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### 2023 Guest Nation – Ireland

The following papers from Ireland will be presented in Podium sessions throughout the meeting.

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**Saturday, February 11, 2023**

8:00 AM - 9:00 AM

Room - Chantilly East

**Session 1      Biomaterials - Bone and Soft Tissue Regeneration**

Moderators: Glen Niebur and Feini Qu

8:00 AM

Paper No. 1

**In-vivo Biodistribution Of Nano And Micro Sized Hydroxyapatite Particles Implanted Locally In Bone**

Yang Liu; Sujeesh Sebastian; Jintian Huang; Tova Corbascio; Jacob Engellau; Lars Lidgren; Magnus Tägil; Deepak Bushan Raina

8:10 AM

Paper No. 2

**Calcium Sulfate/hydroxyapatite Mediated Controlled Co-delivery Of Bmp-2 And Zoledronic Acid Enhances Spinal Fusion In A Rat Posterolateral Spinal Fusion Model**

Xingui Tian; Corina Vater; Deepak Raina; Lisa Findeisen; Lucas-Maximilian Matuszewski; Magnus Tagil; Lars Lidgren; Klaus-Dieter Schaser; Alexander C. Disch; Stefan Zwingenberger

8:20 AM

Paper No. 3

**In Vivo Engineered Extracellular Matrix As Scaffolding Materials For Tissue-engineered Periosteum**

Xinping Zhang; Chen Jiang; Tianfeng Miao

8:30 AM

Paper No. 4

**A 3d, Compartmental Tumoroid Model Of Patient-derived Bone Metastasis In A Biomimetic Manner**

Mansoureh Mohseni Garakani; Michael R. Wertheimer; Michael H. Weber; Abdellah Ajji; Derek H. Rosenzweig

8:40 AM

Paper No. 5

**Hybrid Microgels Enable "On-demand" Delivery Of Tenogenic Soluble Cues**

Robert N. Kent; Brendon M. Baker

8:50 AM

Paper No. 6

**Tissue Engineered Muscle Therapy Enhances Both Muscle Function And Adjacent Bone Healing In Composite Lower Extremity Injury**

Karina H. Nakayama; Cynthia Alcazar; Krista Habing; Zachary Working; Nick Willett; Anthony Tahayeri; Luiz Bertassoni

**Saturday, February 11, 2023**

8:00 AM - 9:00 AM

Room - Chantilly West

**Session 2      Bone – Mechanobiology**

Moderators: Hannah Dailey and Joseph Wallace

8:00 AM

Paper No. 7

**Gcn2/eif2 $\alpha$  Signaling In Osteoblasts Governs Rankl Production To Regulate Bone Resorption**

Guoli Hu; Yilin Yu; Courtney Karner

8:10 AM

Paper No. 8

**Hindlimb Unloading And Reambulation Differentially Affect Murine Fracture Healing Via Regulation Of Callus Vascularity And Osteoclastogenesis**

Evan G. Buettmann; Rachel C. DeNapoli; Lovell B. Abraham; Joseph A. Denisco; Madelyn R. Lorenz; Michael A. Friedman; Henry J. Donahue

8:20 AM

Paper No. 9

**Effect Of Nid1 Overexpression In Osteoprogenitors On Transcriptional Changes In Periosteum During Fracture Healing**

Sanja Novak; Vijender Singh; Ivo Kalajzic

8:30 AM

Paper No. 10

**Poloxamer-188 Treatment Rescues Osteocytes With An Impaired Ability To Repair Plasma Membrane Disruptions Caused By Mechanical Loading**

Anik Tuladhar; Joseph C. Shaver; Wesley A. McGee; Kanglun Yu; Husam Eldin Bensreti; Wendy B. Bollag; Mark Hamrick; Meghan McGee-Lawrence

8:40 AM

Paper No. 11

**Peripheral Canalicular Branching Is Decreased In Streptozotocin-induced Diabetes And Correlates With Perilacunar Matrix Properties**

Morgan Bolger; Tara Tekkey; David Kohn

8:50 AM

Paper No. 12

**Loss Of The Osteocyte Perlecan/ $\alpha_2\delta_1$  Matrix-tethering Complex Contributes To Age-associated Impaired Bone Mechanosensation**

Perla C. Reyes Fernandez; Jennifer Coulombe; Daniel Horan; Virginia L. Ferguson; Katie Rust; Shannon Modla; Alexander G. Robling; Liyun Wang; Mary C. Farach-Carson; William R. Thompson

**Saturday, February 11, 2023**

8:00 AM - 9:00 AM

Room - Wedgewood

**Session 3      Knee Arthroplasty**

Moderators: Alexander Christ and Brecca Gaffney

8:00 AM

Paper No. 13

**Six DOF Knee Gait Kinematics Of Kinematic Aligned TKA**

Ann-Kathrin Einfeldt; Lars Tücking; Peter Savov; Max Ettinger; Henning Windhagen; Eike Jakobowitz

8:10 AM

Paper No. 14

**True Confessions Of Neutral Mechanical Disciple - How I Learned To Love Patient Specific Target**

Kevin Marchand; Nathalie Willems; Christina Esposito; Daniele De Massari; Melanie Caba; Gavin Clark; Robert Marchand; Michael Dunbar

8:20 AM

Paper No. 15

**How Accurate Are Surgeons In Estimating The Medial And Lateral Gaps In Total Knee Arthroplasty?**

Shady Elmasry; Cynthia Kahlenberg; Timothy Wright; Andrew Pearle; Michael Cross; Geoffrey Westrich; David Mayman; Peter Sculco; Carl Imhauser

8:30 AM

Paper No. 16

**Unicompartmental Knee Arthroplasty Matches Contralateral Knee Kinematics More Closely Than Total Knee Arthroplasty**

Elizabeth H. Copp; Tom Gale; Venkata Kalyan C. Byrapogu; Kenneth Urish; William Anderst

8:40 AM

Paper No. 17

**Lower Limb Alignment Affected In-vivo Lateral Compartment Contact Excursion During Lunge Following Medial Unicompartmental Knee Arthroplasty**

Nan Zheng; Huiyong Dai; Diyang Zou; Dimitris Dimitriou; Qi Wang; Tsung-Yuan Tsai

8:50 AM

Paper No. 18

**The Influence Of Medial Insert Constraint On TKA Kinematics During Activities Of Daily Living**

Yashar A. Behnam; Steven L. Barnett; Joseph S. Gondusky; Ahilan Anantha Krishnan; Amitkumar M. Mane; Chadd W. Clary

**Saturday, February 11, 2023**

8:00 AM - 9:00 AM

Room - Coronado B-D

**Session 4 Cartilage and Synovium - Omics Based Insights to Synovial Joint Biology**

Moderators: Dominik Haudenschild and Chia-Lung Wu

8:00 AM

Paper No. 19

**Spatial Transcriptomics Reveals Altered Gene Regulatory Networks On A Genetic Mouse Model Of Osteoarthritis**

Zhaoyang Liu; Ryan Gray

8:10 AM

Paper No. 20

**Single Cell Rna Sequencing Reveals Age-dependent Decline Of Fibroblast Population In Murine Knee Synovium**

Xi Lin; Hengwei Zhang; Andrew McDavid; Brendan Boyce; Lianping Xing

8:20 AM

Paper No. 21

**Piezo1-driven Synovial Myofibroblast Induction In PTOA**

Easton C. Farrell; Eleanor Knight; Olivia Ellis; Lucas Junginger; Alexander Knights; Tristan Maerz

8:30 AM

Paper No. 22

**Hyper-physiologic Mechanical Loading Conditions Cause A Shift In The Epigenetic Landscape In Neo-cartilage Organoids**

Niek Bloks; Zainab Harissa; Amanda Dicks; Rodrigo Coutinho de Almeida; Ghazaleh Hajmoussa; Shaunak Adkar; Yolande F. M. Ramos; Farshid Guilak; Ingrid Meulenbelt

8:40 AM

Paper No. 23

**In Vitro Multi-Modal Loading Response Of Primary Articular Chondrocytes**

Erik Myers; Priyanka Brahmachary; Ron June

8:50 AM

Paper No. 24

**Single-cell RNA Sequencing Of Repair Tissue Formed After Growth Plate Injury Reveals A Potential Role For Macrophages And Mesenchymal Progenitor Cells In Bony Bar Formation**

Aditya Mantha; Stacey Thomas; Ethan Beltrand; Karin A. Payne

**Saturday, February 11, 2023**

8:00 AM - 9:00 AM

Room - Cortez

**Session 5 Clinical Research - Methods I**

Moderators: Emily Leary and Robin Queen

8:00 AM

Paper No. 25

**Cannabis Use Documentation In Electronic Health Records Of Children And Young Adults With Musculoskeletal Injuries a Survey Of 21 Years Of Electronic Health Records**

Nazgol Tavabi; Marium Raza; Mallika Singh; Shahriar Golchin; Harsev Singh; Grant D. Hogue; Ata M. Kiapour

8:10 AM

Paper No. 26

**How Do Symptomatic, Mental, And Physical Outcomes Affect Overall Response Trajectory Following Total Knee Arthroplasty? Characterizing Multi-domain Recovery Phenotypes Within A Large Clinical Cohort**

Ryan T. Halvorson; Thomas P. Vail; Abel Torres Espin; Jeannie F. Bailey

8:20 AM

Paper No. 27

**Feasibility Study On Motion Capture Analysis For Robotic-Assisted And Manual Simulated Total Knee Arthroplasty**

Elisabetta Ferrari; Lucie Gale; Ian Leslie; Mariam Khan; Mick Rock

8:30 AM

Paper No. 28

**Evaluation Of A Pressure Sensitive Walkway Measuring Spatiotemporal Gait Parameters**

Sam Hockett; Spencer Stinson; Caleb Williams; Brian Garner; Jonathan Rylander

8:40 AM

Paper No. 29

**Height Accuracy And The Implications Of Self-reporting Height In Arthroplasty**

Michael C. Marinier; Ayobami S. Ogunsola; Jacob M. Elkins

8:50 AM

Paper No. 30

**Diversity In Orthopedic Surgery Medical Device Clinical Trials: An Analysis Of The Food And Drug Administration Safety And Innovation Act**

Tariq Z. Issa; Mark J. Lambrechts; Yunsoo Lee; Jeremy C. Heard; Khoa S. Tran; Jasmine S. Lin; Skylar Nahi; Kevin Endersby; Jose A. Canseco; Alan S. Hilibrand; Christopher K. Kepler; Gregory D. Schroeder; Alexander R. Vaccaro

**Saturday, February 11, 2023**

8:00 AM - 9:00 AM

Room - Monet

**Session 6      Knee - Growth, Development and ACL Injury**

Moderators: Amy Lerner and Shen-Yi (Richard) Ma

8:00 AM

Paper No. 31

**Femoral Notch Orientation, Femoral Notch Shape Index, And Posterior Tibial Slope Adapt In A Coordinated Fashion In Two Mouse Strains With Different Knee Anatomy Exercised During Adolescence**

Youngjun Woo; Ben Loflin; Taeyong Ahn; Stephen Schlecht

8:10 AM

Paper No. 32

**The Early Subchondral Bone Response To ACL Injury Depends On Age In C57B1/6 Mice**

Lexia A. Dauenhauer; Brady Hislop; Ron June; Chelsea Heveran

8:20 AM

Paper No. 33

**Ccr7 Depletion Alleviates Bony Growth Imbalance Following Physeal Injury In Mice.**

Wooyoung Kim; Masatake Matsuoka; Tomohiro Onodera; Yoshiaki Hosokawa; Norimasa Iwasaki

8:30 AM

Paper No. 34

**Differences In The Development Of Anatomical Risk Factors For ACL Injury Between ACL-injured Patients And Matched Controls**

Shankar G. Kaushal; Pratik Pradhan; Mininder S. Kocher; Ata M. Kiapour

8:40 AM

Paper No. 35

**Spatiotemporal Analysis Reveals Functional Role Of PRDM16 In Chondrogenesis And Limb Development**

Eloise Fadiat; Victoria Hansen; Gulzada Kulzhanova; Gourango Pradhan; Helen Shammas; Jack Reuter; Eliya Tashbib; Jennifer Jonason; Chia-Lung Wu

8:50 AM

Paper No. 36

**Tibiofemoral Geometry Is Related To ACL Force Under Valgus Loading In Young Female Athletes With And Without Injury**

Mitchell GA Wheatley; Andrew D. Pearle; Danyal H. Nawabi; Thomas L. Wickiewicz; Bruce D. Beynon; Carl W. Imhauser

**Saturday, February 11, 2023**

11:15 AM - 12:15 PM

Room - Chantilly East

**Session 7      Spotlight - Musculoskeletal Infection (featuring Edward Schwarz)**

Moderators: Lauren Priddy and Dustin Williams

11:15 AM

Paper No. 37

**Infection Control And Mitochondrial Response To In Vivo Prosthetic Joint Infection Model**

Nour Bouji; Ethan Meadows; John Hollander; Elizabeth Stewart; Jake Herriott; Matthew Dietz

11:25 AM

Paper No. 38

**Reduced Expression Of Immune Response Genes To Staphylococcus Aureus Biofilm In Periprosthetic Tissue Despite Unresolved Infection**

Amanda R. Watkins; Carly Smith; Brianna Nissley; Lauren Israel; Leslie Brewer; Thomas Schaer; Theresa A. Freeman

11:35 AM

Paper No. 39

**Debridement, Antibiotics, Irrigation, And Implant Retention In A Sheep Fracture-related Infection Model**

Claudia Siverino; Lena Gens; Manuela Ernst; Tim Buchholz; Markus Windolf; Stephan Zeiter; Geoff Richards; Fintan Moriarty

11:45 AM

**What is an International Consensus Meeting and how does it establish the most important research questions in a field? Lesions from the ORS ICM on Musculoskeletal Infection**

Edward Schwarz

**Saturday, February 11, 2023**

11:15 AM - 12:15 PM

Room - Chantilly West

**Session 8      Bone – Biology**

Moderators: Melanie Haffner-Luntzer and David Komatsu

11:15 AM

Paper No. 40

**Succinate Targets Plxnb2 To Negatively Regulate Wnt Signaling In Osteogenesis And Bone Development**

Sadaf Hasan; Chuanju Liu

11:25 AM

Paper No. 41

**Hypoxia Inducible Factor-2 $\alpha$  Predominantly Contributes To Cortical Bone Phenotype Of Vhl Cko Mice**

Sarah V. Mendoza; Deepa Murugesu; Gabriela Loots; Damian C. Genetos; Clare E. Yellowley

11:35 AM

Paper No. 42

**Aging Decreases Osteocyte Participation In Perilacunar Mineralization And Alters Osteocyte Bone Turnover Dynamics In Cortical And Cancellous Bone**

Ghazal Vahidi; Chelsea Heveran

11:45 AM

Paper No. 43

**A Quantitative 3D Atlas Of Nerves And Blood Vessels In The Murine Calvaria: Investigating Changes In The Neurovascular Distribution With Age And Injury**

Allison L. Horenberg; Alexandra N. Rindone; Warren N. Grayson

11:55 AM

Paper No. 44

**CXCR2+TGFB1+ Callus Senescent Cells Represent A Specific Detrimental Subset That Inhibits Fracture Healing And Growth Of Mesenchymal Progenitors**

Jiatong Liu; Xi Lin; Andrew McDavid; Brendan Boyce; Hengwei Zhang; Lianping Xing

12:05 PM

Paper No. 45

**Conditional Loss Of Hox Genes Disrupts Bone Morphogenesis During Digit Tip Regeneration**

Feini Qu; Omolabake Oyebamiji; Kristin Lenz; Sarah Dunivan; Farshid Guilak

**Saturday, February 11, 2023**

11:15 AM - 12:15 PM

Room - Wedgewood

**Session 9 Intervertebral Disc – Biology**

Moderators: Nam Vo and Changli Zhang

11:15 AM

Paper No. 46

**Restoration Of Physiologic Loading Improves Outcomes In Engineered Disc Implanted-spinal Motion Segments**

Sarah Gullbrand; Brianna Orozco; Matthew Fainor; Rachel Hilliard; Thomas Schaer; Dawn Elliott; Robert Mauck; Harvey Smith

11:25 AM

Paper No. 47

**Single-cell Rna-seq Of Human Cartilage Endplate Cells Identifies Clusters That Drive Healthy And Diseased Phenotypes**

Kyle S. Kuchynsky; Nina (Shirley) Tang; Patrick Stevens; Maciej Pietrzak; Benjamin Walter; Safdar Khan; Devina Purmessur

11:35 AM

Paper No. 48

**Effects Of Organ Culture And Mesenchymal Stem Cell Delivery On Nucleus Pulposus Cell Extracellular Matrix Gene Expression And Cell Cycle Progression**

Chenghao Zhang; Thomas Schaer; George Dodge; Neil Malhotra; Robert Mauck; Lachlan Smith

