

## McGill University Research Centre for Physical Activity and Health

**1. Identification****a. Name**

McGill University Research Centre for Physical Activity and Health

**b. Location**

Department of Kinesiology and Physical Education, 475 Pine Avenue, Montreal (QC), Canada, H2W1S4

**c. Faculties**

Faculty of Education (Lead faculty)

**d. Name of proposer**

Professor Theodore Milner, Chair, Department of Kinesiology and Physical Education, Faculty of Education, McGill University

**2. Rationale****a. Context**

The *Research Centre for Physical Activity and Health* at McGill University builds on evidence that is undeniable: physical inactivity is a major underlying cause for disease and disability. Inactivity doubles the risk of cardiovascular disease, type 2 diabetes and obesity and increases the risks of colon and breast cancer, high blood pressure, lipid disorders, osteoporosis, depression and anxiety. In addition to enhancing quality of life as one ages, regular exercise and physical activity optimize emotional, psychological and physical well-being along the health continuum and throughout the lifespan, and are recognized as cornerstones in the clinical management and prevention of a number of chronic diseases and disorders.

Resolving the pressing public health problems related to a sedentary lifestyle and chronic disease will require a comprehensive approach that takes into consideration educational, environmental and physiological factors to yield effective approaches designed to promote healthy lifestyle patterns and behavior. Finding workable solutions will require multidisciplinary research to develop and evaluate approaches to reversing the detrimental effects of a sedentary lifestyle, adapting activities to physical and physiological challenges, including those associated with chronic disease and normal aging. How can physical activity and exercise be tailored to meet particular needs, to prevent injury or to enhance functional ability? What exercise approach is more appropriate to reach set therapeutic objectives while respecting the individual's preferences for activity and environmental constraints? How can physical activity be used to develop better coping strategies or improve psychological well-being? These questions require an in-depth understanding of factors affecting the choice of exercise modality and practices and the effects of physical activity on cells and tissues – or on the individual as a whole – whether young or old, in health or disease. The Centre will promote the study of physical activity, health and well-being from a multidisciplinary perspective, linking different axes of research and investigators to provide an all-encompassing approach in addressing the issues.

**b. History of physical education and physical activity research**

In May 1912, a summer course to prepare physical education specialists began a long McGill tradition of quality education. Unique in its day, this early preparation of physical educators included anatomy, histology, and exercise physiology in addition to professional activities. A B.Sc. (P.E.) degree was first granted in 1946 to three students after the McGill School of Physical Education (MSPE) was moved to

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the Faculty of Medicine. When the Faculty of Education was initiated in 1965 the MSPE became a Department of Physical Education, its students now receiving B.Ed. degrees. A new B.Sc. degree in Kinesiology was created in 2004, the first students graduating in 2006.

This was in keeping with the North American trend to recognize the birth of a discipline targeting exercise sciences. In 1891, the Department of Anatomy, Physiology and Physical Training within the Lawrence Scientific School at Harvard University implemented a rigorous 4-year science curriculum requiring 2 years in physics, 3 years in chemistry as well as courses in medical and general physiology including theory and laboratory courses in "exercise physiology". Although formal instruction and training of future researchers in exercise physiology existed before 1900, a formal disciplinary recognition dates back to 1927 at which time the Harvard Fatigue Laboratory was established to study the physiological, psychological and sociological responses of workers in industry to stressful stimuli including physical work.

After World War II an expansion in educational institutions was observed across North America and Europe and exercise physiology became an integral part of most physical education programmes. The expansion of foundation sciences in work and exercise physiology led to the creation in 1954 of the American College of Sports Medicine (ACSM). Journals interested in publishing research findings in exercise physiology started to appear such as "Medicine and Science in Sports" the journal of the ACSM or the Journal of Applied Physiology published by the American Physiological Society. In the US, the landmark "Conant Report" of 1963 recognized the need for rigorous science requirements and in-depth preparation in exercise physiology as well as scientifically qualified supervisors for doctoral programmes and triggered the creation of graduate disciplinary training programmes. Canada was a leader, as in 1967, the University of Waterloo established the "Department of Kinesiology", the first in North America to offer programmes in exercise physiology or other exercise sciences without having to be academically trained as teachers. This was followed in 1971 with the establishment of the Department of Exercise Science by the University of Massachusetts, followed shortly by the Department of Kinesiology at UCLA and at the University of Washington. The Canadian Association of Sport Sciences (CASS) was also created in 1967 to represent all disciplines in Exercise Science namely, physiology of exercise, biomechanics, psychology of sports and motor development.

The evolution of the field over the last 40 years has been exponential, most particularly on account of the publication in 1996 of the report by acting Surgeon General, Audrey F. Manley on Physical Activity and Health. The report, a collaborative effort of close to 200 American and Canadian exercise scientists, summarised a diverse literature on the role of physical activity in disease prevention, as well as physical and mental well-being and on the need to develop effective strategic social lifestyle interventions to increase the level of physical activity. The report provided impetus for universities to ensure appropriate training for individuals to assess, design and monitor physical activity across the lifespan in healthy as well as unhealthy populations. The report also recognised the science of physical activity as complex and still-developing field contributing strong evidence on the interaction between physical activity and health and stressed the need for more research.

The Surgeon General's report also coincided in time with the Ministry of Education's reform to reshape its school physical education curriculum to a new "physical and health education" perspective. At McGill, a shift in program content and consolidation of research axes within the framework of physical activity and health started appearing shortly after. Between 1999 and 2010, the Department of Kinesiology and Physical Education was transformed in many ways. First in its designation, second in its programs with resulting changes in admissions criteria and degree designations, but third and most

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importantly, in its tenure track academic staff. On account of a wave of retirements and intense and focused academic renewal, the Department hired some 10 tenure track academic staff with documented track records of research excellence in physiological, behavioral or mechanical aspects of research related to Physical Activity Sciences. Through Leading Opportunity Funding (LOF) from the Canadian Foundation for Innovation, five of these researchers established laboratories within the west and east wings of the Currie Gymnasium developing research programs through peer-review funding from CIHR, NSERC and SSHRC, in addition to FRSQ Chercheur-boursier and CIHR New Investigator awards. Most academic staff have developed research collaborations with colleagues in health-related fields and many also hold associate membership status with an academic or clinical unit from the Faculty of Medicine or the MUHC, such as the School of Physical & Occupational Therapy, the Department of Family Medicine, the Respiratory Division of the MUHC, the Department of Biomedical Engineering, the Department of Neurosurgery and the MNI. Departmental researchers, their collaborators and their Master's, doctoral and post-doctoral trainees are already spearheading new initiatives that cut across administrative and disciplinary boundaries to pioneer novel exercise strategies and lifestyle interventions, to develop innovative equipment and to bridge the gaps in our understanding of physical activity, exercise and lifestyle in optimizing health, managing and coping with physical and psychological repercussions of chronic health conditions, and functional disabilities or disorders.

The possibilities for the Department of Kinesiology to integrate its academic program, research and undergraduate kinesiology internship activities were enhanced when Dr. Ross Andersen, who joined McGill from John Hopkins University, received concurrent CFI funding with his CIHR Tier I CRC in Physical Activity and Health Promotion. The CFI funds were used as seed funding to transform a portion of the Currie Gym into a research facility with purpose-built rooms for physical activity, anthropometric and physiological assessment, biopsy and blood sampling, consultation and meetings. The facility is envisaged as a hub where research being conducted in the various labs of the Department of Kinesiology and Physical Education converges, providing an avenue for the transfer of knowledge from research being conducted in these labs to students in undergraduate and graduate programs in Kinesiology. The ultimate aim is to train students in effective approaches for engaging individuals in healthy lifestyles and physical activity designed to improve their health, particularly those with acute or chronic health impairments. The initial renovation to the Currie Gym was completed in November 2010 and the facility is currently being used to acquire pilot data for grant applications and to host meetings between researchers from different units to discuss potential collaborative research projects. Concurrently, a departmental program committee is reviewing the current undergraduate curriculum in regard to the ACSM Clinical Exercise Specialist certification requirements. A new stream in Clinical Exercise Practice is being developed which will incorporate these certification requirements; discussions are on-going with the various collaborating research units and academic Centres from the MUHC and affiliated hospitals for hosting student practicum placements. An example of these collaborative projects is one examining the efficacy of an exercise training intervention with Kidney Transplant patients, which will start in January 2012 with Dr. Ivan Musci, Dr. Marcelo Cantarovich and Dr. Dana Baran (from the Division of Nephrology of the MUHC). The new research facility in the Currie Gym is envisaged as a primary venue for practical training in physiological assessment and exercise prescription, providing students with exposure to chronic disease patients. In addition to healthy individuals and individuals with musculoskeletal injuries, who normally visit the Currie Gym, opportunities currently exist for research and physical activity projects involving bariatric surgery patients, kidney transplant patients, breast cancer survivors, diabetes patients and patients with chronic obstructive pulmonary disease.

### 3. Description and Objectives

#### a. Description

The driving force behind the creation of the *Research Centre for Physical Activity and Health* is the need to unite specialists from many areas of research in a multidisciplinary Centre to investigate the implications of physical activity on health and wellbeing. It aims to be a Centre of excellence where scientists collaborate in research that spans behavioral, physiological and physical sciences. Furthermore, the Centre aims to bridge the gap between basic sciences associated with health (e.g. cellular physiology) and applied sciences (e.g. clinical exercise physiology), by providing opportunities for multidisciplinary research. To meet this objective, the Centre will integrate the research expertise in the Department of Kinesiology and Physical Education of the Faculty of Education at McGill University with the expertise of clinical collaborators. The Centre will provide the expertise to address issues related to *Physiological, Neuromechanical or Behavioral* aspects of human physical activity and healthy living.

***Physiological aspects*** are related to the physics and biology of muscle metabolism and force production, including investigation of how exercise interventions may mitigate the functional decline associated with aging or with chronic health disorders. Researchers are examining adaptive plasticity of skeletal and cardiac muscle in health, disease, and aging and exploring new exercise intervention strategies as adjuncts to clinical management of various chronic respiratory, circulatory or metabolic disorders.

***Neuromechanical aspects*** target issues related to how humans control movement and interact physically with their environment. This includes both aspects related to the neural control of movement and to the prevention of injury associated with physical activity, whether in recreational or workplace settings. Research is being conducted to understand how the ability to control posture and movement is affected by aging, brain injury and neurodegenerative disorders and how repeated activities may increase the risk of musculoskeletal disorders. This knowledge is being used to develop interventions for rehabilitation and reduction of injury risk. Similarly, industry-partnered research is being conducted to evaluate sports equipment from the perspectives of performance and safety, i.e. injury prevention. The Department of Kinesiology & Physical Education has approval for the recruitment of a new tenure tract faculty member in this area.

***Behavioral aspects*** focus on psychosocial issues that influence incorporation of physical activity into lifestyle and the psychology of team sports. Exercise and health psychology addresses questions related to psychosocial determinants of healthy behavior including the relation between physical activity and emotional well-being in healthy individuals, young and old, as well as in individuals with impaired health. Issues of self-regulation, play and movement skill proficiency are investigated in healthy individuals as well as those with impaired movement capability and impaired cognitive function, including conditions such as attention-deficit hyperactivity disorder (ADHD) and autism. Research being conducted in the area of sports psychology examines determinants of coaching expertise, team building, psychology of athletic injuries (concussions) and violence in sport, a pressing issue these days.

#### b. Missions and Goals

The Department of Kinesiology and Physical Education is ideally positioned to spearhead new initiatives aimed at improving health and physical activity practices across the lifespan and enhancing the quality of life for those with chronic disease. The Department's mission is to generate, advance and disseminate knowledge about human health and physical activity to foster healthy lifestyles and improved quality of life for all.

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The Research Centre for Physical Activity and Health will integrate research programs in the Department of Kinesiology and Physical Education with clinical activities of the McGill University Health Centre and affiliated hospitals. The Research Centre aims to become the focus of research and academic training activities related to exercise, health and well-being at McGill University. It has the specific objectives of

- addressing fundamental research questions related to why and how physical activity affects health
- bringing clinicians and researchers together to develop effective physical activity interventions for chronic health problems
- translating knowledge gained through research into community outreach activities to promote healthier lifestyles through appropriate physical activity and diet

### c. Location and laboratories

The administrative functions of the Centre will be located in the Department of Kinesiology and Physical Education in McGill University's Faculty of Education. Research activities will take place both within the confines of the Currie Gym and beyond, given that some of the research projects are community-based and others are conducted in clinical facilities in the greater Montreal region.

A newly developed facility with state-of-the-art equipment for physical activity research located near other research laboratories in the Currie Gym will serve as the focal point for research and training activities of the Centre. The Centre also includes a neuromuscular control lab, a balance and voluntary movement lab, an integrated clinical exercise physiology lab, a muscle physiology and biophysics lab, a biomechanics lab for applied ice hockey equipment research, a health and exercise psychology lab, a sport psychology lab and an adapted physical activity lab. In addition, faculty members have research facilities at several locations within the MUHC or its affiliated hospitals.

### d. Research profiles

The current researchers in the Department of Kinesiology and Physical Education have contributed to the advancement of knowledge in many areas of science associated with the three main axes of the Centre's research.

#### **Physiological aspects**

**Dr. Ross Andersen** (Full Professor), an associate member with the Department of Family Medicine, recently joined McGill from Johns Hopkins University to accept a Tier I, Canada Research Chair in Physical Activity, Health Promotion and Lifestyle. Professor Andersen is a leading expert in the area of obesity and weight management and uses a multi-disciplinary approach to better define the links between physical inactivity, obesity and metabolic diseases; to examine the impact of changes in body weight on bone health or more specifically on the extent of osteoarthritis resulting from excessive joint loading; or on the extent to which obesity contributes to a reduction of muscle mass and functional ability. Through collaborations with colleagues in the Faculty of Medicine and the School Dietetics and Human Nutrition, his research investigates the role that physical activity plays in the management of body weight in overweight youth and adults as well as following bariatric surgery in individuals suffering from serious clinical obesity and proposes novel nutritional and exercise weight loss strategies to promote active lifestyle. Collaborating with a team of 30 public and private partners, including government agencies, universities, and private firms from the United States, Europe, and Canada, Dr.

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Andersen has also been involved in developing the next generation prosthetic arm that will look, feel, perform and be controlled like a natural limb.

Dr. **Russ Hepple** (Associate Professor; Interim Director of McGill Research Centre for Physical Activity and Health), who is also a member with the Department of Critical Care Medicine, Research Institute of the MUHC, and Meakins-Christie Laboratories, is a muscle physiologist with a particular interest in the mechanisms underlying the age-related loss of muscle mass and function. Current projects in his lab are aimed at understanding the involvement of mitochondria in mediating the atrophy of aging muscle, and specifically whether this occurs secondary to intrinsic dysfunction of the mitochondrion (e.g., increased sensitivity of the apoptosis-regulating mitochondrial permeability transition pore or elevated reactive oxygen species generation) or whether failed re-innervation of muscle fibers results in activation of mitochondrial-mediated pathways of proteolysis. In addition, Dr. Hepple is pursuing experiments to evaluate the efficacy of adeno-associated virus mediated up-regulation of factors that protect the integrity of the neuromuscular junction to determine whether this can attenuate the severity of muscle atrophy with aging. Dr. Hepple uses rodent models in his research, with complementary measures made in human muscle biopsies obtained from aging populations, and employs methods including muscle physiology (in situ muscle contraction and metabolic function), mitochondrial function (respirometry, and fluorometric measures of reactive oxygen species production and mitochondrial permeability transition pore function), in situ labeling of muscle cross sections (histochemical and immunofluorescent approaches to characterize muscle phenotype, innervation status, and signaling pathways), real time quantitative RT-PCR, and Western immunoblotting. He is currently funded by CIHR and has been a scientist funded by the Heart & Stroke Foundation of Canada, CIHR, and the Alberta Heritage Foundation for many years before joining McGill. Dr. Hepple recently served as a member of the CIHR Institute of Aging Advisory Board (2006-09), currently serves on both a CIHR grant review panel and an NIH Study Section, and is a member of the Editorial Boards of the *American Journal of Physiology Regulatory Integrative & Comparative Physiology* and the open access journal *Frontiers in Physiology*.

Dr. **Dennis Jensen** (Assistant Professor) focuses on identifying the physiological and pathophysiological mechanisms of exercise intolerance and activity-related breathlessness in variants of health (e.g., elderly, pregnancy, obesity) and in patients with chronic cardio respiratory disease (e.g., bronchitis, emphysema, pulmonary hypertension, etc.). Using an integrative physiological approach, Dr. Jensen examines the physiological and pathophysiological abnormalities of respiratory mechanical/muscular function, pulmonary gas exchange, cardiovascular and peripheral locomotor muscle function, ventilatory control, acid-base balance and their complex interaction(s) relevant to the origin of breathlessness and exercise intolerance in these populations. This information, in turn, contributes to the development of effective treatments/interventions aimed at improving the management of exertional symptoms in patients with chronic disease.

