



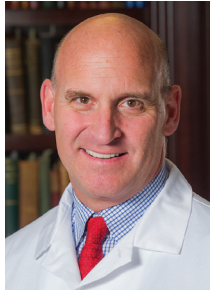
**HSS**

**HOSPITAL FOR SPECIAL SURGERY**

2018 Academic Presentations  
from the Annual Meetings of the

**American Academy of  
Orthopaedic Surgeons &  
Orthopaedic Research Society**

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**Todd J. Albert, MD**  
Surgeon-in-Chief

Dear Colleague,

I am pleased to inform you of Hospital for Special Surgery's participation at this year's annual AAOS and ORS meetings, where HSS faculty showcased important research in today's orthopaedic field. The following pages show the diversity of moderated panels, and numerous oral and poster presentations.

You are invited to sign up at **[hss.edu/professional](https://hss.edu/professional)** to receive updates about HSS eAcademy®, our online professional education platform, an unparalleled selection of over 600 on-site, live streaming and on-demand offerings; as well as news and information from HSS Education Institute.

This is an age of transformation in healthcare. I am proud of the work we do at HSS and our presence at these meetings underscores the valuable contributions HSS makes to patients around the world. Please reach out to **[professionaleducation@hss.edu](mailto:professionaleducation@hss.edu)** should you want more information on these academic presentations.

A handwritten signature in black ink, appearing to read "Todd J. Albert". The signature is fluid and cursive, written in a professional style.

**Todd J. Albert, MD**  
Surgeon-in-Chief



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# AAOS Meeting

## Adult Reconstruction & Joint Replacement Division

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### 2-HOUR INSTRUCTIONAL COURSE

#### Is Medical Clearance Enough? Understanding Medical Issues that Can Affect Your Patients' Outcomes

Moderator: Joseph Lane, MD  
Charles Cornell, MD

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### CASE PRESENTATIONS

#### Trunions, Tapers, and Corrosion in Total Hip Arthroplasty: What's All the Fuss About? What Every Surgeon Should Know

Mathias Bostrom, MD, Douglas Padgett, MD, Peter Sculco, MD

#### The Post "OOP" Knee

Steven Haas, MD, David Mayman, MD, Geoffrey Westrich, MD

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### INSTRUCTIONAL COURSE

#### Thromboembolism Prophylaxis for Orthopaedic Surgeons: Update 2018

Douglas Padgett, MD

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### ORTHOPAEDIC VIDEO LIBRARY

#### The Difficult Primary TKA (Video-Based)

Moderator: Mathias Bostrom, MD

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### PAPER PRESENTATIONS

#### Access to the Ischium: A Simple Extension of the Posterior Approach in Revision Hip Arthroplasty

Kilian Rueckl, MD, Maximilain Kasparek, MD, Friedrich Boettner, MD

#### Antioxidant Stabilized Highly Cross-Linked Polyethylene in Total Knee Arthroplasty: A Retrieval Analysis

Danielle Ponzio, MD, Lydia Weitzler, MS, Christina Esposito, PhD, Timothy Wright, PhD, Douglas Padgett, MD

#### Characterizing the Diagnosis and Treatment of Allergic Contact Dermatitis to 2-Octyl Cyanoacrylate Utilized for Skin Closure in Elective Orthopaedic Surgery

Brian Chalmers, MD, Heath Melugin, MD, Peter Sculco, MD, Rafael Sierra, MD, Michael Stuart, MD, Mark Pagnano, MD, Michael Taunton, MD

#### Comparison of Infection Risk with Corticosteroid or Hyaluronic Acid Injection Prior to Total Knee Arthroplasty

Shawn Richardson, MD, William Schairer, MD, Peter Sculco, MD, Thomas Sculco, MD

#### Comparison of Pharmacologic Prophylaxis in Prevention of Venous Thromboembolism Following Total Knee Arthroplasty

Shawn Richardson, MD, William Schairer, MD, Peter Sculco, MD, Mathias Bostrom, MD

#### Diagnosing Periprosthetic Joint Infection After Unicompartamental Knee Arthroplasty:

#### Is it Similar to Total Knee Arthroplasty?

Chelsea Koch, BS, Yuo-Yu Lee, MS, Michael Cross, MD

#### Distal Femoral Arthroplasty in Non-Oncologic Patients Undergoing Revision Knee Arthroplasty

Ivan De Martino, MD, Rocco D'Apolito, MD, Allina Nocon MPH, Mathias Bostrom, MD, Thomas Sculco, MD, Peter Sculco, MD

#### Effect of Surgical Approach on Outcomes Following Same-Day Bilateral Total Hip Arthroplasty

Lazaros Poultsides, MD, Danielle Ponzio, MD, Kathryn Oi, BA, Stavros Memtsoudis, MD, PhD, Edwin Su, MD, Thomas Sculco, MD, Michael Alexiades, MD

#### Failure After Modern Total Knee Arthroplasty: A Prospective Study of 18,065 Knees

Michael Pitta, MD, Christina Esposito, PhD, Zhichang Lee, MD, Yuo-Yu Lee, MS, Timothy Wright, PhD, Douglas Padgett, MD

#### Functional Component Position and Pelvic Flexibility Impact Prosthetic Stability Following Total Hip Arthroplasty

Denis Nam, MD, Carolyn Anglin, PhD, Pierre Yves Lagace, Robert Barrack, MD, Aaron Buckland, FRACS, Jonathan Vigdorichik, MD, David Mayman, MD

#### Hip Flexion Increases and Spine Flexion Decreases From Standing to Sitting Position 1 Year After Patients Undergo Total Hip Arthroplasty

Jonathan Berliner, MD, Christina Esposito, PhD, Theodore Miller, MD, Douglas Padgett, MD, David Mayman, MD, Seth Jerabek, MD

#### Implant Selection Errors in Total Hip and Knee Arthroplasty

Steven Haas, MD, David Mayman, MD, Alejandro Gonzalez Della Valle, MD, Michael Ast, MD

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**Implant Survival and Patient-Reported Outcomes After Total Hip Arthroplasty in Young Patients**

Ishaan Swarup, MD, Yuo-Yu Lee, MS, Ryan Sutherland, BA, Marisa Shields, BA, Mark Figgie, MD

**Is Frailty Associated with Adverse Events After Total Joint Arthroplasty?**

Lisa Mandl, MD, MPH, Abigail Schmucker, BA, Charles Cornell, MD, Michael Cross, MD, Alejandro Gonzalez Della Valle, MD, Mark Figgie, MD, Seth Jerabek MD, Jackie Szymonifka, MA, Steven Magid, MD

**Outcomes Following Revision of Metal-on-Metal Total Hip Arthroplasty**

Danielle Ponzio, MD, Anthony Salvatore, MS, Allina Nocon, MPH, Friedrich Boettner, MD

**Prior Hip Arthroscopy Does Not Affect Clinical Outcomes Following Total Hip Arthroplasty: An Institutional, Matched Cohort Study**

Lazaros Poultsides, MD, Branden Sosa, Yuo-Yu Lee, MS, Kathryn Oi, BA, Robert Buly, MD

**Randomized Control Trial of Essential Amino Acid Supplementation in Patients Following Total Knee Arthroplasty**

Seth Jerabek, MD, Kaitlin Carroll, BS, Peter Sculco, MD, David Mayman, MD

**Risk of Ischemic Stroke After Perioperative Atrial Fibrillation in Total Knee and Hip Arthroplasty Patients**

Sariah Khormae, MD, Huong Do, MA, Gino Gialdini, Hooman Kamel, Michael Cross, MD

**Social Factors and Racial Disparities in Total Hip Arthroplasty Outcomes**

Susan Goodman, MD, Bella Mehta, MBBS, Meng Zhang, PhD, Jackie Szymonifka, MA, Joseph Nguyen, MPH, Yuo-Yu Lee, MS, Mark Figgie, MD, Michael Parks, MD, Shirin Dey, BS, Daisy Crego, BA, Linda Russell, MD, Lisa Mandl, MD, MPH, Anne Bass, MD

**The Influence of Obesity on the Infection Risk of Prosthetic Joint Infection in the Geriatric Orthopaedic Population**

Allina Nocon, MPH, Michael Henry, MD, Celeste Russell, MPH, Geoffrey Westrich, MD, Barry Brause, MD, Andy Miller, MD

**We Are Collecting the Hip Disability and Osteoarthritis Outcome Score (HOOS, JR.). Now What?**

Stephen Lyman, PhD, Yuo-Yu Lee, MS, Alexander McLawhorn, MD, MBA, Wasif Islam, BS, Catherine MacLean, MD, PhD

**Wear Analysis of Highly Cross-Linked Polyethylene in Young and Active Patients at Average 14 Years**

Michael Gaudiani, BA, Amar Ranawat, MD, Chitranjan Ranawat, MD

**Wear Rates with Large Metal and Ceramic Heads on a Second Generation Highly Cross-Linked Polyethylene at Mean Six-Year Follow Up**

Michael Gaudiani, BA, Peter White, Amar Ranawat, MD, Chitranjan Ranawat, MD

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**POSTERS**

**A New Risk-Assessment Score and Treatment Algorithm for Patients at High-Risk of Dislocation Following Total Hip Arthroplasty**

Jonathan Vigdorich, MD, Ameer Elbuluk, BA, Kaitlin Carroll, BS, David Mayman, MD, Richard Iorio, MD, Aaron Buckland, FRACS, Seth Jerabek, MD

**Acetabular Version and Acetabular Coverage Measurements Have Clinically Relevant Associations with Pelvic Incidence and Pelvic Tilt in Patients Treated for Femoroacetabular Impingement**

Graeme Whyte, FRCSC, Aaron Buckland, FRACS, Douglas Mintz, MD, Ernest Sink, MD, Struan Coleman, MD, PhD, Robert Buly, MD

**Age Related Functional Decline in Patient Reported Outcomes Following Total Knee Arthroplasty: Risk Adjustment Is Mandatory**

Michael Pitta, MD, Aleem Lalani, MD, Pauline Woo, Geoffrey Westrich, MD, Yuo-Yu Lee, MS, Stephen Lyman, PhD

**Anatomic Features of the Femoral Condyle Correspond to Intersubject Variations in Medial Collateral Ligament Tension in Total Knee Arthroplasty**

Mohammad Kia, Carl Imhauser, PhD, Timothy Wright, PhD, Michael Cross, MD, David Mayman, MD, Andrew Pearle, MD, Peter Sculco, MD, Geoffrey Westrich, MD

**Assessment of Musculoskeletal Infection Society Diagnostic Criteria as Predictors of Treatment Success in Hip Arthroplasty Infections Treated with Two-Stage Exchange**

Andy Miller, MD, Celeste Russell, MPH, Allina Nocon, MPH, Geoffrey Westrich, MD, Michael Henry, MD

**Bariatric Surgery Prior to Total Knee Arthroplasty Reduces Medication Requirements for Pain and Comorbidity Management**

Peter Benotti, MD, Alexander McLawhorn, MD, MBA, Robin Scamuffa, MSc, Hsiao Carine, Eric Ammann, PhD, Jason Waggoner, PhD, Mehmet Daskiran, PhD, Jason Lerner, MBA, Stephen Johnston, MA

**Can Education Mitigate the Effect of Poverty on Total Knee Replacement Outcomes?**

Susan Goodman, MD, Bella Mehta, MBBS, Meng Zhang, PhD, Jackie Szymonifka, MA, Iris Navarro-Millan, MD, Joseph Nguyen, MPH, Yuo-Yu Lee, MS, Mark Figgie, MD, Michael Parks, MD, Shirin Dey, BS, Daisy Crego, BA, Linda Russell, MD, Lisa Mandl, MD, MPH, Anne Bass, MD

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**Clinical Decision Rules: Any Guidance when Ordering a CT to Rule Out Pulmonary Embolism?**

Linda Russell, MD, Jackie Szymonifka, MA, Alana Sigmund, MD, Shirin Dey, BS, Sarah Grond, BA, Steven Haas, MD, Anne Bass, MD

**Comparison of Self-Reported Versus Actual Height and Weight in the Orthopaedic Population**

Alexander Habashy, MD, Michael Casale, MD, Nicholas Kolodychuk, BS, George Chimento, MD, William Sherman, MD, Bradford Waddell, MD

**Disparities in Patients' Expectations of Foot and Ankle Surgery**

Mackenzie Jones, BA, Elizabeth Cody, MD, Shirin Dey, BS, Jackie Szymonifka, MA, Michael Parks, MD, Susan Goodman, MD, Scott Ellis, MD

**Do Clinical Outcomes and Satisfaction Following Total Knee Arthroplasty in Physically Active Patients Match Their Expectations?**

Danielle Ponzio, MD, Yuo-Yu Lee, MS, Anthony Salvatore, MS, Russell Windsor, MD

**Does the Location of the Medial Parapatellar Arthrotomy Affect Intraoperative Patella Tracking?**

Scott Nodzo, MD, Maximilain Kasperek, MD, Kilian Rueckl, MD, Friedrich Boettner, MD

**Does Tourniquet Inflation Alter Medial and Lateral Compartment Loads During Sensor-Assisted Total Knee Arthroplasty?**

Scott Nodzo, MD, Jordan Gruskay, MD, Kaitlin Carroll, BS, Peter Sculco, MD, Steven Haas, MD, Yuo-Yu Lee, MS, Alejandro Gonzalez Della Valle, MD

**Dual Mobility Versus Fixed Bearing Total Hip Arthroplasty in Patients Under 55 Years of Age: A Single Institution Matched Cohort Analysis**

Fiachra Rowan, MD, Anthony Salvatore, MS, Jeffrey Lange, MD, Geoffrey Westrich, MD

