

SCIENTIFIC SESSIONS**FRIDAY, JULY 3**

1500-1630 **Symposium: Innovative New Models of Orthopaedic Care**

● Rainbow Theatre

Moderators James P. Waddell, ON, and Cyril B. Frank, AB

Objectives: At the end of this workshop the learner will be able to identify specific strategies to improve patient access to orthopaedic care. By focusing on four separate areas of orthopaedic care and highlighting clinical and administrative best practices, the speakers will demonstrate to the participants the necessary steps for implementation of innovation in their own practice settings.

Improving Access to Foot and Ankle Care in Ontario

Rhona McGlasson, ON

A Provincial Model of Care for Patients with a Hip Fracture: Helping Patients to Return Home

Janet McMullan, ON

A New Health Care Delivery Model, Utilizing Non-physician Experts: The Acute Knee Injury Clinic

Nicholas G.H. Mohtadi, AB

Wait Times for Primary Hip and Knee Replacement Surgery – the Bone and Joint Canada Initiative

Hazel Wood, ON

1715-1845 **Opening Ceremonies ● Sea to Sky Ballroom A**

Presidential Guest Speaker, Dr. Lewis G. Zirkle: Creating Equality of Fracture Care Throughout the World

1845-2100 **President's Reception ● Exhibit Hall**

COA Top Poster Presentations
See **Posters** Section for details.

SATURDAY, JULY 4

0630-0800 Instructional Course Lectures

0630-0800 **ICL 1: Upper Extremity Trauma – Case-based ● Rainbow Theatre**

Moderator Michael D. McKee, ON

Objectives: This session is a case-based education experience. The panel will discuss several challenging cases related to the particular panel. Audience participation is to be encouraged in order to make this a more relevant learning experience.

Panel:

Paul A. Martineau, QC

Bertrand H. Perry, BC

Steven Papp, ON

Scott J. Mandel, ON

0630-0800 **ICL 2: Options For the Young Osteoarthritic Hip Patient**

● Harmony A/B

Moderator Michael J. Dunbar, NS

Objectives:

1. To better understand the current evidence concerning indications and outcomes for surgical dislocation of the hip. The attendee should have a better understanding of which patients in their practice might benefit from surgical dislocation.
2. To acquire a better appreciation for some of the limitations of alternative bearings in the younger THA patient.
3. Through didactics and case reviews, the attendee should develop a better appreciation for the arguments for and against particular articulation choices and fixation methods in the young THA patient.

The role of Surgical Dislocation of the Hip - Indications and Outcomes

Paul-Edgar Beaulé, ON

Concerns with Metal-on-Metal Bearings and How to Avoid Them

Olga L. Huk, Q

Concerns with Ceramic-on-Ceramic and How to Avoid Them

Steven J.M. Macdonald, ON

Concerns with Cross Linked Polyethylene and How to Avoid Them

Michael J. Dunbar, NS

Case Presentations

Acknowledgement is given for the unrestricted educational grant from DePuy Canada, Johnson & Johnson Medical Products, a Division of Johnson & Johnson Inc. to help make the session above possible.

0630-0800 **ICL 3: The Unstable Shoulder: A Case-based Approach** ● Fitzsimmons
Moderator Robert A. Balyk, AB

Objectives:

At the end of this ICL participants will be able to:

1. Describe the treatment of the first time dislocators, and the role of early surgery.
2. Identify and quantify bony deficiency of the humerus and the glenoid and understand how this impacts surgical management and outcome.
3. Describe complications associated with instability surgery and learn how to manage and avoid them.
4. Describe the evaluation of failed instability surgery and specific surgical techniques used to improve successful surgical outcome.

Management of the First Time Dislocator
Robert A. Balyk, AB

Management of Bony Deficiency in the Unstable Shoulder
Frédéric Balg, QC

Management of Surgical Complications of the Unstable Shoulder
Patrick Chin, BC

Revision Instability Surgery: Surgical Techniques
William D. Regan, BC

Case Discussion

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0630-0800 **ICL 4: Principles and Practice of Orthopaedic Research: A Primer**
● Garbaldi A
Moderator Mohit Bhandari, ON

Attendees will gain practical insight into the design and execution of clinical studies.

Objectives:

1. To define modern concepts of evidence-based medicine.
2. To discuss common approaches to grading research evidence.
3. To engage attendees in the design and conduct of clinical research.
4. To highlight challenges of clinical research.

Introduction: EBM- Why Bother?
Mohit Bhandari, ON

Levels of Evidence and Grades of Recommendation--Why do We Need to Know Them?

