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OREF SOUTHWESTERN REGION
RESIDENT RESEARCH SYMPOSIUM
Saturday, October 14, 2023

The University of Texas at Austin Dell Medical School
Health Discovery Building Auditorium
1701 Trinity Street, Room 1.208
Austin, TX 78703

Hosted by:
Kevin Bozic, MD, MBA, FACS, FAAOS, FAOA
Chair, Department of Orthopaedic Surgery and Perioperative Care
The University of Texas at Austin Dell Medical School

Anthony "AJ" Johnson, MD, FACS, FAOA
Associate Professor, Department of Orthopaedic Surgery and Perioperative Care
The University of Texas at Austin Dell Medical School

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About OREF:
The Orthopaedic Research and Education Foundation (OREF) is a charitable 501(c)(3) organization committed to improving lives by supporting excellence in orthopaedic research through its grant funding and research education programs. As an independent nonprofit, OREF strives to improve clinical care and patient outcomes by advancing innovative research, developing new investigators, and uniting the orthopaedic community in promoting musculoskeletal health. Visit oref.org or follow OREF on X (@OREFtoday).

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OREF SOUTHWEST REGION RESIDENT RESEARCH SYMPOSIUM
SUMMARY AGENDA
Saturday, October 14, 2023

Noon – 1:00 p.m.	**Registration and Lunch** Dell Medical School, UT – Austin Health Discover Building Auditorium 1701 Trinity Street Austin, TX 78703
1:00 p.m. – 1:05 p.m.	**Welcome and Introductions** Anthony "AJ" Johnson, MD Associate Professor Department of Orthopaedic Surgery and Perioperative Care The University of Texas at Austin Dell Medical School
1:05 p.m. – 1:10 p.m.	**OREF Welcome** Lee Grossman Chief Executive Officer Orthopaedic Research and Education Foundation
1:10 p.m. – 1:50 p.m.	**Session I – Resident Research Presentations & Discussion**
1:50 p.m. – 2:25 p.m.	**Session II – Resident Research Presentations & Discussion**
	Break – Please submit your scores from Session I and II to OREF staff.
2:35 p.m. – 3:10 p.m.	**Session III – Resident Research Presentations & Discussion**
3:10 p.m. – 3:45 p.m.	**Session IV – Resident Research Presentations & Discussion**
	Break – Please submit your scores from Session III and IV to OREF staff.
3:55 p.m. – 4:00 p.m.	**Introduction of Keynote Speaker**
4:00 p.m. – 4:45 p.m.	**Keynote Address** **"Research in Career and Professional Development –** **The Role of the Orthopaedic Associations"** Henry B. Ellis, Jr., MD Associate Professor, University of Texas Southwestern Director of Clinical Research and Sports Medicine Fellowship Director Texas Scottish Rite Hospital for Children
4:45 p.m. – 4:55 p.m.	**Awards Presentation and Reception** *Thank you to all sponsors!* *Closing of program to OREF TV audience*
5:00 p.m. – 6:00 p.m.	**Reception**

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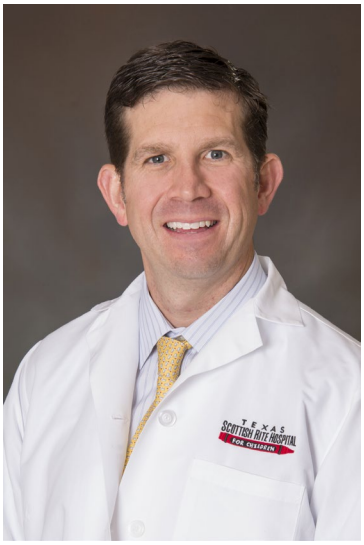
KEYNOTE SPEAKER



Henry B. Ellis, Jr., MD

Associate Professor, University of Texas Southwestern
Director of Clinical Research and Sports Medicine Fellowship Director
Texas Scottish Rite Hospital for Children

Henry Bone Ellis, Jr., MD, received his medical degree from the University of Texas Health Science Center San Antonio. He completed both his internship in general surgery and residency in orthopedic surgery at the University of Texas Southwestern Medical School in Dallas. There, he received the W. Brandon Carrell Distinguished Physician Award and was elected Chief Resident. He completed fellowships in pediatric orthopedics at the Hospital for Sick Children at the University of Toronto and sports medicine at the Steadman Philippon Research Institute in Vail, Colorado.

Dr. Ellis is an Associate Professor at the UT Southwestern Medical School. He cares for patients in the Hip and Sports Medicine Centers for Excellence at the Scottish Rite for Children Orthopedic and Sports Medicine Center in Frisco, Texas. As an Associate Director of Research, he leads many projects in pediatric sports medicine. He has developed and secured funding for the large multi-center pediatric arthroscopy complications registry called SCORE. Dr. Ellis has also worked with several local high schools, the U.S. Ski and Snowboard Association, the Dallas Stars and the Dallas Mavericks Academy program. He participated in the 2018-2019 American Academy of Orthopedic Surgeons (AAOS) Leadership Fellows Program and now serves on the AAOS Evidence-Based, Quality, and Value committee. He is a founding member of PRISM and actively contributes to several committees.

