



**8<sup>th</sup> Annual Spine Trauma Summit**  
***Advanced Lumbopelvic Fixation Techniques,  
Less Invasive Stabilization Techniques, and  
Advancements in Spinal Cord Injury  
Management***

**Friday-Saturday, December 2-3, 2022**

**Syllabus**

## ESTEEMED FACULTY

**Bizhan Aarabi, M.D.**

Professor of Neurosurgery  
Director of Neurotrauma  
University of Maryland Department of Surgery  
University of Maryland Medical Center  
Baltimore, Maryland

**Theodore Choma, M.D.**

Orthopaedic Spine Surgeon  
Missouri Orthopaedic Institute & University Hospital  
University of Missouri  
Columbia, Missouri

**John Hurlbert, M.D., Ph.D.**

**Course Co-Chair**  
Co-Medical Director, Spine Program  
University of Arizona  
Tucson, Arizona

**Rod J. Oskouian, Jr., M.D.**

Chief of Spine  
Director, Spine Fellowship Program  
Swedish Neuroscience Institute  
Seattle, Washington

**Amanda Sacino, M.D., Ph.D.**

Spine Fellow  
Swedish Neuroscience Institute  
Seattle, Washington

**Klaus J. Schnake, M.D., Ph.D. (virtual)**

Chief, Interdisciplinary Center for Spinal & Scoliosis  
Surgery  
Erlangen, Bavaria, Germany

**Jens R. Chapman, M.D.**

**Course Co-Chair**  
Complex Spine Surgeon  
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Seattle, Washington

**Andrew T. Dailey, M.D.**

**Course Co-Chair**  
Professor  
Department of Neurosurgery  
University of Utah  
Salt Lake City, Utah

**Rajiv R. Iyer, M.D. (virtual)**

Assistant Professor of Neurosurgery  
Pediatric Spine Surgeon  
University of Utah  
Salt Lake City, Utah

**Jonathan Plümer, M.D.**

Clinical & Translational Research Fellow  
Seattle Science Foundation  
Seattle, Washington

**Rick C. Sasso M.D.**

**Course Co-Chair**  
Professor, Chief of Spine Surgery  
Department of Orthopaedic Surgery  
Indiana University School of Medicine  
Indianapolis, Indiana

**Thomas A. Schildhauer, M.D.**

Medical Director and Director of Surgical Clinic  
University Clinic of the Ruhr University in  
Bochum  
Bochum, Germany

**Timothy F. Witham, M.D., FAANS, FACS**

Director, Neurosurgery Spinal Fusion Laboratory  
Professor of Neurosurgery  
John Hopkins Medical Center  
Baltimore, Maryland

**Surgical Demonstrations Supported by Swedish Neuroscience Institute Fellows**

Mauricio Avila, M.D., Jared Cooke, D.O., Jim Hicks, M.D.,  
Abraham Schlauderaff, M.D., & Christopher Seidel, D.O.

## AGENDA

### FRIDAY, DECEMBER 2, 2022

- 6 p.m. Registration and Pizza**
- 6:25 p.m. Welcome, Introductions & Course Overview**
- 6:30 p.m. Case Reviews & Discussions**  
*Moderators: Jens R. Chapman, M.D., Andrew T. Dailey, M.D., and Rick C. Sasso, M.D.*  
*Presenters: Jared Cooke, D.O., James Hicks M.D., Amanda Sacino M.D., Ph.D.; Abraham Schlauderaff M.D., Christopher Seidel D.O., Jonathan Plümer, M.D.*  
**Objectives:**
- Illustrate the physiologic effects of trauma on the spine
  - Identify surgical considerations in trauma situations
  - Outline merits of various treatment options
- 8 p.m. Adjourn**

### SATURDAY, DECEMBER 3, 2022

- 7 a.m. Registration, Breakfast & Exhibits**
- 7:25 a.m. Welcome, Introductions & Course Overview**  
*Jens R. Chapman, M.D.*
- Session 1 Hot Spot Lumbosacral Zone**  
*Moderated by Jens R. Chapman, M.D.*
- 7:30 a.m. Understanding Sacral Fracture Concepts**  
*Jonathan Plümer, M.D.*  
**Objectives:**
- Identify meaningful classifications and what do they mean
  - Explain patient-related variables that matter
  - Describe integrating pelvis and spine concepts into an overall system
- 7:40 a.m. Stabilizing Sacral Fractures**  
*Thomas A. Schildhauer, M.D.*  
**Objectives:**
- Outline the least invasive to most invasive options for stabilizing sacral fractures
  - Describe possible complications and outcomes
  - Outline breakthrough advancements and take-home messages for everyday sacral fracture recognition and care
- 8 a.m. Using Advanced Techniques in Lumbosacral Junction Surgery**  
*Amanda Sacino, M.D., Ph.D.*  
**Objectives:**
- Outline the typical imaging problems for surgeons and lumbopelvic surgery
  - Summarize navigation aids to enhance surgical technique
  - Identify new potential breakthrough visualization techniques and current state of research insights