Dr. **Hélène Perrault** (Full Professor) is a clinical exercise physiologist. Holder of a Ph.D. in Exercise Physiology (1983) from the Université de Montréal, she has pursued a research career in Clinical Exercise Physiology, first as a research associate in the Department of Cardiology and Respiratory Medicine of Ste-Justine Pediatric Hospital between 1985 and 1998 followed by a two-year professorship at the Université Joseph Fourier (Grenoble, France). Since 2000, she is a medical scientist in the Respiratory Division of McGill University Health Centre and an active member of the Respiratory Clinical Research Unit (RECRU) and co-founder of the Clinical Exercise Physiology laboratory at the Montreal Chest Institute site. A past-president of the Canadian Society for Exercise Physiology (1993-1996), Dr Perrault has, and continues to foster academic and research collaborations between exercise sciences and medicine for health promotion, advancement of knowledge and the development of therapeutic

modalities and applications. She has supervised the work of numerous graduate students, which focused primarily on the physiology and/or the functional repercussions of operated congenital heart disease and/or chronic lung disorders. Through funding from the FRSQ, NSERC, CIHR as well as the pharmaceutical industry, her research areas include circulatory and respiratory exercise physiology and pathophysiology. Research methodologies involve an integrative physiological approach to examine the systemic and cellular mechanisms underlying normal and abnormal cardio-respiratory responses to acute or chronic exercise.

**Dr. Dilson E. Rassier** (Associate Professor) has research expertise in Biophysics applied to the contractile units of skeletal muscles. His approach is based on the use of emerging scientific technologies to explore how muscles contract and generate force. Using devices that measure 100 millionth of a millimeter in size, he examines how molecules that make up the muscle cell interact to produce the muscle contraction. Dr. Rassier's experiments have challenged some of the main paradigms in the field of muscle contraction, and have generated much debate in the scientific community. He uses experimental preparations that range from single molecules to whole muscles, and examines how disease conditions such as chronic heart disease or muscle dystrophy affect the molecular interactions with a single cardiac or skeletal muscle cells to produce force. His unique experimental set-up allows him to examine how interventions such as exercise or pharmacological treatments (or a combination of these) affect the way muscles contract or the force that they can produce. This approach fosters multidisciplinary collaboration with researchers in physiology, biophysics, biomechanics and molecular biology to investigate muscle contraction in a variety of situations. Dr. Rassier has been funded by several CIHR grants (operating, instrumentation, high-risk), NSERC (operating and tools-equipment) and FRSQ (Chercheurs-boursier). He also received significant funds from CFI to build his state-of-art laboratory.

**Dr. Tanja Taivassalo** (Associate Professor) is an associate member and medical scientist with the Montreal Neurological Institute and the Respiratory axis of the McGill University Health Centre. She has gained worldwide recognition in the field of neuromuscular diseases for her pioneering work in the use of exercise conditioning to help patients suffering from mitochondrial myopathy, a rare genetic muscle disease affecting the mitochondria, a specific structure of our cells responsible for the steady production of energy. Through her research Dr. Taivassalo continues to explore the links between exercise intolerance, loss of skeletal muscle mass and muscle strength deficits and dysfunctions of the mitochondria in healthy individuals with advancing age or in those with known genetic mitochondrial diseases, patients who have received chemotherapy treatments for cancer or those with poor exercise tolerance such as individuals with chronic respiratory disease. Her research team continues to design and apply innovative exercise or movement-enhancing interventions to explore how these can induce a normal adaptive response of mitochondrial biogenesis to increase levels of functional mitochondria thereby enhancing cellular energy production and exercise tolerance and improving quality of life. Dr. Taivassalo has been funded by CIHR, NSERC and FRSQ (Chercheurs-boursier). She has received significant funds from CFI to build her integrative laboratory, which analyses muscle and mitochondrial function across a continuum of health, aging, and disease.

### **Neuromechanical aspects**

**Dr. Julie Côté** (Associate Professor) a medical scientist with the Jewish Rehabilitation Institute investigates the biomechanics of complex human movement and uses electromyography, kinematic and kinetic approaches to study the influence of whiplash injuries and repetitive motion disorders on posture and movement. She also conducts research on running, prosthesis and orthotic wear, and gait

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acquisition throughout the lifespan. Dr. Côté was awarded a CFI grant to set up her research laboratory at the Jewish Rehabilitation Hospital, where she investigates musculoskeletal disorders associated with the workplace. She was a recipient of an award from FRSQ (Chercheurs-boursier), and currently held funds from NSERC (operating grant) and from the "Institut de Recherche Robert-Sauvé en Santé et en Sécurité du Travail IRSST".

Dr. **Theodore Milner** (Professor and Chair of the Department) is interested in the rehabilitation of impaired motor function after damage to the brain and, together with his collaborators, has developed novel robotic devices for the rehabilitation of hand function following a stroke. He conducts functional brain imaging studies that investigate the roles of different brain areas in motor control and motor learning. His investigation into the mechanisms by which sensory information is used to improve performance generates knowledge that can be used to improve rehabilitation for countless people who suffer from neurological disorders that affect their mobility and quality of life. Dr. Milner's laboratory is well equipped with instrumentation for mechanical measurements (position, velocity, acceleration, force, torque), and manufactures miniature EMG electrodes with on-board amplification and filtering. Dr. Milner is currently funded by CIHR and NSERC, and he serves in major grant committees around the World.

Dr. **David Pearsall** (Associate Professor) and Dr. **Rene Turcotte** (Associate Professor) are interested in two main areas of investigation: (1) the mechanics of human movement (i.e. biomechanics) from walking to running and (2) the effect of protective devices during blunt body impacts. (1) Attention has been given to understand locomotion behavior on irregular terrains, in particular, during turning (non-linear) and banked (non-level) movement as well as on low-friction (e.g. ice) surfaces. Such terrain obstacles impede gait efficiency and, more critically, increase risk of slip, trip and fall injuries. In this context, specific clinical populations are to be examined (e.g. multiple sclerosis patients' gait adaptations post exercise intervention). The researchers use surface electromyography, lower body inverse dynamic analysis based on body kinematic and ground-foot forces, and dynamic measures of balance by tracking foot print Centre of pressure migration, among other biomechanical. (2) Studies have focused on understanding the means of force transmission between the impacted surface or object and the body, an issue of much debate in the sports community. Unique technologies and analytic software have been developed to quantify this impact force transmission behavior. The research is funded through a collaborative partnership between NSERC and NIKE/BAUER Hockey Inc. linking academia and industry to translate laboratory research into the public domain.

### **Behavioral aspects**

Dr. **Gordon Bloom** (Associate Professor) explores psychosocial aspects surrounding the sport environment. One stream of research examines elements of post concussion injury rehabilitation in athletes examining various psychological variables to predict those at risk for a concussion or suggest potential personality characteristics that are associated with improved recovery. In addition, Dr. Bloom has been funded by Sports Canada, which has allocated funds to National Training Centres across the country to conduct research that supports high performance athletes in their pursuit of podium performances at the Olympic Games and other international competitions. Dr. Bloom's research evaluates the effects of intensive bio/neuro feedback training programs with Olympic athletes to improve their anxiety, concentration, and confidence skills. Dr. Bloom also receives funds from SSHRC to support his research activities and has been proved successful in translating different theoretical frameworks on sports psychology into practical applications and better results in the field.



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**Dr. Enrique Garcia-Bengoechea** (Associate Professor) focuses on the reasons why people do what they do and how they become what they become - in more technical words, with motivation and socialization processes in physical activity and sport settings. More specifically he investigates how social interactions in physical education and sports settings contribute to how children internalize values, ideas and behavior related to physical activity. Extending the contemporary debate he explores how incorporating the affective domain (e.g., enjoyment, motivation) and considering youth sport coaches' beliefs about teaching sport-related games as potential barriers for change affect youths physical or mental health behaviors. Intrigued by the perplexing and complex problem of unhealthy lifestyle habits in our modern society, and with physical inactivity in particular, he also analyses data from various Health Canada surveys to track the impact of participation in physical education and sports activities on children's psycho-social development.

**Dr. William Harvey** (Assistant Professor) examines physical activity interventions and delivery systems for persons with and without psychiatric disabilities across the human lifespan and domain-specific expertise related to the development of physical activity professionals. His research explores self-determination of children with attention-deficit hyperactivity disorder (ADHD) through their physical activity experiences and/or the benefits of university-community physical activity learning projects that focus on children and adults with mental health problems. For the past years Dr. Harvey's research has been funded by SSHRC.

**Dr. Greg Reid** (Full Professor) is involved in physical activity research focussed primarily on intervention with individuals who have a developmental disability; for example those with autism spectrum disorder or developmental coordination disorder. Guiding frameworks are those of self-determination, self-regulation, and empowerment. In addition, his work deals with understanding correlates to motor performance of those with a disability. Dr. Reid has been funded by SSHRC through the years and has been invited to give keynote speeches in a variety of international conferences around the World.

**Dr. Catherine Sabiston** (Associate Professor). An understanding of the psychosocial determinants of health behavior is of prime importance in attempting to enhance exercise participation among individuals who are most at risk for inactivity, mental illness and chronic disease – including overweight youth and adults, women and cancer survivors. Among her ongoing research projects, Dr. Sabiston studies the psychosocial experiences of coping with chronic diseases such as cancer throughout the lifespan. She examines the natural history of the clustering of health risk behaviors (alcohol, tobacco use, substance use, physical inactivity, sedentary behavior, poor diet) during adolescence and identifies the relationship between long-term physical activity during adolescence and obesity in young adulthood, tracking the relations between physical activity, emotional wellbeing, biological functioning, and physical health under various conditions of health and disease. Her work is supported through funding from CIHR and SSHRC, and has been well recognized by her peers – she has been awarded with the prestigious “Chertier étoile 2010” – offered to the top five young researchers in Quebec.

### e. Research Collaborations at McGill University:

The Department has forged strong teaching and research collaborative links with several McGill partners including, the Department of Medicine, the School of Physical and Occupational Therapy, the School of Dietetics and Human Nutrition, the McGill University Health Centre, several McGill affiliated hospitals and both the Montreal Neurological Institute and the Montreal Chest Institute.

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Members of the Centre have been actively collaborating with investigators from different units at McGill. The collaborators listed below are currently involved in projects with researchers in the Department of Kinesiology and Physical Education:

- Dr. Eric Shoubridge (Professor, Department of Neurology and Neurosurgery; MUHC Division of Medical Genetic; Montreal Neurological Institute); collaborates with Tanja Taivassalo, Russell Hepple
- Dr. Jose Morais (Associate Professor, Department of Medicine; Chief, Division of Geriatric Medicine, McGill Nutrition Centre - Royal Victoria Hospital); collaborates with Tanja Taivassalo, Russell Hepple
- Dr. Jean Bourbeau (Associate Professor, Department of Medicine, Respiratory Division; Director, Respiratory and Epidemiological Clinical Research Unit, Montreal Chest Institute); collaborates with Helene Perrault, Tanja Taivassalo, Dennis Jensen
- Dr. Basil Petrof (Professor, Department of Medicine, Respiratory Division; Associate Director, Meakins-Christie Laboratories); collaborates with Tanja Taivassalo and Russell Hepple
- Dr. Sandra Dial (Assistant Professor, Department of Medicine, Respiratory Division; Respiratory and Epidemiological Clinical Research Unit, Montreal Chest Institute); collaborates with Tanja Taivassalo, Helene Perrault, Dennis Jensen
- Dr. Jennifer Landry (Assistant Professor, Department of Medicine, Respiratory Division; Respiratory and Epidemiological Clinical Research Unit, Montreal Chest Institute); collaborates with Tanja Taivassalo
- Dr. Thomas Jagoe (Assistant Professor, Department of Medicine, Division of Oncology; Director, Cancer Nutrition-Rehabilitation Program, Jewish General Hospital); collaborates with Tanja Taivassalo, Russell Hepple, Catherine Sabiston
- Dr. Amit Bar-Or (Associate Professor, Department of Neurology; Montreal Neurological Institute); collaborates with Tanja Taivassalo
- Dr. Josephine Nalbantoglu (Professor, Department of Neurology; Montreal Neurological Institute); collaborates with Russell Hepple
- Dr. Doug Arnold (Professor, Department of Neurology; Montreal Neurological Institute); collaborates with Tanja Taivassalo
- Dr. Sarkis Meterissian (Associate Professor, Department of Medicine, Division of Oncology; Director of Cedar's Breast Centre); collaborates with Catherine Sabiston
- Dr. Ari Meguerditchian (MUHC surgical oncologist); collaborates with Catherine Sabiston
- Dr. Rob Kearney (Professor, Department of Biomedical Engineering); collaborates with Theodore Milner )
- Dr. Jeremy Cooperstock (Associate Professor, Department of Computer Science); collaborates with Theodore Milner
- Dr. Alex Thiel (Associate Professor, Department of Neurology and Neurosurgery; Jewish General Hospital); collaborates with Theodore Milner
- Dr. David Ostry (Professor, Department of Psychology); collaborates with Theodore Milner
- Dr. Leslie Fellows (Professor, Department of Neurology and Neurosurgery); collaborates with Theodore Milner and Ross Andersen
- Dr. Natalie Grizenko (Associate Professor, Department of Psychiatry; Medical Chief, Division of Child and Adolescent Psychiatry, Douglas Mental Health University Institute); collaborates with William Harvey
- Dr. Ridha Joober (Associate Professor, Department of Psychiatry; Douglas Mental Health University Institute); collaborates with William Harvey

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- Dr. Ashok Malla (Professor, Department of Psychiatry; Canada Research Chair in Early Psychosis; Douglas Mental Health University Institute); collaborates with William Harvey
- Dr. Michael Meaney (Professor, Department of Psychiatry; Douglas Mental Health University Institute); collaborates with Ross Andersen
- Dr. Suzanne King (Associate Professor, Department of Psychiatry; Douglas Mental Health University Institute); collaborates with Ross Andersen
- Dr. Joyce Fung (Professor, School of Physical and Occupational Therapy; Director, Research Centre, Jewish Rehabilitation Hospital); collaborates with Julie Cote and Theodore Milner
- Dr. Nicolas Christou (MUHC bariatric surgeon); collaborates with Ross Andersen
- Dr. Anne-Marie Lauzon (Associate Professor, Department of Medicine; Meakins-Christie Laboratories); collaborates with Dilson Rassier
- Dr. Sabah Hussain (Professor, Department of Medicine, Division of Critical Care); collaborates with Russell Hepple, Tanja Taivassalo, and Dilson Rassier
- Dr. Ann Macaulay (Professor, Department of Family Medicine); collaborates with Enrique Garcia
- Dr. Katherine Gray-Donald (Professor Department of Dietetics and Nutrition); collaborates with Enrique Garcia
- Dr. Scott Delany (Physician, McGill Sports Medicine Clinic); collaborates with Gordon Bloom

### f. Grants obtained and publications:

The researchers in the Department of Kinesiology and Physical Education have been successful in obtaining funds from diverse agencies and private institutions. The projects in which they are currently involved as principal investigators or co-investigators represent over \$10 million in research funding. They have published studies in a variety of scientific journals, in topics ranging from molecular biophysics to public policies and health promotion. A full account of their grants and publications in the past 6 years are listed in Appendix 1.

### g. Proposed activities

The mandate of the Centre is to conduct research of the highest caliber which addresses fundamental questions related to physical activity and health and to apply the insights gained from basic research in addressing health issues of national and global concern. The Centre will offer the following resources to its members:

#### Diagnostic & evaluation procedures

- Metabolic and exercise stress testing
- Body composition assessment
- Physical activity monitoring
- Assessment and monitoring the psychological impacts of exercise and lifestyle intervention strategies

#### Exercise prescription and intervention facilities

- Versatile exercise room for varied group exercise interventions
- Leading-edge prototype exercise modalities
- State-of-the-art rehabilitative exercise equipment
- Experimental kitchen and nutrition education laboratory

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### Academic training and related activity infrastructure

- Consultation rooms
- Office space for graduate students
- Conference/seminar room

The Centre will facilitate collaborations between the Department of Kinesiology and Physical Education and other units conducting research related to physical activity and health by providing both research expertise and state-of-the-art facilities to conduct small-scale intervention studies with clinical and at-risk populations.

### Optimizing health and well-being

The Research Centre will serve as a location that is easily accessible to the general public and to patients from affiliated clinics who can benefit from qualified monitoring and supervision of exercise or other lifestyle interventions in a safe and controlled environment. Examples of current research being conducted in the Department of Kinesiology and Physical Education include:

- Developing innovative movement enhancement interventions for progressive exercise rehabilitation in patients with severely impaired exercise tolerance of various etiology (e.g., COPD, renal failure, mitochondrial disease, aging, etc.).
- Testing exercise equipment prototypes to devise interventions that will improve motor function, enhance physical strength, improve exercise capacity, reduce symptoms of exercise intolerance, etc. in various patient groups.
- Conducting field-based assessment to monitor activities related to daily living and examining the feasibility of intervention strategies in real-life settings.
- Devising adapted physical activity and lifestyle interventions to enhance stress management and psychological wellbeing.
- Customizing exercise programs to meet the needs of children with physical awkwardness or learning disability.
- Developing interventions to help older adults safely exercise with a view for injury prevention while enhancing and maintaining muscle mass and bone health.
- Testing pharmacological and non-pharmacological interventions designed to help symptomatic patients with chronic heart and/or lung disease improve exercise tolerance, exertion-related breathlessness, functional capacity and health-related quality of life.
- Monitoring changes in body composition and bone mass that occur in overweight patients following bariatric surgery.

### h. Value added

Two important objectives in creating the Research Centre for Physical Activity and Health are to bring clinicians and researchers together to develop effective physical activity interventions for chronic health problems and to translate knowledge gained through research into community outreach activities to promote healthier lifestyles through appropriate physical activity and diet. The Research Centre is designed to bring together key players in a setting that facilitates the activities needed to achieve these objectives. The Centre will provide collaborators from outside of the Department of Kinesiology and Physical Education with access to space designed specifically for physical activity research. It will foster a

## McGill University Research Centre for Physical Activity and Health

comprehensive approach to investigating the relation between physical activity and health, integrating physiological, physical and behavioral perspectives.