Judges

Henry B. Ellis, Jr., MD
Texas Scottish Rite Hospital for Children

Prakash Jayakumar, MD, PhD
University of Texas at Austin Dell Medical School

Anthony “AJ” Johnson, MD
University of Texas at Austin Dell Medical School

David Ring, MD, PhD
University of Texas at Austin Dell Medical School

OREF Southwest Region Resident Research Symposium
DETAILED AGENDA
Saturday, October 14, 2023

1:00 p.m. – 1:05 p.m.	**Welcome and Introductions** **Anthony "AJ" Johnson, MD** Associate Professor Department of Orthopaedic Surgery and Perioperative Care The University of Texas at Austin Dell Medical School
1:05 p.m. – 1:10 p.m.	**OREF Welcome** **Lee Grossman** Chief Executive Officer Orthopaedic Research and Education Foundation
	Session I – Resident Research Presentations & Discussion
1:10 p.m. – 1:15 p.m.	*Biomechanical Analysis of Headless Compression Screw Versus Tension Band for Proximal Interphalangeal Joint Arthrodesis* Dang-Huy Do, MD – University of Texas Southwestern Medical Center
1:15 p.m. – 1:20 p.m.	*Etiology of Acute Extremity Pediatric Compartment Syndrome: A Retrospective Review* Olivia A. Barron, MD, Baylor College of Medicine
1:20 p.m. – 1:25 p.m.	*Factors Associated with Incidence and Recurrence of Lower Back Pain: A Large Population Analysis of the UK Biobank* Qais Zai, MD, University of Texas at Austin, Dell Medical School
1:25 p.m. – 1:30 p.m.	*Do Surgeons Experience Moral Dissonance When There is Misalignment Between Evidence and Action?* Bandele Okelana, MD, University of Texas at Austin, Dell Medical School
1:30 p.m. – 1:35 p.m.	*Splint vs Long Arm Cost Following Operative Management of Supracondylar Humerus Fractures: Does It Make a Difference?* Grant McHorse, MD, University of Texas at Austin, Dell Medical School
1:35 p.m. – 1:40 p.m.	*Improved Perioperative Efficiency in Orthopaedic Trauma Decreases Staffing Costs* Elizabeth Duckworth, MD, University of Texas at Austin, Dell Medical School
1:40 p.m. – 1:50 p.m.	Questions and Discussions

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Session II – Resident Research Presentations & Discussion

1:50 p.m. – 1:55 p.m.	*The Fragility of Statistical Significance in the Use of Aspirin in Prevention of Venous Thromboembolism Events Following Hip Fracture Surgery: A Systematic Review* Tyler Williamson, MD, University of Texas Health Sciences Center, San Antonio
1:55p.m. – 2:00 p.m.	*Long Leg Cast Versus Hinged Knee Brace Immobilization After Surgical Treatment of Tibial Tubercle Fractures* Stephanie Price, MD, University of Texas at Austin, Dell Medical School
2:00 p.m. – 2:05 p.m.	*Recruit and Retain Building a Near Peer Mentorship Program for Orthopedic Surgery Residency* Laura Bashour, MD, University of Texas at Austin, Dell Medical School
2:05 p.m. – 2:10 p.m.	*Prevalence of Biceps Tendinopathy on MRI Considering Age and Rotator Cuff Pathology* Kathryn Canavan, MD, University of Texas at Austin, Dell Medical School
2:10 p.m. – 2:15 p.m.	*The Relationship Between the Timing of Knee Osteoarthritis Diagnoses and Arthroscopic Partial Meniscectomy* Semran Thamer, MD, University of Texas at Austin, Dell Medical School
2:15 p.m. – 2:25 p.m.	Questions and Discussions
2:25 p.m. – 2:35 p.m.	Break

Session III – Resident Research Presentations and Discussion

2:35 p.m. – 2:40 p.m.	*The Importance of an Integrated Practice Unit for the Reduction of Body Mass Index Prior to Hip and Knee Total Joint Arthroplasty* Malik Morgan, MD, University of Texas at Austin, Dell Medical School
2:40 p.m. – 2:45 p.m.	*Ten Tips to Improve Results of Intertrochanteric Fractures: Revisited 2023* Sarthak Parikh, DO, Oklahoma State University
2:45 p.m. – 2:50 p.m.	*Survival Rates in Atlanto-occipital Dissociation: A Look at the Past 20 Years* Gautham Prabhakar, MD, University of Texas Health Sciences Center, San Antonio
2:50 p.m. – 2:55 p.m.	*Minority Resident Physicians' Perspectives on the Role of Race/Ethnicity, Culture, and Gender in Their Surgical Training Experiences* Hilary K. Koech, MD, University of Nevada, Las Vegas
2:55 p.m. – 3:00 p.m.	*Early Clinical Outcomes of Osteochondral Allograft for Capitellar Osteochondritis Dissecans in Adolescent Athletes* Junho Ahn, MD, University of Texas Southwestern Medical Center
3:00 p.m. – 3:10 p.m.	Questions and Discussions

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Session IV – Resident Research Presentations & Discussion

