

## 2025 LSRS Instructional Course – May 7, 2025 – Chicago, IL

1:00PM Welcome and Announcements Scott Daffner, MD and Matthew Colman, MD

### Module 1 - Introduction to Interbody Fusion Moderator: Scott Daffner, MD

1:00 The Evolution of Interbody Fusion Paul A. Anderson, MD  
1:15 Materials and Graft Options Wellington K. Hsu, MD  
1:30 Tech Focus on Expandables: pros, cons, and are they still relevant Brandon Lawrence, MD  
1:45 Discussion

### Module 2: Lateral Moderator: Michael McCarthy

1:55 What's New in Lateral Michael Conti Mica, MD  
2:05 Access: pearls, pitfalls, and does the 'violating the psoas' matter Dominic Pelle, MD  
2:15 Safety and efficacy of prone lateral Ashish Patel, MD  
2:25 Lateral application in deformity Rakesh Patel, MD  
2:35 Lateral VCR / Corpectomy Matthew Colman, MD  
2:45 Case Debate: Degen Scoliosis  
2:50 Short Segment LLIF Raymond Hah, MD  
2:53 T10-Pelvis Clifford Tribus, MD  
3:05 Discussion

3:15 - 3:35 BREAK

### Module 3: Posterior Moderator: Matthew Colman, MD

3:35 Is TLIF overused? When to do more than a simple posterolateral fusion Jason W. Savage, MD  
3:45 Disc Prep Quality: how good are we, actually? Harvey Smith, MD  
3:55 Cage Configuration, side of approach, use of osteotomies, and other technique nuances Andrew Dailey, MD  
Approach debate for a single level grade 2 degen spondy with stenosis  
4:05 Open TLIF JP Wanner, MD  
4:11 Cortical/midLIF Joseph Lee, MD  
4:17 MIS Michael McCarthy, MD  
4:35 Discussion

### Module 4: Anterior Moderator: Joseph Lee, MD

4:45 What's new in ALIF Addisu Mesfin, MD  
4:55 Complications: how common are they, and how to talk to patients about them Nicholas Spina, MD  
5:05 Best Practices: develop an access/spine surgeon relationship and workflow Jonathan Karnes, MD  
Case Debate: Sagittal Imbalance  
5:15 "You're asking for poor sagittal correction with anything other than ALIF" John France, MD  
5:25 "ALIF creates two operations and is inefficient in deformity" David Casper, MD  
5:35 Discussion  
5:45 ADJOURN

## LUMBAR SPINE RESEARCH SOCIETY 18TH ANNUAL MEETING PROGRAM

Thursday, May 8, 2025

| Assigned ID       | Title                                                                                                                                                                    | Presentor                   |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 7:00 Intro        | <b>Announcements</b>                                                                                                                                                     | <b>Nicholas Spina, MD</b>   |
| <b>Session 1:</b> | <b>Novel Technologies</b>                                                                                                                                                |                             |
| Moderators:       | Michael Lee, MD   Wellington Hsu, MD                                                                                                                                     |                             |
| 7:05 Paper 1      | <b>RESTORE: One Year Primary Endpoint of Restorative Neurostimulation Randomized to Optimal Medical Management</b>                                                       | <b>Frank Schwab, MD</b>     |
| 7:10 Paper 2      | <b>First In-Human Evaluation of the PerQDisc™ Nucleus Replacement System: One-Year Clinical and Radiographic Results</b>                                                 | <b>Michael Hess, MD</b>     |
| 7:15 Paper 3      | <b>The Feasibility of Intraoperative Anterior Reduction for the Treatment of Grade II Spondylolisthesis: A Biomechanical Investigation</b>                               | <b>Derek Yocum, PhD</b>     |
| 7:20-7:28         | <b>DISCUSSION</b>                                                                                                                                                        |                             |
| <b>Session 2:</b> | <b>Qualitative Research on Patient Satisfaction</b>                                                                                                                      |                             |
| 7:28 Moderator:   | Bartoz Wojewnik, MD                                                                                                                                                      |                             |
| 7:28 Paper 4      | <b>Online Pre-Operative Education Class for Elective Spine Surgery</b>                                                                                                   | <b>Liping Liu, PhD, BSN</b> |
| 7:33 Paper 5      | <b>Do Pre-Operative Expectations Affect Patient Satisfaction 12 Months After Elective Lumbar Spine Surgery?</b>                                                          | <b>Daniel Herrera, BS</b>   |
| 7:38 Paper 6      | <b>The impact of a Pre-Operative Education Class on Elective Spinal Surgery Outcomes</b>                                                                                 | <b>Jonathan Belding, MD</b> |
| 7:43 - 7:50       | <b>DISCUSSION</b>                                                                                                                                                        |                             |
| <b>Session 3:</b> | <b>Endoscopic Surgery</b>                                                                                                                                                |                             |
| 7:50 Moderator:   | Michael Conti Mica, MD                                                                                                                                                   |                             |
| 7:50 Paper 7      | <b>A Longitudinal Comparative Study Using Patient-Reported Outcomes: Endoscopic Lumbar Decompression vs. Open Technique</b>                                              | <b>Yohannes Ghenbot, MD</b> |
| 7:55 Paper 8      | <b>The Comparative Efficacy and Complication Profile of Biportal Endoscopic, Microtubular, and Open Lumbar Laminectomy for Lumbar Stenosis: A Retrospective Analysis</b> | <b>Thomas Olson, MD</b>     |
| 8:00 Paper 9      | <b>Persistent Radiculopathy in Diabetics after Endoscopic Lumbar Discectomy</b>                                                                                          | <b>Melissa Baker, MD</b>    |

