

FRIDAY, JUNE 2ND

0700 – 1730 **REGISTRATION** **CONCOURSE COAT CHECK**

0700 – 0830 **INSTRUCTIONAL COURSE LECTURES (concurrent sessions)**

ICL-01: ADULT RECONSTRUCTION – KNEE ^A WENTWORTH

Case-Based Difficult Primary and Revision Total Knee Arthroplasty

Moderator: J. Gollish

Faculty: M. Gross, N. Greidanus, J. McAuley, B. Masri, R. McCalden

Learning Objectives:

Faculty will present cases.

Audience participants are invited to bring their own cases to the lecture for discussion.

ICL-02: TRAUMA KENORA

Trauma Rounds: Lower Extremity

Moderator:

Faculty: *J. Wilber*, J. Powell, D. Sanders, J. Yach

Learning Objectives:

Faculty will present cases.

Audience participants are invited to bring their own cases to the lecture for discussion.

ICL-03: SPORTS MEDICINE HURON

Decision-Making in Shoulder Evaluation

Moderator: N. Mohtadi

Faculty: K. Faber, S. Mandel, H. Razmjou

Physical Examination of the Shoulder

Role of MRI in Shoulder Evaluation

Reliability and Validity of the Shoulder Clinical Tests

K. Faber

S. Mandel

H. Razmjou

ICL-04: GENERAL SESSION: KENT

Maintenance of Certification 2006-2010: Practical Tips on How to Use All the Sections

Moderator: J.P. Murnaghan

Faculty: Members of the COA CPD Committee

Learning Objectives:

In an informal format, participants will explore with the faculty practical tips to earn MoC credits in daily clinical orthopaedic practice. An interactive session will address issues raised in 2006 COA Membership Survey re: Maintenance of Certification.

How I Use M&M Rounds as a Professional Development Project

Self Assessment Examinations as a Tool in CPD

M. McKee

J.P. Murnaghan

Friday, June 2nd

Addressing Issues Raised from COA Membership Survey
A Literature Search as a Personal Learning Project

J.J. Murnaghan
J.P. Murnaghan

ICL-05: SPINE: ELGIN
Cervical Disc Disease – What is the Best Treatment?

Moderator: S. Lewis
Faculty : R. Rampersaud, M. Dvorak

Learning Objectives:

Cervical disc arthroplasty versus discectomy and anterior interbody fusion.

0800 – 1200 COA Board of Directors Meeting **CONFERENCE B&C**

0800 – 0930 Partners Breakfast **VIP**

0845 – 0900 **CORS WELCOME AND OPENING REMARKS:** **CIVIC**
K. Deluzio

0900 – 1040 **SCIENTIFIC SESSION 1:** **CIVIC**
COMBINED - ARTHROPLASTY 1
Moderators: D. Backstein (Toronto, ON)
E. Bohm (Winnipeg, MB)

PAPER 001 Serum Cobalt and Chromium Levels in Patients with Metal-on-Metal Resurfacing Hip
0900 – 0906 Prostheses
D.G. Allan, Springfield, IL
B. Barnhart, Springfield, IL
M. Paliwal, Springfield, IL
R. Trammell, Springfield, IL

The purpose of this study was to monitor serum cobalt (Co) and chromium (Cr) levels in patients after metal-on-metal resurfacing hip arthroplasty with the Cormet 2000® prosthesis, and to evaluate the effect of patient characteristics, prosthesis characteristics, clinical and radiographic measures on metal levels.

PAPER 002 Computer-Assisted Shoulder Hemiarthroplasty Improves Humeral Head Position
0906 – 0912
R. Bicknell, London, ON
J. Delude, London, ON
D. Drosdowech, London, ON
C. Dunning, London, ON
K. Faber, London, ON
L. Ferreira, London, ON
J. Johnson, London, ON
A. Kedgley, London, ON
G. King, London, ON

The effects of a computer-assisted method of performing shoulder hemiarthroplasty, in comparison to traditional techniques, on passive glenohumeral joint kinematics during scapular plane abduction were assessed in vitro. The computer-assisted approach produced a more accurate restoration of the humeral head position in the superior-inferior direction.

PAPER 003 Serum Titanium Levels in Patients with Modular versus Nonmodular Hip Prostheses
0912 – 0918 ***D.G. Allan, Springfield, IL***

S. Bavishi, Springfield, IL

The purpose of our study was to compare serum titanium levels in patients with the three-piece modular AcuMatch® and one-piece nonmodular Versys® titanium femoral components.

PAPER 004 Effect of Abductor and Posterior Hip Contact Load on *In-vitro* Cementless Stem Motion

0918 – 0924

C. Albert, Vancouver, BC

G. Fernlund, Vancouver, BC

H. Frei, Vancouver, BC

T. Oxland, Vancouver, BC

Y. Park, Daejeon, SOUTH KOREA

Y-S. Yoon, Daejeon, SOUTH KOREA

In-vitro mechanical tests are commonly performed to pre-clinically assess the stability of new hip implant designs, but there is no standard testing protocol. This study examines the effect of the posterior hip contact load on the motion of a cementless femoral hip implant, with and without the abductor load.