3:10 p.m. – 3:15p.m.	*The Impact of Depression on Outcomes in Adolescent Idiopathic Scoliosis* Ezekial Koslosky, MD, University of Texas Health Sciences Center, San Antonio
3:15 p.m. – 3:20 p.m.	*Comparing Fixation Techniques in Metacarpal Fractures: Intramedullary Screw versus Open Reduction Internal Fixation* Kathleen Lundquist, MD, University of Texas Health Sciences Center, San Antonio
3:20 p.m. – 3:25 p.m.	*The Impact of Computer Navigation on Total Knee Arthroplasty Outcomes* William Young, MD, University of Texas Health Sciences Center, San Antonio
3:25p.m. – 3:30 p.m.	*Prevalence of Osteochondromas Causing Spinal Cord Encroachment in Patients with Multiple Hereditary Exostoses (MHE)* Carlos A. Monroig-Rivera, Texas Scottish Rite Hospital for Children, Dallas
3:30 p.m. – 3:35 p.m.	*High Rates of Ulnar Collateral Ligament Injury and Avulsion in Adolescents Presenting with Medial Elbow Injury* Rishi Sinha, Texas Scottish Rite Hospital for Children, Dallas
3:35 p.m. – 3:45 p.m.	Questions and Discussions
3:45 p.m. – 3:55 p.m.	Break
3:55 p.m. – 4:00 p.m.	**Introduction of Keynote Speaker**
4:00 p.m. – 4:45 p.m.	**Keynote Address** **"Research in Career and Professional Development –** **The Role of the Orthopaedic Associations"** Henry B. Ellis, Jr., MD Associate Professor, University of Texas Southwestern Director of Clinical Research and Sports Medicine Fellowship Director Texas Scottish Rite Hospital for Children
4:45 p.m. – 4:55p.m.	**Awards Presentation and Closing Remarks** *Thank you to all sponsors!* *Closing of program to OREF TV audience*
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Biomechanical Analysis of Headless Compression Screw Versus Tension Band for Proximal Interphalangeal Joint Arthrodesis

Dang-Huy Do, MD
University of Texas Southwestern Medical Center

Purpose/Significance: There are many methods to perform proximal interphalangeal joint (PIPJ) arthrodesis for arthritis, including headless compression screw (HCS), tension band, and plating constructs. We examined the biomechanical properties between HCS and tension band techniques in a cadaveric model.

Methods: We prepared 32 fingers. Each finger was paired with the contralateral digit from the same cadaver. One PIPJ of each pair was fused with a HCS and the other with a tension band construct. Each construct was stressed in the radial, ulnar, flexion, and extension plane, then stressed to failure in extension.

Results: When stressed in extension, the HCS had greater stiffness than the tension band construct ($p=0.009$). No significant differences were identified in stiffness when loading in ulnar, radial, or flexion planes. The mean load to failure in extension was 91N for the HCS and 42N for the tension band ($p=0.0002$). The most common failure mode for the HCS was proximal phalanx dorsal lip fracture (13/16), and for the tension band construct was K-wire bending (15/16).

Conclusion: In this cadaveric model, PIPJ fusion using a HCS resulted in a construct that was stiffer in extension with greater than double the load to failure compared to a tension band construct.

Etiology of Acute Extremity Pediatric Compartment Syndrome: A Retrospective Review

Olivia A. Barron, MD
Baylor College of Medicine

Purpose/Significance: Pediatric acute compartment syndrome (ACS) is described as most caused by traumatic fractures (75%). This project analyzed the etiology of ACS diagnosed at a level I pediatric trauma center with the hypothesis that vascular etiology is a more common cause than previously described.

Methods: EMRs with ICD codes for compartment syndrome were retrospectively reviewed from 1/1/2010-1/9/2023. Each extremity was classified into one etiology: Vascular, Fracture, Non-Fracture Related Trauma, Iatrogenic, or Other.

Results: 129 patients and 147 extremities were diagnosed with ACS (29% upper extremity, 71% lower extremity). >90% received fasciotomies, and >80% underwent compartment checks. Overall, 39% were secondary to vascular etiologies, 34% fractures, 14% non-fracture trauma, 12% iatrogenic, and 1% other. Within vascular etiologies, the most common causes were cardiac arrest/shock (29%, n=17), cardiothoracic/interventional surgery (22%, n=13), and septic shock (19%, n=11). Within fracture etiologies, the most common causes were tibia fractures (48%, n= 24), supracondylar or peri-elbow fractures (20%, n=10), and both bone forearm fractures (14%, n=7).

Conclusion: Contrary to prior studies, we found vascular etiologies were the most common cause of acute extremity compartment syndrome at a level 1 pediatric trauma center. Further research is required to analyze surgical and mortality outcomes across pediatric ACS etiologies.

Factors Associated with Incidence and Recurrence of Lower Back Pain: A Large Population Analysis of the UK Biobank

Qais Zai, MD
University of Texas at Austin, Dell Medical School

Significance: Lower back pain is one of the most common patient complaints. Small studies have investigated risk factors, but these have not been confirmed with high levels of evidence.

