



**UNIVERSITY OF CALGARY**  
FACULTY OF KINESIOLOGY



2021 Annual Report

## VISION

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To be an international leader in the study and advancement of human movement, sport, health and wellness.

## MISSION

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To provide excellence in research, education and community programs related to human movement, sport, health and wellness.



## DEAN'S MESSAGE

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We have certainly faced challenges this year with the COVID-19 pandemic. But, as always, I am very proud of our students, faculty and staff for their strength and caring during this time. We managed to achieve another milestone in the Faculty of Kinesiology by maintaining our position within an exclusive, international class of sport science schools. For the second time, the Faculty is ranked No. 1 in North America according to ShanghaiRanking's Global Ranking of Sport Science Schools and Departments, and 11th out of 429 universities globally. Quite remarkable!

Here are a few of the highlights of our Annual Report:

- We are exploring alternatives to the one-size-fits-all approach to exercise intensity for maintaining a healthy cardiovascular system, especially for those over 65.
- We are expanding our free exercise program geared for those with cancer and cancer survivors beyond urban settings to remote and rural communities across the country.
- We are collaborating with sport and recreation partners in Calgary to establish an innovative Calgary Adaptive Hub to offer programs for those with disabilities across facilities.
- We are collaborating with other scholars to investigate how brain blood flow is regulated, an important key to understanding how the brain changes under stress, such as after a concussion.
- We are researching how consuming low-calorie sweeteners while pregnant can increase body fat in offspring and disrupt their gut microbiota which affect our health and increase our risk of many diseases.
- We are developing new ways of performing neurological testing with greater accuracy. We are bringing these new neurological wearable technologies to market.
- We are using wearable technology to better understand heart rate and stress levels of those cycling to work, information that urban planners and developers may be able to use to improve the layout and connectivity of our street network.
- As you will see in this Annual Report, our work is changing how we understand the importance of movement for both performance and health, and creating opportunities for our students to learn and work alongside our superb faculty members.

Dr. Penny Werthner, PhD  
Dean and Professor

## HIGHLIGHTS

Honour	William Bridel – Calgary Institute for the Humanities Fellowship
Honour	Carolyn Emery – Canadian Physiotherapy Association Medal of Distinction
Honour	Alexandra Giancarlo – Canadian History of Education Association’s Special Online Symposium: Selected Participant
Honour	Walter Herzog – Outstanding Reviewer, CIHR College of Reviewers
Honour	Walter Herzog – Journal of Biomechanical Engineering Editor’s Choice Paper <a href="https://doi.org/10.1115/1.4045660">https://doi.org/10.1115/1.4045660</a>
Honour	Walter Herzog – Dr. Walter Herzog Young Investigator Award, Brazilian Society for Biomechanics
Honour	Jennifer Zwicker – Honoree of Cardwell’s 2021 Top 40 under 40 Award
Honour	Jennifer Zwicker – Governor General’s Canadian Leadership Conference - selected as one of 250 emerging leaders from across Canada to participate in the conference
Appointed	Carolyn Emery – Co-lead Integrated Concussion Research Program, University of Calgary
Appointed	Carolyn Emery – Canada Research Chair (Tier 1) Concussion
Appointed	Carolyn Emery – Strategic Research Committee of the Canadian Physiotherapy Association
Appointed	Carolyn Emery – Chair Scientific Committee Sport Physiotherapy Canada Congress
Award	William Bridel – Equity, Diversity, and Inclusion Faculty Award, University of Calgary
Award	Tyler Cluff – National New Investigator Award, Heart and Stroke Foundation of Canada
Award	Carolyn Emery – Canadian Physiotherapy Association Medal of Distinction
Award	Carolyn Emery – Killam Annual Professors Award – Killam Trust Foundation
Award	Ash Kolstad – Frederick Banting and Charles Best Canada Graduate Scholarships 2021

## HIGHLIGHTS

Award	Jason Tabor – Frederick Banting and Charles Best Canada Graduate Scholarships 2021
Award	Alexandra Giancarlo – The Geographical Review Best Paper Award: Wrigley-Fairchild Prize
Award	Walter Herzog – Researcher of the Year Award, Alberta Science and Technology Leadership Foundation
Award	Martin MacInnis – Journal of Sport and Health Science Outstanding Reviewer Award
Award	Heron Medeiros –Young Investigator Award, Brazilian Society for Biomechanics Congress
Award	Meghan McDonough – Lynn McIntyre Award for Service to the O’Brien Institute for Public Health
Award	Raylene Reimer – Earle Willard McHenry Award for Distinguished Service in Nutrition, Canadian Nutrition Society
MSc	Elliot Bošnjak – Supervisor: Dr. William Bridel Thesis: “You’re Just Drawing a Line in the Sand”: Transgender and Gender Non-Conforming Persons’ Experiences of Sport and Physical Activity.
MSc	Kelsey Ellis – Supervisor: Dr. S. Nicole Culos-Reed Thesis: Yoga in Pediatric Oncology.
MSc	Emma McLaughlin – Supervisor: Dr. S. Nicole Culos-Reed Thesis: Dissemination and implementation of the International Pediatric Oncology Exercise Guidelines (iPOEG).
MSc	Delaney Duchek – Supervisor: Dr. S. Nicole Culos-Reed Thesis: Online versus in-person exercise oncology programming.
MSc	Maximillian Eisele – Supervisor: Dr. S. Nicole Culos-Reed Thesis: Supporting maintenance of exercise in cancer survivors.
MSc	Drew Lawson – Co-Supervisors: Dr Walter Herzog, Dr. Matt Jordan Thesis: Evaluation of the lower body strength and landing strategy of elite athletes after anterior cruciate ligament reconstruction with hamstring autograft.
MSc	Natalie Yeung – Supervisor: Dr. Tyler Cluff Thesis: Feedback responses must disengage from postural control to engage rapid movements.

## HIGHLIGHTS

- MSc Ryan Miller – Supervisor: Dr. Tyler Cluff  
Thesis: Modulation of upper limb feedback responses in unpredictable mechanical environments.
- MSc Ash Kolstad – Co-Supervisors: Dr. Carolyn Emery, Dr. Brent Hagel  
Thesis: Equipment and concussion in youth ice hockey and ringette.
- MSc Patrick Pankow – Supervisor: Carolyn Emery  
Thesis: Heads Above the Rest: Examining Head Impacts in Canadian High School Football.
- MSc Sarah Abramovic – Supervisor: Dr. Walter Herzog  
Thesis: The non-intuitive, in-vivo behavior of aponeuroses in a unipennate muscle.
- MSc Jessica Youngblood – Co-Supervisors: Dr. Meghan McDonough, Dr. Carolyn Emery  
Thesis: Adapted Physical Activity Camps: Family Experiences and Implications for Family Relationships.
- MSc Kara Sampsell – Supervisor: Dr. Raylene Reimer  
Thesis: The impact of exercise on gut microbiota in a survivor to germ-free mouse translational model of breast cancer.
- MSc Krystle Wittevrongel – Co-Supervisors: Dr. Jennifer Zwicker, Dr. Keith Yeates  
Thesis: Pediatric Concussion Health Service Utilization and Follow up Care: A population based epidemiological study using administrative health data.
- MSc Colton Quinn – Supervisor: Dr. Martin MacInnis  
Thesis: The influence of carbohydrate availability on exercise performed at the maximal lactate steady state.
- MSc Austin Beever – Supervisor: Dr. Martin MacInnis  
Thesis: The effects of simulated altitude on maximal and submaximal exercise.
- PhD Paul Eliason – Co-Supervisors: Dr. Carolyn Emery, Dr. Brent Hagel  
Thesis: Youth Ice Hockey Related Injury and Concussion: Informing Prevention Through Modifiable Risk Factors.
- PhD Fatima Chleilat – Supervisor: Dr. Raylene Reimer  
Thesis: Dietary manipulations at pre-conception and during development influence metabolism and gut microbiota in rats.

## HIGHLIGHTS

- PhD Nicole Cho – Supervisor: Dr. Raylene Reimer  
Thesis: Impact of alterations to early life microbiota (antibiotics, prebiotics, and C-section) on body weight and brain development.
- PhD Arash Khassetarash – Supervisor: Dr. Brent Edwards  
Thesis: Repeated bout effect and musculoskeletal loading during prolonged downhill running.
- PhD Colin Firminger – Supervisor: Dr. Brent Edwards  
Thesis: Experimental measurement and applied modelling of patellar tendon strain.





## Exercise Physiology and Nutrition in Health and Sport

### ABOODARDA

#### Exercise Neurophysiology Laboratory

Dr. Jalal Aboodarda's research in 2021 focused on the integration of physiological and perceptual factors determining exercise tolerance in healthy individuals. Despite COVID-19 setbacks, the team managed to coordinate a large study investigating the kinetics of neuromuscular and perceptual responses to different exercise intensities-durations. In another project, they measured acute corticospinal excitability and inhibition responses to pre-induced fatigue and experimental pain conditions. Neurophysiological responses were quantified using non-invasive techniques such as transcranial magnetic stimulation of the brain and peripheral nerve electrical stimulation of the skeletal muscles.

### DOYLE-BAKER

#### Doyle-Baker Lab

The Doyle-Baker lab focuses on health biomarkers and sport science research across athletic and healthy populations. The lab collaborates with sport organizations (Own the Podium, Alberta Alpine) and other labs on injury prevention (SPIRC) and health promotion interventions (Built Environment and Health Living Lab within the Department of Community Health Sciences in the Cumming School of Medicine). The study methodologies used in this lab involve mixed methods designs (qualitative, quantitative, sequential and or concurrent approaches; scoping reviews; and case studies) and biomarkers of health (bone parame-

ters; heart rate variability, i.e., physical and mental well-being; and hormones). Dr. Doyle-Bakers' lab has experience with wearable technology and mobile Health applications.

Currently, the lab is investigating the causes of variation in ovarian cycling in athletic and active women and the impact this has on their readiness to performance and future health. Granted, there are technological and logistical challenges and therefore our solution is to collect data from willing woman and recruit regardless of their current cycling status and or use of oral contraceptives. They are also partnering with mobile applications and evaluating their predictive capacities related to menstrual cycle length and ovulation given period tracking app downloads are the second most used health app today.

The overarching goals with these emerging analytics are to 1) help active and elite female athletes be the best stewards of their own health and performance, and 2) to contribute to the narrative on how the variation in menstrual cycles and hormonal patterns in women is studied.

