7:00-17:00 Speaker Ready Room • Room 524C

7:00-17:30 Registration • 517 Foyer

7:00-9:30 ORS Board Meeting • Room 523

7:30-9:00 ICORS/COA Symposium: Open Fracture Care - Concepts and Controversies • Room 517D

Moderators: Theodore Miclau, ICORS President, US; Brad Petrisor, Canada

Objectives:
1. To understand current best evidence for clinical issues in the management of open fracture wounds.
2. To gain an understanding of future research directives around key topic areas in open fracture wounds.

Speakers:
- Surgical Timing: Middle of the Night or the Light of Day, Which Fractures, What Time? Prism Schneider, Canada
- Is There a Current Evidence Based Approach for Critical Size Bone Defects? Steven Papp, Canada
- Tissue Coverage from Wound Vac to Free Flap, When Is the Best Time and With What? Chad P. Coles, Canada
- What Are the Top Three Big Research Questions That Need to be Addressed? Emil H. Schemitsch, Canada

8:00-9:00 ICORS Workshop: AO Foundation/Chinese ORS - AO/China Collaborative Research in MSK Regeneration • Room 520AD

Moderator: Mauro Alini, Switzerland; Xuenong Zou, China
Objectives:
Demonstrate the achievements in musculoskeletal regeneration research conducted by scientists from ARI and China in collaboration.

Speakers:
- Emerging Trends in Epigenetic Regulation of Stress Response and Homeostasis Maintenance in Bone Grafting - Xuenong Zou, China
- Personalised Bioactive Implant Made by Stereolithography for Orbital Floor Fracture Repair - David Eglin, Switzerland
- Traditional Chinese Medicine (TCM) Compound Delivery System for Treatment of Osteoarthritis – Alick Wang, Canada
- LncRNAs are Dysregulated in the Intervertebral Disc Early Degeneration Within a One Strike Organ Model – Zhen Li, Switzerland

8:00-9:00 CORS Executive Meeting • Room 522C

8:00-9:00 ICORS Workshop: Canadian ORS - Cartilage Repair
• Room 520BE
Moderators: Michael Grant, Canada; Fackson Mwale, ICORS Program Chair, Canada

Objectives:
1. Provide a clinical overview of OA and FDA approved agents used to treat the disease.
2. Discuss the novel findings in short Link N, a recently discovered fragment of the cartilage link protein, in preventing disease progression in a rabbit model of osteoarthritis (OA).
3. Look at bioengineering of tissues for articular cartilage repair.

Speakers:
- Clinical Overview of OA and FDA Approved Agents Used to Treat the Disease – Michael Grant, Canada
- Short Link N Acts as a Disease Modifying Osteoarthritis Drug – Fackson Mwale, ICORS Program Chair, Canada
- Biological Cartilage Replacement: Advancing Towards a New Treatment Option – Rita Kandel, Canada
Friday

8:00-9:00 ICORS Workshop: EORS/TORS - Emerging Molecular Therapeutic Potentials for Treating Osteoarthritis • Room 521
Moderators: Holger Jahr, Germany; Feng-Sheng Wang, Taiwan

Objectives:
1. Shed light on new aspects of molecular regulation of cartilage metabolism, such as microRNA and histone demethylase actions, during articular destruction in human OA and in experimentally-induced OA in transgenic/knockout mice models.
2. Highlight the remedial perspective of specific pharmacological inhibitors and microRNA precursors/inhibitors to alter cartilage erosion, synovitis, and subchondroal bone alteration to delay OA development.

Speakers:
- Microenvironmental Regulation of Chondrocyte Function - Holger Jahr, Germany
- MicroRNA Control of Chondrocyte Fate and Osteoarthritis Development - Feng-Sheng Wang, Taiwan
- Trimethyl H3K27 Assembly Modulation of Cartilage Integrity and Osteoarthritis - Wei Shiung Lian, Taiwan

8:00-9:00 ICORS Workshop: JOA - Win or Not? Biological Tug-of-War in Hip Periprosthetic Joint Infection • Room 520CF
Moderators: Yutaka Inaba, Japan; Michiaki Takagi, Japan

Objective:
Periprosthetic joint infection (PJI) is one of serious complications of total hip replacements. Microbes are always flexible to escape from human endeavor, and biological tug of war continues. This workshop looks for clues and hints to stop the endless war via discussion of patho-immunology, diagnosis, prophylaxisis and therapeutic trends in hip PJI.

