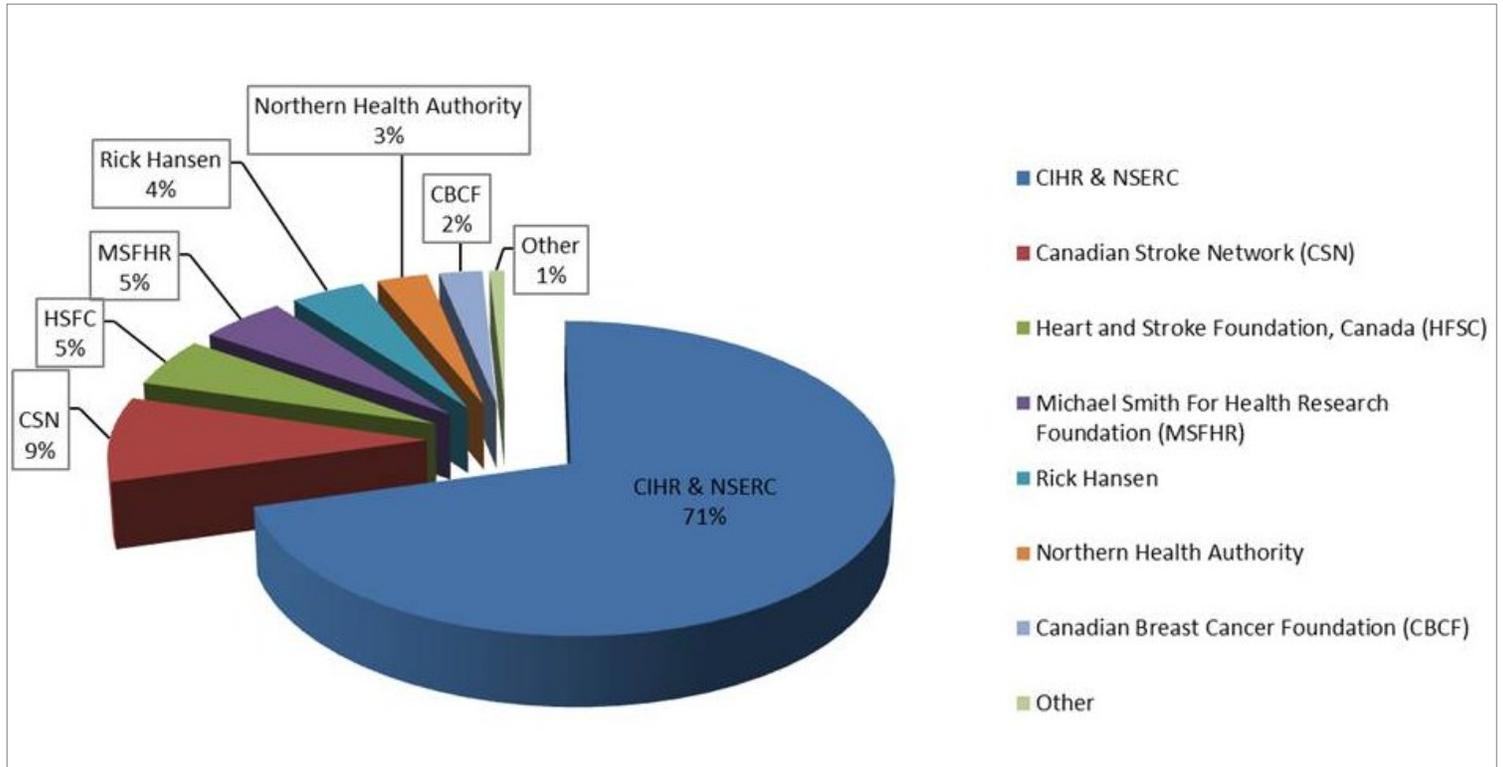


2012 RESEARCH SUMMARY HIGHLIGHTS

SOURCES OF PI OPERATING GRANT FUNDING

2012 = \$6,265,306*



** Other contributing granting agencies: International Collaboration On Repair Discoveries, Canadian Rheumatology Association, Physiotherapy Foundation of Canada, Distant Education Technology, Northern Health, Canadian Lung Association, Peter Wall Institute, University of British Columbia

SUMMARY RESEARCH STATISTICS (JAN 1, 2012 - DEC 31, 2012)

