UBC researcher to study the outcomes of exercise trial on vascular cognitive impairment

StrokeCog Clinical Trial Training Platform fellowship enables Nárlon Boa Sorte Silva to examine how exercise program changes white matter, myelin and impacts cognition

University of British Columbia post-doctoral researcher Nárlon Boa Sorte Silva has been awarded a StrokeCog Research Post-Doctoral Fellowship Award to study brain scans and biomarkers gathered during a three-year clinical trial on exercise and brain health.

Trial data will shed light on whether resistance training, using weights and body-weight exercises, can halt or reverse the progression of vascular cognitive impairment, which is the most prevalent form of dementia.

As part of the fellowship, Dr. Boa Sorte Silva is studying the MRIs of 88 clinical trial participants for changes in white matter and myelin. White matter is the network of nerve fibres in the brain that allows for the exchange of information among different regions. Myelin, the coating on nerve fibres, is essential for enabling information to travel faster in the brain. Dr. Boa Sorte Silva's fellowship supervisor, Dr. Roger Tam, is an expert in myelin imaging.

"The whole idea is that resistance training could improve cognition by slowing the progression of white matter lesions, but also by maintaining myelin which tends to decline in older adults," Dr. Boa Sorte Silva says. Findings from this trial could lead to a larger study, and eventually the development of clear guidelines on exercise for brain health.

"This fellowship gives me the chance to do something very meaningful," Dr. Boa Sorte Silva says. "I am honoured, but also feel an enormous sense of responsibility to those who reviewed and validated my research project."

After undergraduate studies in his home country of Brazil, Dr. Boa Sorte Silva came to Canada to complete a PhD in kinesiology from Western University, followed by three years of post-doctoral training with Dr. Teresa Liu-Ambrose at UBC, an expert in the study of exercise and brain health. She was the leader of this clinical trial.

Dr. Boa Sorte Silva says he has always been interested in exercise and the promotion of healthy lifestyles, especially in older individuals. But his passion to gain understanding of vascular cognitive impairment developed when he saw how it impacted his own grandmother, "one of the strongest people" he's known, and the woman who raised him.

"Growing up and seeing that happening to someone who was my role model … At some point, I decided to align my interest in exercise research with research on aging," he explains.

Exercise is an effective strategy for blood pressure control, diabetes management, and has widespread brain-health benefits, Dr. Boa Sorte Silva says. People with vascular cognitive impairment tend to have many of these pre-existing conditions.

In the UBC trial, half of participants were randomized in the one-year exercise program with resistance training and the other half into an active exercise program. In addition to measuring the impact on cognition, white matter lesions, and myelin content, the study will determine whether there were improvements in balance and gait speed, which could reduce the risk of falls.

“My grandmother’s journey with dementia inspires me to find ways to prevent or mitigate the disease,” he says. “It is because of her that I have poured my heart into this work.”