Purpose: Purpose of this study was to investigate influencing factors of back pain and recurrent back pain

Methods: UK Biobank was used to collect data. Outcome variables were presence of back pain interfering with daily activities at initial visit from 2006-2010 and continued/recurrent back pain interfering with the same patient in 2014. Bivariate analysis was conducted between our explanatory variables and outcome variables. Covariance testing was performed to remove highly colinear variables before multivariable logistic regression.

Results: 501,509 patients were included, 145,855(29.1%) had low back pain at initial visit. Overweight/obese BMI(OR 1.17/1.45), Asian race(OR 1.5), driving to work(OR 1.13), salary <30K/year(OR 1.15), anxiety/depression(OR 1.20/1.26), and opioid use(OR 3.8) were associated with increased risk of back pain ($p<0.05$ for all). 51,131 patients included in follow-up in 2014,10,706(21.0%) had continued/recurrent back pain. In multivariable regression, male sex(OR 1.36), thyroid disease(OR 1.19), and being retired(OR 1.20) associated with continued/recurrent back pain (all $p<0.05$).

Conclusions: Risk factors for back pain and recurrent back pain including several social factors were identified using large population level analysis.

Do Surgeons Experience Moral Dissonance When There is Misalignment Between Evidence and Action?

Bandele Okelana, MD
University of Texas at Austin, Dell Medical School

Purpose: Measure the factors associated with clinician moral dissonance given scenarios with misalignment between scientific evidence and strong patient preferences.
Significance: Resolving this misalignment by capitulating to patient preference and trying to think of oneself as a good person can diminish joy in practice.

Methodology: In a survey-based experiment, 122 upper extremity surgeons were presented clinical scenarios that randomized various potential pressures to act contrary to evidence-based recommendations.

Results: Controlling for surgeon factors such as gender and practice setting, greater pressure to act contrary to evidence was associated with patient financial distress and patient despair (Correlation coefficient: -5; 95% Confidence interval: -6.7 to -3.3; P value <0.001) and surgeon financial pressures and marketing (Correlation coefficient: -5.8; 95% Confidence interval: -7.4 to -4.1; P value <0.001).

Conclusion: The finding of specific patient and surgeon sources of pressure to act contrary to evidence underscores the ethical aspects of surgical practice. Small daily ethical deviations such as ordering an unnecessary test or administering a treatment not supported by evidence could be important contributors to diminished joy in practice.

Splint vs Long Arm Cost Following Operative Management of Supracondylar Humerus Fracturs: Does It Make a Difference

Grant McHorse, MD
University of Texas at Austin, Dell Medical School

Purpose: We hypothesize long-arm plaster splints provide equivalent post-CRPP stabilization of SCH fractures compared to long-arm cast.

Significance: Displaced supracondylar humerus (SCH) fractures are commonly managed with closed reduction percutaneous pinning (CRPP) and long-arm valved fiberglass cast. Cast application necessitates additional postoperative visits for overwrapping, incurring direct and indirect costs to the healthcare system and patient.

Methods: Retrospective chart review of operatively managed displaced SCH fractures treated by one group between 2018-2022 was performed. Patients were separated into long-arm splint and long-arm cast cohorts. Outcome measurements included reoperation, infection (defined by prescription of antibiotics), loss of reduction, and number of postoperative clinic visits. Loss of reduction was defined as >10° change in Baumann's angle and lateral capitellar humeral angle between intraoperative and 4-week follow-up radiographs for a random sample of 15 patients from both cohorts. Bivariate analysis was conducted using SAS.

Results: 595 patients were included. 118(20%) patients received splint immobilization. There was no significant difference in reoperation rate, infection, or loss of reduction between cohorts. The splint cohort attended significantly fewer clinic visits (2.4 vs. 3.4,p<001).

Significance: Long-arm splints provided appropriate post-CRPP immobilization for displaced SCH fractures while requiring fewer postoperative visits, decreasing the burden on patients and families.

Improved Perioperative Efficiency in Orthopaedic Trauma Decreases Staffing Costs

Elizabeth Duckworth, MD
University of Texas at Austin, Dell Medical School

Purpose: We hypothesized that a more efficient orthopaedic trauma system would decrease staff overtime costs by decreasing the length of the surgical day.

Significance: Variability in operating room efficiency affects quality and timeliness of care, staffing demands, and physician satisfaction and wellness.

Methods: A retrospective review of two metropolitan academic trauma centers over the 2021 calendar year compared first case on-time starts, wheels in to cut, close to wheels out, and wheels out to wheels in between all orthopaedic trauma cases using a two-sample T-test with an alpha of 0.05. The costs per hour for staff including anesthesia providers, circulating nurse, surgical tech, and radiology tech were applied.

Results: Center A had wheels in to cut of 20.5 vs 34.5 minutes, close to wheels out of 7.4 vs 11.5 minutes, and wheels out to wheels in of 21.4 vs 43.5 minutes ($p<0.001$ for all metrics). The daily time impact was an additional 3 hours and 44 minutes per day resulting in overtime staff expenses of $840.38 per day and $219,337.88 per operating room per year.

Conclusion: A more efficient orthopaedic trauma system significantly decreased perioperative intervals leading to a shorter operative day and decreased staff costs.

