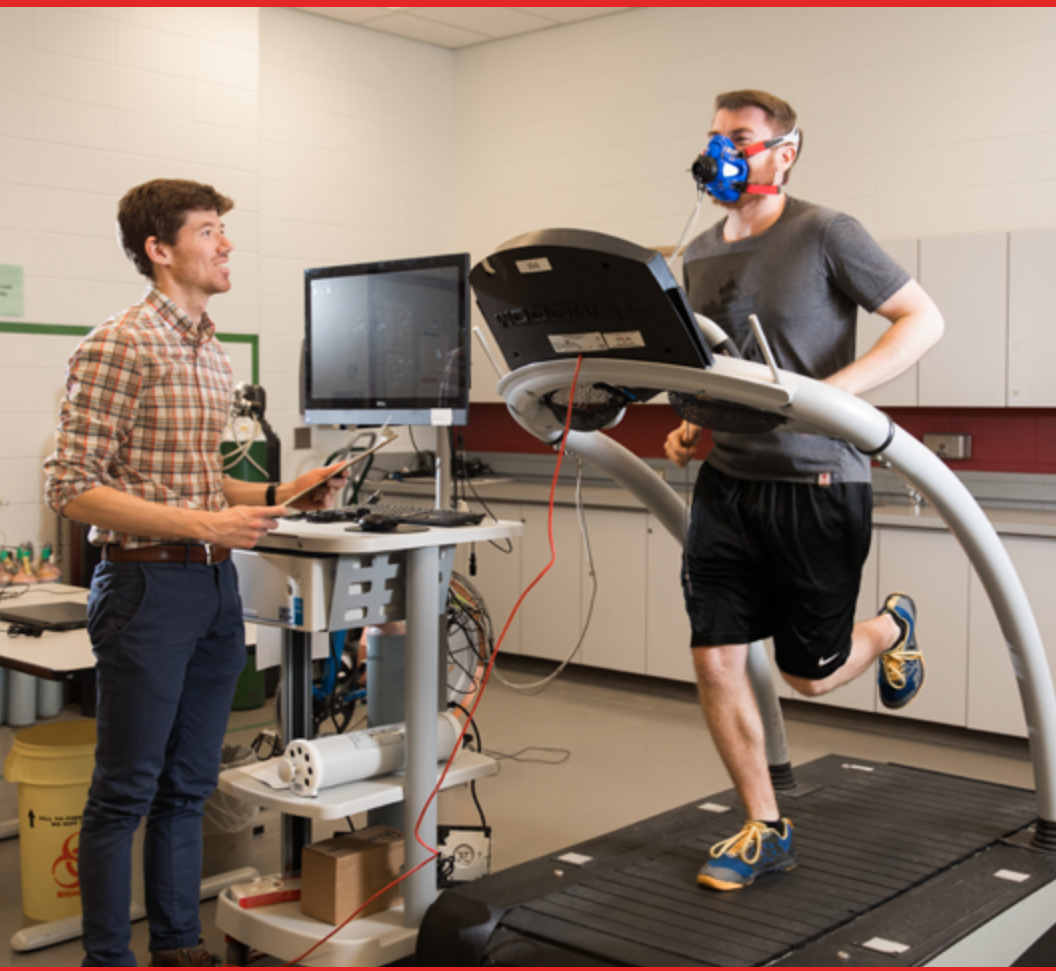
UNIVERSITY OF CALGARY
FACULTY OF KINESIOLOGY



2019 Annual Report

VISION

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

MISSION

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

DEAN'S MESSAGE

This was an incredible year for the Faculty of Kinesiology. We were ranked No. 1 in North America and No. 7 globally for schools of movement and sport science by the ShanghaiRanking.

A few months later, we were ranked among top 30 in the world – and No. 6 nationally – by Quacquarelli Symonds 2019 World University Rankings for sport-related subjects based on academic reputation and scholarly productivity. Our faculty continues to work to improve the health and mobility of our society through our world-renowned research and scholarship. Here are some ways that we are making an impact in society.

- We partnered with the Université Laval to create the university's first MOOC (massive open online course) with the goal of improving concussion prevention. This free course was a success with 8,591 participants.
- Our research shows that thousands of injuries — including concussions — could be avoided nationally if bodychecking were fully eliminated in non-elite bantam hockey, ages 13 and 14.
- We are examining how we keep our elderly citizens living independently by identifying barriers to exercise to provide evidence-based recommendations to promote active and healthy living.
- We are exploring novel techniques to tackle the obesity epidemic and have shown that a prebiotic fibre supplement reduces body fat and can prevent obesity in children.
- A pilot study shows some children with autism respond positively to ketogenic diet finding that improving metabolism and gut microbiome linked to better behaviour
- Our first cohort of students graduated with combined dance and kinesiology degrees. UCalgary is one of the first in the world to offer a degree in the emerging field of dance science.

With great pleasure, our biomechanics researchers hosted the field's largest conference with more than 2,000 people attending the XXVII Congress of the International Society of Biomechanics held in conjunction with the 43rd Annual Meeting of the American Society of Biomechanics.

This 2019 Annual Report is a great testimony to the excellent work conducted by the faculty.

Sincerely,

Dr. Penny Werthner, Dean, PhD
Faculty of Kinesiology

HIGHLIGHTS

Appointed **Zachary Barrons** — Informatics Officer, Footwear Biomechanics Group.

Appointed **Bill Wannop** — Associate Editor, Footwear Science.

Appointed **Bill Wannop** — Awards Officer, Footwear Biomechanics Group.

Appointed **Jennifer Zwicker** — Deputy Chief Scientific Officer, Kids Brain Health Network.

Appointed **Jennifer Zwicker** — Director of Health Policy, School of Public Policy.

Award **Simon Barrick** — Izaak Walton Killam Doctoral Scholarship.

Award **Joshua Cashaback** — Alberta Innovates Health Solutions (AIHS) Postdoctoral Fellowship. Controlling and adapting our movements in the presence of muscle fatigue.

Award **Mathieu Chin** — 3M National Student Fellowship.

Award **Nicole Culos-Reed** — CIHR – Institute of Cancer Research: CAPO Award for Research Excellence.

Award **Cari Din** — Teaching Excellence Award, Student's Union, University of Calgary.

Award **Cari Din** — University of Calgary Teaching Award, Taylor Institute for Teaching and Learning, University of Calgary.

Award **Carolyn Emery, Carla van den Berg C, Sarah Richmond, Luz Palacios-Derflingher, Carly McKay, Patricia K Doyle-Baker, M McKinlay, Clodagh Toomey, A Nettel-Aguirre, Brent Hagel** — Best Podium Presentation Award. 'Implementing a school prevention program to reduce injuries through neuromuscular training (isprint): a cluster-randomized controlled trial'. Third World Congress of Sport Physical Therapy, Vancouver BC. October.

Award **Reed Ferber** — Great Supervisor Award, University of Calgary.

Award **Ifaz T. Haider** — Tim Murray Short Term Training Award, Osteoporosis Canada.

Award **Jeff Ilg** — Podium Presentation Award, McCaig Summer Student Symposium, Calgary AB.

HIGHLIGHTS

Award **Lindsay Loundagin** — Young Investigator Award, 22nd International Workshop on Quantitative Musculoskeletal Imaging.

Award **Shyamchand Mayengbam** — Metabolomics Association of North America Early Career Award.

Award **Ryan Miller** — Best Poster Award, 'Modulation of the Nervous System during an Unpredictable Posture Task'. Campus Alberta Student Conference in Health, Edmonton AB.

Award **Eng Kuan Moo** — Promising Young Scientist Award, International Society of Biomechanics Conference 2019, Calgary AB.

Award **Rob Moore** — Best Presentation Award, 'Adaptations to Novel Visuomotor Rotations After Stroke'. Alberta Biomedical Engineering Conference (Alberta BME), Banff AB.

Award **Jaqueline Rios** — J. B. Hyne Research Innovation Award.

Award **Jonathan Smirl** — Michael Smith Foundation for Health Research: Post-Doctoral Fellowship.

Award **Baaba Otoo** — David Winter Young Investigator Award (Poster), International Society of Biomechanics Conference, Calgary AB.

Award **Tessa VanDerVeeken** — Tim Murray Short Term Training Award, Osteoporosis Canada.

Award **Valeriya Volkova** — 2019 Best Presentation Award, UBC Wearable Summer School.

Honour **Sarah Kenny** — 2019 Peak Scholars Recognition, University of Calgary.

Honour **Brad Kilb** — Inducted into the Teaching Excellence Award Hall of Fame, University of Calgary Student Union.

Honour **Preston Wiley** — Calgary Booster Club – Honoured Athletic Leader Award.

M.Sc. **Natalia Albinati** — Supervisor: Dr. Nicole Culos-Reed. Thesis: The Feasibility of a Physical Activity Intervention for Advanced Multiple Myeloma Patients: A Mixed Methods Study.

Preston Wiley
Honoured Athletic Leader Award - Calgary Booster Club

M.Sc. **Kimberley Befus** — Supervisors: Drs. Carolyn Emery and Meghan McDonough.
Thesis: Motivation and Social Factors Associated with Exercise Fidelity in a Basketball Neuromuscular Training Prevention Warm-up in Youth.

M.Sc. **Alexander Chen** — Supervisor: Dr. Brian MacIntosh.
Thesis: Developing Procedures and Software for Correcting Artifacts in Motion Data.

M.Sc. **Chevonne Codd** — Supervisors: Drs. Kathryn Schneider and Carolyn Emery.
Thesis: Incidence, Risk Factors, and Mechanisms of Concussion and Musculoskeletal Injury in Youth Soccer Players.

M.Sc. **Laura Crack** — Supervisor: Dr. Patricia Doyle-Baker.
Thesis: CHESS: Changes in Hormones with Exposure to Student Stress.

M.Sc. **Tessa Gallinger** — Supervisors: Drs. Brian MacIntosh and Jared Fletcher.
Thesis: Muscle Length Adaptations to High-Velocity Training in Young Adults with C erebral Palsy.

M.Sc. **Jawad Hashim** — Supervisor: Dr. Larry Katz.
Thesis: Effects of a Structured Exergaming Curriculum on Postural Balance in Older Adults.

M.Sc. **David Langelier** – Supervisor: Dr. Nicole Culos-Reed.
Thesis: The Role of Exercise on Masculinity, Body Image, and Quality of Life in Men with Prostate Cancer. A Mixed Methods Study (2018).

M.Sc. **Colin Lavigne** — Supervisors: Drs. Guillaume Millet and Nicole Culos-Reed.
Thesis: The Effect of Radiation Therapy and a 12-week Novel Strength Training Intervention on Neuromuscular Function and Fatigability in People Diagnosed with Head & Neck Cancer.

M.Sc. **Lauren Miutz** — Supervisor: Dr. Kathryn Schneider.
Thesis: Feasibility, Reliability and Concurrent Validity of a Field Test of Exertion in High School Students.

M.Sc. **Michelle Patterson** — Supervisor: Dr. Meghan McDonough.
Thesis: Experiences of Body Image and Social Support in Physical Activity Programs Among Older Adult Women.

M.Sc. **Ahmad Qahtan** — Supervisor: Dr. Juan Murias.
Thesis: Effects of A Single-Leg Exercise Training Intervention on Single and Double Leg Peak Power Output, Maximal Oxygen Consumption, Gas Exchange Threshold, and the Respiratory Compensation Point.

M.Sc. **Elysa Sandron** — Supervisors: Drs. Carolyn Emery and Elizabeth Condliffe.
Thesis: Adapted Sport and Recreation Summer Camp: Youth with Physical Disabilities, Their Parents and Staff Perspectives on Psychosocial Outcomes and Physical Activity Participation.

M.Sc. **Andrew Schnell** — Supervisors: Drs. William Bridel and Jenny Godley.
Thesis: Attitudes and Experiences of LGBTQI2S Inclusion in Figure Skating: The Role of Known Intergroup Contact.

M.Sc. **Janet Wong** — Supervisor: Dr. Meghan McDonough.
Thesis: Afterschool Dynamics: The Role of Peers and the Recreational Environment in Adolescent Emotional Safety.

M.Sc. **Yuto Yasuda** — Supervisor: Dr. David Paskevich.
Thesis: The Relationship Between Cohesion, Collective Efficacy, Communication and Performance Outcomes in Youth Team Sports.

Ph.D. **Osman Darici** — Supervisor: Dr. Art Kuo.
Thesis: Uneven Terrain Human Walking.