8:10 a.m. **Live Broadcast Demonstration from BioSkills Lab No. 1**

**Sacroiliac Fixation**

*Thomas A. Schildhauer, M.D.*

**Objectives:**

- Describe key radiographic landmarks for successful assessment of reduction and fixation
- Distinguish SI joint screw fixation vs iliac screw fixation
- Outline alternative iliac fixation techniques
- List tips and tricks for closed reduction

8:45 a.m. **Q&A**

**Session 2 Focus on Osteoporosis Crisis in Thoracolumbar Fractures**

*Moderated by Rick C. Sasso M.D.*

8:50 a.m. **Classifying Osteoporotic Fractures: The Next Frontier (virtual)**

*Klaus J. Schnake, M.D., Ph.D.*

**Objectives:**

- Outline the morphological characteristics of osteoporotic spinal fractures
- Classify osteoporotic fractures according to the AO Spine /DGOU classification system
- Identify risk factors for failure of conservative treatment

9:05 a.m. **Alignment in Thoracolumbar Fractures: What Matters**

*Theodore J. Choma, M.D.*

**Objectives:**

- Evaluate how much post-traumatic kyphosis is acceptable in the thoracolumbar spine
- Recognize the adverse impact of excessive kyphosis on long-term outcomes
- Explain when and how alignment should predicate surgical intervention

9:20 a.m. **Enhancing Fixation in Osteoporotic Spine: What Works (virtual)**

*Klaus J. Schnake, M.D., Ph.D.*

**Objectives:**

- Outline the risk factors for implant failure in osteoporotic bone
- Explain how to apply adequate fixation techniques for implant fixation
- Describe how to avoid cement leakage in augmented pedicle screws

9:35 a.m. **Vertebra Plana in The Elderly: What To Do**

*Theodore J. Choma, M.D.*

**Objectives:**

- Explain what make a vertebra plana different from a conventional osteoporotic insufficiency fracture
- Describe differential diagnostic steps relevant for decision-making
- Outline surgical strategies and their outcomes

9:50 a.m. **Q&A**

**9:55 a.m. Live Broadcast Demonstration from BioSkills Lab No. 2**

**Lumbopelvic Fixation**

*Thomas A. Schildhauer, M.D.*

**Objectives:**

- Identify landmarks and surgical fixation strategies for lumbopelvic stabilization
- Describe relevant alternative surgical options and bailouts
- Outline tips and tricks for surgical reduction of fracture deformities

**10:25 a.m. Break & Exhibits (not for CME credit)**

**Session 3 Spinal Cord Injuries: Pushing the Boundaries**

*Moderated by Andrew T. Dailey, M.D.*

**10:35 a.m. Frontiers of Modern Spinal Cord Injury Care: Resuscitation Timing, Cord Care, and Surgery**

*John Hurlbert, M.D., Ph.D.*

**Objectives:**

- Describe the current preferred treatments in regard to blood pressure and general resuscitation for acute SCI patients
- Outline the role of steroids
- Assess the timing of reduction and surgical intervention

**11:05 a.m. Spinal Cord Vasculature**

*Amanda Sacino, M.D., Ph.D.*

**Objectives:**

- Present surgical insights into modern concepts of spinal cord perfusion
- Explain possible adverse impact of traumatic and surgical techniques on cord perfusion
- Identify pharmacologic and surgical strategies to optimize spinal cord perfusion

**11:15 a.m. Expansion Duraplasty in Cervical Spinal Cord Injury: When To Be Prepared!**

*Bizhan Aarabi, M.D.*

**Objectives:**

- Distinguish between extrinsic and intrinsic pressure on spinal cord
- Describe algorithm for spinal cord decompression and duraplasty

**11:35 a.m. Hypothermia in Spinal Cord Care**

*Andrew T. Dailey, M.D.*

**Objectives:**

- Identify basic scientific background for hypothermia in acute SCI care
- Interpret best clinical evidence to date for hypothermia
- Recognize potential clinical adverse consequences

**11:45 a.m. Live Broadcast Demonstration from BioSkills Lab No. 3**

**Posterior Cervical Spine Fixation and Duraplasty**

*Bizhan Aarabi, M.D. & Rick C. Sasso, M.D.*

**Objectives:**

- Analyze effective posterior cervical fixation techniques
- Demonstrate expansion duraplasty
- Present effective integration of decompression and reduction strategies for displace Subaxial fractures