### HOLASH

#### Exercise Physiology Laboratory

The focus of Dr. Holash's work was continued development and modification of courses, and instructional materials within the Exercise Physiology group to leverage new technologies and instruments for course delivery. John represents the faculty on the current "Learning Technologies Advisory Committee" and is part of the Student

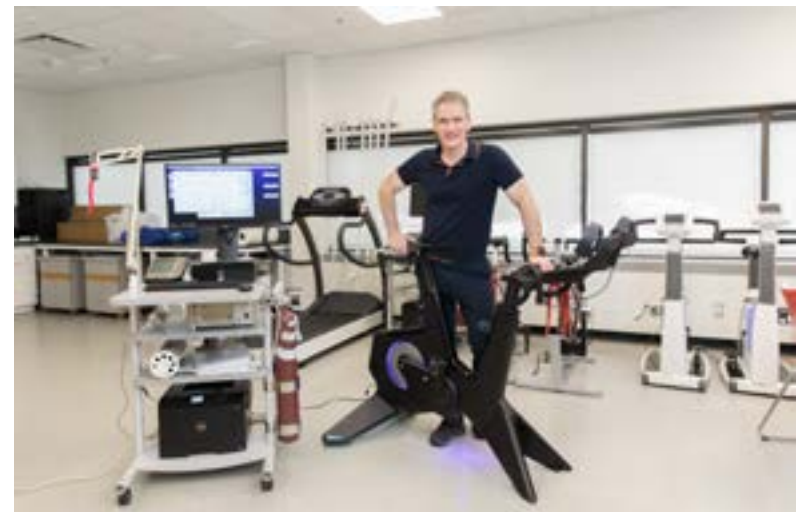
Orientation Committee with Dr. Cari Dinn, for the faculty of Kinesiology. Dr. Holash also sits on the National Survey of Student Engagement, and on the Kinesiology Ethics review panel. His primary role within the faculty is to develop and integrate new advanced teaching and learning techniques and resources for exercise physiology.

One of Dr. Holash's focuses is to develop within the exercise physiology umbrella, a team that hopes to integrate state-of-the-art computer-based methods for measuring, recording, and analyzing large data sets of physiological variables. The goal of this team will be to enhance the student experience by providing opportunities for: software product development, rapid prototyping, machine learning, data processing, and potentially some entrepreneurship opportunities that revolve around leveraging digital technologies and scaling them.

In 2021 John started a research project with an Dr. Holash student to investi-

gate if virtual reality games, that allow individuals to participate in physical activities and competitions, producing activity levels high enough to make them a viable source of exercise. This type of activity might help provide a bridge for individuals who are unable to gather in groups to still participate together in activities virtually.

Dr. Holash also was successful in applying receiving funding for a curriculum undergraduate research experience (CURE) grant to redevelop the course and lab material in Kinesiology 375 this year. The grant provided funding to two Kinesiology graduate students who participated in the project. Dr. Holash has also been active in reviving and redeveloping the Masters of Kinesiology program and teaches a year-long course in the program where students are exposed to the practical and technical equipment involved in exercise physiology covering a widely diversity of topics from cardiovascular health to considerations for strength and conditioning.



## JORDAN

Excellent growth occurred in the Return to Health & Performance Research Program with the recruitment of new students, and ongoing funding from MITACS, the Canadian Sport Institute Calgary, and Own the Podium. The research program has evolved from a focus on winter slope sport athletes to a broad focus on primary, secondary, and tertiary knee injury prevention in athletes of all performance levels. A second Strength & Power Laboratory space is being developed at the Olympic Oval, University of Calgary to help with recruitment and testing. This lab will complement the Strength & Power Laboratory at the Canadian Sport Institute Calgary. The Strength & Power Lab Team continues to advance scientific research in neuromuscular adaptations to resistance training to support Canadian Olympic athletes. Research collaborations in Perth Australia and South Africa have further advanced the scope of this research program to help improve outcomes for athletes who suffer serious knee injuries.



## MACINNIS

Metabolic, Exercise, and Environmental Physiology Laboratory (MEEP)

The Molecular, Exercise, and Environmental Physiology (MEEP) Laboratory is an integrative physiology laboratory primarily interested in understanding how humans respond to individual exercise sessions and long-term exercise training. Led by Dr. Martin MacInnis, this research group investigates: (1) the effects of different exercise training programs on the skeletal muscle, cardiovascular, and hematological systems; (2) the molecular and physiological mechanisms underpinning the plasticity of physiological systems; (3) the influence of oxygen availability on aerobic metabolism, neuromuscular fatigue, and exercise performance, (4) the use of wearable technologies and novel methods to improve exercise testing/prescription and to assess human physiology, and (5) the extent to which responses to exercise are influenced by nutrition, sex, and the environment.

The MEEP Laboratory employs a wide breadth of techniques, ranging from the biochemical and molecular analysis of human tissue to whole-body measures of exercise metabolism, tolerance and performance. The overall aim of their research program is to understand how humans respond to exercise and translate this knowledge to develop optimal strategies for improving the health and fitness of Canadians.

## REIMER

Dr. Raylene Reimer's research focuses on understanding how nutrition and the bacteria that live in our intestine (called gut microbiota) interact to affect our risk of developing chronic diseases such as obesity, type 2 diabetes, and fatty liver disease. Changes to the gut microbiota in early life play a particularly strong role in increasing or decreasing the risk of many diseases later in life including obesity and asthma.

The Reimer lab has focused their recent animal work on several aspects of early life microbiota development. In the first instance, they examined changes in the gut microbiota that occur when offspring are born naturally or via Caesarean section and how this impacts obesity risk. A second focus is examination of how fathers' diet affects the metabolism of their offspring. The Reimer lab showed that in addition to the profound impact of maternal diet on offspring health, a father's diet high in protein, or fibre, or fat and sugar also affects obesity risk in their offspring. A third focus has been the effects of human milk oligosaccharides on the metabolic health of newborn and young rats.

The Reimer lab is also actively engaged in human clinical trial research and is studying how prebiotic fiber supplementation can improve health outcomes in children with newly diagnosed type 1 diabetes and in adults with knee osteoarthritis and obesity. Ultimately the goal of the Reimer lab is to design and evaluate diets aimed at body weight management and optimal gut microbiota profiles.

## Injury Prevention, Sport Medicine, and Rehabilitation

## BLACK

The Injury Prevention, Clinical Intervention, and Implementation Science Research Group

The injury prevention, clinical intervention, and implementation science research group is a new group in the Sport Injury Prevention Research Centre. Core projects focus on 1) injury surveillance and epidemiology, 2) evidence-based practice and knowledge translation, and 3) theory-driven implementation, behaviour change and evaluation. Ongoing projects include examining the implementation of concussion guidelines, education and management protocols for sporting organizations and high schools, examining the context for implementation for injury prevention initiatives, and injury surveillance in high school and university athletic populations.

## EMERY

Sport Injury Prevention Research Centre (SIPRC)

Dr. Carolyn Emery is the Chair of the Sport Injury Prevention Research Centre, co-leads the Integrated Concussion Research Program, and holds a Canada Research Chair (Tier 1) in Concussion. Her research program aims to reduce the burden of injuries/concussions and their consequences in youth sport through the development and evaluation of prevention and treatment strategies.

Highlights in 2021 include the evaluation of policy prohibiting body

checking in adolescent (15-17 years) hockey players, demonstrating a 62% reduction in injury rates and 51% reduction in concussion rates. Further, body checking experience was not protective of injury/concussion in body checking leagues.

Evaluation of a neuromuscular training warm-up (SHRed Injuries Basketball) in youth basketball (ages 11-18) demonstrated 36% lower rates of ankle and knee injury rates. Surveillance in High Schools and Community Sports to Reduce Injuries and their Consequences in Sport (SHRed Injuries) and SHRed Concussions programs continue to focus on injury and concussion prevention and management across multiple sports nationally. Prevention strategies are being evaluated across training (e.g., neuromuscular training), equipment (e.g., helmet fit, mouthguards), and rules (e.g., zero tolerance for head contact).

The SHRed mobile will increase opportunities to scale up the SHRed Injuries/Concussions Program in partnership with rural and Indigenous communities. The group is also evaluating longer-term health outcomes (e.g., clinical, imaging) following youth sport-related concussion compared to uninjured and musculoskeletal-injured controls.

Dr. Emery's research program also focuses on pediatric rehabilitation and evaluation of youth adapted physical activity programs (Calgary Adapted Hub Power by Jumpstart) in the community on multiple health and wellness outcomes.

## KENNY

Dr. Kenny's research is unique in Canada, bringing together the disciplines of Kinesiology and Dance. Specifically, Dr. Kenny applies her experience as a contemporary dancer to the science of injury epidemiology. As lead of a longitudinal project with professional dance organization, Alberta Ballet, Dr. Kenny's research is impacting the international dance medicine and science community, contributing towards refined international standards of how dance-related injury is defined and measured, and advocating for the recognition of dancers across all styles and levels of practice, as both artists and athletes.

An additional focus of Dr. Kenny's research aims to understand the psychosocial experience of community dance as a form of physical activity and social connection for populations across the age spectrum. Her research team is leading funded projects examining the lived experiences of participating in community dance and how these experiences contribute to physical literacy and successful aging among older adults and those living with Parkinson's Disease.

## MOHTADI

Dr. Nick Mohtadi is the director of the Sport Medicine Centre (SMC) which continues to fulfill its mandate to provide clinical care and participate in clinical research by successfully bridging the cultural gap between clinical care and clinical research. Given that the Sport Medicine Centre sees an average of 30,000 patient visits each year, the ability for the clinicians and staff to participate in meaningful clinical research is truly remarkable. The SMC thanks the

staff and consultants who make our research mandate possible, while providing healthcare services to the patients in the Southern Alberta Community.

In addition to the number of studies that are currently being conducted out of the Sport Medicine Centre, this past year saw both Dr. Mohtadi and Dr. Preston Wiley receive lifetime membership awards from the Canadian Academy of Sport and Exercise Medicine.

Dr. Mohtadi participated in a consensus meeting on behalf of the International Olympic Committee in October 2017. The consensus statement: 2018 International Olympic Committee Consensus Statement on Prevention, Diagnosis and Management of Paediatric Anterior Cruciate Ligament (ACL) Injuries was recognized as a winner of the Best Original Article Award in the Journal of ISAKOS Best Article competition. The Best Article competition was conducted as part of the celebration of the International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine (ISAKOS) 25th Anniversary and the JISAKOS 5th Anniversary.