0924 – 0936 *Discussion (12 minutes)*

PAPER 005 Concentration of Metal Ions in Blood of Patients with Metal-on-Metal Hip Bearings

0936 – 0942

J. Antoniou, Montréal, QC

O.L. Huk, Montréal, QC

F. Mwale, Montréal, QC

A. Petit, Montréal, QC

D.J. Zukor, Montréal, QC

Articular surface replacement (ASR) is an alternative for young patients considered for hip replacement. The in vivo release of ions from these surfaces has yet to be well evaluated. The purpose of the present study was to compare the concentrations of metal ions in blood of patients with ASR and metal-on-metal (MM) total hip arthroplasty (THA).

PAPER 006 Development of a Testing Methodology to Quantify Bone Load Transfer Patterns for Stemmed Implants

0942 – 0948

R. Austman, London, ON

C. Dunham, London, ON

C. Dunning, London, ON

K. Gordon, Guelph, ON

G. King, London, ON

Loads were applied to a cadaveric distal ulna instrumented with strain gauges. Following intact testing, a threaded cement mantle was created inside the canal that could repeatedly accept various threaded stem lengths. The presence of the mantle alone and the use of threads did not appear to affect load transfer.

PAPER 007 Periprosthetic Osteolysis in Cemented Total Knee Arthroplasty: A Radiographic Review

0948 – 0954

M. Charles, Ottawa, ON

J. Brandt, London, ON

C. Brusck, London, ON

C. Hayden, London, ON

G. Krishnamoorthy, London, ON

C.H. Rorabeck, London, ON

To assess the clinical utility of a computer-based program (discrete dynamic contour method of boundary refinement; Matlab®) to quantify the location and extent of periprosthetic osteolysis around cemented total knee arthroplasties.

0954 – 1003 *Discussion (9 minutes)*

PAPER 008 A Comparison of Registration Techniques for Computer and Image-Assisted Elbow Surgery

1003 – 1009 **C. McDonald, London, ON**

J. Brownhill, London, ON

J. Johnson, London, ON

G. King, London, ON

T. Peters, London, ON

Accurate determination of the flexion-extension axis of the elbow is critical to the successful placement of elbow arthroplasties, articulated external fixators and ligament reconstructions. We expect axis alignment using computer-assisted techniques to improve the outcome of these procedures. For image-based procedures, registration (i.e. the transformation needed to align two sets of points) during surgery is critical for accurate alignment. A surface-based registration technique, employing a hand-held laser scanner, was evaluated against a stand-alone paired-point registration method to determine whether it led to improved alignment of the elbow's flexion-extension axis.

PAPER 009 Retrieval Analysis of a Porous Tantalum Intervention Implant in Early Stage Osteonecrosis

1009 – 1015 **M. Tanzer, Montréal, QC**

J.D. Bobyn, Montréal, QC

D. Karabasz, Montréal, QC

J. Krygier, Montréal, QC

This study evaluates retrieved implants obtained at the time of conversion to total hip arthroplasty to determine the ability of this device to fulfill its objectives.

PAPER 10 Biomechanical Assessment of Locking Plates for Fixation of Periprosthetic Femoral Fractures
1015 – 1021 Following Total Hip Arthroplasty

R. Walker, Toronto, ON

E. Schemitsch, Toronto, ON

J.P. Waddell, Toronto, ON

R. Zdero, Toronto, ON

The purpose of this study was to compare the biomechanical behavior of locking plates to conventional plate and allograft constructs for the treatment of periprosthetic femoral fractures.

PAPER 11 A Randomised Clinical Trial Assessing Efficacy of Periarticular Injection in Total Joint
1021 – 1027 Replacement

B. Shore, London, ON

R. Bhandari, London, ON

R. Bourne, London, ON

C. Busch, Chertsey, UNITED KINGDOM

S. Ganapathy, London, ON

S. MacDonald, London, ON

R. McCalden, London, ON

C. Rorabeck, London, ON

This study compares the effects of a peri-articular injection cocktail in patients undergoing total knee and hip replacement surgery

1027 – 1040 *Discussion (13 minutes)*

- 0900 – 1100 COTS Business Meeting** **CONFERENCE D**
- 0900 - 1040 SCIENTIFIC SESSION 2:** **ESSEX**
COMBINED - TUMOUR / SPINE 1
- Moderators:** **P. Ferguson (Toronto, ON)**
S. Lewis (Toronto, ON)
- PAPER 12** N-Acetyl Cysteine Pre and Post Treatment Prevents Compartment Syndrome Induced Skeletal
0900 – 0906 Muscle Injury
S. Kearns, London, ON
D. Bouchier-Hayes, Dublin, IRELAND
A. Daly, Asturia, GA
P. Murray, Galway, IRELAND
- Compartment syndrome (CS) is a unique form of skeletal muscle ischaemia. N-acetyl cysteine (NAC) is an anti-oxidant with beneficial microcirculatory effects. We aim to assess the effect of NAC administration on CS induced muscle injury.
- PAPER 13** Indications for Prophylactic Stabilizations with Kyphoplasty After Osteoporotic Vertebral
0906 – 0912 Fractures
S. Becker, Vienna, AUSTRIA
M. Garoscio, Vienna, AUSTRIA
M. Ogon, Vienna, AUSTRIA
- We performed a prospective randomized study of a prophylactic kyphoplasty after primary osteoporotic vertebral fractures. No statistical difference was found (monosegmental group 1: 22% versus prophylactic group 2: 26% refracture risk). However, we found a tendency of a beneficial prophylactic effect in cases with disk leakage.
- PAPER 14** Natural History and Progression of Adolescent Idiopathic Scoliosis by Consecutive Spinal
0912 – 0918 Radiographs
H. Wu, Calgary, AB
F. Cheriet, Montréal, QC
J. Ronsky, Calgary, AB
R. Zernicke, Calgary, AB
- The purpose of this study was to detect any possible prognostic factors which may affect the spinal deformity progression and their relationships in idiopathic scoliosis.
- 0918 - 0927 Discussion (9 minutes)**
- PAPER 15** Minimal-invasive Stabilization of Osteonecrotic Vertebral Fractures with Kyphoplasty
0927 – 0933 **S. Becker, Vienna, AUSTRIA**
M. Ogon, Vienna, AUSTRIA
A. Tuschel, Vienna, AUSTRIA
- Retrospective study of the outcome of kyphoplasty in cases with advanced vertebral collapse and osteonecrosis. Even 4 months after the fracture, vertebral height can be significantly improved and major changes of the kyphotic angle are possible. However, without osteonecrosis, any postoperative vertebral height or kyphotic correction is limited to rare cases.
- PAPER 16** Assessment of Trypsin-Digested and Dynamically Loaded Intervertebral Discs Using
0933 – 0939 Quantitative MRI
C. Demers, Montréal, QC

