Parkinson Society British Columbia

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Research Profile:
Matthew Sacheli

Research Project:
Investigating the therapeutic mechanisms of exercise interventions for the treatment of Parkinson's disease.

Project Grant: $30,000 over two years

Project Description:
Prescribing Exercise as a Treatment for Parkinson's Disease

"If we can show that it doesn't necessarily matter what type of exercise you are doing, but that all exercise is beneficial, I think it will help motivate people who are not able to go out and run a marathon, but can walk their dog for 20 minutes."

Neuroscientist Matthew Sacheli was working as a personal trainer to help put himself through university when he noticed that one of his patients, who had Parkinson's disease, had fewer symptoms when engaging in calisthenics and resistance training.

By the end of the workout, however, Sacheli could see his client's tremors and stiffness return. "It was really an eye-opener to me to see that exercise could be beneficial for these patients," Sacheli remembers.

That experience inspired Sacheli, now a graduate student in neuroscience at the University of British Columbia, to marry his love of sports and exercise with research into exactly why exercise helps people with Parkinson's disease. Although doctors and researchers have learned that dance, Tai Chi, or other forms of exercise reduce both motor and non-motor symptoms of Parkinson's, they don't know how frequently or how intensely people need to exercise to get the benefits, or precisely what part of the brain exercise stimulates to effect these changes.

Sacheli is using two types of imaging to investigate whether exercise triggers a release of dopamine within the brain, and if it does, what specific regions of the brain are involved. If he can identify the mechanisms involved, that knowledge could open up new treatment avenues.

Sacheli is using Positron Emission Tomography (PET) to scan the brains of people with Parkinson's before and after they have participated in three months of a regular exercise routine, to see if dopamine levels increase. He will also use functional Magnetic Resonance Imaging (fMRI) to chart the activity in his participants' brains as they play a card game that mimics the brain's response to rewards, like the pleasurable feeling a workout delivers.

By correlating the data from the two, Sacheli hopes to pinpoint the brain structures that exercise affects. Eventually, he hopes doctors will be able to write accurate prescriptions for the kind and type of exercise people require to improve their symptoms. Sacheli's goal is to inspire a more holistic approach to treating Parkinson's disease.

“The future of clinical care is a multiple and comprehensive health approach, especially for a complex disease like Parkinson’s disease,” he says.

Biography:
Matthew Sacheli was born and raised in Calgary, Alberta and attended the University of Ottawa, obtaining a Bachelor of Science Honours degree in Human Kinetics and gaining his certification in exercise physiology (CSEP-CEP). He continued his education at Wilfrid Laurier University receiving a Master of Science in Kinesiology. During his graduate studies he researched sensory based exercise interventions for the treatment of Parkinson’s disease at the Sun Life Financial Movement Disorders Research and Rehabilitation Centre.

Matt is currently attending the University of British Columbia pursuing a PhD in Neuroscience at Pacific Parkinson’s Research Center (PPRC) under the supervision of Dr. A Jon Stoessl. The focus of Matt’s research is investigating the therapeutic mechanism of exercise in Parkinson’s disease.

Apart from his research Matt enjoys spending time on the golf course, coaching baseball and snowboarding. Matt would like to thank the doctors and staff at the PPRC for their educational support.