Ph.D. **Breda Eubank (Lau)** — Supervisors: Drs. Preston Wiley and Mark Lafave.
Thesis: Development of a Clinical Pathway for Patients with Chronic Rotator Cuff Tears. (2018)

HIGHLIGHTS

Ph.D. **Christian Clermont** — Supervisor: Dr. Reed Ferber.
Thesis: Making Sense of Sensor Data for Recreational and Competitive Runners: Detecting Typical and Atypical Running Biomechanics.

Ph.D. **Danilo Iannetta** — Supervisor: Dr. Juan Murias.
Thesis: Identifying Exercise Intensity "Thresholds": Implications for Metabolic Responses, Performance, and Exercise Intensity Prescription.

Ph.D. **Teja Klančič** — Supervisor: Dr. Raylene Reimer.
Thesis: Early Life Antibiotic and Prebiotic Exposure: Impact on Gut Microbiota, Metabolism and Obesity Risk.

Ph.D. **Jodi Nettleton** — Supervisor: Dr. Raylene Reimer.
Thesis: Dietary Modulators of Gut Microbiota: Impact on Metabolic Health and Behaviour.

Ph.D. **Jaqueline Lourdes Rios** — Supervisor: Dr. Walter Herzog.
Thesis: Exercise and Dietary Interventions in a Rat Model of Metabolic Knee Osteoarthritis.

Ph.D. **Rogerio Soares** — Supervisor: Dr. Juan Murias.
Thesis: The Use of Near-Infrared Spectroscopy for Microvascular Function Assessment in Healthy and with Obesity Individuals During Normo- and Hyperglycemia.

GENERAL COMMENTS

Exercise Physiology and Nutrition in Health and Sport

ABOODARDA

Exercise Neurophysiology Laboratory

The research that conducted in Dr. Jalal Aboodarda's lab in 2019 was the continuation of the outstanding research environment that Dr. Guillaume Millet established in the Faculty of Kinesiology. The main focus of exercise neurophysiology team was on measuring acute and chronic neuromuscular and cardiovascular adaptations in response to different exercise interventions concentrating on neurophysiological adaptations that occur in the structure and function of the motor network (from the brain to the skeletal muscles) in response to different modes of upper and lower limb exercises. With application of non-invasive techniques such as transcranial magnetic stimulation of the brain, transmastoid and thoracic electrical stimulation of the spinal cord as well as peripheral nerve electrical stimulation of the skeletal muscles, they investigated the relative contributions of central (i.e. the brain and spinal cord) and peripheral nervous system (i.e. skeletal muscles) to the development of neuromuscular fatigue in healthy individuals and people with clinical conditions. Their work was published in the flagship journals of their field including The Journal of Physiology, Brain Sciences, and the Journal of Experimental Biology.

Danilo Ianetta, Colin Lavigne, Jalal Aboodarda

DOYLE-BAKER

Doyle-Baker Lab

Dr. Patricia K. Doyle-Baker's lab continued this past year, with a focused interest in hormonal levels and hormone shifts that affect: aerobic performance and heart rate variability, muscle and bone, and perceived fatigue and stress levels. They employed human and animal model research as well as lab and field work studies. To measure hormone levels (estrogen, progesterone and testosterone) several biomarkers were employed so that the variability in hormonal shifts during each menstrual cycle could be identified. This meant physically tracking the cycle length and using both salivary and urine samples to determine when ovulation occured; the population was inclusive of individuals taking exogenous hormones such as oral contraceptives. Collaborations with other exercise physiology lab groups in the Human Performance Lab also contributed to the

research surrounding menstrual cycle phases and exercise performance.

The Doyle-Baker lab places importance on field testing because many athletes do not have access to laboratory testing and gaps in field research in sports, such as cross-country skiing, are common in Canada. Field testing, although in a familiar environment for the athlete, is challenging for the researcher because of the influence of changing weather conditions on testing days. Conversely, field testing can be exciting as often an outcome can be translated quickly to a target audience such as coaches and athletes. They look forward to publishing their research related to the menstrual cycle phase influence on performance after a HIIT (high intensity training session) in cross-country skiers.

HOLASH

Exercise Physiology Laboratory

Dr. John Holash is a new instructor in the Faculty of Kinesiology, and in this role he is currently working on updating, developing, and modifying courses and instructional materials within the Exercise Physiology group in order to leverage new technologies and instruments for course delivery. In this role John has participated in a specialized focus group for video technologies in classroom (Yuja) at the University of Calgary in the spring and summer of 2019, and currently represents the faculty on the "Learning Technologies Advisory Committee". He plans to develop a subgroup within the exercise physiology umbrella over the next few years, with hopes to integrate and develop the use of state-of-the-art computer-based methods for measuring, recording, and analyzing these potentially very large data sets of physiological variables. The ultimate goal of this subgroup will be to enhance the student experience through: product development, rapid prototyping, machine learning, data processing, and potentially some entrepreneurship opportunities that revolve around leveraging digital technologies and scaling them.

MACINNIS

Metabolic, Exercise, and Environmental Physiology Laboratory

Dr. Martin MacInnis' group is an integrative physiology laboratory interested in understanding how humans respond to acute and chronic exercise and the extent to which these responses are influenced by nutrition, sex, and the environment. Martin's research group launched in 2018, and continue to investigate: (1) adaptations to different exercise training programs in, skeletal muscle,

cardiovascular, and hematological systems; (2) the mechanisms underpinning the plasticity of these physiological systems; (3) the development of non-invasive methods to assess skeletal muscle fitness; (4) the influence of oxygen availability on aerobic metabolism, neuromuscular fatigue, and exercise performance; and (5) the use of wearable technologies to improve exercise testing and prescription. They employ a wide breadth of techniques, ranging from the biochemical and molecular analysis of human tissue (e.g., blood and muscle) to whole-body measures of exercise metabolism, tolerance, and performance (e.g., pulmonary gas analysis and femoral nerve stimulation). The overall aim of this research program is to understand how molecular and physiological mechanisms regulate physiological systems in humans, with the goal to translate and apply this research to improve the health and fitness of individuals ranging from athletes to those with chronic disease and disability.

MACINTOSH

Although Dr. Brian MacIntosh retired in 2019, he is continuing his research and student supervision. The central theme of research in his laboratory is the study of force modulation in skeletal muscle. This includes the study of force-velocity, force-frequency and force-length relationships, and the interactions of these with and without prior activity. Prior activity can be an acute modifier, as in potentiation or fatigue. Alternatively, prior activity can be a chronic modifier as in training, illness, or disuse atrophy. A new theory of muscle fatigue has been proposed: that fatigue is a consequence of the elegant regulation of excitation-contraction coupling in skeletal muscle to prevent depletion of adenosine triphosphate (ATP). Recent work has evaluated the potential role of changes in calcium sensitivity at physiological temperature, contributing to muscle potentiation and fatigue. They are continuing the work on warm-up and post-activation potentiation.

Work on understanding the slow component has revealed that it does not represent a rising energy cost of the exercise, but a slow switch from anaerobic to aerobic energy supply. Work in Brian's research group uses a number of approaches to study the contractile properties of skeletal muscle including: in vitro single intact or skinned fibers and fiber bundles; in situ whole muscle and intact human subjects performing isolated muscle or muscle group contractions; or performing whole body exercise.

MONTERO

Dr. David Montero's group is newly established in Kinesiology. Based on a decade of dedicated work with leading French and Scandinavian researchers in human physiology, their research is focused upon fundamental mechanisms of exercise tolerance in humans, with particular emphasis on the oxygen transport and utilization chain through hematological, cardiovascular and metabolic systems. Humans exhibit a wide range of aerobic exercise capacity, with major differences observed between sexes and with aging in healthy individuals. Blood volume is considered a fundamental variable determining cardiac function and aerobic capacity, a notion primarily supported by studies in young male individuals. Accordingly, their long-term objective is to understand the role of blood volume in sex- and age-related differences in aerobic capacity.

In the path towards this aim, David's short-term objectives are to: (1) characterize the relationship between blood volume, cardiac output and aerobic capacity in female and elderly individuals; (2) determine whether sex- and age-related differences in aerobic capacity are primarily explained by blood volume; and (3) assess the mechanistic role of blood volume adaptations for training-induced improvements in aerobic capacity in female and elderly individuals.

MURIAS

Cardiovascular Exercise Physiology Group

Dr. Juan Murias is interested in determining the effectiveness of exercise training programs for promoting health as well as improving performance. The main goal of his research relates to the use of exercise training interventions as "medicine" to prevent or alleviate the detrimental effects of aging and disease on cardiovascular function, and improve performance. Although Juan's laboratory examines both central and peripheral cardiovascular adaptations to exercise training, a current direction of his work is focusing on the vascular side of these adaptive responses. More specifically, he is interested in the role of the endothelium in the control and distribution of blood flow and the effects of endurance training exercise in preventing or alleviating the age-related reduction in endothelium-dependent vasodilation and, the associated limitation in O_2 transport to the sites of metabolic need.

Some of the measures commonly assessed in the Murias laboratory include: Breath-by-breath VO_2 and near-infrared spectroscopy (NIRS) to estimate blood oxy- and deoxygenation within the area of NIRS "inspection". The use of this technique combined with measurements of VO_2 can provide an estimate of the matching of muscle

O_2 delivery to O_2 utilization. Additionally, Doppler Ultrasound is used to estimate blood flow, vascular conductance and flow mediated dilation responses at rest and during exercise, and to obtain morphological measures to derive the lumen-to-wall ratio in different arteries.

REIMER

Associate Dean Research

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. This year they examined how exposure to antibiotics in early life (mother during pregnancy or early infancy) increases obesity risk and how diet can be used to lessen this risk. Specifically, they are showing that prebiotic fiber, a unique type of dietary fiber that increases healthy bacteria in the intestine, when given at the same time as antibiotics can reduce the risk of obesity. Raylene's group has also been examining how to bring human infant formula closer to the nutritional gold standard of breastmilk. This work is examining how supplementing early life diet with human milk oligosaccharides (which act like fiber in mother's milk and feed the healthy bacteria in the gut) can improve gut microbiota profiles and lifelong metabolic health. They are also very involved in translating animal studies into human clinical studies.

Dr. Reimer's group are currently evaluating: (1) the effect of prebiotic fiber on liver health in patients with non-alcoholic fatty liver disease; (2) the effect of prebiotic fiber supplement on pain and function in individuals with knee osteoarthritis and obesity; and (3) how gut microbiota differ in youth with obsessive compulsive disorder compared to healthy control youth. Ultimately the goal is to design and evaluate new food ingredients and 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; and examining the context for implementation for injury prevention initiatives and injury surveillance in high school and university athletic populations.

Amanda Black

EMERY

Sport Injury Prevention Research Centre (SIPRC)

Dr. Carolyn Emery is the Chair of the Sport Injury Prevention Research Centre (SIPRC), one of eleven International Olympic Committee Research Centres for the Prevention of Injury and Protection of Athlete Health (2019-2022). Evaluation of prevention strategies to reduce the burden of injuries and their consequences in youth sport is the focus of her research program. Carolyn continues to build on the national body checking policy change in 11-12 year old ice hockey to demonstrate a 56% reduction in all injuries (including concussions) in non-elite 13-14 year old leagues following policy disallowing body checking (preventing 6386 injuries nationally each year). Her research team evaluated a neuromuscular training (NMT) warm-up program implementation in junior high school physical education in a 3-year randomized controlled trial (RCT), demonstrating a 46% reduction in injury risk in girls.

Through a National Basketball Association General Electric partnership grant, the SIPRC team is contributing to a greater understanding of patellar and Achilles tendinopathies in youth basketball players including workload and other risk factors and informing

prevention strategies. Canadian Institutes of Health Research funded Surveillance in High Schools to Reduce Injuries and their Consequences in Youth Sport (SHRed Injuries) which focuses on the prevention of musculoskeletal injuries and their consequences in multiple youth sports and communities (e.g., indigenous). An RCT in young adults is underway to evaluate an exercise intervention to prevent early osteoarthritis following sport-related knee injury in youth. A National Football League Scientific Advisory Board funded program, SHRed Concussions, is a pan-Canadian program of research aiming to inform best practice in concussion prevention detection, diagnosis, prognosis, management and rehabilitation across multiple youth sports.

Through the VI Riddell Pediatric Rehabilitation Research Program, her team strives to inform evidence-based rehabilitation strategies and adapted physical activity programs for children with cerebral palsy, joint injuries, juvenile idiopathic arthritis, and concussion.

