Department of Physical Therapy
Annual Highlights

Innovation | Education | Inspiration

May 1, 2016 – April 30, 2017: A Year In Review
Our Vision & Mission

As the Department of Physical Therapy at the University of Toronto, we generate international leadership in education and research in physical therapy and rehabilitation science.

We innovate, educate and inspire.

Every day, we work to:

- Educate future and current physical therapists
- Advance practice
- Foster leadership
- Contribute to our community

We continue to improve the health of individuals and communities through the discovery, application and ongoing exchange of knowledge.

Strategic Plan 2017-2019

3 Years, 4 Key Priorities.

We aim to:

- **Lead** research excellence
- **Educate with vision** as Canada’s leading MScPT program
- **Advance** continuing education and academic programming
- **Discover and strengthen** partnerships to support mentorship and exceptional clinical education
Chair’s Message

I am delighted to present the 2016-17 Annual Report for the Department of Physical Therapy.

This year we are celebrating an amazing legacy in physical therapy at the University of Toronto - our 100th year anniversary. The University of Toronto is where physical therapy began in Canada and it continues to be where clinical practice and research blends together to provide unparalleled opportunities for the profession. We held several high-profile events, including a “Conversation with Rick and Amanda Hansen”, at the Royal York Hotel in September.

Our very devoted clinical teaching faculty are providing innovative education models to an incoming class of 100 Masters of Physical Therapy students who are recruited from across Ontario and Canada.

The Ontario Internationally Education Physiotherapy Bridging (OIEPB) Program attracted 26 physical therapists for the comprehensive program who have been educated in international programs. Another 420 therapists will engage in modular components that address the Canadian health care system and exam preparation.

Our exceptional researchers attract research trainees from around the world and this report will highlight some of their tremendous accomplishments that culminated in awards, grants and publications.

We continue to earn recognition worldwide for our excellence in both research and teaching. It is truly an honour to lead and work with such an exceptional team of faculty who are leading the way for the future of physical therapy. This report illuminates some of the accomplishments for the past year.

- Darlene Reid, BMR (PT), PhD, Chair and Professor
Innovation isn’t just about ideas.
It’s making ideas happen.
It’s creating change that unlocks value.
It’s taking action.
Since 2011, we have received almost $25 million in Principal Investigator Research Funds. The grants held by our faculty in 2016/2017 enabled our department to make strides in advancing knowledge and scholarship in the field of rehabilitation.

Principal/Co-Principal Investigators

Brooks, Dina (Principal Investigator). Randomized controlled trial of balance training for fall reduction in individuals with COPD. Canadian Institutes of Health Research (CIHR) Project Grant. PI: Brooks D. Co-Is: Goldstein R, Beachamp M. $902,111 CAD.


Brooks, Dina (Principal Investigator). Measuring the effectiveness of clinician mentorship relationships in physical therapy. Canadian Physiotherapy Association (CPA). The Leadership Division Project Funding. PI: Brooks D. $500 CAD.


Research Grants


Mathur, Sunita (Co-Principal Investigator). Enhancing patient education and recovery after solid organ transplantation. Astellas Pharma. Co-Pls: Janaudis-Ferreira T, Mathur S. $7500 CAD


Musselman, Kristin (Co-Principal Investigator). Restoring upright mobility after spinal cord injury using functional electrical stimulation. EMHSeed Funding Program University of Toronto. Co-Pls: Musselman K, Masani K. $120,000 CAD.


Nixon, Stephanie (Principal Investigator). The Sepo III Study: Advancing chronic disease models of care for people living with hiv in resource-poor settings. Canadian Institutes of Health Research (CIHR) Project Scheme Grant. PI: Nixon S. Co-Pls: Maimbolwa M, Bond VA. Co-I: Menon P. $183,600 CAD.


Nonoyama, Mina (Principal Investigator). A novel device to improve airway intubation safety by providing apneic oxygenation and on-demand suction through the endotracheal tube. HSBC Bank Canada Catalyst Research Grant from The Hospital for Sick Children. PI: Tessaro M, Nonoyama M. Co-Is: Soares D, Karsli C, Looi T. $49,040 CAD.


