's disease affects women's versus men's ability to remain independent and move around.

If Roland can demonstrate differences in how Parkinson's affects men's and women's muscle movements, her work may help physiotherapists and other rehabilitation specialists design sex-specific programs to strengthen the muscles or address dyskinesias where each sex needs them the most.

Roland's work could also serve as a diagnostic tool, one day helping healthcare professionals find the same muscle activity patterns she charted in people who have not yet been diagnosed with Parkinson's.

Ever since her grandfather, Buddy, was diagnosed with Parkinson's disease in the mid-1990's, Roland has been trying to improve the lives of people living with this illness. She began volunteering with Parkinson Society Southwestern Ontario in London during her first year of university, and continued that work after her grandfather died.

"I fell in love with the Parkinson's community in London," she says. "The people who worked at the office were so passionate about what they did, as were all the members and volunteers. It's a great community."

As a certified Yoga instructor, Roland eventually wants to develop a rehabilitation program for movement disorders, based on the neuromuscular information she gleans from her project.

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Our Mission

Parkinson Society British Columbia exists to address the personal and social consequences of Parkinson's disease through advocacy, education, community outreach, scientific research and public awareness.

Ms. Roland is the recipient of the Psychosocial Doctoral Award - \$51,333 | 2010 - 2012

She received her BSc in 2006 and MSc in 2008 from the University of Western Ontario, London. She is currently a PhD candidate in Human Kinetics at the University of British Columbia Okanagan working under the supervision of Dr. Gareth Jones.

[Top of page](#) ▲

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