11:45 AM

Paper No. 49

**Intervertebral Disc Activation Of NF- $\kappa$ B Leads To Systemic Inflammation And Disc Macrophage Infiltration**

Mark (Min Kyu) Kim; Kevin Burt; Nadeen Chahine

11:55 AM

Paper No. 50

**Discoidin Domain Receptor 1 Is Required For Postnatal Intervertebral Disk Growth And Development Via Foxa-shh-gli1/2-pax 1-sox 9**

Shu-chun Chuang; Yi-Shung Lin; Mei-Hsin Cheng; Cyong-yue Liu; Liang-Yin Chou; Kai-Li Su; Chau-Zen Wang; Chung-Hwan Chen

12:05 PM

Paper No. 51

**Environmentally Stressed Nucleus Pulposus Cells Trigger The Onset Of Discogenic Low Back Pain**

Wensen Jiang; Juliane Glaeser; Giselle Kaneda; Julia Sheyn; Jacob T. Wechsler; Stephen Stephan; Khosrowdad Salehi; Julie L. Chan; Wafa Tawackoli; Pablo Avalos; Christopher Johnson; Chloe Castaneda;

Linda Kanim; Alexander Noll; Joshua Burda; Oksana Shelest; Tiffany Perry; Michael Kropf; Hyun Bae;  
Laura Stone; Dmitriy Sheyn

**Saturday, February 11, 2023**

11:15 AM - 12:15 PM

Room - Coronado B-D

**Session 10 Hip Arthroplasty**

Moderators: Cheryl Liu and William Mihalko

11:15 AM

Paper No. 52

**Flexural Rigidity Of THAs Is Associated With MRI And Histological Findings**

Sara E. Sacher; Elexis Baral; John P. Neri; Timothy Wright; Thomas W. Bauer; Michael Parides; Douglas Padgett; Hollis Potter; Matthew Koff

11:25 AM

Paper No. 53

**The Tribological Performance Of Dual Mobility Systems Under Standard Gait And Edge Loading Conditions**

Mazen Al Hajjar; Chris Gardner; Ryan Keefer

11:35 AM

Paper No. 54

**Assessing The Effects Of Metal Ion Exposure From Total Hip Arthroplasty On The Brain Versus Matched Control Subjects Using Quantitative MRI**

Shahnaz Taleb; Gabriel Varela Mattatall; Abbigail Allen; Roy Haast; Ali Khan; Vishal Kalia; Steven MacDonald; Ravi Menon; James Howard; Brent Lanting; Matthew Teeter

11:45 AM

Paper No. 55

**Cup Alignment For Avoidance Of Edge Loading And Implant Impingement In THA**

Casey A. Myers; Clare K. Fitzpatrick; Chadd W. Clary; Paul J. Rullkoetter

11:55 AM

Paper No. 56

**The Effects Of Assembly Force Magnitude On Total Hip Replacement Modular Junction Contact Mechanics**

Jonathan L. Rathjen; Steven P. Mell; Robin Pourzal; Brett R. Levine; Jonathan A. Gustafson; Hannah J. Lundberg

12:05 PM

Paper No. 57

**Bony Impingement After Tha Is More Common And Likely A Greater Dislocation Risk Than Prosthetic Impingement**

Matt Thompson; Patrick O'Conner; Priya Patel; Christina Esposito; Thomas Donnelly; Laura Scholl; William Donnelly

**Saturday, February 11, 2023**

11:15 AM - 12:15 PM

Room - Cortez

**Session 11 Modulators of Inflammation in Knee PTOA**

Moderators: Blaine Christiansen and Ryan Willing

11:15 AM

Paper No. 58

**Immunophenotyping Of Synovial Tissue In Adolescents Undergoing ACL Reconstruction Reveals Distinct Inflammatory Responses To Injury**

Sarah Romereim; Elaina Kiral; Marina Barankevich; Kate Hickson; Kara Haim; Alicia Williams; Meera Sumith; David Foureau; Bailey Fearing; Jonathan Riboh

11:25 AM

Paper No. 59

**Aberrant Expression Of Acute Injury-response Genes In Super Healer Mice Following Acl Injury**

Jasper Yik; Linan Li; Dominik Haudenschild

11:35 AM

Paper No. 60

**Transection Of The Anterior Cruciate Ligament Leads To A Physiological Production Of Specialized Pro-resolving Mediators That Does Not Prevent Posttraumatic Osteoarthritis**

Chilan Bou Ghosson Leite; Luciana Padua Tavares; Julie Mekhail; Gergo Merkely; Janey Whalen; Julia Charles; Christian Lattermann

11:45 AM

Paper No. 61

**Metabolic Responses Of Infrapatellar Fat Pad And Synovium To Infrapatellar Fat Pad Stimulation In Vitro**

Ali Bhatti; Aaron Stoker; Kathleen Harris; Chantelle Bozynski; James Keeney; James L. Cook

11:55 AM

Paper No. 62

**Metabolic Phenotypes Reflect Patient Sex, Age, Bmi And Injury Status: A Cross-sectional Analysis**

Hope D. Welhaven; Avery H. Welfley; Prayag Pershad3; James Satalich; Robert O'Connell; Alexander Vap; Ron K. June

12:05 PM

Paper No. 63

**Patient Reported Outcomes After Triamcinolone Acetate Injection For Knee Osteoarthritis**

Jesse M. Galina; Sibtain Mustafa; Sophia Bisson; Nomi Weiss-Laxer; Cher Chang; M. Nadir Haider; Leslie J. Bisson

**Saturday, February 11, 2023**

11:15 AM - 12:15 PM

Room - Monet

**Session 12 Meniscus - Development and Repair throughout Lifespan**

Moderators: Amy McNulty and Jay Trivedi

11:15 AM

Paper No. 64

**The Mechanism Of Platelet-rich Fibrin Induced Accelerated Healing Of Meniscus Injury**

Yoshiyuki Senga; Akinobu Nishimura; Yuki Fujikawa; Akihiro Sudo

11:25 AM

Paper No. 65

**Hydrophilic Polydopamine (hPDA) Incorporated Fibrin Bio-Adhesive For Improved Healing Of Meniscus Tears**

Solaiman Tarafder; Maya A. Jeremias; Aminah T. Sarowar; Chang Lee

11:35 AM

Paper No. 66

**Aged Human Meniscal Cells Maintain An Ability To Produce Hierarchical Collagen Fibers Similar To Neonatal Cells**

Austin Gouldin; Jenny Puetzer

11:45 AM

Paper No. 67

**Extracellular Matrix-based Hydrogel Systems For Meniscus Repair: Donor Age-dependent Proteomic And Biological Characteristics**

Se-Hwan Lee; Zizhao Li; Yujia Zhang; Dong Hwa Kim; Rachel Achong; Jason Burdick; Robert Mauck; Su-Jin Heo

11:55 AM

Paper No. 68

**Type V Collagen Plays An Essential Role In The Development Of Knee Articular Cartilage And Meniscus**

Bryan Kwok; Mingyue Fan; David Birk; Robert Mauck; Nathaniel Dymant; Eiki Koyama; Lin Han

12:05 PM

Paper No. 69

**Superficial Meniscus Cells Are Highly Proliferative And Migratory And Generate Functional Tissue**

Sreen S.F. Assi; Elizabeth Bernstein; Edward D. Bonnevie; Emily E. Sharp; Robert L. Mauck

**Saturday, February 11, 2023**

3:30 PM - 4:30 PM

Room - Chantilly East

**Session 13      Spotlight - Corrosion, Toxicity and Inflammation in Arthroplasty (featuring William Mihalko)**

Moderators: John Elias and Sally LiArno

3:30 PM

Paper No. 70

**Toxicity Risk From CoCrMo Particles: The Impact Of Dynamic Flow Rate On Neuronal Cells In Microfluidic Systems**

Matthew J. Jeffers; Hemalatha Kanniyappan; Kai-yuan Cheng; Mark Barba; Mathew Mathew

3:40 PM

Paper No. 71

**The Role Of Preoperative Synovitis On Satisfaction After Total Knee Arthroplasty**

Jennifer Polus; Holly Philpott; Brent Lanting; Thomas Appleton; Matthew Teeter

3:50 PM

Paper No. 72

**Is The Wear Of Polyethylene Liner Still A Problem: A Study Of Macrophage Chemistry Using HD-FTIR Imaging**

Songyun Liu; Stephanie M. McCarthy; Deborah J. Hall; Joshua J. Jacobs; Robin Pourzal

4:00 PM

**The Possible Role of Cobalt Chromium and Biologic Corrosion in TKA Outcomes**

William M. Mihalko

**Saturday, February 11, 2023**

3:30 PM - 4:30 PM

Room - Chantilly West

**Session 14 Spine - Pathophysiology and Mechanisms**

Moderators: Rahul Gawri and Bahar Shahidi

3:30 PM

Paper No. 73

**Neutrophil-mediated Immunity Vs. T- And B-cell Activation: Novel Insights Into Etiology-specific Pathomechanisms Of Modic Type 1 Changes**

Irina Heggli; Tamara Mengis; Nick Herger; Christoph Laux; Florian Wanivenhaus; José Miguel Spirig; Michael Betz; Nadja Farshad-Amacker; Mazda Farshad; Oliver Distler; Stefan Dudli

3:40 PM

Paper No. 74

**Hypersensitization Of Spinal Cord Following Vertebral Endplate Micro Fracture Injury Using An In Vivo Model**

Denise C. Iliff; Alon Lai; Dalin Wang; Damien Laudier; Venetia Zachariou; James Iatridis

3:50 PM

Paper No. 75

**Slow Twitch Paraspinal Muscle Dysregulation In Adolescent Idiopathic Scoliosis Exhibiting Hif-2 $\alpha$  Misexpression**

Wai Kit Tam; Jason P. Y. Cheung; Paul A. Koljonen; Kenny Y. H. Kwan; Kenneth Cheung; Victor Leung

4:00 PM

Paper No. 76

**Intervertebral Disc And Facet Crosstalk In A Rabbit Puncture Model Of Disc Degeneration**

Brianna S. Orozco; Matthew Fainor; Victoria Muir; Sonal Mahindroo; Sachin Gupta; Jason Burdick; Robert L. Mauck; Harvey E. Smith; Sarah E. Gullbrand

4:10 PM

Paper No. 77

**Sexual Differentiation In Sacroiliac Joint Rotational Motion Zones, Asymmetry, And Stability During In-situ Multidirectional Bending: Implications For Arthrodesis Techniques**

Oluwatodimu Richard Raji; Jeremi M. Leasure

4:20 PM

Paper No. 78

**Facet Joint Degeneration Is Associated With Axial Rotation In Adolescent Idiopathic Scoliosis**

Daniel G. Bisson; Kai Sheng; Neil Saran; Jean A. Ouellet; Lisbet Haglund

**Saturday, February 11, 2023**

3:30 PM - 4:30 PM

Room - Wedgewood

**Session 15 NIRA - Mechanisms, Treatment and Therapies**

Moderator: Deva Chan and Megan Killian

3:30 PM

Paper No. 79

**An Indoleamine 2,3-dioxygenase Galectin-3 Fusion Protein As A Treatment For Osteoarthritis**

Folly M. Patterson; Brittany Partain; Ron K. June; Benjamin G. Keselowsky; Hudalla A. Gregory; Kyle D. Allen

3:38 PM

Paper No. 80

**Single-cell Understanding Of Nucleus Pulposus Degeneration To Instruct New Treatment Strategies For Intervertebral Disc Disease**

Deepani W. Poramba-Liyanage; Peter Zeller; Xiaole Tong; Frank M. Riemers; Frances C. Bach; Bjorn P. Meij; Anne Camus; Danny Chan; Alexander van Oudenaarden; Marianna A. Tryfonidou

3:46 PM

Paper No. 81

**Identification Of Multiple Stem Cell Populations In The Healthy Human Intervertebral Disc**

Jasmin Mertens; Hannah Swahn; Oscar Alvarez-Garcia; Tony S. Mondala; Padmaja Natarajan; Steven R. Head; Martin K. Lotz

3:54 PM

Paper No. 82

**Multi-modal Transcriptomic Analyses Of The Mouse Intervertebral Disc Following Injury Reveals A Temporally Distinct Cascade Of Infiltrating Immune Cells**

Sade W. Clayton; Aimy Sebastian; Nicholas R. Hum; Stephen Patrick Wilson; Remy E. Walk; Garrett W.D. Easson; Rachana Vaidya; Kaitlyn S. Broz; Laura Mpofo; Gabriela G. Loots; Simon Y. Tang

4:02 PM

Paper No. 83

**Disease-related Changes In The Cellular Landscape Of Human Intervertebral Disc**

Hannah Swahn; Jasmin Mertens; Oscar Alvarez-Garcia; Tony S. Mondala; Padmaja Natarajan; Steven R. Head; Martin K. Lotz

4:10 PM

Paper No. 84

**Recombinant Protein Therapeutic Derived From Proteomic Analyses Of The MRL/MpJ Tendon Extracellular Matrix And Secretome Promotes Regenerative Behavior Across Tendon Cell Species**

Jason C. Marvin; Ethan J. Liu; Nelly Andarawis-Puri

4:18 PM

Paper No. 85

**Marrow Adipogenic Lineage Precursors (malps) Facilitate Bone Marrow Recovery After Chemotherapy**

Jiakang Fang; Leilei Zhong; Lutian Yao; Ling Qin

**Saturday, February 11, 2023**

3:30 PM - 4:30 PM

Room - Coronado B-D

**Session 16 Preoperative and Operative Considerations in Shoulder Injuries**

Moderators: Richard Debski and Hugo Giambini

3:30 PM

Paper No. 86

**Rotator Cuff Training With Upper Extremity Blood Flow Restriction Produces Favorable Adaptations In Division Ia Collegiate Pitchers**

Bradley Lambert; Jordan Ankersen; Corbin Hedt; Haley Goble; Carter Taft; Josh Daum; Rick Karasch; Michael Moreno; Patrick McCulloch

3:40 PM

Paper No. 87

**Mechanical Characterization Of A Low-cost, All-suture “Soft” Anchor Made From Common Surgical Supplies**

Maren Baur; Natalia McIver; Dominique B. Spence; Naga Suresh P. Cheppalli; Christina Salas

3:50 PM

Paper No. 88

**Can Passive Shoulder Range Of Motion Predict The Dynamic Glenoid Track Width?**

Yufan Wang; Chenliang Wu; Cong Wang; Wanxin Yu; Tsung-Yuan Tsai

4:00 PM

Paper No. 89

**Graft Elongation Occurs Beyond Intraoperative Dimensions After Superior Capsular Reconstruction: An In Vivo Analysis**

Clarissa LeVasseur; Gillian Kane; Jonathan Hughes; William Anderst; Albert Lin

4:10 PM

Paper No. 90

**Biomechanical Evaluation Of Posterior Shoulder Instability With A Clinically Relevant Posterior Bone Loss Model**

Alex W. Brady; Robert A. Waltz; Justin R. Brown; Christopher Bartolomei; Grant J. Dornan; Jon Miles; Peter J. Millett; Peter J. Millett; Matthew T. Provencher; Matthew T. Provencher

4:20 PM

Paper No. 91

**Shoulder Prehabilitation Exercise And Education (spree) For Patients Awaiting Rotator Cuff Surgery: A Randomised Control Trial**

Peter Beshara; David Anderson; Matthew Pelletier; William Walsh

**Saturday, February 11, 2023**

3:30 PM - 4:30 PM

Room - Cortez

**Session 17 Knee - Mechanics and Computational Modeling**

Moderators: Stephanie Cone and Jason Shearn

3:30 PM

Paper No. 92

**Characteristics Of Coupled Patellofemoral And Hindfoot Kinematics In Patellofemoral Pain Syndrome**

Romano Sebastiani; Paige Paulus; Kimberly Hua; Maria Munsch; Keelan Ensekj; Sara Piva; William Anderst

3:40 PM

Paper No. 93

**Influence Of Modeling Workflow And Calibration Strategy On The Reproducibility Of Knee Kinematic Predictions**

Thor E. Andreassen; Peter J. Laz; Ahmet Erdemir; Thor F. Besier; Carl W. Imhauser; Jason P. Halloran; Donald R. Hume; Snehal K. Chokhandre; Ariel Schwartz; Neda Abdollahi Nohouji; Nynke B. Rooks; Marco T. Schneider; Shady Elmasry; William Zaylor; Kevin B. Shelburne

3:50 PM

Paper No. 94

**Finite Element Models Of The Knee With Machine Learning-based Load Sharing Suggest A Higher Osteoarthritis Risk For The Medial Compartment Than The Lateral: Data From The Osteoarthritis Initiative**

Alexander Paz; Jere Lavikainen; José J. García; Rami K. Korhonen; Mika E. Mononen

4:00 PM

Paper No. 95

**Changes In The Contact Stress Distribution Pattern Of The Tibiofemoral And Patellofemoral Joint After Medial Closing Wedge Distal Femoral Varus Osteotomy - An Evaluation Using Computed Tomography Osteoabsorptiometry-**