KENNY

Dr. Sarah Kenny's research is unique in Canada, bringing together the disciplines of kinesiology and dance. Specifically, she 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, Sarah'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 as both artists and athletes.

An additional focus of Sarah'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. In particular, her research team investigates the lived experiences of participating in community dance and how these experiences contribute towards physical literacy and successful aging among older adults and those living with Parkinson's Disease.

MOHTADI

Dr. Nicholas Mohtadi's research activities at the University of Calgary, Sport Medicine Centre (SMC) involve: Osteoarthritis, knee injury, shoulder research, sport injury prevention and clinical trials.

In 2019 a randomized clinical trial comparing three different anterior cruciate ligament (ACL) techniques was published in the Journal of Bone and Joint Surgery and was one of the top 10 most read articles in 2019. This is the largest randomized trial on ACL surgery ever

published with 330 patients and 95% follow-up at 5 years.

The International Hip Outcome Tool (iHOT) was primarily developed at the SMC and as of 2019, has been translated into five languages with more in the works for 2020. This outcome measure has been used in clinical trials and studies worldwide to evaluate young and active patients with hip-related disorders. Further partnerships continue with the McCaig Institute in the area of bone density and x-ray evaluation in patients with ACL injury and long-term outcomes of ACL surgery are on-going.

In 2019 the STABILITY-1, ACL surgical multi-centre trial, received awards at the International Society of Arthroscopy Knee Surgery and Sports Medicine conference. This clinical trial was established at Western University in London, ON and included centers in England, Belgium and multiple sites in Canada. This trial is now the largest randomized trial ever conducted in the world with 626 patients. The SMC Acute Knee Injury Clinic contributed 10-20% of the surgical patients and are now working on the next ACL study, the STABILITY-2 trial. This has support from the CIHR and the NIH and will be recruiting 1200 patients.

The Sport Medicine Centre continues to provide healthcare services based on the research conducted in the area of knee and shoulder injuries, and sport concussion.

Kati Pasanen

PASANEN

Dr. Kati Pasanen's research program is focused on sport injuries, including epidemiological, clinical, biomechanical and experimental studies. Ongoing studies focus on: (1) development of novel methods for monitoring movement patterns and training load by using wearable technology in youth soccer; (2) identification of risk factors for lower extremity injuries in youth team sports; and (3) development and evaluation of neuromuscular training programs to decrease the risk of injuries in youth team sports. Dr. Pasanen's group also has five collaboration studies in Finland – four of them in team sport and one in professional ballet. Knowledge generated from this research and collaboration could ultimately lead to better understanding of causes and mechanisms of lower extremity injuries which may well allow us to develop current injury prevention strategies, promote lifelong sport participation, and lower 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. Additionally, with the use of technological tests alongside clinical tests Kathryn's group is 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 that occur in measures of cervical spine, vestibular and sensory function with growth and development; (3) changes that occur in measures of cervical spine, vestibular and sensory function following a concussion; (4) optimizing rehabilitation techniques to enhance recovery and inform clinical care; and (5) evaluating implementation of concussion protocols. This program of clinical research involves collaboration with multiple clinicians and researchers across the University of Calgary and other national and international institutions, ultimately enabling clinically meaningful questions to be evaluated and translated back to the clinic.

SMIRL

Cerebrovascular Concussion Research Laboratory

Dr. Jonathan Smirl's group is a newly established group in the Sport Injury Prevention Research Centre and the Human Performance Laboratory. Jonathan's work 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.

Jonathan's group is currently leading 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. Jonathan's group is excited to have their new lab space operational early in 2020 and will be adding numerous other

physiologically informed projects to their mandate throughout the year. Through an integrative approach to concussion research and collaboration network, they aim to create new approaches and interventions which will enable us to objectively assess physiological disruptions following concussion and improve outcomes for individuals following this traumatic injury.

ZWICKER

Disability Policy for Children and Youth

With broad interests in the impact of health and social policy on health outcomes, Dr. Jennifer Zwicker's recent research utilizes economic evaluation and policy analysis to assess interventions and inform policy around allocation of funding, services and supports for children and youth with developmental disabilities and their families. She is an investigator with the CIHR funded Strategy for Patient-Oriented Research network on childhood disability called CHILD-BRIGHT and an investigator and board member of Kids Brain Health Network, where she co-leads the health economic cores for both networks. Strong collaborations with interdisciplinary researchers and stakeholders have been critical in the translation of peer reviewed publications to policy papers, op-eds and briefing notes which have been utilized by both the federal and provincial government. Recently a policy report from Jennifer's team on the disability tax credit was used in Senate testimony and featured in their Breaking Down Barriers report by the Senate Standing Committee on Social Affairs Science and Technology. This translational policy work is supported by CIHR, SSHRC, ACHRI, the Sinneave Family Foundation and PolicyWise.

Movement Science and Musculoskeletal Health

CLUFF

Integrative Sensorimotor Neuroscience Laboratory

Dr. Tyler Cluff's group is a growing group in the Human Performance Laboratory. Their work focuses, in part, on the mechanistic and multidisciplinary study of human sensorimotor control and learning. They combine behavioural experiments with robotics, neurostimulation, medical imaging, and computational models to examine the function of the human sensory and motor systems. Additional consideration is on understanding how basic aspects of sensory processing contribute to human motor control and learning. Ongoing projects in the lab are related to 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.

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. Brent Edwards' research combines biomechanical experimentation with advanced medical imaging and computational modeling to investigate tissue damage and fatigue in response to mechanical loading. His unique approach allows his group to estimate in vivo tissue mechanics in a non-invasive and subject-specific manner. The work spans multiple dimensional scales, from basic experiments at the tissue-level that enhance 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.

Brent Edwards

FERBER

Running Injury Clinic

Dr. Reed Ferber is a clinical biomechanist and his research is aimed at optimizing rehabilitation and predicting injuries. Overall, his group is engaged in two streams of research: clinical gait analysis and wearable sensors.

The Ferber group 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. They are transforming the biomechanics research community by openly sharing data between laboratories, employing unique data science analysis methods, and growing their 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. To address these challenges, Dr. Ferber leads the NSERC Wearable Technology Research and Collaboration (WeTRAC) Training program, which builds on being the lead of the Sensor Technology in Monitoring Movement (STiMM) research program as selected by the Vice President – Research which supports the University's Eyes High "Engineering Solutions for Health" research strategy.

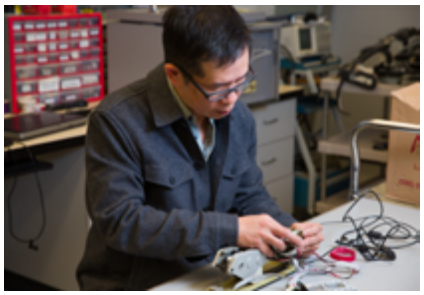
HERZOG

For the past three years, much of the efforts in the Hezog group were focused on hosting the Conference of the International Society of Biomechanics (ISB). The conference took place between July 31st and Aug 4th, 2019. With 2,200 participants, the ISB conference was by far the largest ever, and with the help of almost 100 volunteers, it was a scientific and social success.

In the area of muscle contraction mechanisms, Walter and his group have shown unequivocally that cardiac muscle possesses residual force enhancement properties, a fact disputed previously in the literature. In the area of bone and joint biomechanics, the Herzog group found that aerobic exercise and a fibre diet intervention can prevent the onset of metabolic knee joint osteoarthritis, but only if the interventions are timed properly, otherwise they have no effect. Finally, data collection in applied biomechanics research, should provide a conclusive answer to the question if chiropractic spinal manipulation can damage vertebral arteries, thereby initiating/causing strokes.

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.



Arthur Kuo

PETERS

Integrative Sensorimotor Neuroscience Laboratory

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, they study complex interactions between sensory and motor neurons during voluntary movement. Ryan's 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.

STEFANYSHYN

The general research interests of Dr. Darren Stefanyshyn's group including Dr. Bill Wannop, focus on questions related to human locomotion, sport performance and sport injury biomechanics. Their research extends to functional sport equipment with a goal of tuning the properties of the equipment to specific athlete characteristics in order 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 particular factors.

In 2019 Darren and Bill's group extended their industry work on identifying methods of matching sport equipment to individual athletes. They continued to investigate the internal mechanisms that explain successful athlete-equipment interactions and expanded their capabilities to study Achilles tendon mechanics using ultrasound measurements. Work with personalization of footwear and insoles, working with 3D foot scans and 3D printing of insoles and footwear also began in 2019.

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 as well as traction of rugby boots on lower extremity joint loading.

Psychosocial Aspects of Health and Sport

BRIDEL

Dr. William Bridel's general research focus is on sociocultural aspects of sport, physical activity and the body. The overarching goal of William's research agenda is to help make sport and physical activity more inclusive and safer for all participants, by thinking critically about the culture of sport itself as well as the influence of social norms, beliefs and values. Theoretically, William's work is informed by poststructuralist gender and queer theories. He employs a wide variety of qualitative methods including interviews, focus groups, content analysis and autoethnography (i.e., critical autobiography) in his projects. Research projects continued or begun this year by William, his research team, and collaborators includes: LGBTQI2S+ inclusion in the context of Canadian sport and

physical activity at various levels; student-athletes' experiences of concussion and "athletic identity"; mediated representations of concussion; examination of "intro to sport" programs servicing newcomers to Canada; understandings of risk and gender in alpine environments; and children and their understandings of risk and risky play.

CULOS-REED

Associate Dean Graduate

Health and Wellness Lab

Dr. Culos-Reed and her team in the Health and Wellness Lab are working to bridge the gap between cancer exercise research and clinical practice by developing programs to include exercise assessment, prescription, and education in exercise oncology as part of standard cancer care. Working with community partners and healthcare providers, the lab has developed a variety of exercise and wellness-related programs and services to benefit cancer survivors and their families. Projects and resources can be viewed at www.thriveforcancersurvivors.com.

To further support research and knowledge translation activities, the Health and Wellness Lab also operates the Thrive Centre. Based in the Faculty of Kinesiology, the Centre is the first volunteer-run fitness facility in Canada to provide cancer survivors and their support persons a safe and supportive place to exercise at no cost. Since opening its doors in 2011, the Thrive Centre has trained over 750 kinesiology students in cancer and exercise facilitation. To date, volunteers have dedicated over 17,000 hours of service to help improve the quality of life of the 950 cancer survivors involved with Thrive Centre. The lab has also published a manual of operations to encourage knowledge translation across other universities interested in cancer and exercise programming.

DIN

Teaching Scholars Research Lead

Exercise Physiology labs invite active-learning into the heart of our facility. Enriching lab learning through systematic critical reflection and a community of practice is a three-year project supported by the Taylor Institute of Teaching and Learning. Dr. Cari Din is the Primary Investigator and Dr. Martin MacInnis is the Co-Investigator. This Teaching Scholars project is focused on applying evidence-informed teaching practices to enrich student learning. It supports the Faculty of Kinesiology's strategic purpose and matches strengths with opportunities. Through educational leadership rooted in reflective practice, Cari and Martin are leading change which will align Exercise Physiology labs in both graduate and undergraduate classes with the

University's vision of experiential learning. Experiential learning enables students to explore, take risks, be self-reflective, and develop their growth mindset. www.ucalgary.ca/news/teaching-scholars-research-projects-investigate-needs-todays-learners

Cari's research interests include leadership, coaching, and learning in higher education. Her work in the community is focused on leadership development, coach education, and gender equity in Canadian sport. Cari's scholarly work aligns with her major role in the Faculty: To be an effective teacher who enables meaningful learning. She is continuously improving her teaching through creating and consuming scholarly products focused on improving student experience and learning. She teaches courses that link with her research expertise in leadership, sport coaching, and physical literacy advocacy.

Cari Din

KATZ

As an educational psychologist, Dr. Larry Katz, director of the Sport Technology Research Lab (STRL), is interested in how people learn and how you can use innovation and technology to improve human performance.

The mission of the STRL is to improve human performance and learning through the research and development of technology-based learning models and resources, and to provide a research and learning environment which enables such development.

STRL's objectives are to: (1) Investigate the impact of technology on performance and learning; (2) Develop technology-based resources which enhance performance and learning; (3) Liaise and collaborate with organizations and individuals both on and off campus to promote human performance and learning technology; (4) Encourage and coordinate the integration of technology into Faculty of Kinesiology programs; and (5) Work with industry in developing and disseminating technology-based research and resources developed by the STRL.

Graduate Students who complete the STRL program receive the following designation: "Innovative Pedagogy and Sport Performance".