**Hip Resurfacing to Treat Osteoarthritis in Patients with History of Childhood Hip Disease**

Edwin Su, MD, Imraan Khan, MPH, Melissa Gaillard, MS, Thomas Gross, MD

**Implant Survivorship in Prosthetic Joint Infection with Retained Prostheses**

Alexandra Stavrakis, MD, Michael Henry, MD, Celeste Russell, MPH, Allina Nocon, MPH, Geoffrey Westrich, MD, Barry Brause, MD, Andy Miller, MD

**In-Hospital Morbidity and Postoperative Revisions Following Direct Anterior versus Posterior Total Hip Arthroplasty**

Danielle Ponzio, MD, Lazaros Poultsides MD, Anthony Salvatore, MS, Yuo-Yu Lee, MS, Stavros Memtsoudis, MD, PhD, Michael Alexiades, MD

**Incidence and Risk Factors for In-Hospital Acute Kidney Injury After Total Knee Replacement Revision with Placement of an Antibiotic Cement Spacer**

Zachary Berliner, MD, Andrew Mo, MD, David Porter, MD, Jamie Grossman, MD, Herbert Cooper, MD, Matthew Hepinstall, MD, Jose Rodriguez, MD, Giles Scuderi, MD

**Incidence of Impingement in Dual Mobility Liners: A Retrieval Study**

Trevor Scott, MD, Timothy Wright, PhD, Lydia Weitzler, MS, Geoffrey Westrich, MD

**Is a "Dry-Tap" Aspiration Prior to a Second Stage Re-Implantation a Favorable Prognostic Factor for the Clearance of Periprosthetic Joint Infection?**

Amir Khoshbin, MD, Chelsea Koch, BS, Allina Nocon, MPH, Michael Henry, MD, Michael Cross, MD

**Low Rate of Microbiologic Relapse in Two-Stage Exchange for Hip Prosthetic Joint Infections**

Michael Henry, MD, Celeste Russell, MPH, Allina Nocon, MPH, Geoffrey Westrich, MD, Barry Brause, MD, Andy Miller, MD

**Measuring the Trajectory of Recovery After Total Hip Arthroplasty**

Stephen Lyman, PhD, Chisa Hidaka, MD, Kara Fields, MS, Wasif Islam, BS, David Mayman, MD, Catherine MacLean, MD

**Patient-Reported Outcome Measures and Revision Rates of Total Knee Arthroplasty for Posttraumatic Arthropathy Versus Osteoarthritis—A Prospective Matched Cohort Study**

Amir Khoshbin, MD, Pauline Woo, Yuo-Yu Lee, MS, Amethia Joseph, Douglas Padgett, MD

**Patient-Reported Outcome Measures of Total Hip Arthroplasty for Posttraumatic Arthropathy Versus Osteoarthritis—A Prospective Matched Cohort Study**

Amir Khoshbin, MD, Pauline Woo, Yuo-Yu Lee, MS, Amethia Joseph, Douglas Padgett, MD

**Peri-Prosthetic Fracture Rate Is High in Polished Collarless Tapered Cemented Stem for Primary Hip Arthroplasty**

Trevor Scott, MD, Anthony Salvatore, MS, Yuo-Yu Lee, MS, Pauline Woo, Alejandro Gonzalez Della Valle, MD

**Periprosthetic Joint Infection of the Hip: Does the Approach Make a Difference?**

Georgios Triantafyllopoulos, MD, Stavros Memtsoudis, MD PhD, Haijun Wang, Yan Ma, PhD, Michael Alexiades, MD, Lazaros Poultsides, MD

**Provider-Initiated Patient Satisfaction Reporting Yields Improved Physician Ratings Relative to Commercial Online Physician Rating Websites**

Benjamin Ricciardi, MD, Bradford Waddell, MD, Scott Nodzo, MD, Jeffrey Lange, MD, Allina Nocon, MPH, Spencer Amundsen, MD, T. David Tarity, MD, Alexander McLawhorn, MD, MBA

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**Quality-Adjusted Life Years After Hip and Knee Arthroplasty**

Joseph Konopka, MD, Alexander McLawhorn, MD, MBA, Yuo-Yu Lee, MS

**Rates and Risk Factors of Conversion Hip Arthroplasty After Closed Reduction Percutaneous Hip Pinning for Femoral Neck Fractures—A Population Analysis**

Cynthia Kahlenberg, MD, Shawn Richardson, MD, William Schairer, MD, Michael Cross, MD

**Revision Total Knee Arthroplasty for Periprosthetic Joint Infection Is Associated with Increased Postoperative Morbidity and Mortality than Non-Infectious Revisions**

Venkat Boddapati, BA, Michael Fu, MD, Edwin Su, MD, Alexander McLawhorn, MD, MBA

**Short-Term Outcomes of HIV-infected Arthroplasty Patients on Active Treatment**

Allina Nocon, MPH, Michael Henry, MD, Celeste Russell, MPH, Geoffrey Westrich, MD, Peter Sculco, MD, Andy Miller, MD

**Short-Term Range of Motion Is Increased After Total Knee Arthroplasty with an Asymmetric Bicruciate Stabilized Implant**

Kaitlin Carroll, BS, Peter Sculco, MD, Seth Jerabek, MD, Brian Michaels, PA-C, Richard Murphy, PA-C, David Mayman, MD

**Standing to Sitting Biplanar Imaging Quantifies Change in Pelvic Tilt and Acetabular Position After Navigated Total Hip Arthroplasty**

Danielle Ponzio, MD, Michael Pitta, MD, Kaitlin Carroll, BS, David Mayman, MD, Peter Sculco, MD

**Surface Damage and Oxidation Are Reduced in Highly Crosslinked Polyethylene Tibial Inserts at Midterm Follow Up**

Alexandra Stavrakis, MD, Lydia Weitzler, MS, Timothy Wright, PhD, Douglas Padgett, MD

**The Lack of Impact of Body Mass Index on Infection for Primary Knee Replacements**

Alexandra Stavrakis, MD, Michael Henry, MD, Celeste Russell, MPH, Allina Nocon, MPH, Geoffrey Westrich, MD, Andy Miller, MD

**The Use of Constrained Acetabular Components to Treat Instability After Total Hip Arthroplasty**

Ivan De Martino, MD, Vasileios Soranoglou, MD, Allina Nocon, MPH, Peter Sculco, MD, Mathias Bostrom MD, Thomas Sculco, MD

**Total Hip Arthroplasty Patients with Fixed Spinopelvic Alignment From Standing to Sitting Are at Higher Risk of Hip Dislocation**

Christina Esposito, PhD, Kaitlin Carroll, BS, Peter Sculco, MD, Douglas Padgett, MD, Seth Jerabek, MD, David Mayman, MD

**Total Knee Instability After Revision for Periprosthetic Joint Infection**

Yevgeniy Korshunov, MD, Zachary Berliner, MD, Herbert Cooper, MD, Matthew Hepinstall, MD, Jose Rodriguez, MD

**Two-Year Follow-Up Clinical Outcomes with a Modular Dual Mobility System: A Multicenter Study**

Geoffrey Westrich, MD, Zachary Post, MD, Arthur Malkani, MD, Michael Mont, MD, Ahava Muskat

**Use of an Accelerometer-Based Handheld Navigation System in Direct Anterior Approach Total Hip Arthroplasty: An Initial Report**

Edwin Su, MD, Imraan Khan, MPH, Cameron Kiser, PA-C

**Validation of the PROMIS29 in Elective Hip and Knee Arthroplasty Patients**

Lisa Mandl, MD, MPH, Charles Cornell, MD, Michael Cross, MD, Alejandro Gonzalez Della Valle, MD, Mark Figgie, MD, Seth Jerabek, MD, Mayu Sasaki, MPH, Steven Magid, MD

**Who Is More Accurate: The Surgeon or Sensor?**

Kaitlin Carroll, BS, Brian Michaels, PA-C, Richard Murphy, PA-C, David Mayman, MD

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**SPECIALTY DAY**

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**Adult Reconstruction Knee Alternative Bearing Surfaces**

Steven Haas, MD

**Lessons Learned From Difficult Cases**

William Macaulay, MD, Amar Ranawat, MD, Geoffrey Westrich, MD, Peter Sharkey, MD, William Hozack, MD

**The Pocket Rocket: Handheld Navigation**

David Mayman, MD

**When Is It Safe to Perform TKA After Steroid/HA Injection?**

Thomas Sculco, MD

**Adult Reconstruction Hip Is There a Role for Computer Navigation?**

Douglas Padgett, MD

**Shoulder and Elbow Periprosthetic Elbow Infections: A Completely Different Animal**

Mark Figgie, MD



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## SYMPOSIA

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### **Choices, Compromises, and Controversies in Total Knee Arthroplasty**

Thomas Sculco, MD

### **Innovation, Robotics, and Digital Solutions in Arthroplasty: Evolving Role in the Operating Room and Beyond!**

Douglas Padgett, MD

### **Performing a Revision Total Hip Arthroplasty: What You Need to Know**

Douglas Padgett, MD, Geoffrey Westrich, MD

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## TECHNICAL SKILLS

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### **Pros of Total Knee Arthroplasty Technology**

Seth Jerabek, MD

### **Technology in Knee Arthroplasty**

David Mayman, MD

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## ASK AN EXPERT

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### **Ask an Expert—Knee**

Steven Haas, MD, Paul Lachiewicz, MD

### **Ask an Expert—Hip & Knee**

Denis Nam, MD, Jose Rodriguez, MD

### **Ask an Expert—Hip & Knee**

Daniel Berry, MD, Thomas Sculco, MD

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## Department of Biomechanics

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## PAPER PRESENTATIONS

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### **Anterior Cervical Discectomy and Fusion (ACDF) on Segmental Cervical Spine Motion: A Biomechanical Study**

Darren Lebl, MD, Kathleen Meyers, MS, Hamidreza Jahandar, MS, Theresa Pazonis, MD, Patrick O'Leary, MD, Timothy Wright, PhD

### **Antioxidant Stabilized XLPE in TKA: A Retrieval Analysis**

Danielle Ponzio, MD, Lydia Weitzler, MS, Christina Esposito, PhD, Timothy Wright, PhD, Douglas Padgett, MD

### **Failure After Modern TKA: A Prospective Study of 18,065 Knees**

Michael Pitta, MD, Christina Esposito, PhD, Zhichang Lee MD, Yuo-Yu Lee, MS, Timothy Wright, PhD, Douglas Padgett, MD

### **Hip Flexion Increases and Spine Flexion Decreases From Standing to Sitting Position 1 Year After Patients Undergo THA**

Jonathan Berliner, MD, Christina Esposito, PhD, Theodore Miller, MD, Douglas Padgett, MD, David Mayman, MD, Seth Jerabek, MD

### **Surgical Anatomy of the Radial Nerve in the Deltopectoral Approach for Revision Shoulder Arthroplasty and Periprosthetic Fracture Fixation: A Cadaveric Study**

Michael Fu, MD, MHS, Michael Hendel, MD, PhD, Xiang Chen, MSc, Russell Warren, MD, David Dines, MD, Lawrence Gulotta, MD

### **Reverse Shoulder Arthroplasty on Biconcave Glenoid Reduces the Risks of Joint Instability and Glenoid Loosening Compare to Total Shoulder Arthroplasty**

Xiang Chen, MSc, Jonathan Glenday, BS, Timothy Wright, PhD, Russell Warren, MD, David Dines, MD, Lawrence Gulotta, MD, Andreas Kontaxis, MSc, PhD

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## POSTERS

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### **Biomechanical Comparison of Lower Trapezius Versus Latissimus Dorsi Tendon Transfers for Rotator Cuff Deficient Shoulders**

Akhil Reddy, BS, Andreas Kontaxis, MSc, PhD, Xiang Chen, MSc, Russell Warren, MD, David Dines, MD, Lawrence Gulotta, MD

### **Comparison of Contact Pressures and Ligament Isometry in Skeletally Immature MPFL Reconstruction Techniques**

Sheena Black, MD, Kathleen Meyers, MS, Beth Shubin Stein, MD

### **Incidence of Impingement in Dual Mobility Liners: A Retrieval Study**

Trevor Scott, MD, Timothy Wright, PhD, Lydia Weitzler, MS, Geoffrey Westrich, MD

### **Surface Damage and Oxidation Are Reduced in XLPE Tibial Inserts at Midterm Follow Up**

Alexandra Stavrakis, MD, Lydia Weitzler, MS, Timothy Wright, PhD, Douglas Padgett, MD

### **THA Patients with Fixed Spinopelvic Alignment From Standing to Sitting Are at Higher Risk of Hip Dislocation**

Christina Esposito, PhD, Kaitlin Carroll, BS, Peter Sculco, MD, Douglas Padgett, MD, Seth Jerabek, MD, David Mayman, MD

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## SPECIALTY DAY

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### **Biomechanical Comparison of Lower Trapezius Versus Latissimus Dorsi Tendon Transfers for Rotator Cuff Deficient Shoulders**

Akhil Reddy, BS, Andreas Kontaxis, MSc, PhD,  
Xiang Chen, MSc, Russell Warren, MD, David Dines, MD,  
Lawrence Gulotta, MD

### **XLPE and Antioxidant Poly: What Does the Data Show?**

Timothy Wright, PhD

## Foot & Ankle Service

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### 2-HOUR INSTRUCTIONAL COURSES

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#### **Chronic Achilles Ruptures—From Bracing to TICKET Complex Reconstruction**

Samuel Adams, Jr., MD, Scott Ellis, MD, Steven Neufeld, MD

#### **Osteotomy and Arthrodesis of the Forefoot and Hindfoot**

Samuel Adams, Jr., MD, Scott Ellis, MD, Andrew Hsu, MD

### INSTRUCTIONAL COURSES

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#### **Acute Peroneal Pathology: Tendonitis, Tears, and Dislocation**