Masanari Hamasaki; Eiji Kondo; Koji Yabuuchi; Koji Iwasaki; Yuki Suzuki; Masatake Matsuoka; Tomohiro Onodera; Kazunori Yasuda; Norimasa Iwasaki

4:10 PM

Paper No. 96

**Autologous Tendon Meniscus Graft Improves Rotational Stability And Tibiofemoral Contact Pressure After Meniscectomy**

Jonas Schwer; Janina Leiprecht; Anita Ignatius; Heiko Reichel; Thomas Kappe; Andreas Seitz

4:20 PM

Paper No. 97

**Relationship Between Generalized Joint Hypermobility And Uniplanar And Multiplanar Knee Laxities**

Akinola E. Oladimeji; Erin E. Berube; David Shamritsky; Michael Parides; Deborah Jones; Danyal Nawabi; Andrew Pearle; Thomas Wickiewicz; Carl Imhauser

**Saturday, February 11, 2023**

3:30 PM - 4:30 PM

Room - Monet

**Session 18      Biomaterials - Cartilage Repair and Regeneration**

Moderators: Jarred Kaiser and Matthew Stewart

3:30 PM

Paper No. 98

**Cationic Peptide Modified Exosomes For Cartilage Targeting For Applications In Drug Delivery**

Chenzhen Zhang; Tanvi V. Pathrikar; Hengli Zhang; Ambika G. Bajpayee

3:40 PM

Paper No. 99

**Dose-dependent Chemical Reaction Kinetics For Modeling Tgf- $\beta$  Delivery In Cartilage Tissue Engineering**

Sedat Dogru; Gabriela M. Alba; Kirk Pierce; Tianbai Wang; Michael Albro

3:50 PM

Paper No. 100

**Novel Therapy For Cartilage Regeneration Using Nanofibers With Localized Sustained Release Of Losartan**

Kohei Yamaura; Nicholas Sather; Haruki Nishimura; Sealy Hambright; Sudheer Ravuri; Chelsea Bahney; Marc Philippon; Samuel I. Stupp; Johnny Huard

4:00 PM

Paper No. 101

**Decellularized Cartilage And Auricular Progenitor Cells For Hyaline Cartilage Repair In A Rabbit Model**

Paul Gehret; Soheila Ali Akbari Ghavimi; Alexandra Dumas; Ryan C. Borek; Ian N. Jacobs; Riccardo Gottardi

4:10 PM

Paper No. 102 (Guest Nation-Ireland) 

**Proteoglycan-4 Enhances The Bio-lubrication And Biological Activity Of Collagen Scaffolds For Cartilage Repair**

Austyn R. Matheson; Eamon J. Sheehy; Tom Hodgkinson; Mike Scott; Tannin Schmidt; Fergal J. O'Brien

4:20 PM

Paper No. 103

**Molecular Augmentation Of The Microniche Of Human Osteoarthritic Chondrocytes By Biomimetic Proteoglycans**

Elizabeth R. Kahle; Colette E. Trouillot; X. Lucas Lu; Michele S. Marcolongo; Lin Han

**Saturday, February 11, 2023**

4:45 PM - 5:45 PM

Room - Chantilly East

**Session 19 Tendon and Ligament - ACL Injury and Reconstruction**

Moderators: Jenny Puetzer and Andreas Traweger

4:45 PM

Paper No. 104

**Polygenic Risk Score Prediction Of ACL Rupture Risk In Dogs Is Influenced By Ancestry**

Mehdi Momen; Qiongshi Lu; Guilherme JM Rosa; Peter Muir

4:55 PM

Paper No. 105

**Degenerative Changes Are Associated With Joint Instability After Partial And Complete ACL Injury In A Skeletally Immature Porcine Model**

Danielle Howe; Jacob D. Thompson; Lauren V. Schnabel; Jeffrey T. Spang; Matthew B. Fisher

5:05 PM

Paper No. 106

**Tibial Plateau Slope And Depth Do Not Correlate With Elevated ACL Strain In Healthy Subjects**

Jacqueline N. Foody; Samantha Tayne; Jocelyn R. Wittstein; Zoe A. Englander; Charles E. Spritzer; Louis E. DeFrate

5:15 PM

Paper No. 107

**The Effects Of Organized Collagen Distribution On Acl Strain**

William Zaylor; Ryan Tien; Snehal K. Chokhandre; Ellen M. Klonowski; Ahmet Erdemir; Jillian E. Beveridge

5:25 PM

Paper No. 108

**Biphasic Role Of Hedgehog Signaling In Tunnel Integration Following ACL Reconstruction**

Timur B. Kamalidinov; Keitaro Fujino; Sinaia Keith Lang; Xi Jiang; Rashad Madi; Mary Kate Evans; Miltiadis H. Zgonis; Andrew F. Kuntz; Nathaniel A. Dymment

5:35 PM

Paper No. 109

**Effect Of Stretch Stress On Anterior Cruciate Ligament Cells To Improve Self-healing Ligament Strength**

Chiharu Takasu; Hidenobu Terada; Takuma Kojima; Sora Kawabata; Takuma Kano; Yuri Morishita; Kiyomi Takayanagi; Naohiko Kanemura; Kenji Murata

**Saturday, February 11, 2023**

4:45 PM - 5:45 PM

Room - Chantilly West

**Session 20      Spotlight - Mechanical and Biological Evaluation of Spine Function (featuring Grace O'Connell)**

Moderators: Ameet Aiyanger and Lisbet Haglund

4:45 PM

Paper No. 110

**Variability In Intervertebral Kinematics During Physiologic Loading In Individuals With Chronic Low Back Pain**

Clarissa LeVasseur; Tom Gale; Sabreen Megherhi; Caroline Pellegrini; Joseph Shoemaker; Marit Johnson; Gina McKernan; William Anderst

4:55 PM

Paper No. 111

**Stage-related Gene Expression Changes During Human Intervertebral Disc Degeneration**

Jasmin Mertens; Hannah Swahn; Oscar Alvarez-Garcia; Martin K. Lotz

5:05 PM

Paper No. 112

**Clinical Factors Associated With Spine Loading Estimates From Imaging-based Subject-specific Musculoskeletal Models**

Brett Allaire; Fjola Johannesdottir; Dennis Anderson; Mary Bouxsein

5:15 PM

**Multi-scale modeling of the intervertebral disc: Opportunities to create better tools for planning spine surgery**

Grace O'Connell

**Saturday, February 11, 2023**

4:45 PM - 5:45 PM

Room - Wedgewood

**Session 21      A Focus on Translational Research**

Moderators: Jeff Bischoff and Anthony Khoury

4:45 PM

Paper No. 113

**Development Of An Implantable Trapezium Replacement For Measuring In Vivo Loads At The Base Of The Thumb**

Trey Crisco; Julia A. Henke; Daniel McDermott; Rohit Badida; Amy M. Morton; Josephine M. Kalshoven; Douglas C. Moore

4:55 PM

Paper No. 114

**A Local, Sustainable Antibiotic Release Technology Eradicates Biofilms More Effectively Than Clinical Standards Of Care**

Dustin Williams; Walker Kay; Connor Hunt; Robert Falconer; Jacob Adams; Alice Miller; Korinna Hylan; Tyler Smith; Lisa Nehring; Brian Barnum; Nicholas Ashton

5:05 PM

Paper No. 115

**A Biomimetic Gene Activated, Mechanically Reinforced Collagen Hyaluronic Acid Scaffold For Large Area Hyaline Cartilage Defect Repair**

Michael Joyce; Tom Hodgkinson; James E. Dixon; Daniel J. Kelly; Fergal O'Brien

5:15 PM

Paper No. 116

**Immunosurveillance Shapes The Emergence Of Sarcomas With Distinct Neoepitope Landscapes And Reveals Specific Tumor-type Antigenic Differences**

David O. Osei-Hwedieh; Abigail L. Sedlacek; Luis M. Hernandez; Archibald A. Yamoah; Kurt R. Weiss; Robert Binder

5:25 PM

Paper No. 117

**Gait Evaluation Of A 3-layer Carbon-fiber Orthotic Device For Post-operative Ankle Fusion Patients**

Adam J. Bradshaw; Austin J. Carcia; Colin R. Smith; Thomas O. Clanton; Scott Tashman

5:35 PM

Paper No. 118

**Multi-Omics Analysis Of Estrogen Induced Skeletal Muscle Fibrosis**

Tanvi Potluri; Hong Zhao; Serdar Bulun; Richard Lieber

**Saturday, February 11, 2023**

4:45 PM - 5:45 PM

Room - Coronado B-D

**Session 22 Biomechanics and Outcomes of Shoulder Arthroplasty**

Moderators: Heath Henninger and Andreas Kontaxis

4:45 PM

Paper No. 119

**Patient Travel Distance And Resources: Understanding Access Barriers To Outpatient Shoulder Arthroplasty In Vulnerable Populations**

John N. Twomey-Kozak; Daniel Goltz; Robert Burnett; John Wickman; Jay Levin; Gregory Nicholson; Nikhil Verma; Oke Anakwenze; Tally Lassiter; Grant Garrigues; Chris Klifto

4:55 PM

Paper No. 120

**Muscle Activations During External Rotation In Teres Minor Deficient Patients Who Have Undergone A Reverse Total Shoulder Arthroplasty**

Alexis K. Nelson; Blake Hajek; Jordan Justice; Emily S. Hughes; William Polio; David Bernholt; Tyler Brolin; Frederick Azar; Thomas Throckmorton; William Mihalko

5:05 PM

Paper No. 121

**Surgical Parameters Are Associated With Kinematics, Contact Path, And Clinical Outcomes After Reverse Shoulder Arthroplasty During Hand To Head Motion**

Ajinkya Rai; Clarissa LeVasseur; Gillian Kane; Maria Munsch; Jonathan Hughes; William Anderst; Albert Lin

5:15 PM

Paper No. 122

**Ai-based Wireless Sensor System For Tracking Muscle Activity And Kinematics Of The Shoulder Joint**

Rabeeh Majidi; Vahid Entezari; Ziming Zhang; Edward A. Clancy; Ali Kiapour

5:25 PM

Paper No. 123

**Reduction In Infraspinatus Activity Despite Preservation Of External Rotation Strength After Total Shoulder Arthroplasty In Eccentric Glenohumeral Osteoarthritis**

Margaret S. Coats-Thomas; Guido Marra; Daniel Ludvig; Ankur Garg; Eric J. Perreault; Ameer L. Seitz

5:35 PM

Paper No. 124

**Longitudinal Analysis Of Shoulder Arthroplasty Clinical Outcomes And Value: A Comparative Assessment Of Changes In Improvement Over 15 Years**

Christopher Roche; Richard Jones; Yann Marczuk; Howard Routman; Pierre-Henri Flurin; Thomas Wright; Joseph Zuckerman

**Saturday, February 11, 2023**

4:45 PM - 5:45 PM

Room - Cortez

**Session 23 Cartilage and Synovium - Joint Tissue Morphogenesis**

Moderators: Hang Lin and Miguel Otero

4:45 PM

Paper No. 125

**Integration Of Single Cell RNA Sequencing And Spatial Transcriptomics Reveal Molecular Components Of Cell-cell Communication In Chondrogenesis Over Time During Embryonic Limb Development**

Victoria L. Hansen; Gulzada Kulzhanova; Eloise Fadial; Helen Shammass; Chia-Lung Wu

4:55 PM

Paper No. 126

**Signaling Mechanisms For Generating Permanent Cartilage-forming Activity From Human Pluripotent Stem Cell-derived Mesodermal Cells: Implication Of Activin A And Interleukin-6 Family Cytokines**

Lucas Minas; Sarah Easton; Johnny Huard; Naoki Nakayama

5:05 PM

Paper No. 127

**Stat3 As The Regulatory Determinant Of Epigenetic Landscape In Articular Chondrocyte Development And Disease**

Arijita Sarkar; Nancy Liu; Jenny Magallanes; Jade Tassej; Siyoung Lee; Ruzanna Shkhyan; Ben Van Handel; Youngjoo Lee; Litao Tao; Neil Segil; Jason Ernst; Steve Horvath; Denis Evseenko

5:15 PM

Paper No. 128

**Cell Surface Hyaluronidase Participates In Limb Synovial Joint Cavitation**

Minwook Kim; Eiki Koyama; Heejong Kim; Cheri M. Saunders; Christina M. Mundy; Benjamin A. Garcia; Mary K. Cowman; Maurizio Pacifici

5:25 PM

Paper No. 129

**Dual Deficiency Of Thrombospondin-1 And -2 Causes Aberrant Intra-articular Angiogenesis, Inflammation, And Ectopic Synovial Bone Formation**

Lindsey Lammlin; Michelle Song; Paul Lais; Lucas Junginger; Sunghun Cheong; Emma Wessels; Jacob Kilburg; Joseph Vyskocil; Alex Donneys; Andrea Alford; Kurt Hankenson; Tristan Maerz

5:35 PM

Paper No. 130

**Fgf8 Induces Synovial Joint Regeneration At Digit Amputation Wounds In Mice**

Lindsay A. Dawson; Ling Yu; Mingquan Yan; Joseph D. Knue; Hannah M. Smith; Regina Brunauer; Ken Muneoka

**Saturday, February 11, 2023**

4:45 PM - 5:45 PM

Room - Monet

**Session 24 Foot and Ankle - Kinematics and Imaging**

Moderators: Donald Anderson and Koren Roach

4:45 PM

Paper No. 131

**Defining Normal Articular Characteristics Of The Primary Joints Of The Foot And Ankle: A 3D Hounsfield Algorithm Weight Bearing CT Study**

Hannah J. Stebral; Cesar de Cesar Netto; Donald Anderson

4:55 PM

Paper No. 132

**Characterizing Progressive Collapsing Foot Deformity: A Multi-Domain Statistical Shape Model Approach**

Kas Knutson; Andrew C. Peterson; Rich Lisonbee; Nicola Krähenbühl; Amy L. Lenz

5:05 PM

Paper No. 133

**Normal Variation Of The Lisfranc Joint: Tridimensional Analysis Using Weight-bearing Computed Tomography Imaging**

Noopur Ranganathan; Alexandra Flaherty; Sayyed-Hadi Sayyed-Hosseini; Christopher DiGiovanni; Soheil Ashkani Esfahani; Lorena Bejarano Pineda

5:15 PM

Paper No. 134

**Achilles Tendon Loading In An Immobilizing Boot Is Dependent On Immobilization Style And Boot Construction**

Todd J. Hullfish; Josh R. Baxter

5:25 PM

Paper No. 135

**Side-to-side Symmetry And Sex-specific Differences In Ankle And Hindfoot Kinematics During Running**

Joshua C. Setliff; Paige A. Paulus; Tetsuya Yamamoto; Shumeng Yang; MaCalus V. Hogan; William J. Anderst

5:35 PM

Paper No. 136

**Foot And Ankle Motion After Tibiotalocalcaneal Arthrodesis: Comparison With Tibiotalar Arthrodesis Using A Multi-segment Foot Model**

Min Gyu Kyung; Linying Cao; Gil Young Park; Il-Ung Hwang; Ho Won Kang; Young Sik Yoon; Doo Jae Lee; Dong Yeon Lee

**Sunday, February 12, 2023**

8:00 AM - 9:00 AM

Room - Chantilly East

**Session 25 Cartilage and Synovium - Advances in Osteoarthritis Treatment**

Moderators: Brian Johnstone and Ryan Porter

8:00 AM

Paper No. 137

**Cd10-bound Human Infrapatellar Fat Pad Mesenchymal Stem Cell-derived Exosomes Attenuate Pro-inflammatory Signaling: An Alternative For Synovitis And Fat Pad Fibrosis Treatment**

Dimitrios Kouroupis; Lee D Kaplan; Thomas M Best

8:10 AM

Paper No. 138

**Chondrocyte-Specific Knockout Of Piezo Ion Channels Protects Against Post-Traumatic Osteoarthritis**

Erica V. Ely; Kristin L. Lenz; Sophie G. Paradi; Wolfgang Liedtke; Yong Chen; Kelsey H. Collins; Farshid Guilak

8:20 AM

Paper No. 139

**Atelocollagen-associated Autologous Chondrocyte Implantation For The Repair Of Large Cartilage Defects Of The Knee: Results At Three To Seven Years**

Takuma Kaibara; Eiji Kondo; Masatake Matsuoka; Koji Iwasaki; Tomohiro Onodera; Keita Sakamoto; Yoshitaka Oda; Zen-ichi Tanei; Daisuke Momma; Shinya Tanaka; Norimasa Iwasaki

8:30 AM

Paper No. 140

**Combined Osteoprotegerin And Vegf-c Treatment Synergistically Reduces Age-related Cartilage Loss And Synovial Lymphatic Dysfunction By Preventing Rankl-mediated Vegfr3 Degradation**

Xi Lin; Hengwei Zhang; Brendan Boyce; Lianping Xing; Xi Wang

8:40 AM

Paper No. 141

**Dimethyl Fumarate, An Approved Multiple Sclerosis Treatment, Inhibits Inflammation And Mitigates Osteoarthritis Progression And Reduces Joint Pain: Potential Therapeutic Repurposing As OA Therapy**