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|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| 8:05-8:15                                    | <b>DISCUSSION</b>                                                                                                                |                                      |
| 8:15                                         | <b>Symposium 1: Differentiating Deformity from Degenerative Pathology</b>                                                        | <b>Moderator: Nicholas Spina, MD</b> |
| 8:15                                         | Case Presentation                                                                                                                |                                      |
| 8:20                                         | What to take away from the clinic visit?                                                                                         | Matthew Colman, MD                   |
| 8:30                                         | Radiographic Parameters: Distilling the angles for the degenerative surgeon                                                      | JC Leveque, MD                       |
| 8:40                                         | What to think about and why to add anterior column support                                                                       | Raymond Hah, MD                      |
| 8:50                                         | Making the decision between selective fusion and going big                                                                       | Clifford Tribus, MD                  |
| 9:00                                         | <b>DISCUSSION</b>                                                                                                                |                                      |
| <b>Session 4: Rapid Fire Presentations 1</b> |                                                                                                                                  |                                      |
| 9:15                                         | Moderator: Don Moore, MD   Cara Sedney, MD                                                                                       |                                      |
| 9:16                                         | RF01 Perception of Ergonomics and Related Physical Symptoms Among Spine Surgeons: A Survey-Based Study                           | Phillip Zakko, MD                    |
| 9:18                                         | RF02 Spinopelvic Parameters in the Standing and Sitting Positions on Lateral EOS Radiograph                                      | Muhammad-Amin Munshi, BA             |
| 9:20                                         | RF03 Incidental Durotomy Should Not Preclude Same-Day Discharge from Lumbar Spine Surgery                                        | Austin Kaidi, MD                     |
| 9:22                                         | RF04 Is the PROMIS-10 Global Just as Responsive as the Oswestry Disability Index for Patients Undergoing Elective Lumbar Fusion? | Alex Hahn, MD                        |
| 9:24                                         | RF05 Controlled and Uncontrolled mFI-5 Frailty on Surgical Outcomes in Primary Lumbar Fusion                                     | Jarod Olson, BS                      |
| 9:26                                         | RF06 The Impact of Screw Density on Mechanical Complications in Lumbar Spine Deformity Constructs                                | Mohamed Sarraj, MD                   |
| 9:28 - 9:40                                  | <b>DISCUSSION</b>                                                                                                                |                                      |
| 9:40-10:00                                   | <b>B R E A K</b>                                                                                                                 |                                      |

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### Session 5: Lower Lumbar

Moderator: Michael McCarthy, MD

|             |          |                                                                                                                                    |                         |
|-------------|----------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| 10:00       | Paper 10 | Stretch Neuropraxia After L5-S1 Anterior Lumbar Interbody Fusion: Effect of Cage Height and Lordosis                               | Manjot Singh, BS        |
| 10:05       | Paper 11 | Impact of Transversus Abdominis Plane Block on Length of Stay and Postoperative Opioid Use in Anterior Lumbar Interbody Fusion     | Katherine Drexelius, MD |
| 10:10       | Paper 12 | Predictors of Maximizing the Degree of Listed Interbody Lordosis Imparted During One- or Two-level TLIF for Degenerative Pathology | Zach Pennington, MD     |
| 10:15       | Paper 13 | Lordotic Restoration – a Comparison of TLIF Expandable and Static Cages at the Lumbosacral Junction                                | Sean Taylor, MS         |
| 10:20-10:29 |          | DISCUSSION                                                                                                                         |                         |

### 10:30 Symposium 2: Training the Next Generation of Spine Surgeons: The Importance of Lifelong Mentorship

Moderators: Jason W. Savage, MD and Thomas A. Zdeblick, MD

|               |  |                                                                                                           |                    |
|---------------|--|-----------------------------------------------------------------------------------------------------------|--------------------|
| 10:30         |  | How to stay "academically minded" in private practice                                                     | Ashish Patel, MD   |
| 10:40         |  | The pros/cons of co-existing residency and fellowship programs: Should there be a dedicated "spine track" | James Harrop, MD   |
| 10:50         |  | The importance of "life long" mentorship... lessons learned                                               | Dominic Pelle, MD  |
| 11:00         |  | Burnout is real...how do we prevent it                                                                    | Wellington Hsu, MD |
| 11:10 - 11:20 |  | Discussion                                                                                                |                    |

## AWARDS AND GRANTS

Moderators: Peter G. Passias, MD | Dominic Pelle, MD  
LSRS Research Chairs

|       |                                          |
|-------|------------------------------------------|
| 11:20 | Thomas A. Zdeblick, MD, Best Paper Award |
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## LUMBAR SPINE RESEARCH SOCIETY 18TH ANNUAL MEETING PROGRAM