John Kennedy, MD

#### **Osteochondral Grafts—How, When and Why I Use Them?**

John Kennedy, MD

#### **Osteochondral Lesions of the Talus: Current Treatment Dilemmas**

John Kennedy, MD, Eric Giza, James Stone

#### **Peroneal Tendon Pathology: Cutting-Edge Concepts in TICKET Diagnosis and Management**

James Calder, MD, Christopher Chiodo, MD,  
John Kennedy, MD

### MODERATORS

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#### **A Biomechanical Comparison of Syndesmotic Repair Techniques During External Rotation Stress**

Mark Drakos, MD, Ross Schumer, MD

#### **Ankle Position During Screw Fixation of the Distal Tibiofibular Syndesmosis in a Cadaver Fracture Model: Effect on Tibiotalar Range of Motion**

Mark Drakos, MD, Ross Schumer, MD

#### **Combined Popliteal Catheter with Single Injection Versus Continuous Infusion Saphenous Nerve Block**

Mark Drakos, MD, Ross Schumer, MD

#### **Does Second Metatarsal Length Correlate with Plantar Pressure Beneath the Second Metatarsophalangeal Joint During Walking?**

Mark Drakos, MD, Ross Schumer, MD

#### **Effect of Lateral Column Lengthening on Calcaneocuboid and Subtalar Joint Pressures**

Mark Drakos, MD, Ross Schumer, MD

#### **Grading the Severity of Subtalar Joint Arthrosis Using Lateral Weight-Bearing Radiographs**

Mark Drakos, MD, Ross Schumer, MD

#### **Impact of Vancomycin Treatment on Human Mesenchymal Stromal Cells During Osteogenic Differentiation**

Mark Drakos, MD, Ross Schumer, MD

#### **Long-Term Follow Up of Revision Osteochondral Allograft Transplantation of the Ankle**

Mark Drakos, MD, Ross Schumer, MD

#### **Prevalence of Degenerative Changes at the Metatarsal Head Sesamoid Articulation Found During Hallux Valgus Surgery**

Mark Drakos, MD, Ross Schumer, MD

#### **Promotion of Tendon Repair Mechanisms Using Placental Derived Membranes**

Mark Drakos, MD, Ross Schumer, MD

#### **Reading the Future: Predicting Who Will Benefit From Bunion Surgery**

Mark Drakos, MD, Ross Schumer, MD

#### **Risk Factors for Skeletal Osteoporosis on Foot X-rays**

Mark Drakos, MD, Ross Schumer, MD

#### **The Dynamic Function of the Syndesmosis: 3-Dimensional (3D) Measurement of Tibiofibular and Medial Clear Space During Extreme Athletic Activities**

Mark Drakos, MD, Ross Schumer, MD

#### **Total Ankle Arthroplasty Versus Ankle Arthrodesis: A Comparative Study of Proportional Hazard Modeling, Survivorship, and Functional Outcomes**

Mark Drakos, MD, Ross Schumer, MD

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### PAPER PRESENTATIONS

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#### **Accuracy of Patient Specific Instrumentation in Total Ankle Arthroplasty: A Comparative Study**

Guilherme Honda Saito, MD, Austin Sanders, BA,  
Scott Ellis, MD, Martin O'Malley, MD, Jonathan Deland, MD,  
Constantine Demetracopoulos, MD



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**Ankle Arthroscopy for Diagnosis and Treatment of Full Thickness Cartilage Lesions in the Setting of Ankle Fractures**

Rachel daCunha, MD, Sydney Karnovsky, BA,  
William Schairer, MD, Mark Drakos, MD

**Long-Term Outcomes of Autologous Osteochondral Transplantation for Osteochondral Lesions of the Talus: Eight to Twelve Years Follow Up (Sports Medicine IX)**

Yoshiharu Shimozone, MD, Youichi Yasui, MD,  
John Kennedy, MD

**Subchondral Bone Degradation Following Microfracture for Osteochondral Lesions of the Talus: An MRI Analysis (Foot and Ankle II)**

Yoshiharu Shimozone, MD, Max Coale, BA, Youichi Yasui, MD,  
Timothy Deyer, MD, John Kennedy, MD

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**POSTERS**

**Knee Donor-Site Morbidity Following Autologous Osteochondral Transplantation for Osteochondral Lesions of the Talus: A Systematic Review (Sports Medicine Poster Session II)**

Yoshiharu Shimozone, MD, Dexter Seow, Youichi Yasui, MD,  
John Kennedy, MD

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**SCIENTIFIC EXHIBITS**

**How Can Weight Bearing Cone Beam Computed Tomography Help in the Treatment of Patients with Foot and Ankle Pathologies?**

Cesar De Cesar Netto, Sr., MD, Francois Lintz, MD,  
Bursens Arne, MD, Alexej Barg, MD, Scott Ellis, MD,  
Phinit Phisitkul, MD, Alexandre Godoy-Santos, MD,  
Caio Nery, MD, Kaj Klaue, MD, Kristian Buedts, MD,  
Matthew Welck, FRCS (Ortho), Shadpour Demehri, MD,  
Woo Chun Lee, Ji-Beom Kim, Thomas San Giovanni, MD,  
Alastair Younger, MD, Charles Saltzman, MD, Lew Schon, MD,  
Jonathan Deland, MD, Mark Easley, MD, John Femino, MD,  
Martinus Richter, MD

**Platelet-Rich Plasma in Sports Medicine—What Does Level I Evidence Support?**

Eoghan Hurley, Charles Hannon, MD, Christopher Murawski,  
Niall Smyth, MD, Michael Hendel MD, John Kennedy, MD,  
Brian Cole, MD, Scott Rodeo, MD, Cathal Moran, MD

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**Hand & Upper Extremity Service**

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**2-HOUR INSTRUCTIONAL COURSE**

**Reevaluation of the Scaphoid Fracture: What Is the Current Best Evidence?**

Geert Buijze, MD, A. Lee Osterman, MD, Scott Wolfe, MD

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**CASE PRESENTATION**

**Rescuing the Elbow**

Julie Adams, MD, George Athwal, MD, Neal Chen, MD,  
Douglas Hanel, MD, Robert Hotchkiss, MD,  
Graham King, MD, Michael McKee, MD, Jorge Orbay, MD,  
Joaquin Sanchez-Sotelo, MD, Scott Steinmann, MD

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**INSTRUCTIONAL COURSES**

**Common Conditions Affecting the Ulnar Side of the Wrist: Demystifying Ulnar Wrist Pain**

Ryan Calfee, MD, Abhinav Chhabra, MD, Greg Couzens,  
William Geissler, MD, Guillaume Herzberg, MD,  
Peter Jebson, MD, Robin Kamal, MD, Steve Lee, MD,  
Marc Richard, MD, Michael Sandow, MD

**Sports Injuries of the Hand, Wrist, and Elbow**

Christopher Dy, MD, Daniel Osei, MD, Lindley Wall, MD

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**PAPER PRESENTATIONS**

**Analysis of Fragility Index in Hand Surgery Randomized Controlled Trials: An Additional Metric to Explore the Robustness of Study Conclusions**

Joseph Ruzbarsky, MD, Sariah Khormae, MD, Aaron Daluiski, MD

**Opioid Prescriber Education and Guidelines Decreases Opioids Prescribed After Ambulatory Hand Surgery**

Jeffrey Stepan MD, Ajay Premkumar, MD, Francis Lovecchio, MD,  
Michael Fu, MD, Peter Grimaldi, PA-C, Peter Derman, MD,  
Duretti Fufa, MD, Daniel Osei, MD

**Quantitative and Qualitative Evaluation of the Relative Arterial Contributions to the Scaphoid**

Duretti Fufa, MD, Johanna Charlotte Emilie Donders, MD,  
Craig Klinger, BA, Lionel Lazaro, MD, Jordan Villa, MD,  
David Helfet, MD, Dean Lorich, MD

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## POSTER

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### **Biomechanical Testing of Scapholunate Reconstruction with Internal Brace versus Scapholunate Repair**

Steven Lee, MD, Ryan Coyle, MD, David Porter, MD, Ian Kremenic, MD

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## SYMPOSIUM

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### **Elbows Gone Bad: How to Treat Failed Elbow Surgery**

Julie Adams, MD, Mark Cohen, MD, Robert Hotchkiss, MD, Jesse Jupiter, MD, ASES, Graham King, MD, Michael McKee, MD, Mark Mighell, MD, Mark Morrey, MD, Joaquin Sanchez-Sotelo, MD

## Hip Preservation Service

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## CASE PRESENTATION

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### **Adolescent Hip Pain: A Case-Based Approach to Common Causes**

Ernest Sink, MD

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## PAPER PRESENTATIONS

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### **Computerized Adaptive Testing for Patient Reporting Outcomes in Ankle Fracture Surgery**

Elizabeth Gausden, MD, Ashley Levack, MD, Benedict Nwachukwu, MD, Danielle Sin, MS, David Wellman, MD, Dean Lorich, MD

### **Long-Term Functional and Radiological Outcomes of Operatively Treated Schatzker Type II Tibial Plateau Fractures**

Johanna Charlotte Emilie Donders, MD, Diren Arsoy, MD, Laura Kleeblad, MD, Camden Tissue MD, David Helfet, MD, David Wellman, MD

### **Long-Term Survivorship, Radiologic and Functional Outcomes of Operatively Treated Tibial Plateau Fractures**

Diren Arsoy, MD, Johanna Charlotte Emilie Donders, MD, Laura Kleeblad, MD, David Wellman, MD, David Helfet, MD

### **Mechanism, Presentation, Injury Pattern, and Associated Injuries for Multiple Ligament Knee Injuries (MLKIs): A Multicenter Study From the Surgical Timing and Rehabilitation Trial for MLKIs Network**

James Irrgang, PhD, Andrew Lynch, PhD, Travis Burns, MD, Christopher Harner, MD, Bruce Levy, MD, Brett Owens, MD, Robert Schenck, MD, Volker Musahl, MD, Alicia Oostdyk, MPH, Adam Popchak, DPT, Jeremy Burnham, MD, Charity Moore, PhD, Alan Getgood, MD, Jonathan Hodax, MD, Jonathan Cooper, DO, Anil Ranawat, MD, Robert Marx, MD, MSc, FRCS, Catherine Coady, FRCS (Ortho), Ivan Wong, MD,

Jeffrey Macalena, MD, Bradley Nelson, MD, Robert Arciero, MD, Cory Edgar, MD, Mark Cote, PT, Darren Johnson, MD, Cale Jacobs, PhD, Dustin Richter, MD, Gehron Treme, MD, Andrew Veitch, MD, Daniel Wascher, MD, Brandee Black, MD, Lane Bailey, PhD, Mark Miller, MD, Joe Hart, PhD

### **Narcotic Prescribing Education Program and Standardized Service Guidelines Change Prescribing Practices After Arthroscopic Knee Surgery**

Jeffrey Stepan, MD, Michael Fu, MD, Francis Lovecchio, MD, Ajay Premkumar, MD, Peter Grimaldi, PA-C, Peter Derman, MD, Samuel Taylor, MD, Anil Ranawat, MD

### **Objective Analysis of Capitellum Exposure for Autologous Osteochondral Reconstruction**

Christine Johnson, MD, Susanne Roberts, MD, Douglas Mintz, MD, Peter Fabricant, MD, MPH, Robert Hotchkiss, MD, Aaron Daluiski, MD

### **Predicting Injury Through Quantitative Analysis of Professional Baseball Pitcher Mechanics**

Edward Sutter, MD, Justin Orenduff, BS, Will Fox, BA, Joshua Myers, Grant Garrigues, MD

### **Prior Hip Arthroscopy Does Not Affect Clinical Outcomes Following Total Hip Arthroplasty: An Institutional, Matched Cohort Study**

Lazaros Poultsides, MD, Branden Sosa, Yuo-Yu Lee, MS, Kathryn Oi, BA, Robert Buly, MD

### **Quantitative and Qualitative Evaluation of the Relative Arterial Contributions to the Scaphoid**

Duretti Fufa, MD, Johanna Charlotte Emilie Donders, MD, Craig Klinger, BA, Lionel Lazaro, MD, Jordan Villa, MD, David Helfet, MD, Dean Lorich, MD

### **The Location of Anterior Cruciate Ligament Tears: A Prevalence Study Using Magnetic Resonance Imaging**

Jelle Van Der List, MD, Douglas Mintz, MD, Gregory DiFelice, MD

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## POSTERS

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### **Acetabular Version and Acetabular Coverage Measurements Have Clinically Relevant Associations with Pelvic Incidence and Pelvic Tilt in Patients Treated for Femoroacetabular Impingement**

Graeme Whyte, FRCS, Aaron Buckland, FRACS, Douglas Mintz, MD, Ernest Sink, MD, Struan Coleman MD, PhD, Robert Buly, MD

### **A Retrospective Review of Radiographic and Clinical Characteristics Associated with a Positive Prone Apprehension Relocation Test: A New Provocative Exam to Elicit Hip Instability**

Andrea Spiker, MD, Alexandra Wong, BS, Joash Suryavanshi, BA, Peter Fabricant, MD, MPH, Ernest Sink, MD

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## **Radiographic and Clinical Outcomes of Periprosthetic Distal Femur Fractures Treated with Open Reduction Internal Fixation Using Lateral Locked Plating**

Alexander Christ, MD, Harshvardhan Chawla, MD, Elizabeth Gausden, MD, Jordan Villa, MD, David Wellman, MD, Dean Lorch, MD, David Helfet, MD

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### **SPECIALTY DAY**

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#### **Session VII: Expert Panel: How I Learned From My Tough Cases**

David Wellman, MD

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### **TECHNICAL SKILLS**

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#### **Issues of Alignment and Tibial Slope: When to Address and How?**

Anil Ranawat, MD

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## **Metabolic Bone Disease/ Musculoskeletal Oncology Service**