The Fragility of Statistical Significance in the Use of Aspirin in Prevention of Venous Thromboembolism Events Following Hip Fracture Surgery: A Systematic Review

Tyler Williamson, MD
University of Texas Health Sciences Center, San Antonio

Purpose: Evaluate the statistical fragility in aspirin use for VTE prevention in the hip fracture (HFS) literature.

Significance: Aspirin for VTE chemoprophylaxis following HFS has been debated between orthopaedic and cardiac fields.

Methods: We performed a search for HFS studies comparing ASA and other chemoprophylaxis. The fragility index (FI) was calculated through reversal of a single outcome event until significance was reversed. The fragility quotient (FQ) was calculated by dividing each fragility index by study sample size.

Results: 5 articles met the search criteria to be included for analysis. A total of 1,194 participants were included. There were 19 outcome events reported, with all 19 reported as nonsignificant ($P > 0.05$) outcomes. The overall FI and FQ for all 19 outcomes were 12 (IQR: 6.5-15) and 0.080 (IQR: 0.027-0.110), respectively. Ten studies (52.6%) reported a loss-to-follow-up (LTF) greater than the overall FI.

Conclusions: The majority of highest-level peer-reviewed literature concerning aspirin use following hip fracture surgery is less than robust, with more half of the studied outcomes considered statistically fragile.

Long Leg Cast Versus Hinged Knee Brace Immobilization After Surgical Treatment of Tibial Tubercle Fractures

Stephanie Price, MD
University of Texas at Austin, Dell Medical School

Purpose: To determine functional outcome differences between long leg cast (LLC) and hinged knee brace (HKB) in the management of tibial tubercle fractures (TTF).

Significance: Post-operative immobilization of TTF has historically been with a long leg cast LLC. We hypothesized that a HKB leads to rapid rehabilitation and earlier return to play.

Methodology: We retrospectively reviewed TTF that underwent fixation from May 2010 to February 2022 at a pediatric trauma center. Variables retrieved from the electronic medical record included: immobilization type (HKB or LLC), time to return to play, and time to full range of motion (ROM).

Results: 64 patients (N = 65 TTF) were analyzed. 76.9% received a HKB and 23.1% an LLC. The complication rate was lower for the HKB cohort (14% vs 40%; P=0.03). The HKB cohort returned to full ROM faster (93 vs 122 days, P=0.02). There was no difference in return to play.

Conclusion: Utilization of a HKB for TTF is associated with faster recovery of ROM and lower compilation rate compared to LLC. This is one of the first studies to demonstrate the outcome benefits of postoperative immobilization in a HKB for TTF.

Recruit and Retain: Building A Near Peer Mentorship Program for Orthopedic Surgery Residency

Laura Bashour, MD
University of Texas at Austin, Dell Medical School

Purpose: To develop an effective near peer mentorship program for recruitment and retention of women and underrepresented minorities (URM) in orthopedic surgery.

Significance: Orthopedic surgery trails other subspecialties in race and gender diversity. Only 1.9% of orthopedic surgeons are black, 6.7% Asian, 2.2% Latino, and 7.6% women. Among trainees, 12.4% are URM and 22% women. Mentorship provides personal development, a social network and is correlated with increased productivity and workplace satisfaction.

Methodology: The UT Austin Orthopedic Residency Near Peer Mentoring Program is a two-year cycle pairing alternating training levels. The upper level (PGY3, PGY4) mentors the lower level (PGY1, PGY2) for the full cycle. Through a structured curriculum, mentees receive personal advocates and career guides while the mentors develop formal leadership and management skills. Formal programming occurs bi-monthly with recommended readings and topics of discussion.

Results: Eight mentees and eight mentors enrolled. Of these, seven are women (43%), nine men (56%), seven URM (43%), and five parents (31%).

Conclusion: Near peer mentorship may increase recruitment and retention of trainees and has been shown to ease career transition. We demonstrate a structured pipeline for effective support and development of residents by social, specialty interest, race, and/or gender matched mentor/mentee pairing.

Prevalence of Biceps Tendinopathy on MRI Considering Age and Rotator Cuff Pathology

Kathryn Canavan, MD
University of Texas at Austin, Dell Medical School

Purpose: To characterize the relationship between long head of biceps (LHB) pathology and age.

Significance: Shoulder pain is one of the most common orthopedic problems and is often caused by LHB or Rotator cuff (RTC) tendinopathy. The relationship between LHB and RTC tendinopathy has been demonstrated radiographically and surgically. Studies have also histologically shown an increase in LHB tendinopathy with age. However, the relationship between LHB tendinopathy and age has not been studied with specific regard to MRI findings.

Methods: 500 MRIs obtained for shoulder pain were reviewed and graded for the presence of RTC and LHB pathologies. A multivariate regression was then performed on the data, accounting for any potential confounders.

Results: There was a significant association between LHB tendinopathy and age, with an odds ratio of 1.004 ($p<.001$). In our study group, 100% of patients >85 y/o showed both LHB and RTC tendinopathy. LHB pathology was notably associated with RTC pathology, with only 25% of LHB tendons being normal in the presence of supraspinatus tendinopathy.

Conclusion: The finding that LHB and RTC tendinopathy are related and increasingly prevalent with age suggests that the vast majority of shoulder pain in adult patients is associated with shoulder tendon senescence.