Furthermore, the Centre will engage in activities to enhance the quality and promote the translation of research in physical activity and health. It will

- hold workshops for healthcare professionals interested in the fields of physical activity and health
- host a weekly seminar series with invited speakers interested in the research axes of the Centre
- promote round table discussions of research questions
- host international research workshops
- promote public outreach and education on issues associated with physical activity and health
- train undergraduate and graduate students as clinical exercise specialists with expertise in physical fitness assessment, exercise prescription and supervision of physical activity interventions
- promote team research grant applications

### i. Contribution to training

The mandate of the Centre includes support for students and postdoctoral fellows, providing a new generation of researchers with the tools to address research questions related to physical activity and health. The Centre will provide an opportunity for students in the following programs to acquire practical and research experience:

#### Undergraduate education:

- BSc Kinesiology General
- BSc Kinesiology Clinical Exercise Practice

#### Graduate education:

- MSc/MA Kinesiology
- Ph.D. Interdisciplinary Health (multi-faculty program being processed through appropriate channels)

#### Postdoctoral training:

- In addition to Graduate education, the Centre will establish collaborative initiatives for research and training of postdoctoral fellows and clinical research fellows.

## **4. Strategic Positioning**

The Centre will have unique strengths that are expected to bring international recognition. It will combine leading-edge fundamental and applied research, exploiting the expertise for which McGill University is renowned in the field of medicine to complement outstanding research in physical activity and health, conducted by the Department of Kinesiology and Physical Education. Over the past 8 years the Department has hired excellent young academic staff whose research covers a broad range of

## McGill University Research Centre for Physical Activity and Health

topics, investigating the links between physical activity and health. With one impending retirement and one resignation having recently taken place, the department plans to recruit new academic staff in areas that will complement and enhance current research.

### **5. Administrative structure**

#### **a. Directorship**

The Director of the Research Centre is responsible for managing the Research Centre, for preparing its budget for presentation to the Board and for preparing the Annual Report (including the goals and full financial details) for presentation to the Board. Copies of Annual Report should subsequently be sent to the Provost, Vice-Principal (Research & International Relations) and the Dean of the Faculty of Education. The Director will be recommended by the Board to the Provost for approval. A Director will serve a term of three years and can serve at most two terms.

#### **b. Board**

The membership of the Board of the Research Centre for Physical Activity and Health will include the Dean (or Associate Dean, Research) of the Faculty of Education, the Vice-Principal, Research and International Relations (or delegate), a representative from the Faculty of Medicine, two active Full Members, one Graduate Student Member, and one person from outside the University, not directly involved in the Research Centre. The Dean (or delegate) of the Faculty of Education will assume the Chair of the Board. The advisory board may include representatives with expertise in corporate management, health policy, clinical research, fund-raising, research ethics and community health if deemed necessary.

The Board members who are also members of the Centre will be elected by their appropriate constituencies. The terms of appointment of the Board members, other than the Dean and Vice-Principal or their delegates, will be three years for Full Members and one year for the Graduate Student Member, renewable once.

The Board is responsible for recommending the appointment of the Director, receiving an Annual Report, reviewing activities and membership, and approving the budget.

#### **c. Membership**

The Research Centre will have the following categories of membership.

- Full Member: a principal investigator on one or more research projects conducted in the Centre
- Associate Member: a researcher with a significant research affiliation with the Centre through collaboration with one or more full members
- Visiting Member: a visiting scholar with research activities linked to the Centre, appointed to the Centre for a limited term
- Postdoctoral Scholar/Research Associate Member
- Graduate Student Member

## McGill University Research Centre for Physical Activity and Health

Nominations for new members of the Research Centre will include the applicant's full curriculum vitae and a letter of support from a Full Member. The nominations must be submitted to the Board for approval. Terms of membership are up to six years for Full and Associate Members, up to two years for Student Members and Postdoctoral/Research Associate Members, and up to one year for Visiting Members. The terms of membership are renewable upon consideration by the Board.

Membership at any level in the Research Centre does not imply any change of teaching or administrative duties. These must be negotiated with the chairs/directors of the relevant home units.

### d. Annual General Meeting

An Annual General Meeting will ordinarily be held yearly. An annual report will be presented for approval at this meeting. During the meeting the Board will review activities and membership, approve the budget, and resolve difficulties that may have arisen during the past year.

### e. Annual Report

The Director of the Research Centre will prepare the Annual Report to be presented to the Board. The report will include the achievements of the Centre in the past year and goals of the Centre for the coming year. The report will also contain the financial details of the operation of the Research Centre. Following its approval, the Annual Report will be submitted to the Provost, the Vice-Principal, Research and International Relations, and the Dean of the Faculty.

### g. Annual Budget

The budget projections for the first 5 years of the Research Centre's existence are provided below and are designed to show incremental growth. Starting with \$125,000 to \$150,000 in years one and two, the budget will increase to close to \$500,000 as is shown in Table 1.

**Table 1. Budget for years 3-5.**

<b>Item</b>	<b>Cost per year</b>	<b>Members</b>	<b>Partners (e.g., external users, industry, funding agencies, philanthropy)</b>
Research Administrator	\$60 k	\$30 k	\$30 k
HQP Training	\$400 k	\$30 k	\$370 k
Seminar series	\$10 k		\$10 k
Seed funding	\$30 k	\$10 k	\$20 k
Service contracts	\$20 k	\$15 k	\$5 k
<b>Total</b>	<b>\$520 k</b>	<b>\$85 k</b>	<b>\$435 k</b>

The first 3 years will be used as a gradual ramping up period where the contributions from Philanthropy will be grown. The ramping up will enable greater support for high priority areas like High Quality Personnel (HQP) Training and Seed Funding initiatives; (see below). Partnerships with external users and industry will also be cultivated during this time. The most ambitious and important of the Partnership plans in the immediate future is the application for a CIHR Strategic Training Initiative in Health Research Grant (HQP Training Grant) in the first year. This program provides initial funding of up to \$165 k for the first year, and up to \$325 k per year for an additional 4 years. The majority of the funding is to support

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training of HQP, consistent with the high priority of HQP Training in the mandate of the McGill University Research Centre for Physical Activity and Health. The proposed Centre is ideally suited to the objectives of the CIHR Strategic Training Initiative in Health Research because of the highly translational nature of the research being conducted in the Centre (e.g., see Figure 1 at end of this document), involving collaborative research of numerous groups across multiple disciplines. Based upon this plan, we project that the overall budget has strong potential to increase from an estimated \$130 k per year in year 1 to ≥\$520 k per year in year 3. The research administrator position will start as a half-time position in year 1 funded by a private donation (see Partnerships, below). If successful with the CIHR Strategic Training Initiative, the research administrator position will be increased to a full-time position to accommodate the administration of the HQP training program. Another major emphasis for the Centre in its first 5 years will be cultivating partnerships with external users (e.g., partnerships with regional hospitals in exchange for providing facilities and HQP to conduct exercise training studies in clinical populations), and industry (e.g., exercise equipment manufacturers) to permit raising an additional \$20 k per y for a Seed Funding Initiative. Further to this point, in years 2-5 a small user fee will be applied to all grants supporting Centre projects held by Full Members in the amount of ≤1% of the value of the grant (rate determined by that which is necessary to permit collection of \$10 k per y) to establish this Seed Funding initiative. These seed funds can be applied for to support small projects (project must be led by a Full Member) aimed at permitting new and established members to collect pilot data for subsequent individual or team applications to federal granting agencies, thereby promoting long-term stability of the funding base for the research Centre and its members. Sources of funding for year 1 in the major categories of Full Members and Partnerships are detailed below.

### Full Members' contribution:

Operating grants held by current full members (summarized in appendix 1) will be used to help support the stipends of graduate research assistants involved in Centre projects, and cover the costs of the service contracts on specific pieces of equipment which will be transferred to the Centre (e.g., DEXA Scanner, Metabolic Cart, Biodex, Centrifuge).

### Partners' contribution:

Support from philanthropy will be available for HQP Training through the Bloomberg-Manulife Fellowships (2 x \$22.5 k per year), the David Montgomery Award (\$3 k per year), and Dan Marisi Award (\$500 per year) for graduate students; and several undergraduate student awards summing to approximately \$6.5 k per year (total graduate + undergraduate award research funding: \$55 k per year). Additional support for HQP training will be sought through the CIHR Strategic Training Initiative (HQP Training Grant) mentioned above. In year 1 we will also seek funding for support of the Seminar Series through federal (e.g., CIHR) and provincial (e.g., FRQ) funding agencies. Business partnerships for corporate medical and fitness assessment will also be available for revenue generation in addition to exercise interventions for which fees will be charged.

### User Fees contribution example:

There will be a usage fee for DEXA scans, metabolic assessments and body composition assessments  
A DEXA scan would cost \$150  
A full workup on the metabolic cart would cost \$100  
A body composition assessment with the BodPod would cost \$25

Assuming 100 subjects per year on DEXA (\$15,000), 200 subjects on BodPod (\$5,000) and 50 subjects on metabolic cart (\$5,000), \$25,000 would be recovered from usage fees. Graduate research assistants would be paid for from the grants of individual researchers. This would leave \$15,000 to be raised to



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cover the salary of the half-time administrative assistant. A nominal usage fee for the training facilities of \$2/hour could be implemented. Research projects involving training of subjects would be charged this user fee. Assuming that 30 people use the facility each day for a minimum of one hour each and that the facility is open 250 days per year this would provide \$15,000 ( $\$60 \times 250 = \$15,000$ ).

### **6. Consultation/demonstration of interest in the Centre for Physical Activity and Health**

Several professors and directors of units have been contacted and consulted about the creation of the Centre, including:

- Professor H el ene Perrault, Dean – Faculty of Education
- Dr. Dilson Rassier, (then) Associate Dean, Research – Faculty of Education
- Professor R emi Quirion, (then) Scientific Director –Douglas Mental Health University Institute; Vice-Dean (Life Sciences and Strategic Initiatives), Faculty of Medicine, McGill University
- Professor David Eidelman, (then) Chair – Department of Medicine
- Professor Annette Majnemer, Director – Department of Physical and Occupational Therapy
- Dr. Jean Bourbeau, Director – Respiratory Epidemiology and Clinical Research Unit, Montreal Chest Institute
- Dr. H el ene Ezer, Director – School of Nursing
- Professor Vassilios Papadopoulos, Director – MUHC Research Institute

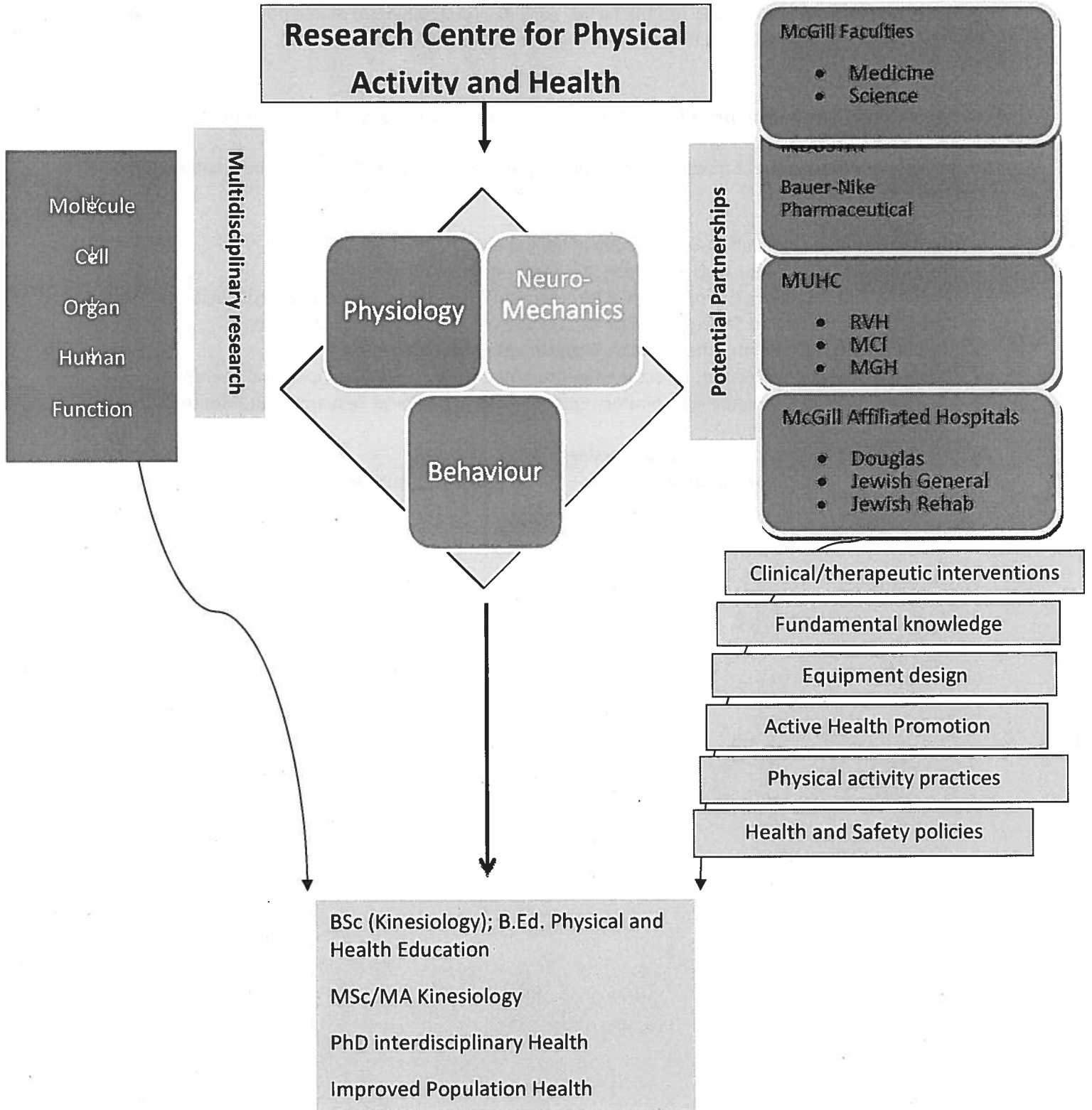


Figure 1. General structure of the McGill University Research Centre for Physical Activity and Health.

**Dr. ROSS ANDERSEN**  
**Professor, CRC Chair**

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2011	Canadian Cohort Obstructive Lung Disease	Jean Bourbeau	Ross Andersen	CIHR	2011	\$3.3 Million	2014
2011	Gender Differences in the life impact of Multiple Sclerosis	Nancy Mayo	Ross Andersen Pierre Duquette	CIHR	2009	\$1,608,760	2014
2009	Revolutionizing Prosthetics	Ross Andersen		DARPA	2009	\$100 K	2010
2007	Obesity and neural control of sleep disordered breathing	Philip Smith	Ross Andersen	NIH- NHLBI	1999	\$1,326,648	2008
2006	Taste Preference, fluid intake and metabolic changes during vigorous exercise	Ross Andersen		Child Health Research Institute	2005-2007	\$52 K	2007
2006	Building a brain controlled prosthetic arm	Ross Andersen Stuart Harshbarger		DARPA	2004-2009	\$57 Million	2009

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11. **Craig CL, Cameron C, Griffiths J, Bauman A, Tudor-Locke C, Andersen RE.** Non-response bias in physical activity trend estimates. *BMC Public Health.* 2009 Nov 22;9:425.
12. **Kuspinar A, Andersen RE, Teng SY, Asano M, and Mayo N** Predicting Exercise Capacity Through Sub-Maximal Fitness Tests in Persons with Multiple Sclerosis. *Archives of Physical Medicine and Rehabilitation,* 2010, Vol 81: 1410-1417.
13. **Andersen R.E.** Prescribing Lifestyle Activity: What the Trainer needs to know. *Am Coun on Exer Certified News.* 2010; Vol 3.
14. **Andersen RE, Bauman AE,** The effects of commuter pedestrian traffic on the use of stairs in an urban setting. (In Press) *American Journal of Health Promotion.*
15. **Franckowiak, SC, Dobrosielski D.A., Riley, S.M., Walston, J.D., Andersen, R.E.** Maximal heart rate prediction in adults that are overweight or obese. *Journal of Strength and Conditioning Research.* In Press
16. **Hart, T.L., Craig C.L., Griffiths J.M., Cameron C., Andersen R.E., Bauman A.E., Tudor-Locke C.** Markers of Sedentarism: The Joint Canada/U.S. Survey of Health. *Journal of Physical Activity and Health.* 2011: Vol 8 (3), 361-371.
17. **Sabiston C.S., Andersen R.E.** Prescribing Exercise for Breast Cancer Survivors *Am Coun on Exer Certified News.* 2011, Vol 2.
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19. **Reed, S.B., Crespo, C.J., Harvey W., Andersen, R.E.** Social isolation and Physical Inactivity in Older U.S. Adults: Results from the Third National Health and Nutrition Examination Survey. *European Journal of Sports Sciences.* In Press

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3. **Andersen R.E.** Sedentary living and its relation to obesity. In **Bouchard, C.**and **Katzmarcyk P** (eds) Physical Activity and Obesity. Human Kinetics Publishers, Champaign, IL. 2010, 98-101.
4. **Andersen R.E.** and **Sabiston C.** Physical Activity for Obese Children and Adults . In **Dube L, Bechara, A, Dagher** (eds) Obesity Prevention: The role of brain and Society on individual behavior, Academic Press, 2010, 391-402.

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**Cotton R., Andersen R.E.** (2007) The Clinical Exercise Specialist Manual: ACE's Source for Training Special Populations. 2<sup>nd</sup> edition, San Diego: ACE publishing.

