Undergraduate Research Opportunities in the Faculty of Kinesiology & Recreation Management

Below are a few opportunities for 2019. If you are interested in a project, please contact the researcher directly.

**Dr. Veronica Silva - Veronica.Silva@umanitoba.ca**
This research project relates to the problem of falls in the aging population and how people use vision to keep their balance and walk safely. The visual system provides information about our surroundings that allows us to avoid obstacles, navigate on uneven terrains and even walk while engaged in another activity (e.g., talking, texting). The goal of this project is to examine the ability to use peripheral vision during distracted walking and the associated age-related influences. In this project, young and older adults will walk on a treadmill while performing visual tasks with varying levels of attentional load (distracting task). We will test the ability to see visual stimuli with peripheral vision and measure changes in balance and gait. The URA student will assist with lab setup, participant recruitment, data collection and analysis, while learning about 3D motion analysis, eye-tracking, visual attention, and aging. During the term of this award, the student will work in a multidisciplinary team of researchers, graduate and undergraduate students. There is also an opportunity to participate in the preparation of a research poster for a conference and a journal article. Students in the areas of kinesiology, psychology, and engineering may be particularly interested in this research experience.

**Dr. Gordon Giesbrecht – Gordon.Giesbrecht@umanitoba.ca**
The Laboratory for Exercise and Environment Medicine studies physiological response of humans to environmental stresses like cold, heat and hypoxia. We are now starting to work with neuromuscular control of voluntary (exercise) and involuntary (shivering) muscle activity.

**Dr. Fenton - fentonl@umanitoba.ca**
**Undergraduate opportunity #1**: Current public service delivery models in recreation management are influenced by the business sector; that is, pay per use models that generate revenue. This model, and the subsequent practices associated with it, influences the types of programs that are offered by municipal recreation and how they are evaluated. In spite of this reality, there are many recreation workers who advocate for, and use, community development tools and techniques that centre the voices and experiences of marginalized individuals and groups in the planning and implementation of community programs. The undergraduate student in this research position will carry out the following under the supervision of Dr. Fenton: 1) a content analysis of the leisure guide produced by the City of Winnipeg to generate themes about the types of programs and services offered and, 2) a thematic analysis of transcripts procured through interviews with recreation workers (and related service workers) about the types of community development tools they use in their work.

**Undergraduate opportunity #2**: The internalization of gender and sexual orientation norms and self-monitoring to fit into gender expectations takes a negative toll on the health of lesbian, gay, bisexual, transgender, and queer (LGBTQ) youth. Recently, scholars have positioned the potential of LGBTQ only spaces as a place of exploration and resilience through social support and storytelling. In this community-based research project, adult mentors will facilitate a genderplay workshop in rural Manitoban communities using drag performance (i.e., masculine and feminine enactment) and a (mag)azine-making session that will allow youth to explore gender identity (i.e., one’s internal sense of gender) and gender expression (i.e., dress, mannerisms, and behavior). The undergraduate student in this research position will carry out the following under the supervision of Dr. Fenton: 1) support adult mentors to offer a genderplay workshop in rural Manitoba by organizing supplies (i.e., make up, costumes) and assisting with the facilitation of the workshop and, 2) support the research assistant to undertake interviews with youth and import survey data.
Dr. Trisha Scribbans – Trisha.Scribbans@umanitoba.ca
Upper limb kinematics, scapular position and movement (e.g. scapular dyskinesis), motor variability (global muscle level and individual motor units), high-density surface electromyography (HD-sEMG), sex-differences in task performance and motor variability, anatomical factors contributing to differing task performance (e.g. fibre-type distribution, capillary density), low back pain, validation of clinical measures, neuromuscular adaptations to acute and chronic contractile activity.

Area(s) of focus: Upper limb kinematics, scapular position and movement (e.g. scapular dyskinesis), motor variability (global muscle level and individual motor units), high-density surface electromyography (HD-sEMG), sex-differences in task performance and motor variability, anatomical factors contributing to differing task performance (e.g. fibre-type distribution, capillary density), low back pain, validation of clinical measures, neuromuscular adaptations to acute and chronic contractile activity.

Dr. Jonathan Singer – Jonathan.Singer@umanitoba.ca
My research seeks to understand the biomechanical mechanisms responsible for instability and falls among older adults. My lab examines balance control during many activities of daily living; we use tools such as whole-body motion analysis, force platforms and electromyography to quantify how individuals apply forces to their environment to maintain balance and understand what is occurring when individuals face challenges with stability control.

Dr. Shaelyn Strachan – Shaelyn.Strachan@umanitoba.ca
I am interested in psychological variables that influence how well people self-regulate, or manage, their health behaviours. Recently, I have looked at self-compassion, identity and affective reactions to set-backs at variables that influence how well people manage and adhere to physical activity and other health-promoting behaviours.

Dr. Todd Duhamel – Todd.Duhamel@umanitoba.ca
My research program seeks to better support the utilization of physical activity as a health intervention and to better understand how physical activity promotes health. My work currently examines frailty in older adults with cardiovascular disease.

