

Canadian Bone and Joint Conference

FourPoints Sheraton
London, Ontario, Canada

Friday April 8, 2016		
7:30	Registration	Bristol Ballroom Lobby
7:30-8:20	Breakfast	Balmoral Room - 2nd Floor
8:30	Opening Remarks David Holdsworth - Western's Bone & Joint Institute	Bristol Ballroom
8:45-10:15	Novel Applications of MSK Imaging	Bristol Ballroom
8:45	<p>Research Posters and Oral Abstracts presented within this theme will identify opportunities to expand the role of Medical Imaging in relation to the diagnosis and treatment of Bone and Joint Injuries.</p> <p>Invited Lecture: Dr. Cari Whyne, Professor, Department of Surgery, University of Toronto; Director, orthopaedic biomechanics lab, Sunnybrook Health Sciences Centre; Senior Scientist, Physical Sciences, Holland Musculoskeletal Research Program (director), Sunnybrook Research Institute, Toronto, Ontario</p> <p><i>"Modeling complex thin bone structures: enhancing clinical imaging to yield high resolution data"</i></p> <p>Abstract: A majority of skeletal finite element modeling of complex human whole bone structures has used CT data generated at resolutions available from clinical scanners. However, accurate finite element modeling of complex skeletal anatomy requires high resolution in both meshing and the heterogeneous mapping of material properties onto the generated mesh. This talk will present image processing algorithms that we have implemented to restore the accuracy of CT derived skeletal geometry and intensity, yielding robust models of complex bone structures that can be used to represent physiologic behaviour.</p>	
9:15	Proffered Talk: Adam Paish "A Radiolucent Treadmill for X-ray Fluoroscopic Kinematic Analysis of a Small-Animal Model of Partial Hip Replacement Arthroplasty"	
9:30	Proffered Talk: Ajay Rajaram "Monitoring Vascular Markers of Joint Inflammation in a Rabbit Model of Rheumatoid Arthritis with Time-Resolved Near-Infrared Spectroscopy"	
9:45	Proffered Talk: Xunhua Yuan "Radiostereometric Analysis Using Clinical Radiographic Views: Validation Measuring Total Hip Replacement Wear"	
10:00	Proffered Talk: Alexandra Maria Blokker "Micro-CT Compatible Load Controlled Knee Motion Simulator"	
10:15-10:45	Break	Bristol Ballroom Lobby
10:45-12:15	Novel Spine and Joint Therapies	Bristol Ballroom
10:45	<p>Research Posters and Oral Abstracts presented within this theme will identify research in Spinal Fusion, Lower Back Pain, Intervertebral Disc, and Back and Neck Pain & Injury.</p> <p>Invited Lecture: Dr Carl-Éric Aubin, PhD, Professor, Department of Mechanical Engineering, Polytechnique Montréal, Québec</p> <p><i>"3D Visualization and Simulation Technologies to Improve Outcomes in Complex Spine Treatments"</i></p> <p>Abstract: Complex spine pathologies (e.g. scoliosis, proximal junctional kyphosis) have a biomechanics that is difficult to comprehend and the prediction of the progression and treatment outcomes is challenging using only radiographs or external (surface) measurements. Current treatments are mostly based on the assessment of angles using single plane radiographs and remain empirical (for instance in adolescent idiopathic scoliosis: observation for curves below 20°, brace (20°-40°), instrumentation and fusion (>40°)). Recently, fusionless instrumentation systems are being used to control remaining vertebral growth in pediatric scoliosis in order to correct the deformity, but the surgical planning is also empirically established and not yet fully optimized. 3D technologies and finite element modeling were extensively developed and used over the past years to investigate scoliosis biomechanics (pathomechanisms, spine growth, stability/failure, etc.), to predict the resulting correction in response to a given treatment scenario as well as to optimize the intervention planning and the design of medical devices. Such computer tools are of practical interest because they provide the possibility of simulating an unlimited number of design variables. The talk will cover the use of modeling and simulation to better understand and improve clinical practice and patient outcomes, along with my vision for future conservative and surgical advances.</p> <p>11:15 Proffered Talk: Kelsey Gsell "Lumbar Spine Neutral Zone Stiffness is Increased in ENT1-Deficient Mice"</p> <p>11:30 Proffered Talk: Jake Bedore "Assessing the Effect of Notochord-Specific CCN2 Deletion on the Pathogenesis of Intervertebral Disc Degeneration and Behaviour Associated with Back Pain"</p> <p>11:45 Proffered Talk: Stewart McLachlin "A Virtual Framework to Evaluate Osseous Fixation Pathways in the Spine"</p> <p>12:00 Proffered Talk: Niaz Olizadeh "Idiopathic Scoliosis Patients have Impaired Primary cilia"</p>	
