

“My research goal is to enhance the quality of life of aging Canadians by keeping older adults independent.”



Jakobi's team investigates how sex-related features of the neuromuscular system contribute to greater functional decline in women compared to men during adult aging.

Jakobi's team offers informative and engaging events to promote equity, diversity and inclusion across Science Technology Engineering and Mathematics (STEM) disciplines for youth and professionals.

Being able to perform regular activities of daily living, extending from self-care to mobility, in and out of the home, requires functional movement.

No surprise, aging is one of the leading causes for functional decline, which leads to a loss of independence for older adults. Maintaining functional movement control is critical to older adults' perception of healthy and satisfying aging. Jakobi's lab conducts research to define how commands from the brain are integrated with feedback from the limbs at the spinal level (spinal integration) to produce functional movements. Her community-based research program aims to understand older adults' physical competence, knowledge and motivation for physical activity to support independence through appropriate exercise approaches for all Canadians. Jakobi leads a campus wide educational outreach program to increase the participation of under-represented groups (for example Indigenous people and women) in Science, Technology, Engineering, and Mathematics (STEM) fields of study and careers.

Main Focus Areas

1. Define age-related alterations in spinal integration for coordinated muscle output in males and females.
2. Apply this physiological understanding to the approach and design of innovative interventions to prolong functional independence.



JENNIFER JAKOBI

About

Jakobi completed her PhD at Western University. Following a Postdoctoral Fellowship at the University of Colorado, Boulder, she took up a faculty position at the University of Windsor, and in 2008, transitioned to UBC Okanagan. Since then, she has held several leadership roles during her tenure that have been integral to the growth and development of undergraduate and graduate programs on campus. She holds active Tri-Council grants from NSERC, CIHR and SSHRC. Most recently, as Associate Chair of Westcoast Women in Engineering Science and Technology (WWEST), Jakobi has contributed to generating a collaborative network of programs and individuals actively undertaking Science, Technology, Engineering and Mathematics (STEM) community engagement. In her personal life, Jakobi exemplifies a physically active lifestyle by biking, running, and enjoying the outdoors with her family.

Research/Teaching Environment

The research goal of Jakobi and her team is to enhance movement capabilities through the development of prehabilitation programs that prolong functional independence in older adults. Her basic research program centres upon identifying the contributions of central descending and sensory reflex pathways to the modulation of motoneuron activity and subsequent effects on force control in women and men (NSERC). The applied research program (SSHRC, CIHR) aims to understand older adults' approaches towards physical activity in order to develop interventions for maintaining lifelong engagement to lessen functional decline. Residents of the Okanagan and students of UBC Okanagan benefit from her active participation and community teaching of Exercise and Aging.

Jakobi developed the integrative STEM Team Advancing Networks of Diversity (iSTAND) program to promote diversity in STEM and explore neuroscience, coding, robotics, and broad sciences with learners of all ages and backgrounds. Working collaboratively with profit and not-for-profit partners, iSTAND creates opportunities for individuals of under-represented groups to experience STEM during day programs and week-long camps. For professionals, she offers workshops and presentations that tackle barriers to diversity and inclusion in STEM including unconscious bias, equitable hiring, and retention initiatives.

Next Stages

Jakobi aims to work with a network of stakeholders and end-users to translate her neuromuscular research into meaningful exercise interventions for older adults.

The iSTAND program continues to work collaboratively with profit and not-for-profit partners locally and globally to build diverse and inclusive environments in STEM.



FEATURED PROJECT

Neuromuscular - Healthy Exercise and Aging Lab (HEAL)

Physical activity lessens functional decline. People who are more physically literate are more likely to be active over time. In the community we are evaluating master's athletes (>50 years) and Indigenous older adults to determine factors contributing to engagement in physical activity through competition and land-cultural activities, respectively.

In the lab we are determining how reflex feedback from the muscle-tendon unit alters excitability of the motoneuron pool in females and males, as a factor in differential age-related decline of functional movement between the sexes.



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