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### 2024 Research Grant Award Updates

|       |                                                                                                                                                                                                                          |                                    |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| 11:23 | <b>2024 LSRS Cerapedics Research Grant Update</b><br>Enhancing Lumbar Fusion via Transient Bioelectronic Implants to Accelerate Bone Growth<br>PI: Wilson Zachary Ray, MD                                                | <b>Muhammad Irfan Kaleem, MBBS</b> |
| 11:30 | <b>2024 LSRS Young Investigator Grant Report</b><br>Functional and Structural Alterations in the Brain After Implantation of Spinal Cord Stimulators in Patients with Post Spinal Pain Syndrome<br>PI: Steven Glener, MD | <b>Steven Glener, MD</b>           |

### 11:37 2025 Research Grant Award Recipient Announcements

|       |                                                                                                                                                                                                                                 |                                                                        |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| 11:39 | <b>2025 LSRS OrthoCarolina Fellowship Young Investigator Grant</b><br>Biomechanical and genetic analysis of the combination effects of BMP2 and anti-RANKL antibody on a mice spinal fusion model<br>PI: Koji Ishikawa, MD, PhD | <b>Bradely Segebarth, MD, Grantee</b><br><b>Koji Ishikawa, MD, PhD</b> |
| 11:41 | <b>2025 Research Grant</b><br>Randomized Controlled Trial of Postoperative Inpatient Ketorolac and Outpatient Naproxen use Following Elective Lumbar Spine Fusion<br>PI: Sohrab Virk, MD                                        | <b>Sohrab Virk, MD</b>                                                 |
| 11:43 | <b>2025 Research Grant</b><br>Randomized Controlled Trial of Postoperative Inpatient Ketorolac and Outpatient Naproxen use Following Elective Lumbar Spine Fusion<br>PI: Gregory Schroeder, MD                                  | <b>Gregory Toci, MD</b>                                                |

11:45 - 12:30

11:45 - 1:PM

**Company Lunch and Learns**  
**LSRS Luncheon**

3rd Floor  
2nd Floor Gallery Ballroom

1:00

**Announcements**

1:05 **Session 6:**

Moderator:

**Basic Science**

**Zori Buser, PhD, MBA**

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| Assigned ID                                  | Title                                                                                                                                                            | Presentor                  |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 1:05 Paper 14                                | Comparison of Different Titanium Surfaces for Implantable Devices in a Rabbit Model                                                                              | Boyle Cheng, MD            |
| 1:10 Paper 15                                | The Impact Of Laminectomy Type, Facet Resection Threshold, and Disc Degeneration on Post-decompression Lumbar Spinal Stability: A Finite Element Analysis        | Hannah Levy, MD            |
| 1:15 Paper 16                                | Impact of Rod Placement and Tulip Design on Screw-Rod Gripping Capacity in Spinopelvic Fixation: Evaluation Across a Spectrum of Recessed to Extended Lengths    | Cale Hendricks, BS         |
| 1:20 - 1:30                                  | DISCUSSION                                                                                                                                                       |                            |
| <b>Session 7:</b> Rapid Fire Presentations 2 |                                                                                                                                                                  |                            |
| 1:30 Moderator:                              | Scott Daffner, MD   Jonathan Sembrano, MD                                                                                                                        |                            |
| 1:30 RF07                                    | Are Adult Spinal Deformity Patients with Coronal Deformity Less Likely to Achieve Sagittal Alignment Goals and at Greater Risk for Complications?                | Peter Passias, MD          |
| 1:32 RF08                                    | Spinopelvic Dissociation: Investigating Practice Patterns among Spine Surgeons and Orthopaedic Trauma Surgeons                                                   | Tony Da Lomba, MD          |
| 1:34 RF09                                    | The Impact of Spinal Malalignment on Foot Alignment in Patients with Degenerative Spine Disease                                                                  | Austin Kaidi, MD           |
| 1:36 RF10                                    | The Minimal Clinically Important Difference for the Oswestry Disability Index May Not Be the Benchmark to Determine Surgical Success for Elective Lumbar Fusions | Heeren Makanji, MD         |
| 1:38 RF11                                    | The Impact of Metformin on Postoperative Opioid Consumption and Patient Reported Outcomes after Lumbar Fusion                                                    | Jonathan Dalton, MD        |
| 1:40 RF12                                    | Lumbopelvic Fixation for Spinopelvic Dissociation and Complex Sacral and Pelvic Ring Injuries at a Level 1 Trauma Center                                         | Ryan Le, MD                |
| 1:42 - 1:50                                  | DISCUSSION                                                                                                                                                       |                            |
| <b>Session 8:</b> Complications              |                                                                                                                                                                  |                            |
| 1:50 Moderator:                              | Alpesh Patel, MD                                                                                                                                                 |                            |
| 1:50 Paper 17                                | Tiered Antibiotic Coverage Reduces Surgical Site Infection in Complex Spine Surgery                                                                              | Jeremy Shaw, MD            |
| 1:55 Paper 18                                | Risk Factors Associated with a Facility Discharge Following Elective 1 or 2 Level Lumbar Fusion                                                                  | Jesse Eisler, MD, PhD, MBA |