M. Alini, Davos Platz, SWITZERLAND
J. Antoniou, Montréal, QC
G. Beaudoin, Montréal, QC
L. Beckman, Montréal, QC
T. Goswami, Montréal, QC
J. Iatridis, Burlington, VT
A. Michalek, Burlington, VT
D. Zukor, Montréal, QC

Quantitative MRI is a potential diagnostic tool of disc disorders. Cyclic compression and trypsin digestion were performed to determine their effects on MR parameters and the properties of intervertebral discs. Dynamic loading affected the MR and compressive properties due to disc water loss. Mechanical properties were also sensitive to trypsin degradation.

PAPER 17 Surgical and Functional Outcome of an Anatomically-Based Approach to Metastatic Disease of
0939 – 0945 the Hip

K. Alsleh, Hamilton, ON
N. Colterjohn, Hamilton, ON
M. Ghert, Hamilton, ON

To determine the surgical and functional outcome of an anatomically based approach to hip reconstruction for metastatic bone disease.

PAPER 18 Automated Atlas-Based 3D Segmentation of the Metastatic Spine
0945 – 0951

L. Gordon, Toronto, ON
M. Hardisty, Toronto, ON
T. Skrinskas, Toronto, ON
C. Whyne, Toronto, ON
F. Wu, Toronto, ON

The objective of this study is to validate deformable registration as a means to automate the segmentation of tumour-bearing vertebrae through the transformation of atlas segmentations.

0951 – 1023 *Discussion (12 minutes)*

PAPER 19 Herniated Disc Morphology and Outcome of Selective Nerve Root Block in Acute Sciatica
1003 – 1009 ***P. Bishop, Vancouver, BC***

M. Boyd, Vancouver, BC
M. Dvorak, Vancouver, BC
C. Fisher, Vancouver, BC
P. Wing, Vancouver, BC

The goal of this study was to determine whether or not the morphology (i.e. posterolateral, sequestered, foraminal, far lateral) of HD influences the therapeutic value of SNRB treatment.

PAPER 20 Neo-intervertebral Disc Formation by Subcutaneous Injection of Bovine Disc Cells in Mice
1009 – 1015 ***F. Mwale, Montréal, QC***

J. Antoniou, Montréal, QC
O.L. Huk, Montréal, QC
G. Marguier, Montréal, QC
F. Mwale, Montréal, QC
A. Petit, Montréal, QC
H. Wang, Montréal, QC
D. Zukor, Montréal, QC

Friday, June 2nd

To develop an improved understanding of the in vivo behavior of intervertebral disc (IVD) cells for determining the phenotype of a differentiated stem cell in tissue engineering applications.

PAPER 21
1015 – 1021 Quantitative Characterization of Metastatic Progression in the Spine through Automated CT Analysis

F. Wu, Toronto, ON

P. Basran, Toronto, ON

D. Burnes, Toronto, ON

L. Gordon, Toronto, ON

M. Hardisky, Toronto, ON

T. Skrinskas, Toronto, ON

C. Whyne, Toronto, ON

Voxel intensity distribution histograms of vertebral bodies as segmented from reconstructed CT scans were found to be useful in quantitatively characterizing spinal metastases. An automated tool has been implemented to use this characterization method for tracking the extent, spatial distribution, and temporal progression of metastatic disease in the bony spine.

1021 – 1030 *Discussion (9 minutes)*

1040 – 1100 **Health Break**

CIVIC Foyer

1100 – 1230 **Workshop**

SIMCOE / DUFFERIN

Computer-Assisted Hip Surgery

Moderator: J. Powell

Panel: S. Kreuzer, E. Bohm, D. Chess, J. Rudan, P.A. Vendittoli

DESCRIPTION: This hands-on workshop will give participants an opportunity to experience the latest techniques and equipment in computer assisted surgery of the hip.