## PASANEN

Dr. Kati Pasanen's research program focuses on three major areas: 1) identification of mechanisms and risk factors for lower extremity injuries in sport, with a special interest in anterior cruciate ligament injuries and lateral ankle sprains, 2) development and evaluation of training strategies to decrease the risk of lower extremity injuries in sport, and 3) development of novel methods for monitoring athletes' movement patterns in their everyday training.

Dr. Pasanen is also leading five col-

laboration studies in Finland: three of them in team sports, one in professional ballet and one in recreational runners. Knowledge generated from this research could ultimately lead to better understanding of mechanisms and causes of lower extremity injuries which could allow us to develop current injury prevention strategies, promote lifelong sport participation, and lower the public health care costs related to sport injuries.

## SCHNEIDER

### Concussion Prevention, Detection and Rehabilitation Lab

Dr. Kathryn Schneider's lab focuses on the prevention, detection and rehabilitation of concussion with a special interest in the role of the cervical spine and balance systems. They use clinical and technological tests that evaluate multiple different areas of sensory and motor function, ultimately gaining insight into changes that may occur following a concussion and with recovery. Additionally, with the use of technological tests alongside clinical tests they are gaining a better understanding of how to best evaluate various components of function.

Ongoing projects in the lab focus on: (1) the role of neuromuscular training and sensorimotor training in the prevention of concussion; (2) changes in cervical spine, vestibular and sensory function with growth and development; (3) changes in cervical spine, vestibular and sensory function following a concussion; (4) optimizing assessment rehabilitation techniques to inform diagnosis and enhance recovery from concussion; and (5) evaluating implementation of concussion protocols.



## GENERAL COMMENTS

The program of clinical research involves collaboration with multiple clinicians and researchers across the University of Calgary and other national and international groups, ultimately enabling clinically meaningful questions to be evaluated and translated back to the clinic.

### SMIRL

#### Cerebrovascular Concussion Research Laboratory

Dr. Jonathan Smirl's research team works in conjunction with the Sport Injury Prevention Research Centre and the Human Performance Laboratory. His lab is focused on understanding the basis of the physiological and autonomic disruptions which occur following concussion. The aim is to use this knowledge base to develop informed interventions (exercise, physiological and pharmacological) which can be used to aid in the recovery process during both the acute and chronic symptom periods.

Dr. Smirl's lab is currently leading the exercise-based measures in the Pan-Canadian Surveillance in High Schools to REDuce (SHRed) Concussions project. They are actively collaborating with other Canadian institutions on objectively quantifying the extent concussed

athletes rest and exercise following concussions.

The build out of the research space for Dr. Smirl's lab was completed in August 2020 and they have spent the remainder of the year bringing in new equipment and training so they will be able to perform in person testing in the upcoming year. Through an integrative approach to concussion research and collaboration network, Dr. Smirl's lab aims to create new approaches and interventions which will enable them to objectively assess physiological disruptions following concussion and improve outcomes for individuals following this traumatic injury.

### ZWICKER

#### Disability Policy for Children and Youth

Dr. Jennifer Zwicker is the Director of Health Policy at the School of Public Policy, an Associate Professor in the Faculty of Kinesiology, University of Calgary, Canada Research Chair (II) in Disability Policy for Children and Youth and the Deputy Scientific Officer for Kids Brain Health Network. She is a member of the Owerko Center in the Alberta Children's Hospital Research Institute and the O'Brien Institute of



## GENERAL COMMENTS

Public Health.

With broad interests in the impact of health and social policy on health outcomes, Dr. Zwicker's research utilizes economic evaluation and policy analysis to assess interventions and inform policy around allocation of funding and access to services for children and youth with developmental disabilities (NDD) and their families. She is an investigator with various research projects, such as CIHR funded studies on (1) COVID-19 policy responses for youth with disabilities and their families; (2) accessing the continuum of care and eligibility for services and supports for children with NDD and their families; (3) improving health outcome and coordination of care for children with complex health and social needs; and (4) strategy for patient-oriented research network on childhood disability called CHILD-BRIGHT and Time to be Counted: COVID-19 and Intellectual and Developmental Disabilities Kids Brain Health Network, where she co-leads the health economic cores for both networks.

Dr. Zwicker fosters strong collaborations with interdisciplinary researchers and stakeholders, which have been critical in the translation of peer reviewed publications to policy papers, op-eds and briefing notes, utilized by both federal and provincial government.

### CLUFF

#### Integrative Sensorimotor Neuroscience Laboratory

The Integrative Sensorimotor Neuroscience Laboratory is a growing group in the Human Performance Laboratory. Their work is focused on the mechanistic, multidisciplinary study of human sensorimotor control and learning. They combine behavioural experiments with robotics, medical imaging, and computational models to examine the function of the human sensory and motor systems. They focus on understanding how basic aspects of sensory processing contribute to human motor control and learning.

Ongoing projects in the lab focus on four topics: (1) the role of sensory feedback in the selection, planning, and control of voluntary movements; (2) basic principles of sensory processing and how they impact individual patterns of human motor behaviour; (3) probing the function of neural circuits that support motor behaviour; and (4) identifying how impairments in sensory and motor function caused by stroke and concussion influence sensorimotor control and learning.

Through their basic science program and ongoing collaborations, they hope to generate tools that allow them to better assess, monitor and diagnose deficits in sensory and motor function.



**PETERS**

Dr. Ryan Peters' laboratory investigates the neural basis of human movement using a variety of physiological, behavioural and computational techniques in concert.

There are basic and applied science streams of research currently ongoing in the lab. Within the basic science stream, he studies complex interactions between sensory and motor neurons during voluntary movement. Dr. Peters specializes in microneurography: the only method for directly recording the activity of human somatosensory neurons (muscle spindles, Golgi tendon organs, skin and joint receptors). Currently, their focus is on the functional properties of the muscle spindle's fusimotor system, which remains poorly understood, particularly in humans.

In the applied research stream, the focus is on developing new vibration-emitting wearable technologies for remote neurological diagnostics and monitoring. Both healthy older adults and individuals suffering from neurological disorders (e.g., diabetic and chemotherapy-induced peripheral neuropathy) experience a decline in somatosensory function that is associated with impairments in manual dexterity and balance. Vibration-emitting wearable technologies offer a promising new alternative to standard clinical tests of neuropathy, which are both arduous for clinicians and not well controlled.

Dr. Peters is the Chief Science Officer and co-founder for a new wearable device company, Vibratus Inc., that will bring these technologies to market for the first time.

**Movement Science and Musculoskeletal Health****EDWARDS**

Mechanical fatigue of load bearing biological tissue is an inevitable consequence of physical activity. Over time, habitual loading of the musculoskeletal system causes microdamage accumulation that reduces the overall quality of the tissue and leads to a reduction in stiffness and an increase in mechanical strain with continued loading. Without adequate tissue repair and adaptation, the evolution and accumulation of microdamage may eventually lead to musculoskeletal injury. Mechanical fatigue is believed to play a predominant role in the pathophysiology of musculoskeletal injuries such as bone stress fracture as well as Achilles and patellar tendinopathy.

Dr. Edwards' research combines biomechanical experimentation with advanced medical imaging and computational modeling to investigate tissue damage and fatigue in response to mechanical loading. This unique approach allows for the estimation of in vivo tissue mechanics in a non-invasive and subject-specific manner. The work in his lab spans multiple dimensional scales, from basic experiments at the tissue-level that enhance our understanding of the mechanical fatigue process, to applied experiments at the whole-body level for the development of treatments and interventions to improve tissue quality and decrease injury risk.

**GABEL**

Dr. Gabel leads a newly established group in the Human Performance Laboratory. Her research examines the role of physical activity and exercise on musculoskeletal health across the lifespan. Specifically, Dr. Gabel's lab is interested in the influence of sex and maturation on skeletal development in children and adolescents. Dr. Gabel is also involved in spaceflight research to better understand the impact of unloading (e.g., microgravity) on skeletal adaptation.

**HERZOG**

This past year, Dr. Walter Herzog's lab solved a long-standing controversy in striated muscle physiology: does cardiac muscle possess residual force enhancement properties? In contrast to much of the literature, they unequivocally established that isolated myofibrils and single sarcomeres from the rabbit heart clearly possess this property. They also identified that skeletal muscle in obese rats and spastic muscles from children with cerebral palsy have functional and strength deficits. In obesity, these deficits were associated with intra-muscular fat

infiltration and fibrosis, and in cerebral palsy with a dramatic loss of the structural protein titin.

In the area of cartilage biomechanics and osteoarthritis, they wrote a comprehensive review on the role of muscles in human knee joint osteoarthritis and refined methods to make first-ever high-temporal resolution measurements of the deformations of chondrocytes during dynamic cartilage loading. These measurements are the product of year-long improvements in the microscopic approach and associated development of novel analysis software.

**Human Locomotion, Sport Performance, and Sport Injury Biomechanics****FERBER****Running Injury Clinic**

Dr. Ferber is a clinical biomechanist and his research is aimed at optimizing rehabilitation and predicting injuries. He leads the NSERC Wearable Technology Research and Collaboration (We-TRAC) CREATE Training program and has established a campus-wide Graduate Specialization in Wearable Technology – Canada's first and only specialization in this fast-growing field. Overall, his lab is engaged in two streams of research: clinical gait analysis and wearable sensors.

Dr. Ferber's lab has successfully established an international and growing gait analysis research network currently consisting of 15 researchers and over 125 clinical partners. Each centre is linked to the world's largest research

database of biomechanical gait and clinical data. The lab group is transforming the biomechanics research community by openly sharing data between laboratories, employing unique data science analysis methods, and growing its research network.

Dr. Ferber's wearable research is based on three challenges: 1) wearable sensors generate a profound amount of data that is largely ignored, 2) the information derived from these sensors is not placed within a contextual narrative, and 3) most sensors are designed for activity monitoring and not for healthcare.

## KUO

Dr. Arthur Kuo's laboratory studies the biomechanics, energetics and neural control of human movement. They develop computational models of the human body dynamics and apply them to simulations and analyses of locomotion and upper extremity reaching movements. They also perform experiments to test model predictions of stability, motion trajectories and energy expenditure.

Ongoing projects include studies of human walking on uneven terrain, use of inertial measurement units to record locomotion in the real world, energetics of human reaching and modeling of neural central pattern generators for locomotion. These projects are intended to reveal basic mechanisms of locomotion and other movements, with applicability to neural rehabilitation and diagnosis of movement impairments.