Mohd Nazir Khan; Jarred Kaiser; Martha Elena Diaz Hernandez; Samir Chihab; Tracy Eng; Hicham Drissi

8:50 AM

Paper No. 142

**Systemic Albumin-hitchhiking Mmp13 Sirna Conjugate (simmp13<(eg<sub>18</sub>L)<sub>2</sub>) For The Treatment Of Rheumatic Disease**

Juan M. Colazo; Ella Hoogenboezem; Fang F. Yu; Veeraj Shah; Hongsik Cho; Karen Hasty; Leslie Crofford; Craig Duvall

**Sunday, February 12, 2023**

8:00 AM - 9:00 AM

Room - Chantilly West

**Session 26 Bone - Injury and Healing**

Moderators: Caitlyn Collins and Uma Sankar

8:00 AM

Paper No. 143

**Senolytic Therapy Reduces Inflammatory Dysregulation To Address Delayed Fracture Healing In A Genetic Model Of Accelerated Aging**

Marc C. Philippon; Victoria Duke; Kohei Yamaura; Herbert Kasler; Matthieu Huard; Anna-Laura Nelson; Johnny Huard; Sealy Hambright; Chelsea Bahney

8:10 AM

Paper No. 144

**Tracing The Fate Of The Subtypes Of Endothelial Cells During Auto And Allograft Bone Healing**

Xinping Zhang; Tianfeng Miao; Chen Jiang

8:20 AM

Paper No. 145

**Early Resistance Rehabilitation Improves Regeneration Of Femoral Bone Defects**

Kylie E. Williams; Julia Harrer; Kelly Leguineche; Angela Lin; Nick Willett; Robert Guldberg

8:30 AM

Paper No. 146

**Critical Regulation Of Vegfa Expression By Igf-1/cxcr4 Axis In Fracture Repair**

Alessandra Esposito; Michael Kluppel; Sai Rama Krishna Meka; Katrien Corbeels; Pranav Mishra; Anna Spagnoli

8:40 AM

Paper No. 147

**Cannabidiol And Cannabigerol, Non-psychotropic Cannabinoids, Effectively Ameliorate Bone Fracture Pain And Promote Both Early And Late Phases Of The Healing Process**

Deepak Kumar Khajuria; Vengadeshprabhu Karuppagounder; Irena Nowak; Christopher C. Norbury; Diana E. Sepulveda; Wesley M. Raup-Konsavage; Kent E. Vrana; Fadia Kamal; Reyad Elbarbary

8:50 AM

Paper No. 148

**Targeting Angiogenesis For Fracture Nonunion Treatment**

Liang Fang; Jun Ying; Xiaolei Nie; Gaurav Swarnkar; Yousef Abu-Amer; Jianjun Guan; Jie Shen

**Sunday, February 12, 2023**

8:00 AM - 9:00 AM

Room - Wedgewood

**Session 27 NIRA - Bone and Microbiome**

Moderators: Christopher Hernandez and Karl Lewis

8:00 AM

Paper No. 149

**Identification Of T Cell Exhaustion As A Biomarker Of S. Aureus Chronic Osteomyelitis In Humanized Mice**

Motoo Saito; Javier Rangel Moreno; Edward Schwarz; Gowrishankar Muthukrishnan

8:08 AM

Paper No. 150

**TrkA+ sensory neurons facilitate osteosarcoma disease progression**

Sowmya Ramesh; Qizhi Qin; Leslie Chang; Edward McCarthy; Thomas Clemens; Aaron James

8:16 AM

Paper No. 151

**Modulation Of The Gut Microbiota With Bifidobacterium Longum Accelerates Bone Repair In Aged Mice**

Joseph L. Roberts; Mateo Golloshi; Derek B. Harding; Hicham Drissi

8:24 AM

Paper No. 152 (Guest Nation-Ireland) 

**When Bacteria Meets Nanotechnology: Development Of Antibiotic-free Antimicrobial Scaffolds For Effective Delivery Of Osteogenic Genes To Simultaneously Treat And Regenerate Infected Bone Tissue**

Joanna M. Sadowska; Katelyn J. Genoud; Rachael N. Power; Austyn Matheson; Arlyng Gonzalez-Vazquez; Lara Costard; Tanguy Hallegouet; Gang Chen; Brenton Cavanagh; Huijun Zhang; Aldo Boccaccini; Fergal J. O'Brien

8:32 AM

Paper No. 153

**Proliferation Of Early And Mature Osteoblasts Is Required For Fracture Callus Mineralization**

Nicole Gould; Jennifer McKenzie; Katherine Hixon; Andre Coello Hernandez; Leyi Chen; David Ornitz; Matthew Silva

8:40 AM

Paper No. 154

**IVIM Can Detect Femoral Head Ischemia: An In Vivo Piglet Model Study**

Erick O. Buko; Steen Moeller; Ferenc Toth; Casey P. Johnson

8:48 AM

Paper No. 155

**Evidence Of Bisphosphonate-conjugated Sitafloxacin With The Ability Of “Target & Release” Kinetics To Kill S. Aureus Within Canaliculi Of Osteomyelitis One Stage-revision Murine Model**

Youliang Ren; Jason Weeks; Thomas Xue; Joshua Rainbolt; Karen L. de Mesy Bentley; Ye Shu; Chad A. Galloway; Yuting Liu; Philip Cherian; Jeffrey Neighbors; Frank H. Ebetino; T. Fintan Moriarty; Shuting Sun; Edward M. Schwarz; Chao Xie

**Sunday, February 12, 2023**

8:00 AM - 9:00 AM

Room - Coronado B-D

**Session 28     Spotlight - Tendon Injury and Therapeutics (featuring Karin Silbernagel)**

Moderators: Connie Chamberlain and Joanna Smeeton

8:00 AM

Paper No. 156

**Evaluation Of Novel Treatment Agents On Rotator Cuff Tendon And Muscle Pathology In A Murine Subacromial Impingement Model**

Claire Eliasberg; Camila Carballo; Vincent Yao; Alexander Piacentini; Janice Havasy; Marjan Khan; Yulei Liu; Edward Bowen; Iryna Ivasyk; Scott Rodeo

8:10 AM

Paper No. 157

**Differential Effect Of Acute Compressive Injury On Young And Aged Tendons**

Samuel J. Mlawer; Brianne Connizzo

8:20 AM

Paper No. 158

**Loss Of Ampka1 Leads To Age-associated Cell, Matrix, And Mechanical Dysfunction In Mouse Achilles Tendon**

LeeAnn Hold; Jessica Chen; Breanna Campbell; Tessa Phillips; Paul Talusan; Adam C. Abraham; Megan L. Killian

8:30 AM

**A Clinician Scientist's Journey from Treating Tendon Injuries on the Soccer Field to 20 years of Tendon Research**

Karin Silbernagel

**Sunday, February 12, 2023**

8:00 AM - 9:10 AM

Room - Cortez

**Session 29 Clinical Research - Clinical Outcomes and Use**

Moderators: David Landy and Elizabeth Yanik

8:00 AM

Paper No. 159

**High and Low Body Mass Index Increases the Risk of Short-term Postoperative Complications Following Total Shoulder Arthroplasty**

Salvatore Capotosto; Matthew Kim; Alireza Nazemi; Kenny Ling; Ryan Tantone; Elizabeth Wang; David Komatsu; Edward D. Wang

8:10 AM

Paper No. 160

**Demographic And Psychosocial Factors Associated With Non-adherence To Post-injury Follow-up In An Orthopaedic Trauma Population Serving Urban And Rural Patients**

Kylee Rucinski; Emily Leary; Brett Crist; James Cook

8:20 AM

Paper No. 161

**First Long-term Follow-up Results On Wear-induced Osteolysis Following Cervical Total Disc Replacement Using The M6-c™ Artificial Cervical Disc**

Sonja Häckel; Jessica Gaff; Andrew Miles; Paul Taylor; Michael Kern; Gregory Cunningham

8:30 AM

Paper No. 162

**Skeletal Maturity Status And Maturational Tempo Influence Postoperative Growth Following Vertebral Body Tethering**

Melanie E. Boeyer; Patrick Elliott; Daniel G. Hoernschemeyer

8:40 AM

Paper No. 163

**Impact Of Anesthetic Technique On Time To Discharge For Same-Day Discharge Joints**

Koorosh Kashanian; Simon Garceau; Paul Kim; Geoffrey Dervin; Paul Beaulé

8:50 AM

Paper No. 164

**Prolonged Platelet-mediated Hypercoagulability Occurs Following Surgically Treated Hip Fractures And ASA Reduces Platelet Hyperactivity**

Prism Schneider; Andrew E. Dodd; Paul J. Duffy; Ryan C. Martin; Leslie Skeith; Kim Rondeau; Robert Korley

9:00 AM

Paper No. 316

**Evaluating Venous Thromboembolism In Patients With Metastatic Bone Disease: Are We Treating Patients With Appropriate Prophylaxis?**

Annalise Abbott; Joseph Kendal; Benjamin Wajda; Shannon KT Puloski; Prism Schneider; Michael J. Monument

**Sunday, February 12, 2023**

8:00 AM - 9:00 AM

Room - Monet

**Session 30 Muscle Response to Injury and Repair**

Moderators: Richard Lieber and Sophia Theodossiou

8:00 AM

Paper No. 165

**Mitochondrial Transfer In Muscle Following Rotator Cuff Injury**

Hannah M.R. Chi; Michael Davies; Steven Garcia; Agustin Diaz; Brianna Johnston; Gabriella Castellanos; Prashant Nuthalapati; Hubert Kim; Xuhui Liu; Brian Feeley

8:10 AM

Paper No. 166

**Genetic Variation Affects Gastrocnemius Transcriptomic Response To Hindlimb Suspension In Diversity Outbred Mouse Founder Strains**

Michael Friedman; Evan Buettmann; Jasmin Zeineddine; Lovell Abraham; Gabriel Hoppock; Steven Meas; Henry J. Donahue

8:20 AM

Paper No. 167

**Clenbuterol Regulates Neonatal Muscle Growth But Not Neuromuscular Contractures In Neonatal Brachial Plexus Injury**

Albaraa Tarabishi; Mason Runkel; Roger Cornwall; Qingnian Goh; Kritton Shay-Winkler

8:30 AM

Paper No. 168

**The Characteristics Of Gut Microbiota In Sarcopenic Elderlies And Fecal Microbiota Transplantation From Patients To Recipient Mice**

Chaoran LIU; Pui Yan Wong; Wing Hoi Cheung; Simon Kwoon-Ho Chow; Jun Yu; Sunny Hei Wong; Margaret IP; Joseph Jao Yiu Sung; Ronald Man Yeung Wong

8:40 AM

Paper No. 169

**Motor Neuron Injury Primes Muscle Stem Cells For Myogenesis By Enhancing Protein Synthesis And Mitochondrial Bioenergetics**

Innie Y. Kang; Jeongmoon J. Choi; Young Jang

8:50 AM

Paper No. 170

**Neuromuscular Regeneration In Response To Exercise Post-Volumetric Muscle Loss Injury (VML)**

Eszter Mihaly; Dallas Altamirano; Shama R. Iyer; Richard M. Lovering; Warren L. Grayson

**Sunday, February 12, 2023**

3:45 PM - 4:45 PM

Room - Chantilly East

**Session 31      Spotlight - Multi-Tissue Crosstalk (featuring Rachel Miller)**

Moderators: Dianne Little and Gretchen Meyer

3:45 PM

Paper No. 171

**Leptin Is A Key Mediator In Fat-Cartilage Crosstalk**

Kelsey H. Collins; Erica V. Ely; Hope D. Welhaven; Ayten E. Erdogan; Kristin L. Lenz; Arin K. Oestreich; Bo Zhang; Ronald K. June; Farshid Guilak

3:55 PM

Paper No. 172

**Activated Satellite Cells In Dystrophin Skeletal Muscle Secrete FGF21 To Negatively Regulate Bone Homeostasis**

ling Wang; Hui Sun; Min Li; Baoli Qian; Neda Mokhberian; MaCalus Hogan; Hongshuai Li

4:05 PM

Paper No. 173

**Delineating Early Cellular Crosstalk Between Structural And Immune Cells Upon Joint Injury By Single-cell Rna Sequencing**

Dustin M. Leale; Dominik R. Haudenschild; Jaspin HN Yik

4:15 PM

**Crosstalk as a Mediator of Osteoarthritis Pain: Integrating Mechanics and Inflammation**

Rachel Miller

**Sunday, February 12, 2023**

3:45 PM - 4:45 PM

Room - Chantilly West

**Session 32      Spotlight - Bone Cell Heterogeneity (featuring Ling Qin)**

Moderators: Ivo Kalajzic and Jie Shen

3:45 PM

Paper No. 174

**Stromal Cell Heterogeneity Of The Early Ischemic Fracture Callus Underpins Delayed Healing**

Christina Capobianco; Michelle Song; Easton Farrell; Alexis Donneys; Karen Kessell; Jaimo Ahn; Tristan Maerz; Kurt Hankenson

3:55 PM

Paper No. 175

**Age-associated Cortical Bone Loss Is Limited By Subsets Of Myeloid Progenitors**

Jinsha Koroith; Ismael Y. Karkache; Elizabeth Vu; Kim C. Mansky; Elizabeth W. Bradley

4:05 PM

Paper No. 176

**Subsets Of Cd4<sup>+</sup>T Cells Are Differentially Enriched In The Bone Healing Callus And Play Central Roles In Promoting Different Phases Of Bone Repair**

Reyad A. Elbarbary; Deepak Kumar Khajuria; Fadia Kamal; Christopher C. Norbury

4:15 PM

**Single-cell profiling of skeletal progenitors in bone**

Ling Qin

**Sunday, February 12, 2023**

3:45 PM - 4:45 PM

Room - Wedgewood

**Session 33 NIRA - Clinical Outcomes and Muscle**

Moderators: Michelle Ghert and Lisa Larkin

3:45 PM

Paper No. 177

**Subject Specific Measurements Are Required For Accurate Prediction Of Human Gracilis Muscle Active And Passive Mechanical Properties**

Benjamin Binder-Markey; Lomas Persad; Alexander Shin; William Litchy; Kenton Kaufman; Richard Lieber

3:53 PM

Paper No. 178

**Understanding The Biological Basis Of Contracture Using A Mouse Model Of Single Hindlimb Immobilization-induced Fibrosis**

Laura Moore; Samantha Lessard; Purva Singh; Deema Al-Abdulla; Liang Ying; Peter Sculco; Scott Rodeo; Miguel Otero

4:01 PM

Paper No. 179

**Gene Expressions Of Fgf7 And Postn In Canine Chordae Tendineae And Their Possible Relations To Tenogenesis In Chordae Tendineae And Potential Effects On Flexor Tenocyte Biology**

Rou Wan; Ye Ren; Yinxian Yu; Ramona Kirk Reisdorf; Mohamed Abozaid; Gongyin Zhao; Tomoyuki Kuroiwa; Steven Moran; Anne Gingery; Chunfeng Zhao

4:09 PM

Paper No. 180

**When 1 + 1 Does Not Equal 2: Special Considerations Are Required For Inclusion Of Patients With Bilateral Conditions In Orthopedic Research Studies**

Patrick M. Carry; Carson Keeter; David R. Howell

4:17 PM

Paper No. 181

**A Methodology For Developing Outcome Measures Aligned With Orthopaedic Patients' Desired Outcomes**

Jenny M. Dorich; Roger Cornwall; Tim Uhl; Dana Howell; Camille Skubik-Peplaski

4:25 PM

Paper No. 182

**Teaching Principles Of Bioadhesives With An Inquiry-based Learning Module**

Christopher J. Panebianco; Poorna Dutta; Jillian Frost; Angela Huang; Olivia S. Kim; James Iatridis; Andrea Vernengo; Jennifer Weiser

4:33 PM

Paper No. 183

**Factors Associated With Concomitant Soft Tissue Injuries In The Setting Of Pediatric And Adolescent ACL Tears:data From The Boston Children’S Hospital ACL Registry**

Nazgol Tavabi; James Pruneski; Benton Heywroth; Mininder S. Kocher; Ata M. Kiapour

**Sunday, February 12, 2023**

3:45 PM - 4:45 PM

Room - Coronado B-D

**Session 34 Challenges in Musculoskeletal Research and Education**

Moderators: Sonia Bansal and Vincent Wang

3:45 PM

Paper No. 184

**Women In Medical School's Perceptions Of Orthopaedic Surgery: A Pilot Study**

Chloe Cadieux; Jennifer Urquhart; Taryn Walker; Debra Bartley; Marie-Eve Lebel; Ruby Grewal; Supriya Singh

3:55 PM

Paper No. 185

**Higher Grit Scores Are Associated With Greater Scholarly Productivity Among Orthopaedic Surgery Residents**

Griffith G. Gosnell; Eli Levitt; Ayoosh Pareek; Christopher L. Camp; Michael J. Alaia; Gregory P. Guyton; Heath P. Gould