12:15-1:00	Lunch	Balmoral Room - 2nd Floor
12:45-2:15	Concurrent Poster Sessions & Judging	Bristol Ballroom
2:15-3:30	Innovations in MSK Rehabilitative Research	Bristol Ballroom
2:15	<p>Research Posters and Oral Abstracts presented within this theme will identify research in PT, Exercise Therapy, Clinical Practice, Lifestyle Modification, and Cost Effectiveness.</p> <p>Invited Lecture: Dr. Aileen Davis, PhD, Senior Scientist, Krembil Research Institute, University Hospital Network, Toronto, Ontario</p> <p><i>"Osteoarthritis management in Canada: applying international learnings nationally"</i></p> <p>Abstract: This presentation will provide an overview of current models of osteoarthritis (OA) care in Canada and identified gaps and needs in care. Building on evidence from international programs for non-surgical management of hip and knee OA, the approach for program implementation and evaluation in Canada and progress to date will be described.</p>	
2:45	Proffered Talk: Sheena Phillip "Do People with Distal Radius Fracture Differ from Normal in Terms of Postural Stability and Fall Risk"	
3:00	Proffered Talk: Amanda Ali "Improving the Osteoarthritis Continuum of Care: Patient and Family Physician Perspectives"	
3:15	Proffered Talk: Neha Dewan "Reproducibility of Short Version of Western Ontario Rotator Cuff Index (Short-WORC) to Assess Health Related Quality of Life in Patients with Rotator Cuff Disorders"	
3:30-4:00	Break	Bristol Ballroom Lobby

4:00-5:30	Inflammation and Chronic Musculoskeletal Disease	Bristol Ballroom
	Research Posters and Oral Abstracts presented within this theme will identify research in Post Traumatic Inflammation, Rheumatoid Arthritis, Osteoarthritis, Chronic Pain, and Bone Tumours	
4:00	Invited Lecture: Dr. Carl Blobel, PhD, Professor of Medicine and of Physiology, Biophysics and Systems Biology at Weill Cornell Medical College, Hospital for Special Surgery, New York	
	<i>"Role of the iRhom2/ADAM17/TNFα Signaling Pathway in Hemophilia Arthropathy"</i>	
	Abstract: A major manifestation of Hemophilia A, an X-linked bleeding disorder, is hemophilic arthropathy (HA), a debilitating degenerative joint disease that is caused by intraarticular bleeding. The early stages of HA have some similarities with inflammatory arthritides such as rheumatoid arthritis (RA). Since the pro-inflammatory cytokine tumor necrosis factor α (TNF α) is a major target for treatment of RA, we hypothesize that TNF α and its upstream regulators, the TNF α convertase (TACE, ADAM17) and inactive Rhomboid 2 (iRhom2) have an important role in HA. Experimental evidence in support of this hypothesis will be presented and discussed.	
4:30	Proffered Talk: Arthi Rajamohan "The Role of Homocitrullinated Lipoproteins in the Pathogenesis of Rheumatoid Arthritis-Associated Atherosclerosis"	
4:45	Proffered Talk: Ashish Patel "Inducing Tolerance to Citrullinated Proteins in a DR4tg Mouse Model for Rheumatoid Arthritis"	
5:00	Proffered Talk: Cheryl Druchock "Temporal Influence of Indomethacin on the PGE2 Response of Mechanically Stimulated MLO-Y4 Cells"	
5:15	Proffered Talk: Patrick Lac "Homocitrulline and Citrulline Cross-Reactivity in Rheumatoid Arthritis"	
5:30-6:30	Cocktails & Poster Viewing	Bristol Ballroom
6:30-9:00	Banquet	Bristol Ballroom
8:00	Poster Award Presentations	Bristol Ballroom
Saturday April 9, 2016		
8:00-8:45	Breakfast	Balmoral Room - 2nd Floor
8:45-10:15	Novel Therapies: Biological Repair and Tissue Regeneration	Bristol Ballroom
	Research Posters and Oral Abstracts presented within this theme will identify research in Cartilage Repair, Ligament, Tendon and Stem Cells.	