## STEFANYSHYN

Research within Dr. Darren Stefanyszyn's lab focuses on questions related to human locomotion, sport performance, and sport injury biomechanics. Research interests extend to functional sport equipment with a goal of tuning the properties of the equipment to specific athlete characteristics to maximize the athlete's performance and minimize the risk of injury. Performance research involves developing a basic understanding of the mechanics of human movement during various locomotor and athletic movements. The goal is to determine the mechanical factors dictating an athlete's performance and how performance can be improved by manipulating these factors.

In 2021, industry work explored identifying methods of matching sport equipment and footwear to individual athletes. Investigations studied internal mechanisms using ultrasound imaging to explain an athlete's response to changes in shoe cushioning material and investigating how foot shape, size and sensitivity influence preferred insole selection.

Injury research involves identifying potential injury factors such as global loading characteristics associated with ankle and knee sport related injuries as well as developing an understanding of the role played by equipment. This past year valuable insight was gained on the role of sport surface characteristics studying different compositions of infilled artificial turf as well as next generation non-infilled surfaces.

## Psychosocial Aspects of Health and Sport

### BRIDEL

Dr. William Bridel's research explores social issues in sport and physical activity. The overarching goal of his research agenda is to investigate ways for sport and physical activity to be more inclusive and safer for all participants. This is accomplished by thinking critically about the culture of sport itself, the influence of social norms, beliefs, and values on sport, and the principles of social justice. Theoretically, Dr. Bridel's work is primarily informed by poststructuralist gender and queer theories. He employs a wide variety of qualitative methods including interviews, focus groups, narrative analysis, and autoethnography in his projects.

Committed to publicly-engaged sociology, current research projects in Dr. Bridel's research includes: LGBTQI2S+ (lesbian, gay, bisexual, trans, queer, intersex, two-spirit, and other identities) inclusion in the context of national, provincial, and municipal sport; a socio-historical exploration of sport in the lives of LGBTQ+ Calgarians; representations of sport and gender diversity in children's literature; examination of "intro to sport" programs servicing newcomers to Canada; student-athletes' experiences of concussion and "athletic identity"; mediated representations of concussion; and, children and their understandings of risk and risky play.

## GIANCARLO

Dr. Alexandra Giancarlo joined the Faculty of Kinesiology within the Psychosocial Aspects of Health and Sport strategic research theme. Her work at present focuses on Indigenous sport histories, with a primary interest in the complexities of residential school sports and recreation as assimilating forces, ones strongly challenged by students who saw these activities as venues for cultural expression, competitive success, and camaraderie.

For the past three years, Dr. Giancarlo has worked with residential school survivors and their families in co-writing a memoir about the survivors' experiences at Sioux Lookout Residential School in northern Ontario. This project brings her into collaboration with a team of academics from Western University, the University of British Columbia, and Brock University. The memoir, centered on survivors' engagement with historical photographs of the team, will be published by the University of Manitoba Press in 2023.

She has ongoing research interests and relationships with Black Creole recreational horseback riding communities, and Black Creole cattle ranchers, in southern Louisiana, where she researches their movement forms as expressive culture. Dr. Giancarlo also continues her partnership with David Shannon, LLM (Barrister and human rights lawyer), in examining the socio-legal aspects of disability policy through a human rights lens.

CULOS-REED

Health and Wellness Lab

The Health and Wellness Lab examines the role of exercise to support quality of life across chronic disease management. With a focus primarily in cancer survivorship, the lab develops, implements, evaluates, and disseminates exercise oncology resources to support exercise behaviour change in individuals living with and beyond cancer. Resources include education and programming, across cancer populations (pediatric oncology, adult, to advanced cancer care) and at various timepoints along the cancer journey (rehabilitation, on-treatment, off-treatment, and into living with and beyond cancer). Ongoing studies examine the development, implementation, and dissemination of exercise oncology programs, in Alberta and across Canada.

DIN

Teaching Scholars Research Lead

Dr. Cari Din co-led the Faculty of Kinesiology’s Undergraduate Program Curriculum Review in 2020 with Dr. William Bridel and shows strong educational leadership in the faculty through supporting colleagues in discovering and practicing evidence-led teaching strategies.

She developed and runs the Kinesiology Mentorship program for post-doctoral scholars and graduate students in Kinesiology. The major focus of Dr. Din’s academic work is in teaching and learning; however, she has brought on a graduate student this year to begin investigating the lab reform project she and Dr. Martin MacInnis are undertaking as educational leaders in the faculty. This culture change project is

moving lab learning from confirmation of known outcomes to exploration, inquiry and developing the habits of mind of a scientist.

This year, Teaching Assistants (TAs) have received evidence-based support in developing their teaching strategies which enable rich student experience, reflection and deep learning in our undergraduate Exercise Physiology labs.



KILB

Dr. Brad Kilb’s passion for facilitating the technical and personal growth of his students within the Leadership in Pedagogy and Coaching Degree route continues to inspire him every day as he begins his 44th year of coaching and instructing on the University of Calgary campus. Dr. Kilb’s focus is on developing leadership traits as students prepare to enter a career of teaching, coaching or instructing in the discipline of kinesiology.

Dr. Kilb accepted the challenge of switching to online teaching, a huge change for his interactive, experiential learning sessions. His innovative teaching engaged students in developing research skills, sharing evidence-based analysis with classmates and enhancing presentation skills.

Dr. Kilb’s real-life disclosing of resiliency took on new meaning for his stu-

dents as he grappled with the loss of a second son and a four-month recovery from spine surgery.

MCDONOUGH

Relationships and Exercise Lab

Social processes play an important role in promoting and maintaining physical activity and other health behaviours. Social mechanisms are also important in how physical activity participation affects psychological well-being and coping with stress. However, which aspects of social interactions, social support, social perceptions, and social relationships contribute to these effects, and how those social mechanisms work, is not well understood. Furthermore, not all social interactions have positive effects, and social needs and barriers vary, particularly among vulnerable groups and marginalized individuals.

The work in the Relationships and Exercise Lab is focused on examining how social processes affect physical activity, health behaviours, and psychological well-being. This research includes work with a variety of populations (older adults, cancer survivors, people with Parkinson’s disease and people living in poverty) and the intersection of factors such as gender, racial/ethnic diversity, and social isolation on social processes in these populations. A key goal is informing interventions and practice to leverage and improve social processes to enhance well-being.

PASKEVICH

Dr. Paskevich’s interests focus upon the integration of the science-practitioner model, bringing the science of sport psychology into practical and applied

settings. His research combines a variety of areas within the realm of sport (using both quantitative & qualitative methodology) and examines important theoretical and practical questions related to athletes, coaches, and officials (e.g., mental toughness, stress, coping and emotion & group dynamics).

Dr. Paskevich’s research goals are to examine and understand the psychological preparation of athletes and coaches, and their ability to deal or cope with stressors experienced during practice and competition. The aim of this research is to understand how the athletes and coaches perceive the contribution of their various psychological skills, identifiable stressors, and coping effectiveness related to their actual performance (i.e., consistency and performance on demand).

WERTHNER

Dean

Dr. Penny Werthner’s research program is focused on three major aspects: (1) understanding how high performance coaches learn, utilizing social learning theory and Wenger’s concepts of Community of Practice and Landscapes of Practice; (2) issues facing women coaches; and (3) the use of heart rate variability biofeedback and neurofeedback for optimal performance in high performance sport.

Her current research includes an on-going investigation of cortical activity in high performance athletes utilizing mobile EEG, and a SSHRC funded investigation of the promotion and assessment of social learning with parasport coaches and their organizations.



### Presentations

- “Take my breath away”: Asthma in female athletes and effects of reproductive hormones and strategies for screening and management – Patricia Doyle-Baker, Connie Lebrun  
IOC World Conference on Prevention of Injury & Illness in Sport, Monaco, November
- The EXCEL study: year 1 – Manuel Ester, Julianna Dreger, S. Nicole Culos-Reed  
Canadian Association of Psychosocial Oncology, Virtual, November
- Targets for the prevention of injuries and their consequences in youth sport – Carolyn Emery  
Wood Forum 2021: Sports Injury Prevention, Virtual, November
- Impact of Covid-19 on youth with neurodevelopmental disabilities and their families – Jennifer Zwicker, A Seth, B. Materula  
Kids Brain Health Network Conference, Virtual, November
- Impact of covid-19 on youth with neurodevelopmental disabilities and their families – Jennifer Zwicker, A Seth  
Celebrating the United Nations convention on the rights of persons with disabilities anniversary organized by McGill University, University of Calgary, Kids Brain Health Network, CHILD-BRIGHT, CASDA, December
- It Was a Place to Meet People Like Me – William Bridel  
Sport and Calgary’s LGBTQ+ History, Calgary Institute for the Humanities, Taylor Institute for Teaching & Learning, University of Calgary, Calgary, AB and Virtual, December
- Female athlete’s health: adding the X’s and O’s – Patricia Doyle-Baker  
Grouse Mountain Ski Club, Virtual, December
- SHRed Concussions – Carolyn Emery, Stephen West, Isla Shill  
SHRed Concussions Rugby Canada AGM
- SHRed Concussions – Stephen West, Isla Shill  
Rugby Alberta Town Hall
- Findings from research on physical activity and social participation and recreation programming in COVID-19 – Meghan McDonough  
Presentation to Calgary Recreation’s Fitness Product Team, Calgary, AB

### Media and Interviews

- [Virtual forum to address indirect effects of COVID-19 pandemic on Canadian children](#) – Patricia Doyle-Baker  
UToday, B. DeAngelis. January
- Role of Exercise for Chronic Disease Management – S. Nicole Culos-Reed  
CBC Radio, Alberta at Noon. January
- EXCEL – S. Nicole Culos-Reed  
CBC TV, TV Feature. January
- EXCEL – S. Nicole Culos-Reed  
CBC Radio, Eye Opener Morning Show. January
- Organizations, experts address increased physical inactivity during pandemic – S. Nicole Culos-Reed  
UToday, Press Release: Change for Good Health by Impakt. February
- University of Calgary researchers offering free online yoga classes to young adults recovering from cancer – S. Nicole Culos-Reed  
The Charlatan, Carleton University. Serena Halani. February
- Inspired Albertan – S. Nicole Culos-Reed  
CTV TV, TV Feature. February
- [The Kinesiology Students’ Society intent on making the student experience special](#) – Tyler Cluff  
University of Calgary website, Stacy McGuire. February
- [Measuring training Load with Valeriya Volkova](#) – Valeriya Volkova (Kenny)  
SciDance Podcast, Jasmine Cook. March
- [UCalgary first in Canada to offer a teaching certificate in safe dance principles alongside degree](#) – Sarah Kenny  
UToday, Aurelie Maerten. March
- [Calgary research group wins major grant to study motor learning after stroke](#) – Tyler Cluff  
Canadian Partnership in Stroke Recovery (CPSR) Newsletter, Heart and Stroke Canada. March
- [Kinesiology researcher studies rare fractures in post-menopausal women](#) – Brent Edwards  
UCalgary News, Leanne Yohemas, March