KILB

Leadership in Pedagogy and Coaching inspires students to examine in-depth core values and personal philosophies as they prepare to enter a career of teaching, coaching, or instructing in the discipline of kinesiology. Interactive classes assist students to examine the pedagogical principles for leadership in physical activity. Experiential labs examine the foundations for leadership in physical activity.

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.

Dr. Meghan McDonough's work in the Relationships and Exercise Lab is focused on examining how social processes affect physical activity, health behaviours and psychological well-being. Meghan's research focuses on clinical and vulnerable populations including older adults, cancer survivors, people with Parkinson's disease and people living in poverty. She also examines 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

Associate Dean Academic

Dr. David Paskevich interests center upon the integration of the science-practitioner model, bringing the science of sport psychology into practical/applied settings. David's 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, and group dynamics). His 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

GENERAL COMMENTS

various psychological skills, identifiable stressors, and coping effectiveness related to their actual performance.

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.

Jennifer Zwicker, Meghan McDonough, Martin MacInnis, Penny Werthner

PUBLIC ENGAGEMENT

Presentations

Bikes and Bike Share: What is the benefit of e-Bikes?
— **Patricia K. Doyle-Baker**
Bike 2019 Conference. Calgary Central Library, Calgary AB. May 8.

Biomechanics of atypical femoral fracture. — **Brent Edwards**
The Bone Academy Mexico, Puerto Vallarta, Mexico. March.

Building a program in cancer and exercise. — **Nicole Culos-Reed**
University of Illinois. October 11.

Care Coordination for Children with Medical Complexity and NDD.
— **Jennifer D. Zwicker**
Neurodevelopmental Grand Rounds. April 3.

Concussion Management Protocols: Recognition and Management.
— **Amanda Black**
Siksika Community. November.

Concussion Recognition, Accommodations, and Management.
— **Amanda Black**
Counselling and Development Centre, York University. November 20.

Concussion: Who, What, Where, When and What's Next?
— **Kathryn Schneider**
Chinook Rotary Club, Calgary AB. October 2.

Curriculum Development for Dance Conditioning. — **Sarah Kenny**
Alberta Ballet School, (Dance teachers), Calgary AB. October 21.

Dance Talks: Dance Science Partnership with Alberta Ballet, Momentum Health. — **Sarah Kenny**
Alberta Ballet School year-end performance of Les Sulphide, Jubilee Auditorium. June 8.

Employment and Policy for Persons Who Are Neurodiverse.
— **Jennifer D. Zwicker**
Prospect Human Services Conference. January 26.

Employment for the Neurodiverse Workforce. — **Jennifer D. Zwicker**
Current Affairs Series, School of Public Policy. February 28.

Exercise and prostate cancer. — **Nicole Culos-Reed**
Prostate Cancer Centre. Biweekly.

Exercise intensity prescription: How close (or how far) are we from getting it right? — **Juan Murias**
Seminar in Exercise Physiology, Saint-Étienne France. July 4.

Exercise intensity prescription: How close (or how far) are we from getting it right? — **Juan Murias**
Seminar in Exercise Physiology, Verona Italy. July 8.

Exercising for your life: The role of exercise in cancer survivorship. — **Culos-Reed Graduate Students**
Tom Baker Cancer Centre. Monthly.

Food as Fuel - Dance Nutrition. — **Sarah Kenny**
Alberta Ballet School, (Dance teachers in training and post-graduate students.) Calgary AB. October 21.

Hip Anatomy and Soft Tissue Injury. — **Preston Wiley**
Tips for Hips – Community Outreach
University of Calgary Sport Medicine Centre, Calgary AB.
200 attendees. April.

How science has impacted my life. — **Kathryn Schneider**
Calgary Youth Science Fair. 1000 attendees. April 5.

Inclusion in Sport: On Barriers and Strategies for Change. — **William Bridel & Simon Barrick**
Annual General Meeting, Alberta Soccer Association,
Calgary AB. March.

Inspiring Youth to Pursue Science. — **Meghan Critchley, PhD student (Kenny)**
Calgary Youth Science Fair. 1000 attendees. April 5.

LGBTQI2S Inclusion in Sport. — **William Bridel**
Audience: Skate Canada British Columbia/Yukon,
Vancouver BC. April. Keynote Address.

Models of prevention (of concussion). — **Kathryn Schneider**
Canadian Concussion Prevention Meeting, Sport Information Resource Canada (SIRC). Ottawa ON. June 10.

Motivation in Marathon Training. — **Nicole Culos-Reed**
Marathon Training Group, University of Calgary, Calgary AB. June 10.

Musculoskeletal injuries among elite adolescent ballet dancers: 3 Years on. — **Sarah J. Kenny**.

Alberta Ballet School, (Academic and Artistic Teaching Staff.)
Calgary AB. June 24. Guest Speaker.

Providing Benefits and Not Burdens: Disability Policy for Children and Youth. — **Jennifer D. Zwicker**
Developmental Grand Rounds. January 28.

Reflections and illuminations; with a little help from my friends (students). — **Brian MacIntosh**
Retirement presentation, Faculty of Kinesiology, University of Calgary. October 3.

Reflections on muscle: how do muscles contract? — **Walter Herzog**
University of Sao Paulo, Ribeirao Preto, Brazil. October 22.

Talk, Knowledge and Outcome: Communicating the value of sport. — **Patricia K. Doyle-Baker**
Audience: Calgary Winter Club, Skating Banquet, Calgary AB. May 3.

The Untapped Neurodiverse Workforce. — **Jennifer D. Zwicker**
Chartered Professionals in Human Resources of Alberta (CPHR AB). January 30.

Using wearable sensor data to inform clinical care. — **Reed Ferber**
Academic Education Day in Rheumatology. Cumming School of Medicine, University of Calgary, Calgary AB. November.

Wearable Technology in Injury Prevention and Rehabilitation. — **Reed Ferber**
Canadian Athletic Therapists' Association Annual Meeting,
Calgary AB. June.

Wearable technology in injury prevention and rehabilitation. — **Reed Ferber**
Canada West University Athletics Association (CWUAA) Medical Committee 2019 meeting. Calgary AB. January.

Wellness & Cancer: What's ACE Got to Do With It? — **Nicole Culos-Reed & M McNeely**
Tom Baker Cancer Centre, Grand Rounds.
Sponsored by the Alberta Cancer Foundation. March 13.

Where you come from will determine what you see: a fresh look at the slow component of oxygen uptake. — **Brian MacIntosh**
Seminar in Kinesiology, University of Saskatchewan. October 9.

Media and Interviews

6,000 fewer injuries when bodychecking pulled from some bantam hockey: study. — **Carolyn Emery**
CBC News Calgary, David Bell. November 7.

A weighty subject: How the obesity epidemic is taking a toll on our bones and joints. — **Raylene Reimer**
UCalgary News, Nancy Whelan, McCaig Institute for Bone and Joint Health. March 25.

Are High Priced Shoes Worth the Cost?
— **Darren Stefanyshyn, Bill Wannop**
Are High Priced Shoes Worth the Cost? Testing Adidas, Nike and Under Armour.
CBC Marketplace. Jeremy McDonald, Tyana Grundig and Asha Tomlinson. November 2.
Shoe Wars: High cost vs. Low Cost.
CBC Marketplace, S47E5, Jeremy McDonald, Tyana Grundig and Asha Tomlinson. November 2.

Backcountry adventures worth the risk? We talk to the experts.
— **Penny Werthner**
CBC News Calgary, Rachel Ward. February 21;
CBC News Calgary Live, Paul Karchut. February 21.

Ban on bodychecking in non-elite Bantam ice hockey significantly reduces injury. — **Carolyn Emery**
UCalgary News, Stacy McGuire, Faculty of Kinesiology. November 13.

Boxing deaths could have been prevented. — **Ryan Peters**
Calgary Sun, Michael 'Mr. Boxing YYC' Short. August 12.

Calgary researcher faces off against concussions in young athletes.
— **Carolyn Enery**
Calgary Journal, on-line, Bill Atwood. September 11.

Carbon fibre plate tech: the Calgary connection. — **Darren Stefanyshyn**
Canadian Running, Anne Francis. August 21.

Citizen scientists with wearable tech needed for UCalgary project.
— **Reed Ferber**
UCalgary News. September 18.

Class of 2019: First cohort of students graduate with combined dance and kinesiology degree. — **Sarah J. Kenny**
UCalgary News, Aurelie Maerten. June 6.

Class of 2019: Student spends 10 years dancing her way through a kinesiology degree. — **Sarah J. Kenny**
UCalgary News, Stacy McGuire. November 13.

Coming Out Monologues, YYC returns for 10th anniversary edition.
— **William Bridel**
The Gauntlet (pg. 36-37), Troy Hasselman. April.

Dance Montage celebrates 50 years of dance community.
— **Sarah J. Kenny**
UCalgary News, Aurelie Maerten. November 18.

Dance Montage celebrates 50th anniversary. — **Sarah J. Kenny**
CBC Homestretch, Ellis Choe. November 22.

Dance science pioneer on injury prevention. — **Sarah J. Kenny**
10 ACHRI Alumni Celebration, DeAnna Kweens. February 19.

Do all genders get a level playing field? Addressing the gender gap in the arena of sport. — **William Bridel**
Explore UCalgary, J Chamberlin. February.

Exercise helps kids with cancer: Exercise guidelines, research, and practice in pediatric oncology. — **Nicole Culos-Reed**
Centre for Active Living, WellSpring. April 1.

Here's What Proper Running Form Actually Is and How Much You Should Care About It. — **Reed Ferber**
Self: Running, Amy Marturana Winderl. April 2.

How do you eat to feed trillions? Food and the health of our gut microbiomes. — **Raylene Reimer**
Explore UCalgary, Doug Ferguson. December 17.

How does research make better policy? Public policy and the dance of democracy. — **Kathryn Schneider**
Explore UCalgary, Jane Chamberlin. May 1.

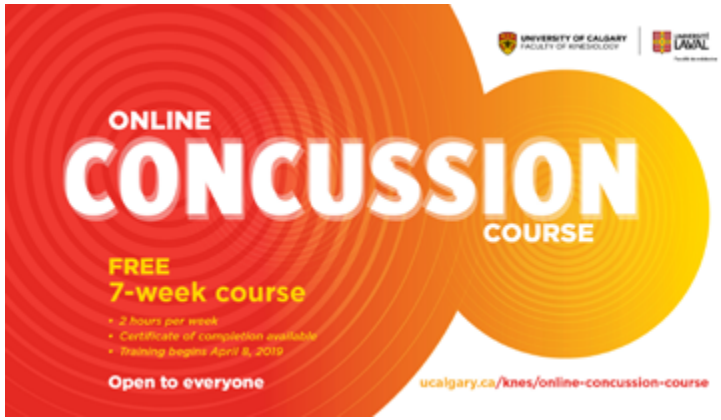
In Conversation with Kathryn Schneider, Renowned Clinician Scientist.
— **Kathryn Schneider**
The Muse, Modeline Longjohn. April 10.

Kati Pasanen would like to introduce you to floorball. — **Kati Pasanen**
UCalgary News, Stacy McGuire, Faculty of Kinesiology. May 30.

Leading-edge research helps reduce injuries among ballet dancers.
— **Sarah J. Kenny**
UCalgary News, Lauren Phillips. June 4.

Markin undergrad looks at link between exercise intensity and prevention of cardiovascular disease. — **Juan Murias**
UCalgary News, Stephanie Vahaaho, Markin USRP in Health and Wellness. April 1.

Medicine Hat cancer survivor can't say enough about community-based exercise program. — **Nicole Culos-Reed**
UCalgary News, Betty Rice (University Relations). June 12.



Massive Open Online Course (MOOC). — **Kathryn Schneider**
University of Calgary says "come one, come all" to free sports concussion course.
The Canadian Press, Donna Spencer. February 4.
Calgary Herald
National Post
Nanaimo News
Battlefords Now
PG Citizen
University of Calgary making free sports concussion course available to anybody who is interested.
Global News

University of Calgary offers 'groundbreaking' free online course on sports concussions.
CBC News
University of Calgary offers free course on concussions.
The Star
University to offer free concussion prevention course.
660 News, Derek Craddock. February 5.
Concussion Training at U of C.
Calgary Today with Joe McFarland. February 7.
Massive Open Online Course on Concussion.
CityTV, Josh Ritchie. February 4.
Online course allows anyone, anywhere to learn about concussions.
UCalgary News, Live on Instagram, University Relations Staff. June 10.
Kinesiology researcher partners with Université Laval on free concussion course.
UCalgary News, Leanne Yohemas. February 4.