OPERATING GRANT FUNDING

Total PI Grant Funding in 2012 = **\$6,265,306**

*over the tenure of the grants

Total Operating Grant Funding (PI + Collaborative) = **\$11,591,173**

*over the tenure of the grants

TOTAL FUNDING ** (PI + Collaborative) = \$55,645,932

*over the tenure of the grants

**includes funding held in Scholar awards, for equipment and for team grants

PEER REVIEWED PUBLICATIONS

- Published = **103**
- "In Press" = **25**
- In Submission = **51**

Department of Physical Therapy
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 212 - 2177 Wesbrook Mall

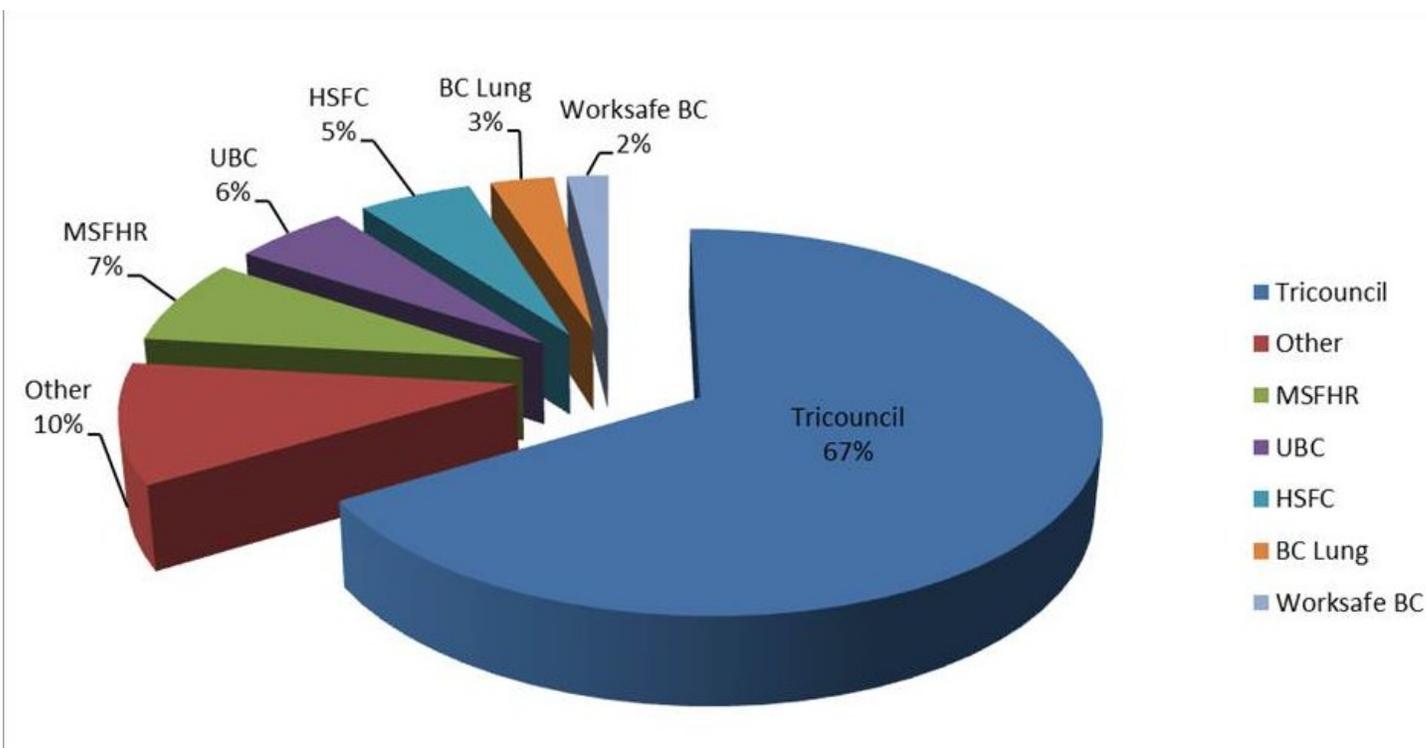
Vancouver, BC Canada V6T 1Z3
 Tel: 604-822-8225



2011 RESEARCH SUMMARY HIGHLIGHTS

Trainees supervised by Department Faculty members come from various high quality programs at UBC including Rehabilitation Sciences, Neuroscience, Population and Public Health and Experimental Medicine. We strive to create outstanding learning and research experiences for our research trainees and offer training in diverse fields of interest using a variety of research methodologies and the latest technology. Our faculty members have an excellent record of scholarly productivity and include several Scholars and Research Chairs.