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| 2:00 Paper 19      | <b>Risk of Infection Following Selective Nerve Root Injection and Lumbar Decompression: a Subgroup Analysis</b>                                                                           | <b>Paul Minetos, MD, MBA</b>  |
| 2:05 Paper 20      | <b>Safety of combined anterior-posterior lumbar column fusion verses single column anterior or single column posterior lumbar fusion: analysis of Medicare data.</b>                      | <b>Brook Martin, PhD, MPH</b> |
| 2:10 - 2:20        | DISCUSSION                                                                                                                                                                                |                               |
| <b>Session 09:</b> | <b>Deformity</b>                                                                                                                                                                          |                               |
| Moderator:         | <b>TBD</b>                                                                                                                                                                                |                               |
| 2:20 Paper 21      | <b>Identifying High-Risk Patients in Adult Spinal Deformity Surgery: Leveraging Predictive Analytics to Assess Drivers of Increase Risk of Surgical Complications</b>                     | <b>Anthony Yung, MS</b>       |
| 2:25 Paper 22      | <b>The Effect of Preoperative Rehabilitation on Adult Spinal Deformity Patient Outcomes, Patient Recovery Kinetics, and Cost Effectiveness</b>                                            | <b>Anthony Yung, MS</b>       |
| 2:30 Paper 23      | <b>Relative influence of paraspinal muscularity and underlying bone quality on proximal junctional kyphosis and failure mode in patients undergoing thoracolumbar instrumented fusion</b> | <b>Zach Pennington, MD</b>    |
| 2:35-2:45          | DISCUSSION                                                                                                                                                                                |                               |
| 2:45               | <b>Symposium 3: Pain Management Using ERAS Pathways</b>                                                                                                                                   |                               |
| Moderators:        | <b>Matthew Colman, MD</b>                                                                                                                                                                 |                               |
| 2:45               | How do we evaluate pain perception pre-operatively, and is it important?                                                                                                                  | <b>Sarah Davin, PsyD, MPH</b> |
| 2:56               | Preoperative acetaminophen, NSAIDs, and gabapentinoids protocols                                                                                                                          | <b>Michael J. Lee, MD</b>     |
| 3:07               | Intraoperative analgesia – epidural vs. local vs wound infiltration                                                                                                                       | <b>Ajit Krishnaney, MD</b>    |
| 3:18               | Post-operative pain control and current ERAS protocols for lumbar spine                                                                                                                   | <b>Andrew Pugley, MD</b>      |
| 3:29 - 3:40        | DISCUSSION                                                                                                                                                                                |                               |
| 3:40-4:00          | <b>B R E A K</b>                                                                                                                                                                          |                               |

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Session 10: Controversies and Cocktails: Case Review

4:00 - 5:00 **Moderators:** Jason Savage, MD | Nicholas Spina, MD  
**Panel:** Mike Steinmetz, MD; Brandon Lawrence, MD; Dean Chou, MD; Cara Sedney, MD

5:00 ADJOURN



## LUMBAR SPINE RESEARCH SOCIETY 17TH ANNUAL MEETING PROGRAM

Friday, May 9, 2025

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7:30 Announcements: Nicholas Spina, MD

**Session 11:** Surgical Outcomes  
Moderator: Leo Spector, MD, MBA

|               |                                                                                                                                                         |                   |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 7:30 Paper 24 | Order Matters: How Surgical Sequencing Influences Revision Risks in Total Hip Arthroplasty and Lumbar Fusion                                            | Cade Bennett, BS  |
| 7:35 Paper 25 | Beyond the ODI: a Qualitative Analysis of Why Patients are Satisfied After Lumbar Surgery Despite Failure to Achieve MCID or PASS                       | Eric Zhao, BS     |
| 7:40 Paper 26 | Preoperative Vacuum Disc Phenomenon is Not Associated with Adverse Outcomes After Laminectomy                                                           | Eric Zhao, BS     |
| 7:45 Paper 27 | How do clinical outcomes of revision lumbar fusion for adjacent segment disease compare to primary lumbar fusion? A propensity matched cohort analysis. | JamesConnelly, MD |
| 7:50 - 8:00   | DISCUSSION                                                                                                                                              |                   |

**LSRS Transfer of Presidents**

Moderator: Wellington K. Hsu, MD

|      |                                                                  |                       |
|------|------------------------------------------------------------------|-----------------------|
| 8:00 | Tribute to President <i>Plaque Ceremony</i>                      | Wellington K. Hsu, MD |
| 8:10 | Presidential Address:<br>Mid-Career Reflections: Lessons Learned | Jason W. Savage, MD   |
| 8:30 | Incoming President <i>Pin Ceremony</i>                           | Michael Steinmetz, MD |