Moving Past Illness: The Thrive Centre's fitness programs ease the cancer journey. — **Nicole Culos-Reed**
Alberta Health Services, Doug Firby. April 3.

MPowrx announces launch of BellyCrush - a new way to manage your weight. — **Raylene Reimer**
Cision News. December 4.

New study looks at injuries and concussions in minor hockey.
— **Carolyn Emery**
CBC, The Homestretch. November.

Researchers gaining yards against concussions (CIHR).
— **Kathryn Schneider**
myFM radio. January 29.
CKNW Global News Radio Vancouver. February 2.

Riding a Lime E-bike (18:01). — **Patricia K. Doyle-Baker**
770 Radio CHQR, Gord Gilles. (live on-air phone), Calgary AB. May 28.

Running towards mental health. — **Penny Werthner**
Canadian Running: The Shakeout Podcast, Kate Van Buskirk. February 22.

Should You Do Single-Leg Cycling Drills? — **Juan Murias**
Bicycling, Selene Yeager. November 8.

Study confirms differences in dominant- versus non-dominant-leg power output during exercise. — **Danilo Iannetta, Louis Passfield, Ahmad Qahtani, Martin J. MacInnis, Juan M. Murias**
News Medical Life Sciences. October 24.

Teaching Scholars' research projects investigate the needs of today's learners. — **Cari Din, Martin MacInnis**
UCalgary News, Mike Thorn, Taylor Institute for Teaching and Learning. June 10.

They stand apart – UCalgary researchers whose work makes the most difference for others. — **Sarah J. Kenny**
UCalgary News, Pamela Hyde. November 15.

Tips for hips: How to manage non-arthritic hip pain. — **Nick Mohtadi**
UCalgary News, Jacqueline Louie, for the Faculty of Kinesiology. April 8.

UBCO researcher examines traumatic brain injury in survivors of intimate partner violence. — **Jonathan Smirl**
UBC Okanagan News, Patty Wellborn. November 20.

UCalgary researcher at the forefront of concussion research in North America. — **Carolyn Emery**
Calgary Economic Development. June 18.

UCalgary biomechanics researchers host the field's largest conference. — **Walter Herzog**
UCalgary News, Jacqueline Louie, for the Faculty of Kinesiology. July 29.

Wearable Technology — **Reed Ferber**

Wearable Technology's Role in Staying Fit.
Breakfast Television Calgary, Ted Henley. March 6.

Proper use of wearable technology is considered the 'wild, wild west'.
UCalgary News, Jacqueline Louie, for the Faculty of Kinesiology. March 6.

Could wearable technology save your life?
The Globe and Mail, Cynthia McQueen. August 19.

Wearable Technology.
CBC Radio 1, Alberta at Noon with Judy Aldous. September 18.

Citizen scientists with wearable tech needed for UCalgary project.
UCalgary News. September 18.

Become a citizen scientist.
Global News Morning Calgary. October 1.

Who will help mom? — **Meghan McDonough**
University of Calgary Alumni Magazine, Mike Fisher. Fall.

Why Dancing Is Great For Your Overall Well-Being. — **Nicole Culos-Reed, Sarah J. Kenny**
LEAP Magazine, Alberta Cancer Foundation, Jennifer Dorozio. February 8.

Winter running: boost endurance and lower injury risk. — **Reed Ferber**
Global News, Tiffany Lizée. January 3, 2020.

Working out a social affair. — **Meghan McDonough**
Global News Morning Calgary. March 2.

Group Hosting Tours & Events

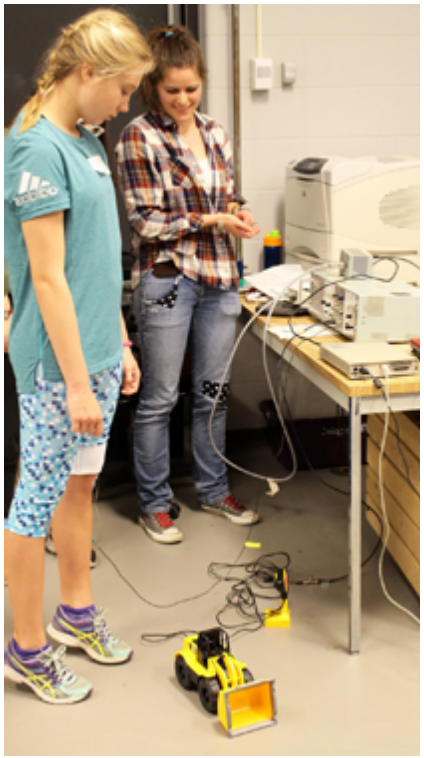
Bishop Grandin High School
— March 18 (20 students), December 9 (20 students).
40 sport medicine students toured the University of Calgary and attended a lecture on injury prevention, concussion, and neuromuscular training warm-ups.

Concussion and injury prevention research demonstrations and education — 12 visits throughout 2019.
8 high schools (12 visits with 20-100 students per visit) hosted by the Sport Injury Prevention Research Centre.

Heritage Youth Researchers Summer program (HYRS) — August 19.
34 students with the Heritage Youth Researchers Summer program visited 6 stations, presented by various groups in the HPL.

IBM STEM4Girls — August 14.
28 students visited 5 stations, presented by various groups in the HPL.

XXVII Congress of the International Society of Biomechanics (ISB2019) and 43rd Annual Meeting of the American Society of Biomechanics (ASB2019). July 31 - August 4.
More than 2100 attendees, representing more than 40 countries



Franziska Onasch & High School Student Operation Minerva

Nelson Mandela High School tours — January 9 (60 students), January 11 (60 students), October 22 (66 students). 186 sport medicine students toured the University of Calgary and attended a lecture on injury prevention, concussion and neuromuscular training warm-ups.

Operation Minerva — May 2. 14 female junior high students visited stations and attended a lecture featuring female scientists in the HPL and the faculty.

Sanofi BioGenius — April 18. 11 students visited 5 research demonstration stations, presented by various groups in the HPL.

Shad Valley Tour 2019 HPL — July 15. 64 students with the Shad Valley program visited 9 stations, presented by various groups in the HPL.

St. Mary's High School — June 11. 35 students enrolled in the sport medicine program visited 6 stations, presented by various groups in the HPL.

Western Canada High School tours. — November 25. 30 sport medicine students toured the University of Calgary and attended a lecture on injury prevention, concussion and neuromuscular training warm-ups

Workshops, Forums, Panels & Webinars

Cervical spine and vestibular considerations following sport-related concussion. — **Kathryn Schneider**
Concussion symposium, World Sport Physiotherapy Congress 2019, Vancouver BC. October 3.

Concussion Harmonization IMPlementation and Evaluation in Canada workshop. — **Kathryn Schneider, Amanda Black**
National Sport Organizations. October 31 & December 2.

Concussion Harmonization IMPlementation and Evaluation in Canada (CHAIMP) study. Workshop — **Kathryn Schneider, Amanda Black**
Audience: National Sport Organization (NSO) stakeholders including health care professionals, administrators.
In collaboration with:
Parachute and Own the Podium (OTP). October 31;
Parachute and Coaching Association of Canada. December 2.

Dance career fair. — **Sarah J. Kenny**
Youth dance students and parents Crossings Dance Studio, Calgary AB. February 22.

Dance injury prevention. — **Sarah J. Kenny**
Workshop, dance teachers in training and post-graduate students, Alberta Ballet School, Calgary AB. September 3

Dance science expert in the field. — **Sarah J. Kenny**
Kinesiology Students Society, KINdustry, University of Calgary AB. January 23.

Enhancing dance performance with biomechanics. — **Sarah J. Kenny**
28th Congress of the International Society of Biomechanics/ American Society of Biomechanics 43rd Annual Meeting, Calgary AB. August 1. Invited panellist.

Keeping them in the game – an evidence based injury prevention warm-up for your athletes. — **Kati Pasanen, Carla van den Berg**
CATA 2019 national conference, Calgary AB. June 1.

Managing our healthy 'selves' is a leadership challenge. — **Patricia K. Doyle-Baker**
Student and enrolment services professional day workshop. University of Calgary AB. June 27.

Models of prevention (of concussion). — **Kathryn Schneider**
Canadian concussion prevention meeting; SIRC meeting, Ottawa ON. June 10.

Neuromuscular training for the prevention of injury in youth. — **Sarah J. Kenny, Ashley Fox, Carla van den Berg**
Physical education professional development day for physical education and dance teachers, Calgary Board of Education. March 1.

Neuromuscular warm-up program. — **L Taddei, Carla van den Berg**
Workshops for 80 soccer coaches, Calgary Minor Soccer Association. November.

Physical activity and aging. — **Meghan McDonough, Juan Murias, Patricia K. Doyle-Baker, Graduate Students.**
Approximately 50 older adults and stakeholders from Calgary. public event hosted by the Aging PEEPS. May 16.

Preventing and managing head injuries in sport – Rehabilitation after concussion: multidisciplinary approach. — **Kathryn Schneider, Carolyn Emery**
Panel presentation. Preventing and managing head injuries in sport. Norwegian Sport Medicine. Lillehammer, Norwary. November 22.

Primary prevention in youth sport: Time to get on with it! — **Carolyn Emery**
Prevention of injury in youth sport webinar. Pediatric Research in Sports Medicine Society (PRiSM) and Canadian Athletic Therapists Association (CATA). May.

Primary prevention of joint injury in sport. — **Kati Pasanen**
Pre-congress workshop: Approaches topreventing post-traumatic OA in sport and the military. 2019 OARSI World Congress on Osteoarthritis, Toronto ON. May 2.

Recent research using wearable sensor data. — **Reed Ferber**
Video conference with Rothesay Netherwood School, New Brunswick. May.

Safe sport booth (LGBTQI2S inclusion-focus). — **William Bridel**
Skate Canada Ice Summit, Annual convention and general meeting, Ottawa. May.

Shoulder check: The causes and treatment for non-arthritic shoulder pain. — **Nicholas Mohtadi, Richard Boorman, Aaron Bois, Ryan Shields, Martin Zacharias**
Free public forum. September 23.

SHRed concussions: Moving upstream to the prevention of sport-related concussion in youth. — **Carolyn Emery**
Canadian Concussion Prevention Workshop. Sport Information Research Canada/ Sport Canada, Ottawa ON. June.

Small group learning presentation on exercise performance and development in master's athletes. — **John Holash**
Winter snow camp, Foothills nordic ski club. November 17-18.

The basic function of the heart. — **David Montero**
Workshop for 25 students. Discovery Day of Health Sciences, Canadian Medical Hall of Fame.

The role of an exercise specialist in chronic disease management. — **Patricia K. Doyle-Baker**
Physician workshop, EIMC National Student Research & Medical Conference 2019. University of Calgary AB. June 28.

The stickiness factor: Do we have it. — **Patricia K. Doyle-Baker**
Panel presentation, ActiveCITY Summit, Winsport, Calgary AB. September 18.

Tips for hips: How to manage non-arthritic hip pain. — **Nicholas Mohtadi, Preston Wiley, Alex Rezansoff, David Lindsay**
Free public forum. April 8.

Upscaling NMT programmes in youth sport. Movement quality for injury prevention and performance in youth football. — **Kati Pasanen**
Workshop, Manchester Institute of health and performance, Manchester, UK. February 21.

Wearable Technology Research And Collaboration (We-TRAC). — **Reed Ferber**
Annual Workshop, Calgary AB. November.

Blog Posts

Free MOOC on concussion at the University of Calgary. — **Kathryn Schneider, Pierre Fremont**
British Journal of Sport Medicine (BJSM) Blog. July 24.

Life is short: don't take your health for granted. — **Patricia K. Doyle-Baker**. January 24.

Micro-case study: High and low tech solutions for active learning. — **Cari Din, Jerrod Smith, Lesley Tims**. Summer 2019.

The wisdom of students: future health leaders. — **Patricia K. Doyle-Baker**. January 8.

Public Health Matters: Three decades later my career is still sweet. — **Patricia K. Doyle-Baker**. August 21.

Other Knowledge Translation Activities

Concussion Management: A Toolkit for Physiotherapists. — **Kathryn Schneider, L. Loranger, Codi Isaac, Catherine Ross, Carol Miller**
Physiotherapy Alberta College + Association. Revision of toolkit. May 2019.

Data to improve outcomes for children with disabilities. — **Jennifer D. Zwicker, Thomas K Shikako**
Baseline report, Canadian Index of Child and Youth Well-being. UNICEF.