8:45	Invited Lecture: Dr. Marjolein van der Meulen, James M. and Marsha McCormick Director of Biomedical Engineering and Swanson Professor of Biomedical Engineering in the Meinig School of Biomedical Engineering and Sibley School of Mechanical & Aerospace Engineering, Cornell University, New York	
	<i>"Musculoskeletal responses to in vivo loading: from preventing bone loss to damaging cartilage"</i>	
	Abstract: The musculoskeletal system not only bears loads from functional activities, but also responds and adapts to in vivo loads. This adaptation contributes both to the development of tissue damage in diseases such as osteoporosis and osteoarthritis, but can also be harnessed to overcome adverse conditions. We have been interested to better understand these adaptive mechanisms through well-controlled in vivo loading models. This presentation will present our data for the responses of bone and cartilage to mechanical stimuli in mouse models.	
9:15	Proffered Talk: Mark Hurtig "Imaging Synovial Membrane Facilitates Dose Estimation for Targeted Intra-articular Therapies"	
9:30	Proffered Talk: Daniel Lorusso "Development and Validation of a System for High-Frequency Vibration of Live Cells During Real-Time Microscopy"	
9:45	Proffered Talk: Peter Kannu "Mutations Preventing Regulated Exon Skipping of a Receptor Tyrosine Kinase Cause a Developmental Disorder of Osteogenesis"	
10:00	Proffered Talk: James Armstrong "Dupuytren's disease: Toward an In Vitro Model of Fibrosis"	
10:15-10:45	Break	Bristol Ballroom Lobby
10:45-12:15	Novel Orthopaedic Devices	Bristol Ballroom
	Research Posters and Oral Abstracts presented within this theme will identify research in Orthopaedic Implants, Component and Rehabilitative Technologies.	
10:45	Invited Lecture: Dr. Ana Luisa Trejos, Assistant Professor, Department of Electrical and Computer Engineering, Western University, Canada	
	<i>"Mechatronics-Enabled Wearable Devices"</i>	
	Abstract: Novel solutions that address the lack of appropriate treatments for musculoskeletal disorders can be developed using cutting-edge technologies. This talk will describe the state of the art for smart mechatronics-enabled devices, worn by patients to monitor their performance and respond to their needs by providing therapy or by preventing damage.	
11:15	Proffered Talk: Jolien van Gaalen "Development of a 3D-printed Hip Implant with Wireless Telemetry"	
11:30	Proffered Talk: Hamid Ebrahimi "Introducing Femoral Antegrade IMN Starting Tool (FAST)"	
11:45	Proffered Talk: Yara Hosein "A Comparison of the Mechanical Measures Used for Assessing Orthodontic Mini-Implant Stability"	
12:00	Proffered Talk: Margarete Akens "The Impact of Thermal Cycling on Biofilm Growth on Stainless Steel and Titanium Plates"	
12:15-1:15	Lunch	Balmoral Room - 2nd Floor
1:15-2:45	Orthopaedic Trauma	Bristol Ballroom
	Research Posters and Oral Abstracts presented within this theme will identify research in Fractures, Joint Injuries, Sports Injury, Nerve and Vessel Injuries.	
1:15	Invited Lecture: Dr. Emil Schemitsch, MD, FRCS, Chief of Surgery, Schulich School of Medicine and Dentistry, Western University, Canada	
	<i>"The ABCs of Orthopaedic Research: Lessons learned from a 20 Year Journey!"</i>	
	Abstract: This talk will define best practices in the management of open tibia fractures in 2016. The presentation will show how research networks have become the foundation of successful musculoskeletal trauma research.	
1:45	Proffered Talk: Kathak Vachhani "Lithium Enhances Comminuted Fracture Healing in Osteoporotic Bone"	
2:00	Proffered Talk: Clare Padmore "A Biomechanical Study of the Malunited Distal Radius and its Effect on Carpal Kinematics"	
2:15	Proffered Talk: Scott Holmes "A Rapid Detection Method for Propionibacterium Acnes in Surgical Biopsies from the Shoulder"	
2:30	Proffered Talk: Avery Chakravarty "Non-Invasively Estimating Internal Bone Loads in Biomechanical Impact Tests"	
2:45-3:00	Break	Balmoral Room - 2nd Floor
	TRAINEES: Please remove posters at this time.	
3:00-4:00	Table Clinic & Closing Cocktail Party	Balmoral Room - 2nd Floor
3:45	Oral Award Presentations & Closing Remarks from Balmoral Room	Balmoral Room - 2nd Floor