4:05 PM

Paper No. 186

**Biomechanics Grand Rounds: A Cross-disciplinary Engineering Education Paradigm**

Anton E. Bowden

4:15 PM

Paper No. 187

**Learning On A Limb: Early Exposure To STEM Research Through A Musculoskeletal Research Community Day**

Sreen S.F. Assi; Daphney R. Chery; Tala F. Azar; Michael P. Duffy; Sanjana Hemdev; Talayah Johnson; Madhura Nijsure; Emily E. Sharp; Margaret K. Tamburro; Robert L. Mauck; Lou J. Soslowsky; Jamie Shuda; Eileen M. Shore; Sarah E. Gullbrand

4:25 PM

Paper No. 188

**Creating A New K-12 Outreach Program: A Reflection On The First Two Years Of The Seed Program**

Laurel J. Hales; Philip Adamson; Andrew Schmidt; Jessica A. McKay-Nault; Gustavo Chau; Marco Barbieri; Elka Rubin

4:35 PM

Paper No. 189

**Virtual Global Orthopedic Conferences And Addressing The Language Barrier: A Means To Deliver Education, Build Partnerships, And Discuss Differences In Care In Lower-median Income Countries**

Krishna K. Anand; Noe Trevino; Sam Simister; Fernando Carrillo; Juan Mandujano; Hao Hua Wu; Jennifer O'Donnell; Hernan Roca; Soheil Ashkani Esfahani; Kiran Agarwal-Harding

**Sunday, February 12, 2023**

3:45 PM - 4:45 PM

Room - Cortez

**Session 35      Biomaterials - Soft Tissue Regeneration**

Moderators: Chitra Dahia and Christine LeMaitre

3:45 PM

Paper No. 190

**Fibrous Topographical Cues Govern Tenogenic Vs. Chondrogenic Fate Switch**

Robert N. Kent; Maggie E. Jewett; Daniel L. Matera; Ariella Shikanov; Brendon M. Baker

3:55 PM

Paper No. 191

**Ipsc-derived Tenocytes Seeded On Microgrooved Scaffolds For Achilles Tendon Regeneration**

Giselle Kaneda; Chloe Castaneda; Julie L. Chan; Angela Papalamprou; Julia Sheyn; Oksana Shelest; Dave Huang; Nadine Kluser; Victoria Yu; Ryu Yoshida; Melodie Metzger; Wafa Tawackoli; Andrea Vernengo; Dmitriy Sheyn

4:05 PM

Paper No. 192

**Fabrication Of Bioactive Collagen Rope For Anterior Cruciate Ligament Reconstruction**

Minghao Zheng; Peilin Chen; Ziming Chen; Euphemie Landao-Bossonga; Yue Ding; Tao Wang

4:15 PM

Paper No. 193

**Combination Of Ultra-purified Stem Cells With An Alginate Sodium Reduces Discogenic Pain**

Hisataka Suzuki; Katsuhisa Yamada; Katsuro Ura; Norimasa Iwasaki; Mitsuko Isaji; Masatoki Watanabe; Yumi Matsuzaki; Hideki Sudo

4:25 PM

Paper No. 194

**Hybprinter-acoustic For The Fabrication Of Soft-rigid Tissue Interfaces**

Jiannan Li; Carolyn Kim; Seyedsina Moeinzadeh; Chi-Chun Pan; Yunzhi Yang

4:35 PM

Paper No. 195

**Tissue Bulking Via Mechano-instructive Material Inclusions Results In Heterogeneous Cell Neighborhoods**

Ryan C. Locke; Seth J. Ack; Ryan Daniels; Jason A. Burdick; Robert Mauck

**Sunday, February 12, 2023**

3:45 PM - 4:45 PM

Room - Monet

**Session 36 Resident and Fellow Research Session**

Moderators: Drew Lansdown and Donna Pacicca

3:45 PM

Paper No. 196 (Guest Nation-Ireland) 

**Development Of A Highly Efficient Mir-26a-activated Scaffold To Repair Critical-sized Bone Defects Through Osteogenic-angiogenic Coupling**

Joanna M. Sadowska; Austyn Matheson; Monika Ziminska; Auden Balouch; John Redmond; Sam Wojda; Cole Ferreira; Nicholas Dunne; Helen McCarthy; Seth Donahue; Fergal J. O'Brien

3:55 PM

Paper No. 197

**High Rates Of Body Iron Store Derangements And Anemia Above The Transfusion Threshold Observed In Patients Following Orthopaedic Trauma**

Danielle F. Peterson; Karalynn Lancaster; Chih Jen Yang; Darin M. Friess; Martin A. Schreiber; Joseph J. Shatzel; Joseph E. Aslan; Zachary M. Working

4:05 PM

Paper No. 198

**Recovery Timing After Acl Reconstruction Related To Pain, Function, And Mental Health Trajectories: A Longitudinal Multivariable Clustering Analysis**

Ryan T. Halvorson; Aidan Foley; Winnie Fan; Abel Torres Espin; Drew Lansdown; Brian Feeley; Jeannie Bailey

4:15 PM

Paper No. 199

**Racial Disparities In Surgical Outcomes After Pediatric Scoliosis Corrective Surgery**

Mina A. Botros; Phoebe Huang; Caroline Thirukumaran

4:25 PM

Paper No. 200

**Breaking The Glass: Where Are The Female Faculty Endowments In Orthopedic Surgery?**

Alicia Asturias; Leena Feeley; Carlin Senter; Nirav Pandya; Brian Feeley

4:35 PM

Paper No. 201

**Converting Nacre To Natural Bone Substituteas Bioactive Material For Bone Defect Healing**

Rui Ruan; Peilin Chen; Behzad Shiroud Heidari; Euphemie Landao-Bassonga; Minghao Zheng

**Monday, February 13, 2023**

8:00 AM - 9:00 AM

Room - Chantilly East

**Session 37 Bone - Treatment and Therapeutics**

Moderators: Annemarie Lang and Ines Reichert

8:00 AM

Paper No. 202

**Assessment Of Gait Following Locking Plate Fixation Of A Tibial Segmental Defect And Cast Immobilization In Goats**

Kristin M. Bowers; Lori Terrones; Elizabeth Croy; Pierre-Yves Mulon; Henry S. Adair III; David E. Anderson

8:10 AM

Paper No. 203

**Chronological Distribution And Gene Expression Of Osteoclasts And Their Precursors After A Single Administration Of Anti-RANKL Antibody In Mice**

Hotaka Ishizu; Tomohiro Shimizu; Tomoka Hasegawa; Norio Amizuka; Norimasa Iwasaki

8:20 AM

Paper No. 204

**Targeting Muscle Cell Senescence In Dystrophin<sup>-/-</sup>/utrophin<sup>-/-</sup> Double Knockout Mice Improves Muscle Histopathology And Enhances Bone Mass And Lifespan**

Xueqin Gao; Joseph J. Ruzbarsky; Charles Huard; Aiping Lu; Sarah White; Jessica Ayers; Bing Wang; Johnny Huard

8:30 AM

Paper No. 205

**Wnt Surrogate Molecules Potently Stimulate Bone Formation In Young-adult Mice**

Christopher J. Chermide-Scabbo; John Shuster; Levi Blazer; Stephane Angers; Matthew Silva

8:40 AM

Paper No. 206

**Temporal And Spatial Dynamics Of New Bone Formation In Cyclic Treatment Regimens Of Parathyroid Hormone-related Peptide (PTHrP)**

Tala Azar; Kruti Desai; Yuanhang Li; Arie Jones; Justin Leggin; Wenzheng Wang; Nathaniel Dymant; X. Sherry Liu

8:50 AM

Paper No. 207

**Higenamine, A Novel Activator Of Smad2/3 Signaling, Promotes Osteogenesis To Protect Against Osteoporosis**

Hui Dong; Ronghan Liu; Oscar Maturino; Ke Zou; Bin Ning; Shang-You Yang

**Monday, February 13, 2023**

8:00 AM - 9:00 AM

Room - Chantilly West

**Session 38 Hip - Modeling and Imaging Analysis**

Moderators: Robin Pourzal and Ke Song

8:00 AM

Paper No. 208

**A Comparison Between X-ray And 3D Computed Tomography In Assessing Neuromuscular Acetabular Dysplasia**

Shankar G. Kaushal; Pratik Pradhan; Benjamin J. Shore; Ata M. Kiapour

8:10 AM

Paper No. 209

**Statistical Shape Modelling To Compare Spinopelvic Structures With Hip Impingement And Dysplasia**

Simon Dobransky; Hadi El Daou; Jonathan Jeffers; Justin Cobb; Geoffrey Ng

8:20 AM

Paper No. 210

**The Effects Of Residual Femoral Deformity On Contact Mechanics In Patients With Slipped Capital Femoral Epiphysis**

Holly D. Aitken; Elizabeth J. Scott; Yi-Meng Yen; Ata M. Kiapour; Wyatt M. Sailer; Joshua B. Holt; Jessica E. Goetz

8:30 AM

Paper No. 211

**Changes In Dynamic Hip Muscle Moment Arms During Activities Of Daily Living**

Camille C. Johnson; Ethan Ruh; Naomi Frankston; Shaquille Charles; Michael McClincy; William Anderst

8:40 AM

Paper No. 212

**Radiographic Analysis Of The Relationship Between Posterior Tilt Angle Of The Femoral Head After Femoral Neck Fractures And The Location Of Osteonecrosis Of The Femoral Head**

Masanori Nishij; Takashi Atsumi; Yasushi Yoshikawa; Ryosuke Nakanishi; Ichiro Okano; Yuki Usui; Katsunori Inagaki

8:50 AM

Paper No. 213

**Acetabular Labrum Reconstruction With Fresh Meniscus Allograft Transplantation: Validation In A Preclinical Canine Model**

Caleb Bischoff; Brett Crist; Chantelle Bozynski; Aaron Stoker; Steven DeFroda; James Cook

**Monday, February 13, 2023**

8:00 AM - 9:00 AM

Room - Wedgewood

**Session 39 NIRA – Biomechanics**

Moderators: Kharma Foucher and Karen Kruger

8:00 AM

Paper No. 214

**Geometric MRI-derived Biomarkers As Predictors Of Changes In Joint Mechanics After Partial Meniscectomy: A Statistically Augmented Computational Approach**

Brett Steineman; Erin Leatherman; Thomas J. Santner; Joshua Leadem; Madison Lang; Kate Lindsey; Erin Argentieri; Amanda Wach; Kalle Chastain; Ashley Pekmezian; Matthew Koff; Scott Rodeo; Amy Lerner; Suzanne Maher

8:08 AM

Paper No. 215

**Dynamic Response Of The First Carpometacarpal Joint During Pinching**

David Jordan; Sohail Daulat; Kent Kwoh; Zong-Ming Li

8:16 AM

Paper No. 216

**Delayed Onset Of Physiological Loadings Promote Matured Healing Of Avascular Meniscus Tears**

Hun-Jin Jeong; Solaiman Tarafder; Elen Zhu; Clair Yoon; Chang Lee

8:24 AM

Paper No. 217

**Knee Joint Changes Following An In Vivo ACL Tear In Adolescent Mice**

Taeyong Ahn; Ben Loflin; Nicholas Nguyen; Ciena Miller; Kaitlyn Colglazier; Stephen Schlecht

8:32 AM

Paper No. 218

**The Relationship Between Disease Severity And Tissue Expression In The Cam Lesion And Capsule Tissues Retrieved From Patients Hips With Cam-type Femoroacetabular Impingement Syndrome**

Catherine Yuh; Philip Malloy; Steven P. Mell; Garrett Jackson; Jorge Chahla; Robin Pourzal; Deborah J. Hall

8:40 AM

Paper No. 219

**The Role Of Dynamic Valgus Collapse In Non-contact Anterior Cruciate Ligament Injury: Insight From Tibiofemoral Range Of Motion Analysis**

Zoë A. Englander; Louis E. DeFrate

8:48 AM

Paper No. 220

**The Effect Of Romosozumab For Perioperative Management Of Spinal Instrumentation -  
biomechanical Evaluation Using Finite Element Analysis-**

Koji Ishikawa; Makoto Nakagawa; Puvindran Nadesan; Benjamin Alman

**Monday, February 13, 2023**

8:00 AM - 9:00 AM

Room - Coronado B-D

**Session 40 Cartilage and Synovium - Chondrocyte Metabolism and Osteoarthritis**

Moderators: Anja Neihoff and Sophia Zeimian

8:00 AM

Paper No. 221

**Sirt5 Deficiency Causes Chondrocyte Metabolic Dysfunctions And Osteoarthritis Development During Aging And Obesity**

Shouan Zhu; Huanhuan Liu; Daniella Issa

8:10 AM

Paper No. 222

**Signaling Molecule P85 Is A Component Of Pgrn/tnfr2 Receptor Complexes And Orchestrates Chondrocyte Anabolism**

Wenyu Fu; Kaidi Wang; Chuan-ju Liu

8:20 AM

Paper No. 223

**Oleanolic Acid (ole) Reduces Cartilage Degeneration By Regulation Of Oxidative Stress And Mitochondrial Dynamics**

Qinqin Xu; Ying Xu; Shane Barton; Yufeng Dong

8:30 AM

Paper No. 224

**The Effect Of High Blood Glucose Levels On A Human Cartilage-synovium Fibroblast Co-culture System In A Model Of Diabetic Osteoarthritis**

Neeraj Sakhrani; Ratna Sharma; Hagar Kenawy; Andy Lee; Clark Hung

8:40 AM

Paper No. 225

**Maternal Transgenic Conversion Of Omega-6 To Omega-3 Fatty Acids Enhances Fetal Growth And Mitigates Adult Offspring Pain Behavior In An Injury-induced Osteoarthritis Model**

Arin K. Oestreich; Kristin L. Lenz; Sarah K. Dunivan; Jordan M. Terschluse; Lauryn A. Braxton; Farshid Guilak

8:50 AM

Paper No. 226

**Ligand-independent Function Of Estrogen Receptor- $\alpha$  In Suppressing DNA Damage-induced Chondrocyte Senescence**

Xiurui Zhang; Ning Wang; Shiqi Xiang; Yiqian Zhang; Silvia Liu; Guanghua Lei; Sophie Hines; Hang Lin

**Monday, February 13, 2023**

8:00 AM - 9:00 AM

Room - Cortez

**Session 41      Spotlight - Disc Cell Metabolism and Homeostasis (featuring Lisbet Haglund)**

Moderators: Sibylle Grad and Victor Leung

8:00 AM

Paper No. 227

**Metabolic Profiles Of Intervertebral Discs: Symptomatic Versus Asymptomatic Distinguishers Based On Macroscopic Severity**

Jacob S. Kramer; Aaron M. Stoker; Chantelle C. Bozynski; Abigail F. Baumann; Theodore J. Choma; Don K. Moore; James L. Cook

8:10 AM

Paper No. 228

**Synergistic Effect Of Rg-7112 & O-vanillin Combination Treatment For Intervertebral Disc Degeneration**

Matthew Mannarino; Lisbet Haglund; Hosni Cherif; Oliver Wu Martinez; Elsa Cousineau; Magali Millecamps; Laura Stone; Seunghwan Lee

8:20 AM

Paper No. 229

**Transient Receptor Potential Vanilloid 4(trpv4) Knockdown Decreases Extracellular Matrix Synthesis Via Autophagy Suppression In Rat Intervertebral Disc**

Tomoya Matsuo; Yoshiki Takeoka; Zhongying Zhang; Takashi Yurube; Yuji Kakiuchi; Yutaro Kanda; Ryu Tsujimoto; Kunihiko Miyazaki; Hiroki Ohnishi; Masao Ryu; Naotoshi Kumagai; Yoshiaki Hiranaka; Kohei Kuroshima; Ryosuke Kuroda; Kenichiro Kakutani

8:30 AM

**Senescence in intervertebral disc disease: from basic knowledge to therapeutic opportunities**

Lisbet Haglund

**Monday, February 13, 2023**

8:00 AM - 9:00 AM

Room - Monet

**Session 42      Biomaterials - Osseointegration and Bone Healing**

Moderators: Gabriela Graziani and Fergal O'Brien

8:00 AM

Paper No. 230

**Botox-induced Muscle Paralysis Alters Bone Phenotype And Impairs Osseointegration: How To Improve It?**

Jingyao Deng; Michael Berger; David Joshua Cohen; Ellie Sabalewski; Michael McClure; Zvi Schwartz; Barbara Boyan

8:10 AM

Paper No. 231

**Multiscale Engineering Of Titanium Implant Topography Enhances Bony Integration**

Chase T. Davis; Scott K. Uyekawa; Dan Wills; Matthew Pelletier; Mack X. Walsh; Marcus Borszcz; Tian Wang; William Walsh; Gregory Williams