O’Brien, Kelly (Principal Investigator). HIV, Aging and Chronic Disease: New Frontiers in the Role for Rehabilitation. Canadian Institutes of Health Research – Institute Community Support (ICS) - Travel Award. $2,500 CAD.

Patterson, Kara (Co-Principal Investigator). An investigation of the feasibility of a group and home video dance (GROOVE-D) program to improve gait, balance and mood post-stroke. Canadian Partnership for Stroke Recovery. Co-Pls: Patterson K, Brooks D. $49,747 CAD.

Reid, Darlene (Principal Investigator). Deoxygenation of limb muscles during incremental exercise in persons with interstitial lung disease. Ontario Respiratory Care Society. PI: Reid WD. $19,884.34 CAD.

Reid, Darlene (Principal Investigator). Rehabilitation Aimed at Muscle Performance (RAMP). Canadian Foundation for Innovation. PI: Reid WD. $75,000 CAD.


Brooks, Dina (Co-Investigator). Comparison of cardiac rehabilitation outcomes in individuals with respiratory, cardiac or no comorbidities: A retrospective review. Canadian Respiratory Research Network (CRRN) Emerging Research Leaders Initiative (ERLI) Grant. PI: Beauchamp M. Co-I: Brooks D. $125,000 CAD.


Brooks, Dina (Co-Investigator). Determining the safety of submaximal exercise testing early post-stroke: Improving access to fitness. Physiotherapy Foundation of Canada. NSD-PFC Award for Physiotherapy Research in the Neuroscience. PI: Inness EL. Co-Is: Brooks D, Biasin L, Poon V, Mansfield A, Brunton K, Marzolini S, Bayley M. $5,000 CAD.


Nonoyama, Mika (Co-Investigator). Development & pilot evaluation of an online peer support program for family caregivers of ventilator-assisted individuals with neuromuscular disease living in the community. Muscular Dystrophy Canada Respiratory Care Grant. Pl: Rose L. Co-Is: Nonoyama M, Wasilewski MB, Dale C, McKim D, Road J, Leasa D, Goldstein R, Dennis C-L, King J. $49,998 CAD.


Our faculty are research leaders. Their research programs are progressive, achieving goals aimed to promote changes for improving the health and function of the population.

**Dr. Nancy Salbach**

Her work is to optimize the function, mobility, and physical activity of older adults with balance and mobility limitations from stroke and other chronic conditions by advancing the quality of rehabilitation services and community exercise programs for people with disability.

Many older adults are affected by balance and mobility limitations that commonly result in sedentary behaviour and reduced participation in meaningful activities. This affects not only the individual, but also the family. The Canadian Physical Activity Guideline (www.csep.ca) recommends that older adults participate in “at least 150 minutes of moderate- to vigorous-intensity aerobic physical activity per week, in bouts of 10 minutes or more.” Individuals with poor mobility “should perform physical activities to enhance balance and prevent falls”. Although community exercise programs that involve the practice of functional tasks relevant to daily life can improve balance and mobility, these programs are not widely available. Dr. Salbach’s goal is to change that.

Dr. Salbach leads CAN-ACT (Canadian Advisory Collaborative for TIME™), a national network aimed at facilitating knowledge exchange to inform education, practice, research, and policy to advance implementation of the TIME™ program for people with balance and mobility limitations. TIME™ stands for Together in Movement and Exercise, a community exercise program incorporating a healthcare-recreation partnership for people with balance and mobility limitations. In this partnership, health professionals, such as physical therapists or kinesiologists, train and provide ongoing support to fitness instructors who deliver the exercise program in community centres. The TIME™ program is a licensed, evidence-based program that was developed by physical therapists at the Toronto Rehabilitation Institute-University Health Network (TRI-UHN).

To obtain much-needed research evidence to help expand programs like TIME™, Dr. Salbach is leading a pilot randomized controlled trial (RCT) of the TIME™ program for people with stroke in collaboration with the Ontario Stroke Network, and TRI-UHN, with funding from the Heart & Stroke Foundation of Canada. Study outcomes include not only the physical function of people with stroke, but also caregiver assistance and mental health.