SOURCES OF RESEARCH TRAINEE FUNDING 2012 = \$ 2,472,582



SUMMARY RESEARCH STATISTICS (JAN 1, 2012 - DEC 31, 2012)

Funding held by trainees in 2012 (over the tenure of the awards)

- M.Sc. Students = \$85,750
- Ph.D. Students = \$1,332,916
- Post-Doctoral Fellows = \$1,053,916

Number of trainees in 2012

- M.Sc. Students = 18
- Ph.D. Students = 19
- Post-Doctoral Fellows = 12

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Research and training in the Department of Physical Therapy would not be possible without the generous support not only from the funding agencies listed but of our health authority partners, our professional organization and affiliated research centres:

Arthritis Research Centre

Biomedical Research Centre

The Brain Research Centre

Canadian Breast Cancer Foundation BC/Yukon and Canadian Cancer Society BC/Yukon

Cancer Control Program at British Columbia Cancer Research Centre

Centre for Hip Health and Mobility

Child and Family Research Institute

Computing, Information and Cognitive Systems

International Collaboration on Repair Discoveries

James Hogg iCAPTURE Centre

Northern Health Authority

Providence Health Care Research Institute

Physiotherapy Association of British Columbia

Robert H.N. Ho Research Centre

Vancouver Coastal Research Institute

In 2012 Several faculty members were supported by Michael Smith for Health Research Scholar Awards: Lara Boyd, Pat Camp, Michael Hunt, Linda Li, Teresa Liu-Ambrose and Alex Scott all are supported by MSFHR Scholar awards and Janice Eng a Senior Scholar award. Lara Boyd is also a Canada Research Chair in Neurobiology of Motor Learning. Teresa Liu-Ambrose is also a Canada Research Chair in Physical Activity, Mobility, Cognitive Neuroscience and CIHR New Investigator. Linda Li is supported by the only Chair in arthritis rehabilitation research in Canada, The Harold Robinson-Arthritis Society Chair in Arthritic Diseases and is also a CIHR New Investigator and an American College of Rheumatology Research & Education Foundation Health Professional New Investigator.

Pulmonary Rehabilitation and Exercise Physiology Laboratory (PREP)

Faculty: *Dr. Jordan Guenette*

jordan.guenette@hli.ubc.ca

The focus of the PREP lab is to better understand the physiological factors that limit exercise tolerance across the spectrum of health and chronic lung disease. The lab uses a number of novel techniques to simultaneously assess the respiratory, cardiovascular, muscular and neuro-physiological responses to dynamic exercise. This integrative approach allows us to better understand how these various physiological systems interact to cause exercise intolerance in humans. We then design and test novel rehabilitation interventions to reduce symptoms and improve exercise performance, improve and quality of life for patients suffering from chronic lung diseases.

Neural Control of Force Production and Movement

Faculty: *Dr. Jayne Garland*

jayne.garland@ubc.ca

On top of her duties as department head, Dr. Garland maintains a very active research laboratory. Her research has two main foci: neural control of force production and movement, particularly under conditions of muscle fatigue; and recovery of motor control following stroke, with emphasis on postural control. She employs sophisticated single motor unit analysis to investigate fundamental motor control principles as well as force platform technology to measure postural sway and isokinetic equipment to measure force production.

Motion Analysis and Biofeedback Laboratory

<http://mablab.rehab.med.ubc.ca/>

Faculty: *Dr. Michael Hunt*

michael.hunt@ubc.ca

Dr. Hunt's research focus is in the area of clinical biomechanics with a particular emphasis on knee injuries. His previous work has examined the effectiveness of surgical and exercise interventions on knee biomechanics and quality of life in patients with knee osteoarthritis. He typically uses various testing methods for his research, including motion analysis and strength assessment, he plans, evaluates, and implements the use of visual feedback mechanisms to improve gait retraining strategies for patients with varying pathologies. His clinical and teaching interests lie in the areas of clinical and orthopaedic biomechanics as well as musculoskeletal injuries.