Speakers:
- Current Trend in the Diagnosis of Hip PJI - Yutaka Inaba, Japan
- Treatment Strategy for Hip PJI - Masahiro Hasegawa, Japan
- Perspective of Anti-Microbial Technology I: Iodine Coating - Daisuke Inoue, Japan
- Perspective of Anti-Microbial Technology II: Silver-Oxide Containing Hydroxyapatite Coating - Shuichi Eto, Japan
Friday

9:15-10:45 ICORS Paper Session: Cartilage and Synovium 2
- Room 520AD
Moderators: Susan Chubinskaya, US; Linda Sandell, US

69 - 9:15
Investigating the Potential of Combined Therapy Using Mesenchymal Stem Cell Exosomes With Hyaluronic Acid for Functional Osteochondral Regeneration in a Rabbit Model
Keng Lin, Francis Wong, Singapore; Ming Wang, Singapore; Kristeen Ye Wen Teo, Singapore; Shang Jiunn Chuah, Singapore; Xiafei Ren, Singapore; Yingnan Wu, Singapore; Afizah Hassan, Singapore; Ruenn Chai Lai, Singapore; Sai Kiang Lim, Singapore; James, Hoi Po Hui, Singapore; Wei Seong Toh, Singapore; Eng Hin Lee, Singapore; Shipin Zhang, Singapore

70 - 9:21
Free Calcium Regulates the Expression of Proteoglycan and Collagen in Human Cartilage
Michael Grant, Canada; Laura Mery Epure, Canada; Omar Salem, Canada; Olga L. Huk, Canada; John Antoniou, Canada; Fackson Mwale, Canada

9:27 Discussion

71 - 9:35
Wnt and TGFβ Pathway Protein, DACT1, is Important in Chondrocyte and Mesenchymal Stem/Stromal Cell Survival
Anna Albiero, UK; Virginia Piombo, UK; Lila Diamanti, UK; Mark Birch, UK; Andrew W. McCaskie, UK

72 - 9:41
Global Proteomic and Genomic Expression Characterization of Synovial MSC From Normal and OA Knee Joint
Nedaa Al-Jezani, Canada; Pamela Railton, Canada; James Powell, Canada; Antoine Dufour, Canada; Roman Krawetz, Canada

73 - 9:47
MicroRNA-128a Provokes Cartilage Loss and Impairs Joint Kinematics of Osteoarthritis
Yi-Chih Sun, Taiwan; Feng-Sheng Wang, Taiwan

9:53 Discussion
Friday

74 - 10:05
Irisin Compromises Infrapatellar Adipogenesis and Knee Osteoarthritis
Chin Kuei Hsieh, Taiwan; Wei Shiung Lian, Taiwan; Feng-Sheng Wang, Taiwan

75 - 10:11
Sliding Induced Solute Transport in Articular Cartilage
Kathryn Culliton, Canada; Andrew Speirs, Canada; Paul-Edgar Beaulé, Canada

76 - 10:17
An in Vivo Defect Model for Testing Cell-Based Tissue Engineering Strategies for Early Osteoarthritis
Girish Pattappa, Germany; Matthias Koch, Germany; Johannes Weber, Germany; Siegmund Lang, Germany; Andreas Bohrer, Germany; Brian Johnstone, US; Denitsa Docheva, Germany; Johannes Zellner, Germany; Peter Angele, Germany; Jonas Krueckel, Germany; Dustin Franke, Germany

10:23 Discussion

10:35 Keynote Speaker: Muneaki Ishijima, Japan

9:15-10:45 ICORS Paper Session: Hip and Knee Arthroplasty 3
• Room 520BE
Moderators: Hyuk-Soo Han, Korea

77 - 9:15
Corrosion of Modular Head Neck Junctions and Local and Distant Organ Responses in Total Hip Replacements Retrieved Postmortem
Deborah Hall, US; Robin Pourzal, US; Joshua Jacobs, US; Robert Urban, US

78 - 9:21
Resorption Activity of Osteoclasts Derived from Patients With Metal-on-Metal Hip Resurfacing
J. Mark Wilkinson, UK; Alison Garland, UK; Daniel Morell, UK; Karan Shah, UK; Pacharamnee Sudsok, UK