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### **2-HOUR INSTRUCTIONAL COURSES**

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#### **The Answer Is Vitamin D! From Pediatrics to Geriatrics in Orthopaedics**

Joseph Lane, MD

#### **Is Medical Clearance Enough? Understanding Medical Issues that Can Affect Your Patients' Outcomes**

Moderator: Joseph Lane, MD  
Charles Cornell, MD

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### **PAPER PRESENTATION**

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#### **Is Frailty Associated with Adverse Events After Total Joint Arthroplasty?**

Lisa Mandl, MD, MPH, Abigail Schmucker, BA, Charles Cornell, MD, Michael Cross, MD, Alejandro Gonzalez Della Valle, MD, Mark Figgie, MD, Seth Jerabek, MD, Jackie Szymonifka, MA, Steven Magid, MD

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### **SYMPOSIUM**

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#### **Secondary Fracture Prevention**

Joseph Lane, MD

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## **Orthopaedic Trauma Service**

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### **2-HOUR INSTRUCTIONAL COURSE**

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#### **Goals and Osteoporotic Drug Choices**

Joseph Lane, MD

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### **MODERATOR**

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#### **Is Medical Clearance Enough? Understanding Medical Issues that Can Affect Your Patients' Outcomes**

Joseph Lane, MD

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### **SPECIALTY DAY**

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#### **OTA Welcome—Specialty Day**

William Ricci, MD

#### **OTA Members—Only Business Meeting**

William Ricci, MD

#### **Fixation Techniques for Vancouver B Fractures Periprosthetic Cases**

William Ricci, MD

#### **Role of Revision Arthroplasty in Vancouver B Fractures**

William Ricci, MD

#### **Tips for Management of Distal Femur Periprosthetic Fractures**

William Ricci, MD

#### **Closing Remarks and Adjourn**

William Ricci, MD

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### **PAPER PRESENTATIONS**

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#### **Arthroscopic Primary Repair of Proximal Anterior Cruciate Ligament Tears: No Deterioration at Mid-Term Follow Up**

Jelle Van Der List, MD, Gregory DiFelice, MD

#### **Bovill Award Paper Presentation Introduction**

William Ricci, MD

#### **Computerized Adaptive Testing for Patient Reporting Outcomes in Ankle Fracture Surgery**

Elizabeth Gausden, MD, Ashley Levack, MD, Benedict Nwachukwu, MD, Danielle Sin, MS, David Wellman, MD, Dean Lorch, MD

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**Long-Term Functional and Radiological Outcomes of Operatively Treated Schatzker Type II Tibial Plateau Fractures**

Diren Arsoy, MD, Johanna Charlotte Emilie Donders, MD, Laura Kleeblad, MD, David Wellman, MD, David Helfet, MD

**Long-Term Survivorship, Radiologic and Functional Outcomes of Operatively Treated Tibial Plateau Fractures**

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**Opioid Prescriber Education and Guidelines Decreases Opioids Prescribed After Ambulatory Hand Surgery**

Jeffrey Stepan, MD, Ajay Premkumar, MD, Francis Lovecchio, MD, Michael Fu, MD, Peter Grimaldi, PA-C, Peter Derman, MD, Duretti Fufa, MD, Daniel Osei, MD

**Osseous Vascularity of the Medial Elbow Following Ulnar Collateral Ligament Reconstruction: A Comparison of the Docking and Modified Jobe Techniques**

Christopher Camp, MD, Craig Klinger, BA, Lionel Lazaro, MD, Jordan Villa, MD, Jelle Van Der List, MD, David Altchek, MD, Dean Lorich, MD, Joshua Dines, MD

**Posterior Malleolus Fracture Displacement Is Associated with Supination External Rotation Ankle Fracture Classification**

Ashley Levack, MD, Elizabeth Gausden, MD, Aleksey Dvorzhinskiy, MD, Dean Lorich, MD

**Quantitative and Qualitative Evaluation of the Relative Arterial Contributions to the Scaphoid**

Duretti Fufa, MD, Johanna Charlotte Emilie Donders, MD, Craig Klinger, BA, Lionel Lazaro, MD, Jordan Villa, MD, David Helfet, MD, Dean Lorich, MD

**The Location of Anterior Cruciate Ligament Tears: A Prevalence Study Using Magnetic Resonance Imaging**

Jelle Van Der List, MD, Douglas Mintz, MD, Gregory DiFelice, MD

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**POSTERS**

**Insurance Status and Patient-Reported Outcomes in the Orthopaedic Outpatient Setting**

Amanda Spraggs-Hughes, MA, Anna Miller, MD, William Ricci, MD, Michael Gardner, MD, Christopher McAndrew, MD

**Postoperative Magnetic Resonance Imaging Evaluation Following Arthroscopic Primary Anterior Cruciate Ligament Repair**

Jelle Van Der List, MD, Douglas Mintz, MD, Gregory DiFelice, MD

**Radiographic and Clinical Outcomes of Periprosthetic Distal Femur Fractures Treated with Open Reduction Internal Fixation Using Lateral Locked Plating**

Alexander Christ, MD, Harshvardhan Chawla, MD, Elizabeth Gausden, MD, Jordan Villa, MD, David Wellman, MD, Dean Lorich, MD, David Helfet, MD

**The Role of Preoperative Magnetic Resonance Imaging on Eligibility for Arthroscopic Primary Anterior Cruciate Ligament Repair**

Jelle Van Der List, MD, Gregory DiFelice, MD

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**SCIENTIFIC EXHIBIT**

**Important Considerations in the Treatment of Young Femoral Neck Fractures**

Ashley Levack, MD, Lionel Lazaro, MD, Elizabeth Gausden, MD, Alexander Christ, MD, Aleksey Dvorzhinskiy, MD, Dean Lorich, MD

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**SPECIALTY DAY**

**Tough Case 3—Comminuted Proximal Forearm/Olecranon Fracture**

David Wellman, MD

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**SYMPOSIUM**

**Secondary Fracture Prevention**

Joseph Lane, MD

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**Pediatric Orthopaedic Service**

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**CASE PRESENTATIONS**

**Adolescent Hip Pain:**

**A Case-Based Approach to Common Causes**

Ernest Sink, MD

**Principles of Management of Common Pediatric Sports Injuries**

Daniel Green, MD, MS, FAAP, FACS

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**PAPER PRESENTATIONS**

**Comparative Effectiveness of Cartilage Repair with Respect to Minimal Clinically Important Difference**

Benjamin Kelley, MD, Armin Arshi, MD, Peter Fabricant, MD, MPH, David McAllister, MD, Kristofer Jones, MD

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**Normative Athletic Activity Level Data in Children and Adolescents: A Cross-Sectional Study of 2,002 American Youth**

Peter Fabricant, MD, MPH, Joash Suryavanshi, BA, Jacob Calcei, MD, Robert Marx, MD, MSc, FRCSC, Roger Widmann, MD, Daniel Green, MD, MS, FAAP, FACS

**Objective Analysis of Capitellum Exposure for Autologous Osteochondral Reconstruction**

Christine Johnson, MD, Susanne Roberts, MD, Douglas Mintz, MD, Peter Fabricant, MD, MPH, Robert Hotchkiss, MD, Aaron Daluiski, MD

**Return to Sport and Reoperation Rates in Patients Under the Age of 20 Following Primary Anterior Cruciate Ligament Reconstruction: Risk Profile Comparing Three Patient Groups Predicated Upon Skeletal Age**

Sheena Black, MD, Meghan Price, BS, Daniel Green, MD, MS, FAAP, FACS, Frank Cordasco, MD, MS

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**POSTERS**

**Acetabular Version and Acetabular Coverage Measurements Have Clinically Relevant Associations with Pelvic Incidence and Pelvic Tilt in Patients Treated for Femoroacetabular Impingement**

Graeme Whyte, FRCSC, Aaron Buckland, FRACS, Douglas Mintz, MD, Ernest Sink, MD, Struan Coleman, MD, PhD, Robert Buly, MD

**A Retrospective Review of Radiographic and Clinical Characteristics Associated with a Positive Prone Apprehension Relocation Test: A New Provocative Exam to Elicit Hip Instability**

Andrea Spiker, MD, Alexandra Wong, BS, Joash Suryavanshi, BA, Peter Fabricant, MD, MPH, Ernest Sink, MD

**Axial Width of Patellar Tendon Beyond Lateral Trochlear Ridge: A Novel Measurement of Patellofemoral Instability**

Justin Mistovich, MD, John Urwin, BS, Peter Fabricant, MD, MPH, John Todd Lawrence, MD

**Biomechanical Comparison of Two Different Blade Plate Designs in Simulated Proximal Femoral Varus Osteotomies**

Joseph Ruzbarsky, MD, Ishaan Swarup, MD, Matthew Garner, MD, Kathleen Meyers, MS, Folorunsho Edobor-Osula, MD, Roger Widmann, MD, David Scher, MD

**Range of Motion Improvement Following Surgical Management of Knee Arthrofibrosis in Children and Adolescents**

Peter Fabricant, MD, MPH, Frances Tepolt, MD, Mininder Kocher, MD

**Variation in the Medial Patellofemoral Ligament Origin in the Skeletally Immature Knee—An Anatomic Study**

Kevin Shea, MD, William Martinson, Peter Cannamela, BS, Connor Richmond, BS, Peter Fabricant, MD, MPH, Allen Anderson, MD, John Polousky, MD, Theodore Ganley, MD

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**TECHNICAL SKILLS**

**Surgical Techniques for Skeletally Immature Anterior Cruciate Ligament**

Daniel Green, MD, MS, FAAP, FACS

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**Radiology & Imaging**

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**INSTRUCTIONAL COURSE**

**MRI of the Spine: Essentials for the Orthopaedic Surgeon**

Darryl Sneag, MD

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**PAPER PRESENTATIONS**

**A Novel Quantitative Computed Tomography Bone Mineral Density Assessment of the Sacrum Does Not Predict Sacral Fractures Following Instrumented Spinal Fusion**

Stephan Salzmann, MD, Courtney Ortiz Miller, BA, John Carrino, MD, Jingyan Yang, MS, Jennifer Shue, MS, Andrew Sama, MD, Frank Cammisa, Jr., MD, Federico Girardi, MD, Alexander Hughes, MD

**Hip Flexion Increases and Spine Flexion Decreases From Standing to Sitting Position 1 Year After Patient Undergo Total Hip Arthroplasty**

Johnathan Berliner, MD, Christina Esposito, PhD, Theodore Miller, MD, Douglas Padgett, MD, David Mayman, MD, Seth Jerabek, MD

**Objective Analysis of Capitellum Exposure for Autologous Osteochondral Reconstruction**

Christine Johnson, MD, Susanne Roberts, MD, Douglas Mintz, MD, Peter Fabricant, MD, MPH, Robert Hotchkiss, MD, Aaron Daluiski, MD

**The Location of Anterior Cruciate Ligament Tears: A Prevalence Study Using Magnetic Resonance Imaging**

Jelle Van Der List, MD, Douglas Mintz MD, Gregory DiFelice, MD

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**POSTERS**

**A 15-Year Experience of Risk Factors for Motor Neuropathy After Total Knee Arthroplasty**

Teena Shetty, MD, Joseph Nguyen, MPH, Mayu Sasaki, MPH, Anita Wu, MD, Eric Bogner, MD, Alissa Burge, MD, Aashka Dalal, BA, Edwin Su, MD, Stephen Lyman, PhD



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**Acetabular Version and Acetabular Coverage Measurements Have Clinically Relevant Associations with Pelvic Incidence and Pelvic Tilt in Patients Treated for Femoroacetabular Impingement**

Graeme Whyte, FRCSC, Aaron Buckland, FRACS, Douglas Mintz, MD, Ernest Sink, MD, Struan Coleman, MD, PhD, Robert Buly, MD

**Does Local Intraoperative Corticosteroids Delivered in a Gel-Matrix Minimize Dysphagia Following Anterior Discectomy and Fusion? A Preliminary Analysis of An Ongoing Double Blinded Randomized Controlled Trial**

Daniel Stein, BS, Han Jo Kim, MD, Darren Lebl, MD, Russel Huang, MD, Shari Jawetz, MD, Okezie Aguwa, MD, Virginie Lafage, PhD, Todd Albert, MD

## Rehabilitation

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### PAPER PRESENTATION

**Reverse Shoulder Arthroplasty on Biconcave Glenoid Reduces the Risks of Joint Instability and Glenoid Loosening Compare to Total Shoulder Arthroplasty**

Xiang Chen, MSc, Jonathan Glenday, MSc, Timothy Wright, PhD, Russell Warren, MD, David Dines, MD, Lawrence Gulotta, MD, Andreas Kontaxis, MSc, PhD

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### POSTER

**Biomechanical Comparison of Lower Trapezius Versus Latissimus Dorsi Tendon Transfers**

Akhil Reddy, Lawrence Gulotta, MD, Xiang Chen, MSc, Russell Warren, MD, David Dines, MD, Alessandro Castagna, MD, Andreas Kontaxis, MSc, PhD

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### SPECIALTY DAY

**Biomechanics of Lower Trapezius and Latissimus Dorsi Transfers in Rotator Cuff Deficient Shoulders**

Akhil Reddy, Andreas Kontaxis, MSc, PhD, Xiang Chen, MSc, Russell Warren, MD, David Dines, MD, Lawrence Gulotta, MD

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## Research

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### PAPER PRESENTATION

**Kartogenin Enhances Collagen Organization and Mechanical Strength of the Repaired Enthesis in a Murine Model of Rotator Cuff Repair**

Dean Wang, MD, Hongbo Tan, PhD, Amir Lebaschi, MD, Patrick Donnelly, PhD, Lilly Ying, Xiang-Hua Deng, MD, Scott Rodeo, MD