**Note that space is limited to the first 70 registrants.*

1100 – 1300 **BJD Business Meeting**

CONFERENCE D

1100 - 1230 **SCIENTIFIC SESSION 3:
CORS - JOINTS & ARTHRITIS**

CIVIC

Moderators: **K. Deluzio, Halifax, NS**

J. Johnson, London, ON

PAPER 22 The Cellular Effects of Orthopedic Implant Wear Particles on Osteoblast Function

1100 – 1106 *S. Gyomory, Hamilton, ON*

M. Butcher, Hamilton, ON

J. de Beer, Hamilton, ON

S. Shaughnessy, Hamilton, ON

M. Winemaker, Hamilton

Purpose of this study is to evaluate the effect of orthopedic implant wear particles on immature osteoblasts in an *in-vitro* setting in order to further understand the mechanisms involved in aseptic loosening of implants.

PAPER 23 Osteotomy for Increased Posterior Slope Affects ACL Strain and Tibial Translation

1106 – 1112 **S. Fening, Cleveland, OH**

H. Kambic, Cleveland, OH

S. Mclean, Cleveland, OH

A. Miniaci, Cleveland, OH
J. Scott, Cleveland, OH
A. Van Den Bogert, Cleveland, OH

The purpose of this study was to examine the relationship between tibial slope and tibial translation, as well as between tibial slope and ACL strain. It was hypothesized that increasing the posterior tibial slope would result in an increase in anterior tibial translation thereby increasing strain in the ACL.

PAPER 24 The Influence of Knee Flexion Contracture on Spinal Alignment
1112 – 1118 **K. Harato, Tokyo, JAPAN**

H. Mastumoto, Tokyo, JAPAN
K. Matsuzaki, Tokyo, JAPAN
T. Nagura, Tokyo, JAPAN
T. Otani, Tokyo, JAPAN
Y. Suda, Tokyo, JAPAN
Y. Toyama, Tokyo, JAPAN

The purpose was to investigate the relationship between knee flexion contracture and spinal alignment. This study showed the influence of knee flexion contracture not only in the sagittal plane, but also in the coronal plane. Unilateral knee flexion contracture may cause the lumbar spine to bent convexly to the contracture side.

1118 – 1127 Discussion (9 minutes)

PAPER 25 Evaluation of Genpin Cross-Linked Fibrin Gels for Tissue Engineering of Human Articular
1127 – 1133 Cartilage

E. Dare, Ottawa, ON
D. Carlsson, Ottawa, ON.
G. Dervin, Ottawa, ON
M. Griffith, Ottawa, ON
M. Hincke, Ottawa, ON
J. Krupp, Kingston, ON
P. Poitras, Ottawa, ON
S. Waldman, Kingston, ON

**2006 CORS Founder's Medal
recipient**

The objective of this project is to determine the suitability of modified fibrin hydrogels as scaffolds for articular cartilage tissue engineering. The attractive feature of the fibrin system is that the gel precursors are available in autologous form. We have previously demonstrated that genipin, a naturally occurring cross-linking agent, stabilizes the fibrin gel.

PAPER 26 Albumin and Trasferrin Bind to Chromium Ions *In-Vitro*
1133 – 1139 **C. Tkaczyk, Montréal, QC**

J. Antoniou, Montréal, QC
O.L. Huk, Montréal, QC
F. Mwale, Montréal, QC
A. Petit, Montréal, QC
M. Tabrizian, Montréal, QC

One of the major concerns regarding metal-on-metal prostheses is the biological and biochemical activities of chromium (Cr) ions. The aim of this work was to determine the nature of proteins present in serum involved in the formation of Cr nanostructures

PAPER 27 3D Kinematic Pattern Classification of Healthy Knee Joints and Comparison with Osteoarthritis
1139 – 1145 Joints

Y. Li, Montréal, QC
R. Aissaoui, Montréal, QC
K. Boivin, Montréal, QC
J.A. De Guise, Montréal, QC
N. Duval, Montréal, QC
N. Hagemeister, Montréal, QC
R. Ponbriand, Laval, QC
A. Roy, Montréal, QC
K. Turcot, Montréal, QC

A newly developed functional knee analyzer provided a non-invasive way to accurately measure 3D kinematic data which enabled cluster analysis to distinguish three gait patterns from 106 healthy subjects. The results suggested a strong correlation between static alignment and dynamic ad-abduction angles during the gait, which need to be investigated further.

1145 – 1154 *Discussion (9 minutes)*

PAPER 28 Development of an Inverse Dynamic Model of the Elbow Joint

1154 – 1200 **V. Lee, London, ON**
C. Dunning, London, ON
T. Jenkyn, London, ON

To develop a computerized inverse dynamic 3D model of the upper limb, focusing on the elbow.

PAPER 29 Reliability and Standardization of the Hip Examination in Osteoarthritis

1200 – 1206 **N. Greidanus, Vancouver, BC**
N. Bellamy, Brisbane, BC
A. Chalmers, Vancouver, BC
J. Cibere, Vancouver, BC
V. Combes, Vancouver, BC
J. Esdaile, Vancouver, BC
J. Kopec, Vancouver, BC
N Mahomed, Toronto, ON
K. Shojania, Vancouver, BC
A. Thorne, Vancouver, BC
S. Trithart, Vancouver, BC

To evaluate the benefits of standardization on the reliability of the physical examination of the hip by rheumatologists and orthopaedic surgeons

PAPER 30 Measuring Malalignment in Knee OA

1206 – 1212 **E. Sled, Kingston, ON**

To compare a computer-based program for measuring frontal plane leg alignment with a hand-measuring system.