The Relationship Between the Timing of Knee Osteoarthritis Diagnoses and Arthroscopic Partial Meniscectomy

Semran Thamer, MD
University of Texas at Austin, Dell Medical School

Purpose: This research assessed the timing of a knee osteoarthritis (OA) diagnosis in patients undergoing arthroscopic partial meniscectomy (APM). We hypothesized that a significant number of patients with knee OA underwent APM.

Significance: While APM is well supported for symptomatic meniscus tears in knees without OA, its efficacy in knees with OA is a topic of ongoing debate and has been challenged by numerous randomized control trials.

Methods: Data from a national claims dataset from 2016-2020 was used to determine if patients who underwent APM had a knee OA diagnosis within 12 months pre-APM, at time of APM, or a new diagnosis at 3, 6, and 12-months post-APM.

Results: 501,922 patients were included (mean age 54.0, 52% female). 109,427 (55.3%) had a previous diagnosis of knee OA within 12 months preceding surgery, and 24,536 (12.4%), 15,596 (7.9%), and 13,301 (6.7%) were diagnosed with knee OA at 3, 6, and 12 months after surgery.

Conclusion: Despite evidence against APM in patients with knee OA, 55.3% had a previous diagnosis of OA within 12 months of surgery and 27.0% received a new diagnosis of knee OA within one year. It is clear from the findings of this study that high quality evidence is being ignored.

The Importance of an Integrated Practice Unit for the Reduction of Body Mass Index Prior to Hip and Knee Total Joint Arthroplasty

Malik Morgan, MD
University of Texas at Austin, Dell Medical School

Purpose: To determine factors associated with Body Mass Index (BMI) reduction prior to Primary Total Joint Arthroplasty (pTJA). We hypothesize favorable BMI reduction from engagement within house nutritionists (IHN).

Significance: Obesity in pTJA is associated with complications. An Integrated Practice Unit (IPU) expedites access to onsite ancillary services.

Methodology: A retrospective chart review for patients presenting with BMI over 40 at an IPU from November of 2017 to September of 2022. IHN referrals were recorded, and claims data determined visit frequency. BMI was tracked for 6 months following referral or 6 months after initial visit for patients declining referral. Additional variables included payer-status, and Patient Reported Outcomes (PROs).

Results: 356 patients were analyzed. Average BMI reduction for IHN-referred patients (N=197) exceeded non-IHN-referred (N=159) patients (-0.3 vs 0.59, P=0.02). Associations with BMI reduction were payer-status (P= 0.0219), IHN referral (P= 0.0029), and multiple IHN visits (P= 0.0289). The average delta PROs, prior to pTJA, improved for INH-referred patients (5.1 vs -4.9; P = 0.0000002).

Conclusion: Persistent nutritionist access correlates with BMI reduction and PRO improvement. This study demonstrates IPU impact on prompt optimization of obese patients for pTJA.

Ten Tips to Improve Results of Intertrochanteric Fractures: Revisited 2023

Sarthak Parikh, DO
Oklahoma State University

With the increasing prevalence of an aging population, the incidence of intertrochanteric will undoubtedly escalate. These fractures are associated with a high morbidity and mortality rate if open reduction and internal fixation is inadequate. Therefore, proper technique and fixation is imperative for optimal patient outcomes. In 2009 Dr. George J. Haidukewych published “Intertrochanteric fractures: ten tips to improve results” to summarize his suggestions to reduce failures and improve outcomes when treating intertrochanteric hip fractures. The purpose of this study is to revisit those topics and offer adaptations involving current clinical practices that address changes over the last 14 years. Each tip from the original article was revisited and modified with supporting research. These modifications address tip to apex distance, lateral wall involvement, reaming, anterior bow, nail trajectory, varus angulation, rotational instability and fracture distraction. They discuss innovations in implants, current research and personal surgical techniques. By incorporating these tips and tricks, orthopedic surgeons can improve patient outcomes.

Survival Rates in Atlanto-occipital Dissociation: A Look at the Past 20 Years

Gautham Prabhakar, MD
University of Texas Health Sciences Center, San Antonio

Purpose: to assess whether the survival rate for patients with atlanto-occipital dissociation (AOD)increased over time.

Significance: AOD has historically been considered a fatal injury. Recent small case series, however, have suggested that AOD injuries have become increasingly survivable.

Methods: Patients with traumatic AOD from 1996 to 2019 were retrospectively using International Classification of Diseases 9 and 10 codes. Patients were stratified into two cohorts- those diagnosed before August 1, 2015 and after.

Results: A total of 52 patients met our inclusion criteria and were analyzed. Mean age was 34.41 (11.71), with 34 (65.4) females, and 26 (50) Hispanics. Mean injury severity score was 40.79 (21.72), and mean Glasgow coma scale was 5.91 (4.72). Overall, 33 patients died (63.5%). The mortality rate before 2015 was 81.80%, this number dropped down to 50% for those who were treated post 2015 (p=.01).

Conclusion: This study demonstrates that patients treated recently for AOD were more likely to survive than patients treated in the past at the same center. reasons for the improved survival rate seen in this study include: increased awareness of AOD, improved diagnostic protocols with more uniform computed tomography based imaging, and advances in the care of these patients.

