

Brittney Muir
Department of Health and Kinesiology
Lambert Fieldhouse
800 West Stadium Avenue
West Lafayette, Indiana, USA
47907
E-mail: muir@purdue.edu

EDUCATION

Purdue University

West Lafayette, Indiana, USA (August 2011 – Present)

Doctor of Philosophy (PhD) Dual Title in Health & Kinesiology and Gerontology

Advisors: Dr. Shirley Rietdyk & Dr. Jeffery Haddad

The University of Massachusetts

Amherst, Massachusetts, USA. (August 2011- August 2012)

Visiting PhD Student in Kinesiology

Local Advisor: Dr. Richard van Emmerik

Purdue University

West Lafayette, Indiana, USA (August 2009 – August 2011)

Master of Science (M.Sc) in Health & Kinesiology

Advisor: Dr. Shirley Rietdyk

University of Waterloo

Waterloo, Ontario, Canada (September 2003 - April 2007)

Bachelor of Science (B.Sc) in Kinesiology with Honors

ACADEMIC AWARDS AND DISTINCTIONS

Lynn Fellowship, The Center on Aging and the Life Course, Purdue University, West Lafayette, IN, USA.
(four-year award).

Community Integration in Research and Teaching Award (Fall 2010), Department of Health and Kinesiology, Purdue University, West Lafayette, IN, USA.

Donald L. Corrigan Professional Development Grant (Spring 2010), Department of Health and Kinesiology, Purdue University, West Lafayette, IN, USA.

Dale Hanson Award (Spring 2010), Department of Health and Kinesiology, Purdue University, West Lafayette, IN, USA.

HKGSO Professional Development Grant (Spring 2010), Health and Kinesiology Graduate Student Organization, Purdue University, West Lafayette, IN, USA.

PUBLICATIONS

1. Heijnen, M.J.H., **Muir B.C.**, & Rietdyk, S. (2012). *Interpolation Techniques to Reduce Error in Measurement of Toe Clearance during Obstacle Avoidance*. *Journal of Biomechanics*, 45, 196–198.

2. Heijnen, M.J.H., **Muir B.C.**, & Rietdyk, S., (2012). *The Factors Leading to Obstacle Contact during Adaptive Locomotion*. *Experimental Brain Research*, 223, 219-231.

PUBLICATIONS IN REVIEW

1. **Muir, B.C.**, Rietdyk, S., Haddad, J.M. (In Review). *The transition from standing to steady state gait: A comparison of young, old, and old-old adults*. *Gait and Posture*.

PUBLICATIONS IN PREPARATION

1. **Muir, B.C.**, Rietdyk, S., Haddad, J.M., Seaman, J.M. & Heijnen, M.J.H., (In Preparation). *Improving Gait in Older Adults: The Effect of Biodex Balance SystemTM Versus Wobble Board Balance Training*.
2. **Muir, B.C.**, Rietdyk, S., Haddad, J.M. (In Preparation). *Age Related Obstructed Gait Changes: Young, Old and Old Old Adults*
3. Haddad, J.M., Ryu, J.H., Seaman, J.M., **Muir, B.C.**, Rietdyk, S. (In Preparation). *The Integration of Posture and Manual Control in Aged Individuals*.
4. **Muir, B.C.**, Ryu, J.H., Haddad, J.M., Rietdyk, S., Seaman, J.M. (In Preparation). *The Effects Balance Training on Posture and Manual Control in Older Adults*.
5. **Muir, B.C.**, Jewell, C., Averill, J., Amado, A. & van Emmerik, R.A.E. (In Preparation). *Determination of Maximally Independent Time Delays in State Space Reconstruction: A New Twist to Taken's Theorem*.
6. **Muir, B.C.**, Rietdyk, S., van Emmerik, R.A.E., & Haddad, J.M. (In Preparation). *Using Time to Contact to Understand Balance During Adaptive Gait: Current and Virtual Base of Support*.
7. **Muir, B.C.**, Rietdyk, S., van Emmerik, R.A.E., & Haddad, J.M. (In Preparation). *Dynamic Stability during Obstructed Gait in Young Healthy Adults*.