**Dr. GORDON BLOOM**  
Associate Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2010	A team building intervention to enhance the sport environment of elite athletes with a physical disability.	G. Bloom	T. Loughhead G. Reid	SSHRC	July 2010	\$110,685	July 2012
2008	The development of an inventory to measure athlete leadership	T. Loughhead	G. Bloom	SSHRC	July 2008	\$97,026	July 2011
2008	The effect of coaching in youth sport	P. Sullivan	N. Holt G. Bloom	SSHRC	January 2008	\$74,377	January 2011
2007	Basketball Canada's NCCP community sport program: Are trained coaches implementing LTAD appropriate practices	G. Bloom		Coaching Association of Canada	September 2007	\$5,000	September 2008
2006	The development and implementation of a team building intervention for youth sport coaches	G. Bloom	T. Loughhead	SSHRC	July 2006	\$99,603	July 2009
2005	Using the theory of planned behavior and the influence of cohesion to explain and reduce aggression in youth hockey.	T. Loughhead	G. Bloom A. Carron	SSHRC	July 2005	\$75,991	July 2008

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1. Banack, H.R., Sabiston, C.M., & Bloom, G.A. (in press). Coach autonomy support, basic need satisfaction, and intrinsic motivation of Paralympic athletes. *Research Quarterly for Exercise and Sport*.
2. Jones, M.I., Dunn, J.G.H., Holt, N.L., Sullivan, P.J., & Bloom, G.A. (in press). Exploring the 5Cs of positive youth development in sport. *Journal of Sport Behavior*.
3. Bloom, G.A. (2011). Coaching psychology. In P.R.E. Crocker (Ed.), *Sport and exercise psychology: A Canadian perspective, 2<sup>nd</sup> edition*, (pp. 278-305). Toronto: Pearson.
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12. Bloom, G.A., Loughead, T.M., & Newin, J. (2008). Team building for youth sport. *Journal of Physical Education, Recreation & Dance*, 79 (9), 44-47.
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16. Shapcott, K.M., Bloom, G.A., & Loughead, T.M. (2007). An initial exploration of the factors influencing aggressive and assertive intentions of women ice hockey players. *International Journal of Sport Psychology*, 38 (2), 145-162.
17. Dupuis, M., Bloom, G.A., & Loughead, T.M. (2006). Team captains' perceptions of athlete leadership. *Journal of Sport Behavior*, 29 (1), 60-78.
18. Vallée, C.N., & Bloom, G.A. (2005). Building a successful University sport program: Key and common elements of expert coaches. *Journal of Applied Sport Psychology*, 17 (3), 179-196.
18. Davies, M.J., Bloom, G.A., & Salmela, J.H. (2005). Job satisfaction of accomplished male university basketball coaches: The Canadian context. *International Journal of Sport Psychology*, 36 (3), 173-192.

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20. Heller, T.L., Bloom, G.A., Neil, G.I., & Salmela, J.H. (2005). Sources of stress in NCAA Division 1 women ice hockey players. *Athletic Insight: The Online Journal of Sport Psychology*.



**Dr. JULIE CÔTÉ**  
Associate Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2005	Ergonomics research (CFI in kind)	J. Côté	---	McGill Provost office	2005	\$47,000	2005
2005	Work-work-work: infrastructure to characterize the biomechanics of repetitive motion disorders of the upper limbs	J. Côté	---	CFI (New Opportunities)	2005	\$403,856	2010
2005	Work-work-work: infrastructure to characterize the biomechanics of repetitive motion disorders of the upper limbs	J. Côté	---	CFI – McGill infrastructure operating fund	2006	\$47,014	2010
2005	Exercise for balance program for hemodialysis patients with type2 diabetes and peripheral neuropathy	S. Iqbal	Painter, Côté, Chalk, Rahme, Barre, Vasilevsky	Helen McCall Hutchinson Foundation	2005	\$25,000	2005
2005	Biomechanical analysis of arm-trunk coordination during repetitive motion	J. Côté	---	NSERC	2005	\$118,500	2010
2005	The prediction of outcome following whiplash injury - an international multicentre prospective longitudinal study	M. Sterling	G. Jull, J. Kenardy, M. Connelly, JP. Dumas, Côté, S. De Serres	Australian Research Council	2005	\$583,195 (Montreal group: \$158,324)	2008
2005	The prediction of outcome following whiplash injury: an international multicentre prospective longitudinal study	J. Côté	JP Dumas, S. De Serres	REPAR	2005	\$24,075	2008
2006	Lésions attribuables au travail répétitif: caractérisation des mécanismes et évaluation des de la réadaptation	J. Côté	---	FRSQ chercheur boursier junior <sup>1</sup>	2006	Salary award \$150,644	2009
2008	CHR Team for workplace interventions to prevent musculoskeletal injuries	J. Côté	S. Stock, N. Vézina, A. Delisle	RRSSTQ	2008	\$11,160	2008

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2008	Integrating gender and sex in health and environment research: development of new methodology	D. Mergler	15 (including Côté)	CIHR	2008	\$1million	2013
2008	Development and evaluation of strategies and tools for workplace interventions to prevent work-related musculoskeletal injuries and work disability	S. Stock	21 (including Côté)	CIHR	2008	\$10,000	2008
2009	Evaluation of the effects of a postural training program on neck-shoulder biomechanics in a group of professional repetitive movers	J. Côté	P. McKinley, M. Balk, T. Cacciatore	REPAR-IRSST	2009	\$40,000	2010
2010	Experimental analysis of whole-body coordination changes associated with repetitive upper limb motion: what, when, why?	J. Côté	---	NSERC	2010	\$105,000	2015

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3. Côté JN, Mathieu PA, Feldman AG and Levin MF (2008) Effects of fatigue on intermuscular coordination during repetitive hammering. *Motor Control* 12(2): 79-92.
4. Baltov P, Côté JN, Truchon M, Feldman D (2008) Psychosocial factors associated with outcomes for patients undergoing rehabilitation for chronic whiplash associated disorders. *Disability and Rehabilitation* 30(25): 1947-55.
5. St-Onge N, Côté JN, Patenaude I, Fung J (2009) A paradigm to assess postural responses triggered by anteroposterior translations in healthy seated individuals. *Gait and Posture* 30(4): 417-23.
6. Fuller J, Lomond K, Fung J, Côté JN (2009) Posture-movement changes following repetitive motion-induced shoulder muscle fatigue. *Journal of Electromyography and Kinesiology* 19(6): 1043-52.

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9. Lomond KV, Leduc-Poitras C, Boulay E, Côté JN (2009) Reliability of shoulder functional measures in assessing functional capacity of individuals with chronic neck/shoulder pain. Chapter 2 (p. 53-77) in *Ergonomics: Design, Integration and Implementation*. Nova Publishers. ISBN: 978-1-60692-327-6.
10. Côté JN, Hoeger Bement, M (2010) Update on the Relation Between Pain and Movement: Consequences for Clinical Practice. *Clinical Journal of Pain* 26(9): 754-62.
11. Lomond KV, Côté JN (2010) Movement timing and reach to reach variability during a repetitive reaching task in persons with chronic neck/shoulder pain and healthy subjects. *Experimental Brain Research* 206(3): 271-82.
12. Audette I, Dumas JP, Côté JN, DeSerres SJ (2010) Validity and Between-Day Reliability of the Cervical Range of Motion (CROM) Device. *Journal of Orthopaedic & Sports Physical Therapy* 40(5): 318-23.
13. Emery K, McMillan A, DeSerres SJ, Côté JN (2010) The effects of a Pilates training program on arm-trunk posture and movement. *Clinical Biomechanics* 25(2): 124-30.
14. Rivest K, Côté JN, Dumas JP, Sterling M, DeSerres SJ (2010) Relationships between pain thresholds, catastrophizing and gender in acute whiplash injury. *Manual Therapy* 15(2): 154-9.
15. Lomond KV, Côté JN (2011) Differences in posture-movement changes induced by repetitive arm motion in healthy and shoulder-injured individuals. *Clinical Biomechanics* 26(2): 123-9.
16. Lomond KV, Boulay E, Côté JN (2011) Shoulder functional assessments in persons with chronic neck/shoulder pain and healthy subjects: reliability and effects of movement repetition. *Work* 38(2): 169-80.

**Dr. ENRIQUE GARCÍA**  
Assistant Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2010	"Preventing Youth Violence in El Salvador: the role of new graduate teachers of innovative physical education"	John Corlett, Brock University	James Mandigo, Brock University, Ken Enrique Garcia, Ken Lodewyk, Brock University, Cathy Van Inge, Brock University	SSHRC	September 2010	\$42,184	April 2012
2007	"Evaluation of Mentors in Motion In-School: A healthy lifestyle intervention promoting psychosocial adjustment and physical activity in at-risk youth"	Katherine Gray-Donald, McGill University	Margaret Cargo, University of South Australia, Enrique Garcia, Lucie Levesque, Queen's University	SSHRC	September 2007	\$115,000	April 2011
2007	"Interpersonal Relations, Learning Activities, and Adolescents' Sport Motivation"	Enrique Garcia		FQRSC	September 2007		April 2011

PUBLICATIONS

1. Wilson, P.M., & García Bengoechea, E. (in press). The Relatedness to Others in Physical Activity Scale: Evidence for structural and criterion validity. *Journal of Applied Biobehavioral Research*.
2. García Bengoechea, E., Sabiston, C. M., Ahmed, R., & Farnoush, M (2010). Exploring links to unorganized and organized physical activity during adolescence: The role of gender, socioeconomic status, weight status, and enjoyment of physical education. *Research Quarterly for Exercise and Sport*, 81, 7-16.
3. Ruiz Juan, F., García Bengoechea, E., García Montes, M.E. & Bush, P. L. (2010). Role of individual and school factors in physical activity patterns of secondary-level Spanish students. *Journal of School Health*, 80, 88-95.
4. Amenabar, B., Sistiaga, J. J., & García Bengoechea, E. (2008). Revisión de los distintos aspectos de la influencia de los padres y las madres en la práctica de la actividad física y el deporte (A review of the different dimensions of the influence of fathers and mothers on physical activity and sport participation). *Apunts Educación Física y Deportes*, 93, 29-35.

5. Berry, T. R., Spence, J.C., Fraser, S. N., & García Bengoechea, E. (2007). Pedometer ownership, motivation, and walking: Do people walk the talk? *Research Quarterly for Exercise and Sport*, 78(4), 369-374.
  6. García Bengoechea, E., & Streat, W. B. (2007). On the Interpersonal Context of Adolescents' Sport Motivation. *Psychology of Sport and Exercise*, 8, 195-217.
- BOOK CHAPTERS:**
1. Wilson, P.M., Mack, D., García Bengoechea, E., Bin, X., Cheung, S., & Sylvester, B. (in press). Understanding the basis for sport friendships in adapted sport athletes: Does fulfilling basic psychological needs matter? In B. D. Geranto (Ed.), *Sport Psychology*. New York: Nova
  2. Lloyd, R. J, García Bengoechea, E. & Smith, S. J. (2010). Theories of learning. In R. Bailey (Ed.), *Physical education for learning: A guide for secondary schools* (pp.187-196). London: Continuum.
  3. Wilson, P. M., & García Bengoechea, E. (2010). Research perspectives in sport psychology: A Canadian perspective. In P. R. E. Crocker (Ed.), *Sport psychology: A Canadian perspective* (2<sup>nd</sup> ed., pp.26-52). Toronto: Pearson.
  4. García Bengoechea, E., Smeltzer, K., & Rengifo Varona, M. I. (2009). Deporte escolar: perspectivas internacionales (School sports: International perspectives). In B. Amenabar (Ed.), *El libro blanco del deporte escolar (The white book of school sports)* (pp. 103-121). Vitoria: Central Publishing Service of the Basque Government.
  5. García Bengoechea, E., & Streat, W. B. (2008). Examining third order effects on adolescents' sport participation and motivation. In M. P. Simmons & L. A. Foster (Eds.), *Sport and exercise psychology research advances* (pp. 157-174). New York: Nova.
  6. Wilson, P. M., & García Bengoechea, E. (2006). Research perspectives in sport psychology: A Canadian perspective. In P. R. E. Crocker (Ed.), *Sport psychology: A Canadian perspective* (pp. 22-46). Toronto: Pearson.

**Dr. WILLIAM HARVEY**  
Assistant Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2010	What motivates the motivators: Exploring PE teacher training and practice	W.J. Harvey		Fonds de recherche sur la société et la culture (FQRSC)	2010	\$39,600	2013
2010	Matching activities to personal style (MAPS): Developing a physical activity guidance system for high school students.	J. Gavin	W.J. Harvey	Social Sciences and Humanities Research Council of Canada (SSHRC)	2010	\$94,000	2013
2008	Children with Attention-Deficit Hyperactivity Disorder and Physical Activity Behaviour	W.J. Harvey	N. Grizenko, F. Delamere	SSHRC / Sport Canada. Sport Participation Research Initiative Program	2008	\$102,171	2010
2007	Research Development Grant: Building Tools to Help Adolescents Discover Pathways to Health and Physical Fitness	J. Gavin	W.J. Harvey	SSHRC Research Development Grant:	2007	\$38,625	2009
2007	Pilot study: Children with Attention-Deficit Hyperactivity Disorder and Physical Activity Behaviour	W.J. Harvey		SSHRC Research Grants Subcommittee - McGill University	2007	\$4,000	2008

## PUBLICATIONS

### IN PRESS:

1. Harvey, W.J., Wilkinson, S., Pressé, C., Joobar, R., & Grizenko, N. (In Press). Scrapbook interviewing and children with attention-deficit hyperactivity disorder. *Qualitative Research in Sport and Exercise*.
2. Reed, S.B., Crespo, C.J., Harvey, W.J., & Andersen, R.E. (In Press). Social isolation and physical inactivity in older U.S. adults. Results from the third national health and nutrition examination survey. *European Journal of Sport Science*.
3. Pressé, C., Block, M.E., Horton, M., & Harvey, W.J. (In Press). *Adapting the Sports Education Model for Children with Disabilities*. *JOPERD*.
4. Harvey, W.J., Delamere, F.M., Prupas, A., & Wilkinson, S. (2010). Physical activity, leisure, and health for persons with mental illness. *PALAESTRA*, 25(2), 36-53.
5. Wilson, L.M., Bloom, G.A., & Harvey, W.J. (2010). Sources of Knowledge Acquisition: Perspectives of the High School Teacher/Coach. *Physical Education and Sport Pedagogy*, 15, 1-17.
6. Harvey, W.J., Reid, G., Bloom, G., Staples, K., Grizenko, N., Mbekou, V., Ter-Stepanian, M., & Joobar, R. (2009). Physical activity experiences of boys with ADHD. *Adapted Physical Activity Quarterly*, 26, 131-150.
7. Harvey, W.J., Reid, G., Grizenko, N., Mbekou, V., Ter-Stepanian, M., & Joobar, R. (2007). Fundamental movement skills and children with ADHD: Peer comparisons and stimulant effects. *Journal of Abnormal Child Psychology*, 35, 871-882.
8. Wall, A.E., Reid, G., & Harvey, W.J. (2007). Interface of the Knowledge-based and Ecological Task Analysis Approaches. In W.E. Davis and D. Broadhead (Eds.), *Ecological approach to analyzing movement* (pp. 259-277). Human Kinetics: Champaign, IL.
9. Prupas, A., Harvey, W.J., & Benjamin, J. (2006). An early intervention aquatics program for pre-school children with autism and their parents. *Journal of Physical Education, Recreation and Dance*, 77(2), 46-51.

**Dr. RUSSELL HEPPLER**  
Associate Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2005-11	Interventions to maintain skeletal muscle aerobic function with aging	RT Hepple		CIHR	October 2005	\$490,000	March 2011
2007-10	Strategies for combating sarcopenia: insights from exercise training and caloric restriction	RT Hepple		CIHR	October 2007	\$315,000	September 2010
2005-10	Regulation of performance in contracting skeletal muscle	RT Hepple		NSERC	April 2005	\$177,000	March 2010

PUBLICATIONS

1. **R.T. Hepple**. Dividing to keep muscle together: The role of satellite cells in aging skeletal muscle. *Science of Aging Knowledge Environment* 2006 (3): pe3, 2006. (<http://sageke.sciencemag.org/cgi/content/full/2006/3/pe3>).
2. **R.T. Hepple**, D.J. Baker, M. McConkey, T. Muryuka and R. Norris. Caloric restriction protects mitochondrial function with aging in skeletal and cardiac muscles. *Rejuvenation Research* 9(2): 219-222, 2006.
3. D.J. Baker, D.J. Krause, R.A. Howlett and **R.T. Hepple**. NOS inhibition reduces the O<sub>2</sub> cost of force development, and spares high energy phosphates following contractions in pump-perfused rat hindlimb muscles. *Experimental Physiology* 91.3: 581-589, 2006.
4. D.J. Baker, A.C. Betik, D.J. Krause, and **R.T. Hepple**. No decline in skeletal muscle oxidative capacity with aging in long-term caloric restricted rats: effects are independent of mtDNA integrity. *Journals of Gerontology Biological Sciences* 61A: 675-684, 2006.
5. D.J. Baker and **R.T. Hepple**. Elevated caspase and AIF signaling correlates temporally with progression of sarcopenia in male F344BN rats. *Experimental Gerontology* 41: 1149-1156, 2006.
6. J.S. Vantanajal, J.C. Ashmead, T.J. Anderson, R.T. Hepple and M.J. Poulin. Differential sensitivities of cerebral and brachial blood flow to hypercapnia in humans. *Journal of Applied Physiology* 102: 87-93, 2007.
7. A.C. Betik and **R.T. Hepple**. Determinants of VO<sub>2max</sub> Decline with Aging: An Integrated Perspective. *Applied Physiology, Nutrition and Metabolism* 33(1): 130-140, 2008.