## PUBLIC ENGAGEMENT

Dr. Nicole Culos-Reed – an Enduring Wellspring Partner – S. Nicole Culos-Reed  
Wellspring, Calgary. Collaborations. April

[Dance Injury Epidemiology with Sarah Kenny](#) – Sarah Kenny  
SciDance Podcast, Jasmine Cook. April

[What can Sports Exercise Medicine learn from the International Space Station?](#) –  
Leigh Gabel  
British Journal of Sports Medicine Podcast. May

[Students passionate about preventing disease through physical activity](#) – Patricia  
Doyle-Baker  
UToday, Leanne Yohemas. May

[Wearable device developed to help diagnose brain health of boxers, MMA  
fighters](#) – Ryan Peters  
CTV News, Ryan White. May

[Electrifying new research on the impact of head trauma in career fighters](#) – Ryan  
Peters  
UCalgary Newsroom, Leanne Yohemas. May

[Dr. Ryan Peters' Faculty of Kinesiology team created a new technology that  
could help protect the brain health of career fighters by providing trainers,  
coaches, and medical staff with important information for 'return-to-ring'  
decisions](#) – Ryan Peters  
Facebook. May



## PUBLIC ENGAGEMENT

[NRK Viten program investigation into the link between artificial sweeteners and  
obesity](#) – Raylene Reimer  
Norwegian Broadcasting Corporation, Chris Veloy. May

[Investigating Exercise Science, Sports Injuries, and breaking into the Movement  
Science Field](#) – Brent Edwards  
BioTEC Podcast. June

[Citizen science portal for wearable tech puts Calgary in fast lane to healthier  
communities and economic diversification](#) – Reed Ferber  
University of Calgary website, Pamela Hyde. June

[Wearable tech puts Calgary in fast lane to healthier communities and economic  
diversification](#) – Reed Ferber  
Education News Canada. June

[Challenges Olympic athletes face at the Games and the role that resilience plays  
in dealing with pressure](#) – Dave Paskevich  
Global TV. July

[Why regaining physical fitness post-COVID may improve mental health](#) – Patricia  
Doyle-Baker  
UToday, J. Mackenzie. August

[Significance of Concussion Awareness Week](#) – Amanda Black  
Concussion Expert Radio Interview, CFRA station. Kirsty Cameron. September

[SHRed mobile. U of C initiative researches concussions and sports injuries in  
Alberta youth](#) – Carolyn Emery  
CTV News. September

[Innovative project SHReds concussions and injuries in youth across Alberta](#) –  
Carolyn Emery  
UCalgary news. September

[Five UCalgary researchers named Killam Annual Professors](#) – Carolyn Emery  
UCalgary news. September

[Wearable Tech and the Future of Health](#) – Ryan Peters  
Arch Magazine, UCalgary, Brennan Black and Jaelyn Molyneux. September

[You Own Your Wearable Data, So What Should You Do With It?](#) – Reed Ferber  
TEDxYYC Talk. October

[We talk concussions: SHRed Mobile](#) – Carolyn Emery  
Global News Radio, 770 CHQR. October

## PUBLIC ENGAGEMENT

[UofC looking for adults 55+ for study on fitness and social connections](#) – Meghan McDonough  
Global News, TV and online. October

[SIPRC Research In Focus: Dr. Sarah Kenny](#) – Sarah Kenny  
SIPRC e-newsletter – The Pre-View, Mark Agius. November

[UCalgary looking for 55+ volunteers for physical activity study](#) – Meghan McDonough  
Global News, TV and online. November

### Tours & Events Hosted

Annual Drive for Thrive Golf Tournament, Silver Springs Golf Club – S. Nicole Culos-Reed  
\$30,000 raised to benefit the Thrive Centre, Calgary, AB, September

The Faculty of Kinesiology welcomes students into its facilities for tours and events annually. Students from Calgary high schools and programs such as Operation Minerva, IBM STEM4Girls, Shad Valley, and Heritage Youth Researchers Summer program are provided the opportunity to visit various labs in the faculty to learn about science, technology, engineering, and mathematics in a university setting. For health reasons, all on-campus events were cancelled in 2021.

### Workshops, Forums, Panels & Webinars

Anatomy of a Pandemic – Patricia Doyle-Baker, Suzanne Tough, Kelly Dean Schwartz, Gina Dimitropoulos  
Panel, Public Forum, Virtual, January

Injury in competitive T&T athletes – Sheila Downie  
Alberta Gymnastics Federation, Calgary, AB, January

The world at war with a virus: the science behind the headlines – Raylene Reimer  
Series of Four Community lectures  
What is a virus? Virtual, January  
Why do I feel sick with a virus? Virtual, January  
What is a vaccine? Virtual, January  
What happens during quarantine? Virtual, February

Address for Disability Policy for Children and Youth – Jennifer Zwicker  
Community Peds Rounds Presentation, February

Concussion Education Webinar: How to recognize a suspected concussion and support management for parents and coaches – Amanda Black  
SHRed Concussions – Public online concussion education session, February

## PUBLIC ENGAGEMENT

Food as Fuel - Dance Nutrition – Sarah Kenny  
Alberta Ballet School, Calgary, AB, February

Address for Care Coordination for Children with Neurodevelopmental Disorders: From Clinical Practice to Policy – Jennifer Zwicker  
Pediatric Grand Rounds, Alberta Children's Hospital, Calgary, AB, March

Seminar on Assessing and Monitoring Interlimb Force-Time Asymmetries – Matt Jordan  
Houston, Texas, March

Monitoring the Uncertain Journey Back from ACL Injury – From Case Study to Prospective Study – Matt Jordan  
Simon Fraser University Sports Analytics Meeting, Burnaby, BC, March

SHRed Concussions: Surveillance in High School and Community Sport to Reduce Concussions and their Consequences in Youth – Carolyn Emery  
Quarterly Speaker Series, Michigan Concussion Center, University of Michigan, Virtual, April

[Spaceflight: Bad to the Bone](#) – Leigh Gabel  
Canadian Space Health Research Network (CSHRNet), May

Strategies to improve exercise performance: Exercise physiology and interval training – Martin MacInnis  
Run 21 Marathon Training Program, Virtual, May

The Climb – Patricia Doyle-Baker  
Panel, Third Action Film Festival, Virtual, June





## PUBLIC ENGAGEMENT

- SHRed Concussions Research and Community Engagement (RACE) Symposium – Carolyn Emery  
Symposium, Virtual, September
- RACE Seminar – Carolyn Emery  
Seminar, Virtual, September
- Coaching the Female Athlete – Patricia Doyle-Baker, Jenni Stielow, Cam Stephen, Erin Wilson, Diane Culver  
Panel, Canadian Alpine Coach Education Series, Virtual, October
- Guidelines for successful implementation of best practice in a team/federation – Carolyn Emery  
Webinar, Aspetar Journal Online Forum, Virtual, October
- Kids Brain Health Network Conference – Jennifer Zwicker  
Panelist and co-moderator, Virtual, November
- Turf Traction Research – Darren Stefanyshyn  
2021 FieldTurf Annual Sales Meeting, Marana, Arizona, USA, November
- OTP Workshop/Q&A: Why Language Matters – Elliot Bošnjak, William Bridel  
Own the Podium, Virtual, November
- Gender Diversity & Equity in Sport: A Presentation to the Alberta Climbing Community – William Bridel  
Alberta Climbing Community Workshop; Bolder Climbing Community, Virtual, November
- Qualified Exercise Professional Training – S. Nicole Culos-Reed  
Presentation to Exercise Oncology Education Week, University of Calgary Faculty of Kinesiology, Virtual, November
- Video teaching essentials – John Holash  
Video Webinar, Virtual via Taylor Institute
- How to make the most of what you have – John Holash  
Video Webinar, Virtual via Taylor Institute
- Changing Perceptions of Aging Meet-Up Group – Meghan McDonough  
City of Calgary Age-Friendly Strategy: Panel on physical activity and older adults

## PUBLIC ENGAGEMENT

### Other Knowledge Translation Activities, Publications and Documents

- [Concussion and Visual Impairments Resource](#) – Amanda Black  
Vision impairment specific concussion resources, online
- 5 ways to get the most out of online fitness classes during COVID-19 – A. Wurz, L.C. Capozzi, J.A. Dowd, S. Nicole Culos-Reed  
The Conversation Canada, online. January
- [Concussion Awareness Training Tool for High Performance Athletes](#) – Amanda Black  
Education resource in collaboration with U Sport for varsity programs in Canada, online. February
- [Uniting the Body, Breath, and Mind: Yoga to Support Wellness for Individuals Affected by Cancer](#) – A. Wurz, T. Arnason, S. Nicole Culos-Reed  
Compassion House Foundation, online. March
- [Moving Resources to Reach Cancer Survivors Everywhere: Online Physical Activity](#) – J. Dreger, D. Duchek, S. Nicole Culos-Reed  
Compassion House Foundation, online. March
- [SHRED injuries website](#) – Carolyn Emery  
Online resources. April
- [“Pre-View” \(Sport Injury Prevention Research Centre Newsletter\)](#) – Carolyn Emery  
Newsletter, first edition, online. July
- [“Pre-View” \(Sport Injury Prevention Research Centre Newsletter\)](#) – Carolyn Emery  
Newsletter, summer edition, online. August
- [Using movement to live well with cancer-related fatigue](#) – S. Nicole Culos-Reed, M. Eisele  
Compassion House Foundation, online. August
- Thrive Centre – Volunteer Training – S. Nicole Culos-Reed  
Training, virtual. January, May, September
- PEER Program Volunteer Training – S. Nicole Culos-Reed, C. Chamorro-Viña  
Training, Calgary, AB. September
- [Prebiotics and gut microbiota: how they work together to affect metabolic health](#) – Raylene Reimer  
The Digest 55(4):1-5. Fall
- [Coaching Female Athletes](#) – Patricia Doyle-Baker  
Blog, LinkedIn. October