PAPER 31 MicroCT Evaluation of Osteoarthritic Bone in Arthroscopic Graded Human Specimen

1212 – 1218 **K. Saidi, London, ON**
D. Holdsworth, London, ON
D. Mcerlain, London, ON
D. Naudie, London, ON
S. Rajesekaren, London, ON

Friday, June 2nd

The purpose of this study was to evaluate the architectural changes that occur in underlying osteoarthritic bone and to determine their relation to the stages of arthroscopic disease progression.

1218 – 1230 *Discussion (12 minutes)*

1230 – 1345 **Lunch**

CIVIC Foyer & Garden

1300 – 1400 **CORS Business Meeting**

WENTWORTH

1300 – 1530 **Women in Orthopaedics Luncheon**

CONFERENCE B&C

1400 - 1530 **SCIENTIFIC SESSION 4:
COMBINED - ARTHROPLASTY 2**

ESSEX

Moderators:
R. Davey (Toronto, ON)
B. Masri (Vancouver, BC)

PAPER 32 The Role of an Anterior Flange on Load Transfer Through the Distal Humerus After Elbow Arthroplasty
1400 – 1406

C. Dunham, London, ON
R. Austman, London, ON
C. Dunning, London, ON
J.A. Johnson, London, ON
G. King, London, ON

Cadaveric distal humeri were instrumented with strain gauges and tested before and after arthroplasty with an anterior-flanged humeral component. Sequential loading was conducted with different materials behind the flange: nothing (flangeless), bone wedge, and cement block. No significant differences were found. Flanges may have little effect on implant load transfer.

PAPER 33 Why Do Some Total Knee Replacements Achieve Exceptional Range of Motion?
1406 – 1412

M. Winemaker, Hamilton, ON
J. De Beer, Hamilton, ON
M. Shawish, Hamilton, ON

We compared 209 TKAs with ROM >120 degrees to 409 TKAs with <120 degrees and found exceptional ROM was biased towards those patients with better preoperative ROM, lower BMI, and male gender. Perhaps timely surgical intervention, prehabilitation and implant design choice can influence ability to achieve exceptional ROM following TKA.

PAPER 34 Effect of Cross-Sectional Stem Shape on Torsional Stability of Cemented Implants Under Cyclic Loads
1412 – 1418

A. Kedgley, London, ON
C. Dunning, London, ON
P. Lang, London, ON
S. Takaki, London, ON

Five cemented implant stems with different cross-sectional geometries (circular, oval, triangular, rectangular with sharp edges and rectangular with round edges) were tested under sinusoidal cyclic loading to compare the torsional stability provided. The rectangular stems outperformed the other shapes with regards to the number of cycles and torque to failure.

1418 – 1427 *Discussion (9 minutes)*

PAPER 35 Metal Ion Assessment in Resurfacing Arthroplasty

1427 – 1433 **P. Kim, Ottawa, ON**
A. Conway, Ottawa, ON
M. Dunbar, Halifax, NS
H. Krushowy, Ottawa, ON
G.Y. Laflamme, Montréal, QC

Sixty patients enrolled in a prospective evaluation of a resurfacing implant had ion assessments performed. Serum cobalt and chromium levels increased from one to two years (cobalt 1.2 to 1.3 ug/l, chromium 2.3 to 3.3 ug/l) whereas erythrocyte cobalt and chromium levels decreased from one to two years (cobalt 1.0 to 0.9 ug/l, chromium 1.3 to 0.9 ug/l).

PAPER 36
1433 – 1439 **A. Cervinka, London, ON**
D. Chess, London, ON
B.S. Gan, London, ON

Methylrosaniline, more commonly known as Gentian violet, is an inexpensive dye that has been used in medicine for 100 years. It has been shown, in the international literature, to have antimicrobial effects against *Staphylococcus aureus*, *Staphylococcus epidermidis*, and *Pseudomonas aeruginosa*. Methylrosaniline has the potential to exert an antibiotic effect while theoretically having a reduced selection pressure for resistant bacteria.

PAPER 37
1439 – 1445 **S. Frost, Scottsdale, AZ**
C. Beauchamp, Scottsdale, AZ
R. Donnelly, Scottsdale, AZ
B. Goldberg, Scottsdale, AZ
M. Spangehl, Scottsdale, AZ

The purpose of this study was to quantify Vancomycin and Gentamycin synovial fluid levels at the time of reimplantation following a 2-stage exchange arthroplasty for an infected total hip or knee replacement.

PAPER 38
1445 – 1451 **P. Ferguson, Toronto, ON**
R. Bell, Toronto, ON
D. Leidl, Toronto, ON
E. Schemitsch, Toronto, ON
J. Wunder, Toronto, ON
R. Zdero, Toronto, ON

The goal of this study was to compare the HMRS and Restoration press-fit stems in terms of initial mechanical stability.

1451 – 1503 *Discussion (12 minutes)*

PAPER 39
1503 – 1509 **P.A. Vendittoli, Montréal, QC**
M. Lavigne, Montréal, QC
S. Mottard, Montréal, QC
A. Roy, Montréal, QC

Tribological studies suggest that larger metal-on-metal articulations would produce less wear than smaller diameter components. The aim of the present study is to describe whole blood Chrome and Cobalt ions concentration after metal-metal total hip arthroplasty (THA) and surface replacement arthroplasty (SRA).