Discussing the AIM study (Adiposity, Influenza and Men). A common experience to the influenza vaccine: wouldn't it be nice! — **Patricia K. Doyle-Baker**
Open Access Government. May 15.

Influenza vaccine response may be influenced by lifestyle factors in highly active young men. — **Patricia K. Doyle-Baker, A Stewart**
Canadian Society for Exercise Physiology, Knowledge Translation communiqué. August 21.

Keeping the message simple: Energy expenditure of restaurant servers. — **Patricia K. Doyle-Baker**
Adjacent Government. February 7.

Neuromuscular training. — **Kati Pasanen**
Presentation and practical session. 5th IOC Sport Medicine Diploma Program, Calgary AB. April 25.

PATENTS AND LICENSES

Lens-attached tissue cell pressurization device.
Patent No US 10,180,418 B2, issued January 2019.
Inventors: **Han SK, Herzog W, Shin HJ.**

Pea fibre supplementation for obesity and metabolic syndrome.
License (through Innovate Calgary).
Inventors: **Reimer RA, Vena J, Tunnicliffe J, Parnell J**

System for peer-to-peer, self-directed or consensus human motion capture, motion characterization, and software-augmented motion evaluation.
Canadian Patent No. 3,048,542, Issued December 17, 2019.
Inventors: **Katz L.**

OFFICIAL RESEARCH RELATED FUNCTIONS

BLACK

Board Member

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

Grant Reviewer

- Partnership for Research and Innovation in the Health System (PRIHS), Alberta Innovates, Internal Peer Reviewer

Memberships

- Hotchkiss Brain Institute
- Alberta Children's Hospital Research Institute
- Canadian Athletic Therapy Association
- Pediatric Research in Sport Medicine Society
- American College of Sports Medicine

BRIDEL

Advisory/Editorial Board Member

- Sociology of Sport Journal

Committee Member

- LGBTQI2S Sport Inclusion Task Force, Coordinator

Conference Organization

- North American Society for the Sociology of Sport Conference, Virginia Beach, VA, Conference Director

CLUFF

Grant Reviewer

- University Research Grants Committee (URGC), University of Calgary
- Markin USRP Competition, University of Calgary

Conference Reviewer

- Motor Learning and Motor Control (MCML) Conference, Society for Neuroscience Satellite Meeting. Chicago, IL. October 2019
- International Society for Biomechanics Conference, Calgary AB. February 2019

Memberships

- Society for Neuroscience

CULOS-REED

Editor

- Global Advances in Health and Medicine (GAHM), Associate Editor

Advisory/Editorial Board Member

- Alberta Centre for Active Living Research Advisory Committee
- Board of Integrative Cancer Therapies, Editorial Board Member - TBCC

Committee Member

- Alberta Health Services, Cancer Care Fatigue Guidelines, Panel Member
- Alberta Prevents Website Project Alberta, Ca Prevention Legacy Fund Project, Review Member
- Cancer-related Fatigue Guideline, Alberta Health Services - Cancer Control
- Class Review Steering Committee, Alberta Health Services
- Knowledge Translation Exercise Clinical Advisory Committee, Cancer Care Ontario. Dec 2016 – Current
- UWALK, Research Advisory Committee

Grant Reviewer

- Canadian Cancer Society Research Institute – Quality of Life and Innovation Program Grants
- Alberta Innovates, Post-Doctoral Fellowship Competition
- CIHR, Doctoral Studentship
- Graduate Education Committee, Faculty of Kinesiology, Graduate Studentship Reviews (University of Calgary)

Conference Organization

- CAPO/IPOS 2019 Organizing Committee, Scientific Board, Banff AB.

Conference Reviewer

- CAPO/IPOS 2019 Organizing Committee, Scientific Board, Banff AB.
- Canadian Society for Psychomotor Learning and Sport Psychology (SCAPPS) (2005 - Current)
- North American Society for the Psychology of Sport and Physical Activity, Abstract Reviewer
- Society of Behavioral Medicine Abstract Reviewer: Physical Activity Special Interest Group, September 2019, Abstract Reviewer
- Society of Behavioural Medicine, Abstract Reviewer
  Cancer Special Interest Group
  Complementary and Alternative Medicine Special Interest Group

Membership

- Alberta Centre for Active Living
- Alberta Children's Hospital Research Institute (ACHRI)
- Arnie Charbonneau Cancer Institute (Formerly SACRI)
- Canadian Association of Psycho-Oncology (CAPO)
- Canadian Centre for Applied Research in Cancer Control (ARCC)
- International Society of Psycho Oncology (IPOS)
- O'Brien Institute for Public Health
- Society of Behavioral Medicine (SBM)

DIN

Conference Reviewer

- Conference on Postsecondary Learning and Teaching

Membership

- Teaching Academy
  Taylor Institute For Teaching and Learning
- Society for Teaching and Learning in Higher Education (STLHE)

DOYLE-BAKER

Advisory/Editorial Board Member

- International Journal of Kinesiology and Sport Science
- Annals of Applied Sport Science

OFFICIAL RESEARCH RELATED FUNCTIONS

Committee Member

- Alberta Prevents Website Project (albertapreventscancer.ca/) Alberta, Ca Prevention Legacy Fund Project, Co-Lead

Grant Reviewer

- CIHR Foundation Grant Program
- Markin Undergraduate Student Research Program – University of Calgary
- Graduate Award Competition – University of Calgary

Conference Organization

- Walk 21 Conference Committee
- Exercise Perspectives in Exercise, Health, and Fitness Conference Committee

Conference Reviewer

- European College of Sport Science

Membership

- Alberta Centre for Active Living
- Alberta Children's Hospital Research Institute (ACHRI)
- American College of Sports Medicine
- Canadian Society of Exercise Physiology
- European College of Sport Science
- O'Brien Institute for Public Health

EDWARDS

Editor

- Footwear Science, Supp 1, Proceedings of the 14th Footwear Biomechanics Symposium (Kananaskis, Canada, 2019), Guest Editor

Executive Board Member

- International Society of Biomechanics, Secretary General

Advisory/Editorial Board Member

- Scientific Reports
- JBMR Plus

Grant Reviewer

- The Institute of Translational Health Sciences (ITHS) Pilot Awards, External Reviewer
- NSERC Discovery Grants, External Reviewer

Conference Organization

- XXVII Congress of the International Society of Biomechanics held in conjunction with the 43rd Annual Meeting of the American Society of Biomechanics, Calgary AB, Canada, July 31-August 4, 2019, Special Symposia and Invited Speakers Chair
- 14th Footwear Biomechanics Symposium, Kananaskis AB, Canada, July 28-30, 2019, Scientific Program Chair

Membership

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

OFFICIAL RESEARCH RELATED FUNCTIONS

EMERY

Editor

- British Journal of Sport Medicine, Deputy Editor

Committee Member

- Massive Open Online Course (MOOC) in Concussion Leadership Committee
- Osteoarthritis Research Society International: Sport, Exercise, Physical Activity and Osteoarthritis Prevention Discussion Group, Co-lead
- Osteoarthritis Research Society International Scientific Committee
- Parachute Canada Concussion Awareness Advisory Committee
- Chair in Pediatric Rehabilitation and Director Vi Riddell Pediatric Rehabilitation Research Program, Alberta Children's Hospital Foundation

Grant Reviewer

- Canadian Institutes of Health Research College of Reviewers, Project Grant Review, Social & Developmental Aspects of Children's & Youth's Health Committee
- Partnership for Research and Innovation in the Health System (PRIHS), Cumming School of Medicine Grant Review
- CIHR Population Health Project Grant Review Panel

Memberships

- Canadian Academy of Health Sciences
- Royal 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
- 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 Orthopaedic Division
- Canadian Physiotherapy Association Pediatric Division

FERBER

Scientific Advisory Board Member

- Biotricity Inc., Redwood City CA
- Fitbit Inc., San Francisco CA

Advisory/Editorial Board Member

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

HERZOG

Editor

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

Advisory/Editorial Board Member

- Biomechanics and Modeling in Mechanobiology
- BMC Biomedical Engineering
- Chiropractic & Manual Therapies
- International Journal of Mechanical and Materials Engineering
- Journal of Biomechanics
- Journal of Electromyography and Kinesiology
- Journal of Functional Morphology and Kinesiology
- Journal of Manipulative and Physiological Therapeutics
- Journal of the Canadian Chiropractic Association
- Molecular and Cellular Biomechanics
- Muscles, Ligaments and Tendons Journal
- Sports Orthopaedics and Sports Traumatology
- Sportverletzung Sportschaden
- The Current Issues of Sport Science (CISS)
- Motor Control Group, International Society of Biomechanics, Vice-Chair
- Nike Sport Research
- German Journal of Sport Sciences
- Sportwissenschaft Journal
- Sportorthopädie Sporttraumatologie, International Board Member

Grant Reviewer

- NSERC (1990-present)
- CIHR Foundation Grant Program
- CIHR Movement and Exercise Peer-review Panel

Conference Organization

- International Society of Biomechanics Conference, Calgary AB, July-August 2019 (2016-2019), Conference Chair
- International Society in Science and Sports, Vuokatti, Finland, March 2019, Young Investigator Award Committee Member
- European Society of Biomechanics Congress, Warsaw, Poland (to be held in 2022), Scientific Committee Member
- Rocky Mountain Muscle Symposium, Canmore AB, July 2019, Conference Chair

Memberships

- American Association for the Advancement of Science
- American Physiological Society
- American Society of Biomechanics
- Biophysical Society
- Brazilian Society of Biomechanics
- Canadian Society for Biomechanics
- Chilean Association for Human Movement Science, Elected Honorary Member
- European College of Sport Science
- European Society of Biomechanics

- Royal Society of Canada. Fellow
- International Society of Biomechanics
- International Society of Electrophysiology and Kinesiology
- Orthopeadic Research Society, American Academy of Orthopaedic Surgeons
- Osteoarthritis Research Society International

HOLASH

Committee Member

- New Learning Technology Platform Panel for Yuja
- Learning Technologies Advisory Committee

KATZ

Advisory/Editorial Board Member

- International Journal of Computer Science in Sport

KENNY

Board Member

- Healthy Dancer Canada. Secretary (Elected)

Committee Member

- Healthy Dancer Canada, Dancer Screening Committee, Co-Chair
- International Association for Dance Medicine and Science, Program Committee Member

Conference Organization

- XXVII Congress of the International Society of Biomechanics/American Society of Biomechanics 43rd Annual Meeting. Dance Biomechanics Symposia Organizer
- Conference Committee, Healthy Dancer Canada 11th Annual Conference, Montreal, Quebec

Conference Reviewer

- International Association for Dance Medicine and Science, Abstract Reviewer

Membership

- Cirque du Soleil Research Advisory Group
- Qualitative Research Methods in Sports Medicine & Injury Research Network; Amsterdam IOC Research Centre of Excellence
- International Association for Dance Medicine and Science (IADMS)
- Performing Arts Medicine Association (PAMA)
- Alberta Dance Alliance (ADA)
- Alberta Children's Hospital Research Institute (ACHRI)
- O'Brien Institute for Public Health, University of Calgary

KUO

Committee Member

- Movement and Exercise Review Committee, CIHR Nov 2019

Grant Review

- NSERC CREATE Review, Ad-hoc, Jan 2020

Conference Organization

- Dynamic Walking Conference Series (2006-ongoing), Founder and Steering Committee Chair
- ISB/ASB 2019 International Society of Biomechanics, August 2019, Organizing Committee

- BIRS Optimal Neuroethology Workshop, April 2019, Co-Organizer

MACINNIS

Committee Member

- CSEP Knowledge Translation Committee

Grant Reviewer

- NSERC Discovery Grants
- Markin Undergraduate Student Research Program – University of Calgary
- NSERC Postgraduate Scholarships (Doctoral) – University of Calgary
- Graduate Award Competition – University of Calgary

Memberships

- Canadian Society for Exercise Physiology
- American Physiological Society

MACINTOSH

Editor

- Journal of Muscle Research and Cellular Motility; Special Edition on Muscle Energetics, Guest Editor

Grant Reviewer

- NSERC, Peer Review Panel Member

Membership

- Canadian Society for Exercise Physiology
- American College of Sports Medicine
- American Physiological Society
- European College of Sport Science

MCDONOUGH

Editor

- Journal of Sport & Exercise Psychology, Associate Editor

Advisory/Editorial Board Member

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

Board Member

- Canadian Association of Psychosocial Oncology
- International Society of Qualitative Research in Sport and Exercise