**Session 12:** Trauma

8:35 Moderator: Rakesh Patel, MD

|               |                                                                                                                                    |                       |
|---------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 8:35 Paper 28 | Surgical Versus Non-Surgical Treatment of Thoracolumbar Burst Fractures in Neurologically Intact Patients: A Cost-Utility Analysis | Gregory Schroeder, MD |
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| Assigned ID        | TITLE                                                                                                                                                                                                                                           | Presentor                |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 8:40 Paper 29      | Optimal timing of fixation of unstable thoracolumbar fractures in neurologically intact patients                                                                                                                                                | Jetan Badhiwala, MD, PhD |
| 8:45 Paper 30      | An International Prospective Multicenter Study of Bracing vs No Bracing for the Nonoperative Management of A3/A4 Thoracolumbar                                                                                                                  | Brian Karamian, MD       |
| 8:50 - 9:00        | DISCUSSION                                                                                                                                                                                                                                      |                          |
| <b>Session 13:</b> | <b>Rapid Fire Presentations 3</b>                                                                                                                                                                                                               |                          |
| Moderator:         | Andrew Indresano, MD   Scott Vincent, MD                                                                                                                                                                                                        |                          |
| 9:00 RF13          | What is the Fate of the Adjacent L3-4 and L5-S1 Segmental Angles Following a L4-5 Decompression-only Surgery?                                                                                                                                   | Jack Sedwick, BS         |
| 9:02 RF14          | Revision Sacroiliac Joint Fusion: Mid-Term Patient-Reported Outcomes                                                                                                                                                                            | Megan Anderson, BA       |
| 9:04 RF15          | Effects of Hypoxia Pre-Conditioned Culture-Expanded Adipose-Derived Mesenchymal Stromal Cells in a Posterolateral Lumbar Spinal Fusion Model                                                                                                    | Mahnoor Shafi, MD        |
| 9:06 RF16          | Non-Operative Treatment for Neurologically Intact Thoracolumbar Burst Fractures with Posterior Ligamentous Complex Injury is Associated with Worse Performance on Oswestry Disability Index—Results from a Prospective Multicenter Cohort Study | Jonathan Dalton, MD      |
| 9:08 RF17          | Unsatisfactory Results in Parkinson's Patients Undergoing Spinal Surgery: Is Parkinson's Disease Severity the Major Culprit?                                                                                                                    | Hannah Levy, MD          |
| 9:10 - 9:20        | DISCUSSION                                                                                                                                                                                                                                      |                          |
| <b>Session 14:</b> | <b>Patient Optimization</b>                                                                                                                                                                                                                     |                          |
| 9:20 Moderator:    | Jeremy Shaw, MD                                                                                                                                                                                                                                 |                          |
| 9:20 Paper 31      | GLP-1 Agonist Use Leads to Earlier Return of Bowel Function Following Lumbar Fusion                                                                                                                                                             | Robert Oris, BS          |
| 9:25 Paper 32      | Post-Operative Urinary Retention and Sugammadex in Lumbar Spine Surgery: A Michigan Spine Surgery Improvement Collaborative (MSSIC) Study                                                                                                       | Dheeraj Kagithala, BS    |

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|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 9:30 Paper 33  | Implementation of a Multi-Institutional Enhanced Recovery After Surgery (ERAS) Protocol in Lumbar Spine Surgery: A Michigan Spine Surgery Improvement Collaborative (MSSIC) Study | Anisse Chaker, MD |
| 9:35 Paper 34  | Does In-Hospital Opioid Use Have Any Effect on Long Term Opioid Use After Lumbar Fusion Surgery For Opioid Naïve Patients?                                                        | Matthew Meade, DO |
| 9:40 - 9:50    | DISCUSSION                                                                                                                                                                        |                   |
| Session 15:    | Minimally Invasive Surgery                                                                                                                                                        |                   |
| Moderator:     | TBD                                                                                                                                                                               |                   |
| 9:50 Paper 35  | Temporal Trends of Improvement After Minimally Invasive Lumbar Decompression                                                                                                      | Sravisht Iyer, MD |
| 9:55 Paper 36  | Assessing Implant Characteristics as a Predictor of Subsidence in Open and Minimally Invasive Transforaminal Lumbar Interbody Fusion: A Retrospective Analysis.                   | Omar Zakieh, MBBS |
| 10:00 Paper 37 | Paraspinal Sarcopenia Independently Predicts Patient-Reported Outcomes Following Open But Not Minimally Invasive Single-Level Lumbar Decompression                                | Srikanth Divi, MD |
| 10:05 - 10:15  | DISCUSSION                                                                                                                                                                        |                   |
| 10:15 - 10:40  | BREAK                                                                                                                                                                             |                   |

### 10:40 Symposium 4: Endoscopic Spine Surgery

|            |                                    |                       |
|------------|------------------------------------|-----------------------|
| Moderator: | TBD                                |                       |
| 10:45      | Why, when, and how to get started? | Michael Gerling, MD   |
| 10:55      | Why re-invent the wheel?           | Michael Steinmetz, MD |
| 11:05      | Uniportal vs. biportal             | Don Young Park, MD    |

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| 11:15         |             | Protecting our turf: how do we prevent procedural creep?                                                                                                    | Harold Fogel, MD        |
| 11:25-11:35   |             | DISCUSSION                                                                                                                                                  |                         |
| 11:35         | Session 16: | Osteoporosis                                                                                                                                                |                         |
|               | Moderator:  | Paul A. Anderson, MD   Benjamin Elder, MD, PhD                                                                                                              |                         |
| 11:35         | Paper 38    | Association Between Upper Instrumented Vertebrae Hounsfield Units and Osteoporosis Related Complications in Long-Segment Spinal Fusion Patients             | Aamir Kadri, MD         |
| 11:40         | Paper 39    | Revision Surgery Rates Following Transforaminal Lumbar Interbody Fusion in Patients With and Without Osteoporosis                                           | Ashley Knebel, BA       |
| 11:45         | Paper 40    | Anti-Osteoporotic Treatment Reduces Risk of 10-Year Revision Following Lumbar Fusion in Osteoporosis                                                        | Theodore Quan, MD       |
| 11:50         | Paper 41    | Can Frailty and Other Factors, as Estimated by HU, Predict Response to Anabolic Bone Medications?                                                           | Abdelrahman Hamouda, BS |
| 11:55 - 12:05 |             | DISCUSSION                                                                                                                                                  |                         |
|               | Session 17: | Spondylolisthesis                                                                                                                                           |                         |
|               | Moderator:  | TBD                                                                                                                                                         |                         |
| 12:05         | Paper 42    | Impact of High Pelvic Incidence on Reoperation Rates and Sagittal Alignment Following Anterior Lumbar Interbody Fusion for Isthmic Spondylolisthesis        | Omar Zakieh, MBBS       |
| 12:10         | Paper 43    | A Multi-Center, Prospective, Comparative Study of Circumferential Versus Posterior Surgical Treatment for Lumbar Isthmic Spondylolisthesis (I-Spondy Trial) | Paul Arnold, MD         |
| 12:15         | Paper 44    | Five-year follow-up of decompression alone versus TLIF for treatment of degenerative grade 1 lumbar spondylolisthesis. Which is better?                     | Hunter Yamada, BS       |
| 12:20 - 12:30 |             | DISCUSSION                                                                                                                                                  |                         |