PAPER 40 Evidence-Based Approach to Transfusion in Arthroplasty Surgery

1509 – 1515

I. Wong, Hamilton, ON

N. Colterjohn, Hamilton, ON

F. Farrokhyar, Hamilton, ON

E. Piccirillo, Hamilton, ON

The purpose of this study was to determine predictive factors for allogeneic blood transfusion to aid in development of blood conservation strategies for the Hamilton arthroplasty population

PAPER 41 Hip Resurfacing Femoral Neck Fracture Influenced by Valgus Placement and Bone Mineral Density

1515 – 1521

N. Greidanus, Vancouver, BC

C. Anglin, Vancouver, BC

K. Beadon, Vancouver, BC

C. Duncan, Vancouver, BC

D. Garbuz, Vancouver, BC

A. Hodgson, Vancouver, BC

B. Masri, Vancouver, BC

J. Tonetti, Vancouver, BC

To examine whether neutral or valgus placement results in greater fracture strength ex vivo, when the femoral neck is notched superolaterally as sometimes occurs during hip resurfacing arthroplasty.

1521 – 1530 *Discussion (9 minutes)*

1400 – 1530 **SCIENTIFIC SESSION 5:
COMBINED - TUMOUR & SPINE 2**

KENT

Moderators: **G. King (London, ON)**
N. Schachar (Calgary, AB)
Poen Louw (SAOA President)

PAPER 42 Safety and Effectiveness of Methylmethacrylate Cement in Balloon Kyphoplasty

1400 – 1406

A. Hadjipavlou, Heraklion, GREECE

I. Gaitanis, Heraklion, GREECE

P. Katonis, Heraklion, GREECE

D. Pasku, Heraklion, GREECE

M. Tzermiadianos, Heraklion, GREECE

*This paper was presented
on Sunday morning*

The purpose of this study is to evaluate the safety of methylmethacrylate cement balloon kyphoplasty (BK) when applied to five or six levels in the same sitting and the incidence and location of cement leakage.

PAPER 43 Spinal Stabilization and Adjacent Level Effects: A Cadaveric Study Using a Hybrid Test Protocol

1406 – 1412

J-S. Tan, Vancouver, BC

M. Dvorak, Vancouver, BC

C. Fisher, Vancouver, BC

T. Oxland, Vancouver, BC

S. Singh, Vancouver, BC

Q-A Zhu, Vancouver, BC

The objectives of this study were to determine the effect of posterior instrumentation extension and/or cement augmentation on immediate stabilization of the instrumented level and biomechanical changes adjacent to the spinal instrumentation.

PAPER 44 Characterization of Human Osteosarcoma Cells and Tissues - Malignancy- Related Factors
1412 – 1418 Expression

M.C. Guyot, Montréal, QC

J. Doyon, Montréal, QC

M. Felix, Montréal, QC

M. Isler, Montréal, QC

S. Leclerc, Montréal, QC

P. Moffatt, Montréal, QC

F. Moldovan, Montréal, QC

A. Moreau, Montréal, QC

R. Turcotte, Montréal, QC

J. Vujanovic, Montréal, QC

Osteosarcoma (OS) is the most common type of cancer in children. OS demonstrates aggressive growth with a high risk of early pulmonary metastasis. Here we investigated expression of malignancy-related factors in six osteosarcoma cell lines (SaOS, MNNG/HOS, MG63, SW1353, SKES, SJSA), ten biopsies of primary OS and OS derived cells.

1418 – 1426 *Discussion (8 minutes)*

PAPER 45 Effect of a Type II Collagen Fragment on Cells of the Intervertebral Disc

1426 – 1432 **F. Mwale, Montréal, QC**

J. Antoniou, Montréal, QC

O.L. Huk, Montréal, QC

G. Marguier, Montréal, QC

A. Petit, Montréal, QC

H. Wang, Montréal, QC

D. Zukor, Montréal, QC

The present study shows that the type II collagen (245-270) peptide, known to be critical in arthritis, can alter gene expression of proteinases, collagen and proteoglycan in cells of the bovine intervertebral disc and reveals the complex interrelationships of gene expression in the disc that accompany fragmentation of type collagen II.

PAPER 46 Primary Soft Tissue Sarcoma in the Elderly

1432 – 1438 **D. Chivas, Montréal, QC**

R. Bell, Toronto, ON

B. Dehesi, Toronto, ON

P. Ferguson, Toronto, ON

M. Isler, Montréal, QC

R. Turcotte, Montréal, QC

J. Wunder, Toronto, ON

To determine the outcome of patients 80 years old and greater that were diagnosed with a primary soft tissue sarcoma and if these patients should be treated as aggressively as younger patients.

PAPER 47 Effect of Oxygen Levels on Proteoglycan Synthesis by IVD Cells

1438 – 1444 **I. Ciobanu, Montréal, QC**

J. Antoniou, Montréal, QC
I. Ciobanu, Montréal, QC
D. Giannitsios, Montréal, QC
F. Mwale, Montréal, QC
P. Roughley, Montréal, QC
T. Steffan, Montréal, QC

The aim of this study was to determine how AF and NP cells respond to different O₂ concentrations when cultured in a 3 dimensional system consisting of an alginate scaffold.