Committee Member

- Canadian Association for Psychosocial Oncology Research Committee Chair
- Journal of Sport and Exercise Psychology Excellence in Research Award. Selection Committee Chair.
- City of Calgary Seniors Age Friendly Strategy Research Advisory Committee
- City of Calgary Recreation Active Aging Action Group

Grant Reviewer

- Mitacs
- MSI Foundation

Conference Organization

- North American Society for the Psychology of Sport and Physical Activity-Sport and Exercise Psychology Program Chair (NASPSPA)

Conference Reviewer

- European Federation of Sport Psychology conference
- North American Society for the Psychology of Sport and Physical Activity Conference

Membership

- International Society of Qualitative Research in Sport and Exercise
- Alberta Association on Gerontology
- Canadian Association of Psychosocial Oncology
- American Psychological Association Division 47 (Society for Sport, Exercise and Performance Psychology)
- North American Society for Psychology of Sport and Physical Activity (NASPSPA)
- Canadian Society for Psychomotor Learning and Sport Psychology

MURIAS

Academic Editor

- PlosOne

Grant Reviewer

- NSERC Discovery Grant, External Reviewer
- Canada Foundation for Innovation (CFI), John R. Evans Leaders Fund, External Reviewer

PASANEN

Advisory/Editorial Board Member

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

Committee Member

- Finnish Sports Physiotherapists Association, Finland. FSPA Congress “Injury Prevention Works – Mission Possible”, Scientific Committee member

Conference Organization

- FSPA Congress “Injury Prevention Works – Mission Possible, June 7-8, 2019, Helsinki, Finland, Session Chair

Membership

- International Society of Biomechanics
- European Society of Biomechanics
- Osteoarthritis Research Society International
- Canadian Association of University Teachers
- Finnish Sports Physiotherapists Association
- Finnish Association of Physiotherapists
- HEPA Europe Injury Prevention Group
- Finnish Strength and Conditioning Coaches Association
- Finnish Coaches Association
- Finnish Society of Sport Science

PASKEVICH

Advisory/Editorial Board Member

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

Membership

- American Psychology Association (APA)
- American Psychology Association (Div. 47)
- Association of Applied Sport Psychology (AASP)
- Canadian Sport Psychology Association, Professional Member & Academic Member

REIMER

Editor

- Applied Physiology, Nutrition and Metabolism. Associate Editor (2010-present)

Scientific Advisor

- BioRad Laboratories Inc., Research Consultant (2016 – present)
- General Mills Inc., Research Consultant (2012-present)
- InovoBiologic Inc., Research Consultant (2008-present)
- Beneo GmbH, Research Consultant (2009-present)

Committee Member

- Canadian Nutrition Society Awards Committee (August 2019 – present)
- Canadian Nutrition Society-University of Calgary Faculty Advisor (10/2019 – present)
- Working Group Member: Canadian Museum of Nature Microbiome Exhibit (April 2019 – present)
- Data Monitoring Committee: FMT in Major Depression (2019 – present)

Grant reviewer

- CIHR College of Reviewers (July 2017 – July 2020)
- CIHR Banting Postdoctoral Fellowships Selection Committee (2017-2020)

Membership

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

SCHNEIDER

Advisory/Editorial Board Member

- Medical Sub Committee of the Canadian Committee of Combative Sports Associations (June 2018 – present)
- Federal Working Group on Concussion in Sport, Surveillance Initiative Co-lead with Dr. Charles Tater
- Alberta Rehabilitation Research Counsel (October 2017-present)
- Parachute Canada Expert Advisory Group on Concussion (2016-present)
- Federal Working Group on Concussion in Sport, Canadian Concussion Collaborative Representative, (Spring 2016 – present)

- Canadian Concussion Collaborative, Representative for the Canadian Physiotherapy Association, (June 2015-present)

Grant reviewer

- CFI SUPPORT Research Infrastructure Programs Committee
- SSHRIC Insight Grant

Conference Organization

- 6th International Consensus Conference on Concussion in Sport, Scientific Committee
- Sport Physiotherapy Canadian Concussion Symposium, Co-organizer

Membership

- Hotchkiss Brain Institute (2014-present)
- Alberta Children's Hospital Research Institute (2013-present)
- Canadian Physiotherapy Association:
- Orthopaedic Division
- Sports Physiotherapy Division
- Neurological Division
- Paediatric Division
- Canadian Academy of Manipulative Therapists
- Physiotherapy Alberta College + Association
- Vestibular Disorders Association

SMIRL

Committee Member

- International Cerebral Autoregulation Research Network Steering Committee (Re-elected)

Grant Reviewer

- Mitacs

Conference Organization

- Cerebral Autoregulation Research Network Annual Meeting, Leuven, Belgium

Membership

- Cerebral Autoregulation Research Network (CARNet)
- Canadian Traumatic Brain Injury Research Consortium (CTRC)
- American Physiological Society (APS)
- The Physiological Society (Phys Soc)
- Canadian Society for Exercise Physiologists (CSEP)

STEFANYSHYN

Editor

- Footwear Science, Associate Editor

Advisory/Editorial Board Member

- European Journal of Sport Science

Committee Member

- NFL Engineering Committee

Conference Organizer

- International Society of Biomechanics Conference 2019 Organizing Committee

OFFICIAL RESEARCH RELATED FUNCTIONS

WERTHNER

Advisory/Editorial Board Member

- International Sport Coaching Journal (2013-ongoing)
- Canadian Journal for Women in Coaching (on-line journal of Coaching Association of Canada) (2000-present)
- Advisory Committee – Actively engaging women and girls: Addressing psycho-social factors. Canadian Association for the Advancement of Women and Sport and Physical Activity (CAAWS) (2012-present)
- Advisor to the Coaching Association of Canada Women and Coaching Program (1998-present)
- PGA of Canada Technical Advisory Panel (2014-present)

Membership

- Past Chair, Canadian Sport Psychology Association (CSPA/ACPS) (2013-present)
- PGA of Canada Technical Advisory Panel (2014-present)
- International Council for Coach Education (ICCE) (2005-present)

WILEY

Advisory/Editorial Board Member

- Clinical Journal of Sport Medicine

Committee Member

- World Rugby Medicine, Science and Research Committee
- World Rugby Research Committee

Conference Organization

- Canadian Academy of Sport and Exercise Medicine 50th Anniversary Conference 2020, Chair
- CASEM Running Sport Medicine Conference (Calgary), Planning Committee

ZWICKER

Board Member

- Kids Brain Health Network Board Member (2018- present), Research Representative

Grant Reviewer

- ACHRI Clinical Fellowship
- CIHR Academic Reviewer
- Health Research Council of New Zealand Grant Committee, Academic Reviewer
- SSHRC Insight Development Grant, Academic Reviewer
- Canadian Autism Spectrum Disorder Alliance (CASDA) Financial Literacy Committee

Conference Organization

- International Brain Development Conference Program Committee (2015/2016/2017,2019)

Membership

- Alberta Children's Hospital Research Institute (2016- present)
- Alberta College of Optometrists (2014- present), Public Member

Thrive Centre

PEER REVIEWED JOURNAL ARTICLES

Aboodarda SJ, Fan S, Coates K, Millet GY. 2019. The short-term recovery of corticomotor responses in elbow flexors. BMC Neurosci, DOI: 10.1186/s12868-019-0492-x

Aboodarda SJ, Iannetta D, Emami N, Varesco G, Murias JM, Millet GY. 2020. Effects of pre-induced fatigue vs. concurrent pain on exercise tolerance, neuromuscular performance and corticospinal responses of locomotor muscles. J Physiol, DOI: 10.1113/JP278943

Abusara Z, Andrews SHJ, Von Kossel M, Herzog W. 2019. Publisher Correction: Menisci protect chondrocytes from load-induced injury (Sci Rep, (2018), 8, 1, (14150), 10.1038/s41598-018-32503-1). Sci Rep, DOI: 10.1038/s41598-019-40293-3

Ahamed NU, Benson LC, Clermont CA, Pohl AJ, Ferber R. 2019. New considerations for collecting biomechanical data using wearable sensors: How does inclination influence the number of runs needed to determine a stable running gait pattern? Sensors (Switzerland), DOI: 10.3390/s19112516

Ahamed NU, Kobsar D, Benson LC, Clermont CA, Osis ST, Ferber R. 2019. Subject-specific and group-based running pattern classification using a single wearable sensor. J Biomech, DOI: 10.1016/j.jbiomech.2019.01.001

Alibhai SMH, Santa Mina D, Ritvo P, Tomlinson G, Sabiston C, Krahn M, Durbano S, Matthew A, Warde P, O'Neill M, Timilshina N, Segal R, Culos-Reed N. 2019. A phase II randomized controlled trial of three exercise delivery methods in men with prostate cancer on androgen deprivation therapy. BMC Cancer, DOI: 10.1186/s12885-018-5189-5

Amosun SL, Doyle-Baker PK. 2019. What can sub-saharan Africa learn from Canada's investment in active healthy ageing? A narrative view. Malawi Med J, DOI: 10.4314/mmj.v31i1.16

Ardern CL, Ekås G, Grindem H, Moksnes H, Anderson A, Chotel F, Cohen M, Forssblad M, Ganley TJ, Feller JA, Karlsson J, Kocher MS, LaPrade RF, McNamee M, Mandelbaum B, Micheli L, Mohtadi NGH, Reider B, Roe JP, Seil R, Siebold R, Silvers-Granelli HJ, Soligard T, Witvrouw E, Engebretsen L. 2019. 2018 International Olympic Committee consensus statement. Sports Ortho Trama, DOI: 10.1016/j.orthtr.2019.04.050

PEER REVIEWED JOURNAL ARTICLES

Audet O, Hagel BE, Nettel-Aguirre A, Mitra T, Emery CA, Macpherson A, Lavoie MD, Goulet C. 2019. What are the risk factors for injuries and injury prevention strategies for skiers and snowboarders in terrain parks and half-pipes? A systematic review. Br J Sports Med, DOI: 10.1136/bjsports-2018-099166

Baggaley M, Vernillo G, Martinez A, Horvais N, Giandolini M, Millet GY, Edwards WB. 2019. Step length and grade effects on energy absorption and impact attenuation in running. Eur J Sport Sci, DOI: 10.1080/17461391.2019.1664639

Bailey DM, Brugniaux JV, Filipponi T, Marley CJ, Stacey B, Soria R, Rimoldi SF, Cerny D, Rexhaj E, Pratali L, Salmòn CS, Murillo Jáuregui C, Villena M, Smirl JD, Ogoh S, Pietri S, Scherrer U, Sartori C. 2019. Exaggerated systemic oxidative-inflammatory-nitrosative stress in chronic mountain sickness is associated with cognitive decline and depression. J Physiol, DOI: 10.1113/JP276898

Barboza SD, Nauta J, Emery C, Van Mechelen W, Gouttebarge V, Verhagen E. 2019. A warm-up program to reduce injuries in youth field hockey players: A quasi-experiment. J Athl Train, DOI: 10.4085/1062-6050-79-18

Barrons ZB, Ura D, Bill K, Cooke ES, Wannop JW, Stefanyshyn D. 2019. Required traction during common rugby movements. Footwear Sci, DOI: 10.1080/19424280.2019.1606308

Benson LC, Ahamed NU, Kobsar D, Ferber R. 2019. New considerations for collecting biomechanical data using wearable sensors: Number of level runs to define a stable running pattern with a single IMU. J Biomech, DOI: 10.1016/j.jbiomech.2019.01.004

Benson LC, Clermont CA, Watari R, Exley T, Ferber R. 2019. Automated accelerometer-based gait event detection during multiple running conditions. Sensors (Switzerland), DOI: 10.3390/s19071483

Benson S, Bender AM, Wickenheiser H, Naylor A, Clarke M, Samuels CH, Werthner P. 2019. Differences in sleep patterns, sleepiness, and physical activity levels between young adults with autism spectrum disorder and typically developing controls. Dev Neurorehabil, DOI: 10.1080/17518423.2018.1501777

PEER REVIEWED JOURNAL ARTICLES

Berrigan P, Andrew G, Reynolds JN, Zwicker JD. 2019. The cost-effectiveness of screening tools used in the diagnosis of fetal alcohol spectrum disorder: A modelled analysis. BMC Public Health, DOI: 10.1186/s12889-019-8110-5