REFERRED CONFERENCE PROCEEDINGS

1. **Muir B.C.**, Rietdyk, S., Haddad, J.M. *The Transition Period Between Initiation And Steady State Gait As A Function Of Advancing Age*. American Collage of Sports Medicine Conference (ACSM), Indianapolis, Indiana, USA (June, 2013; Poster Presentation).
2. **Muir B.C.**, Remelius, J.G., van Emmerik, R.A.E. *New Definitions of Single Support Reveal No Change in Late Stance with Gait Speed*. Canadian Society of Biomechanics (CSB) Conference, Simon Fraser University, Burnaby, British Columbia, Canada (June 2012, Poster presentation).
3. Raffegau, T., Seaman, J.M., Ryu, J.H., **Muir B.C.**, Haddad, J.M., Rietdyk, S. *Balance Training to Improve the Performance of Dual-task Activities in Older Adults*. North American Society for the Psychology of Sport and Physical Activity (NASPAPA), Honolulu, Hawaii, USA (June 2012; Podium presentation).

4. **Muir B.C.**, Rietdyk, S., Haddad, J.M., Seaman, J.M., Heijnen, M.J.H. *The Effects of Balance Training on Obstacle Crossing in Older Adults*. American Society of Biomechanics (ASB) Conference, Long Beach, California, USA (August, 2011; Poster presentation).
5. Heijnen, M.J.H., **Muir B.C.**, and Rietdyk, S. *Increased Toe Clearance Accuracy During Obstacle Avoidance: Validation of Cubic Interpolation to Upsample Kinematic Data*. American Society of Biomechanics (ASB) Conference, Long Beach, California, USA (August, 2011; Poster presentation).
6. Heijnen, M.J.H., **Muir B.C.**, and Rietdyk, S. *Motor Adaptation to Repeated Obstacle Crossing during Locomotion*, Progress in Motor Control (PMC), Cincinnati, OH, USA (July, 2011; Poster presentation).
7. **Muir, B.C.**, Rietdyk, S., Haddad, J.M., Seaman, J.M. *Improving Unobstructed Gait in Older Adults: Biodex Balance SystemTM Versus Wobble Board Balance Training*. Canadian Society of Biomechanics (CSB) Conference, Queens University, Kingston, Ontario, Canada (June 2010; podium presentation).

REGIONAL PRESENTATIONS

1. **Muir B.C.**, Rietdyk, S., Haddad, J.M. *Dynamic Stability during Adaptive Locomotion*, Center on Aging and the Life Course Annual Scholars in the Spotlight Symposium, Purdue University, West Lafayette, Indiana, USA (March 2013).
2. **Muir B.C.**, Rietdyk, S., Haddad, J.M. *Dynamic Stability during Adaptive Locomotion*, Health and Kinesiology Departmental Colloquium, Purdue University, West Lafayette, Indiana, USA (November 2012).
3. **Muir B.C.**, Rietdyk, S., Haddad, J.M., Seaman, J.M., Heijnen, M.J.H. *The Effects of Balance Training on Obstacle Crossing in Older Adults*. Center on Aging and the Life Course Annual Fall Symposium, Purdue University, West Lafayette, Indiana, USA (September 2012; poster presentation).
4. **Muir, B.C.**, Rietdyk, S., Haddad, J.M., Seaman, J.M. *Changes in Gait Parameters as a Result of Balance Training in Older Adults*. Sigma Xi Graduate Student Poster Award Competition, Purdue University, West Lafayette, Indiana, USA (February 2011; poster presentation).
5. **Muir, B.C.**, Rietdyk, S., Haddad, J.M., Seaman, J.M. *Improving Unobstructed Gait in Older Adults: The Effect of New Versus Traditional Balance Therapy*. Center on Aging and the Life Course Annual Fall Symposium, Purdue University, West Lafayette, Indiana, USA (October 2010; poster presentation).