PAPER 48 Primary En-Bloc Resection in the Treatment of Primary Tumours with Local Invasion of the Spine
1444 – 1450

S. Lewis, Toronto, ON
R. Rampersaud, Toronto, ON

The purpose of this study was to report results of patients undergoing en-bloc resection of thoracic tumours with local invasion of the spinal column

1450 – 1458 *Discussion (8 minutes)*

PAPER 49 Does Photodynamic Therapy Affect the Structural Integrity of Vertebral Bone?
1458 – 1504

C. Whyne, Toronto, ON
M. Akens, Toronto, ON
S. Bisland, Toronto, ON
S. Burch, San Francisco, CA
L. Gordon, Toronto, ON
M. Hardisty, Toronto, ON
B. Wilson, Toronto, ON
A. Yee, Toronto, ON

Photodynamic therapy (PDT) is proposed as a potential new minimally invasive treatment for spinal metastases. This study aimed to determine if PDT affects the structural integrity of normal vertebral bone. Using a rat model, the stereologic and biomechanical effects of PDT were assessed. PDT was found to strengthen vertebral bone.

PAPER 50 The Lateral Gastrocnemius Flap for Tumour Reconstruction Around the Knee
1504 – 1510

M. Gross, Halifax, NS
M. Biddulph, Halifax, NS

The purpose of this study was to describe the technique and outcomes of patients requiring Lateral Gastrocnemius flaps for soft tissue coverage of the lateral side of the knee after sarcoma.

PAPER 51 Mechanical Stability Provided by Various Fixation Devices in a Supracondylar Femur
1510 – 1516

P. Duffy, Calgary, AB
L. Barron, Halifax, NS
K. Deluzio, Halifax, NS
M. Dunbar, Halifax, NS
A. Hennigar, Halifax, NS
R.K. Leighton, Halifax, NS
K. Trask, Halifax, NS

Friday, June 2nd

The Less Invasive Stabilization System (LISS), Dynamic Condylar Screw (DCS) and Condylar Buttress Plate (CBP) are three common fixation methods for supracondylar femur fractures. The DCS and CBP are compression plates while the LISS uses locking screws to transfer load from bone to plate without compression. We developed a study to determine if the theoretical biomechanical advantages of the LISS would be evident in laboratory testing.

PAPER 52
1516 – 1522 The Halifax Experience of Massive Allografts with Vascularised Fibulas in Sarcoma Limb Salvage Surgery

M. Biddulph, Halifax, NS

M. Gross, Halifax, NS

J. Paletz, Halifax, NS

The purpose of this study was to describe our experience with vascularised fibulas used in sarcoma limb salvage surgery using standardized patient outcome measures.

1522 - 1530 *Discussion (8 minutes)*

1400 – 1600 **Osteoporosis Meeting**

CONFERENCE D

1400 – 1700 **Poster Set-Up**

GRAND BALLROOM FOYER

1400 – 1410 **J.A. Nutter Award Presentation**

Biomechanical Analysis of Short Posterior Spinal Instrumentation in Bridge Type Fixation for Spinal Fracture Management

CIVIC

C. Richards

1410 – 1530 **Live Surgery (Video)**

Clavicle Plating

CIVIC

Moderator: M.McKee

DESCRIPTION: A video presentation of a clavicle plating case will be presented and discussed

1530 – 1600 **Health Break**

EXHIBIT HALL

1600 - 1730 **SCIENTIFIC SESSION 6:
CORS - BONE / LIGAMENT / TENDON**

ESSEX

Moderators: **K. Hildebrand (Calgary, AB)**
E. Boynton (Toronto, ON)

PAPER 53 Early Growth Factor and Myofibroblast Changes in Post-traumatic Joint Contractures

1600 – 1606 ***N. Germscheld, Calgary, AB***

K. Hildebrand, Calgary, AB

M. Zhang, Calgary, AB

To evaluate the role of myofibroblasts in post-traumatic contractures, studies were performed on the myofibroblast marker α -SMA and myofibroblast up-regulators TGF- β 1 and the ED-A domain of fibronectin (ED-A) in joint capsules during early stages of post-traumatic contractures. Our hypotheses are mRNA expression of α -SMA, TGF- β 1, and ED-A, and myofibroblast numbers, would increase in joint capsules of post-traumatic contractures when compared to contralateral and normal capsule.

PAPER 54 A Rationale for Treating Leg Length Discrepancy Using Photodynamic Therapy

1606 – 1612 ***S. Bisland, Toronto, ON***

S. Burch, San Francisco, CA
M. Diab, San Francisco, CA
C. Johnson, Toronto, ON
B. Wilson, Toronto, ON

Our studies show that photodynamic therapy (PDT) can influence endochondral ossification within the physal growth plates of long bones upon up-regulation of vascular endothelial growth factor (VEGF). VEGF-mediated induced of angiogenesis is pivotal to the initiation of ossification and closure of the growth plate.

PAPER 55 Effect of Amifostine and Dexrazoxane on Bone Mass of Doxorubicin Treated Male Rats
1612 – 1618 **F. Mwale, Montréal, QC**

J. Antoniou, Montréal, QC
L. Chalifour, Montréal, QC
O. Huk, Montréal, QC
G. Marguier, Montréal, QC
D. Zukor, Montréal, QC

The purpose of this study was to investigate the effect of amifostine and dexrazoxane on bone mass of the vertebrae and femurs of doxorubicin treated male rats.