Clinical Exercise Physiology Laboratory

<http://cepl.rehab.med.ubc.ca/>

Faculty: *Dr. Kristin Campbell*

kristin.campbell@ubc.ca

Dr. Campbell's research interests are focused on the role of physical activity in the prevention and rehabilitation of chronic disease, particularly cancer. She has investigated the role of physical activity in cancer prevention by examining the effect of exercise on proposed biomarkers of breast and colon cancer risk, such as sex hormones, inflammatory markers and tissue protein expression. In terms of rehabilitation from cancer treatment and cancer survivors, her research has focused on examining the benefits of physical activity on physical function, quality of life, fatigue and lymphedema, and she is interested in starting to examine the emerging evidence for the role of physical activity in lowering risk of cancer recurrence. Her research spans a range from small scale intervention studies to multi-center randomized controlled trials and large cohort studies.

Rehabilitation Aimed at Muscle Performance & Muscle Biophysics Laboratory

Faculty: *Dr. Darlene Reid*

darlene.reid@ubc.ca

Dr. Reid's primary research focus is training and overuse of inspiratory and limb muscles in people with chronic disease; pulmonary rehabilitation, and knowledge translation. This includes quantitative morphometry of structures imaged at macroscopic level in addition to functional measures that include: strength, endurance, exercise capacity, and functional performance measures. Dr. Reid directs the Muscle Biophysics Laboratory, a 1500 square clinical lab space located within the largest teaching hospital site in Vancouver. Dr. Reid supervises research trainees at the MSc, PhD and PDF level in Rehabilitation Sciences, Human Kinetics and Experimental Medicine. Graduate students can apply for funding to the BC Lung Association Rehabilitation Fellowship in addition to other sources.

Tendon Pathophysiology, Injury Prevention and Rehabilitation

Faculty: *Dr. Alex Scott*

alex.scott@ubc.ca

The goal of Dr. Scott's research group is to understand the influence of movement on tendon biology, and to incorporate this knowledge into new clinical strategies for tendonopathy. New treatments currently being examined include movement based therapies including Intramuscular Stimulation, and novel drug strategies (preclinical research). Research is conducted from the cellular level (human tendon cell cultures) to the clinical (with tendinopathy patients).

Aging, Mobility and Cognitive Neuroscience Laboratory

<http://cogmob.rehab.med.ubc.ca/>

Faculty: *Dr. Teresa Liu-Ambrose*

teresa.ambrose@ubc.ca

Dr. Liu-Ambrose is a member of the UBC Brain Research Centre and a principal investigator of the CFI-funded Centre for Hip Health, located on the 3rd floor of the Willow Chest Centre at VCHRI. The centre brings together researchers from a wide range of disciplines to investigate and treat persons with hip fractures and osteoarthritis, and create new surgical solutions. Dr. Liu-Ambrose's research program focuses on reducing the incidence of falls and fall-related fractures in older adults, using a transdisciplinary approach, and collaborates with experts in psychology, neuro-imaging, geriatrics, kinesiology and health care and epidemiology.

Physical Activity and Exercise in Chronic Lung Disease Laboratory

Faculty: *Dr. Pat Camp*

pat.camp@hli.ubc.ca

Dr. Pat Camp is a physical therapist and clinician-scientist at St. Paul's Hospital. Her position is the first clinician-scientist appointment jointly supported by the University of British Columbia Department of Physical Therapy and the Providence Health Care Research Institute. As the head of the St. Paul's Hospital Respiratory Rehabilitation Program, Dr. Camp directs the clinical care and research activities associated with the program. Her research focuses on strategies to improve physical activity and health outcomes in individuals with chronic lung disease, including COPD, pulmonary fibrosis and cystic fibrosis, and identifying innovative ways to improve the delivery of respiratory rehabilitation to Canadians.

Brain Development: Perception to Action

<http://ipal-pt-med.sites.olt.ubc.ca>

Faculty: *Dr. Naznin Virji-Babul*

naznin.virji-babul@ubc.ca

Dr. Virji-Babul is a physical therapist and a neuroscientist. Her group uses a combination of behavioural and brain imaging tools (i.e., MEG) to probe the brain and investigate the patterns of brain activation as they relate to perceptual-motor and social-emotional development in children and adults with developmental disabilities. Dr. Virji-Babul has more recently begun investigating a new area of research related to the impact of sports concussions in adolescents. By using a combination of DTI and EEG, her research goal is to investigate the structural and functional impact on the brain following concussion.