9:27 Discussion
79 - 9:35
The Prevalence of Coronal Tibial Bowing in a Western Population
Fahd Mahmood, UK; Justine Burt, UK; Oliver Bailey, UK; Jon Clarke, UK; Joe Baines, UK

80 - 9:41
Effect of Dexamethasone on Post-Operative Pain Management in Patients Undergoing Total Knee Arthroplasty
Junaid Khan, Pakistan; Riaz Ahmed, Pakistan
Discussion 9:47

81 - 9:55
Comparison Between Intra-Articular and Intravenous Tranexamic Acid Application in Primary Unilateral Knee Joint Replacement
Junaid Khan, Pakistan; Rahman Rasool Akhtar, Pakistan; Riaz Ahmed, Pakistan

82 - 10:01
Metal Ion Concentrations After Metal-on-Metal Hip Arthroplasty Are Not Correlated With Habitual Physical Activity Levels
Jetse Jelsma, Netherlands; Martijn Schotanus, Netherlands; Rachel Senden, Netherlands; Ide Heyligers, Netherlands; Bernd Grimm, Germany
10:07 Discussion

9:15-10:15 ICORS Paper Session: Tumour • Room 521
Moderators: Xiaoling Zhang, China; Toru Akiyama, Japan

83 - 9:15
A Phase One Trial on the Use of Photodynamic Therapy in Vertebral Metastases.
Albert J.M. Yee, Canada; Zakariya Ali, Canada; Arjun Sahgal, Canada; Elizabeth David, Canada; Edward Chow, Canada; Shane Burch, US; Brian Wilson, Canada; Cari Whyne, Canada; Jay Detsky, Canada; Carl Fisher, Canada

84 - 9:21
Icariin, a Potent Flavonoid, in Attenuating Methotrexate Chemotherapy-Induced Bone Loss and Bone Marrow Micro-Vascular Damage in Rats
Friday

Mohammadhossein Hassanshahi, Australia; Yu-Wen Su, Australia; Samira Khabbazi, Australia; Chia-ming Fan, Australia; Ke-Ming Chen, China; Cory Xian, Australia

9:27 Discussion

85 - 9:35
The Use of a Novel PORCN Inhibitor in the Treatment of Osteosarcoma
Kenon Chua, Singapore

86 - 9:41
MiR-144 Inhibits Tumor Growth and Metastasis in Osteosarcoma via Dual-Suppressing RhoA/ROCK1 Signaling Pathway
Xiaoling Zhang, China; JinLong Liu, China; Jing Li, China; PengLei Cui, China; Xiaodong Chen, China; ZhiGuang Qiao, China; JiaJia Xu, China; Fei Xiao, China

87 - 9:47
Core Needle Biopsy of Musculoskeletal Lesions
Abdullah Bin Shabib, Saudi Arabia; Fares Al-Jahdali, Saudi Arabia; Wazzan Aljuhani, Saudi Arabia; Bandar Ahmed, Saudi Arabia; Mahmoud Salam, Saudi Arabia

9:53 Discussion

10:05 Keynote Speaker: Toru Akiyama, Japan

9:15-10:45 ICORS Paper Session: Late Breaking Research
• Room 520CF
Moderator: Caroline Hoemann, US

88 - 9:15
Engineered Vascularized Tubular Bone Shafts
Baptiste Charbonnier, Canada; Aslan Baradaran, Canada; Edward Harvey, Canada; Mirko Gilardino, Canada; Nicholas Makhoul, Canada; Jake Barralet, Canada

89 - 9:21
Effects of Sensory Neuropeptides Substance P and α-calcitonin Gene-Related Peptide on Osteoporotic Fracture Healing
Friday

Tanja Niedermair, Germany; Rainer Straub, Germany; Susanne Grässel, Germany

90 - 9:27
Revisiting the Vascularity and Resident Stem Cell Population of the Meniscal Avascular Zone
Dmitriy Sheyn, US; Angela Papalamprou, US; Jorge Chahla, US; Virginia Chan, US; Orr Limpisvasti, US; Melodie Metzger; Bert Mandelboum, US
9:33 Discussion