**Pilot Study Examining the Feasibility and Safety of Using Bone Marrow Aspirate Concentrate in Improving Rotator Cuff Tendon Healing Following Arthroscopic Rotator Cuff Repair**

Camila Carballo, PhD, Michael Schaer, MD, Joseph Nguyen, MPH, Arielle Hall, BS, Lilly Ying, Hollis Potter, MD, Russell Warren, MD, Scott Rodeo, MD

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### PODIUM

**Incorporating Biologics Into Your Practice: The New Horizon in Sports Medicine: Current Research and What the Future May Hold**

Scott Rodeo, MD (Instructional Course Lecture)

**Tibial Proximal Metaphyseal and Shaft Stress Fractures**

Scott Rodeo, MD (Instructional Course Lecture)

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### POSTERS

**Bone Bruise and Knee Instability in Anterior Cruciate Ligament Ruptures: Association Between Magnetic Resonance Imaging Signs and Joint Laxity**

Ricardo Bastos, MD, PhD, Scott Rodeo, MD

**Combined Local and Systemic Antibiotics Fail to Eradicate Periprosthetic Joint Infection in a Murine Model**

Matthew Shirley, BS, Gang Ji, MD, Joseph Koressel, MS, Alberto Carli, MD, F. Patrick Ross, PhD, Marjolein Van Der Meulen, PhD, Christopher Hernandez, PhD, Xu Yang, MD, Mathias Bostrom, MD

**Comparison of Bone Tunnel and Cortical Surface Tendon-to-Bone Healing in a Rabbit Biceps Tenodesis Model**

Dean Wang, MD, Hongbo Tan, PhD, Amir Lebaschi, MD, Ian Hutchinson, MD, Lilly Ying, Xiang-Hua Deng, MD, Scott Rodeo, MD, Russell Warren, MD

**Evaluation of Bone Formation with Micro-Computed Tomography After Biceps Tenodesis in a Rabbit Model: Comparison of Bone Tunnel and Cortical Surface Fixation Techniques**

Dean Wang, MD, Amir Lebaschi, MD, Hongbo Tan, PhD, Ian Hutchinson, MD, Lilly Ying, Xiang-Hua Deng, MD, Scott Rodeo, MD, Russell Warren, MD



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## SCIENTIFIC EXHIBITS

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### **Orthobiologics for Upper Extremity Disorders: What Is the Evidence?**

Scott Rodeo, MD

### **Platelet-Rich Plasma in Sports Medicine—What Does Level I Evidence Support?**

Eoghan Hurley, Charles Hannon, MD, Christopher Murawski,  
Niall Smyth, MD, Michael Hendel, MD, John Kennedy, MD,  
Brian Cole, MD, Scott Rodeo, MD, Cathal Moran, MD

### **Team Physician: Pre-Participation Physicals to Sideline Management and Everything in Between**

Jacob Calcei, MD, Joseph Ruzbarsky, MD, Evan O'Donnell, MD,  
Keith Corpus, MD, Ryan Rauck, MD, Russell Warren, MD,  
Scott Rodeo, MD, James Kinderknecht, MD, Samuel Taylor, MD

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## SYMPOSIA

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### **AAOS President's Symposia: Current Status of PRP**

Scott Rodeo, MD

### **Biologics—PRP and Stem Cells**

Scott Rodeo, MD

### **The Way I See It: The Use of Biologic Augmentation Techniques to Improve Tissue Healing and Regeneration**

Scott Rodeo, MD

## Spine Service

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## MODERATOR

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### **Spine V (520-528)—Paper Presentations**

Sheeraz Qureshi, MD, Daniel Park, MD

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## PAPER PRESENTATIONS

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### **A Novel Quantitative Computed Tomography Bone Mineral Density Assessment of the Sacrum Does Not Predict Sacral Fractures Following Instrumented Spinal Fusion**

Stephan Salzmann, MD, Courtney Ortiz Miller, BA,  
John Carrino, MD, MPH, Jingyan Yang, MHS,  
Jennifer Shue, MS, Andrew Sama, MD, Frank Cammisa, Jr., MD,  
Federico Girardi, Alexander Hughes, MD

### **Adult Spinal Surgery in Patients with Previous Total Hip Arthroplasty: Should We Fuse the Spine First?**

Bassel Diebo, MD, George Beyer, BA, Qais Naziri, MD,  
Preston Grieco, MD, Roby Abraham, MD, Aditya Maheshwari, MD,  
Virginie Lafage, PhD, Frank Schwab, MD, Carl Paulino, MD

### **Anterior Cervical Discectomy and Fusion on Segmental Cervical Spine Motion: A Biomechanical Study**

Darren Lebl, MD, Kathleen Meyers, MS, Hamidreza Jahandar, MS,  
Theresa Pazonis, MD, Patrick O'Leary, MD, Timothy Wright, PhD

### **Dynamic, Three-Dimensional Analysis of Gait Patterns Before and After Adolescent Idiopathic Scoliosis Surgery**

Bassel Diebo, MD, Jeffrey Varghese, BS, Renaud Lafage,  
Ziad Bakouny, MSc, Ayman Assi, PhD, Ellen Godwin, PT,  
Virginie Lafage, PhD, Frank Schwab, MD, Carl Paulino, MD

### **Planned Staging of Complex Adult Spinal Deformity Surgery Does Not Result in Increased Length of Stay or Increased Cost**

Jeffrey Gum, MD, Amit Jain, MD, Leah Carreon, MD,  
Richard Hostin, MD, Samrat Yeramaneni, MBBS,  
Steven Glassman, MD, Michael Kelly, MD, Douglas Burton, MD,  
David Polly Jr., MD, Justin Smith, MD, Christopher Shaffrey, MD,  
Frank Schwab, MD, Rajiv Sethi, MD, Brian Neuman, MD,  
Christopher Ames, MD, Robert Bess, MD,  
International Spine Study Group

### **Prospective Multicenter Analysis of Clinical and Radiographic Outcomes Following Surgical Correction of Patients with Moderate to Severe Cervical Deformities and Horizontal Gaze Disruption**

Themistocles Protopsaltis, MD, Subaraman Ramchandran, MBBS,  
Jared Tishelman, Justin Smith, MD, Daniel Sciubba, MD,  
Peter Passias, MD, Renaud Lafage, Eric Klineberg, MD,  
Virginie Lafage, PhD, Robert Hart, MD, Douglas Burton, MD,  
Christopher Shaffrey, MD, Frank Schwab, MD,  
Christopher Ames, MD, International Spine Study Group

### **Recurrent Proximal Junctional Kyphosis: Incidence, Risk Factors, Revision Rates, and Outcomes at Two-Year Minimum Follow Up**

Han Jo Kim, MD, Shan-Jin Wang, Okezie Aguwa, MD,  
Renaud Lafage, Christopher Shaffrey, MD, Gregory Mundis, MD,  
Richard Hostin, MD, Douglas Burton, MD, Christopher Ames, MD,  
Eric Klineberg, MD, Munish Gupta, MD, Justin Smith, MD,  
Frank Schwab, MD, Virginie Lafage, PhD

### **Should Targets for Adult Spinal Deformity Correction Depend on Pelvic Incidence?**

Themistocles Protopsaltis, MD, Alexandra Soroceanu, MD,  
Jared Tishelman, Aaron Buckland, FRACS, Gregory Mundis, MD,  
Justin Smith, MD, Alan Daniels, MD, Lawrence Lenke, MD,  
Han Jo Kim, MD, Eric Klineberg, MD, Christopher Ames, MD,  
Robert Hart, MD, Robert Bess, MD, Christopher Shaffrey, MD,  
Frank Schwab, MD, Virginie Lafage, PhD, International Spine  
Study Group

### **Spine Flexibility Predicts the Postoperative Proximal Junctional Angle in Adult Spinal Deformity Patients**

Jeffrey Varghese, BS, Hongda Bao, MD, Jonathan Elysee,  
Tejbir Pannu, MD, Renaud Lafage, Virginie Lafage, PhD,  
Han Jo Kim, MD

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**The Impact of Mental Health Disorders on Complications Following Cervical Spine Surgery with Minimum Two-Year Surveillance**

Bassel Diebo, MD, Shian Liu, MD, Joshua Lavian, BA, Neil Shah, MD, Qais Naziri, MD, Virginie Lafage, PhD, Frank Schwab, MD, Peter Passias, MD, Carl Paulino, MD

**The Importance of C2-Slope, a Singular Marker of Cervical Deformity, Correlates with Patient Reported Outcomes**

Themistocles Protosaltis, MD, Subaraman Ramchandran, MBBS, Jared Tishelman, Justin Smith, MD, Brian Neuman, MD, Gregory Mundis, MD, Renaud Lafage, Eric Klineberg, MD, D. Kojo Hamilton, Virginie Lafage, PhD, Munish Gupta, MD, Robert Hart, MD, Frank Schwab, MD, Douglas Burton, MD, Robert Bess, MD, Christopher Shaffrey, MD, Christopher Ames, MD, International Spine Study Group

**What Are the Risk Factors for Surgical Site Infection After Spinal Arthrodesis? A Meta-Analysis**

Sébastien Pesenti, MD, Tejbir Pannu, MD, Jessica Andres-Bergos, PhD, Justin Smith, MD, Steven Glassman, MD, Ferran Pellise, MD, Marinus De Kleuver, MD, Virginie Lafage, PhD, Frank Schwab, MD

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**POSTERS**

**Analysis of Prospective Collection of 374 Osteotomies in 99 Patients with Adult Cervical Deformity**

Themistocles Protosaltis, MD, Alexandra Soroceanu, MD, Justin Smith, MD, Munish Gupta, MD, Renaud Lafage, Peter Passias, MD, D. Kojo Hamilton, Eric Klineberg, MD, Virginie Lafage, PhD, Frank Schwab, MD, Douglas Burton, MD, Robert Bess, MD, Christopher Shaffrey, MD, Christopher Ames, MD, International Spine Study Group

**Categorizing the Hip-Spine Syndrome: A Step Toward a Collaborative Multi-Disciplinary Classification**

Bassel Diebo, MD, Louis Day, MD, Renaud Lafage, Peter Passias, MD, Carl Paulino, MD, Thomas Errico, MD, Frank Schwab, MD, Virginie Lafage, PhD

**Does Local Intraoperative Corticosteroids Delivered in a Gel-Matrix Minimize Dysphagia Following Anterior Discectomy and Fusion? A Preliminary Analysis of An Ongoing Double Blinded Randomized Controlled Trial**

Daniel Stein, BS, Han Jo Kim, MD, Darren Lebl, MD, Russel Huang, MD, Shari Jawetz, MD, Okezie Aguwa, MD, Virginie Lafage, PhD, Todd Albert, MD

**Does the Use of an Interbody Fusion at the Osteotomy Site Limit the Loss of Correction After 3 Column Osteotomy in Adult Spinal Deformity?**

Hongda Bao, MD, Jeffrey Varghese, BS, Han Jo Kim, MD, Munish Gupta, MD, Christopher Shaffrey, MD, Justin Smith, MD, Gregory Mundis, MD, Richard Hostin, MD, Douglas Burton, MD, Christopher Ames, MD, Eric Klineberg, MD, Robert Bess, MD, Frank Schwab, MD, Virginie Lafage, PhD

**Missing Data Treatments Matter: An Analysis of Multiple Imputation for Anterior Cervical Discectomy and Fusion Procedures**

Nathaniel Ondeck, BS, Michael Fu, MD, Laura Skrip, MPH, Ryan McLynn, BS, Jonathan Cui, BS, Bryce Basques, MD, Todd Albert, MD, Jonathan Grauer, MD

**Should Decision Making for Lower Instrumented Vertebra Selection Go Beyond Traditional Classification of Adolescent Idiopathic Scoliosis? A Dynamic Three-Dimensional Gait Assessment**

Bassel Diebo, MD, Ashish Patel, MD, Jeffrey Varghese, BS, Neil Shah, MD, Ayman Assi, PhD, Ellen Godwin, PT, Virginie Lafage, PhD, Frank Schwab, MD, Carl Paulino, MD

**The Effectiveness of Standard Surgical Preparation in Spine Surgery When Eradicating Occult Pathogens Dwelling in Skin**

Christina Dowe, BS, Tucker Callanan, BS, Darren Lebl, MD, Frank Cammisa, MD, Celeste Abjornson, PhD

**The Relationship Between Improvements in Myelopathy and Sagittal Realignment in Cervical Deformity Surgery**

Peter Passias, MD, Samantha Horn, BA, Subaraman Ramchandran, MBBS, Douglas Burton, MD, Themistocles Protosaltis, MD, Renaud Lafage, Virginie Lafage, PhD, Bassel Diebo, MD, Gregory Poorman, BA, Justin Smith, MD, Christopher Ames, MD, Christopher Shaffrey, MD, Han Jo Kim, MD, Brian Neuman, MD, Alan Daniels, MD, Alexandra Soroceanu, MD, Eric Klineberg, MD, International Spine Study Group

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**SPECIALTY DAY**

**Assembling Superior Team to Minimize Complications and Maximize Surgical Outcomes**

Todd Albert, MD

**Instrumentation Issues, Inoperative Imaging, Navigation, Robotics**

Sheeraz Qureshi, MD

**Steroid Injections for Cervical Stenosis—Steroid Injections Are Useful Prior to Surgery**

Sheeraz Qureshi, MD

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**SYMPOSIUM**

**New Paradigms in Global Spine Care: Newborn to Elderly**

Todd Albert, MD

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**TECHNICAL SKILLS**

**Pragmatic Learning for New Techniques and Technologies in Spine Surgery**

Sheeraz Qureshi, MD

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## Sports Medicine Service

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### 2-HOUR INSTRUCTIONAL COURSES

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#### Current Research and What the Future May Hold?