8. A.C. Betik, D.J. Baker, D.J. Krause, M.J. McConkey, and R.T. Hepple. Exercise training in late middle aged male F344BN rats improves skeletal muscle aerobic function. *Experimental Physiology* 93.7: 863-871, 2008.
9. Z.W. Westerbrook, R.T. Hepple, and R.F. Zernicke. Effects of Aging and Caloric Restriction on Bone Structure and Mechanical Properties. *Journals of Gerontology Biological Sciences* 63(11): 1131-1136, 2008.
10. R.T. Hepple, M. Qin, H. Nakamoto, and S. Goto. Caloric restriction optimizes the proteasome pathway with aging in rat plantaris muscle: implications for sarcopenia. *American Journal of Physiology Regulatory Integrative and Comparative Physiology* 295(4): R1231-1237, 2008.
11. R.T. Hepple. Why Eating Less Keeps Mitochondria Working in Aged Skeletal Muscle. *Exercise and Sport Sciences Reviews* (Invited Review) 37(1): 23-28, 2009.
12. L. E. Wong, T. Garland Jr., S. Rowan, R.T. Hepple. Anatomic capillarization is elevated in medial gastrocnemius muscle of mighty mini mice. *Journal of Applied Physiology* 106(5): 1660-1667, 2009.
13. A.C. Betik, M.M. Thomas, K.J. Wright, C.D. Riel and R.T. Hepple. Exercise training from late middle age to senescence does not attenuate the declines in skeletal muscle aerobic function. *American Journal of Physiology Regulatory Integrative and Comparative Physiology* 297(3): R744-755, 2009.
14. R.T. Hepple, R.A. Howlett, C.A. Kindig, C.M. Stary and M.C. Hogan. The O<sub>2</sub> cost of the time-tension integral in isolated single myocytes during fatigue. *American Journal of Physiology Regulatory Integrative and Comparative Physiology* 298(4): R983-988, 2010.
15. M.M. Thomas, C. Vigna, A.C. Betik, A.R. Tupling, and R.T. Hepple. Initiating treadmill training in late middle age offers modest adaptations in Ca<sup>2+</sup> handling but enhances oxidative damage in senescent rat skeletal muscle. *American Journal of Physiology Regulatory Integrative and Comparative Physiology* 298(5): R1269-1278, 2010.
16. R.T. Hepple. Mitochondrial Protein Import in Aged Skeletal Muscle: Can Tom Still Do It? Invited Editorial Focus, *American Journal of Physiology Cell Physiology* 298(6): C1298-1300, 2010.
17. E.E. Carter, M.M. Thomas, T. Murynka, S.L. Rowan, K.J. Wright, E. Huba, and R.T. Hepple. Slow twitch soleus muscle is not protected from sarcopenia in senescent rats. *Experimental Gerontology* 45(9): 662-670, 2010.
18. M.M. Thomas, W. Khan, A.C. Betik, K.J. Wright, and R.T. Hepple. Initiating exercise training in late middle age minimally protects muscle contractile function and increases myocyte oxidative damage in senescent rats. *Experimental Gerontology* 45(11): 856-867, 2010.
19. M. Picard, D. Ritchie, K.J. Wright, M.M. Thomas, S.L. Rowan, T. Taivassalo, and R.T. Hepple. Mitochondrial functional impairment with aging is exaggerated in isolated mitochondria compared to permeabilized myofibers. *Aging Cell* 9(6): 1032-1046, 2010.

**Dr. DENNIS JENSEN**  
Assistant Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2010	Pathological mechanisms of dyspnea and exercise intolerance in symptomatic and asymptomatic GOLD stage 1 (mild) COPD		D. Jensen	Ontario Thoracic Society Grant-In Aid	2010	\$49,990	2011
2010	Effect of inhaled nebulized fentanyl citrate (50 µg) on program exertional dyspnea and exercise tolerance in patients with moderate-to-severe COPD		D. Jensen	Queen's University Department of Medicine Research Awards	2010	\$23,392	2011
2009	The effect of obesity on dyspnea and exercise performance in COPD		D. Jensen	Ontario Thoracic Society Grant-In Aid (2009-2010)	2009	\$49,550	2010
2009	Pathophysiological mechanisms of dyspnea and activity limitation in mild COPD		D. Jensen	W.M. Spear Endowment Fund for Pulmonary Research at Queen's University/Richard K. Start Memorial Fund	2009	\$16,855	2010

PUBLICATIONS

1. Jensen D, Alshail A, Viola R, Dudgeon DJ, Webb KA, O'Donnell DE. Inhaled fentanyl citrate improved exercise endurance during high-intensity, constant-work-rate cycle exercise in COPD. Submitted to the *Journal of Pain and Symptom Management* (02/2011).
2. Guenette JA, Jensen D, Webb KA, Ofir D, Raghavan N, O'Donnell DE. Sex differences in exertional dyspnea in patients with mild COPD: physiological mechanisms. Submitted to *Respiratory Physiology and Neurobiology* (02/2011).

3. Jensen D, O'Donnell DE. The impact of human pregnancy on perceptual responses to chemoreflex vs. exercise stimulation of ventilation: a retrospective analysis. *Respiratory Physiology and Neurobiology*. 175(1): 55-61, 2011.
4. Deesomchok A, Webb KA, Forkert L, Lam YM, Ofir D, Jensen D, O'Donnell DE. Lung hyperinflation and its reversibility in patients with airway obstruction of varying severity. *International Journal of Chronic Obstructive Pulmonary Disease*. 7(6): 428-437, 2010.
5. Guenette JA, Jensen D, O'Donnell DE. Respiratory function and the obesity paradox. Invited Review. *Current Opinion in Clinical Nutrition & Metabolic Care*. 13(6): 618-624, 2010. Invited review.
6. Jensen D, Webb KA, O'Donnell DE. The increased ventilatory response to exercise in pregnancy reflects alterations in the respiratory control systems ventilatory recruitment threshold for CO<sub>2</sub>. *Respiratory Physiology & Neurobiology*. 171(2): 75-82, 2010.
7. Slessarev M, Prisman E, Ito S, Watson R, Jensen D, Preiss D, Greene R, Norboo T, Stoban T, Diskit D, Norboo A, Kunzang M, Appenzeller O, Duffin J, Fisher JA. Differences in the chemoreflex control of breathing between Himalayan and sea-level residents. *Journal of Physiology*. 588(9): 1591-1606, 2010.
8. Jensen D, Mask G, Tschakovsky ME. Variability of the ventilatory response to Duffin's modified hyperoxic and hypoxic rebreathing procedure in healthy awake humans. *Respiratory Physiology & Neurobiology*. 170(2): 185-197, 2010.
9. Ora J, Jensen D, O'Donnell DE. Exertional dyspnea in chronic obstructive pulmonary disease: mechanisms and treatment approaches. *Current Opinion in Pulmonary Medicine*. 16: 144-149, 2010. Invited review.
10. Jensen D, Webb KA, Davies GAL, O'Donnell DE. Mechanisms of activity-related breathlessness in healthy human pregnancy. *European Journal of Applied Physiology*. 106(2): 253-265, 2009.
11. Jensen D, Ofir D, O'Donnell DE. Effects of pregnancy, obesity and aging on the intensity of perceived breathlessness during exercise in healthy humans. *Respiratory Physiology & Neurobiology*. 167(1): 87-100, 2009. Invited review for a special issue entitled, "Dyspnea: Mechanisms of Respiratory Sensation."
12. O'Donnell DE, Ora J, Webb KA, Laveneziana P, Jensen D. Mechanisms of activity-related dyspnea in pulmonary diseases. *Respiratory Physiology & Neurobiology*. 167(1): 116-132, 2009. Invited review for special issue entitled, "Dyspnea: Mechanisms of Respiratory Sensation."
13. Preston M, Jensen D, Janssen I, Fisher JT. Effect of menopause on the chemical control of breathing and its relationship with acid-base status. *American Journal of Physiology: Integrative, Comparative and Regulatory Physiology*. 296(3): R722-R727, 2009.
14. Jensen D, Webb KA, Davies GAL, O'Donnell DE. Mechanical ventilatory constraints during incremental cycle exercise in human pregnancy: implications for respiratory sensation. *Journal of Physiology*. 586: 4735-4750, 2008.
15. Jensen D, Amjadi K, Harris-McAllister V, Webb KA, O'Donnell DE. Mechanisms of dyspnoea relief and improved exercise endurance after furosemide inhalation in COPD. *Thorax*. 63: 606-613, 2008.

16. Laveneziana P, Jensen D, Webb KA, O'Donnell DE. Pharmacological treatment in chronic obstructive pulmonary disease. *Current Respiratory Medicine Reviews*. 4(4): 301-311, 2008. Invited review for a special issue entitled, "COPD: A Physiological Approach."
17. Fraser D, Jensen D, Hahn PM, Wolfe LA, Davies GAL. Fetal heart rate response to maternal hypo- and hypercapnia in human pregnancy. *Journal of Obstetrics and Gynecology of Canada*. 30(4): 312-316, 2008.
18. Jensen D, Duffin J, Lam YM, Simpson JA, Webb KA, Davies GAL, Wolfe LA, O'Donnell DE. Physiological mechanisms of hyperventilation during human pregnancy. *Respiratory Physiology & Neurobiology*. 161: 76-86, 2008.
19. Walker K, Saunders N, Jensen D, Kuk J, Wong SL, Pyke K, Dwyer E, Tschakovsky ME. Do vasoregulatory mechanisms in exercising human muscle compensate for changes in perfusion pressure? *American Journal of Physiology: Heart and Circulatory Physiology*. 293(5): H2928-H2936, 2007.
20. Jensen D, Webb KA, O'Donnell DE. Chemical and mechanical adaptations of the respiratory system at rest and during exercise in human pregnancy. *Applied Physiology Nutrition and Metabolism*. 32: 1239-1250, 2007. Invited review for a special series of manuscripts on "Respiratory Limitations to Exercise Tolerance in Special Populations"
21. Nettiefold L, Jensen D, Wolfe LA, Janssen I. Ventilatory control and acid-base regulation across the menstrual cycle in oral contraceptive users. *Respiratory Physiology & Neurobiology*. 158(1): 51-58, 2007.
22. Jensen D, Webb KA, Wolfe LA, O'Donnell DE. Effects of human pregnancy and advancing gestation on respiratory discomfort during exercise. *Respiratory Physiology & Neurobiology*. 156: 85-93, 2007.
23. Slatkowska L, Jensen D, Davies GAL, Wolfe LA. Phasic menstrual cycle effects on the control of breathing in healthy women. *Respiratory Physiology & Neurobiology*. 154(3): 379-388, 2006.
24. McAuley SE, Jensen D, McGrath MJ, Wolfe LA. Effects of human pregnancy and aerobic conditioning on alveolar gas exchange during exercise. *Canadian Journal of Physiology and Pharmacology*. 83: 625-633, 2005.
25. Jensen D, Wolfe LA, Slatkowska L, Webb KA, Davies GAL, O'Donnell DE. Effects of human pregnancy on the ventilatory chemoreflex response to carbon dioxide. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*. 288: R1369-R1375, 2005.
26. Jensen D, Wolfe LA, O'Donnell DE, Davies GAL. Chemoreflex control of breathing during wakefulness in healthy men and women. *Journal of Applied Physiology*. 98: 822-828, 2005.

**Dr. THEODORE MILNER**  
Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2010	Adaptive control of limb mechanics	T. Milner		NSERC	2010	\$160,000	2015
2009	Efficacy of robot-assisted rehabilitation of hand function after stroke	T. Milner		CRIR	2009	\$25,000	2010
2008	Efficacy of robot-assisted rehabilitation of hand function after stroke	T. Milner		CIHR	2008	\$160,371	2011
2005	Neuromuscular adaptation to training, cross training and passive physical intervention: A neurophysiological approach to understanding human performance and musculoskeletal injury		T. Milner	Australian Research Council	2006	\$390,940	2009
2005	fMRI-compatible robotic interface for neuroscience and rehabilitation applications	T. Milner		CIHR	2005	\$60,000	2007
2005	Adaptive control of limb mechanics	T. Milner		NSERC	2005	\$220,000	2010
2004	Virtual reality rehabilitation of arm and hand function after stroke		T. Milner	NUS Academic Research Fund	2005	\$117,000	2008

PUBLICATIONS

1. Lamberg O., Dovat L., Salman B., Gassert R., Milner T., Burdet E. and Teo C.L. Robot-assisted rehabilitation of hand function after stroke. In Tong, R.A.Y. (ed.) *Biomechanics in Medicine and Health Care*. Pan Stanford (in press).
2. Dovat L., Lamberg O., Salman B., Johnson V., Milner T., Gassert R., Burdet E. and Teo C.L.. (2010) A technique to train finger coordination and independence after stroke. *Disability Rehab: Assistive Tech* 5: 279-287
3. Burdet E., Tee K.P., Franklin D., Kawato M. and Milner T. (2010) Concurrent adaptation of force and impedance in the redundant muscle system. *Biol. Cybern.* 102: 31-44
4. Milner T.E., Lai E.J. and Hodgson A.J. (2009) Modulation of arm stiffness in relation to instability at the beginning or the end of goal-directed movements. *Motor Control* 13: 454-470

5. Chapman, A.R., Vicenzino, B., Hodges, P.W., Blanch, P., Hahn, A. and Milner, T.E. (2009) A protocol for measuring the direct effects of cycling on neuromuscular control of running in triathletes. *J. Sport Sci.* 27: 767-782
6. Milner, T.E. (2009) Impedance control. In Binder, M.D., Hirokawa, N., Windhorst, U. (eds.) *Encyclopedia of Neuroscience*. Springer-Verlag
7. Dovat, L., Lambery, O., Gassert, R., Maeder, T., Teo C.L., Milner, T.E. and Burdet, E. (2008) *HandCARE*: A cable-actuated REhabilitation system to train hand function after stroke. *IEEE Trans. Neural Syst. Rehabil. Eng.* 16: 582-591
8. Franklin, D.W., Burdet, E., Tee, K.P., Osu, R., Chew, C.-M., Milner, T.E. and Kawato, M. (2008) CNS learns stable, accurate and efficient movements using a simple algorithm. *J. Neurosci.* 28: 11165-11173
9. Hall, R.S., Desmoulin, G.T. and Milner, T.E. (2008) A technique for conditioning and calibrating force sensing resistors for repeatable and reliable measurement of compressive force. *J. Biomech.* 41: 3492-3495
10. Reeves N.P., Cholewicki J., Milner T.E. and Lee A. (2008) Trunk antagonist co-activation is associated with impaired neuromuscular performance. *Exp. Brain Res.* 188: 457-463
11. Franklin, D.W., Milner, T.E. and Kawato, M. (2007) Single trial learning of external dynamics: what can the brain teach us about learning mechanisms? In Natsume, K., Hanazawa, A., Miki T. (eds.) *Brain-Inspired IT III*. Elsevier, pp. 67-70
12. Milner, T.E., Hinder, M.R. and Franklin, D.W. (2007) How is somatosensory information used to adapt to changes in the mechanical environment? *Prog. Brain Res.* 165: 365-375
13. Hinder, M.R. and Milner, T.E. (2007) Rapid adaptation to scaled changes of the mechanical environment. *J. Neurophysiol.* 98: 3072-3080
14. Lambery, O., Dovat, L., Gassert, R., Burdet, E., Teo, C.L. and Milner, T.E. (2007) A haptic knob for rehabilitation of hand function. *IEEE Trans. Neural Syst. Rehabil. Eng.* 15: 356-366
15. Franklin, D.W., Liaw, G., Milner, T.E., Osu, R., Burdet, E., and Kawato, M. (2007) End-point stiffness of the arm is directionally tuned to instability in the environment. *J. Neurosci.* 27: 7705-7716
16. Desmoulin, G.T. and Milner, T.E. (2007) Lumbar mechanics from ultrasound imaging. *Can. Acoustics* 35: 61-68
17. Milner, T.E., Franklin, D.W., Imamizu, H. and Kawato, M. (2007) Central control of grasp: manipulation of objects with complex and simple dynamics. *NeuroImage* 36: 388-395
18. Milner, T.E. and Hinder, M.R. (2006) Position information but not force information is used in adapting to changes in environmental dynamics. *J. Neurophysiol.* 96: 526-534

19. Burdet, E., Tee, K.P., Mareels, I., Milner, T.E., Chew, D.M., Franklin, D.W., Osu, R. and Kawato, M. (2006) Stability and adaptation in human arm movements. *Biol. Cybern.* 94: 20-32
20. Milner, T.E, Franklin, D.W., Imamizu, H. and Kawato, M. (2006) Central representation of dynamics when manipulating handheld objects. *J. Neurophysiol.* 95: 893-901
21. Milner, T.E., Ng, B. and Franklin, D.W. (2006) Learning feedforward commands to muscles using time-shifted sensory feedback. In Ishii, K., Natsume, K., Hanazawa, A. (eds.) *Brain-Inspired IT II Decision and Behavioral Choice Organized by Natural and Artificial Brains*. Elsevier, pp. 113-116
22. Franklin, D.W., Burdet, E., Osu, R., So, U., Tee, K.P., Milner, T.E., and Kawato, M. (2006) Learning the dynamics of the external world: Brain inspired learning for robotic applications. In Ishii, K., Natsume, K., Hanazawa, A. (eds.) *Brain-Inspired IT II Decision and Behavioral Choice Organized by Natural and Artificial Brains*. Elsevier, pp. 109-112