Member News: The Dance Science Lab in the Faculty of Kinesiology – Sarah Kenny

Healthy Dancer Canada: Newsletter. November

“Pre-View” (Sport Injury Prevention Research Centre Newsletter) – Carolyn Emery

Newsletter, fall edition, online. November

Yoga Thrive Teacher Training Program – S. Nicole Culos-Reed, and T. Arnason  
Training, virtual. December

What is Exercise physiology? How to maintain your hard-won exercise fitness through summer, aging and athletics. Exercise physiology basics – John Holash  
Presentations, Foothills Nordic

City of Calgary Older Adults and Social Isolation Campaign – Meghan McDonough  
Website contributions

Walking for Wellness Tipsheet – Meghan McDonough

Did you know that physical activity can help you make connections? – Meghan McDonough

Reimer RA, Delzenne NM. 2021. Dieting for Success: What Baseline Gut Microbiota Can Tell You About Your Chances of Losing Weight. *Gastroenterology* 160(6):1933-1935. DOI: [10.1053/j.gastro.2021.02.021](https://doi.org/10.1053/j.gastro.2021.02.021)

MacIntosh, B.R., K.B. MacDougall, T.M. Falconer and R.J. Holash. Letter to the Editor: In support of the continued use of the term anaerobic threshold. *J. Physiol.* 599(5): 1709-1710, 2021. DOI: [10.1113/JP281262](https://doi.org/10.1113/JP281262)

Policy Compendium: The Development of a National Autism Strategy through Community and Stakeholder Engagement – Jennifer Zwicker

Reworking the recipe: Adding experimentation and reflection to exercise physiology laboratories. – Martin MacInnis, Cari Din  
Blog, American Physiological Society.

Bosivert NMJ, Hayden KA, Doyle-Baker PK. 2021. Familial resemblance of bone health in maternal lineage pairs and triads: A scoping review protocol.

### PATENTS AND LICENSES

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System and method for measuring skin sensitivity to vibration.

WIPO (PCT) Patent Appln No. CA2021/051533

Inventors: Peters, R.M., Osman, N.M., Aburashed, R., Darici, O.



## OFFICIAL RESEARCH RELATED FUNCTIONS

### ABOODARDA

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#### Memberships

- Canadian Society for Exercise Physiology
- The American College of Sports Medicine

### BLACK

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#### Board Member

- Canadian Athletic Therapy Association Education Committee
- Pediatric Research in Sport Medicine Society Education Committee
- Sport Information Research Centre

#### Conference Reviewer

- Conference Reviewer for CATA Conference
- Conference Reviewer for PRISM Abstracts

#### Membership

- American College of Sport Medicine
- Pediatric Research in Sports Medicine Society
- Alberta Athletic Therapy Association
- Canadian Athletic Therapy Association (CATA)
- International Society of Qualitative Research in Sport & Exercise
- National Athletic Trainer Association

### BRIDEL

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#### Advisory/Editorial Board Member

- Sociology of Sport Journal
- Journal of LGBT Youth
- ITP Sport

#### Membership

- Canadian Sociological Association

- North American Society for the Sociology of Sport
- International Sociology of Sport Association

### CLUFF

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#### Grant Reviewer

- NSERC Discovery Grant program, External
- NSERC CGS-M competition, University of Calgary
- University Research Grants Committee, University of Calgary
- Faculty of Graduate Studies Graduate Awards Committee, University of Calgary

#### Conference Reviewer

- Motor Learning and Motor Control (MLMC) Conference, Society for Neuroscience Satellite Meeting

#### Memberships

- Society for the Neural Control of Movement
- Society for Neuroscience

### CULOS-REED

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#### Editorial Board Member

- Current Oncology Journal
- Integrative Cancer Therapies Journal
- Global Advances in Health and Medicine Journal

#### Conference Organization

- 1st Pediatric Exercise Oncology Congress, Congress Co-President

#### Grant Reviewer

- Canadian Cancer Society - Early Scholar Award, Co-Chair for grant review panel
- CIHR Doctoral Studentships

## OFFICIAL RESEARCH RELATED FUNCTIONS

- ACHRI research grants

#### Conference Reviewer

- Society of Behavioural Medicine annual conference
- Canadian Association of Psycho-Oncology annual conference
- International Psych-Oncology Society annual conference

### DOYLE-BAKER

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#### Advisory Board Member

- Annals of Applied Sport Science
- Alpine Canada True Grit Award

#### Editorial Board Member

- International Journal of Environmental Research in Public Health
- International Journal of Kinesiology and Sport Science (IJKSS)

#### Scientific Board Member

- International Congress on Sport Science in Skiing (ICSS)

#### Conference Organization

- Canadian Society for Exercise Physiologists (CSEP) for 2023 conference

#### Membership

- Alberta Fitness Leadership Association (AFLCA)
- Alberta Children's Hospital Research Institute (ACHRI)
- American College of Sports Medicine (ACSM)
- Canadian Society of Exercise Physiology (CSEP)
- The Coaching Association of Canada (CAC)
- European College of Sport Science (ECSS)
- O'Brien Institute for Public Health

### EDWARDS

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#### Executive Board Member

- International Society of Biomechanics, Secretary General

#### Editorial Board Member

- JBMR Plus, Journal of Bone and Mineral Research
- BONE
- Bone Reports
- Journal of Biomechanics

#### Conference Reviewer

- Canadian Society of Biomechanics
- American Society of Biomechanics
- Orthopaedic Research Society

#### Membership

- Canadian Society of Biomechanics
- American Society of Biomechanics
- International Society of Biomechanics
- American College of Sports Medicine
- Orthopaedic Research Society
- American Society of Bone and Mineral Research

### EMERY

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#### Editor

- British Journal of Sport Medicine, Associate Editor

#### Advisory Board Member

- Centre for Health and Injury and Illness Prevention in Sport (CHi2PS) University of Bath

#### Editorial Board Member

- Journal of Science and Medicine in Sport



## OFFICIAL RESEARCH RELATED FUNCTIONS

### Scientific Advisor

- Expert Group 6th International Consensus on Concussion in Sport

### Committee Member

- Concussions Research and Community Engagement Symposium, Chair
- Canadian Concussion Network Annual meeting, Chair Conference Organizing Committee
- Canadian Traumatic Brain Injury Research Consortium national meeting, Conference Organizing Committee
- Scientific Committee World Conference on Prevention of Injury and Illness in Sport
- Injury Prevention Symposium Canadian Academy of Sport and Exercise Medicine, Co-chair
- Expert Group 6th International Consensus on Concussion in Sport
- Massive Open Online Course (MOOC) in Concussion –Leadership Committee
- O'Brien Institute for Public Health, Population Health Panel Committee (2021)

### Grant Reviewer

- Canadian Academy of Health Sciences Fellowships
- Society of Canada College of New Scholars
- Canadian Institutes of Health Research, Social & Developmental Aspects of Children's & Youth's Health Project Review

### Conference Reviewer

- World Conference on Prevention of Injury and Illness in Sport 2021
- Osteoarthritis Research Society International 2021

- Canadian Traumatic Brain Injury Research Consortium
- Canadian Concussion Network Annual Meeting

### Membership

- Strategic Research Committee of the Canadian Physiotherapy Association
- Canadian Academy of Health Sciences Fellow
- Society of Canada College of New Scholars
- Osteoarthritis Research Society International
- Hotchkiss Brain Institute, University of Calgary
- Centre for Hip Health and Mobility, University of British Columbia
- O'Brien Institute of Public Health, University of Calgary
- McCaig Institute for Bone and Joint Health, University of Calgary
- Alberta Children's Hospital Research Institute for Child Health, University of Calgary
- American College of Sport Medicine
- Society for Epidemiologic Research
- Canadian Society for Epidemiology and Biostatistics
- Alberta College of Physiotherapists
- Alberta Physiotherapy Association
- Canadian Physiotherapy Association Sport Physiotherapy Division
- Canadian Physiotherapy Association Research Division
- Canadian Physiotherapy Association Pediatric Division
- Canadian Physiotherapy Association

## OFFICIAL RESEARCH RELATED FUNCTIONS

### FERBER

#### Scientific Advisory Board Member

- Biotricity Inc.
- Fitbit Inc.

#### Editorial Board Member

- Prosthetics and Orthotics International
- Journal of Sport Rehabilitation
- Journal of Athletic Training

### GABEL

#### Editorial Board Member

- Associate Editor, British Journal of Sports Medicine

#### Membership

- Canadian Society of Exercise Physiology
- American Society for Bone and Mineral Research

### HERZOG

#### Editor

- Co-Editor in Chief, Journal of Sport and Health Science
- Associate Editor, Exercise and Sports Science Reviews
- Associate Editor, IEEE Transactions in Neural Systems and Rehabilitation Engineering

#### Editorial Board Member

- BMC Biomedical Engineering
- Chiropractic & Manual Therapies
- The Current Issues of Sport Science (CISS)
- Journal of Functional Morphology and Kinesiology
- Biomechanics and Modeling in Mechanobiology

- International Journal of Mechanical and Materials Engineering
- Muscles, Ligaments and Tendons Journal
- Sports Orthopaedics and Sports Traumatology
- Molecular and Cellular Biomechanics
- Journal of Biomechanics
- Journal of Electromyography and Kinesiology
- Journal of Manipulative and Physiological Therapeutics
- Journal of the Canadian Chiropractic Association
- Sportverletzung Sportschaden

#### Advisory Board Member

- German Journal of Exercise and Sport Research
- Nike Sport Research Advisory Board
- German Journal of Sport Sciences
- Sportwissenschaft Journal
- Sportorthopädie Sporttraumatologie

#### Committee Member

- Vice-Chair, Motor Control Group, International Society of Biomechanics
- External Review Committee Member, Faculty of Movement Science, University of Leuven, Belgium

#### Grant Reviewer

- Natural Sciences and Engineering Research Council of Canada
- CIHR College of Reviewers

#### Conference Organization

- Scientific Chair, Active Muscle Mechanics: Bone and Soft Tissue, World Congress of Biomechanics, July 10-14, 2022, Taipei, Taiwan