Minority Resident Physicians' Perspectives on the Role of Race/Ethnicity, Culture, and Gender in their Surgical Training Experiences

Hilary K. Koech, MD
University of Nevada, Las Vegas

Purpose: To characterize how race/ethnicity, cultural background, and gender affect the surgical training experience of URM surgical residents.

Significance: Female and racial/ethnic minority representation in surgical programs continues to lag behind other medical specialties. Various structural and perceived obstacles which contribute to a "leaky" path for underrepresented minority (URM) trainees have been identified, and efforts to reduce these hurdles are underway.

Methods: We interviewed URM residents or fellows identifying as Female, African-American/Black, Latino, Asian, Native-American, and First or Second-generation immigrants. Emerging themes were iteratively expanded into subthemes and subsequently categorized utilizing a pile-sorting methodology.

Results: Among twenty-three surgical trainees twelve self-identified as Black, five as Asian, one as Hispanic and five as Caucasian. Twelve residents identified as male and eleven as female. Six surgical specialties were represented with orthopedic surgery being majority (57%). Analysis of their responses revealed four major themes: positive experiences, problems related to minority status, coping strategies, and participant suggested interventions.

Conclusion: URM surgical trainees face numerous challenges related to their minority status. Recruitment and retention of URM in medicine would benefit from individual early and longitudinal mentorship, mitigating imposter syndrome, acknowledging the challenges faced by residents, and seeking feedback from both past and current residents.

Early Clinical Outcomes of Osteochondral Allograft for Capitellar Osteochondritis Dissecans in Adolescent Athletes

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Purpose: The aim of this study was to evaluate the outcome of young athletes following osteochondral allograft (OCA) for capitellar osteochondritis dissecans (OCD).

Significance: Capitellar OCD is an alteration of subchondral bone with the risk for instability and disruption of adjacent articular cartilage related to repetitive stress. Treatment outcomes with OCA is currently not well described.

Methods: Forty-two adolescent athletes (47 elbows) treated with OCAs were retrospectively reviewed. Pre- and post-operative patient-reported outcomes were obtained.

Results: The average age was 12.9 (1.5) years. Thirty-four (72.3%) were female, and average follow-up was 16.6 months. Gymnastics was the most common sport (72.3%) followed by baseball (19.1%). At final follow-up, 46 (97.9%) patients returned to sport. Of these, 27 (57.4%) returned to the same level of competition. Significant improvements were noted in Timmerman-Andrews score (56.1 vs. 88.8, $p<0.001$), qDASH (31.2 vs. 6.0, $p<0.001$) and range of motion (133.6° vs. 141.8°, $p=0.016$). The average PROMIS Pain score at final follow-up was 38.6 (7.9). Three (6.4%) graft failures occurred, two requiring revision surgery.

Conclusion: Treatment of capitellar OCD lesions with OCA is an effective treatment for larger defects with reliable return to sport and improvement in elbow function and pain.

The Impact of Depression on Outcomes in Adolescent Idiopathic Scoliosis

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Purpose: The aim of this study is to assess the impact of depression on outcomes in the setting of posterior fusion for AIS.

Significance: Depression is common in patients with Adolescent Idiopathic Scoliosis (AIS). Yet, despite its prevalence in this population, relatively little is known regarding the impact of depression on surgical outcomes in AIS patients.

Methods: This was a retrospective cohort study. The National Readmissions Database, years 2016-2019 was queried via ICD-10 code for patients with AIS. Postoperative outcomes: including complications, 30-day readmission, and length of stay were then compared.

Results: A total of 26,254 patients with AIS, 1,007 with concomitant depression, undergoing posterior fusion were included in our analysis. Patients with depression had greater odds of wound complications (Odds Ratio (OR) 3.38; p=0.007) and mechanical complications (OR 2.34; p<0.001). They were also more likely to require readmission (OR 2.314; p=0.004) and had longer LOS (OR 1.072; p=0.044).

Conclusion: Depression is associated with higher complication rates, increased risk of readmission, and longer hospital stays following posterior fusion surgery in patients with AIS. Surgeons should be aware of these risks in AIS patients diagnosed with depression and educate both the patient and their family on these risks., indicating that the kinase activity of CaMKK2 is important for its role in chondrocytes. Taken together, our results identify CAMKK2 as a pro-catabolic and pro-apoptotic mediator that promotes chondrocyte death and cartilage degradation. STO-609 may be potentially novel therapeutic against human OA.

Comparing Fixation Techniques in Metacarpal Fractures: Intramedullary Screw versus Open Reduction Internal Fixation

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Purpose: The purpose is to compare intramedullary screw (IMN) versus plate and screw fixation (ORIF) in metacarpal fractures. We hypothesize IMN will provide improved outcomes and decreased complication rates while simultaneously decreasing operating room time and lowering overall costs.

Significance: No study to our knowledge has directly compared plate and screw construct versus intramedullary fixation for metacarpal fractures in the clinical setting.

Methods: Patients with operative metacarpal fractures, presenting to a single, level-one trauma center between January 2018 through December 2022 were identified. 85 patients and 108 fractures were included. Records were retrospectively reviewed for demographics, injury, treatment, and follow up information.