To help older adults experiencing balance and mobility limitations to engage in physical activity to prevent cardiovascular events like stroke, Dr. Salbach is co-leading an RCT of the GO-OUT (Getting Older adults OUTdoors) program with Dr. Ruth Barclay (University of Manitoba) and Dr. Phil Chilibeck (President, Canadian Society for Exercise Physiology), funded by CIHR. The GO-OUT program is designed to improve outdoor mobility among older adults who have difficulty walking outdoors.

Dr. Salbach also develops knowledge tools to facilitate the integration of research evidence into stroke rehabilitation practice. Supported by CIHR, and the Government of Ontario, Dr. Salbach developed the iWalk Toolkit, that includes a guide, a smartphone app, and YouTube videos to help translate an evidence-informed approach to using the 10-metre and 6-minute walk tests, recommended for use across the care continuum. With funding from the Canadian Partnership for Stroke Recovery, the toolkit is being finalized for widespread release.

Step by step, Dr. Salbach is helping people with balance and mobility limitations to keep moving and to exercise.

Visit Dr. Salbach’s Knowledge to Action Lab website to learn more about her ongoing research.
Research Highlights

Dr. Kara Patterson

The overall goal of Dr. Patterson’s research program is to advance neurorehabilitation practice in order to improve gait and mobility outcomes for people living with neurological conditions and, in particular, stroke. Dr. Patterson’s research takes place in the RELEARN lab (REhabilitation of the Lower Extremity AfteR Neurologic injury) which is housed across two sites – the Physical Therapy Department at U of T and the Toronto Rehabilitation Institute-University Centre. She is conducting several studies to investigate the potential roles of rhythm, music and dance in gait and balance rehabilitation after stroke.

Our rhythm abilities are illustrated in everyday life when we are listening to music and tapping our feet or bobbing our head along with the beat. Dr. Patterson assesses these abilities using a computer-based test developed by her collaborators: Dr. Jessica Grahn (Western University) and Dr. Joyce Chen (Canadian Partnership for Stroke Recovery). Preliminary work using this test revealed that rhythm abilities are impaired in people with stroke compared to neurotypical older adults, and Dr. Patterson suspects this may be linked to the altered walking pattern seen after stroke. The normal walking pattern is regular and rhythmical with equal amounts of time spent on each leg. After stroke, the rhythmicity of this pattern is disturbed or asymmetric, with typically a greater amount of time spent on the unaffected leg compared to the leg affected by stroke.

An ongoing study, led by Dr. Patterson and funded by a Collaborative Health Research Project grant (CIHR & NSERC), is examining the relationship between rhythm abilities and the altered rhythmicity of the walking pattern after stroke. Once complete, this work will inform the development of new rehabilitation interventions to improve rhythm in people with stroke with the ultimate goal of improving the walking pattern.

Dance is a global human activity, and interest in using dance as a tool for rehabilitation is growing. Last year, in collaboration with Dr. Dina Brooks, Dr. Patterson completed a pilot study (funded by the Canadian Partnership for Stroke Recovery) that delivered dance classes to people with stroke living in the community. For 10 weeks, the participants attended two 1-hour dance classes a week. Interest in the dance program (there was a waiting list to join) and attendance were both high, which is important for any exercise program to be sustainable and have a benefit. In addition, at the end of the study, the participants had improved scores on a comprehensive balance test. The results of this study are being used to guide an upcoming randomized controlled trial of dance for people with chronic stroke led by Dr. Patterson and funded by the Heart and Stroke Foundation of Canada.

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Dr. Patterson hopes that when it comes to improving gait and mobility after stroke that Gershwin is right: once you’ve got rhythm, perhaps you don’t need to ask for anything more.
The outcomes of our research initiatives are producing valuable knowledge. We are actively translating this knowledge to various stakeholders in the community.

Peer-reviewed Publications (May 1, 2016 - April 30, 2017) = 150

First Author/Senior Author Publications = 109

Highest in publications amongst peer institutions.

bold = faculty member
underline = trainee


Durocher E, Rappolt S, & Gibson BE. Mediators of marginalisation in discharge planning with older adults. *Ageing and Society*. 2016; doi:10.1017/S0144686X1600593