Scott Rodeo, MD

#### Optimizing Anterior Cruciate Ligament (ACL) Outcomes: What Else Needs Fixing Besides the ACL?

Sabrina Strickland, MD

#### Stress Fractures About the Tibia

Scott Rodeo, MD

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### CASE PRESENTATIONS

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#### Complete Meniscal and Articular Cartilage Cases—Scratching the Surface

Robert Marx, MD, MSc, FRCSC

#### Complex Shoulder Arthroplasty: Primary and Revision, Anatomic and Reverse, Three-Dimensional Planning—When and How

David Dines, MD, Joshua Dines, MD

#### Multiple Knee Injuries—What Would You Do?

Robert Marx, MD, MSc, FRCSC

#### Unrecognized FCL/Posterolateral Deficiency in the Setting of the Failed ACL Reconstruction

Robert Marx, MD, MSc, FRCSC

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### INSTRUCTIONAL COURSE

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#### Peripheral Nerve Issues After Common Orthopaedic Surgeries

Moira McCarthy, MD

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### MODERATOR

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#### Patellar Instability and Dislocation: Optimizing Surgical Treatment and How to Avoid Complications

Sabrina Strickland, MD

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### ORTHOPAEDIC VIDEO LIBRARY

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#### Arthroscopic Microfracture for Osteochondritis Dissecans Lesions of the Capitellum

Christopher Camp, MD, Venkat Boddapati, BA, Joshua Dines, MD, Ryan Degen, MD, MSc, FRCSC, Alec Sinatro, BA, David Altchek, MD

#### Basics of Elbow Arthroscopy

Christopher Camp, MD, Venkat Boddapati, BA, Ryan Degen, MD, MSc, FRCSC, Joaquin Sanchez-Sotelo, MD, David Altchek, MD, Joshua Dines, MD

#### Ulnar Collateral Ligament Reconstruction of the Elbow: The Docking Technique

Christopher Camp, MD, Venkat Boddapati, BA, Joshua Dines, MD, Pramod Voleti, MD, Evan James, MD, David Altchek, MD

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### PAPER PRESENTATIONS

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#### A Cadaveric, Biomechanics Study Comparing Subacromial Balloon Spacer to Superior Capsular Reconstruction in the Treatment of Massive, Irreparable Rotator Cuff Tears

Moderators: Charles Getz, MD, David Dines, MD, Supriya Singh, MD, George Athwal, MD, James Johnson, PhD, Jacob Reeves, MSc, G. Daniel Langohr, MSc

#### An Analysis of Subacromial Bursa Versus Bone Marrow as a Source of Mesenchymal Stem Cell for Biological Augmentation

Moderators: Charles Getz, MD, David Dines, MD, Daichi Morikawa, MD, Mary-Beth McCarthy, MD, Nicholas Bellas, Augustus Mazzocca, MD

#### A Novel Analysis of Return-to-Play Criteria at Six Months Following Anterior Cruciate Ligament Reconstruction

Matthew Tao, MD, Mollyann Pais, BS, Theresa Chiaia, PT, Polly de Mille, RN, RCEP, CSCS, USAT, Joseph Nguyen, MPH, Andrew Pearle, MD, Answorth Allen, MD, David Altchek, MD, Riley Williams III, MD

#### A Pilot Study Examining the Feasibility and Safety of Using Bone Marrow Aspirate Concentrate in Improving Rotator Cuff Tendon Healing Following Arthroscopic Rotator Cuff Repair

Moderators: Charles Getz, MD, David Dines, MD, Camila Carballo, PhD, Michael Schaer, MD, Joseph Nguyen, MPH, Arielle Hall, BS, Lilly Ying, Hollis Potter, MD, Russell Warren, MD, Scott Rodeo, MD

#### Arthroscopic Landmarks for Neuroanatomy of the Subcoracoid Space

Moderators: Charles Getz, MD, David Dines, MD, Michael Knudsen, MD, Jonathan Braman, MD

#### Complication Rates and Efficacy of Single-Injection Versus Continuous Interscalene Nerve Block: A Prospective Evaluation Following Primary Rotator Cuff Repair

Moderators: Charles Getz, MD, David Dines, MD, John Wu, MD, Denise Koueiter, Tristan Maerz, PhD, J. Wiater, MD, Kyle Anderson, MD

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**Clinical and Anatomical Results of Massive Rotator Cuff Tears at 20 Years Follow Up**

Moderators: Charles Getz, MD, David Dines, MD  
Philippe Collin, Gilles Walch, MD, Christian Gerber, MD,  
Herve Thomazeau, MD, Jean Francois Kempf, MD, Michael Betz, MD

**Cost of Rotator Cuff Repair Surgery: Precise Accounting of Pre-, Intra-, and Postoperative Cost of 47,554 Patients**

Moderators: Charles Getz, MD, David Dines, MD  
Haroutioun Boyajian, MD, Olumuyiwa Idowu, BA,  
Krishna Ravella, BA, Jason Koh, MD, Michael Lee, MD,  
Lewis Shi, MD

**Differences Between Arthroscopic and Open Rotator Cuff Repair: A Study of 47,554 Patients**

Moderators: Charles Getz, MD, David Dines, MD  
Krishna Ravella, BA, Haroutioun Boyajian, MD, Olumuyiwa Idowu, BA,  
Jason Koh, MD, Michael Lee, MD, Lewis Shi, MD

**Epidemiology and Disease Burden of Medial Epicondylitis in the US: An Analysis of 19,856 Patients**

Ryan Degen, MD, MSc, FRCSC, Christopher Camp, MD,  
Jourdan Cancienne, MD, David Altchek, MD, Joshua Dines, MD,  
Brian Werner, MD

**Frequency and Appropriateness of MRI Use Among Patients Presenting to a Shoulder Specialist Clinic**

Moderators: Charles Getz, MD, David Dines, MD  
Christopher Hawke, PT, Paul Klas, BS, Ryan Reeson, BA,  
Kyle Oosterman, Timothy Leroux, MD, Christian Veillette, MD

**Increasing Numbers of Preoperative Shoulder Injections Are Associated with a Higher Rate of Subsequent Revision Rotator Cuff Surgery**

Moderators: Charles Getz, MD, David Dines, MD  
Venkat Boddapati, BA, Christopher Camp, MD, Joshua Dines, MD,  
Stephen Brockmeier, MD, Brian Werner, MD

**Inhibition Improves Healing in a Rat Model of Acute Rotator Cuff Repair**

Moderators: Charles Getz, MD, David Dines, MD  
Michael Kuenzler, MD, Michelle McGarry, MD, Masaki Akeda, MD,  
Hansel Ihn, MD, Agnieszka Karol, DVM, Brigitte von Rechenberg, MD,  
Matthias Zumstein, MD, Thay Lee, PhD

**Intratendinous Injection of Autologous Adipose Tissue Derived Mesenchymal Stem Cells for the Treatment of Rotator Cuff Disease: A First-in-Human Trial**

Moderators: Charles Getz, MD, David Dines, MD  
Chris Jo, MD, Paul Kim, MD, Jeongyong Yoon, Jr., MD

**Kartogenin Enhances Collagen Organization and Mechanical Strength of the Repaired Entesis in a Murine Model of Rotator Cuff Repair**

Moderators: Charles Getz, MD, David Dines, MD  
Dean Wang, MD, Hongbo Tan, PhD, Amir Lebaschi, MD,  
Patrick Donnelly, PhD, Lilly Ying, Xiang-Hua Deng, MD,  
Scott Rodeo, MD

**Mechanism, Presentation, Injury Pattern, and Associated Injuries for Multiple Ligament Knee Injuries (MLKIs): A Multicenter Study From the Surgical Timing and Rehabilitation Trial for MLKIs Network**

James Irrgang, PhD, Andrew Lynch, PhD, Travis Burns, MD,  
Christopher Harner, MD, Bruce Levy, MD, Brett Owens, MD,  
Robert Schenck, MD, Volker Musahl, Alicia Oostdyk, MPH,  
Adam Popchak, DPT, Jeremy Burnham, MD, Charity Moore, PhD,  
Alan Getgood, MD, Jonathan Hodax, MD, Jonathan Cooper, DO,  
Anil Ranawat, MD, Robert Marx, MD, MSc, FRCSC,  
Catherine Coady, FRCS (Ortho), Ivan Wong, MD,  
Jeffrey Macalena, MD, Bradley Nelson, MD, Robert Arciero, MD,  
Cory Edgar, MD, Mark Cote, PT, Darren Johnson, MD,  
Cale Jacobs, PhD, Dustin Richter, MD, Gehron Treme, MD,  
Andrew Veitch, MD, Daniel Wascher, MD, Brandee Black, MD,  
Lane Bailey, PhD, Mark Miller, MD, Joe Hart, PhD

**Narcotic Prescribing Education Program and Standardized Service Guidelines Change Prescribing Practices After Arthroscopic Knee Surgery**

Jeffrey Stepan, MD, Michael Fu, MD, Francis Lovecchio, MD,  
Ajay Premkumar, MD, Peter Grimaldi, PA-C, Peter Derman, MD,  
Samuel Taylor, MD, Anil Ranawat, MD

**Normative Athletic Activity Level Data in Children and Adolescents: A Cross-Sectional Study of 2,002 American Youth**

Peter Fabricant, MD, MPH, Joash Suryavanshi, BA,  
Jacob Calcei, MD, Robert Marx, MD, MSc, FRCSC,  
Roger Widmann, MD, Daniel Green, MD, MS, FAAP, FACS

**Operative Versus Non-Operative Treatment of Acute Displaced Distal Clavicle Fractures: A Multicentre Randomized Controlled Trial**

Moderators: Frank Cordasco, MD, MS, Thomas Throckmorton, MD  
Jeremy Hall, MD, Niloofar Dehghan, FRCSC,  
Emil Schemitsch, MD, Aaron Nauth, MD, Robert McCormack, MD,  
Pierre Guy, MD, Robert Korley, MD, Steven Papp, MD,  
Ross Leighton, MD, Edward Harvey, MD, Michael McKee, MD

**Opioid Use Before Rotator Cuff Repair Is Associated with Higher Rates of Chronic Opioid Use**

Moderators: Charles Getz, MD, David Dines, MD  
William Schairer, MD, Benedict Nwachukwu, MD,  
Lawrence Gulotta, MD, Russell Warren, MD, David Dines, MD,  
Joshua Dines, MD

**Return to Sport and Reoperation Rates in Patients Under the Age of 20 Following Primary Anterior Cruciate Ligament Reconstruction: Risk Profile Comparing Three Patient Groups Predicated Upon Skeletal Age**

Sheena Black, MD, Meghan Price, BS,  
Daniel Green, MD, MS, FAAP, FACS, Frank Cordasco, MD, MS

**Patient Perceptions of Surgeon Reimbursement for Rotator Cuff Repair**

Moderators: Charles Getz, MD, David Dines, MD  
Brendan Southam, MD, Zachary Crawford, Brian Grawe, MD

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**Reverse Shoulder Arthroplasty on Biconcave Glenoid Reduces the Risks of Joint Instability and Glenoid Loosening Compare to Total Shoulder Arthroplasty**

Xiang Chen, MSc, Jonathan Glenday, BS, Timothy Wright, PhD, Russell Warren, MD, David Dines, MD, Lawrence Gulotta, MD, Andreas Kontaxis, MSc, PhD

**Similar Mid-Term Outcomes After Osteochondral Allograft Transplantation in Anterior Cruciate Ligament-Intact and -Reconstructed Knees: A Comparative Matched-Group Analysis**

Dean Wang, MD, Claire Eliasberg, MD, Tim Wang, MD, Ryan Fader, MD, Francesca Coxe, BS, Mollyann Pais, BS, Riley Williams III, MD

**Surgical Anatomy of the Radial Nerve in the Deltopectoral Approach for Revision Shoulder Arthroplasty and Periprosthetic Fracture Fixation: A Cadaveric Study**

Michael Fu, MD, Michael Hendel, MD, Xiang Chen, MSc, Russell Warren, MD, David Dines, MD, Lawrence Gulotta, MD

**The Bicipital Tunnel Is Biologically Active: A Molecular Characterization of Inflammation, Degradation, and Nociception**

Abigail Campbell, MD, Samuel Taylor, MD, Evan O'Dea, BA, Mary Shorey, BA, Russell Warren, MD, Stephen O'Brien, MD, MBA

**The Orthopaedic Surgery Residency Application Process: An Analysis of the Applicant Experience**

Prem Ramkumar, MD, Sergio Navarro, Morad Chughtai, MD, Heather Haeberle, BS, Samuel Taylor, MD, Michael Mont, MD

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**POSTERS**

**Acetabular Version and Acetabular Coverage Measurements Have Clinically Relevant Associations with Pelvic Incidence and Pelvic Tilt in Patients Treated for Femoroacetabular Impingement**

Graeme Whyte, FRCSC, Aaron Buckland, FRACS, Douglas Mintz, MD, Ernest Sink, MD, Struan Coleman, MD, PhD, Robert Buly, MD

**Anatomic Features of the Femoral Condyle Correspond to Intersubject Variations in Medial Collateral Ligament Tension in Total Knee Arthroplasty**

Mohammad Kia, Carl Imhauser, PhD, Timothy Wright, PhD, Michael Cross, MD, David Mayman, MD, Andrew Pearle, MD, Peter Sculco, MD, Geoffrey Westrich, MD

**Biomechanical Comparison of Lower Trapezius Versus Latissimus Dorsi Tendon Transfers for Rotator Cuff Deficient Shoulders**

Akhil Reddy, BS, Lawrence Gulotta, MD, Xiang Chen, MSc, Russell Warren, MD, David Dines, MD, Alessandro Castagna, MD, Andreas Kontaxis, MSc, PhD