Brad Petrisor, ON

Designing a Clinical Study: What Study Designs Can I Use?

Emil H. Schemitsch, ON

Pitfalls in the Conduct of a Clinical Study: Limiting Bias

Rajiv Gandhi, ON

Critical Appraisal 101: Common Terms Explained

Brad Petrisor, ON

Panel Discussion

0630-0800 **ICL5: Foot and Ankle Emergencies (Midnight Duty): Case Studies**

● Garbaldi B
Moderator Mark Glazebrook, NS

Objectives:

At the end of this session the participant will be able to:

1. Identify priorities in select foot and ankle emergencies.
2. Integrate the knowledge in his/her emergency decision making.
3. Understand consequences and benefits of delayed versus expedited care.
4. Understand treatment options for select foot & ankle emergencies.

Acute Charcot Foot

Terence Saxby, Australia, Speaker of the Royal College of Physicians and Surgeons of Canada

Open Calcaneal Fracture

Gordon R. Goplen, AB

Talar Neck Fracture Dislocation

Iain S. Russell, AB

Open Pilon Fracture

Murray J. Penner, BC

Nasty Ankle Fractures

Matthew Di Silvestro, AB

Discussion

Mark Glazebrook, NS

0630-0800 **ICL 6: Find it Fast on the Internet** ● Spearhead A/B
Moderator: J.F. Myles Clough, BC

Objectives:

At the end of this session, the participant will be able to:

1. Learn a frustration-free system for finding valuable information on the Internet within minutes.
2. Undertake a hands-on workshop using their own lap-top to find information.
3. Evaluate and use an orthopaedic resource CD.

0830-1000 **CORS Paper Session 1: Cartilage and Muscle** ● Garibaldi B
Moderators: Mark Hurlig, ON, and Nadr M. Jomha, AB

1 – 0830

Inflammation Causes Muscle Injury in Compartment Syndrome: An Experimental Study

Abdel-Rahman Lawandy, University of Western Ontario; David W. Sanders, Victoria Hospital, London Health Sciences Centre; Aurelia Bhari, Lawson Health Research Institute; Amit Badhwar, Lawson Health Research Institute

2 – 0836

Chondroitinase ABC and Acute Electrical Stimulation are Beneficial for Muscle Reinnervation After a Sciatic Nerve Transection in Rat

Frédéric-Charles Cloutier, Hôpital Sacré-Coeur de Montréal; Dominique Rouleau, Hôpital Sacré-Coeur de Montréal; Eric Beaumont, Hôpital Sacré-Coeur de Montréal; Michael Atian, France; Pierre H. Beaumont, Hôpital Sacré-Coeur de Montréal

3 – 0842

The Mast Cell Stabilizer Ketotifen, Significantly Reduces Contracture Severity and Molecular Manifestations of Joint Capsule Fibrosis in a Rabbit Model of Post-traumatic Joint Contractures

Michael Monument, University of Calgary; David A. Hart, University of Calgary; A. D. Befus, University of Alberta; Paul T. Salo, University of Calgary; Kevin Hildebrand, University of Calgary

0848 – Discussion

4 – 0857

Isolation of a Subpopulation of Human Mesenchymal Stem Cells with Enhanced Chondrogenic Potential

Charles Secretan, University of Alberta; Jenn Bater, University of Alberta; Keith Bagnall, University of Alberta; Nadr M. Jomha, University of Alberta

5 – 0903

Mechanism of Decreased Expression of Type X Collagen in Human Mesenchymal Stem Cells Cultured on Nitrogen-rich Plasma Polymers: Implication of Cyclooxygenase-1

Fackson Mwale, McGill University; Hong Tian Wang, Lady Davis Institute; Pierre-Luc Girard-Lauriault, École Polytechnique; Michael R. Wertheimer, École Polytechnique; John Antoniou, McGill University; Alain Petit, Lady Davis Institute

6 – 0909

Hypoxic Regulation of Chondrocyte Differentiation and its Application to Cartilage Repair

Richard C. Smith, UBC; Brenton Short, UBC; Paul W. Clarkson, UBC; Bas A. Masri, UBC; Michael Underhill, UBC

0918 Discussion

7 – 0924

The Molecular Mechanisms of Compartment Syndrome

Greg W. McGarr, Lawson Health Research Institute; David W. Sanders, Lawson Health Research Institute; Amit Badhwar, Lawson Health Research Institute

8 – 0930

Insights into Mesenchymal Stem Cell Differentiation to Adult Chondrocytes - Human Facilitative Glucose Transporters (SLC2A proteins) - A New Generation of Physiological Markers