1618 – 1627 *Discussion (9 minutes)*

PAPER 56 Osteopromotion by a Calcium Phosphate Cement and an Osteogenetic Transglutaminase (FXIII)
1627 – 1633

S. Becker, Vienna, AUSTRIA
M. Alini, Davos, SWITZERLAND
O. Maissen, Davos, SWITZERLAND
T. Meury, Davos, SWITZERLAND
I. Ponomarev, Bad Langensalza, GERMANY
I. Wilke, Bad Langensalza, GERMANY

Animal study of an osteoconductive β – tricalcium – phosphate scaffold impregnated with an osteogenetic plasmatransglutaminase (F XIII). / Local administration of F XIII has a good osteogenetic property comparable to bone marrow and better than venous blood. It shows a linear release kinetic and stimulates osteoblast migration into the β -TCP scaffold.

PAPER 57 Beta Catenin Expression is Up-Regulated in Frozen Shoulder Syndrome

1633 – 1639 *D. O’Gorman, London, ON*
A. Burry, Toronto, ON
K. Faber, London, ON
B. Gan, London, ON
J. Howard, London, ON

Frozen Shoulder Syndrome (FSS) frequently occurs in association with Dupuytren’s Disease (DD). Beta-catenin is a signaling pathway implicated in the pathogenesis of DD. The purpose of this study is to determine if beta-catenin is also associated with FSS.

PAPER 58 Achilles Tendinosis: Establishment and Validation of a Rat over Use Exercise Model

1639 – 1645 **M. Glazebrook, Halifax, NS**
M. Langman, Halifax, NS
M. Lee, Halifax, NS
W. Stanish, Halifax, NS

The purpose of this study was to establish and validate animal model for Achilles tendon disease with subsequent examination of histology, biochemistry and biomechanics

PAPER 59 Use of a Raft of 3.5mm Cortical Screws in Depressed Tibial Plateau Fractures: A Biomechanical Study
1645 – 1651

S. Patil, Middlebrough, UNITED KINGDOM
S. Green, Middlebrough, UNITED KINGDOM
A. Port, Middlebrough, UNITED KINGDOM

The purpose of this study was to biomechanically compare the stability provided by 2, 6.5mm cancellous screws versus that provided by 4, 3.5mm cortical screws in depressed tibial plateau fractures

1651 – 1703 Discussion (12 minutes)

PAPER 60 How Can The Risk of Fat Embolus Syndrome be Minimized?
1703 – 1709

P. Zalzal, Hamilton, ON
K. Behdinan, Toronto, ON
J. de Beer, Hamilton, ON
D. Dobrjanski, Toronto, ON
O. Gabar, Toronto, ON
M. Papini, Toronto, ON
Z. Saghir, Toronto, ON

To study intramedullary femur pressures, an experimental model and a finite element model were developed. The intramedullary pressures increased with increasing speed of instrument insertion, increasing marrow viscosity, and increased diameter of the instrument relative to the inner bone diameter. Experimental and finite element results were in reasonable agreement.

PAPER 61 Comparison of Foot Pressures of Normal Subjects Versus Metatarsalgia Using the FScan Pedobarograph
1709 – 1715

M. Maru, Sunderland, UNITED KINGDOM

Our aim was to measure plantar foot pressures in normal individuals and to compare them with variations in patients with metatarsalgia

PAPER 62 Anterior Cruciate Reconstruction Using Allografts. Which Allograft is Best?
1715 – 1721

D. Penn, Halifax, NS
C. Foote, Halifax, NS
W. Stanish, Halifax, NS
T. Willet, Halifax, NS
H. Yepes, Halifax, NS

The objective of this study was to perform mechanical testing on 60 allografts including Tibialis Anterior, Tibialis Posterior, Tendo- Achilles and Bone Patella bone ligaments. No significant statistical difference was found. The mechanical properties of the allografts are more dependant on the cross sectional area ,than the type of allograft tissue.

1721 – 1730 Discussion (9 minutes)

1600 – 1730 **Symposium 1^A**
Femoral Neck Fractures: Controversies and Evidence

CIVIC

Moderators: E. Schemitsch, M. Bhandari

Friday, June 2nd

Panel: **M.F. Swiontkowski (AOA President)** – *Ian Macnab Lecturer*, R. Leighton,
P. Guy, D. Sanders

Optimal Internal Fixation for Femoral Neck Fractures -Screws or Sliding Hip Screws?	M.F. Swiontkowski
Optimal Arthroplasty for Femoral Neck Fractures - Hemiarthroplasty or Total Hip Arthroplasty?	R. Leighton
Current Evidence for Displaced Femoral Neck Fractures - Internal Fixation versus Arthroplasty?	E. Schemitsch
Can We Improve Outcomes Following Internal Fixation? Osteobiologics and Bone Substitutes	P. Guy
Can We Improve Peri-operative Care? Current Evidence	D. Sanders
Resolving Controversies in Hip Fracture Care: The Need for Large Collaborative Trials in Hip Fractures	M. Bhandari

1800 – 1900	COA Opening Ceremonies	GRAND BALLROOM E
	RI Harris Lecturer The Canadian Orthopaedic Surgeon	P. Wright
1900 – 2130	President’s Welcome Reception Poster Pub Session	EXHIBIT HALL
1930 – 2100	Past-Presidents Dinner – <i>By Invitation Only</i>	Ontario Club

* ^A The COA gratefully acknowledges the support in the form of an unrestricted educational grant to help make the following sessions possible:

- DePuy Canada – ICL No. 1
- MEDEC – Symposium 1