91 - 9:45
Bone Defect Size Dictates Both the Ultrastructural Properties and the Gene Expression of Early Fracture Hematoma
Anna Woloszyk, US; Kelvin Tuong, UK; Kevin Tetsworth, Australia; Vaida Glatt, US

92 - 9:51
Regeneration and Osteointegration of the ACL With a New Silk Fiber Based Scaffold
Thomas Nau, Austria; Andreas Teuschl, Austria; Heinz Redl, Austria

93 - 9:57
frHMGB1 Improves Healing of Injured Enthesis by Recruiting Mesenchymal Stem Cells
10:03 Discussion

94 - 10:15
Senolytic and Anti-Inflammatory Effects of Curcumin and o-Vanillin to Reduce Intervertebral Disc Degeneration and Low Back Pain
Hosni Cherif, Canada; Daniel Bisson, Canada; Sems Kocabas, Canada; Lisbet Haglund, Canada

95 - 10:21
Toll-Like Receptors and Facet Joint Degeneration in Adolescent Idiopathic Scoliosis
Daniel Bisson, Canada; Sems Kocabas, Canada; Jean Ouellet, Canada; Neil Saran, Canada; Lisbet Haglund, Canada

60
96 - 10:27
Impaired Secretion of Annexins and Fibronectin in Osteoblast-Extracellular Vesicles of Osteogenesis Imperfecta Patients: A Proteomic Analyses
Monther Abuhantash, Canada; Frank Rauch, Canada; Janusz Rak, Canada; Reggie C. Hamdy, Canada; Hadil Al-Jallad, Canada

10:33 Discussion

10:45-11:15 Break – Food and Beverage for Purchase in Exhibit Hall

11:15-12:15 ICORS Workshop: EORS/ANZORS - Digital Mobility Parameters from Wearable Devices - The Future of Orthopaedic Outcome Assessment? Why, How, and What Do We Know?
• Room 520CF
Moderators: Bernd Grimm, Germany; Dominic Thewlis, Australia

Objectives:
1. Describe why and how wearable devices and activity monitors will innovate outcome assessment in orthopaedic trials and can be used towards patient empowerment during rehabilitation after surgery.
2. Start a discussion about the challenges, hurdles, including regulatory aspects and best approaches to establish digital mobility parameters as valid and impactful outcomes towards the benefit of patients, doctors and other stakeholders.

Speakers:
• The Need, Benefit and Challenges for Ambulant Activity Monitoring With Wearables in Orthopaedics – Bernd Grimm, Germany
• From Sensor and Signal to Activity Classification and Outcome Parameter: Approaches, Devices, Algorithms and Available Solutions – Dominic Thewlis, Australia
• Clinical Applications and New Insights From Physical Activity and Sleep Monitoring in Orthopaedic Patients – Dominic Thewlis, Australia
• Wearable Sensors and Activity Monitors in Rehabilitation and Sports: Review of the Status Quo and Future Outlook - Gabrielle Tuijthof, Netherlands
• From Wearables to Smart Implants: The AO Fracture Monitor to Assess Bone Healing - Boyko Gueorguiev, Switzerland
Friday

11:15-12:15 ICORS Workshop: ORS - Musculoskeletal Pain Measurements in Animals and Humans • Room 524B
Moderators: James Iatridis, US; Grace Mosley, US; Laura Stone, Canada

Objectives:
1. Bring together experts in musculoskeletal pain measurement in rodents and humans.
2. Present an overview of how we can study pain in both human and animal models.
3. Discuss how pain measures have been used in models of the two most prevalent musculoskeletal diseases: low back pain and osteoarthritis.

Speakers:
- Overview of Musculoskeletal Pain Measurements in Rodents - Tamara King, US
- Translational Considerations in Osteoarthritis Pain Assays: Mouse, Human and the Relationship Between the Two Species - Rachel Miller, US
- Assessing Pain in Humans - Timothy Wideman, Canada

11:15-12:15 ICORS Workshop: ORS - Osteonecrosis: Is Cell-Based Therapy the Future? • Room 521
Moderators: Quanjun Cui, US; Lynne Jones, US

Objectives:
1. Introduce osteonecrosis.
2. Provide a framework on which current treatments are, and future treatments will be, based.

