

Publications


PROGRAMME

The Final Oral Examination for the Degree of

DOCTOR OF PHILOSOPHY
Interdisciplinary Studies
(School of Exercise Science, Physical and Health Education & Department of Psychology)

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2008 University of Victoria MSc
2005 University of Waterloo BSc

“The Effects of a Supervised Walking Program on the Cognitive Function, Gait, Fitness and Behaviour of Inactive Older Adults”

Tuesday, August 19, 2014
10:00am
McKinnon Building, room 0025

Supervisory Committee:
Dr. Ryan Rhodes, School of Exercise Science, Physical and Health Education, University of Victoria (Co-Supervisor)
Dr. Holly Tuokko, Department of Psychology, UVic (Co-supervisor)
Dr. Patti-Jean Naylor, School of Exercise Science, Physical and Health Education, UVic (Member)
Dr. Stuart MacDonald, Department of Psychology, UVic (Member)

External Examiner:
Dr. Teresa Liu-Ambrose, Department of Physical Therapy, University of British Columbia

Chair of Oral Examination:
Dr. Richard Keeler, Department of Physics and Astronomy
Abstract

Background & Objectives: Participation in cognitive, social and physical activity (PA) may play a role in prevention of cognitive decline in older adults. Literature supporting the benefits of healthy lifestyle behaviours, especially PA, on cognition continues to accumulate. Moreover, a strong association between gait and cognitive health is increasingly being recognized. Yet, a firm understanding of the individual differences and between-person effects of PA on cognition and gait of older adults is lacking. Thus, the primary objective of the main study was to distinguish the within- and between-person sources of variation in PA on cognition in a group of inactive older adults. Study 2 examined the within- and between-person effects of a) PA on gait and b) gait on cognition. Study 3 examined the social cognitive predictors of walking.

Methods: The between- and within-person of PA on cognition were examined in a single-group longitudinal design. Participants (n=159) were enrolled in a four-month supervised walking program and provided with materials and coaching to promote the adoption of behaviours to enhance and maintain their cognitive health. Group participants walked at least 3 times per week at a brisk intensity and were encouraged to get 150 minutes of moderate-to-vigorous PA per week. At baseline, participants completed measures of social cognitive predictors of walking. Assessments of cognition, diet, fitness, gait, PA and other health behaviours occurred at baseline, and at 6, 9, 12, and 16 weeks follow-up.

Results and Discussion: Multilevel models revealed significant: 1) within-person effects of PA on select measures of executive functioning and 2) consistent between-group effects of cognitive activity, but not other lifestyle behaviours, on cognition. Study 2 revealed consistent significant 1) within-person effects of PA on gait velocity and stride time variability during dual task walking, 2) between-person effects of PA on gait velocity during both dual task and normal walking, and 3) between-person effects of gait velocity and stride time variability on cognition during both normal and dual task walking. Significant within-person effects of gait on cognition were limited. In study 3, self-monitoring emerged as a significant predictor of change in walking.

Conclusion: Distinct patterns of within- and between-person effects on the PA, cognition and gait were observed. Further work will need to continue to clearly elucidate the within- and between-person sources of variation in relations between PA, gait and cognition using well-designed longitudinal and experimental designs.

Awards, Scholarships, Fellowships

2012 Graduate Award, Saanich Rotary Club
2012 Sara Spencer Foundation Research Fellowship
2009-2011 SSHRC, Canada Graduate Scholarship, Doctoral
2007-2009 Alzheimer Society of Canada, Research Award

Presentations