Arthritis, Joint Health & Knowledge Translation Research Program

<http://arthritis.rehab.med.ubc.ca/>

Faculty: *Dr. Linda Li*

lli@arthritisresearch.ca

Dr. Li's research program is located at the Arthritis Research Centre of Canada (ARC). Affiliated with UBC and VCHRI, ARC conducts patient/consumer driven clinical and health services research. Dr. Li's work focuses on optimizing the health of people with arthritis by: 1) understanding how individuals make treatment decisions, and 2) studying the role of digital media in improving the uptake of effective treatment. By collaborating with leading experts in computer science, sociology, health psychology, health economics and visual arts, her research aims to improve the quality of care and health outcomes of people living with arthritis.

Knowledge Broker

Faculty: *Alison Hoens*

alison.hoens@ubc.ca

Alison helps bring research to clinical practice and practice into our research through clinical connections and project facilitation.

Brain Behaviour Laboratory

<http://brain.rehab.med.ubc.ca/>

Faculty: Dr. Lara Boyd

lara.boyd@ubc.ca

The Brain Behaviour Laboratory, led by Dr. Lara Boyd, is located on the third floor of UBC Hospital. The Brain Behaviour Laboratory examines the relationships between brain function and behaviour after central nervous system damage from stroke. The lab integrates two fields of study: the neurobiology of motor learning and the neural science of stroke recovery, in order to understand how best to stimulate neural plasticity to facilitate motor learning and recovery of function after stroke or other forms of acquired brain injury. Ultimately, the goal of this work is to understand how the stroke-damaged brain learns in order to inform rehabilitation interventions.

Interprofessional Education and Practice

Faculty: Dr. Lesley Bainbridge

lesleyb@interchange.ubc.ca

Dr. Bainbridge is the Director of Interprofessional Education, Faculty of Medicine, and Associate Principal, College of Health Disciplines. Her office is located on the 4th floor of the Woodward Instructional Resources Centre at UBC. Her research program is aimed primarily at understanding interprofessional education (IPE) and collaborative practice in health. Specific research initiatives include the testing of an Interprofessional education model that enables integration of IPE into any curriculum using pain management as the pilot, examining the role of patient or community teachers in an IPE context, exploring the role of narrative to break down interprofessional barriers and examining the links between interprofessional collaboration and health human resource issues such as retention and recruitment.

Neurological Rehabilitation

<http://neurorehab.med.ubc.ca/>

Faculty: Dr. Janice Eng

janice.eng@ubc.ca

Dr. Eng's program is located in the Rehabilitation Research Laboratory (GF Strong Rehab Centre, Vancouver Coastal Health). This laboratory serves as a multi-user, interdisciplinary facility dedicated to excellence in rehabilitation research. Dr. Eng's clinical trials have measured the effects of rehabilitation treatments on mobility, arm and hand function, cardiovascular fitness, balance, falls, bone density and quality of life in people with stroke and spinal cord injury. She works closely with clinicians, the Canada Stroke Network, ICORD (International Collaboration on Repair Discoveries) spinal cord research centre, and the Brain Research Centre to develop collaborative research projects which span mechanistic research, clinical trials to best practice implementation.

Health, Lifestyle and Cultural Diversity

Faculty: Dr. Elizabeth Dean

elizabeth.dean@ubc.ca

Dr. Dean has a primary interest in promoting physical therapy practice that is consistent with global epidemiological indicators in the 21st century, including the promotion of health, and the effectiveness of non invasive interventions (e.g., health education and exercise) and the prevention of lifestyle conditions. Her research focuses on health and the global crisis of conditions such as heart disease, smoking-related disorders, cancer, hypertension and stroke, obesity, diabetes and osteoporosis. Her investigations cover ways of maximizing health outcomes using health education and exercise in culturally diverse populations. She focuses on multicultural populations in Canada and internationally. Currently she is focusing on knowledge translation of existing and new knowledge that promotes health and wellbeing, and the integration of this knowledge by physical therapists globally in their practices to address the health care needs of their countries in the 21st century at both the health policy and individual levels.