Speakers:
- Joint Preserving Procedures as Treatment Options for Osteonecrosis - Michael A. Mont, US
Friday

- Current Concepts for Cell-Based Therapy for Treatment of Osteonecrosis - Philippe Hernigou, France

**11:15-12:15 ICORS Workshop: ORS: The Pre-OA Hip: From Bench to Bedside • Room 520BE**
*Moderators: George Grammatopoulos, Canada; Cecilia Pascual-Garrido, US*

**Objectives:**
Provide an open discussion of the contemporary approach to pre-arthritic young adult hip disorders. Topics that will be highlighted include:
1. Physiopathology of joint degeneration.
2. Morphological abnormalities of the hip, clinical, radiological (including three-dimensional imaging) parameters that impact treatment decision making.
3. Future therapies for cartilage joint restoration and interventions to prevent joint degeneration.

**Speakers:**
- The Etiology of Joint Degeneration in the Young Adult Hip. Is it all About Inflammation? Cecilia Pascual-Garrido, US
- The Pre-OA Hip: FAI-DDH - John Clohisy, US
- Clinical Outcomes (FAI and DDH) - George Grammatopoulos, Canada
- Effects for Current Surgical Treatment in Restoring Cartilage Joint Homeostasis - Paul E. Beaulé, Canada
- Engineering New Biologic Therapies for Hip OA - Cecilia Pascual-Garrido, US

**12:15-13:30 Lunch- Food and Beverage for Purchase in Exhibit Hall**

**13:30-14:30 ICORS Workshop: Canadian ORS- Adverse Reactions to Total Hip Implants, What Should We Know About the Metals?**
*Room 520CF*
*Moderator: Rizhi Wang, Canada*
Objectives:
Discuss and establish both clinical and laboratory procedures of assessing and alleviating adverse tissue reactions to total hip implants.

Speakers:
- Mechanisms of Corrosion, Wear and Metal Release from Total Hip Implants - Rizhi Wang, Canada
- Total Hip Implants: Metal Ions Sources, Assessing Systemic Level and Their Clinical Impacts - Pascal-André Vendittoli, Canada
- Clinical Diagnosis of ALTRs and Implant Selection for Revision Surgery - Bas A. Masri, Canada
- Towards New Biomarkers for the Diagnosis of Adverse Local Tissue Reactions in Total Hip Replacements - Isabelle Catelas, Canada

13:30-14:30 ICORS Workshop: Canadian ORS - Machine Learning in Orthopaedic Research • Room 520BE
Moderators: David Burns, Canada; Cari Whyne, Canada

Objectives:
1. Provide an overview of machine learning methods, from classical algorithms to the state-of-the-art.
2. Highlight relevant and emerging applications in orthopaedic research enabled by the rapid technological advancements in this field.

Speakers:
- Human Activity Recognition - Methods and Emerging Applications in Orthopaedics- David Burns, Canada
- Machine Learning Oncologic Fracture Risk - From Classical to Deep Learning - Anthony Bozzo, Canada
- Operating Room Black Box- Improving Surgical Safety With Machine Learning - James Jung, Canada
13:30-14:30 ICORS Workshop: ON Foundation/EORS - Novel Trends in Anterior Cruciate Ligament Repair and Arthritis: Translating Lab Research to the Clinic and Clinical Challenges to Open Research Questions • Room 521

**Moderators:** Denitsa Docheva, Germany; Christian Latterman, US

**Objective:** The goal of this workshop is to consider the importance of the ACL structural and anatomical properties, and in particular to focus on regenerative potential and clinical significance.

**Speakers:**
- What Surrogate Markers After ACL Injury Reveal About Risk for Post-Traumatic OA - Virginia Kraus, US
- Does ACL Healing vs. Reconstruction Play a Role in PTOA? Early Results of the BEAR (Bridge Enhanced ACL Repair) Trials - Dennis Kramer, US
- Translation of Today’s Science Into the Clinical Practice: Successes, Challenges and Open Questions - Christian Lattermann, US

14:30-15:30 Poster Session and Coffee • Exhibit Hall, Room 516

15:15-16:15 ICORS Workshop: AO Foundation/ORS- The 3Rs in Orthopaedic Research- Practical Examples • Room 524B

**Moderator:** Stephan Zeiter, Switzerland

**Objective:**
To initiate further application / development and discussion of the 3R within orthopaedic research by providing real world examples.