**Longer Preoperative Opioid Use Results in Increased Rates of Chronic Opioid Use After Total Shoulder Arthroplasty**

William Schairer, MD, Benedict Nwachukwu, MD, Michael Fu, MD, Lawrence Gulotta, MD, Samuel Taylor, MD, David Dines, MD, Joshua Dines, MD

**Mid-Term Survivorship and Patient Satisfaction of Robotic-Assisted Unicompartmental Knee Arthroplasty: A Multicenter Study**

Laura Kleeblad, MD, Thomas Coon, MD, Todd Borus, MD, Joseph Nguyen, MPH, Andrew Pearle, MD

**Superior Capsule Reconstruction for Reinforcement Before Arthroscopic Rotator Cuff Repair Improves Cuff Integrity**

Moderators: Frank Cordasco, MD, MS, Thomas Throckmorton, MD, Teruhisa Mihata, MD, Thay Lee, PhD, Akihiko Hasegawa, MD, Kunimoto Fukunishi, MD, Takeshi Kawakami, Yukitaka Fujisawa, MD, Yasuo Itami, MD, Mutsumi Ohue, MD, Munekazu Doi, Masashi Neo, MD

**The Effect of Critical Shoulder Angle, Acromial Humeral Distance, Acromial Index, Center of Rotation, and Deltoid Lever Arm on Outcomes and Range of Motion in Patients Undergoing Reverse Total Shoulder Arthroplasty**

Moderators: Frank Cordasco, MD, MS, Thomas Throckmorton, MD, Troy Roberson, MD, Ellen Shanley, PhD, Jeffrey Abildgaard, MD, Charles Granade, Kyle Adams, BS, James Griscom, III, BA, Quinn Hunt, Quinn Nix, BS, Michael Kissenberth, MD, Stefan Tolan, MD, Richard Hawkins, MD, John Tokish, MD

**Twenty-Year Results of Isolated Supraspinatus Repair**

Moderators: Frank Cordasco, MD, MS, Thomas Throckmorton, MD, Philippe Collin, Gilles Walch, MD, Jean Francois Kempf, MD, Herve Thomazeau, MD, Christian Gerber, MD

**Validation of Telephone Administration of Patellofemoral Patient Reported Outcome Measures**

Katherine Connors, BS, Joseph Liu, MD, Irene Kalbian, BA, Jeffrey Stepan, MD, Joseph Nguyen, MPH, Beth Shubin Stein, MD, Sabrina Strickland, MD

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**SCIENTIFIC EXHIBITS**

**Glenoid Bone Loss Complicating Total Shoulder Arthroplasty: A Treatment Algorithm**

Joshua Dines, MD, Asheesh Bedi, MD, David Dines, MD, Lawrence Gulotta, MD, Christopher Camp, MD, Patrick Denard, MD, Ryan Rauck, MD, Joseph Ruzbarsky, MD, Jacob Calcei, MD

**Latarjet Versus Soft Tissue Stabilization: Who Is the Ideal Candidate for Each?**

Brandon Erickson, MD, Bernard Bach, Jr., MD, Lawrence Gulotta, MD, Joshua Dines, MD, Samuel Taylor, MD, Stephen O'Brien, MD, MBA, Christopher Ahmad, MD, Nikhil Verma, MD, Anthony Romeo, MD



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**Orthobiologics for Upper Extremity Disorders:  
What Is the Evidence?**

Daniel Curtis, MD, Jonathan Edgington, MD, Charles Qin, MD, Jason Koh, MD, Eugene Ek, MD, Sherwin Ho, MD, Scott Rodeo, MD, Lewis Shi, MD

**Platelet-Rich Plasma in Sports Medicine—What Does Level I Evidence Support?**

Eoghan Hurley, Charles Hannon, MD, Christopher Murawski, Niall Smyth, MD, Michael Hendel, MD, John Kennedy, MD, Brian Cole, MD, Scott Rodeo, MD, Cathal Moran, MD

**The Team Physician: Pre-Participation Physicals to Sideline Management and Everything in Between**

Jacob Calcei, MD, Joseph Ruzbarsky, MD, Evan O'Donnell, MD, Keith Corpus, MD, Ryan Rauck MD, Russell Warren, MD, Scott Rodeo, MD, James Kinderknecht, MD, Samuel Taylor, MD

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**SYMPOSIA**

**Biologics—PRP and Stem Cells**

Scott Rodeo, MD

**International Perspectives on Shoulder Arthroplasty:  
Around the World in 120 Minutes**

Lawrence Gulotta, MD

**Osteotomies (HTO/DFO): When Is It Necessary?**

Robert Marx, MD, MSc, FRCSC

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**SPECIALTY DAY**

**Biomechanics of Lower Trapezius and Latissimus Dorsi Transfers in Rotator Cuff Deficient Shoulders**

Akhil Reddy, BS, Andreas Kontaxis, MSc, PhD, Xiang Chen, MSc, Russell Warren, MD, David Dines, MD, Lawrence Gulotta, MD

**Case Panel: Instability and Biceps Case Panel—What Would You Do?**

Robert Burks, MD, Neal ElAttrache, MD, Larry Field MD, Stephen O'Brien, MD, MBA, Matthew Provencher, Anthony Romeo MD, John Tokish

**How-To Videos II: Shoulder—Rotator Cuff**

Moderators: Lawrence Gulotta, MD

**Knee Ligament**

Moderators: Jo A. Hannafin, MD, PhD

**Osseous Vascularity of the Medial Elbow Following Ulnar Collateral Ligament Reconstruction: A Comparison of the Docking and Modified Jobe Techniques**

Christopher Camp, MD, Craig Klinger, BA, Lionel Lazaro, MD, Jordan Villa, MD, Jelle Van Der List, MD, David Altchek, MD, Dean Lorch, MD, Joshua Dines, MD

**The Biceps as a Pain Generator:  
How Do We Make the Diagnosis?**

Stephen O'Brien, MD, MBA

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**TECHNICAL SKILLS**

**Issues of Alignment and Tibial Slope:  
When to Address and How?**

Anil Ranawat, MD

**Massive, Irreparable Rotator Cuff Tears:  
What Are Our Treatment Options?**

Moderator: Joshua Dines, MD



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# ORS Annual Meeting

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## MEET THE PROFESSOR

### Meet the Professor

Scott Rodeo, MD

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## MODERATORS

### Cartilage and Synovium: Inflammation

Mary Goldring, PhD

### Hip and Knee Arthroplasty

Timothy Wright, PhD

### In Vivo and In Vitro Techniques to Study Skeletal Muscle Growth and Regeneration

Christopher Mendias, PhD

### Muscle

Christopher Mendias, PhD

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## ORS AWARDS SESSION

### ORS Welcome Session and Presidential Address

Mary Goldring, PhD (Recognition of Inaugural Class of ORS Fellows)

### NIRA—Spine, Tendon and Ligament: The Effect Of Different Immobilization Periods On Mmps (2, 3, 9, And 13) Activity In Aclr Murine Model

Yusuke Nakagawa, MD, PhD, Amir Lebaschi, MD, Susumu Wada, MD, PhD, Samuel Green, Zoe Album, Liang Ying, Xiang-Hua Deng, MD, Scott Rodeo, MD

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## ORS/OREF GRANT WRITING WORKSHOP

### What Does Your SC/Resume Say About You?

Mary Goldring, Ph, Co-Organizer

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## PAPER PRESENTATIONS

### Disruption of the Microbiome Increases Risk of Periprosthetic Joint Infection in Mice

Christopher Hernandez, PhD, Xu Yang, MD, Gang Ji, MD, Joseph Koressel, MS, Matthew Shirley, BS, Michael Horsfield, BS, Arvinth Sethuraman, Susan Chyou, BS, Ilana Brito, PhD, Theresa Lu, MD, PhD, Mathias Bostrom, MD

### Heat-Labile Antibiotics Maintain Antimicrobial Activity in Revision Arthroplasty Cement Spacers

Alberto Carli, MD, FRCSC, Arvinth Sethuraman, Gang Ji, MD, Samrath Bhimani, MD, Xu Yang, MD, F. Patrick Ross, PhD, Mathias Bostrom, MD

### MR-based Analysis of the Peri-prosthetic Cortex in Failed Total Hip Arthroplasty: A Pilot Study

Arvinth Sethuraman, Matthew Koff, PhD, Alissa Burge, MD, Bin Lin, MS, Hollis Potter, MD, Mathias Bostrom, MD

### Noninvasive Diagnosis of Peri-prosthetic Joint Infections in Mice

Arvinth Sethuraman, Xu Yang, MD, Joseph Koressel, MS, Gang Ji, MD, Michael Horsfield, BS, Christopher Hernandez PhD, Mathias Bostrom, MD

### Zero Echo Time MRI of Bone: Assessing Femoroacetabular Impingement

Ryan Breighner, Eric Bogner, MD, Bryan Kelly, MD, Matthew Koff, PhD, Hollis Potter, MD

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## PODIUM

### A Comparison of Tibia Lengthening Techniques: Internal Lengthening, Lengthening and Then Nailing and Classic Ilizarov

Tom Falls, MD, Austin Fragomen, MD, S. Robert Rozbruch, MD

### Biomechanical Evaluation of Acromial Strain After Reverse Shoulder Arthroplasty

Xiang Chen, MSc, Joseph Gentile, MD, Russell Warren, MD, Andreas Kontaxis, MSc, PhD, Lawrence Gulotta, MD

### Biomechanics of Lower Trapezius and Latissimus Dorsi Transfers in Rotator Cuff Deficient Shoulders

Akhil Reddy, BSc, Xiang Chen, MSc, David Dines, MD, Russell Warren, MD, Alessandro Castagna, MD, Lawrence Gulotta, MD, Andreas Kontaxis, MSc, PhD

### Dynamic Loads Distributed Through the Medial Meniscus Are Variable across Knees during Gait

Caroline Brial, MEng, Tony Chen, PhD, Amanda Wach, MS, Russell Warren, MD, Peter Torzilli, PhD, Suzanne Maher, PhD

### Effect of Different Compressive Stress Patterns During Articulation on Cartilage Stiffness: A Microindentation Study

Catherine Yuh, Tony Chen, PhD, Mehdi Khoshgoftar, PhD, Suzanne Maher, PhD, Markus Wimmer

### Knee Kinematics and Contact Stressors During Simulated Gait

Amanda Wach, MS, Russell Warren, MD, Peter Torzilli, PhD, Suzanne Maher, PhD

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**Lateralization and Attachment Site Affect Subscapularis Biomechanics After Reverse Shoulder Arthroplasty**

Eric Windsor, BSc, Andreas Kontaxis, MSc, PhD, Xiang Chen, MSc, Russell Warren, MD, David Dines, MD, Lawrence Gulotta, MD, Samuel Taylor, MD

**Single Cell RNA-seq Reveals mRNA Expression Changes in Specific Cell Types Following Sclerostin Inhibition**

Ugur Ayturk, PhD, Joseph Scollan, BS, Christina Jacobsen, MD, PhD, Matthew Warman, MD

**Tibial Bony Morphology and Tibiofemoral Laxity Predict Knee Mechanics During Compression**

Robert Kent, Dean Wang, Mark Amirtharaj, Brendan Hardy, Thomas Wickiewicz, MD, Andrew Pearle, MD, Carl Imhauser, PhD

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**POSTERS**

**A RCT Using a Novel Stem Cell Approach for Managing Subchondral Bone Edema in Knee OA**

Vijay Vad, MD, Raghav Barve, MBBS, MCh, Kaitlin Carroll, Chris Topar, Dmed

**A Prospective, Longitudinal Assessment of Adverse Local Tissue Reactions in Resurfacing Hip Arthroplasty Versus Primary Total Hip Arthroplasty**

Jacqui Zhu, Matthew Koff, PhD, Bin Lin, Kara Fields, Danyal Nawabi, MD, Edwin Su, MD, Douglas Padgett, MD, Hollis Potter, MD

**Anatomic Features of the Femoral Condyle Correspond to Intersubject Variations in MCL Tension in Total Knee Arthroplasty**

Mohammad Kia, Peter Sculco, MD, Timothy Wright, PhD, Andrew Pearle, MD, Michael Cross, MD, David Mayman, MD, Geoffrey Westrich, MD, Carl Imhauser, PhD

**Antioxidant Stabilized XLPE in TKA: A Retrieval Analysis**

Lydia Weitzler, MS, Danielle Ponzio, MD, Christina Esposito, PhD, Timothy Wright, PhD, Douglas Padgett, MD

**Biomechanical Evaluation of Acromial Strain After Reverse Shoulder Arthroplasty**

Xiang Chen, MSc, Joseph Gentile, MD, Russell Warren, MD, Andreas Kontaxis, MSc, PhD, Lawrence Gulotta, MD

**Biomechanical Evaluation of Lateral Extra-articular Surgical Procedures of the Knee: A Computational Study**

Hamidreza Jahandar, Mark Amirtharaj, Tim Wang, Thomas Wickiewicz, MD, Danyal Nawabi, MD, Andrew Pearle, MD, Carl Imhauser, PhD

**Biomechanics of Lower Trapezius and Latissimus Dorsi Transfers in Rotator Cuff Deficient Shoulders**

Akhil Reddy, BS, Andreas Kontaxis, MSc, PhD, Xiang Chen, MSc, Russell Warren, MD, David Dines, MD, Lawrence Gulotta, MD

**Bnip3 Gene Associated With Mitochondria Dysfunction Is Up-regulated In Tenocytes From Human Tendinopathy Patients**

Yusuke Nakagawa, MD, PhD, Camila Carballo, PT, PhD, Ying Zhang, PhD, Elizabeth Selvaggio, Amir Lebaschi, MD, Susumu Wada, MD, PhD, Miguel Otero, PhD, Michelle Delco, DVM, PhD, Lisa Fortier, DVM, PhD, Scott Rodeo, MD