8:20 AM

Paper No. 232

**Quantitative 3D Imaging Reveals Enhanced Osteoprogenitor Responses To O<sub>2</sub>-delivery During Bone Healing**

Naboneeta Sarkar; Warren Grayson

8:30 AM

Paper No. 233

**MiR-200c Released From Gelatin-coated 3D-printed PCL Scaffolds Enhances Bone Regeneration**

Matthew T. Remy; Brad A. Amendt; Liu Hong

8:40 AM

Paper No. 234

**The Influence Of A Threaded Implant Design And Manufacturing On Osseointegration In A Large Preclinical Animal Model**

William R. Walsh; Dan Wills; Matthew H. Pelletier; Tian Wang; James Crowley; Michael Gardner; David Polly; Ian Bailey; Scott Yerby

8:50 AM

Paper No. 235

**Effect Of Implant Surface Roughness And Porosity On Osteoblastic Genes Expression In Bone Marrow Mesenchymal Stem Cells**

Ali Kiapour; Xiaonan Xin; Elie Massaad; John H. Shin; David Rowe

**Monday, February 13, 2023**

11:15 AM - 12:15 PM

Room - Chantilly East

**Session 43 Clinical Research - Omics/Biomarkers**

Moderators: Ashley Levack and Stephanie Moore-Lotridge

11:15 AM

Paper No. 236

**Peripheral Blood DNA Methylation-based Machine Learning Models To Predict Future Knee OA Progression: Biospecimens And Data From The Osteoarthritis Initiative And Johnston County Osteoarthritis Project**

Chris M. Dunn; Cassandra Sturdy; Cassandra Velasco; Leoni Schlupp; Emmaline Holmlund; Vladislav Izda; Liubov Arbeeva; Yvonne Golightly; Amanda Nelson; Matlock A. Jeffries

11:25 AM

Paper No. 237

**Risk Genes For Anterior Cruciate Ligament Rupture Are Shared In Human Beings And Dogs**

Mehdi Momen; Qiongshi Lu; Guilherme JM Rosa; Peter Muir

11:35 AM

Paper No. 238 (Guest Nation-Ireland) 

**Identification Of Sub-phenotypes Of Intervertebral Disc Degeneration In Human Disease - A Large Scale Proteomic Study**

Kieran Joyce; Noel Fahy; Andrea Dimitrov; Radka Saldova; Aiden Devitt; Abhay Pandit

11:45 AM

Paper No. 239

**Identification Of Cell Surface And Proteomic Biomarkers In PRP That Correlate With Positive Response To PRP Therapy In Knee OA**

Julia Sheyn; Juliane Glaeser; Giselle Kaneda; Jasmine Galloway; Joslyn Foley; Victoria Yu; Thomas Spaeter; Khosrowdad Salehi; Pablo Avalos; Clive Svendsen; Wafa Tawackoli; Bert Mandelbaum; Dmitriy Sheyn

11:55 AM

Paper No. 240

**Clinical Assessment Of Senescence Cell Burden And Correlation To Severity Of Osteoarthritis**

Chelsea S. Bahney; Adam D. Goff; Kelsey O'Hara; Victoria R. Duke; Alex W. Goff; Charles Huard; Xueqin Gao; Ping Guo; Aping Lu; Suzanne Page; Grant Dornan; Scott Tashman; Sealy Hambricht; Thos Evans; Marc Philippon; Johnny Huard

12:05 PM

Paper No. 241

**Genome Wide Association Study Identifies Variants In Has1 And Robo2 As Significant Risk Factors For Joint Contracture Release**

Mark T. Langhans; Scott Kulm; Krishna Anand; Tony Shen; Olivier Elemento; Scott Rodeo

**Monday, February 13, 2023**

11:15 AM - 12:15 PM

Room - Chantilly West

**Session 44     Spotlight - Bone Mechanoregulation (featuring David Hoey)**

Moderators: Elise Morgan and Benjamin Osipov

11:15 AM

Paper No. 242

**Yap And Taz Mediate Mechanoregulation Of Embryonic Bone Formation And Bone Growth**

Yasaman Moharrer

11:25 AM

Paper No. 243 (Guest Nation-Ireland) 

**Mature Bone Cells Drive Vessel Formation Via An Extracellular Vesicle Mediated Mechanism Following Mechanical Stimulation**

Nian Shen; Ian Woods; Michelle Lowry; Kian F. Eichholz; Elena Stavenschi; Carolina S. Martins; Mimma Maggio; Lorraine O'Driscoll; David A. Hoey

11:35 AM

Paper No. 244

**Osteoclast Precursor Cells Regulate The (Re)modeling Response To Mechanical Loading In Trabecular And Endosteal Bone, But Not Periosteal Bone**

Peter Shyu; Samuel Robinson; X. Edward Guo

11:45 AM

**Mechano-biologically inspired therapeutics and materials for bone repair**

David Hoey

**Monday, February 13, 2023**

11:15 AM - 12:15 PM

Room - Wedgewood

**Session 45 NIRA – Biomaterials**

Moderators: Helen Lu and Brittany Taylor

11:15 AM

Paper No. 245

**Corrosion In Modular Dual Mobility Acetabular Components: A Retrieval Analysis Study**

Aarti Shenoy; Ashley Pekmezian; Timothy Wright; Douglas Padgett

11:23 AM

Paper No. 246

**Doxorubicin Functionalized Hydroxyapatite Nanoparticles Halt Tumor Growth And Prevent Bone Destruction In An Aggressive Orthotopic Osteosarcoma In Mice**

Deepak B. Raina; Yang Liu; Tova Corbascio; Sujeesh Sebastian; Jintian Huang; Lars Lidgren; Magnus Tägil

11:31 AM

Paper No. 247

**Promising Strategy For Bone Repair And Regeneration: Bioactive Pectin Regulated IPN Scaffold**

Hemalatha Kanniyappan; Varun Gnanasekar; Yani Sun; Aftab Merchant; Rong Wang; Mathew Mathew

11:39 AM

Paper No. 248

**Mechanobiology At Work: Physiologic Load Induced Strain Of 3d Printed Truss Element Amplifies Osteogenicresponse Of Human Mesenchymal Stem Cells Compared To Static Surface Feature Influence**

Se-Hwan Lee; Ali Kiapour; Brendan Stoeckl; Lewis Harrison; Matthew Begley; Jessee Hunt; Robert Mauck; Su-Jin Heo

11:47 AM

Paper No. 249

**Onset Of Skeletal Deformities In A Rabbit Model Of Growth Plate Injury Is Delayed With A 3d Printed Biomimetic Composite**

Kristine Fischenich; Francisco Rodriguez-Fontan; Stacey Thomas; Sarah Schoonraad; Laurel Stefani; Virginia Ferguson; Nancy Hadley-Miller; Stephanie Bryant; Karin Payne

11:55 AM

Paper No. 250

**Leptin Receptor Expressing Cells Are Present In Fibrotic Tissue At Both Implant-to-bone And Bone-to-bone Interfaces**

Anastasia Oktarina; Vincentius Suhardi; Mohammed Hammad; Andrew Thomson; Lionel Ivashkiv; Matthew Greenblatt; Mathias Bostrom; Xu Yang

12:03 PM

Paper No. 251

**Implantable Tissue-Interfacing Automatic Stimulation Device For Mechanotherapy To Prevent Disuse Muscle Atrophy**

Sungmin Nam; Bo Ri Seo; Alexander Najibi; Stephanie McNamara; David Mooney

**Monday, February 13, 2023**

11:15 AM - 12:15 PM

Room - Coronado B-D

**Session 46 Basic Science Imaging**

Moderators: Richard Bell and Yang Xia

11:15 AM

Paper No. 252

**Calcified Cartilage Thickness In Post-traumatic Osteoarthritis**

Tuomas Frondelius; Santeri Rytky; Lingwei Huang; Egor Panfilov; Petri Tanska; Walter Herzog; Rami Korhonen; Simo Saarakkala; Mikko Finnila

11:25 AM

Paper No. 253

**Articular Cartilage Characterization Using Tantalum And Iodine-based Dual-contrast Photon-counting Computed Tomography**

Petri Paakkari; Satu I. Inkinen; Jiri Jäntti; Juuso Tuppurainen; Maria C. Fugazzola; Anisha Joenathan; Sampo Ylisiurua; Miika T. Nieminen; Mark W. Grinstaff; Heikki Kröger; Juha Töyräs; Juuso T.J. Honkanen; Janne T.A. Mäkelä

11:35 AM

Paper No. 254

**Dynamic Assessment Of Progressive Tendon Degeneration Using Reflectance- Or Transmission-based Quantitative Polarized Light Imaging**

Leanne E. Iannucci; Spencer P. Lake

11:45 AM

Paper No. 255

**An Automated Scanner-to-data Pipeline For Morphometric Analysis Of Periarticular Bone Using Convolutional Neural Networks**

Lucas Junginger; Haneef Khan; Tristan Maerz

11:55 AM

Paper No. 256

**Characterization Of Quantitative MRI Measures To Assess Spontaneous Canine Intervertebral Disc Degeneration**

Casey P. Johnson; Erick O. Buko; Kayla L. Chase; Diana Pendleton; Katie McDermott; Alexandra R. Armstrong; Susan A. Arnold; Elizabeth W. Bradley; Christopher P. Ober; Arin M. Ellingson

12:05 PM

Paper No. 257

**A Non-labeling Cell Viability Assay Of Menisci Using Intrinsic Nonlinear Optical Imaging Contrasts**

Tong Ye; Hongming Fan; Maria Lutas; Zhao Zhang; Emily Ye; Shangping Wang

**Monday, February 13, 2023**

11:15 AM - 12:15 PM

Room - Cortez

**Session 47 Hip - Injury and Functional Analysis**

Moderators: Penny Atkins and Paul Beale

11:15 AM

Paper No. 258

**Dxa-based 3d Finite Element Models Predict Hip Fractures Better Than Abmd In Mros Sweden Cohort**

Lorenzo Grassi; Sami P. Väänänen; Lars Jehpsson; Östen Ljunggren; Björn E. Rosengren; Magnus Karlsson; Hanna Isaksson

11:25 AM

Paper No. 259

**1-year Outcomes Of Hip Fracture Patients For A Health System At The Epicenter Of The Covid-19 Pandemic: A Multicenter Cohort Study**

Sally May Trout; Hadi Aziz; Christine Decker Bub; Camille Pinpin; Matthew Grossman; Jamie Heimroth; Alain Sherman; Jessica Intravia; Ariel Tenny Goldman

11:35 AM

Paper No. 260

**Fresh-frozen Tendon Versus Fresh Meniscus Allografts For Acetabular Labral Reconstruction**

Kylee Rucinski; Brett Crist; Steven DeFroda; James Cook

11:45 AM

Paper No. 261

**Measurement Of Acetabular Labral Blood Flow Using Laser Doppler Flowmetry Before & After All-arthroscopic Capsular Autograft Labral Reconstruction**

Nathan J. Cherian; Christopher T. Eberlin; Michael P. Kucharik; Paul F. Abraham; Mark R. Nazal; Michael C. Dean; Scott D. Martin

11:55 AM

Paper No. 262

**Evaluation Of The Full Circumference Acetabular Coverage With Radar Chart Before And After Curved Periacetabular Osteotomy In Dysplastic Hips.**

Takahiro Igei; Satoshi Nakasone; Masamichi Onaga; Masato Ishihara; Kotaro Nishida

12:05 PM

Paper No. 263

**The Effect Of Labrum Size In Patients With Cam-Type Femoroacetabular Impingement Syndrome**

Luke T. Hudson; Travis G. Maak; Andrew E. Anderson; Gerard A. Ateshian; Jeffrey A. Weiss

**Monday, February 13, 2023**

11:15 AM - 12:15 PM

Room - Monet

**Session 48      Foot and Ankle - Surgical and Non-surgical Interventions**

Moderators: Claire Brockett and Dan Latt

11:15 AM

Paper No. 264

**Tibial Cortex Transverse Transport Accelerates Wound Healing Via Enhanced Angiogenesis And Immunomodulation**

Yongkang Yang; Yucong Li; Pan Qi; Shanshan Bai; Haixing Wang; Xiaohua Pan; Ka-Kin Ling; Gang Li

11:25 AM

Paper No. 265

**The Biomechanical Role Of The Deltoid Ligament On Ankle Stability: Injury, Repair And Augmentation**

Alex W. Brady; Anna Bryniarski; Justin R. Brown; Robert Waltz; Ingrid K. Stake; Christopher Kreulin; Thomas Haytmanek; Thomas O. Clanton

11:35 AM

Paper No. 266

**Parametric Evaluation Of Fixation Design Features In Total Ankle Replacement Using Finite Element Modeling**

Joshua E. Johnson; Gabriel A. Clarke; Cesar de Cesar Netto; Don D. Anderson

11:45 AM

Paper No. 267

**Effect Of Device Trajectory And Simulated Resorption On Subtalar Arthrodesis Compression**

Shannon King; Taylor Filicette; David Safranski

11:55 AM

Paper No. 268

**Optimizing Screw Trajectory In The Treatment Of Anterolateral Distal Tibia Fractures: A CT Analysis**

Raymond L. Kitziger; Mihir Sheth; Corey Bindner; Scott Rosenfeld

12:05 PM

Paper No. 269

**Effects Of Hindfoot Fusions On Ankle Joint Kinematics During Simulations Of Stance**

Jeffrey Hoffman; Joaquin Palma; Scott Ellis; Constantine Demetracopoulos; Brett Steineman

**Monday, February 13, 2023**

3:15 PM - 4:15 PM

Room - Chantilly East

**Session 49      Spotlight - Tendon Development, Differentiation and Healing (featuring Alice Huang)**

Moderators: Benjamin Levi and Spencer Szczensy

3:15 PM

Paper No. 270

**Deciphering The Role Of Epitenon Cells In Tendon Healing Through Combined Lineage Tracing And Scrna-seq**

Anne EC Nichols; Alayna E. Loiselle

3:25 PM

Paper No. 271

**Hif-1 $\alpha$  Triggers Vascular Recruitment And Fibrosis In Tendon**

Greta Moschini; Amro A. Hussien; Maja Wolleb; Stefania L. Wunderli; Fabian Passini; Katrien De Bock; Jess Snedeker

3:35 PM

Paper No. 272

**Single Cell Transcriptomics-informed Induced Pluripotent Stem Cells Differentiation To Tenogenic Lineage**

Victoria Yu; Angela Papalamprou; Wensen Jiang; Julia Sheyn; Tina Stefanovic; Melissa Chavez; Angel Chen; Chloe Castaneda; Dmitriy Sheyn

4:45 PM

**Derivation of fibrous connective tissue lineages from pluripotent stem cells**

Alice Huang

**Monday, February 13, 2023**

3:15 PM - 4:15 PM

Room - Chantilly West

**Session 50      Spotlight - Drug Delivery to Joints (featuring Ambika Bajpayee)**

Moderators: Natalia Harasymowicz and Jay Patel

3:15 PM

Paper No. 273

**Targeting Damaged Collagen For Intra-articular Delivery Of Therapeutics Using Collagen Hybridizing Peptides**

Emma Luke; Pahweenvaj Ratnatilaka Na Bhuket; S. Michael Yu; Jeffrey Weiss

3:25 PM

Paper No. 274

**Cellular Uptake And Retention Of An ROS-Scavenging Biomaterial As A Chondroprotective Therapy For Osteoarthritis**

Jessica L. Aldrich; Arjun Panicker; Kyle Allen; Blanka Sharma

3:35 PM

Paper No. 275

**AAV2-hFGF18 Increases Cartilage Thickness And Promotes Hyaline Cartilage Anabolism**

Alex Goraltchouk; Judith M. Hollander; Francesco Luppino; Li Zeng; Alexey Seregin

4:45 PM

**Bioelectricity for Cartilage Drug delivery and Imaging**

Ambika Bajpayee

**Monday, February 13, 2023**

3:15 PM - 4:15 PM

Room - Wedgewood

**Session 51 Clinical Outcomes in Hip and Knee Arthroplasty**

Moderators: Chadd Clary and Mario Lamontagne

3:15 PM

Paper No. 276

**Racial And Ethnic Disparities In Knee Imaging And Interventions**

Andrew J. Sama; Brandon Price; Ananth Reddy; Zachary M. Zaiman; Oren Goltzer; Michael Gottschalk; Imon Banerjee; Hari Trivedi; Judy W. Gichoya

3:25 PM

Paper No. 277

**Does Patient Age Influence Patient-Reported Outcome Measures Following Primary Total Knee Arthroplasty?**

Charles W. Long; Nolan S. Smith; Michael J. Ziegele; Langan S. Smith; Matthew R. Price; Arthur L. Malkani

3:35 PM

Paper No. 278

**Povidone-iodine And Hydrogen Peroxide Irrigant Do Not Compromise Osseointegration**

Mohammed Hammad; Anastasia Oktarina; Vincentius Suhardi; Qingdian Li; Andrew Thomson; Matthew Greenblatt; Lionel Ivashkiv; Alberto Carli; Mathias Bostrom; Xu Yang