**Dr. DAVID PEARSALL**  
Associate Professor

**Dr. RENÉ TURCOTTE**  
Associate Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2010	Étude préliminaire sur les causes d'accidents de chutes et glissades chez les policiers et les brigadiers scolaires. / Preliminary study to identify the accidents caused by slip and fall in police and school crossing guards services	Pearsall DJ	Imbeau D, Farbos B, Gauvin C, Lara J	L'institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST)	Sept 2010	\$70,000	Aug 2011
2008	Mechanics of ice hockey equipment	Pearsall DJ	Turcotte RA. Sabiston C.	NSERC – Industrial Collaborative Research Development (CRD) Grant in conjunction with Bauer-Nike Hockey Inc.	May 1, 2008	\$782,000	April 31, 2013
2005	Ice Hockey Skates and Sticks: biomechanics and design	Pearsall DJ	Montgomery DL, Turcotte RA	NSERC – Industrial Collaborative Research Development (CRD) Grant in conjunction with Bauer-Nike Hockey Inc.	Feb 2005	\$410,000	Jan 2008;



2005	Evaluation of impact deformation and resonance properties of sport helmets in relation to concussion injuries	Pearsall DJ	---	(NSERC) <i>Research (Discovery) Grant</i>	April 2005	\$50,000	March 2008
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PUBLICATIONS

1. Hannon A, Michaud-Paquette Y, Turcotte RA, Pearsall DJ (submitted 2010). Dynamic strain profile of the ice hockey stick: comparison of player calibre and stick shaft stiffness. Sports Engineering
2. Damavandi M, Dixon PC, Pearsall DJ (submitted 2010) Ground reaction force adaptations during cross-slope walking, Human Movement Science xxx-xxx
3. Dixon P, Tisseyre M, Damavandi M, Pearsall DJ (in press 2011). Intra-segment mobility of the foot during running: comparison on level and cross slope terrain. Gait and Posture
4. Michaud-Paquette Y, Magee P, Turcotte RA, Pearsall DJ (in press 2011). Predictors of scoring accuracy: whole body coordination during ice hockey wrist shot mechanics. Sports Biomechanics.
5. Ouckama R, Pearsall DJ (2011) Evaluation of a Flexible Force Sensor for Measurement of Helmet Foam Impact Performance. Journal of Biomechanics, 44 (2011) 904-909, and <http://dx.doi.org/10.1016/j.jbiomech.2010.11.035>
6. Damavandi M, Dixon PC, Pearsall DJ (2010) Kinematic adaptations of the hindfoot, forefoot, and hallux during cross-slope walking, Gait and Posture 32 (2010) 411-415
7. Stidwill TJ, Turcotte R, Pearsall DJ, (2010) Comparison of Skating Kinetics and Kinematics on Ice and on a Synthetic Surface, Sport Biomechanics 9(1): 57-64
8. Stidwill TJ, Pearsall DJ, Dixon P, Turcotte R, (2010) Force Transducer System for Measurement of Ice Hockey Skating Force, Sports Engineering 12:63-68
9. Dixon P, Pearsall DJ. (2010) Gait Dynamics on a Cross-Slope Walking Surface. Journal of Applied Biomechanics, 26, 17-25
10. Chang R, Turcotte R, Pearsall D (2009) Hip Adductor Muscle Function in Forward Skating, Journal of Sport Biomechanics 8(3): 212-222
11. Dowler PM, Pearsall DJ, Stapley PJ. (2009) Effects of ice hockey facial protectors on response time and kinematics in goal directed tasks. Proceedings of the Institution of Mechanical Engineers, Part P, Journal of Sports Engineering and Technology, 223:99-108

12. Michaud-Paquette Y, Pearsall DJ, Turcotte RA (2009) Predictors of scoring accuracy: ice hockey wrist shot mechanics Sports Engineering 11:75-84
13. Pearsall DJ and Dowler P. (2008) A Longitudinal Study of Hockey Helmet Shelf Life. Journal of ASTM International, Vol. 5, No. 8 Paper ID JAI101870 available online at [www.astm.org](http://www.astm.org) and (2009) Journal of ASTM International Selected Technical Papers STP1516 Safety in Ice Hockey: 5th Volume, Editors Richard M. Greenwald and Alan B. Ashare, West Conshohocken, PA, 99-106.
14. Upjohn T, Turcotte R, Pearsall DJ, Loh J (2008) Three dimensional kinematics of the lower limbs during forward ice hockey sport Biomechanics 7(2): 205–220
15. Lemair M, Pearsall DJ (2007) Evaluation of impact attenuation of facial protectors in ice hockey helmets. Sports Engineering 10: 65-74
16. Lomond KV, Turcotte RA, and Pearsall DJ (2007) Blade position and orientation during an ice hockey slap shot Sports Engineering 10: 87-100
17. Villasenor- Herrara A, Pearsall DJ, Turcotte RA (2006) Recoil effect of the ice hockey stick during a slap shot. Journal of Applied Biomechanics, 22(3):202-211

Proceedings\* / Book chapters / Collective works (\*peer reviewed)

1. Pearsall DJ and Turcotte RA. (in press 2011). Design and Materials in Ice Hockey Sticks. Routledge Handbook of Sports Technology and Engineering", Editors: F.K. Fuss, A. Subic, M. Strangwood, R. Mehta, Routledge, New York, NY.
2. Turcotte RA and Pearsall DJ. (in press 2011). Design and Materials in Ice Hockey Skates and Skating. Routledge Handbook of Sports Technology and Engineering", Editors: F.K. Fuss, A. Subic, M. Strangwood, R. Mehta, Routledge, New York, NY.
3. Pearsall DJ and Dowler P. (2009) A Longitudinal Study of Hockey Helmet Shelf Life, Safety in Ice Hockey Fifth Volume, Journal of ASTM International Selected Technical Papers, ASTM STP 1516, R. Greenwald and A.B. Ashare, Editors, American Society for Testing and Materials, West Conshohocken, PA, 99-106.
4. Pearsall DJ and Turcotte RA (2007) Design and Materials in Ice Hockey, in Materials In Sports Equipment Volume 2, editor A Subic, Woodhead Publishing Ltd, Cambridge England pp: 203-224

**Dr. HÉLÈNE PERRAULT**  
Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2008	Measurement of exertional dyspnea in the primary care setting in patients with COPD (Phase II). Sensitivity of the step test and shuttle walk to detect improvement in dyspnea following bronchodilation in patients with COPD.	H. Perrault F. Maltais		Boehringer-Ingelheim	June 2008	\$200,000	June 2010
2005	Development of a simple test to assess exertional dyspnea in patients with COPD in the primary care setting	H. Perrault	J. Bourbeau	Boehringer-Ingelheim	August 2008	\$85,000	August 2006
2005	Why do locomotor muscles limit exercise in COPD: an integrative investigation of oxygen transport and utilization?	H. Perrault	J. Bourbeau R. Boushel	McGill University health Centre, Pilot Project competition	January 2005	\$20,000	January 2006

As co-applicant or collaborator:

2008	Eccentric Exercise Training as novel rehabilitation for COPD.	J. Bourbeau	H. Perrault, R. Richard, T. Taivassalo B. Petrof Y. Burelle	McGill University Health Center - Pilot Project Competition	January 2008	\$20,000	January 2009
2006	Effects of a home-based versus hospital-based outpatient pulmonary rehabilitation program in patients with COPD: a multicenter, randomized trial (Renewal)	J. Bourbeau	F. Maltais M. Baltzan H. Perrault Y. Lacasse S. Shapiro	CIHR - Clinical Research Trial program	June 2006	\$280,470	2007

2004	Renal Rehabilitation Program: Hemodialysis unit Aerobic Exercise Program - Montreal General Hospital of the MUHC.		S. Iqbal P. Barré H. Perrault	Amgen pharmaceuticals	May 2004	\$5,344	May 2005
2004	Renal Rehabilitation Program: Hemodialysis unit Aerobic Exercise Program - Royal Victoria Hospital of the MUHC		S. Iqbal P. Barré H. Perrault	Kidney Fund at the Royal Victoria Hospital of the MUHC	May 2004	\$4,000	May 2005
2003	Effects of a home-based versus hospital-based outpatient pulmonary rehabilitation program in patients with COPD: a multicenter, randomized trial	J. Bourbeau	F. Maltais M. Baltzan H. Perrault Y. Lacasse S. Shapiro	CIHR - Clinical Research Trial program	June 2003	\$989,772	2006

#### PUBLICATIONS

##### A) Refereed Articles

\* denotes a graduate student of H. Perrault.

Articles in press, accepted, under review or submitted:

1. Baril J., Kapchinsky S., Richard R., Laurin J., Bourbeau J., Perrault H., Taivassalo T. *Exercise cardiac output response in COPD. Submitting to: American J. of Respiratory and Critical Care Medicine*, November 2010.
2. Kapchinsky S., Baril J., Richard R., Vieira D., Laurin J., Bourbeau J., Perrault H., Taivassalo T. *Measures of exercise cardiac output in chronic obstructive pulmonary disease: comparison of three non-invasive techniques. European Respiratory J.* (Manuscript ID: ERJ-01756-2010) Submitted November 2010.
3. Vieira D., Baril J., Richard R., Perrault H., Bourbeau J., Taivassalo T. *Eccentric cycle training: FIT for chronic obstructive pulmonary disease? Journal of COPD*, under review since September 20, 2010 (Manuscript ID: COPD-2010-0066).
4. Baril J., Robillard J., Sheel W., Boushel R., Bourbeau J., Perrault H., Taivassalo T. *One and 2-leg dynamic knee-exercise blood flow in COPD: no impact of dynamic hyperinflation. European Respiratory J.*, August 12 2010 (revisions underway, Manuscript ID: ERJ-01293-2010).
5. A. Naimi, Perrault H., C. Wright-Paradis, A. Rossi, J. Baril, R. Rabøl, J. Bourbeau, F. Dela, R. Boushel. *Altered mitochondrial respiration in patients with obstructive lung disease. Clinical Physiology and Functional Imaging* (accepted October 2010).

6. J. Baril\*, J. Robillard\*, T. Taivasallo, J. Bourbeau, W. Sheel, Perrault H. *Small versus Large Muscle Mass Exercise Paradigm in COPD: a ventilatory perspective*. Submitting to J. of Respiratory Physiology and Neurobiology.
  7. Perrault H., J. Baril\*, S. Henophy\*, A. Rycroft\*, J. Bourbeau, F. Maltais. *Paced walking and stair stepping tests to assess exertional dyspnea in COPD*. Journal of Chronic Obstructive Pulmonary Disease 6,330-339, 2009.
  8. F. Maltais, J. Bourbeau, S. Shapiro, Y. Lacasse, Perrault H., J.R. Penrod, M. Baltzan, B. Hutton, M. Rouleau, M. Julien, S. Parenteau, B. Paradis, R. Audet, P. Hernandez, R.D. Levy, P. Camp, R. Lecours, D. Picard, S. Bernard. "Effects of home-based pulmonary rehabilitation in patients with Chronic Obstructive Pulmonary Disease". Ann of Intern Med 149:869-878, 2008.
  9. M. Picard, R. Godin, M. Sinnreich, J. Bourbeau, Perrault, H. T. Taivasallo, Y. Burelle. *The mitochondrial phenotype of peripheral muscle in COPD: Disuse or dysfunction?* Am J Respir Crit Care Med. 178:1040-7, 2008.
  10. S. Ngomo, K. Messing, H. Perrault, A. Comtois. *Orthostatic symptoms, blood pressure and working postures of factory and service workers over an observed workday*. Applied Ergonomics 39: 729-736, 2008.
  11. Perrault H., Gravel G., Ofir D., Rittmaster D., Aguilaniu B., Bourbeau J. *Cycling efficiency is not compromised in moderately severe COPD*. Medicine Science Sports and Exercise 39: 918-925, 2007.
  12. Perrault H. *Efficiency of movement in Health and Chronic Disease*. (Invited review). J. Clin. Invest. Med. 29 (2): 117-121, 2006.
  13. J. Baril,\* M. de Souza, D. Leroy, D. Ofir, B. Aguilaniu, C. Gladys, R. Olivenstein, J. Bourbeau & H. Perrault. *Does Dynamic Hyperinflation Impair Submaximal Exercise Cardiac Output in Chronic Obstructive Pulmonary Disease?* Clin. Invest. Med. 29 (2): 104-110, 2006.
  14. F. Maltais, J. Bourbeau, Y. Lacasse., S. Shapiro, H. Perrault., J.R. Penrod, M. Baltzan, M. Rouleau, M. Julien, B. Paradis, R. Audet, P. Hernandez, R. D. Levy, P. Camp, R. Lecours, D. Picard, S. Bernard. *A Canadian, multicentre, randomized clinical trial of home-based pulmonary rehabilitation in chronic obstructive pulmonary disease: Rationale and methods*. Can. Resp. J. 12 (4) 193 - 198, 2005.
- B) Articles in Journals without peer review
  1. Perrault H. *Integrated Thinking, Integrated Learning: Changing Our Ways for Changing Global Realities*, Learning Landscapes, 3 (2):115-121, Spring 2010.
  - C) Contributions to books
  1. Bourbeau J. & Perrault H. *Physiologic basis for rehabilitation in COPD*. In: The Physiologic Basis of Respiratory Disease. Editors. Hamid Q., Shannon J., Martin J.G. The Physiologic Basis of Respiratory Disease. Chap. 65. pp 733-745. B.C. Decker Inc. 2005.

**Dr. GREGORY REID**  
Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2005	Self-directed motor learning of Children with movement difficulties: Impact of knowledge and critical incidents	Greg Reid	Marcel Bouffard	SSHRC	2005	\$84,651	2008
2007	Étude longitudinale de l'impact des habiletés sensorimotrices sur l'indépendance fonctionnelle dans les activités de la vie quotidienne des enfants avec trouble envahissant du développement	Eric Fombonne	Erika Gisel, Greg Reid, Isabel Smith, Melanie Couture	FRSCQ	2007	\$47,300	2009
2010	A team building approach to enhance the sport environment of elite athletes with a physical disability	Gordon Bloom	Todd Loughhead, Greg Reid	SSHRC	2010	\$110,685	2013

PUBLICATIONS

1. Todd, T., & Reid, G. (2006). Increasing physical activity in individuals with autism. *Focus on Autism and other Developmental Disabilities*, 21, 167-176.
2. Lloyd, M., Reid, G., & Bouffard, M. (2006). Self-regulation of sport specific and educational problem-solving tasks by children with and without DCD. *Adapted Physical Activity Quarterly*, 23, 370-389.
3. Tsalavoutas, I. & Reid, G. (2006). Risk-taking and achievement in children with and without a physical disability. *Adapted Physical Activity Quarterly*, 23, 410-423.
4. Staples, K., Todd, T., & Reid, G. (2006). Physical activity instruction and autism spectrum disorders. *ACHPER Healthy Lifestyles Journal*, 53 (3-4), 17-23.
5. Wall, A. E., Reid, G., & Harvey, W. J. (2007). Interface of the knowledge-based and ecological task analysis approaches. In W. Davis & G. Broadhead (Eds.), *Ecological Task Analysis and Movement* (pp. 259-277) Champaign, IL: Human Kinetics.
6. Cregan, K., Bloom, G.A., & Reid, G. (2007). Career evolution and knowledge of elite coaches of swimmers with a physical disability. *Research Quarterly for Exercise and Sport*, 78, 339-350.

7. Harvey, W. J., Reid, G., Grizenko, N., Mbekou, V., Ter-Stepanian, M., & Joobar, R. (2007). Fundamental movement skills and children with attention-deficit hyperactivity disorder: Peer comparisons and stimulant effects. *Journal of Abnormal Child Psychology*, 35, 871-882.
8. Harvey, W. J., Reid, G., Bloom, G. A., Staples, K., Grizenko, N., Mbekou, V., Ter-Stepanian, M., & Joobar, R. (2009). Physical activity experiences of boys with and without ADHD. *Adapted Physical Activity Quarterly*, 26, 131-150.
9. Jasmin, E., Couture, M., McKinley, P., Reid, G., Fombonne, E., & Gisel, E. (2009). Sensori-motor and daily living skills of preschool children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 39, 231-241.
10. Reid, G., Vallerand, R. J., Poulin, C., & Crocker, P. (2009). The development and validation of the pictorial motivation scale in physical activity. *Motivation and Emotion*, 33, 161-172.
11. Seymour, H., Reid, G. & Bloom, G. (2009) Friendship in inclusive physical education. *Adapted Physical Activity Quarterly*, 26,201-219.
12. Staples, K. L. & Reid, G. (2010) Fundamental movement skills and autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 40, 209-217.
13. Todd, T., Reid, G., & Butler-Kisber, L. (2010). Cycling for students with ASD: Self-regulation promotes sustained physical activity. *Adapted Physical Activity Quarterly* 27, 226-241.
14. Borisov, C. & Reid, G. (2010). Students with intellectual disabilities acting as tutors: An interpretative phenomenological approach. *European Journal of Special Needs Education*, 25, 295-309.