## OFFICIAL RESEARCH RELATED FUNCTIONS

- Chair, Hay Award Session, American Society of Biomechanics, Atlanta, Georgia, USA, Aug 10-13, 2021 (virtual)
- Chair, Dyson Lecture, International Society of Biomechanics in Sports, Canberra, Australia, Sep 3-7, 2021 (virtual)
- Co-organizer (with Drs. Paola Connessa and James Richards), International Symposium on Motor Control in Biomechanics, in conjunction with the 7th International Foot and Ankle Congress, Sao Paulo, Brazil (virtual) April 11, 2021
- Career Award Committee, Canadian Society for Biomechanics, Montreal, QC, May 2021 (postponed from August 2020)
- Scientific Committee Member, Congress of International Society of Biomechanics/Japanese Society of Biomechanics, Fukuoka, Japan, July 30-Aug 3, 2023
- International Scientific Committee Member, IUPESM World Congress on Medical Physics and Biomedical Engineering 2021 (WC2021), Singapore
- Scientific Committee Member, European Society of Biomechanics Congress, Warsaw, Poland (2019-2022)
- Scientific Advisory Board Member, International Congress on Science and Skiing (ICSS), Austria, 2022

- Osteoarthritis Research Society International
- Fellow, Royal Society of Canada
- European College of Sport Science
- American Physiological Society,
- European Society of Biomechanics
- International Society of Biomechanics
- Orthopaedic Research Society, American Academy of Orthopaedic Surgeons
- Biophysical Society
- American Association for the Advancement of Science
- Canadian Society for Biomechanics
- American Society of Biomechanics

### HOLASH

#### Membership

- Canadian Society for Exercise Physiology
- West grid
- Compute Canada
- Simga-Xi

### JORDAN

#### Editor

- Review Editor, Elite Sports and Performance Enhancement, Frontiers in Sports and Active Living
- Review Editor, Biomechanics and Control of Human Movement, Frontiers in Sports and Active Living

#### Advisory Board Member

- Scientific Board Member for National Return to Health & Performance Task Force

#### Memberships

- International Society of Electrophysiology and Kinesiology
- Brazilian Society of Biomechanics
- Elected Honorary Member, Chilean Association for Human Movement Science

## OFFICIAL RESEARCH RELATED FUNCTIONS

- Committee Member
- Committee Member for Conjoint Health Research Ethics Board

#### Membership

- Sport Scientist Canada Professional
- European College of Sport Science (ECSS)
- Certified Strength and Conditioning Specialist (CSCS), National Strength and Conditioning Association

### KENNY

#### Board Member

- Healthy Dancer Canada

#### Editorial Board Member

- Journal of Dance Medicine and Science

#### Committee Member

- Standard Measures Consensus Initiative Taskforce, International Association for Dance Medicine and Science
- Dancer Screening Committee (Co-Chair), Healthy Dancer Canada

#### Conference Reviewer

- International Association for Dance Medicine & Science

#### Membership

- Healthy Dancer Canada
- International Association for Dance Medicine and Science
- Performing Arts Medicine Association
- Alberta Dance Alliance
- Alberta Children's Hospital Research Institute, UCalgary

- O'Brien Institute for Public Health, UCalgary

### MACINNIS

#### Grant Reviewer

- New Frontiers in Research Fund
- NSERC Discovery Grant

### MCDONOUGH

#### Editor

- Journal of Sport & Exercise Psychology, Associate Editor

#### Executive Board Member

- President, North American Society for the Psychology of Sport and Physical Activity
- Director representing Rehabilitation, Canadian Association of Psychosocial Oncology Board

#### Editorial Board Member

- International Review of Sport and Exercise Psychology
- Sport, Exercise, and Performance Psychology
- International Journal of Sport Psychology

#### Scientific Board Member

- Active Aging Canada Research Committee

#### Committee Member

- City of Calgary Recreation Active Aging Action Group

#### Grant Reviewer

- Social Sciences and Humanities Research Council of Canada

#### Conference Reviewer

- Canadian Association for Psychosocial Oncology

## OFFICIAL RESEARCH RELATED FUNCTIONS

### Membership

- International Society of Qualitative Research in Sport and Exercise
- Canadian Association of Psychosocial Oncology
- Alberta Association on Gerontology
- North American Society for Psychology of Sport and Physical Activity
- Canadian Society for Psychomotor Learning and Sport Psychology

### PASANEN

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#### Editor

- Editor, Translational Sports Medicine (TSM)
- Associate Editor, British Journal of Sports Medicine, Injury Prevention & Health Protections of the athlete (BJSM IPHP)
- Review Editor, Frontiers in Sports and Active Living, Editorial Board of Injury Prevention and Rehabilitation
- Editor in Chief, Sport Injuries: Prevention, diagnosis, treatment, and rehabilitation (textbook in Finnish), VK Kustannus Oy, Finland

#### Advisory Board Member

- Finnish Coaches Association, Finland
- Finnish Strength and Conditioning Coaches Association, Finland
- Healthy Dancer program, Finnish National Ballet, Helsinki, Finland

#### Scientific Board Member

- Finnish Sports Physiotherapists Association

#### Scientific Committee Member

- Finnish Sport Physiotherapy Association Congress "Injury prevention works – Mission Possible, June 2021,

Helsinki Finland.

### Membership

- Alberta Children's Hospital Research Institute
- American College of Sports Medicine
- Canadian Association of University Teachers
- European Society of Biomechanics
- Finnish Association of Physiotherapists
- Finnish Coaches Association
- Finnish Society of Sport Science
- Finnish Sports Physiotherapists Association
- Finnish Strength and Conditioning Coaches Association
- HEPA Europe Injury Prevention Group
- International Society of Biomechanics
- McCaig Institute for Bone and Joint Health
- Osteoarthritis Research Society International

### PASKEVICH

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#### Editorial Board Member

- International Journal of Coaching Science
- Case Studies in Sport and Exercise Psychology (CSSEP)

#### Membership

- American Psychology Association
- American Psychology Association (Div. 47)
- Association of Applied Sport Psychology

## OFFICIAL RESEARCH RELATED FUNCTIONS

- Canadian Sport Psychology Association

- Sport Scientist Canada - High Performance Practitioner Member

### PETERS

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#### Grant Reviewer

- NSERC Idea-to-Innovation Grant

#### Conference Reviewer

- 2022 IEEE Haptics Symposium (HAPTICS)

#### Membership

- Society for Neuroscience

### REIMER

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#### Editor

- Associate Editor, Applied Physiology, Nutrition and Metabolism

#### Editorial Board Member

- Frontiers in Endocrinology

#### Scientific Advisor

- General Mills Inc.

#### Committee Member

- Canadian Nutrition Society Awards Committee
- Data Monitoring Committee: FMT in Major Depression
- Executive Committee, Canadian Obesity Network-Calgary Chapter, Recruitment/Networking Coordinator
- Canadian Nutrition Society-University of Calgary Faculty Advisor

#### Grant reviewer

- Fonds de la Recherche Scientifique (FNRS), Research Director
- Dairy Farmers of Canada

- Harold Hamm Diabetes Centre Team Science Grant

- Natural Sciences and Engineering Research Council Discovery Grant

### Membership

- College of Dietitians of Alberta
- Canadian Nutrition Society
- American Society for Nutritional Sciences
- The Obesity Society
- Obesity Canada (formerly Canadian Obesity Network)
- Obesity Canada, Calgary Chapter



STEFANYSHYN

Editorial Board Member

- Footwear Science
- European Journal of Sport Science

Board Member

- Footwear Biomechanics Group

Committee Member

- NFL Engineering Committee

ZWICKER

Committee Member

- Kids Brain Health Network Executive Committee, Deputy Scientific Director
- Kids Brain Health Network Trainee Advisory Committee, Faculty representative and lead
- Kids Brain Health Network Conference Planning Committee, Chair
- Developmental Origins of Health and Disease Planning Committee, KBHN representative
- CHILD-BRIGHT Strategic Planning Committee

Grant Reviewer

- CIHR College of Reviewers
- Academic Reviewer, CIHR Health System and Policy Project
- Owerko center trainee grant application reviewer
- SSHRC Gold Medal application reviewer

Membership

- Alberta Children’s Hospital Research Institute
- O’Brien Institute for Public Health
- Canadian Public Policy



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- Zhang J, Iannetta D, Alzeedy M, MacInnis MJ, Aboodarda S. 2021. Exercising muscle mass influences neuromuscular, cardiorespiratory, and perceptual responses during and following ramp incremental cycling to task failure. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*. 321(2): R238-R249.

## PEER REVIEWED JOURNAL ARTICLES

- Zimmer C, McDonough MH, Hewson J, Toohey A, Din C, Crocker PRE, Bennett EV. 2021. Experiences with social participation in group physical activity programs for older adults. *Journal of Sport & Exercise Psychology* 43(4):335-344. DOI: [10.1123/jsep.2020-0335](https://doi.org/10.1123/jsep.2020-0335)
- Zimmer C, McDonough MH. 2021. Social support and physical activity in older adults: Identifying predictors using data from the Canadian Longitudinal Study on Aging. *Journal of Aging and Physical Activity* 30(1):136-147. DOI: [10.1123/japa.2020-0393](https://doi.org/10.1123/japa.2020-0393)
- Zimmerman HB, Costa FE, Sakugawa R, MacIntosh BR, Diefenthaler F, Dal Pupo J. 2021. Plyometric exercise enhances twitch contractile properties but fails to improve voluntary rate of torque development in highly trained sprint athletes. *European Journal of Sport Science*. DOI: [10.1080/17461391.2021.1916083](https://doi.org/10.1080/17461391.2021.1916083)
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## BOOKS AND BOOK CHAPTERS

- Bridel W. 2021. What do you mean you don't play hockey...you a queer or somethin'? Reflections on life as non-hockey playing Canadian boy. In MacDonald C, Edwards J (Eds.), *Overcoming the Neutral Zone Trap: Hockey's Agents of Change* (pp. 229-246). University of Alberta Press.
- Crocker PRE, Sabiston CM, McDonough MH. 2021. (Eds.) In Crocker PRE, Sabiston CM, McDonough MH (Eds.), *Sport and exercise psychology: A Canadian perspective* (4th edition). Pearson Education Canada.
- Howard JJ, Herzog W. 2021. Skeletal muscle in cerebral palsy: from belly to myofibril. *Cerebral Palsy: New Developments*. (Eds.) Antigone Papvasiliou et al. *Frontiers in Neurology and Frontiers in Pediatrics*. Frontiers Media SA, Lausanne, Pg(s) 89-103. DOI: [10.3389/fneur.2021.620852](https://doi.org/10.3389/fneur.2021.620852)
- Jordan, M. 2021. *Enhancing Movement Efficiency in Sport*. In *High Performance Training for Sports* (2nd edition). Human Kinetics.
- Jordan M. 2021. *Resistance Training for Sport Performance*. In *National Academy of Sports Medicine* (2nd edition).
- Mack DE, Sabiston CM, McDonough MH, Wilson PM, Paskevich D. 2021. Motivation and behavioural change. In Crocker PRE, Sabiston CM, McDonough MH (Eds.), *Sport and exercise psychology: A Canadian perspective* (4th edition). Pearson Education Canada.
- Pasanen, K. 2021. *Sport injuries: Prevention, treatment and rehabilitation*. VK Kustannus, Lahti, Finland. ISBN: 978-951-9147-90-1.