12:30 p.m. Q&A

12:35 p.m. Break, Exhibits & Pick Up Lunch *(not for CME credit)*

**Session 4 Special Challenges in Spine Trauma Care**

12:45 p.m. **Lessons From Fritz Magerl** *(working lunch)*

*Rick C. Sasso M.D.*

**Objectives:**

- Present the life and impact of Professor Fritz Magerl
- Assess impact on current fixation strategies

1 p.m. **Getting To Clarity: Subaxial Fractures and Dislocations - When/Where/How?**

*Timothy F. Witham, M.D.*

**Objectives:**

- Describe potentially unstable subaxial cervical spine injuries
- Identify treatment options for subaxial cervical spine fractures and dislocations
- Discuss technical nuances of the surgical treatment of complex subaxial cervical spine injuries

1:15 p.m. **Pediatric Fractures (virtual)**

*Rajiv Iyer, M.D.*

**Objectives:**

- Describe unique anatomical and biomechanical features of the pediatric spine, both cervical and thoracolumbar
- Discuss the diagnosis and management of various traumatic spinal disorders of the pediatric spine
- Demonstrate treatment principles through case example

1:30 p.m. **What To Expect From Odontoid Fractures: “With Neurological Deficit!”**

*Bizhan Aarabi, M.D.*

**Objectives:**

- Explain what clinical syndromes are most frequent following spinal cord injury in odontoid fractures
- Describe presence of coma in odontoid fractures

1:45 p.m. **Sub-Axial Fractures – Anterior-Posterior Combined**

*John Hurlbert, M.D., Ph.D.*

**Objectives:**

- Describe indications for anterior plus posterior cervical spine surgery
- Outline surgical tips and tricks in terms of sequencing and technical pointers for anterior and posterior surgery

2 p.m. **Live Broadcast Demonstration from BioSkills Lab No. 4**

**Enhanced Posterior Thoracolumbar Fixation and Simultaneous Corpectomy With Cage Placement**

*Andrew T. Dailey, M.D.*

**Objectives:**

- Assess technical tips and tricks for simultaneous posterior surgery with corpectomy combined
- Present tips and tricks to avoid complications
- Analyze implications of cage choices

2:30 p.m. Q&A

**Session 5 Rapid-Fire Synopsis & Final Thoughts**

**2:40 p.m. Salvaging Failed Fixation**

*Rick C. Sasso, M.D.*

**Objectives:**

- Differentiate various types of failed fixation and impact on treatment
- Assess role of salvage strategies
- Identify potential landmines to avoid

**2:45 p.m. Odontoid Fractures With Neurological Deficit: Is It A Problem?**

*Bizhan Aarabi, M.D.*

**Objectives:**

- Describe how often neurological deficits are seen following odontoid fractures
- Identify choices of management in odontoid fractures with neurological deficit

**2:55 p.m. Intraoperative Runaway Bleeding**

*Theodore J. Choma, M.D.*

**Objectives:**

- Explain recognition and early counter-actions of major intraoperative bleeding and spine surgery
- Describe recommended resuscitation strategies
- Outline damage control surgery vs. definitive surgery

**3:05 p.m. Loss of IONM Signals**

*Andrew T. Dailey, M.D.*

**Objectives:**

- Identify effective communication strategies for intraoperative neuromonitoring teams and surgical teams
- Analyze recommendations for acute intervention

**3:15 p.m. Live Broadcast Demonstration from BioSkills Lab No. 5**

**Lateral Lumbar Corpectomy Tips and Tricks**

*Rod J. Oskouian, Jr., M.D.*

**Objectives:**

- Describe technical pointers for prone position thoracolumbar corpectomies with simultaneous posterior instrumentation
- Present pointers for safe decompression and anterior column reconstruction

**3:45 p.m. Break, Exhibits & Change into Scrubs** *(not for CME credit)*

**4 p.m. Optional BioSkills Hands-on Lab Stations**

*All Faculty*

1. Lumbopelvic fixation
2. Posterior cervical spine fixation and duraplasty

**Objectives:**

- Identify how to avoid complications with each technique
- Demonstrate surgical procedures in the setting of spine trauma

**5 p.m. Adjourn**

## Acknowledgements

The Planning Committee gratefully acknowledges support for this conference from the following:

### **Educational Grant**

Globus  
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Mighty Oak Medical  
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Stryker

### **In-Kind Support**

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Mighty Oak Medical  
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Stryker

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## Course Planning Committee

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Indiana University School of Medicine

**Jonathan Plümer**  
Swedish Neuroscience Institute

**Angela Tran**  
Seattle Science Foundation

**Linda Sahlin**  
Seattle Science Foundation

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### **Course Evaluation**

Please take a moment to complete our online evaluation, which will be emailed to you. Your feedback helps to ensure the effectiveness of this CME activity, as well as improve future educational activities. All responses are considered anonymous. <https://www.surveymonkey.com/r/SSF-TraumaSummit-2022>. If you do not receive the survey via email, please call (206) 732-6500 or email [cme@seattle-science-foundation.org](mailto:cme@seattle-science-foundation.org).