Andrei R. Manolescu, University of Alberta; David Cinats, University of Alberta; Charles Secretan, University of Alberta; Deborah O'Neill, University of Alberta; Chris Cheeseman, University of Alberta; Keith Bagnall, University of Alberta; Nadr M. Jomha, University of Alberta

9 – 0936

The Effect of Remaining at Confluence on the Chondrocytic Phenotype

Krishna Maragh, University of Alberta; Jenn Bater, University of Alberta; Charles Secretan, University of Alberta; Keith M. Bagnall, University of Alberta; Nadr M. Jomha, University of Alberta

0942 Discussion

0830-1000 **CORS Paper Session 2: Bone** ● Garibaldi A

Moderators: Mark Glazebrook, NS, and Cari Whyne, ON

10 – 0830

An *In-vivo* Evaluation of the Effect of a Hydroxyapatite Coating With and Without the Use of BMP-7 on Extracortical Bone Bridging Using a Canine Segmental Defect Model

Neil Saran, McGill University Health; Robert É. Turcotte, McGill University Health; Renwen Zhang, Stryker Orthopaedics

11 – 0836

The Use of Endothelial Progenitor Cells to Promote Bone Healing: A Defect Model in the Rat Femur

Kivanc I. Atesok, St. Michael's Hospital Division of Orthopaedics; Ru Li, St. Michael's Hospital Division of Orthopaedics; Emil H. Schemitsch, St. Michael's Hospital Division of Orthopaedics

- 12 – 0842**
A Biodegradable Scaffold for the Treatment of a Diaphyseal Bone Defect of the Tibia
 Paul R. T. Kuzyk, University of Toronto; Emil H. Schemitsch, University of Toronto; John E.D. Davies, University of Toronto

0848 Discussion

- 13 – 0857**
Effect of the hVEGF Transfer on Endogenous VEGF mRNA Expression in a Rat Osteoblast or Fibroblast Culture Model
 Claire Li, University of Toronto; Ru Li, University of Toronto; Michael D. McKee, University of Toronto; Emil H. Schemitsch, University of Toronto

- 14 – 0903**
Vascular Endothelial Growth Factor Regulates Osteoblast Cell Death in Osteoporotic Vertebral Fracture
 John Street, University College Cork, Ireland / UBC; Brian Lenehan, University College Cork, Ireland / UBC; Charles G. Fisher, UBC; Marcel Dvorak, UBC

- 15 – 0909**
Characterization of Rat and Mouse Forelimb Compression Models for Studies of Woven Bone Repair in Response to Fatigue Damage
 Thomas Karakolis, McMaster University; Gregory R. Wohl, McMaster University

0915 Discussion

- 16 – 0924**
The Effect of Intramedullary Reaming on a Diaphyseal Bone Defect of the Tibia
 Paul R. T. Kuzyk, University of Toronto; John E.D. Davies, University of Toronto; Emil H. Schemitsch, University of Toronto

- 17 – 0930**
Use of Co-registered High-resolution Computed Tomography Scans Before and After Screw Insertion as a Novel Technique for Bone Mineral Density Determination Along Screw Trajectory
 Marlis Sabo, University of Western Ontario; Steven I. Pollmann, University of Western Ontario; Kevin R. Gurr, University of Western Ontario; Christopher Bailey, University of Western Ontario; David W. Holdsworth, University of Western Ontario

- 18 – 0936**
Treatment of Fracture Non-union Using Recombinant BMP-7; Single Centre Experience
 Inder Gill, James Cook University Hospital, Middlesbrough, U.K.; Vinod Kolimarala, James Cook University Hospital, Middlesbrough, U.K.; Richard Montgomery, James Cook University Hospital, Middlesbrough, U.K.

0942 Discussion

- 0830-1000 **Symposium 1: War Injuries** ● Sea to Sky Ballroom A
 Moderator John G. Cinats, AB

Objectives:

Upon completion of this symposium, participants should be able to:

1. Gain an appreciation for the nature and complexity of injuries sustained in overseas conflict.
2. Understand the evacuation process of those injured in the field of battle.
3. Review lessons learned in the management of war injured to date.
4. Be able to extrapolate the impact of war injuries on long term outcomes.