Bomhof MR, Parnell JA, Ramay HR, Crotty P, Rioux KP, Probert CS, Jayakumar S, Raman M, Reimer RA. 2019. Histological improvement of non-alcoholic steatohepatitis with a prebiotic: a pilot clinical trial. Eur J Nutr, DOI: 10.1007/s00394-018-1721-2

Bruce OL, Firminger CR, Wannop JW, Stefanyshyn DJ, Edwards WB. 2019. Effects of basketball court construction and shoe stiffness on countermovement jump landings. Footwear Sci, DOI: 10.1080/19424280.2019.1668867

Bulat M, Korkmaz Can N, Arslan YZ, Herzog W. 2019. Musculoskeletal simulation tools for understanding mechanisms of lower-limb sports injuries. Curr Sports Med Rep, DOI: 10.1249/JSR.0000000000000601

Chan ZYS, MacPhail AJC, Au IPH, Zhang JH, Lam BMF, Ferber R, Cheung RTH. 2019. Walking with head-mounted virtual and augmented reality devices: Effects on position control and gait biomechanics. PLoS ONE, DOI: 10.1371/journal.pone.0225972

Chisholm DA, Black AM, Palacios-Derflingher L, Eliason PH, Schneider KJ, Emery CA, Hagel BE. 2019. Mouthguard use in youth ice hockey and the risk of concussion: Nested case-control study of 315 cases. Br J Sports Med, DOI: 10.1136/bjsports-2019-101011

Chitsazan A, Herzog W, Rouhi G, Abbasi M. 2018. Alteration of strain distribution in distal tibia after triple arthrodesis: Experimental and finite element investigations. J Med Biol Eng, DOI: 10.1007/s40846-017-0330-5

Christiansen D, MacInnis MJ, Zacharewicz E, Xu H, Frankish BP, Murphy RM. 2019. A fast, reliable and sample-sparing method to identify fibre types of single muscle fibres. Sci Rep, DOI: 10.1038/s41598-019-42168-z

Christie S, Werthner P, Bertollo M. 2019. Exploration of event-related dynamics of brain oscillations in ice hockey shooting. Sport Exerc Perform Psychol, DOI: 10.1037/spy0000134

PEER REVIEWED JOURNAL ARTICLES

Cigoja S, Firminger CR, Asmussen MJ, Fletcher JR, Edwards WB, Nigg BM. 2019. Does increased midsole bending stiffness of sport shoes redistribute lower limb joint work during running? J Sci Med Sport, DOI: 10.1016/j.jsams.2019.06.015

Clermont CA, Benson LC, Edwards WB, Hettinga BA, Ferber R. 2019. New considerations for wearable technology data: Changes in running biomechanics during a marathon. J Appl Biomech, DOI: 10.1123/jab.2018-0453

Clermont CA, Benson LC, Osis ST, Kobsar D, Ferber R. 2019. Running patterns for male and female competitive and recreational runners based on accelerometer data. J Sports Sci, DOI: 10.1080/02640414.2018.1488518

Clermont CA, Duffett-Leger L, Hettinga BA, Ferber R. 2020. Runners' perspectives on 'smart' wearable technology and its use for preventing injury. Int J Hum Comput Interact, DOI: 10.1080/10447318.2019.1597575

Clermont CA, Phinyomark A, Osis ST, Ferber R. 2019. Classification of higher- and lower-mileage runners based on running kinematics. J Sport Health Sci, DOI: 10.1016/j.jshs.2017.08.003

Collins KH, MacDonald GZ, Hart DA, Seerattan RA, Rios JL, Reimer RA, Herzog W. 2020. Impact of age on host responses to diet-induced obesity: Development of joint damage and metabolic set points. J Sport Health Sci, DOI: 10.1016/j.jshs.2019.06.004

Crevecoeur F, Scott SH, Cluff T. 2019. Robust control in human reaching movements: A model-free strategy to compensate for unpredictable disturbances. J Neurosci, DOI: 10.1523/JNEUROSCI.0770-19.2019

Cross KP, Cluff T, Takei T, Scott SH. 2019. Visual feedback processing of the limb involves two distinct phases. J Neurosci, DOI: 10.1523/JNEUROSCI.3112-18.2019

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is disrupted in individuals at high risk for cardiovascular disease. Microcirculation, DOI: 10.1111/micc.12556

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BOOKS AND BOOK CHAPTERS

Bridel W, Ventresca M, Kelly D, Viliunas K, Schneider K. 2019. "I Kinda' Lost My Sense of Who I Was": Foregrounding Youths' Experiences in Critical Conversations about Sport-Related Concussions. In, Sociocultural Examinations of Sports Concussions. Routledge.

Kneebone R, Zwicker J. 2019. Fiscal Constraints on the Orange Chinook. In, Orange Chinook: Politics in the New Alberta. University of Calgary Press.

Raylene Reimer, Carolyn Emery, Meghan McDonough, Sarah Kenny, Jonathan Smirl

TECHNICAL REPORTS

Bridel W, 2019. Review of Skate Canada Policies, Procedures, Bylaws, and Rule Book. Prepared for Skate Canada Board of Directors and National Service Centre Staff.

Kowalchuk S, Esposito M, Wannop JW, Stefanyshyn D, 2019. Influence of FieldTurf ONE on Rotational and Linear Traction. Prepared for FieldTurf.

Wannop JW, Barrons Z, Bill K, Singh P, Stefanyshyn DJ, 2019. Evaluation of a Skating Technique Training System. Prepared for J. Webb & R. Stone.

Wannop JW, Barrons Z, Esposito M, Park SK, Stefanyshyn D, 2019. Traction of Tennis Shoes. Prepared for Fila.

Wannop JW, Barrons ZB, Stefanyshyn D, 2019. Development of a Rugby Specific Traction Map. Prepared for Under Armour.

Wannop JW, Clermont CA, Perewernycky N, Stefanyshyn D, 2019. Evaluation of Basketball Shoes. Prepared for CBC Marketplace.

Wannop JW, Cooke E, Burkhardt K, Bill K, Hartley D, Stefanyshyn D, 2019. Influence of Midsole Cushioning Density Heel Drop and Shoe Preference on Running Biomechanics and Performance. Prepared for adidas Future Team.

Wannop JW, Esposito M, Cooke E, Burkhardt K, Stefanyshyn D, 2019. Carbon and Cushioning: Influence on Athlete Biomechanics. Prepared for adidas Future Team.

Wannop JW, Kowalchuk S, Esposito M, Stefanyshyn D, 2019. Optimizing Artificial Turf: Surface Stiffness. Prepared for FieldTurf.

KEYNOTE AND INVITED LECTURES

Total number of invited lectures = 56

Culos-Reed SN. 5 A's model of counselling for behavious change. 2019 Exercise is Medicine National Student Research and Medical Conference, Calgary AB. June 28.

Culos-Reed SN. Exercise and Nutrition for Quality of Life in Cancer Survivors. CBMTG 2019 Annual Conference: Moving Beyond Toxicity: Patient and Caregiver Symposium, Calgary AB. June 5.

Culos-Reed SN & Twomey R. Cancer-Related Fatigue and Exercise in Head and Neck Cancer. Provincial Head and Neck Tumour Group Meeting. Calgary AB. April 12.

Edwards WB. Biomecánica de la Fractura Atípica. Summit de Osteoporosis, Puerto Vallarta, Mexico. March.

Edwards WB. Mechanisms of Atypical Femoral Fracture. International Bone Academy, Amsterdam, Netherlands. March.

Emery C. Canadian high school rugby injury surveillance and evaluation. Injury Prevention Research Symposium, Bath UK. March.

Emery C. Concussion in youth sport: moving upstream towards prevention. Sports Medicine National Congress, Oslo Norway. November. (Keynote)

Emery C. What's New in Concussion Research. See the Line Community Symposium 2019, London ON. August 15. (Keynote)

Herzog W. Cross-country skiing as a model for human movement analysis. 8th International Congress on Science and Skiing, Vuokatti, Finland. March 14. (Keynote)

Herzog W. Effects of botulinum toxin Type-A on skeletal muscle. Combined AACPDM 73rd Annual and IAACD 2nd Triannual Meeting, Anaheim CA, USA. September 19.

Herzog W. Of muscle force magnitude, direction and synergies in sports. International Society of Biomechanics in Sports, Oxford, Ohio, USA. July 22. (Keynote)

Herzog W. Reflections on muscle contraction: the evolution of a new paradigm for muscle contraction. 17th International Conference on Biomedical Engineering, Singapore. December 11. (Plenary)

Herzog W. Rhythm in biomechanics: from randomness to rhythm to synchrony. Multidisciplinary Symposium of 2018 Killam Prize Winners, Montreal QC. December 5.

Joumaa V. Towards a better understanding of muscle contraction. 4th Rocky Mountain Muscle Symposium (rMMs) - Canmore AB. July 28.

Kuo AD. The leg bone doesn't connect with the arm bone (in optimal control of movement). BIRS Optimal Neuroethology of Movement and Motor Control (19w5235), Banff AB. May 20.

MacIntosh BR. Does Ca2++ sensitivity increase during staircase with intermittent submaximal tetanic contractions? European Muscle Conference 2019, Canterbury, UK. September 7.

MacIntosh BR. Intensity of Exercise Prescription: What is moderate to vigorous exercise? 2019 Exercise is Medicine National Student Research and Medical Conference, Calgary AB. June 27.

McDonough M. In the same boat: Social relationships, physical activity, and well-being in cancer survivorship. Research Revealed 2019: Undergraduate Research Conference, Lethbridge AB. March.

Murias JM. Exercise prescription for cardiovascular health: how close (or how far) are we from getting it right? Canadian Association of Cardiovascular Prevention & Rehabilitation (CACPR) Fall Conference 2019, Montreal QC. October 25.

Pasanen K. Preventing Lower Extremity Injuries in Youth Team Sports. Norwegian Sports Medicine Congress, Lillehammer, Norway. November 23.

Pasanen K. Training load and player monitoring in youth team sports – insights for sport injury prevention. FSPA Congress 2019 (Finnish Sports Physiotherapy Association), Helsinki, Finland. June 8.

Reimer RA. Health benefits of synbiotics. International Scientific Association for Probiotics and Prebiotics (ISAPP) Consensus Meeting 2019, Antwerp, Belgium. May 13.

Reimer RA. Obesity and gut microbiota. Family Medicine Residents Obesity Session, Calgary AB. May 23.

Reimer RA. Prebiotics and gut microbiota: how they work together to affect metabolic health. Food & Nutrition Conference & Expo (FNCE) 2019, Philadelphia PA, USA. October 26. (Keynote)

KEYNOTE AND INVITED LECTURES

Schneider K. Cervical spine involvement and headaches following concussion. Sport Physiotherapy Canada Annual Concussion Symposium 2019, Calgary AB. January 19. (Keynote)

Schneider K. Prevention of concussion in ice hockey. 3rd Annual Injury Prevention Symposium, Vail CO, USA. May 2.

Schneider K. The Sport Concussion Assessment Tool 5 (SCAT5): Practical implications for clinicians. Norwegian Sports Medicine Congress, Lillehammer, Norway. November 22.

Schneider K. Sport-Related Concussion: An Update on the Evidence. 2019 Connect + Learn Physiotherapy Alberta Conference, Canmore AB. October 19.

Schneider K. An update on concussion in sport: Evidence and implementation into the Canadian Context. Sport Physiotherapy Canada Annual Concussion Symposium 2019, Calgary AB. January 19. (Keynote)

Schneider K. An update on the evidence and top 10 of 2019. SPC Concussion Symposium 2019, Vancouver BC. Oct 3, 2019. (Keynote)

Wannop, B. Running Shoe Design and Biomechanics. 2019 Canadian Academy of Sport and Exercise Medicine, Calgary, AB. September 14.

Wannop, B. Use of Xsens to Quantify In-field Kinematics of High Performance Athletes. Xsens User Meeting, Calgary, AB. July 31.

Penny Werthner

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Abusara, Ziad
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Clay, Rose
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Dew, Michael
Dodge, Jenna
Eller, Lindsay
Esau, Shane
Ghali, Brianna
Henderson, Brett
Hilderman, Tanielle
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Rothlander, Krystal
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Wilson, Kate
Wong, Jeremy
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Zimmer, Laurie

Trainees

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Azevedo, Rafael (PhD)
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Barrons, Zachary (PhD)
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Befus, Kimberley (MSc)
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Firminger, Colin (PhD)
Fortuna, Rafael (PD)
Fu, Xiao Yu (PhD)
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Gorrell, Lindsay (PhD)
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Grodaes, Payton
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