Results: The average age of patients was 32.4 years. The leading causes of injury included altercations/boxers, falls and MVCs. Tourniquet time was significantly shorter in the IMN group. Average cost of the implant and time to union were similar in both groups. IMN fixation did have multiple advantages over plate fixation, including faster time to motion and return to full ROM. There was a total of 9 patients that underwent reoperation, 8 in the ORIF group and 1 in the IMN group. There were 3 hardware removals, all in the ORIF group.

Conclusion: In our experience, the use of IMN is a reliable and safe method for fixation of metacarpal fractures. The use of this procedure provides patients with quicker return to motion, faster time to full range of motion, and similar time to union with fewer complications. Furthermore, it resulted in decreased torniquet time resulting in decreased associated cost.

The Impact of Computer Navigation on Total Knee Arthroplasty Outcomes

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Purpose: The aim of this study is to assess the impact of computer navigated total knee arthroplasty (TKA) on cost and outcomes.

Significance: Computer navigation improves limb and implant alignment in TKA; however, there is limited evidence of improved outcomes both in short and long-term follow up.

Methods: The National Readmissions Database, years 2016-2019, was queried for this retrospective cohort study. Multivariate regression was performed to assess perioperative complications in patients undergoing conventional and computer navigated TKA.

Results: 1,906,980 patients undergoing TKA were identified. 1,850,639 (97.05%) underwent a conventional procedure while 56,340 (2.95%) were computer navigated. Computer navigation was associated with reduced medical complications (Odds Ratio (OR) 0.856; $p<0.001$), 30-day readmission (OR 0.852; $p<0.001$) and reoperation rates (OR 0.781; $p=0.024$). Computer navigation was also associated with increased surgical complications (OR 1.277; $p=0.001$), including blood transfusions (OR 1.754; $p<0.001$) and increased total charges (OR 1.189; $p<0.001$).

Conclusion: While more expensive and associated with greater surgical complications, namely blood transfusions, there were reduced medical complications and improved hospital associated outcomes with significant reductions in 30-day readmission and reoperation rates with computer navigated TKAs. Our study suggests computer navigated TKA can be safely performed and may be useful in carefully selected patients.

Prevalence of Osteochondromas Causing Spinal Cord Encroachment in Patients with Multiple Hereditary Exostoses (MHE)

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Purpose: Determine the prevalence of osteochondromas in the spine in individuals with Multiple Hereditary Exostoses (MHE) and identify risk factors for osteochondromas impinging on the spinal cord.

Significance: MHE is characterized by the development of multiple cartilage-capped exostoses (osteochondromas). Osteochondromas growing into the canal may impinge on the spinal cord.

Methods: MRIs of the spine were prospectively obtained in MHE patients/families between 2010-2022. Patients were grouped by osteochondroma location: no spinal involvement, spinal column, intra-canal, and neural impingement. Osteochondromas present on the scapula, ribs, or pelvis were noted. (aka “harbinger lesions”).

Results: 94 MHE patients underwent MRI. 47% had spinal osteochondromas. 23% on the spinal column only, 19% encroaching within the canal, and 4% causing neural impingement. Among the 4 causing neural impingement, 2 required surgery for paraparesis. 2 were observed clinically with serial MRIs; one exhibited worsening paretic symptoms and underwent excision. The remaining patient remained stable through follow-up. Age, gender, and presence of harbinger lesions were not associated with neural impingement.

Conclusion: Although 47% have spinal osteochondromas, neural impingement is rare (4%); leading to surgery in 75% of cases. Age, gender, nor harbinger lesions were associated with neural impingement. These results can inform clinical decision-making regarding screening MRIs.

High Rates of Ulnar Collateral Ligament Injury and Avulsion in Adolescents Presenting with Medial Elbow Injury

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Purpose: Describe the occurrence and demographic correlates of sub-condylar injuries of the pediatric medial elbow.

Significance: Although pediatric medial epicondyle fractures and apophysitis are common, patterns of sub-condylar injuries are unclear and require investigation to identify these patients and tailor treatment strategies accordingly.

Methodology: Patients with medial elbow injuries treated in a pediatric sports medicine practice from 2016-2021 were questioned. Injury type was recorded: complete medial epicondyle fracture, apophysitis, and sub-epicondylar injuries including bony avulsions and UCL soft-tissue injury. MRIs obtained for UCL injury were evaluated for periosteal or cartilaginous avulsions.

Results: 274 patients with medial elbow injury were identified (mean age 12.1 years; 44.5% female). 150 had sub-condylar injury, 66% of which were bony, cartilaginous, or periosteal avulsions. 88 patients had a radiographically negative UCL injury. MRIs obtained on 61 of these patients demonstrated 37 (61%) cases of cartilaginous or periosteal avulsion. Patients with bony (12.7 y) and cartilaginous (10.3 y) avulsions were younger than central ligament injury (14.2 y) or periosteal (14.2 y) avulsions ($p=0.005$).

Conclusion: UCL injury and avulsive lesions are common in the pediatric medial elbow and may require MRI for diagnosis. The high rates of UCL injury and avulsion merit investigation into repair techniques and outcomes.

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