3:45 PM

Paper No. 279

**Location Dependence Of Molecular Markers In Hip Preservation Patients**

Connie Chamberlain; Andrew K. Kirchmeier; Tyler R. Dorobek; Jeanne G. Moua; Max V. Golden; Ray Vanderby; Andrea M. Spiker

3:55 PM

Paper No. 280

**Adiporon Reduces TGFβ1-mediated Collagen Deposition In Vitro And Alleviates Knee Stiffness In Vivo**

Amel Dudakovic; Afton Limberg; Banu Bayram; Jacob Bettencourt; Harold Salmons; Roman Thaler; Daniel Karczewski; Aaron Owen; Varun Iyer; Ashley Payne; Andre van Wijnen; Daniel Berry; Joaquin Sanchez-Sotelo; Mark Morrey; Matthew Abdel

4:05 PM

Paper No. 281

**Evaluating The Systemic Toxicity Due To Hip Implant Wear Products On The Liver- An In Vitro And In Vivo Study**

Shriya Singh Thakur; Hemalatha Kanniyappan; Puranjay Gupta; Robert Joseph Hillwig; Vedant V Bodke; Salman Khetani; Mathew Mathew

**Monday, February 13, 2023**

3:15 PM - 4:15 PM

Room - Coronado B-D

**Session 52 Hand and Wrist – Biomechanics**

Moderators: Zong-Ming Li and Nina Suh

3:15 PM

Paper No. 282

**Comparison Of Viscoelastic Ligament Properties In Healthy And Osteoarthritic Trapeziometacarpal Joints**

Lizzie Walker; Daniel Gordon; Alexander Chiaramonti; Dane Daley; Hai Yao; Yongren Wu

3:25 PM

Paper No. 283

**Use It Or Lose It: The Relationship Between Kinematic Joint Loading And Depth-specific Volumetric Bone Mineral Density**

Lauren Straatman; Nikolas Knowles; Nina Suh; David M. Walton; Emily Lalone

3:35 PM

Paper No. 284

**Familial Clustering And Genetic Analysis Of Severe Thumb Carpometacarpal Joint Osteoarthritis In A Large Statewide Cohort**

Nikolas Kazmers; Huong Meeks; Cathy Gavile; Kendra Novak; Zhe Yu; Joy Thomas; Channing Hansen; Tyler Barker; Mick Juryneec

3:45 PM

Paper No. 285

**The Effect Of Metacarpal Shortening On Finger Strength And Joint Motion: A Cadaveric Biomechanical Study**

Asher E. Lichtig; Alfonso Mejia; Mark Gonzalez; Arnand Ghosh; Akshay Balasubramaniyan; Daniel Mass; Farid Amirouche

3:55 PM

Paper No. 286

**Individual Thenar Muscle Size Is Affected Differently In Carpal Tunnel Syndrome Patients**

Jocelyn Hawk; John Elfar; Zong-Ming Li

4:05 PM

Paper No. 287

**A Study Of Changes In Wrist Joint Contact Area After Ulnar Shortening Osteotomy For Ulnar Impaction Syndrome**

Mitsutoshi Ota; Daisuke Momma; Yuichiro Matsui; Daisuke Kawamura; Takeshi Endo; Norimasa Iwasaki

**Monday, February 13, 2023**

3:15 PM - 4:15 PM

Room - Cortez

**Session 53 Translational and Clinical Imaging**

Moderators: Matthew Koff and Ashley Williams

3:15 PM

Paper No. 288

**Multiparametric MRI Of Knees In Collegiate Basketball Players: Associations With Position, Morphological Defects, And Functional Deficits**

Cameron Nosrat; Kenneth Gao; Rupsa Bhattacharjee; Valentina Pedoia; Matthew Koff; Garry Gold; Hollis Potter; Sharmila Majumdar

3:25 PM

Paper No. 289

**Comparison Of Whole Compartment And Regional Medial And Lateral Meniscal T2\* Values Within Elite Athletes**

Erin C. Argentieri; Sara Sacher; John P. Neri; Ek Tan; Garry Gold; Sharmila Majumdar; Hollis G. Potter; Matthew F. Koff

3:35 PM

Paper No. 290

**Comparison Between Supine And Upright Imaging For Measuring Intervertebral Lordosis And Disc Height In Individuals With Chronic Low Back Pain**

Joseph Shoemaker; Clarissa LeVasseur; Tom Gale; Sabreen Megherhi; Caroline Pellegrini; Marit Johnson; Gina McKernan; William Anderst

3:45 PM

Paper No. 291

**Tibiofemoral And Patellofemoral Kinematics Are Both Affected In Patients With Patellar Maltracking Disorders; A Dynamic CT Study.**

Hans Dunning; Sebastiaan A.W. van de Groes; Constantinus F. Buckens; Mathias Prokop; Nico Verdonschot; Dennis Janssen

3:55 PM

Paper No. 292

**Diffusion Weighted Imaging Metrics Are Related To Muscle Strength In Asymptomatic And Osteoarthritic Thigh Muscles**

Amelia Kruse; Scott Tashman; Charles Ho; Lauren Watkins

4:05 PM

Paper No. 293

**Average Femoral Cartilage T2 Relaxation Times Are Related To Cellular Senescence In Peripheral Blood**

Benjamin Bernarding; Adam Goff; Johnny Huard; Marc Philippon; Scott Tashman; Lauren Watkins

**Monday, February 13, 2023**

3:15 PM - 4:15 PM

Room – Monet

**Session 54 Orthopaedic Infection and Management**

Moderators: Valentin Demidov and Stefanie Sheils

3:15 PM

Paper No. 294

**Which Stage Of Primary TKA Procedures Presents The Greatest Risk Of Bacterial Contamination?**

David R. Maldonado; Hugh Jones; Christopher Q. Dao; Elizabeth A. Oliver; David Doherty; Steven J. Schroder; Philip Noble; Kenneth B. Mathis

3:25 PM

Paper No. 295

**Immune Response To Medical Device Infection In A Rat Model**

Yingfang Fan; Madeline McCanne; Jean Yuh; Sashank Lekkala; Amita Sekar; Ebru Oral

3:35 PM

Paper No. 296

**Intravital Multiphoton Laser Scanning Microscopy Quantification Of The “Race For The Surface” Between Host Cells And Bacteria In A Murine Model Of Staphylococcus Aureus Implant-associated Bone Infection**

Youliang Ren; Joshua Rainbolt; Thomas Xue; Jason Weeks; Ye Shu; Karen L. de Mesy Bentley; Shu-Chi Yeh; Steven R. Gill; Ann Gill; Edward M. Schwarz; Chao Xie

3:45 PM

Paper No. 297

**The Efficacy Of Endothelial Progenitor Cell Therapy Combined With Local Antibiotics In A Rat Critical-size Defect Model**

Ikran Ali; Stéphane Gagnon; Kalter Hali; Omar Hassan; Emil Schemitsch; Aaron Nauth

3:55 PM

Paper No. 298

**Chitosan Hydrogel And Polylactic Acid Particles Loaded With Fosfomycin For Localized Treatment Of Osteomyelitis**

Luke J. Tucker; Julia Difiore; Bailey E. Roux; Xavier J. Person; Malley A. Gautreaux; Lauren B. Priddy

4:05 PM

Paper No. 299

**What Mechanical Methods Work For Removing Biofilm From Orthopedic Surfaces? Comparing Pulsatile Lavage And Sonication Brushing**

Christina Chao; Zachary Coles; Mathias Bostrom; Alberto Carli

**Tuesday, February 14, 2023**

8:00 AM - 9:00 AM

Room - Chantilly East

**Session 55 Cartilage and Synovium – Mechanotransduction**

Moderators: Karin Payne and Danielle Rux

8:00 AM

Paper No. 300

**Joint Damage Is More Severe Following A Single Bout Than Multiple Bouts Of High Magnitude Loading**

Sophia N. Ziemian; Steven R. Goldring; Mary B. Goldring; Timothy M. Wright; Marjolein C H van der Meulen

8:10 AM

Paper No. 301

**Decorin Maintains Cartilage Surface Integrity And Chondrocyte Mechanotransduction During Aging**

Mingyue Fan; Prerana Singh; Bryan Kwok; Biao Han; Thomas Li; Chao Wang; Ling Qin; David E. Birk; Renato V. Iozzo; Robert L. Mauck; Lin Han

8:20 AM

Paper No. 302

**Maternal Exercise Partially Rescues The Deleterious Effects Of Absent Skeletal Muscle On Skeletal Development**

Yuming Huang; Niamh C. Nowlan

8:30 AM

Paper No. 303

**Articular Cartilage Shear Properties Change With Compression And Are Dependent On An Intact Superficial Zone**

Mohammed J. AbuAlia; Markus A. Wimmer

8:40 AM

Paper No. 304

**Sex-specific Chondrocytes' Response To Physiological And Injurious Levels Of Mechanical Loading**

Miranda Moreno; Zahra Baratj; Paula A. Hernandez

8:50 AM

Paper No. 305

**Physiologic And Pathologic Chondrocyte Mechanotransduction Is Mediated Through TRPV4 Or Piezo1 Signaling And Activation Of Distinct Downstream Transcriptional Pathways**

Robert J. Nims; Daniel Palmer; Jordan Kassab; Bo Zhang; Wolfgang Liedtke; Farshid Guilak

**Tuesday, February 14, 2023**

8:00 AM - 9:00 AM

Room - Chantilly West

**Session 56 Clinical Research Methods II**

Moderators: Zbigniew Gagula and Kenton Kaufman

8:00 AM

Paper No. 306

**Ceiling Effect Of The Combined Norwegian And Danish Knee Ligament Registers Limits Anterior Cruciate Ligament Reconstruction Outcome Prediction**

R. Kyle Martin; Solvejg Wastvedt; Ayoosh Pareek; Andreas Persson; Håvard Visnes; Anne Marie Fenstad; Gilbert Moatshe; Julian Wolfson; Martin Lind; Lars Engebretsen

8:10 AM

Paper No. 307

**Discordant Mental And Physical Recovery May Underlie Patient Response To Arthroscopic Treatment Of Meniscus Injury: A Longitudinal Multi-domain Clustering Analysis**

Ryan T. Halvorson; Winnie Fan; Aidan Foley; Drew Lansdown; Jeannie F. Bailey; Brian T. Feeley

8:20 AM

Paper No. 308

**Are Database Studies Reproducible And Reliable? A Deep Dive Into The ACS - NSQIP Data**

Ayobami Ogunsola; Michael Marinier; Jacob Elkins

8:30 AM

Paper No. 309

**Predicting The Effects Of Prosthetic Alignment On Knee Moment Using Imus And Neural Networks**

Gilmar F. Santos; Carina Gempfer; Marco Gustav; Christof Hurschler; Henning Windhagen; Eike Jakobowitz

8:40 AM

Paper No. 310

**Association Of Total Knee Replacement Removal From The Inpatient-only List With Outpatient Surgery Utilization And Outcomes In Medicare Patients**

Derek T. Schloemann; Thomas Sajda; Benjamin F. Ricciardi; Caroline P. Thirukumaran

8:50 AM

Paper No. 311

**Measuring The Effectiveness Of Three Instructional Interventions For Prehospital Cervical Spine Immobilization By Laypeople: A Randomized Clinical Trial**

Peter G. Delaney; Haleigh Pine; Zachary J. Eisner; Mathieu D. Squires; Ilyas S. Aleem; Jaimo Ahn

**Tuesday, February 14, 2023**

8:00 AM - 9:00 AM

Room - Wedgewood

**Session 57      Spotlight - Tendon and Ligament Mechanobiology (featuring Michael Kjaer)**

Moderators: Fei Fang and Katie Sikes

8:00 AM

Paper No. 312

**Piezo1 Promotes Tendon Growth In Adults Via Mechanical Stress**

Ryo Nakamichi; Toshifumi Ozaki; Hiroshi Asahara

8:10 AM

Paper No. 313

**Mechanical Overload To Tendon Organoid Induces The Release Of Inflammatory Microvesicles And Mitovesicles**

Ziming Chen; Peilin Chen; Andrew Tai; Euphemie Bassonga; Allan Wang; Ming H. Zheng

8:20 AM

Paper No. 314

**Mechanical Tension Shapes Glucose Metabolism And Extracellular Matrix Homeostasis In Tendon**

Maja Wolleb; Amro A. Hussien; Stefania L. Wunderli; Barbara Niederoest; Katrien De Bock; Jess Snedeker; Olivier Leupin; Ulrich auf dem Keller; Fabio Sabino; Simonas Savickas; Fabian Egli; Joanna Mitchelmore; Juliet Leighton-Davies; Greta Moschini

8:30 AM

**Physiological and pathological adaptation to exercise in human tendon**

Michael Kjaer

**Tuesday, February 14, 2023**

8:00 AM - 9:00 AM

Room - Coronado B-D

**Session 58 Tumors - Genetics, Primary and Metastatic**

Moderators: Xie Chao and Gabriel Pagnotti

8:00 AM

Paper No. 315

**Impact Of Subtype Classification On Survival In Patients With Breast Cancer And Bone Metastasis**

Nayu Kitsuya; Masatake Matsuoka; Tomohiro Onodera; Isao Yokota; Koji Iwasaki; Yuki Suzuki; Eiji Kondo; Norimasa Iwasaki

Paper No. 316 – presented in **Session 29 – 9:00 AM – 9:10 AM** on Sunday, February 12

**Evaluating Venous Thromboembolism In Patients With Metastatic Bone Disease: Are We Treating Patients With Appropriate Prophylaxis?**

Annalise Abbott; Joseph Kendal; Benjamin Wajda; Shannon KT Puloski; Prism Schneider; Michael J. Monument

8:20 AM

Paper No. 317

**B7-H3 CAR T Cell Therapy Combined With Irradiation Is Effective In Targeting Bulk And Radiation-resistant Chordoma Cancer Cells**

David O. Osei-Hwedieh; Wang Kun; Wang Yufeng; Xinhui Wang; Soldano Ferrone; Joseph H. Schwab

8:30 AM

Paper No. 318

**Internal Validation Of Modified Mirels' Scoring System For Pathologic Femur Fractures**

Vishal S. Desai; Richard L. Amendola; Kenneth A. Mann; Timothy A. Damron

8:40 AM

Paper No. 319

**Malignancy Of Osteosarcoma Cells Is Linked To Methionine Addiction Via Modulation Of The Epithelial-mesenchymal Phenotype And Histone-h3 Lysine-methylation Status**

Yusuke Aoki; Yasunori Tome; Hiromichi Oshiro; Kotaro Nishida; Robert M. Hoffman

8:50 AM

Paper No. 320

**Clathrin Mediated Uptake And Endo-lysosomal Trafficking Of Mithramycin A Nanoparticles Is Necessary For Ph-dependent, Intracellular Drug Release**

Joseph C. Giancaspro; Dandan Guo; A. Christine Tilstra-Smith; Juntao Luo; Jason A. Horton

**Tuesday, February 14, 2023**

8:00 AM - 9:00 AM

Room - Cortez

**Session 59 Computational Modeling in Arthroplasty**

Moderators: Fernando Gonzalez and Dennis Janssen

8:00 AM

Paper No. 321

**In Silico Clinical Trial To Assess The Load Transfer Of Mechanically And Anatomically Aligned Cementless Acetabular Cups**

Mark Taylor; Rebecca Bryan

8:10 AM

Paper No. 322

**The Effect Of Interference Fit And Coefficient Of Friction On The Micromotions Of A Cementless PEEK Tibial Component**

Corine Post; Thom Bitter; Adam Briscoe; Nico Verdonchot; Dennis Janssen

8:20 AM

Paper No. 323

**TKA Conformity Has A Larger Influence On Knee Kinematics During ADLs Than Ligament Tension**

Ahilan Anantha Krishnan; Yashar Behnam; Mick Rock; Chadd Clary

8:30 AM

Paper No. 324

**Calibration Of Knee Ligament Properties Using Arthroplasty Inspired Distraction Measurements Across Multiple Specimens**

Jason Halloran

8:40 AM

Paper No. 325

**Variabilities In Natural Knee Medial Load Share During Lunge And Stair Descent**

Azhar A. Ali; Jerry D'Alessio; Cheryl Liu

8:50 AM

Paper No. 326

**Effect Of Varying Femur-insert Congruency, Due To Sizing Philosophies, On Knee Mechanics**

Amitkumar Mane; Mick Rock; Luke Aram; Johathan Vigdorichik; Matt Lyons; Kazutaka Sugimoto; Richard Komistek; Stephen White

**Tuesday, February 14, 2023**

8:00 AM - 9:00 AM

Room – Monet

**Session 60 Spine - Therapies and Diagnostics**

Moderators: Hiroshi Hashizume and Devina Purmessur

8:00 AM

Paper No. 327

**Varenicline Mitigates The Negative Effects Of Nicotine On Spinal Fusion**

Brian Karamian; Hannah Levy; Goutham Yalla; Nicholas D'Antonio; Jeremy A. Heard; Alexander Vaccaro; Dessislava Markova; Christopher Kepler