Dr. Ayesha Saleem – Ayesha.Saleem@umanitoba.ca
My research focuses on cell-to-cell communication as executed through extracellular vesicles during endurance exercise and physical-inactivity related metabolic disorders such as obesity, diabetes and cancer. Specifically, my lab will be studying this in the context of:
- Cancer-host cell physiology
- Developmental origins of health and disease (DOHaD)
- Tumor suppressor protein p53
- Skeletal muscle, adipose tissue physiology
- Mitochondrial plasticity
- Different population groups: from children to older adults

URA Project: I will be embarking on a study evaluating the alterations in extracellular vesicle-based communication during endurance exercise (acute and chronic). Research will be conducted at CHRIM using an animal model of exercise. I am looking for a summer research assistant for this project.
Dr. Steven Passmore - Steven.Passmore@umanitoba.ca

With tools like motion analysis, accelerometry, eye-tracking and electromyography, we can measure perceptual factors that influence motor behaviour. My laboratory is interested in two distinct lines of experimental work:

1) Factors and contexts leading to improved motor performance
   - Clinical health intervention
   - Training and abilities of skilled athletes
   - Training and abilities of manual therapy clinicians

2) Factors and contexts that may lead to impaired motor performance
   - Clinical health deterioration
   - Cannabis usage

Specific projects you may be able to participate in include:
1) sensory and motor factors that influence decision making of elite curlers
2) categories of low back pain and leg movement ability
3) the impact of cannabis use on motor coordination and performance
4) analysis of visual feedback and force production in clinicians delivering spinal manipulation
5) the role of task instructions during complex balance tasks
6) eye and head movement ability following cervical spine manipulation
7) the startle effect
8) portable performance based outcome measures for clinical populations

Dr. Stephen Cornish (Faculty of Kinesiology and Recreation Management) - Stephen.cornish@umanitoba.ca

Dr. Jason Peeler (Human Anatomy and Cell Science, Faculty of Health Sciences) – Jason.peeler@umanitoba.ca

The objective of this research is to evaluate the acute effects of single 12% body weight unloaded or loaded bouts of walking exercise on biomarkers of cartilage degradation (serum cartilage oligomeric protein - sCOMP) and formation (procollagen amino terminal propeptide - PIIANP) in young, healthy adults. The main rationale for this research is to identify if either unloading or loading with 12% body weight will dramatically alter the presence of cartilage degradation and formation biomarkers in the systemic circulation. This is important to identify as it may have implications on the type of exercise prescription that would be most effective for reducing the impact of cartilage degradation on load bearing joints (for example in the overweight/obese or aging population).

Dr. Rodrigo Villar – Rodrigo.Villar@umanitoba.ca

Research Project: Cardiovascular and respiratory adaptations to postural changes and moderate intensity exercise - My research program focuses on how cardiovascular and respiratory regulation occurs during exercise and its influence in the muscular system and how sex, aging, chronic diseases, and sedentary lifestyle play a role in these responses. The integrity of cardiovascular, respiratory and muscular systems is crucial for health and quality of life. Despite the evident benefits of exercise for both sexes, there is still a gap in the knowledge of the underlying mechanisms involved in the cardiovascular and respiratory regulation during exercise and how sex influences these physiological responses. For example, investigations of oxygen uptake dynamics generally combine men and women as a single group which could mislead the interpretation of the results and underlying mechanisms. The purpose of this specific research project is to advance the knowledge of the underlying physiological mechanisms during exercise by determining sex influences. The undergraduate student will be trained to work with cardiovascular and ventilatory measurements (i.e., heart rate, blood pressure, cardiac output, oxygen uptake) using laboratory equipment (electrocardiogram, blood pressure, metabolic cart system). The student also will be responsible for laboratory set-up, participants’ recruitment, data collection, and data analysis. Abstract writing and poster preparation and presentation at a scientific conference may become an opportunity for this student.
Dr. Leisha Strachan – Leisha.Strachan@umanitoba.ca
Project SCORE (www.projectscore.ca) is an online resource focused on positive coaching development. In addition to information for coaches, the site has recently expanded to include a guide for parents to support what the coaches are teaching in the youth sport context. A pilot needs to be completed exploring developmental redundancy and how coaches and parents can work together to deliver positive youth sport programming. This is applied project is scheduled to take place in May- July 2019.

Dr. Cheryl Glazebrook – Cheryl.Glazebrook@umanitoba.ca
Perceptual Motor Integration Lab - Students will gain hands on experience with motion and gaze tracking techniques, working with a variety of participants and data analysis. Current projects include understanding how young adults, individuals with autism and cerebral palsy integrate visual, auditory and somatosensory information when learning to perform various upper limb tasks.

Dr. Russell Field – Russell.Field@umanitoba.ca
The project, A People's History of Canadian Sport, is a look at alternative narratives to mainstream sport history. In this particular portion of the project, students will explore the sporting practices of members of Winnipeg's One Big Union, specifically at the gymnasium run by the OBU in downtown Winnipeg in the interwar years. The skills that students will develop include archival research and the evaluation and interpretation of historical sources.