**Speakers:**
- Complex Bioreactors in the Assessment of Cartilage Repair Strategies - Markus Wimmer, US
- Use of Non-Invasive Tools to Reduce Use of Animals in Orthopaedic Research – Cari Whyne, US
- Refining Methods for Fracture Generation in Rodents - Kurt Hankenson, US
| Time       | Session Title                                                                 | Presenters                                                                 |
|-----------|-------------------------------------------------------------------------------|============================================================================|
| 15:15-16:45 | ICORS Paper Session: Spine 3 • Room 521                                      | Moderators: Xuenong Zou, China; Soohong Lee, China                         |
| 97 - 15:15 | Longitudinal Electrophysiological Changes After Cervical Hemi-Contusion Spinal Cord Injury in Non-Human Primates | Junhao Liu, China; Qingan Zhu, China; Rong Li, China; Zucheng Huang, China; Xiaoliang Wu, China; Zhiping Huang, China; Yong Hu, China; Jie Liu, Canada |
| 98 - 15:21 | BDNF Mediated Akt-mTORC1, Erk-MAPK via Gai1/Gai3 Protein to Promote the Growth of Axons and Dendritic Spines  | Zhou Xiaozhong, China; Bai Jinyu, China; Shan Hua Jian, China; Gao Xiang, China |
| 15:27      | Discussion                                                                    |                                                                            |
| 99 - 15:35 | Prediction of Cervical Spinal Loading After Anterior Arthrodesis Using Musculoskeletal Multi-Body Dynamics Model During the Head Flexion/Extension Movement | Hao Diao, China; Hua Xin, China; Zhongmin Jin, China                        |
| 100 - 15:41| Radiostereometric Analysis as a Diagnostic for Assessing Vertebral Fusion – A Phantom Study | Trevor Gascoyne, MB; Sara Parashin, MB; Mohammad Zarrabian, MB             |
| 15:47      | Discussion                                                                    |                                                                            |
| 102 - 16:01| Fibroblast Growth Factor Receptor 3 Inhibits Progression of Degeneration in the Intervertebral Disc in Mice | Yangli Xie, China; Lin Chen, China                                         |
| 16:17      | Discussion                                                                    |                                                                            |
15:15-16:15 ICORS Paper Session: Tendon and Ligament
• Room 520AD
Moderators: Bruce Beynnon, US; Stavros Thomopoulos, US

103 - 15:15
HMGB1 Induces Tendinopathy Development Due to Mechanical Overloading
Jianying Zhang, US; Guangyi Zhao, US; Feng Li, US; James H-C. Wang, US

104 - 15:21
Quantitative Morphological Analysis of the Capsulo-Osseous Layer of the Distal Iliotibial Band
Timothy Burkhart, Canada; Alan Getgood, Canada; Mark Abbott, Canada; Amanda Dentremont, Canada

15:27 Discussion

105 - 15:35
Effect of Low-Intensity Pulsed Ultrasounds After Autologous Adipose-Derived Stromal Cells Transplantation for Bone-Tendon Healing in a Rabbit Model
Can Chen, China; Hongbin Lu, China

106 - 15:41
Creating and Evaluating a Novel Sheep Abductor Tendon Tear Model
Jillian Cornish, New Zealand; Maek Zhu, New Zealand; Simon Young, New Zealand; David Musson, New Zealand; Jacob Munro, New Zealand

15:47 Discussion

15:55 Keynote Speaker: Stavros Thomopoulos, US

16:05 Discussion
Friday

15:15-16:45 ICORS Paper Session: Trauma and Fractures
• Room 520CF
Moderators: Theodore Miclau, ICORS President, US

107 - 15:15
Low-Magnitude High-Frequency Vibration Modulates Macrophage Polarization and Restores Inflammatory Response in Osteoporotic Fracture Healing in Rat Model
Wing Cheung, Hong Kong; Yu Ning Chim, Hong Kong; Simon Kwoon-ho Chow, Hong Kong

108 - 15:21
How Much Do We Know About Mechano-Sensitivity in Osteoporotic Bone? Role of Osteocytes in Osteoporotic Metaphyseal Fracture Healing Enhanced by Low-Magnitude High-Frequency Vibration
Wing Cheung, Hong Kong; Victoria Man Huen Choy, Hong Kong; Ronald Man Yeung Wong, Hong Kong; Simon Kwoon-ho Chow, Hong Kong; Jack Chun Yiu Cheng, Hong Kong