8:10 AM

Paper No. 328

**The Comparative Effect Of Opioid And Non-Steroidal Anti-Inflammatory Administration On Spinal Fusion**

Mark J. Lambrechts; Nicholas D. D'Antonio; Goutham R. Yalla; Jeremy C. Heard; Alexander R. Vaccaro; Dessislava Z. Markova; Christopher K. Kepler

8:20 AM

Paper No. 329

**Bone Turnover Markers In The Preoperative Assessment Of Bone Quality - A Prospective Investigation Of Bone Microstructure And Advanced Glycation End products In Lumbar Fusion Patients**

Haffer Henryk; Maximilian Muellner; Erika Chiapparelli; Yusuke Dodo; Jiaqi Zhu; Yi Xin Han; Eve Donnelly; Jennifer Shue; Andrew A. Sama; Frank P. Cammisa; Federico P. Girardi; Alexander P. Hughes

8:30 AM

Paper No. 330

**Posterolateral Off-set Tether Corrects Scoliosis And Preserves Growth In Mini-pig Animal Model**

Benjamin Sinder; Madeline Boyes; Rachel Hilliard; Axel Moore; Jason Anari; Edward Vresilovic; Dawn Elliott; Brian Snyder; Thomas Schaer; Patrick Cahill

8:40 AM

Paper No. 331

**Inflammatory Priming Of MSCs Fades Rapidly But Can Be Partially Preserved With 3D Culture Priming And A Continuous Pro-inflammatory Stimulation**

Nick Herger; Leonardo Arpesella; Irina Heggli; Tamara Mengis; Mazda Farshad; Florian Brunner; Oliver Distler; Stefan Dudli

8:50 AM

Paper No. 332

**Single-level Anterior Cervical Discectomy And Fusion Versus Posterior Cervical Foraminotomy: Perioperative Outcomes And Five-year Revision Rates**

Rahul H. Jayaram; Peter Y. Joo; Michael J. Gouzoulis; Philip P. Ratnasamy; Dennis L. Caruana; Jonathan N. Grauer

**Tuesday, February 14, 2023**

12:15 PM - 1:15 PM

Room - Chantilly East

**Session 61      Biomaterials - Disc and Osteoarthritis**

Moderators: Thomas Kean and Ling Qin

12:15 PM

Paper No. 333

**Intra-joint Sustained Release Of Neosaxitoxin For Long-term Osteoarthritis Pain Relief**

Hengli Zhang; Chenzhen Zhang; Jessica Huang; Jun Li; Ezra Cohen; Rachel Miller; Ambika G. Bajpayee

12:25 PM

Paper No. 334

**A2m Reduces Synovial Inflammation In A Yucatan Mini-pig PTOA Model**

Changqi Sun; Kenny Chang; Braden Fleming; Brett Owens; Rachel Bruns; Jillian Beveridge; Scott Mcallister; Meggin Costa; Megan Pinette; Xiao Ying; Lei Wei

12:35 PM

Paper No. 335

**Anti-inflammatory Tension-Activated Repair Patches Promote Intervertebral Disc Repair After Herniation**

Ana P. Peredo; Sarah E. Gullbrand; Brianna Orozco; Rachel Hilliard; Thomas P. Schaer; Harvey E. Smith; Robert L. Mauck

12:45 PM

Paper No. 336

**Attenuating Discogenic Low Back Pain With Injectable Stem Cell-loaded Thermo-responsive Microgels**

Wensen Jiang; Jacob T. Wechsler; Giselle Kaneda; Mou Lei; Wei Huang; Thomas Spaeter; Julia Sheyn; Changlu Xu; Victoria Yu; Melissa Chavez; Chloe Castaneda; Ethan Ha; Wafa Tawackoli; Linda EA Kanim; Oksana Shelest; Hyun W. Bae; Dror Seliktar; Mehmet Dokmeci; Ali Khademhosseini; Dmitriy Sheyn

12:55 PM

Paper No. 337

**Injectable Radiopaque Hyaluronic Acid Granular Hydrogels For Intervertebral Disc Repair**

Victoria Muir; Rachel Hilliard; Thomas Schaer; Jason Burdick; Sarah Gullbrand

1:05 PM

Paper No. 338 (Guest Nation-Ireland) 

**Multi-layered Mechanically Reinforced Collagen-based Scaffold Promotes Osteochondral Repair Of Critical Sized Medial Condyle Defects In Both Young And Elderly Goats**

Arlyng G. Gonzalez-Vazquez; Claudio Intini; Mark Lemoine; Lia A. Blokpoel; Pieter Brama; Fergal O'Brien

**Tuesday, February 14, 2023**

12:15 PM - 1:15 PM

Room - Chantilly West

**Session 62 Knee - Imaging, Traumatic Joint Injury and OA Assessment**

Moderators: Shuyang Han and Suzanne Maher

12:15 PM

Paper No. 339

**Raman Needle Probe Predicts Cartilage Functional Mechanical Properties Better Than OARSI Score**

Masumeh Kazemi; Farida Korne; Chenhao Yu; Juncheng Zhang; Dev Mehrotra; Magnus Jensen; Thomas P. Schaer; Julie Engiles; Mark Grinstaff; Brian Snyder; Mads Bergholt; Michael Albro

12:25 PM

Paper No. 340

**MRI UTE-T2\* Of Cartilage Measured Prior To Anterior Cruciate Ligament Reconstruction Shows Associations With Patient Reported Sports Activity 11 Years Later**

Ashley A. Williams; Nicholas P. Drain; Yongxian Qian; Kathryn J. Stevens; Constance R. Chu

12:35 PM

Paper No. 341

**Can A Machine Learning Approach Facilitate Imageless Womac Score Prediction In Knee Osteoarthritis?**

Abhinav Nair; Hadi Alagha; Justin Cobb; Gareth Jones

12:45 PM

Paper No. 342

**Effect Of Radiographic Knee Scoring System On The Identification Of Synovial Fluid Biomarkers Related To Osteoarthritis Severity**

Harjeev Singh; Aaron Stoker; Anna Sullentrup; Jordan Schafer; Cristi Cook; James Keeney; Emily Leary; James Cook

12:55 PM

Paper No. 343

**Quantitative Mri Biomarkers To Predict Risk Of Reinjury Within 2 Years After Bridge-enhanced Acl Restoration**

Dominique A. Barnes; Sean W. Flannery; Gary J. Badger; Yi-Meng Yen; Lyle J. Micheli; Dennis E. Kramer; Paul D. Fadale; Michael J. Hulstyn; Brett D. Owens; Kirsten Ecklund; Ryan M. Sanborn; Meggin Q. Costa; Cynthia Chrostek; Benedikt L. Proffen; Nicholas Sant; Martha M. Murray; Braden C. Fleming; Ata M. Kiapour

1:05 PM

Paper No. 344

**Patellar Anatomy Related To Cartilage Properties Following Multiple Patellar Dislocations: Correlating Anatomical Modes From Statistical Shape Models With T1ρ Relaxation Times**

John J. Elias; Mingrui Yang; Mei Li; Richard Lartey; Lutul D. Farrow; Carl S. Winalski; Xiaojuan Li

**Tuesday, February 14, 2023**

12:15 PM - 1:27 PM

Room - Wedgewood

**Session 63 Late Breaking Session**

Moderators: Marianna Kersh and Martin Stoddart

12:15 PM

Paper No. 2024

**Engineered Self-regulating Macrophages For Targeted Anti-inflammatory Drug Delivery**

Molly Klimak; Amanda Cimino; Kristin L. Lenz; Luke E. Springer; Kelsey H. Collins; Natalia S. Harasymowicz; Christine TN Pham; Farshid Guilak

12:21 PM

Paper No. 2025

**Mapping Articular Cartilage CXCR4 Expression After ACL Injury Via A Novel Small Molecule-Based Imaging Probe**

Michael D. Newton; Mackenzie M. Fleischer; Howard WT Matthew; Tristan Maerz

12:27 PM

Paper No. 2026

**Assessment Of Deltoid Muscle Volume And Fatty Infiltration On Clinical Outcomes After Reverse Total Shoulder Arthroplasty**

David Berry; Anshu Singh; Amirali Kamgar; Christian Majano; Garrett Berger; Josie Elwell; Christopher Roche

12:33 PM

Paper No. 2027

**Scapular Morphology Variation Affects Biomechanical Outcomes Post-RTSA. A Simulation Study.**

Pavlos Silvestros; George Athwal; Joshua Giles

12:39 PM

Paper No. 2028

**New Animal Model For Infected Fracture Non-union After External Fixation Of Tibia With Real-time In-vivo Monitoring Of Infection.**

Louise Robiati; Paul Hindle; Sarah Stapley; Hamish Simpson

12:45 PM

Paper No. 2029

**Skeletal Nerves Modulate Tendon Sheath Progenitor Cell Proliferation During Tendon Repair Via Tgf $\beta$  Signaling**

Masnsen Cherief; Jiajia Xu; Zhao Li; Stefano Negri; Mario Mario Gomez-Salazar; Cammy Tang; SOWMYA Ramesh; Lingke Zhong; Robert Tower; Benjamin Levi; Aaron James

12:51 PM

Paper No. 2030

**The Effect Of Psoriasis Treatments On Postoperative Infections Following Lumbar Laminotomy**

Wesley Day; Peter Y. Ch'en; Philip P. Ratnasamy; Jonathan N. Grauer

12:57 PM

Paper No. 2031

**Hindlimb Suspension Induces Upregulation Of The Senescence Pathway In An Age-dependent Manner**

Steven J. Meas; Gabrielle M. Daire; Michael A. Friedman; Henry J. Donahue

1:03 PM

Paper No. 2032 (Guest Nation-Ireland) 

**An Examination Of Mechanical Properties And Microdamage Accumulation Of Human Type-2 Diabetic Bone**

Marissa Britton; Genna Monahan; Anais Owieka; Stephane Jaisson; Colin G. Murphy; Halima Kerdjoudj; Jessica Schiavi; Ted J. Vaughan

1:09 PM

Paper No. 2033

**The Shared And Separate Cortical Bone Tissue Metabolic Signatures Of Aging And High Fat Diet**

Kenna Brown; Hope Welhaven; Brady Hislop; Ghazal Vahidi; Maya Moody; Kat Paton; Ron June; Stephen Martin; Chelsea Heveran

1:15 PM

Paper No. 2034

**Effect Of PPARG Inhibition On Human BMSC Cell Fate**

Maria Rosa Iaquinta; Carmen Lanzillotti; Tognon Mauro; Fernanda Martini; Martin J. Stoddart; Elena Della Bella

1:21 PM

Paper No. 2035

**Novel Role Of Lncrna H19 In Osteoarthritis Development Via Modulating Subchondral Bone Remodeling And Osteocyte Responses To Mechanical Stimulation**

Rongliang Wang; Michael Tim yun Ong; Vivas Hon Fai Chan; Gang Li; Wayne Yuk Wai Lee

**Tuesday, February 14, 2023**

12:15 PM - 1:15 PM

Room - Coronado B-D

**Session 64 Bone - Diseases and Disorders**

Moderators: Elizabeth Balmayor and Jan Hughes-Austin

12:15 PM

Paper No. 345

**Inflammation Induces Atypical Differentiation Of Osteoblasts Into Inflammatory Osteocytes**

Gaurav Swarnkar; Yousef Abu-Amer

12:25 PM

Paper No. 346

**Deficiency Of Anxa1 Exacerbates Bone Loss In Osteoporosis:an Insight Into The Indispensable Role Of Anxa1 In Regulation Of Bone Remodeling**

Yoshio Nishida; M Alaa Terkawi; Taku Ebata; Tomohiro Shimizu; Hend Alhasan; Shunichi Yokota; Tsutomu Endo; Daisuke Takahashi; Norimasa Iwasaki

12:35 PM

Paper No. 347

**Targeting Prostaglandin Receptor Ep1 To Accelerate Fracture Healing In Mice With Burn Injury**

Nianye Zheng

12:45 PM

Paper No. 348

**Using A Caloric Restriction Diet To Reduce Post-Radiotherapy Bone Fragility In A Murine Model**

Jessica A. Hotaling; Brittany A. Simone; Amy E. Biggs; Tara E. Carney; Mohammed Z. Kamran; Megan E. Oest

12:55 PM

Paper No. 349

**Elevated Rho Signaling Downstream Of The R206H Acvr1 Mutation In FOP Alters Chromatin Organization**

Yujia Zhang; Douglas Roberts; Foteini Mourkioti; Melike Lakadamyali; Robert Mauck; Eileen Shore; Su-Jin Heo

1:05 PM

Paper No. 350

**Assessment Of Anti-siglec 15 In An Adult Female Mouse Model Of Osteogenesis Imperfecta—A Pilot Study**

Cathleen Raggio; Ketsia Seide; Chethana Gallage Dona; Stephen B Doty; Alyssa N. Venezia; Holly LoTurco; Erin Carter; Nancy Pleshko; Priyanka Kothari; Sol Langermann; Shanmugam Selvam

**Tuesday, February 14, 2023**

12:15 PM - 1:15 PM

Room - Cortez

**Session 65      Biology of Shoulder Injury and Regeneration**

Moderators: Yen-Sheng Lin and Ara Nazarian

12:15 PM

Paper No. 351

**Regenerative Potential Of Different Regions Of The Human Glenoid Labrum**

Bhavya Vaish; Le Hoang; Samira Izuagbe; Cynthia Co; Joseph Borrelli; Peter Millett; Liping Tang

12:25 PM

Paper No. 352

**Effect Of Bone Marrow Aspirate Concentrate With Different Carriers For The Regeneration Of Tendon In A Chronic Rotator Cuff Tear Model Of Rabbit**

Sheng Chen Han; Joo Han Oh; Jian Han

12:35 PM

Paper No. 353

**Differential Signaling Pathway Networks Of A Heterogeneous Population Of Fibroadipogenic Progenitor Cells Following Rotator Cuff Injury**

Justin H. Lau; Steven M. Garcia; Hubert Kim; Xuhui Liu; Brian Feeley

12:45 PM

Paper No. 354

**Ultrasound Detects Increased Vascularity Following Rotator Cuff Tears Compared To Asymptomatic And Repaired Rotator Cuff Tendons**

Lauren E. Watkins; Maria E. Dey Hazra; Rony-Orijit Dey Hazra; Amelia Kruse; Peter J. Millett

12:55 PM

Paper No. 355

**The Effects Of Hyaluronic Acid On The Proliferation Of Human Dermal Fibroblasts And Their Effects On Tendon-to-bone Healing In A Rabbit Model Of A Chronic Rotator Cuff Tear**

Sung-Min Rhee; Saewha Jeon; Jikhyon Han; Ji-Hye Lee; Hyeon Jang Jeong; Joo Hyun Park; Joo Han Oh

1:05 PM

Paper No. 356

**Analysis Of The Human Deltoid Muscle After Axillary Nerve Injury**

Amanda Tedesco; Luigi Gonzales; Vivian Chen; Michael Hicks; Tyler Johnston; Oswald Steward; Ranjan Gupta

**Tuesday, February 14, 2023**

12:15 PM - 1:15 PM

Room - Monet

**Session 66      Robotics and Technology in Arthroplasty**

Moderators: Paul Manner and Joshua Roth

12:15 PM

Paper No. 357

**The Use Of Robotic Technology On Complex Varus Total Knee Arthroplasty Cases**

Melanie Caba; Michael Ormond; Jenna Mesisca; Zachary Guerriero; Yasmine Mechrefe; Robert Marchand

12:25 PM

Paper No. 358

**Optimal Component Positioning Avoids The Need For Soft Tissue Releases In The Vast Majority Of Varus Knees Undergoing Tka**

Jonathan R. Peterson; Lauren E. Pupa; Sabir K. Ismaily; Philip C. Noble; Adam M. Freedhand

12:35 PM

Paper No. 359

**Novel Arthrometer For Quantifying Knee Laxity In Three Planes In Total Knee Arthroplasty Patients**

David Shamritsky; Erin Berube; Nicolas Sapountzis; Allison Diaz; Timothy Wright; Michael Parides; David Mayman; Geoffrey Westrich; Peter Sculco; Brian Chalmers; Carl Imhauser

12:45 PM

Paper No. 360

**Clinical Application Of Augmented Reality In Total Hip Arthroplasty With Ct-based Navigation**

Masahiro Hasegawa; Yohei Naito; Shine Tone; Nishimura Fumihiko; Akihiro Sudo

12:55 PM

Paper No. 361

**Virtual Evaluation Of A Novel, Modular Tibiofemoral Contact Force Sensor For Knee Arthroplasty**

Jason DePhillips; Joshua Roth

1:05 PM

Paper No. 362

**Key Knee Moment Prediction From Wearable Inertial Sensor Network Assessment On Healthy Individuals**

Alon Sabaty; Tian Tan; Peter B. Shull; Kfir Yehuda Levy; Arielle G. Fischer