**Dr. CATHERINE SABISTON**  
Assistant Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2010	Monitoring Activities of Teenagers to Comprehend the Habits (Project MATCH).	Belanger	Beauchamp, Sabiston, Richard, O'Loughlin	Social Sciences and Humanities Research Council of Canada	January 2011	\$120,000	January 2014
2010	Life After Breast Cancer: <i>Moving On/ La vie après un cancer du sein: en mouvement</i>	Sabiston	-	Fonds de la recherche en santé Québec	November 2010	\$45,000	October 2013
2010	Coping with stressful competitive athletic performance. Examining the moderating and mediating effects of perfectionism, gender, and appraisals on achievement and emotional states	Crocker	Sabiston, Gaudreau, Kowalski	Social Sciences and Humanities Research Council of Canada	September 2010	\$99,500	September 2013
2010	Mixed-approach study of physical activity maintenance during adolescence	Belanger	Beauchamp, Sabiston, Richard, O'Loughlin, Schofield	New Brunswick Health Research Foundation	June 2010	\$25,000	May 2011
2009	Pan Canadian strategic training in population intervention research for chronic disease prevention	Cameron	58 co-i's, including Sabiston	Canadian Institute of Health Research	October 2009	\$1,950,000	October 2014
2009	Psychosocial oncology research training (PORT): A renewal application	Loiselle	30 co-i's, including Sabiston	Canadian Institute of Health Research	October 2009	\$1,950,000	October 2014



2008	Physical activity among breast cancer survivors: Understanding the impact on biological risk factors and psychological health over time.	Sabiston	Wrosch, O'Loughlin	Canadian Institute of Health Research	October 2008	\$456,756	September 2011
2008	Physical self-conscious emotions: exploring contexts, processes, and health outcomes.	Sabiston	Mack, Wilson, Crocker, Kowalski	Social Sciences and Humanities Research Council of Canada	May 2008	\$88,001	May 2012
2008	Compréhension des comportements de santé et des émotions chez les adolescents : la prise en compte des influences sociales, des représentations de soi physiques contradictoires et des perceptions de soi	Sabiston	-	Fonds québécois de la recherche sur la société et la culture	May 2008	\$40,427	May 2011
2008	The role of self-compassion in adolescent women athletes' experience of the self-conscious emotions	Kowalski	Sabiston, Tracy, Sedgwick		May 2008	\$105,179	May 2012
2008	Examining the role of sport participation among transplant recipients: Implications for positive psychological growth?	Sabiston	-	McGill Social Sciences and Humanities Research Grant	June 2008	\$2,500	June 2009
2007	Exploring emotion-driven behaviour	Sabiston	-	McGill Social Sciences and Humanities Research Grant	June 2007	\$5,000	June 2008
2006	The Impact of Tobacco Control Programs, Policies and Community Environments on Adolescent Tobacco Use	Lovato	Brown, Sabiston, Adlaf, Nykiforyk, Campbell, Burt, Eyles, Manske, Thompson	Canadian Institutes of Health Research	October 2006	\$821,543	October 2009
2006	A National Survey of School Smoking Policies and Adolescent Tobacco Use.	Lovato	Manske, Sabiston, Nykiforyk, Best	Canadian Tobacco Research Control Initiative	June 2006	\$80,000	June 2008

2006	A Cross-Cultural Examination of Factors Influencing the Motivation and Physical Activity of High School Physical Education Students	Lonsdale	Sabiston, Ha Sauching, Raedeke, Sum Kim Wai	Chinese University of Hong Kong	August 2006	\$51,800	August 2008
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In Press

1. Banack, H., Sabiston C. M., Bloom, G. (Accepted October 2010). Paralympic athletes' perceptions of coach autonomy support and intrinsic motivation. *Research Quarterly for Exercise & Sport*.
2. Lonsdale, C., Taylor, I., Ntoumanis, N., & Sabiston, C. M. (Accepted October 2010). Measuring student motivation for physical education: examining the psychometric properties of the Perceived Locus of Causality Questionnaire and the Situational Motivation Scale. *Psychology of Sport and Exercise*.
3. Fuller, D., Sabiston, C. M., Karp, I., Barnett, T. A., O'Loughlin, J. (Accepted August 2010). The association between school sports opportunities and physical activity levels in youth. *Journal of School Health*.
4. Burke, S., Sabiston, C. M. (Accepted January 2011). Fostering growth in the survivorship experience: Investigating breast cancer survivors' lived experiences scaling Mt. Kilimanjaro from a posttraumatic growth perspective. *The Qualitative Report*.
5. Sabiston, C. M. & Brunet, J. (Accepted January 2011). Benefits of Physical Activity during Cancer Survivorship: A State of the Art Review. Invited Review for *The American Journal of Lifestyle Medicine*.
6. Brunet, J., Sabiston, C. M., & Meterrisian, S. (Accepted February 2011). Physical activity and breast cancer survivorship: A review for health practitioners. *The American Journal of Lifestyle Medicine*.
7. Sabiston, C. M. & Andersen, R. E. (Accepted January 2011). Helping Breast Cancer Survivors Adopt Active Lifestyles. *American Council on Exercise Journal*.
8. Recours, R., Hanula, G., Traver, M., Sabiston, C. M., & Griffet, J. (Ahead of Print). The 'MangerBouger' French strategy for physical activity and the prevention of obesity: What impact on children and adolescents? *Child: Care, Health & Development*. Available online November 18, 2010: DOI: 10.1111/j.1365-2214.2010.01167.x
9. Sabiston, C. M., Whitehead, J. & Eklund, R. (In Press). Measuring Exercise Self-Perceptions and Identity. In R. Eklund & G. Tenenbaum [Editors] *Handbook of Measurement in Sport and Exercise Psychology*. Human Kinetics.
10. Mosewich, A. D., Kowalski, K. C., Sabiston, C. M., Sedgwick, W. A., Tracy, J. L. (2011). Young women athletes' self-conscious emotions and self-compassion. *Journal of Sport & Exercise Psychology*, 33, 103-123.

11. Brunet, J. & Sabiston, C. M. (2011). Exploring motivation for physical activity across the adult lifespan. *Psychology of Sport and Exercise, 12*, 99-105.
12. Crombie, P-A., Brunet, J. & Sabiston, C. M. (2011). Stop staring! Proposed strategies to reduce body image concerns in physical education. *Journal of Physical Education, Recreation and Dance, 82*, 39-43.
13. Picard, M., Sabiston, C. M., & McNamara, J. (2011). The Need for a Transdisciplinary, Global Health Framework. *The Journal of Alternative and Complementary Medicine, 17*, 179-184.
14. Brunet, J. & Sabiston, C. M. (2011). In the company we keep: Do experiences of social physique anxiety differ around parents and peers? *Journal of Health Psychology, 16*, 42-49, doi: 10.1177/1359105310367530
15. Love, C. & Sabiston C. M. (2011). Examining physical activity as a moderator of the relationship between social support and psychological growth among young adult cancer survivors. *Psycho-Oncology, 20*, 278-286. DOI: 10.1002/pon.1733
16. Hassell, K., Sabiston, C. M., & Bloom, G. (2010). Exploring the multiple dimensions of social support in elite youth female sport. *International Journal of Sport Psychology, 41*, 340-359.
17. Sabiston, C. M., Brunet, J., Kowalski, K. C., Wilson, P., Mack, D. E. & Crocker, P. R. E. (2010). The role of body-related self-conscious emotions in motivating women's physical activity. *Journal of Sport & Exercise Psychology, 32*, 417-437. [lead article]
18. Barnett, T. A., O'Loughlin, J., Sabiston, C. M., Karp, I., Belanger, M., Van Hulst, A., & Lambert, M. (2010). Teens and Screens: The influence of screen-time on adiposity in adolescents. *American Journal of Epidemiology, 172*, 255-262.
19. Hadd, V., Sabiston, C. M., McDonough, M., & Crocker, P. R. E. (2010). Sources of Stress for Breast Cancer Survivors Involved in Dragon Boat: Examining Associations with Treatment Characteristics and Psychological Well-Being. *Journal of Women's Health, 19*, 1345-1353.
20. Sabiston, C. M., Rusticus, S., Brunet, J., McDonough, M., Hadd, V., Hubley, A., & Crocker, P. (2010). Does an experience with breast cancer alter the measurement of body image? Testing the invariance of the MBSRQ with healthy women and breast cancer survivors. *Quality of Life Research, 19*, 1171-1180.
21. McDonough, M. H., Sabiston, C. M., Sedgwick, W. A., Crocker, P. R. E. (2010). Changes in motivation and self-perceptions during a physical activity intervention for overweight women. *Women in Sport and Physical Activity Journal, 19*, 33-46.
22. McComb, J. L. & Sabiston, C. M. (2010). Family influences on adolescent gambling. *Journal of Gambling Studies, 26*, 503-520. [lead article]
23. Sabiston, C. M., Castonguay, A., Low, N., Mathieu, M., Lambert, M., O'Loughlin, J. (2010). Vigorous physical activity and C-reactive protein among adolescents. *International Journal of Pediatric Obesity, 5*, 509-515.

24. Sabiston, C. M. & Munroe-Chandler, K. J. (2010). Effects of fitness advertising on weight and body shape satisfaction, social physique anxiety, and exercise motives. *Journal of Applied Biobehavioral Research*, 14, 165-180.
25. Brunet, J., Sabiston, C. M., Dorsch, K., McCreary, D. (2010). Exploring a Model of Determinants of Social Physique Anxiety in Male and Female Adolescents: The role of drive for muscularity, maladaptive eating, and self-esteem. *Body Image: An International Journal*, 7, 137-142.
26. Burke, S., Sabiston, C. M. (2010). Exploring Breast Cancer Survivors' Experiences of Subjective Well-Being during an Attempt to Scale Mt. Kilimanjaro: An Interpretive Phenomenological Study. *Qualitative Research in Sport and Exercise*, 2, 1-16.
27. Garcia, E., Sabiston, C. M., Ahmed, R., Faroush, M. (2010). Exploring links to unorganized and organized physical activity during adolescence: the role of gender, socioeconomic status, weight status, and enjoyment of physical education. *Research Quarterly in Exercise and Sport*, 81, 7-16.
28. Ahmed, S., Gogovor, A., Kosseim, M., Poissant, L., Riopelle, R., Simmonds, M., Krelenbaum, M., Montague, T. for the Chronic Disease management and prevention colloquim participants, including Sabiston, C. M. (2010). Advancing the chronic care road map: a contemporary overview. *Healthcare Quarterly*, 13, 72-79.
29. Mack, D. E., Sabiston, C. M., McDonough, M. H., Wilson, P. S., & Pasevich, D. (2010). Motivation for sport and exercise. In P. R. E. Crocker [Editor] *Sport Psychology: A Canadian Perspective*.
30. Andersen, R. E., & Sabiston, C. M. (2010). Physical Activity for Obese Children and Adults. In Dube L, Bechara, A, Dagher (eds) *Obesity Prevention: The role of brain and society on individual behavior*, pp. 391-402. Academic Press.
31. DiFrenza, J., Wellman, R. J., Ursprung, S. A., Sabiston, C. M. (2009). The autonomy over smoking scale. *Psychology of Addictive Behaviors*, 23, 656-665.
32. Brunet, J., McDonough, M. H., Hadd, V., Crocker, P. R. E., Sabiston, C. M. (2009). The Posttraumatic Growth Inventory: An Examination of the Factor Structure and Invariance among Breast Cancer Survivors. *Psycho-Oncology*, 19, 830-838.
33. Sabiston, C. M., Lovato, C. Y., Ahmed, R., Hadd, V., Brown, K. S. (2009). Individual perceptions, school smoking policies, and visibility of smoking at school: Are they linked to student smoking status? *Journal of Youth and Adolescence*, 38, 1374-1387.
34. Sabiston, C. M. (2009). We are what we (think) we eat. *Journal of Adolescent Health*, 45, 3-5. [invited editorial]
35. Chaiton, M., Sabiston, C. M., O'Loughlin, J., McGrath, J., Maximova, K., Lambert, M. (2009). A structural equation model relating adiposity, psychosocial indicators of body image, and depressive symptoms among adolescents. *International Journal of Obesity*, 33, 588-596.
36. Sabiston, C. M., Castonguay, A., Barnett, T., O'Loughlin, J., Lambert, M. (2009). Body image and C-reactive protein in adolescents. *International Journal of Obesity*, 33, 597-600.
37. Sabiston, C. M., McDonough, M. H., Sedgwick, W. A., Crocker, P. R. E. (2009). Muscle gains and emotional strains: Conflicting experiences of change among overweight women participating in an exercise intervention program. *Qualitative Health Research*, 19, 466-480.

38. Brunet, J. & Sabiston, C. M. (2009). Examining the relationship between social physique anxiety and physical activity: a self-determination perspective. *Psychology of Sport & Exercise, 10*, 329-335.
39. Lonsdale, C., Sabiston, C. M., Raedeke, T. D., Ha, A. S. C., Sum, R. K. W. (2009). Self-Determined motivation and students' physical activity during structured physical education lessons and free choice periods. *Preventive Medicine, 69-73*.
40. Sabiston, C. M., McDonough, M. H., & Crocker, P. R. E. (2008). An Interpretive Phenomenological Examination of Psychosocial Changes among Breast Cancer Survivors in their First Season of Dragon Boating. *Journal of Applied Sport Psychology, 20*, 425-440.
41. Sabiston, C. M. & Crocker, P. R. E. (2008). Exploring a model of self-perceptions and social influences in the prediction of adolescent leisure-time physical activity. *Journal of Sport and Exercise Psychology, 30*, 3-22.
42. Sabiston, C. M. & Crocker, P. R. E. (2008). Examining an integrative model of physical activity and healthy eating behaviors among adolescents. *Journal of Adolescent Health, 42*, 64-72.
43. Sabiston, C. M., McDonough, M. H., Crocker, P. R. E. (2007). Psycho-social experiences of breast cancer survivors involved in a dragon boat program: Exploring links to positive psychological growth. *Journal of Sport and Exercise Psychology, 29*, 419-438.
44. Lovato, C. Y., Hsu, H., Sabiston, C. M., Hadd, V., Nykiforuk, C. I. J. (2007). Tobacco point-of-purchase marketing in school neighbourhoods and school smoking prevalence: A descriptive study. *Canadian Journal of Public Health, 98*, 265-270.
45. Lovato, C. Y., Sabiston, C. M., Hadd, V., Nykiforuk, C. I. J., Campbell, H. S. (2007). The impact of school smoking policies and student perceptions of enforcement on school smoking prevalence and location of smoking. *Health Education Research, 22*, 782-793.
46. Sabiston, C. M., Sedgwick, W. A., Crocker, P. R. E., Kowalski, K. C., & Stevens, D. (2007). Social physique anxiety in adolescents: an examination of influences, coping strategies and health behaviours. *Journal of Adolescent Research, 22*, 78-101.
47. Crocker, P. R. E., Sabiston, C. M., Kowalski, K. C., McDonough, M. H., Kowalski, N. (2006). Longitudinal assessment of the relationship between physical self-concept and health related behaviour and emotion in adolescent girls. *Journal of Applied Sport Psychology, 185-200*.
48. Sabiston, C. M. & Wilson, B. (2006). Britney, the body, and the blurring of popular cultures. A case study of music videos, gender, a transcendent celebrity, and health issues (pp 199-210). In L. Fuller (Ed.) *Sexual Sports Rhetoric: Teaming up gender with the language of sport*. New York, NY: Palgrave MacMillan.