109 - 15:27
Early Mortality Triples in Atypical Hip Fractures
Lauren Nowak, Canada; Melanie MacNevin, Canada; David William Sanders, Canada; Abdel-Rahman Lawendy, Canada; Michael D. McKe, US; Emil H. Schemitsch, Canada; Rob Walker, US; Ryan DiGiovanni, US

15:33 Discussion

110 - 15:45
Intramedullary Nail in a Novel Model of Atrophic Non-Union
Murtadhah M. K. Jalal, UK; Robert Wallace, UK; Hamish Simpson, UK

111 - 15:51
The Effects of Different Insertion Variables on Achieved Screw Tightness
Boyko Gueorguiev, Switzerland; James Fletcher, UK; Verena Neumann, Switzerland; Lisa Wenzel, Germany; Geoff Richards, Switzerland; Harinderjit Gill, UK; Michael Whitehouse, UK; Ezio Preatoni, UK

15:57 Discussion
112 - 16:05
SystemFix – Using Computer Simulations to Optimise Proximal Humeral Fracture Fixation
Boyko Gueorguiev, Switzerland; James Fletcher, UK; Markus Windolf, Switzerland; Geoff Richards, Switzerland; Peter Varga, Switzerland

113 - 16:11
The Masquelet Technique in an Animal Model of Segmental Bone Defect - Impact of Antibiotic-Impregnated Spacers on the Induced Membrane
Charles Godbout, Canada; Aaron Nauth, Canada; Emil H. Schemitsch, Canada; Benjamin Fung, Canada; Heta Lad, Canada; Evan Watts, Canada; Sarah Desjardins, Canada; Kimberley Lam Tin Cheung, Canada

16:17 Discussion

16:25 Keynote Speaker: Clare Rimnac, US

16:35 Discussion

15:15-16:45 ICORS Paper Session: Shoulder and Elbow
• Room 520BE
Moderators: Jung-Ho Park, Korea; Atsushi Yokota, Japan

114 - 15:15
Global and Functional Arc of Motion: Quantifying Shoulder ROM and Function using an Intuitive Globe Model
Brandon Yew, Singapore; Jowell Cheng, Singapore; Alex Choh, Singapore; Andy Yew, Singapore; Denny Tijauw Tjoen Lie, Singapore; Siaw Meng Chou, Singapore

115 - 15:21
Early Experience With Force-Space Navigation for Shoulder Arthroplasty
Bogdan Matache, Canada; Corey Smith, Canada; George Athwal, Canada; Louis Ferreira, Canada

116 - 15:27
The Rationale for Lower Stiffness Hemiarthroplasty Implants
Carolyn Berkmortel, Canada; James A. Johnson, Canada; G. Daniel G.
Langohr, Canada; Graham J.W. King, Canada; Sarah DeDecker, Canada

15:33 Discussion

117 - 15:45
Comparing Surgical Techniques for Irreparable Rotator Cuff Tear Management: A Cadaveric Biomechanical Study
Kathak Vachhani, Canada; Cari Whyne, Canada; Diane Nam, Canada; Jenna Wong, Canada; Justin Chou, Canada; Ryan Paul, Canada

118 - 15:51
Development of a Statistical Shape and Density Model of the Shoulder
Pendar Soltanmohammadi, Canada; Ryan Willing, Canada

15:57 Discussion

119 - 16:09
The Influence of Rotator Cuff Tears on Shoulder Joint-Contact Loading After Reverse Total Shoulder Arthroplasty
David Ackland, Australia; Kwong Ming Tse, Australia; Dale Robinson, Australia; Wen Wu, Australia; Peter Vee Sin Lee, Australia; Martin Richardson, Australia; Adam Wilkosz, Australia

120 - 16:15
Are Underweight, Overweight and Obese Patients at Higher Risk for Complication Following Elective Arthroscopic Procedures?
Richard Nicolay, US; Ryan Selley, US; Michael Terry, US; Vehniah Tjong, US

121 - 16:21
Quantifying the Distribution of Scapular Bone Density to Guide Optimal Screw Placement in Reverse Shoulder Arthroplasty
Josh Ehrlich, Canada; Tim Bryant, Canada; Michael Rainbow, Canada; Ryan Bicknell, Canada

16:27 Discussion