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|             |                 |  |
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| Session 18: | Pain Management |  |
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| Moderator: | James Bernatz, MD |  |
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| 12:30 Paper 45 | Genotype-Guided Opioid Therapy in Patients Undergoing Lumbar Spine Surgery Results in Lower Rates of Delirium and Superior Pain Control: A Single Institutional Feasibility Study | Janesh Karnati, BA |
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| 12:35 Paper 46 | Implementation of a Statewide Morphine Milliequivalent Prescribing Cutoff in Lumbar Fusion Surgery: A Michigan Spine Surgery Improvement Collaborative (MSSIC) Study | Anisse Chaker, MD |
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| 12:40 Paper 47 | Evaluation of Erector Spinae Plane (ESP) Blocks for Postoperative Pain Control in Lumbar Spinal Fusion Patients | Eeric Truumees, MD |
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| 12:45 - 12: 55 | DISCUSSION |  |
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| 1:00 PM | Adjourn |  |
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## LSRS ePoster Exhibit Annual Meeting 2025

Thursday May 8 through Friday May 9, 2025

| Poster #  | Abstract | Poster Title                                                                                                                                                                                | Poster Author                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Poster 01 | 161      | Impact of Obesity on Alignment in Adult Spinal Deformity: A 3-Year Category-Based Analysis                                                                                                  | Anthony Yung, MS; Ethan Cottrill, MD,PhD; Caroline Wu, MD; Oluwatobi Onafowokan, BMBS; Lauren Seo, MD; Max Fisher, MD; Khoi Than, MD; Christopher Shaffrey, MD; Paritash Tahmasebpour, MD; Shaleen Vira, MD; Dean Chou, MD; Jason Liang, BS; Paul Park, MD; Jay Turner, MD,PhD; Andrew K Chan, MD; Zorica Buser, PhD,MBA; Renaud Lafage, MS; Virginie Lafage, PhD; Nathan Lorentz, MD; Matthew Galetta, MD; Jordan Lebovic, MD; <b>Peter Passias, MD</b> |
| Poster 02 | 311      | Non-tobacco Nicotine Dependence Increases Risk of Complications Following Lumbar Spine Decompression                                                                                        | Michael Kim, MD; Courtney Spitzer, BS; Melanie Peterson, MD; Vivian Chen, MD; Haley Nadone, BS; <b>Emily Mills, MD</b> ; Hao-Hua Wu, MD; Don Young Park, MD; Yu-Po Lee, BS; Nitin Bhatia, MD; Sohaib Hashmi, MD                                                                                                                                                                                                                                          |
| Poster 03 | 35       | Impact of Body Mass Index on Perioperative Complications, Radiographic Outcomes, and Pseudoarthrosis at One Year After Transforaminal Lumbar Interbody Fusion: A Retrospective Cohort Study | <b>Joseph Nassar, BS</b> ; Ashley Knebel, BA; Manjot Singh, BS; Michael Farias, BS; Mohammad Daher, BS; Jacob Glueck, BS; Michael Kuharski, None; Shiven Sasipalli, BS; Eren Kuris, MD; Bryce Basques, MD; Bassel Diebo, MD; Alan Daniels, MD                                                                                                                                                                                                            |
| Poster 04 | 447      | Enhanced Spinal Fusion with Ex-Vivo rhBMP-2 Primed Culture Expanded Mesenchymal Stem Cells: A Comparison of Adipose- and Bone Marrow-Derived Stem Cells in a Rat Model                      | <b>Mahnoor Shafi, MD</b> ; Alexander Perdomo-Pantoja, MD; Ethan Cottrill, MD,PhD; Wataru Ishida, MD; Sheng-Fu Lo, MD; Timothy Witham, MD                                                                                                                                                                                                                                                                                                                 |
| Poster 05 | 219      | Preoperative Use of GLP-1 Receptor Agonists is Associated with Reduced Risk of Postoperative DVT and Mortality in Patients Undergoing Lumbar Laminectomy                                    | Farhad Marzook, MS; <b>Ahad Kesaria, BS</b> ; James Glover, MD,MBA, FAAOS; Pouya Alijanipour, MD                                                                                                                                                                                                                                                                                                                                                         |
| Poster 06 | 21       | Radiographic Predictors of Functional and Pain Outcomes in Scheuermann's Kyphosis: A ROC-Based Minimal Clinically Important Difference (MCID) Analysis                                      | Matthew Geck, MD; <b>Devender Singh, PhD</b> ; Vik Kohli, MD; Eeric Truumees, MD; Morgan Laviolette, DPT; John Stokes, MD; Sara Sheikh, BS                                                                                                                                                                                                                                                                                                               |
| Poster 07 | 46       | Static and Expandable Spacers and Supplemental Fixation in Lumbar Fusion: An In-Vitro Biomechanics Study                                                                                    | <b>Theresa Pazonis, MD,MA, FRCSC, ABOS</b> ; Jonathan Mahoney, BS; Emily Eichenlaub, BS; Joshua McGuckin, MS; Samantha Panich, MD; Jake Carbone, MD,BS; Mattan Orbach, MS; Brandon Bucklen, PhD                                                                                                                                                                                                                                                          |
| Poster 08 | 76       | Safety and Efficacy of i-Factor in Lateral Lumbar Interbody Fusion (LLIF) compared to BMP and No Augmentative Biologic                                                                      | <b>Tomer Korabelnikov, BS</b> ; Rohan Patel, BS; Lisa Tamburini, MD; Raghunandan Nayak, BS; Kelly White, BS; Isha Sinojia, MPH; Joellen Broska, MPH; Isaac Moss, MD,MS,FRCS(C); Scott Mallozzi, MD; Hardeep Singh, MD                                                                                                                                                                                                                                    |
| Poster 09 | 153      | Relationships Between Global Shear Vector Components and Paraspinal Muscle Area                                                                                                             | <b>Hannah Lemel, BS</b> ; Daniel Lilly, MD; Seth Meade, BS; Arpan Patel, MD; Jason Savage, MD; Michael Steinmetz, MD; Ghaith Habboub, MD                                                                                                                                                                                                                                                                                                                 |
| Poster 10 | 158      | Identifying High-Risk Patients in Adult Spinal Deformity Surgery: Harnessing Predictive Analytics to Uncover Key Drivers of Medical Complications                                           | Anthony Yung, MS; Ethan Cottrill, MD,PhD; Oluwatobi Onafowokan, BMBS; Max Fisher, MD; Caroline Wu, MD; Lauren Seo, MD; Christopher Shaffrey, MD; Khoi Than, MD; Dean Chou, MD; Shaleen Vira, MD; Paritash Tahmasebpour, MD; Renaud Lafage, MS; Virginie Lafage, PhD; Zorica Buser, PhD,MBA; Jay Turner, MD,PhD; <b>Peter Passias, MD</b>                                                                                                                 |