**Dr. PAUL STAPLEY**  
Associate Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2006	Brainstem control of movement and posture in the cat'	Trevor Drew	Paul Stapley	CIHR	2008	\$941,855.00	2013
2006	Coordination of posture and voluntary movement	Paul Stapley		NSERC	2005	\$121,375.00	2010
2006	Stability and movement is a complex balancing act: Infrastructure for investigating how humans maintain their balance during voluntary movement'	Paul Stapley		CFI	2005	\$310,439.00	2010
2006	Vestibular contributions to posture during voluntary head movements	Paul Stapley	Ross Andersen Michael Meany	CRIR	2006	\$10000.00	2007
2006	The biomechanical and central aspects of postural control in humans and animals	Paul Stapley		FRSQ	2006	\$106,837.00	2008

PUBLICATIONS

1. Leonard JA, Gritsenko V, Ouckama R, Stapley PJ (2011) Postural adjustments for online corrections of arm movements during stance. *Journal of Neurophysiology* DOI:10.1152/jn.00944.2010
2. Lepers R, Stapley PJ (2011) Age-related changes in conventional road vs. off-road triathlon performance. *European Journal of Applied Physiology* DOI: 1007/s00421-010-1805-z
3. Lepers R, Stapley PJ (2010) Differences in gender and performance in Off-road triathlon. *Journal of Sports Sciences* 28 (14): 1555-1562
4. Vedula S, Kearney RE, Wagner R, Stapley PJ (2010) Decoupling of stretch reflex and background muscle activity during anticipatory postural adjustments in humans. *Experimental Brain Research* 205 (2): 205-213
5. Trivedi H, Leonard JA, Ting LH, Stapley PJ (2010) Postural responses to unexpected perturbations of balance during reaching. *Experimental Brain Research* 202 (2): 485-491

6. Chapman AR, Hodges PW, Hahn A, Briggs AM, Stapley PJ, Vicenzino B (2010) Neuromuscular control and exercise-related leg pain in triathletes. *Medicine and Science in Sports and Exercise* 42 (2): 233-243
7. Dowler PM, Pearsall DJ, Stapley PJ (2009) Effects of ice hockey facial protectors on response time and kinematics in goal directed tasks. *Proceedings of the Institution of Mechanical Engineers, Part P: Journal of Sports Engineering & Technology* 223 (3): 99-108
8. Leonard JA, Brown RH, Stapley PJ (2009) Reaching to multiple targets when standing: The spatial organization of feed-forward postural adjustments. *Journal of Neurophysiology* 101 (4): 2120-2133
9. Stapley PJ, Drew T (2009) The pontomedullary reticular formation contributes to the compensatory postural responses observed following removal of the support surface in the standing cat. *Journal of Neurophysiology* 101 (3): 1334-1350
10. Vedula S, Stapley PJ, Kearney RE (2008) Reflex changes associated with anticipatory postural adjustments preceding voluntary arm movements in standing humans. *Conf Proc IEEE Eng Med Biol Soc.* 1: 4523-4526.
11. Schepens B, Stapley PJ, Drew T (2008) Neurones in the pontomedullary reticular formation signal posture and movement both as an integrated behaviour and independently. *Journal of Neurophysiology* 100: 2235-2254
12. Macpherson JM, Everaert DG, Stapley PJ, Ting LH (2007) Bilateral vestibular loss in cats leads to active destabilization of balance during pitch and roll rotations of the support surface. *Journal of Neurophysiology* 97: 4357-4367
13. Stapley PJ, Ting LH, Chen K, Everaert DG, Macpherson JM (2006) Bilateral vestibular loss leads to active destabilisation of balance during voluntary head turns in the standing cat. *Journal of Neurophysiology* 95: 3783-3797
14. Stapley PJ, Berreta MV, Dalla-Toffola E, Schieppati M (2006) Neck muscle fatigue and postural control in patients with whiplash injury. *Clinical Neurophysiology* 117 (3): 610-622

**Dr. TANJA TAIVASSALO**  
Assistant Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2007	Aspects physiologique et moléculaire de l'intolérance à l'exercice et de l'entraînement physique des patients porteurs de myopathies mitochondriales	T. Taivassalo		Fonds de la recherche en santé du Québec (FRSQ) – Chercheur Boursier	2007	\$ 189,478	2011
2008	Operating grant: Exercise-induced upregulation of mitochondrial gene expression: Therapeutic strategies for mitochondrial disease	T. Taivassalo		Canadian Institutes of Health Research (CIHR) – Institute of Musculoskeletal Health in partnership with Muscular Dystrophy Association of Canada	2008	\$ 123,571	2011
2006	Leaders Opportunity Fund From mitochondrial genes to whole-body function: Assessment and implications of muscle energy crisis in human disease and aging	T. Taivassalo		Canadian Foundation for Innovation (CFI)	2006	\$ 499,837	2011
2006	Regulation of exercise oxygen cascade in humans: Clues from mutant muscle mitochondria	T. Taivassalo		NSERC – Discovery grant	2006	\$ 112,000	2011
2003	Project grant: Strength training as gene-shifting therapy for mitochondrial myopathies	T. Taivassalo		United Mitochondrial Disease Foundation	2003	\$ 48,000 US	2006
2003	Development grant: Endurance training as therapy for mitochondrial myopathies	T. Taivassalo		Muscular Dystrophy Association USA	2003	\$ 135,000 US	2005



Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2007	RO1 Operating grant: Exercise adaptations in mitochondrial myopathy: Therapeutic implications		T. Taivassalo	National Institutes of Health (NIAMS)	2007	\$ 3,000,000 US	2012
2008	New Team Stream Eccentric exercise training as novel rehabilitation for COPD		T. Taivassalo	MUHC Pilot Project	2008	\$20,000	2009
2005	Operating grant: The multisystem effect of exercise training/nutritional support during prolonged bed rest deconditioning: An integrative approach to countermeasure development of the heart, lungs, muscles and bones		T. Taivassalo	National Aeronautics and Space Administration (NASA)	2005	\$ 280,000 US	2009

## PUBLICATIONS

### Peer-reviewed manuscripts

1. Naimi AI, Bourbeau J, Perrault H, Baril J, Wright-Paradis C, Rossi A, Taivassalo T, Sheel AW, Rabøl R, Dela F, Boushel R. Altered mitochondrial regulation in quadriceps muscles of patients with COPD. *Clinical Physiology and Functional Imaging*, DOI:10.1111.j.1475-097X.2010.00988.x October 3, 2010.
2. Picard M, Ritchie D, Wright KJ, Thomas MM, Rowan SL, Taivassalo T, Hepple RT. Mitochondrial functional impairment with aging is exaggerated in isolated mitochondria compared to permeabilized myofibers. *Aging Cell*, Sept 17 (Epub ahead of print), 2010.
3. Andersen ST, Jeppesen TD, Taivassalo T, Sveen ML, Heinicke K, Haller RG, Vissing J. Effect of changes in fat availability on exercise capacity in McArdle disease. *Arch Neurol*. 2009 Jun;66(6):762-6.
4. Orngreen MC, Jeppesen TD, Andersen ST, Taivassalo T, Hauerslev S, Preisler N, Haller RG, van Hall G, Vissing J. Fat metabolism during exercise in patients with McArdle disease. *Neurology*. 2009 24;72(8):718-24.
5. Murphy, J.L., Blakely, E.L., Schaefer, A.M., He, L., Wyrick, P., Haller, R.G., Taylor, R.W., Turnbull, D.M. and Taivassalo, T. Resistance training in patients with single, large-scale deletions of mitochondrial DNA. *Brain* 2008: 131(11):2832-40.
6. Picard M, Godin R, Sinnreich M, Baril J, Bourbeau J, Perrault H, Taivassalo T, Burelle Y. The Mitochondrial Phenotype of Peripheral Muscle in COPD: Disuse or Dysfunction? *Am J Respir Crit Care Med*. 2008 178(10):1040-7.

7. Swallowell H, Blakely EL, Sutton R, Tonska K, Elstner M, He L, Taivassalo T, Burns DK, Turnbull RG, Haller RG, Davidson MM, Taylor RW. A homoplasmic mtDNA variant can influence the phenotype of the pathogenic m.7472ins MTT51 mutation: are two mutations better than one? *Eur J Hum Genet.* 2008; 1-10.
8. Mochel F, Knight MA, Tong WH, Hernandez D, Ayyad K, Taivassalo T, Andersen PM, Singleton A, Rouault TA, Fischbeck KH, Haller RG. Splice mutation in the iron-sulfur cluster scaffold protein ISCU causes myopathy with exercise intolerance. *Am J Hum Genetics* 2008; 82(3):652-60.
9. Adhithetty P, Taivassalo T, Haller RG, Walkinshaw DR, and Hood, DA. The effect of training on the expression of mitochondrial biogenesis- and apoptosis-related proteins in skeletal muscle of patients with mtDNA defects. *AJP: Endocrinology and Metabolism* 2007 293(3):E672-80
10. Taivassalo T, Gardner JL, Taylor RW, Schaeer AM, Newman J, Barron MJ, Haller RH, Turnbull DM. Endurance training and detraining in mitochondrial myopathies due to single large-scale mtDNA deletions. *Brain* 2006 129(Pt 12):3391-401
11. Haller RG, Wyrick P, Taivassalo T, Vissing, J. Aerobic conditioning: An effective therapy in McArdle's disease. *Ann Neurol* 2006 59(6):922-8

**Dr. DILSON E. RASSIER**  
Associate Professor

GRANTS

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2011	Mechanisms underlying the sarcomere length dependence of force and muscle activation. <b>New Investigator Award</b>	D. Rassier		CIHR	2011	\$ 300,000	2016
2010	Mechanisms underlying the sarcomere length dependence of force and muscle activation	D. Rassier		CIHR	2010	\$ 227,871.00	2013
2009	Mechanisms underlying the sarcomere length dependence of force and muscle activation <b>Priority announcement</b>	D. Rassier		CIHR	2010	\$ 100,000.00	2010
2008	Mechanisms underlying the sarcomere length dependence of force and muscle activation <b>Priority announcement</b>	D. Rassier		CIHR	2009	\$ 96,115.00	2009
2007	Les forces moléculaires produites pendant le muscle étiré et le mécanisme de base de la contraction	D. Rassier		FRSQ	2007	\$ 123,571	2011
2007	The power stroke of skeletal muscle myosin and the molecular mechanisms of contraction	D. Rassier		CIHR	2007	\$ 128,486.00	2009
2006	Investigating the microscopic world within muscle cells: molecular motors in action <b>Leaders Opportunity Fund</b>	D. Rassier		CFI	2007	\$ 562,801.00	2012
2006	Investigating the microscopic world within muscle cells: molecular motors in action <b>Infrastructure Operational Fund</b>	D. Rassier		CFI	2007	\$ 39,967.00	2012

Year	Project Title	PI(s)	Co-investigator(s)	Agency	Start date of grant	Total amount of grant	End date of grant
2006	Long-term effect of strain on skeletal muscle myosin II and isolated sarcomeres	D. Rassier	W. Herzog	CIHR	2006	\$ 112,244.00	2008
2006	High-precision system to investigate the load dependence of skeletal muscle myosin	D. Rassier		CIHR	2006	\$ 235,439	2009
2006	Mechanical experimentation of single myofibrils <b>Research Tools and Instruments</b>	D. Rassier		NSERC	2006	\$ 97,773.00	2006
2006	Stretch forces in skeletal muscle myofibrils and myosin molecules	D. Rassier		NSERC	2006	\$ 125,000	2011

#### PUBLICATIONS

Invited editorial in scientific journal

1. **Rassier, DE.** Stretching human muscles makes them stronger. *Journal of Applied Physiology*, 102(1): 5-6, 2007.

#### Refereed articles

1. Labuda A, Brastaviceanu T, Pavlov I, Paul W, **Rassier DE.** Optical detection system for probing cantilever deflections parallel to a sample surface. *Review Scientific Instruments* 82(1):013701, 2011.
2. Kalganov A, Novinger R, **Rassier DE.** A technique for simultaneous measurement of force and overlap between single muscle filaments of myosin and actin. *Biochemical and Biophysical Research Communications* 403(3-4):351-356, 2010.
3. Minozzo, F., **Rassier D.E.** Effects of blebbistatin and Ca<sup>2+</sup> concentration on the force produced during stretch of single muscle fibers. *American Journal of Physiology* – *Cell Physiology* 299(5):C1127-1135, 2010.
4. Pun, C., Syed, A., **Rassier, D.E.** History-dependent properties of skeletal muscle myofibrils contracting along the ascending limb of the force-length relationship. *Proceedings of the Royal Society of London B* 277:475-484, 2010.
5. Pavlov, I., Novinger, R., **Rassier D.E.** Sarcomere dynamics in skeletal muscle myofibrils during isometric contractions. *Journal of Biomechanics* 42(16):2808-2812, 2009.

6. Pavlov, I., Novinger, R., **Rassier, D.E.** The mechanical behavior of individual sarcomeres and half-sarcomeres isolated from skeletal muscles. *American Journal of Physiology – Cell Physiology*, 297(5): C1211-C1219, 2009.
7. **Rassier, D.E.** Molecular basis of force development by skeletal muscle during and after stretch. *Molecular and Cellular Biomechanics*, 6(4): 229-242, 2009.
8. **Rassier, D.E.** Pre-power-stroke cross-bridges contribute to force during stretch of skeletal muscle myofibrils. *Proceedings of the Royal Society of London B*, 275: 2577–2586, 2008.
9. Macintosh, B.R., Smith, M.J., **Rassier, D.E.** Staircase but not posttetanic potentiation in rat muscle after spinal cord hemisection. *Muscle & Nerve*, 38(5):1455-65, 2008.
10. Jourmaa, V., **Rassier, D.E.**, Leonard, T., Herzog, W. The origin of passive force enhancement in skeletal muscle. *American Journal of Physiology – Cell Physiology*, 294(1):C74-C78. 2008.
11. Macintosh, B.R., Jones, D., Devrome, A.N., **Rassier, D.E.** Prediction of summation in incompletely fused tetanic contractions of rat muscle. *Journal of Biomechanics*, 40(5): 1066-1072, 2007.
12. Jourmaa, V., **Rassier, D.E.**, Leonard, T., Herzog, W. Passive force enhancement in single myofibrils. *Pflügers Archiv - European Journal of Physiology*, 455(2): 367-371, 2007.
13. Bullimore, S.R., Leonard, T.R., **Rassier, D.E.**, Herzog, W. History-dependence of isometric muscle force: Effect of prior stretch or shortening amplitude. *Journal of Biomechanics*, 40(7): 1518-1524, 2007.
14. Frasson, V.B., **Rassier, D.E.**, Herzog, W., Vaz, M.A. Dorsiflexor and plantarflexor torque-angle and torque-velocity relationships of classical ballet dancers and volleyball players. *Br Journal of Biomechanics*, 8(14):31-37, 2007.
15. Herzog, W., Lee, E.J., **Rassier, D.E.** Residual force enhancement in skeletal muscle. *Journal of Physiology (London)*, 574(3): 635-42, 2006.
16. **Rassier, D.E.**, Herzog, W. Force enhancement and relaxation rates after stretch of activated muscle fibers. *Proceedings of the Royal Society of London B*, 272(1562): 475-480, 2005.
17. **Rassier, D.E.**, Herzog, W. Relationship between force and stiffness in muscle fibers after stretch. *Journal of Applied Physiology*, 99(5):1769-75, 2005.
18. **Rassier, D.E.**, Lee, E.J., Herzog, W. Modulation of passive force in single skeletal muscle fibers. *Biology Letters*, 1: 342-345, 2005.

Referred articles in-press

1. **MacIntosh, B.R., Campbell, J., MacNaughton, M., Rassier, D.E.** Pattern of summation with inhibition of calcium release and with fatigue in rat muscle. *Muscle & Nerve*

Published book (Editor)

1. **Rassier, D.E.** (Editor). *Muscle Biophysics: From Molecules to Cells*. Springer, New York, USA, 2010.

Published book chapters

1. **Rassier, D.E.** Striated muscles: from molecules to cells. In: *Muscle Biophysics: From Molecules to Cells*. Springer, New York, USA, pgs. 1-6, 2010.
2. **Rassier, DE, Pun, I.** Stretch and shortening of skeletal muscles activated along the ascending limb of the force-length relation. In: *Muscle Biophysics: From Molecules to Cells*. Springer, New-York, USA, pgs. 175-189, 2010.
3. **Rassier, DE, Pavlov, I.** Contractile characteristics of sarcomeres arranged in series or mechanically isolated from myofibrils. In: *Muscle Biophysics: From Molecules to Cells*. Springer, New-York, USA, pgs. 123-140, 2010.
4. **Rassier, DE, Herzog, W.** Modulation of passive force by stretch of activated skeletal muscles. In: *Recent Research Development in Biomechanics*. Transworld Research Network, India, pgs. 107-115, 2005.



**Hélène Perrault, Ph.D.**  
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19 May 2011

It is with much enthusiasm that the Faculty of Education welcomes the proposal by the Department of Kinesiology and Physical Education to have its research activities officially recognized under the designation of the Research Center for Physical Activity and Health.

The Research Center for Physical Activity and Health's mandate is in line with the strategic plan of the Faculty of Education with a focus to foster and support high calibre research as well as the interface and integration with innovative academic programs.

The Center instigates transdisciplinary, high-quality research in both basic and applied sciences, and connects investigators from multiple faculties across the University. Building on no less than five Canadian Foundation for Innovation (CFI) grants, the expertise and outcome have evolved rapidly over the past few years. Current academic staff members have successfully obtained funding for their research programs and continue to publish their results in various well recognized scientific journals.

The Center will be an integral part of the formal training of the graduate students in the Department of Kinesiology and Physical Education, and will strengthen collaborations already in place between the Faculties of Education, Medicine and Science.

The Faculty is pleased to endorse Dr. Milner's application for a recognized McGill Research Center for Physical Activity and Health in the Department of Kinesiology and Physical Education.

Please do not hesitate to contact us if you need further information.

Sincerely,

Helene Perrault, Ph.D.  
Dean

Dilon E. Rassier, Ph.D.  
Associate Dean, Research



# McGill

Rémi Quirion OC, PhD, FRSC, CQ  
Vice Dean (Life Sciences and Strategic Initiatives) &  
Senior University Advisor (Health Sciences Research),  
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Friday, May 13, 2011

Dr. Theodore Milner  
Chair, Department of Kinesiology and Physical Education  
Faculty of Education  
Currie Gymnasium  
45 Pine Avenue West  
Montreal, Quebec H2W 1S4

Dear Dr. Theodore Milner,

I hereby support the application to have the Research Centre for Physical Activity and Health (Department of Physical Education and Kinesiology, Faculty of Education) officially recognized as a Research Centre by the University. I have been following its development and have met with the Dean and Associate Dean for Research in the Faculty and also with the Chair of the Department. I have been aware of the efforts made by this group to have this Centre recognized, and provisional documents on the Centre mandate and a proposal has been circulated among members of the Faculty. The Chair of the Department made a presentation at the Douglas Institute and many investigators were interested in the Centre.

The Centre is unique in Canada for its members, research and aspirations – it includes researchers with background in basic and applied sciences looking at different aspects of physical activity and health. It has already established a significant network of collaborators, several of them with members of varying departments of Medicine, and it has the potential to expand significantly over the years. Its researchers have been very active on transdisciplinary work in the fields of physical activity, health and wellbeing – an approach that opens many opportunities in the near future.



McGill would benefit from having this centre recognized – many areas of research associated in health have links with the effects of (or lack of) physical activity on the quality of life. I fully support the application of the centre, and I am looking forward to hearing the outcomes of this application.

Sincerely



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Rémi Quirion, OC, PhD, CQ, FRSC  
Professor Psychiatry, McGill University & Scientific Director,  
Douglas Mental Health University Institute  
Vice-Dean (Life Sciences and Strategic Initiatives),  
Faculty of Medicine, McGill University  
Senior University Advisor (Health Sciences Research), McGill University