### **Accreditation**

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### **AMA PRA Category 1 Credits™**

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## Identifying and Resolving Conflicts of Interest

**Purpose:** The information you provide addresses several requirements of the Accreditation Council for Continuing Medical Education (ACCME) to help **ensure independence** in CME activities. Everyone in a position to control the content of a CME activity must disclose all relevant financial relationships with an ineligible company to the CME provider. This information must be disclosed to participants prior to the beginning of the activity. Also, CME providers must mitigate current conflicts of interest prior to the educational activity.

**Definitions: “Financial relationships”** are those relationships in which the individual benefits by receiving a salary, royalty, intellectual property rights, consulting fee, honoraria, ownership interest (e.g., stocks, stock options or other ownership interest, excluding diversified mutual funds), or other financial benefit.

The ACCME defines a **“ineligible company”** as any entity producing, marketing, re-selling or distributing health care goods or services consumed by, or used on, patients. Among the exemptions to this definition are government organizations, non-health care related companies and non-profit organizations that do not advocate for ineligible companies.

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**CME Activity Planning Committee Members:** If a conflict of interest exists, the Planning Committee member must withdraw from the Planning Committee unless the conflict can be mitigated. Mitigation may be made by one of the following methods: (1) Peer review of CME content will be conducted at another oversight level to assure no ineligible company bias exists; (2) Change in focus of course so the activity does not include information related to products or services about which the planning committee member has a conflict; (3) Severing relationship(s) between the member and any related ineligible company; (4) Others to be determined by SSF CME Committee.

**CME Activity Presenter:** When a conflict of interest exists, the Planning Committee must address the conflict by one of the following methods: (1) Review content to be presented by speaker in advance to assure content balance; (2) Change topic so the presentation is not related to products or services where a conflict exists; (3) Select a different presenter without any related ineligible company; (4) Include presentations by other faculty to provide an overall balance to the content of the course; (5) Limit or specify the sources for recommendations that the presenter can use. Each speaker is required to give a balanced, evidence-based presentation based on published research. No conclusions or recommendations without external validation may be made by a speaker with a conflict of interest.

## Faculty Disclosure Summary

The following planners and presenters, in the past 24 months, have/had a financial relationship with a commercial interest:

(S = Speaker; P = Planner)

**Jens R. Chapman, M.D.** (S, P): Consultant: Globus Medical

**Andrew Dailey, M.D.** (S, P): Consultant: Zimmer Biomet; Speaker: AO Spine; Research: Zimmer Biomet

**Rod J. Oskouian, Jr., M.D.** (S): Consultant: DePuySynthes, Globus Medical, Stryker, Atec Spine, Blue Ocean Spine; Royalties: Stryker, Globus Medical; Grants: AO North America

**Rick Sasso, M.D.** (S, P): Consulting Fee: NuVasive; Research Support: AO, Cerapedics, Lilly, Medtronic, Inc., Orthofix, Simplify, Smith & Nephew, Stryker; Royalties: Medtronic, Inc., Saunders Elsevier

**Klaus John Schnake, M.D., Ph.D.** (S): Consultant: Medtronic, Swiss Medical Concepts, AO Spine International

**Thomas A. Schildhauer, M.D.** (S): Consultant: Aeskulap, Cyberdyne Speaker: Aeskulap

**Timothy F. Witham, M.D. (S):** Medical Advisory, Investor: Augmedics

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The following planners and/or presenters, in the past 24 months, have/had no financial relationship with a commercial interest:

**Bizhan Aarabi, M.D. (S); Theodore Choma, M.D. (S); John Hurlbert, M.D., Ph.D. (S); Rajiv R. Iyer, M.D. (S); Jonathan Plümer, M.D. (S, P); Amanda Sacino, M.D., Ph.D. (S); Linda Sahlin (P); Angela Tran (P)**

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All planners and presenters attested that their content suggestions and/or presentation(s) will provide a balanced view of therapeutic options and will be entirely free of promotional bias. All presentations have been reviewed by a planner with no conflicts of interest to ensure that the content is evidence-based and unbiased.