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| Poster 11 | 197 | Comparing Final Outcomes in Conservative vs. Invasive Methods in Treatment for Burst Fracture in Octogenarians                                                        | <b>Yousaf Ilyas, BS</b> ; Hadeel Mansour, BS; Morteza Sadeh, MD,PhD; Ankit Mehta, MD                                                                                                                                     |
| Poster 12 | 209 | Staged versus Same Day Circumferential Lumbar Fusion for Degenerative Disease: Which is the Safer Approach?                                                           | <b>Henry Avetisian, MS</b> ; William Karakash, BS; Bahador Athari, MD; Jordan Gasho, BS; Matthew Gallo, MD; Jeffrey Wang, MD; Raymond Hah, MD; Ram Alluri, MD                                                            |
| Poster 13 | 216 | Detection of Transthyretin Amyloid Protein in the Ligamentum Flavum of Patients at Risk for Systemic Amyloidosis                                                      | <b>Mark Prasarn, MD</b> ; Sree Vemu, MD; Varan Haghshenas, MD; Takashi Hirase, MD; Barry Trachtenberg, MD; Shari Liberman, MD                                                                                            |
| Poster 14 | 220 | Reduced Risk of Postoperative Complications and Mortality Following Lumbar Fusion Surgery with Preoperative GLP-1 Receptor Analog Use                                 | <b>Ahad Kesaria, BS</b> ; Farhad Marzook, MS; James Glover, MD,MBA, FAAOS; Pouya Alijanipour, MD                                                                                                                         |
| Poster 15 | 260 | Early Experience with Prone Single-Position Lumbar Corpectomy: Feasibility, Radiographic Outcomes and Complications                                                   | <b>Ryan Le, MD</b> ; Nischal Acharya, BS; Haley Nadone, BS; Andy Ton, MD; Emily Mills, MD; Hao-Hua Wu, MD; Don Young Park, MD; Yu-Po Lee, BS; Nitin Bhatia, MD; Sohaib Hashmi, MD                                        |
| Poster 16 | 299 | Analyzing the Relationship Between the Social Vulnerability Index and 90-Day Elective Lumbar Fusion Outcomes                                                          | <b>Vahe Yacoubian, MD</b> ; Andrew Cabrera, BS; Adelin Tulcan, None; David Shin, BS; Jairo Aguilar-Campos, BS; Gideon Harianja, MD; Ethan Vyhmeister, BS; Udochukwu Oyoyo, MPH; Wayne Cheng, MD                          |
| Poster 17 | 325 | Radiographic and Patient Reported Outcomes of Lumbar Interbody Fusion Using Hydroxyapatite-Infused Polyetheretherketone Cages: No Significant Advantage in Adding BMP | <b>Henry Avetisian, MS</b> ; William Karakash, BS; Marcel Dreischarf, PhD; Marc Abdou, BS; Andy Ton, MD; Dil Patel, MD,BS; Jeffrey Wang, MD; Raymond Hah, MD; Ram Alluri, MD; <b>Bahador Athari, MD</b>                  |
| Poster 18 | 346 | Outcomes after Spinal Deformity Surgery in Patients with a History of Parkinson's Disease: A Propensity Score-Matched Analysis                                        | <b>Austin Carroll, MD</b> ; Alejandro Quinonez, BS; Christopher Bellaire, MD; Brian McCormick, MD; Fred Mo, MD; Addisu Mesfin, MD,.                                                                                      |
| Poster 19 | 393 | Intraoperative Neuromonitoring in Transforaminal Lumbar Interbody Fusion Increases Costs without Protecting Against Adverse Outcomes                                  | <b>Austin Chen, BS</b> ; Mark Plantz, MD; Daniel Herrera, BS; Parth Desai, MD; Jason Tegethoff, MD; Tyler Compton, MD; Wellington Hsu, MD; Alpesh Patel, MD,MBA; Srikanth Divi, MD                                       |