INVITED PRESENTATIONS

Dynamic Stability during Adaptive Locomotion, Health and Kinesiology Departmental Colloquium, Purdue University, West Lafayette, Indiana, USA (November 2012).

The Effects of Balance Training on Gait Parameters in Older Adults, KIN 720: Graduate Seminar University of Massachusetts, Amherst, Massachusetts, USA (February 2012).

FUNDING

Funded Grants

Purdue Research Foundation, Research Grant (2013).

Unfunded Grants

Alexander Graham Bell Canada Graduate Scholarship (2013), National Science and Engineering Research Council of Canada.

Alexander Graham Bell Canada Graduate Scholarship (2012), National Science and Engineering Research Council of Canada.

TEACHING**Purdue University**

West Lafayette, Indiana, USA (August 2009 – August 2011, August 2012 – Present)

Primary instructor

HK 264: Principles of Motor Learning, Development, and Biomechanics

HK 263: Biomechanical Foundations of Motor Skills

HK 112: Aquatics

PES 112: Beginner Swimming

Laboratory instructor

HK 490: Motor Function in Older Adults

HK 490: Biomechanics and Motor Control of Human Gait

HK 263: Biomechanical Foundations of Motor Skills

GUEST LECTURES

2D and 3D Kinematic Analysis, HK 590: Research Methods in Movement and Sport Science, Purdue University, West Lafayette, Indiana, USA (November 2012).

Improving Gait in Older Adults, HK 463: Analysis of Human Motion, Purdue University, West Lafayette, Indiana, USA (March 2010).

ENGAGEMENT PRESENTATIONS

University Place Intervention Research Initiative: 2009-2012. University Place, West Lafayette, Indiana, USA (September 2012).

A Review of Balance, Falls, and Balance Training Literature: Current Studies at Umass. Bangs Community Center, Amherst, Massachusetts, USA (June 2012).

University Place Balance Initiative: Using New Technology to Improve Balance and Mobility. Theresa Dudzik Service Award Runner-up (February 2011).

New Undergraduate Course: Motor Function in Older Adults - Participation Call Out. University Place, West Lafayette, Indiana, USA (August 2010).

Improving Unobstructed Gait in Older Adults: The Effect of Biodex Balance System™ Versus Wobble Board Balance Training. University Place, West Lafayette, Indiana, USA (June 2010).

Balance Workshop. Ismail Centre, Purdue University, West Lafayette, Indiana, USA (April 2010).

Open House: Balance Assessments. University Place, West Lafayette, Indiana, USA (September 2009).

SERVICE

Health and Kinesiology Graduate Student Organization, Purdue University, West Lafayette, IN, USA.
Vice-president (2010)
Chair of the Philanthropy Committee (2010)
Member of 5K committee (2010 & 2011)
Member (2009 – present)

PROFESSIONAL ORGANIZATIONS

American Collage of Sports Medicine, Student Member (March 2013 – present)
American Society of Biomechanics, Student Member (May 2011 – present)
Canadian Society of Biomechanics, Student Member (May 2010 – present)
Ontario Kinesiology Association, Member (June 2007 – present)

COMPUTER SKILLS

MatLab, Microsoft Office, Optotrak, Qualysis Track Manager, SAS, Visual 3D

EMPLOYMENT HISTORY**Canadian Back Institute: Physiotherapy and Rehabilitation Centre**

Oak Ridges, Ontario, Canada (February – August 2009)

Clinical Kinesiologist: Return to Work, WSIB, OHIP, FAS certified, Auto insurance, Reception

C.A.R.E. Physiotherapy and Rehab Centre

Richmond Hill, Ontario, Canada (May 2007 - May 2008)

Clinical Kinesiologist: Athletic training, WSIB, Auto insurance, Reception

Seneca King Day Camp

Seneca College, King City, Ontario, Canada (May – August, 2001 – 2005)

Land Programs Coordinator, Spring staff, Instructor