There are many opportunities for undergraduate students to get involved in research on aging. There are projects on both the Fort Garry and Bannatyne campuses and in many different disciplines. Below are a few opportunities for 2019.

If you are interested in a project, please contact the researcher directly. Contact information is below.

**Principal Investigator**  Benedict C. Albensi, Professor & Manitoba Dementia Research Chair

**Contact Information**  Dept. of Pharmacology & Therapeutics  BAlbens@sbrc.ca

**Research Area(s)**  
There are 2 primary research programs in my lab. The first focuses on the biological basis of memory. In particular, we are interested in the NF-κB signaling pathway in processes of synaptic plasticity and long term memory. I am also investigating roles for the transcription factors, CREB, Nrf2, and Egr in this regard. Our other research program involves memory impairments in aging and in Alzheimer’s disease (AD). Aging is the greatest risk factor for AD. We are investigating new treatments and mechanisms contributing to disease, such as changes in transcriptional regulation and mitochondrial dysfunction. In addition, we are evaluating creatine, choline, and flaxseed as dietary supplements to prevent AD. We are also testing the anti-cancer compound, nilotinib to treat later stage AD. Other related work focuses on hippocampal physiology in epilepsy, stroke, and TBI.
| Principal Investigators | Stephen Cornish  
Assistant Professor | Jason Peeler  
Associate Professor |
|-------------------------|---------------------|---------------------|
| Contact Information     | Faculty of Kinesiology and Recreation Management  
Stephen.Cornish@umanitoba.ca | Human Anatomy and Cell Science, Faculty of Health Sciences  
Jason.Peeler@umanitoba.ca |
| Research Area(s)        | 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). |

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<tr>
<th>Principal Investigator</th>
<th>Todd Duhamel, Associate Dean (Research and Graduate Studies)</th>
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| Contact Information    | Faculty of Kinesiology and Recreation Management  
tduhamel@sbrc.ca |
| Research Area(s)       | 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. |

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<th>Principal Investigator</th>
<th>Meaghan J. Jones, Assistant Professor</th>
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| Contact Information    | Biochemistry and Medical Genetics, Faculty of Health Sciences and Children's Hospital Research Institute of Manitoba  
Meaghan.Jones@umanitoba.ca |
| Research Area(s)       | My research is primarily on epigenetics, and the summer research opportunity in my lab will involve research on the epigenetics of aging in a mouse model. Students will have the opportunity to learn about epigenetics and how it changes with age, and help design a method to measure epigenetic age in the mouse using next generation sequencing. |

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<th>Principal Investigator</th>
<th>Debbie Kelly, Professor</th>
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| Contact Information    | Department of Psychology, Faculty of Arts  
Debbie.Kelly@umanitoba.ca |
| Research Area(s)       | **Project 1:** Using innovative small-animal brain imaging technology, we examine how age-related differences in cognitive performance relate to the decline of specific capacities, and how these are represented in the brain. The research is conducted using pigeons as a long-lived model to examine cognition in a controlled laboratory setting. Specifically, we investigate how the age of a pigeon affects its ability to perform a complex cognitive task involving working memory and impulse control, to understand whether old age affects these cognitive functions equally or whether one might be more impaired with age than the other, and how this in turn affects an individual's overall performance in this difficult task. |
Project 2: The ability to navigate to familiar and unfamiliar places is of fundamental importance to humans. Yet, the majority of older adults will experience a decline in their ability to accurately navigate, and these spatial difficulties differ for men and women. Despite the impact of such age-related changes, the underlying biological and cognitive processes associated with spatial memory decline are not fully understood. The general objective of our proposed research is to determine whether the decline in spatial memory, commonly reported in normal aging, is influenced by how individuals use specific spatial cues within real-world and virtual reality environments. Our proposed research will examine how spatial cue use changes across the lifespan and whether the changes we see differ for men and women. The projected impact of this research is to better develop cognitive therapies to help people use spatial cues differently as they age, and to build important synergies with community planners to translate our research knowledge directly into changes in how living spaces are constructed.

Principal Investigator  Hai Luo, Assistant Professor
Contact Information  Faculty of Social Work  Hai.Luo@umanitoba.ca
Research Area(s)  I would like to work with students who are interested in different social aspects of aging related issues, in particular cross-cultural aging (including aging in an Indigenous context), end-of-life issues, active aging, social network and isolation, elder abuse, etc.

Principal Investigator  Bob McLeod, Professor
Contact Information  Electrical & Computer Engineering, Faculty of Engineering  robert.mcleod@umanitoba.ca
Research Area(s)  Interested in developing Serious Games for Smartphone to help detect Mild Cognitive Impairment though Machine Learning Analytics.

Principal Investigator  Richard Milgrom, Associate Professor
Contact Information  Department of City Planning Faculty of Architecture  richard.milgrom@umanitoba.ca
Research Area(s)  Evaluation of communities and regions to determine the degree to which they meet age-friendly characteristics. Analysis of how demographic profiles of regions are changing and the impacts this will have on aging populations and the services and amenities available and accessible to older adults. Analysis of how existing policies and initiatives in cities support active aging.
**Principal Investigator**  
**Ayesha Saleem, Assistant Professor**

**Contact Information**  
Faculty of Kinesiology and Recreation Management  
ayshe.saleem@umanitoba.ca  
The Children’s Hospital Research Institute of Manitoba  
asaleem@chrim.ca

**Research Area(s)**  
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  
Tumor suppressor protein p53  
Skeletal muscle, adipose tissue physiology  
Mitochondrial plasticity  
Different population groups: from children to older adults  
I will be embarking on a study evaluating the alterations in extracellular vesicle-based communication during frailty in older adults with a high risk of developing cardiovascular disease. I am looking for a summer research assistant for this project.

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**Principal Investigator**  
**Kathryn Sibley, Assistant Professor**

**Contact Information**  
Department of Community Health Sciences and Centre for Healthcare Innovation  
kathryn.sibley@umanitoba.ca

**Research Area(s)**  
Dr. Sibley’s research studies the process of putting research into action in health and rehabilitation sciences – a new scholarly field called knowledge translation. Getting research results into everyday health care is a long and painstaking process. We need better ways to move research from the bench to the bedside and into the community. Dr. Sibley also works to improve and speed up knowledge translation by using a research approach that involves the end-users of research in the research process from start to finish. Her studies identify gaps between rehabilitation research and real-world practice and test methods to close them; and promote more consistent research practices to ensure treatments can be accurately compared across studies. By increasing the application and use of health care strategies backed by research evidence, her work will help improve the health, function, and quality of life of Canadians. Learn more about Dr. Sibley’s research here (kathryn sibley.com) and knowledge translation here (https://medium.com/knowledgenudge/what-we-mean-when-we-say-knowledge-translation-1f81d57d5143)

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**Principal Investigator**  
**Jonathan Singer, Assistant Professor**

**Contact Information**  
Faculty of Kinesiology and Recreation Management  
Jonathan.Singer@umanitoba.ca

**Research Area(s)**  
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.
Principal Investigator  **Sandra Webber, Associate Professor**

Contact Information  Department of Physical Therapy, College of Rehabilitation Sciences

  sandra.webber@umanitoba.ca

Research Area(s)  I am a physiotherapist and researcher who studies physical activity, ambulation and sedentary behaviour in older adults and people with chronic disease. Many of my projects incorporate the use of technology (e.g., pedometers, accelerometers, GPS devices) to provide objective measures of activity performance (what people do in their everyday lives).