**Bone Bruise and Knee Instability in Anterior Cruciate Ligament Ruptures: Association Between Magnetic Resonance Imaging Signs and Joint Laxity**

Ricardo Bastos, MD, PhD, Scott Rodeo, MD

**Combined Local and Systemic Antibiotics Fail to Eradicate Periprosthetic Joint Infection in a Murine Model**

Matthew Shirley, BS, Gang Ji, MD, Joseph Koressel, MS, Alberto Carli, MD, F. Patrick Ross, PhD, Marjolein Van Der Meulen, PhD, Christopher Hernandez, PhD, Xu Yang, MD, Mathias Bostrom, MD

**Comparison Of Bone Tunnel And Cortical Surface Tendon-To-Bone Healing In a Rabbit Biceps Tenodesis Model**

Dean Wang, MD, Hongbo Tan, PhD, Amir Lebaschi, MD, Ian Hutchinson, MD, Lilly Ying, Xiang-Hua Deng, MD, Scott Rodeo, MD, Russell Warren, MD

**Effect of Bioreactor Boundary Conditions on Cartilage Mechanics**

Mehdi Khoshgoftar, PhD, Tony Chen, PhD, Peter Torzilli, PhD, Suzanne Maher, PhD

**Effect of Head Material on Simulated Head-Trunnion Corrosion Is Inconsistent Across Commercial Stem Designs**

Amanda Wach, MS, Rowan, MD, Douglas Padgett, MD, Timothy Wright, PhD

**Evaluation of Bone Formation with Micro-Computed Tomography After Biceps Tenodesis in a Rabbit Model: Comparison of Bone Tunnel and Cortical Surface Fixation Techniques**

Dean Wang, MD, Amir Lebaschi, MD, Hongbo Tan, PhD, Ian Hutchinson, MD, Lilly Ying, Xiang-Hua Deng, MD, Scott Rodeo, MD, Russell Warren, MD

**Finite Element Analysis Of Tibial Bone-implant Load Transfer And Bone Strains With a Modern Fixed-bearing Total Ankle Replacement**

Susan Rodriguez, Xiang Chen, MSc, Guilherme Honda Saito, Constantine Demetracopoulos, MD, Scott Ellis, MD, Jonathan Deland, MD, Daniel Sturnick

**Gene Expression Profiling by Nanostring in a Murine Rotator Cuff Repair Model**

Elizabeth Selvaggio, Yusuke Nakagawa, MD, PhD, Camila Carballo, PT, PhD, Amir Lebaschi, MD, Zoe Album, Susumu Wada, MD, PhD, Miguel Otero, PhD, Xiang-Hua Deng, MD, Scott Rodeo, MD

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**Histomorphometric and Immunohistochemical Evaluation of Collagenase Injection and Treadmill Running Murine Models of Patellar Tendinopathy**

Dean Wang, MD, Guang-Cong Ting, MD, Daniel Nemirov, Zoe Album, Camila Carballo, PT, PhD, Yusuke Nakagawa, MD, PhD, Amir Lebaschi, MD, Susumu Wada, MD, PhD, Lilly Ying, Xiang-Hua Deng, MD, Scott Rodeo, MD

**Human Amniotic Membrane Improves Healing in a Chronic, Massive Rotator Cuff Repair Model**

David Kovacevic, MD, Robert Suriani, MD, Maarouf Saad, Shivam Patel, Steven Tommasini, PhD, Christopher Mendias, PhD, Chad Carroll, PhD, Theodore Blaine, MD

**Injury Modulates Tenocyte Integrin Expression in Human Tendon**

Moni Chatterjee, BS, Nelly Andawaris-Puri, PhD, Scott Rodeo, MD

**Lateralization and Attachment Site Affect Subscapularis Biomechanics After Reverse Shoulder Arthroplasty**

Eric Windsor, BSc, Andreas Kontaxis, MSc, PhD, Xiang Chen, MS, Russell Warren, MD, David Dines, MD, Lawrence Gulotta, MD, Samuel Taylor, MD

**Mechanical Loading and Tissue Stiffness Regulating YAP Expression in Tenocytes**

Brennan Rourke, Scott Rodeo, MD

**Mechanical Loading Combined with Bone-Marrow Mesenchymal Stromal Cells Induces Ectopic Bone Formation in a Medial Meniscus Destabilization Model: Insights into Osteophyte Formation**

Camila Carballo, PT, PhD, Yusuke Nakagawa, MD, PhD, Amir Lebaschi, MD, Susumu Wada, MD, PhD, Jordan Green, Dean Wang, MD, Arielle Hall, Tyler Uppstrom, Zoe Album, Miguel Otero, PhD, Jose Brito, PhD, Scott Rodeo, MD

**Molecular Mechanisms of Platelet-Rich Plasma Elucidating Clinical-Grade PRP's Intrinsic Variation**

Jeremy Mao, DDS, PhD, Scott Rodeo, MD

**MR-Based Analysis of the Peri-prosthetic Cortex in Failed Total Hip Arthroplasty: A Pilot Study**

Arvinth Sethuraman, Matthew Koff, PhD, Alissa Burge, Bin Lin, Hollis Potter, MD, Mathias Bostrom, MD

**Muscle-Derived Activated Endothelial Cells as a New Cell Source to Enhance Tendon-To-Bone Healing: In Vivo Biomechanical, Histological and CT Evaluations in a Murine Rotator Cuff Repair Model**

Susumu Wada, MD, PhD, Amir Lebaschi, MD, Yusuke Nakagawa, MD, PhD, Camila Carballo, PT, PhD, Dean Wang, MD, Zoe Album, Brett Croen, Samuel Green, Daniel Nemirov, Elizabeth Selvaggio, Lilly Ying, Xiang-Hua Deng, MD, Scott Rodeo, MD

**On the Biomechanical Benefits of Augmenting Percutaneous Pedicle Screw Fixation with Kyphoplasty in the Treatment of Burst Fractures: A Finite Element Analysis**

Shady Elmasry, Shihab Asfour, Francesco Travascio

**Patellar Tendon T2\* MRI Demonstrates Longitudinal Changes of Tendon Degeneration Over a Season in College Basketball Players**

Erin Argentieri, Parina Shah, Hollis Potter, MD, Ogonna Nwawka, MD, Matthew Koff, PhD

**Patellar Tendon T2\* MRI Demonstrates Longitudinal Changes of Tendon Degeneration Over a Season in Validation of Meniscus and Articular Cartilage Histological Score for Meniscus Implantation in An Ovine Model**

Brett Croen, Yusuke Nakagawa, Lisa Fortier, Jeremy Mao, DDS, PhD, Chang Lee, Matthew Koff, PhD, Margaret Goodale, Samuel Green, Daniel Nemirov, Susumu Wada, MD, PhD, Liang Ying, Hollis Potter, MD, Scott Rodeo, MD

**Persistent Accumulation of M2 Macrophages Around Muscle Fibers in Patients with Chronic Rotator Cuff Tears**

Nathaniel Disser, Brennan Rourke, Daniel Jenkins, Scott Rodeo, MD, Asheesh Bedi, MD, Abigail Mackey, Christopher Mendias, PhD, ATC

**Post-operative Tendon Loading with Treadmill Running Delays Tendon to Bone Healing: Evaluation of the Indian-hedgehog Pathway in a Murine Rotator Cuff Repair Model**

Susumu Wada, MD, PhD, Amir Lebaschi, MD, Yusuke Nakagawa, MD, PhD, Camila Carballo, PT, PhD, Zoe Album, Tyler Uppstrom, Arielle Hall, Lilly Ying, Xiang-Hua Deng, MD, Scott Rodeo, MD

**Primary Stability and Load Transfer of Cementless Knee Implants During Stair Climbing**

Fernando Quevedo-Gonzalez, PhD, Darrick Lo, MEng, Joseph Lipman, MS, Ivan DeMartino, MD, Peter Sculco, MD, Thomas Sculco, MD, Fabio Catani, MD, Timothy Wright, PhD

**Simulating the Combined Effect of Muscle Fatigue and Muscle Weakness in Reverse Shoulder Arthroplasty**

Jonathan Glenday, MSc, Bhushan Borotikar, PhD, Andreas Kontaxis, MSc, PhD, Stephen Roche, MD, Valérie Burdin-Fracasso, PhD, Tinashe Mutsvangwa, PhD, Sudesh Sivarasu, PhD

**Satellite Cells From The Rotator Cuff Have A Greater Intrinsic Adipogenic Differentiation Capacity Than Other Muscles**

Manuel Schubert, MD, Andrew Noah, Asheesh Bedi, MD, Christopher Mendias, PhD, Jonathan Gumucio

**Surface Damage and Oxidation Are Reduced in XLPE Tibial Inserts at Midterm Follow Up**

Lydia Weitzler, MS, Alexandra Stavrakis, MD, Douglas Padgett, MD, Timothy Wright, PhD

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**The Effect of ACL Injury and Reconstruction on Knee Joint Stress**

Kevin Marailac, L3, Alex Riveaux, L3, Oliver Morgan, BSc, Howard Hillstrom, PhD, Rajshree Hillstrom, PhD, MBA

**The Effect Of ACL Reconstruction Surgery On Mmp Activity In The Non-operated Side In a Murine Model**

Samuel Green, Yusuke Nakagawa, MD, PhD, Amir Lebaschi, MD, Susumu Wada, MD, PhD, Brett Croen, Zoe Album, Liang Ying, Xiang-Hua Deng, Scott Rodeo, MD

**The Effect of Constraint on Post Damage in TKA: PS Versus PSC Inserts**

Lydia Weitzler, MS, Joseph Konopka, MD, Geoffrey Westrich, MD, Timothy Wright, PhD

**The Effect of Femoral Rotation on Patellofemoral Contact Mechanics: A Dynamic Cadaveric Model**

Amanda Wach, MSc, Andrea Spiker, MD, Bryan Kelly, MD, Sabrina Strickland, MD

**The Role of Bone-marrow Mesenchymal Stromal Cells, Juvenile and Adult Articular Chondrocytes, and Endothelial Cell Interactions Through Direct Co-culture**

Camila Carballo, PT, PhD, Yusuke Nakagawa, MD, PhD, Samantha Lessard, Miguel Otero, PhD, Jose Britto, PhD, Scott Rodeo, MD

**The Role of Wnt and Indian Hedgehog Signaling in Healing at the Graft-Bone Interface in Anterior Cruciate Ligament Reconstruction:****Immunohistochemical Evaluation in a Murine Model**

Amir Lebaschi, MD, Christopher Camp, MD, Dean Wang, MD, Yusuke Nakagawa, MD, PhD, Susumu Wada, MD, PhD, Camila Carballo, PT, PhD, Zoe Album, Xiang-Hua Deng, MD, Scott Rodeo, MD

**Unicompartmental Knee System On Tibiofemoral Joint Stress**

Oliver Morgan, BSc, Rajshree Hillstrom, PhD, MBA, Anil Ranawat, MD, Austin Fragomen, MD, S. Robert Rozbruch, MD, Howard Hillstrom, PhD

**Validation of Meniscus and Articular Cartilage Histological Score for Meniscus Implantation in An Ovine Model**

Brett Croen, Yusuke Nakagawa, MD, PhD, Lisa Fortier, DVM, PhD, Jeremy Mao, DDS, PhD, Chang Lee, PhD, Matthew Koff, PhD, Margaret Goodale, Samuel Green, Daniel Nemirov, Susumu Wada, MD, PhD, Liang Ying, Hollis Potter, MD, Scott Rodeo, MD

**Variability in 12/14 Femoral Stem Taper Design for THA: A Retrieval Analysis**

Lydia Weitzler, MS, Zachary Salas, BS, MA, Christina Esposito, PhD, Timothy Wright, PhD, Douglas Padgett, MD

**Wnt/ $\beta$ -Catenin Signaling Play a Role in Rotator Cuff Repair and Are Affected by Mechanical Loading**

Yusuke Nakagawa, MD, PhD, Amir Lebaschi, MD, Susumu Wada, MD, PhD, Camila Carballo, PT, PhD, Zoe Album, Lilly Ying, Xiang-Hua Deng, MD, Scott Rodeo, MD

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**SCIENTIFIC WORKSHOP**

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**Evaluation of Implant Failure:****The Role of MRI and Retrieval Analysis**

Douglas Padgett, MD, Timothy Wright, PhD

**Clinical MRI Applications**

Hollis Potter, MD

**The Scientific Legacy of Adele Boskey: From Biomineralization Mechanisms to Bone Quality Insights into a Rare Bone Disease: Osteogenesis Imperfecta, From Bedside and Back Again**

Cathleen Raggio, MD

**The Clinical Evaluation and Workup of the Failed Implant**

Mathias Bostrom, MD

**The Role of Implant Retrieval in Evaluating Failed Implants**

Timothy Wright, PhD

**The Use of MR in Evaluating the Failed Implant**

Hollis Potter, MD

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**SPECIALTY DAY**

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**Limb Lengthening and Reconstruction Society****Ankle Deformity and Osteoarthritis**

S. Robert Rozbruch, MD

**Best Papers of ILLRS 2017 Meeting**

Austin Fragomen, MD

**Feasibility of Correcting the Mechanical Axis in Large Varus Deformities with Medial Unicompartmental Knee Arthroplasty (Best Papers of LLRS Annual Meeting 2017)**

S. Robert Rozbruch, MD

**Foot and Ankle Deformity**

Austin Fragomen, MD

**Post Traumatic Arthritis of Ankle**

Austin Fragomen, MD

**Meniscus Section Meeting****How to Detect Change?**

Hollis Potter, MD

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**SYMPOSIA**

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**Knowledge Gaps in the Field of Meniscus Research**

Suzanne Maher, PhD (Organizer)

**ORS Business Plan Competition**

Suzanne Maher, PhD (Mentor)