## TECHNICAL REPORTS

- Amarbayan M, Carpenter T, Hebert M, Santana M, Zwicker JD. 2021. Value-Based Mental Health Services for Youth and Families: The Role of Person-Centered Measurements in a Learning Health System. SPP Publications.
- Barrons Z, Esposito M, Smith E, Wannop JW, Stefanyshyn D. 2021. Regional Traction Requirements of Female Basketball Shoes. Technical Report for adidas Concept Excellence.
- Barrons Z, Esposito M, Wannop JW, Stefanyshyn D. 2021. Mechanical Traction of Football and Soccer Cleats. Technical Report for Under Armour.
- Clermont C, Wannop JW, Barrons Z, Esposito M, Culo M, Stefanyshyn D. 2021. 4D Shear: Phase 2 Shoe Shear, Running Mechanics and Running Performance. Technical Report for adidas Future Team.
- Majnemer A, McGrath P, Baumbusch J, Camden,C, Fallon B, Lunskey Y, Miller S, Sansone G, Stainton T, Sumarah J, Thomson D, Zwicker J. 2021. Time to be Counted: COVID-19 and Intellectual and Developmental Disabilities. Facets-2021-0038.R1.
- Stefanyshyn D, Wannop JW. 2021. Basketball Endurance. Technical Report for adidas Concept Excellence.
- Stefanyshyn DJ, Esposito M, Wannop JW. 2021. Evaluation of X22 Soccer Shoes. Technical Report for adidas Future Team.
- Wannop JW, Barrons Z, Esposito M, Clermont C, Culo M, Dominguez E, Stefanyshyn D. 2021. Female Forefoot Bending Stiffness. Technical Report for adidas Future Team.
- Wannop JW, Crawford R, Trauma R, Barrons Z, Clermont C, Stefanyshyn DJ. 2021. Evaluation of Techfit Prototypes. Technical Report for adidas Future Team.
- Wannop JW, Esposito M, Barrons Z, Stefanyshyn DJ. 2021. Mechanical Traction of Wet Non-infilled Artificial Surfaces. Technical Report for FieldTurf Inc.
- Wannop JW, Esposito M, Smith E, Kowalchuk S, Barrons Z, Stefanyshyn, D. 2021. Evaluation of Power Prototypes. Technical Report for adidas Concept Excellence.
- Wannop JW, Esposito M, Smith E, Stefanyshyn DJ. 2021. Future of Endurance: Influence of Cushioning and Geometry on Running Biomechanics and Perception. Technical Report for adidas Future Team.
- Wannop JW, Esposito M, Stefanyshyn DJ. 2021. Mechanical Traction of Fibre Sprays. Technical Report for FieldTurf.
- Wannop JW, Esposito M, Stefanyshyn DJ. 2021. Mechanical Traction of Natural and Wet Artificial Surfaces during Rugby Scrums. Technical Report for FieldTurf.
- Wannop JW, Kowalchuk S, Smith E, Culo M, Stefanyshyn D. 2021. Synthetic Turf Testing: Phase 2. Technical Report for Biocore.

## TECHNICAL REPORTS

- Wannop JW, Kowalchuk S, Smith E, Esposito M, Stefanyshyn D. 2021. Mechanical Traction of Artificial Surfaces During Rugby Scrums. Technical Report for FieldTurf.
- Wannop JW, Kowalchuk S, Smith E, Stefanyshyn DJ. 2021. Influence of Turf Fibers on Mechanical Traction of Artificial Turf Surfaces. Technical Report for FieldTurf.
- Wannop JW, Smith E, Esposito M, Clermont C, Stefanyshyn DJ. 2021. 4D Shear: Phase 3 Influence of Midsole Shear on Peak Braking Forces and Foot Acceleration. Technical Report for adidas Future Team.
- Wannop JW, Smith E, Stefanyshyn DJ. 2021. Foot Sensitivity and Insole Selection. Technical Report for Superfeet.



## KEYNOTE AND INVITED LECTURES

- Edwards WB. Towards the real-time monitoring of tendon strain and cumulative damage to minimize the risk of patellar tendinopathy. NBA/GE Collaboration – Strategic Advisory Board Meeting. October.
- Edwards WB. Predicting the mechanical fatigue of bone and bones. Neuromechanical Performance Research Lab, University of Guelph. Virtual Event. June.
- Edwards WB. Running injuries as a fatigue failure process. 3rd Annual Symposium on Sport Sciences, Aalborg University, Denmark. Virtual Event. June.
- Emery CA. Concussions Prevention in Youth Team Sports: Evidence informing best practice and policy across five high risk concussion sports. IOC World Conference on Prevention of Injury & Illness in Sport. Monaco. November.
- Emery CA. Injury Prevention in Youth Sport. Why are we so afraid of change? IOC World Conference on Prevention of Injury & Illness in Sport. Monaco. November. (Keynote)
- Emery CA. Injury Prevention in Youth Sport: Where does the future lie? IOC World Conference on Prevention of Injury & Illness in Sport. Monaco. November.
- Emery CA. Opportunities for the Prevention of Injuries and their Consequences in Youth Sport. 2021 Sport Medicine Australia Conference. Melbourne, Virtual Event. October. (Keynote)
- Emery CA. Prevention of Concussion. 8th Annual Concussion Research Symposium, Canada Concussion Centre. Toronto, Virtual Event. February. (Keynote)
- Emery CA. SHRed Concussions: Surveillance in High Schools and Community Sport to Reduce Concussions and their Consequences. University of Michigan Concussion Centre, Center for Education of Women. Virtual Event. April.
- Emery CA. SHRed Concussions: Surveillance in High School and Community Sport to Reduce Concussions and their Consequences in Youth. 5th Annual Injury Prevention Symposium, Steadman Philippon Research Institute and the United States Olympic and Paralympic Committee. Colorado, Virtual Event. April. (Keynote)
- Emery CA. Targets for the Prevention of Injuries and their Consequences in Youth Sport. Pediatric Research in Sports Medicine Society (PRIISM) 8th Annual Meeting. Virtual Event. January. (Keynote)
- Emery CA. Targets for the prevention of injuries and their consequences in youth sport. Wood Forum 2021: Sports Injury Prevention. Virtual Event. November.

## KEYNOTE AND INVITED LECTURES

- Emery CA. Transforming Sport Experience Through Prevention. Canadian Academy of Sport and Exercise Medicine (CASEM). Virtual Event. May. (Keynote)
- Emery CA. What next? Translation of surveillance data into action: Informing best practice and policy. American College of Sports Medicine (ACSM) Annual Meeting, World Congress on Exercise is Medicine, and World Congress on the Basic Science of Exercise in Regenerative Medicine. Virtual Event. June.
- Herzog W. Basic muscle mechanics and selected applications in sport. International Sport Sciences Conference. Lisbon, Portugal, Virtual Event. July. (Keynote)
- Herzog W. Huxley's Missing Filament. King's College. London, UK, Virtual Event. June. (Keynote)
- Herzog W. Muscle mechanics: from molecules to function. University of Sao Paulo, Brazil.
- Herzog W. Recent observations on the molecular mechanisms of muscle contraction. 11th International Conference on Biomedical Engineering and Technology. Tokyo, Japan, Virtual Event. March. (Keynote)
- Herzog W. The distribution problem in biomechanics and motor control: how can we measure, predict and validate in vivo muscle forces? Congress of the International Society of Biomechanics. Stockholm, Sweden, Virtual. July.
- Herzog W. The forgotten filament: Titin's contribution to active force production in muscle. Monday Muscle Seminar (M&MS), Médecine Sorbonne Université. Paris, France, Virtual. May.
- Herzog W. The many faces of knee joint osteoarthritis. The Science and Environmental Studies Biotechnology & Allied Sciences Symposium. Thunder Bay, Canada, Virtual Event. August. (Keynote)
- Herzog W. The past, present and future of biomechanics. The Science and Environmental Studies Biotechnology & Allied Sciences Symposium. Thunder Bay, Canada, Virtual Event. August.
- Herzog W. The role of titin in muscle contraction and active force production. Society for Orthopedics and Traumatology in Sports Medicine. Basel, Switzerland, Virtual Event. July. (Keynote)
- Herzog W. The three-filament sarcomere model: titin-actin-myosin interaction and force production. French Society for Biomechanics. St. Etienne, France, Virtual Event. October. (Keynote)
- Herzog W. What's Titin got to do with it: evidence of Titin's contribution to force regulation in skeletal muscle. Brigham Young University. Utah, USA. February.



## KEYNOTE AND INVITED LECTURES

- MacInnis, MJ. Strategies to augment and assess skeletal muscle oxidative capacity in humans. Research Revealed, University of Alberta. March.
- MacInnis, MJ. Altitude: Physiology, Exercise, Training, and Illness. Faculty of Kinesiology, University of Calgary.
- MacInnis, MJ. Interval training: From physiology to practice. University of Calgary.
- MacInnis, MJ. Exercise physiology at altitude: Acute detriments and chronic benefits. University of Regina.
- McDonough MH. Moving together: Supporting physical literacy for older adults. PLAY: Physical literacy and you mini conference, Mount Royal University. Calgary. March.
- Pasanen K. Training strategies – The key to prevention in youth. IOC World Conference on prevention of injury and illness in sports. Monaco. November.
- Pasanen K. Preventing ankle injuries in female youth team sports. IOC World Conference on prevention of injury and illness in sports. Monaco.
- Paskevich DM, Maw S, Tong C. Developing a high performance culture of excellence in long track speed skating. Presentation made at the annual Sport Canada Research Initiative conference. Virtual Event. November.
- Reimer RA. Role of prebiotics in chronic disease management. Canadian Nutrition Society Annual Conference. April. (Keynote)
- Wurz A, Culos-Reed SN. Helping children and adolescents with cancer to move more. The international Pediatric Exercise Oncology Guidelines (iPOEG), Little Big Forum. Australia, Virtual Event. June.



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