| Poster 20 | 448 | Transabdominal Muscle Action Potential (TMAP) Provides Insight on the Timing of Injuries During Lateral Lumbar Interbody Fusion.                                      | <b>Michael McDermott, DO</b> ; Alfred-John Bayaton, DO; Michael Rogers, MD; Ashish Patel, MD                                                                                                                             |
| Poster 21 | 270 | Global Practice Patterns and Surgical Preferences in Index Lumbar Disc Herniation Surgery: Insights from an International AOSpine Survey                              | Luca Ambrosio, MD; Sathish Muthu, PhD,MBBS,MS; Stipe Corluka, MD; Waeel Hamouda, MD,PhD,FRCS; <b>Zorica Buser, PhD,MBA</b> ; Hans-Jörg Meisel, MD; Sangwook Yoon, MD,PhD; Gianluca Vadalà, MD,PhD                        |
| Poster 22 | 280 | AI-Driven Prediction of Reoperation After Surgical Site Infection in Lumbar Spine Surgery: Analysis of 96,216 NSQIP Cases                                             | <b>Mert Marcel Dagli, MD</b> ; Hasan Ahmad, MD,BS; Daksh Chauhan, BS; Ryan Turlip, BA; Yohannes Ghenbot, MD; Julia Kincaid, None; Richard Chung, BS; Connor Wathen, MD; John Arena, MD; William Welch, MD; Jang Yoon, MD |
| Poster 23 | 166 | The Influence of Preoperative Veterans RAND-12 Mental Composite Score in Patients Undergoing Anterior Lumbar Interbody Fusion                                         | <b>Shriya Patel, BS</b> ; Sloane Ward, BS; Luis Salazar, MD; Arash Sayari, MD; Kern Singh, MD                                                                                                                            |
| Poster 24 | 284 | NLP and Large Language Model Framework for Automated Clinical Data Extraction and Billing in Spine Surgery                                                            | <b>Mert Marcel Dagli, MD</b> ; Hasan Ahmad, MD,BS; Daksh Chauhan, BS; Yohannes Ghenbot, MD; Ryan Turlip, BA; Julia Kincaid, None; Richard Chung, BS; Connor Wathen, MD; John Arena, MD; William Welch, MD; Jang Yoon, MD |
| Poster 25 | 212 | Complications Associated with Intraoperative Vein Injury during Anterior Lumbar Interbody Fusion                                                                      | <b>Henry Avetisian, MS</b> ; Camille Flynn, BS; Rakhi Banerjee, BS; Vivek Satish, BS; William Karakash, BS; Matthew Gallo, MD; Jeffrey Wang, MD; Raymond Hah, MD; Ram Alluri, MD                                         |
| Poster 26 | 52  | Clinical Evaluation of Long-Length Tomosynthesis Imaging for Automated Vertebra Labeling and Spinopelvic Alignment Assessment                                         | <b>Rachel Bronheim, MD</b> ; Joshua Punnoose, PhD; Yixuan Huang, BS; Ashley Johnston, BS; Hamid Hassanzadeh, MD; Timothy Witham, MD; Ali Uneri, PhD                                                                      |

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| Poster 27 | 9   | Increased Paraspinal Muscle Fatty Infiltration Is Associated with the Development and Grade of Lumbar Spinal Stenosis | <b>Terrence Green, BS</b> ; Farhan Khan, MD; Harrison Howell, BS; Dean Chou, MD                                                 |
| Poster 28 | 456 | O2 Releasing Bone Tissue Engineering Scaffold for Rat Lumbar Spinal Fusion                                            | Naboneeta Sarkar, PhD; <b>Mahnoor Shafi, MD</b> ; Timothy Witham, MD                                                            |
| Poster 29 | 304 | Varenicline Reduces Delayed Union Rates in Nicotine-Dependent Adults with Thoracic and Lumbar Fractures               | <b>Mariah Balmaceno-Criss, BS</b> ; Manjot Singh, BS; Helen Zhang, BS; Alan Daniels, MD; Andrew Zhang, MD                       |
| Poster 30 | 289 | ALIF and Expandable-TLIF Achieve Similar Lordosis and Disc Height at L5-S1                                            | Jackson Byrd, MS,BS; <b>Nathaniel Buchanan, BS</b> ; Saurabh Rawall, MBBS; Asa Peterson, MD; Sean Taylor, MS,BS; Luke Hiatt, MD |