Panel:

LCol Robert Stiegelmar, AB
 Jacqueline S. Hebert, AB
 Master Corporal Paul Franklin, AB

1000-1030 Break

- 1030-1200 **CORS Paper Session 3: Mechanics and Materials** ● Garibaldi B
 Moderators JD Johnson, SK, and Cari Whyne, ON

- 19 – 1030**
Examination of Radiographic Features and Lurch: A Measure of Asymmetric Gait, Among Patients Awaiting Total Hip Arthroplasty
 Kyle A. R. Kemp, Dalhousie University; Michael J. Dunbar, Dalhousie University; Lori A. Livingston, Dalhousie University; Allan Hennigar, Dalhousie University

- 20 – 1036**
Motion-based Joint Coordinate Systems for the Elbow: A New Method for Reducing Variability of Flexion Kinematics
 Louis M. Ferreira, University of Western Ontario; Graham J.W. King, St. Joseph's Health Care; James A. Johnson, University of Western Ontario

- 21 – 1042**
Clinical Procedure for the Measurement of Dynamic Joint Motion - Experimental Validation of the RSPA Technique
 Petar Sesilja, The University of Western Ontario; Xunhua Yuan, The University of Western Ontario; Douglas Naudie, The University of Western Ontario; Terry M. Peters, The University of Western Ontario; Robert B. Bourne, The University of Western Ontario; Steven J.M. MacDonald, The University of Western Ontario; David W. Holdsworth, The University of Western Ontario

1048 Discussion

- 22 – 1057**
Oxidative Stress Markers in the Blood of Patients with Articular Surface Replacement
 John Antoniou, McGill University; Fackson Mwale, McGill University; David J. Zukor, McGill University; Olga L. Hulk, McGill University; **Alain Petit**, Lady Davis Institute

23 – 1103
Image-based Navigation Improves the Positioning of the Humeral Component in Total Elbow Arthroplasty

Colin P. McDonald, St. Joseph's Health Care London; James A. Johnson, St. Joseph's Health Care London; Terry M. Peters, Robarts Research Institute; Graham J.W. King, St. Joseph's Health Care London

24 – 1109
Lysozyme Can Be Chemically Bound to Titanium: Results of a Wet-chemical Functionalization Technique

Dan Padmos, Dalhousie University; Peng Zhang, Dalhousie University; Michael J. Dunbar, Dalhousie University

1115 Discussion

25 – 1124
A Novel Technique for Quantifying Three-dimensional Meniscal Strain

Maeghan Innes, University of Guelph; Craig E. Tschirhart, University of Guelph; David D. McErlain, University of Western Ontario; David W. Holdsworth, University of Western Ontario; Karen D. Gordon, University of Guelph; Mark Hurlig, University of Guelph

26 – 1130

The Effect of Stem Length on the Alignment of the Humeral Component in Computer-assisted Total Elbow Arthroplasty

Colin P. McDonald, St. Joseph's Health Care London; James A. Johnson, St. Joseph's Health Care London; Terry M. Peters, Robarts Research Institute; Graham J.W. King, St. Joseph's Health Care London

27 – 1136

CT Based Analysis of Weight-bearing Areas in the Native Acetabulum

Omri Lubocsky, Sunnybrook Health and Science Centre, Toronto; Michael R. Hardisty, Sunnybrook Health and Science Centre, Toronto; David Wright, Queen's University; Hans J. Kieder, Sunnybrook Health and Science Centre, Toronto; Cari Whyne, Sunnybrook Health and Science Centre, Toronto

1142 Discussion

1030-1040 JA Nutter Award speaker, Marlis Sabo: Comparing the Fixation of a Novel Hollow Screw and Conventional Solid Screw in Human Sacra under Cyclic Loading ● Sea to Sky Ballroom A

1040-1210

Symposium 2: International Orthopaedics

● Sea to Sky Ballroom A

Moderators Lewis G. Zirkle, WA, and Peter J. O'Brien, BC

Objectives:

At the end of this lecture/workshop, the participant will be able to:

1. Describe the approaches to orthopaedic surgeon involvement in the delivery and teaching of orthopaedics in the developing world.
2. Evaluate the role that Canadian orthopaedic surgeons can play in health care in developing countries in the future.

Introduction

Peter J. O'Brien, BC

Childhood Physical Disability in Under-resourced Regions: Can We Make a Difference?

J. Norgrove Penny, BC

Organization and Delivery of a Canadian Based Orthopaedic Outreach Program in the Developing World

Marc J. Moreau, AB

Orthopaedic Outreach Programs in East Africa

Dick van der Jagt, President of the South African Orthopaedic Association

The Australian Orthopaedic Association's Approach to International Surgery

John Batten, President of the Australian Orthopaedic Association

Orthopaedics Overseas From a Resident's Perspective

David Simon, ON

Next Steps for the COA

Shaifque Pirani, BC

Panel Discussion

1210-1240 **CORS Top Poster Presentations** ● Sea to Sky Ballroom B/C
 See Posters Section for details.

1210-1300 Lunch Exhibit Hall