Welcome and Announcements
Christopher P. Ames, MD and Robert A. Hart, MD, Program Co-Chairs

Session I: Outcomes I
Moderators: Paul M. Arnold, MD and Bradford L. Currier, MD

Presentation #1
Does the Duration of Cervical Radicular Symptoms Impact Outcomes Following Anterior Cervical Discectomy and Fusion?
Bryce A. Basques, MD; Philip K. Louie, MD; Michael Nolte, MD; Jannat M. Khan, BS; Deven Carroll, MS; Justin C. Paul, MD; Arya Varthi, MD; Edward J. Goldberg, MD; Howard S. An, MD

Presentation #2
Does Duration of Preoperative Radiculopathy Symptoms Impact Postoperative Outcomes and Reoperations After an ACDF?
Daniel Tarazona, MD; Kerri Bell, BS; Taolin Fang MD; I. David Kaye, MD; Christopher K. Kepler, MD; Mark F. Kurd, MD; Alan S. Hilibrand, MD; Barrett I. Woods, MD; Kris E. Radcliff, MD; Jeffrey A. Rihn, MD; D. Greg Anderson, MD; Alexander R. Vaccaro, MD, PhD, MBA; Gregory D. Schroeder, MD

Presentation #3
Effect of Postoperative Increase in Disc Height on Clinical Outcomes in Anterior Cervical Discectomy and Fusion Patients
Thomas Toole, BS; Swamy Kurra, MBBS; Pierce D. Nunley, MD; Richard A. Tallarico, MD; William F. Lavelle MD

Presentation #4
Disparities in Outcomes By Payer Groups for Patients Undergoing Anterior Cervical Discectomy and Fusion
Jonathan J. Rasouli, MD; Sean N. Neifert, BS; Daniel J. Snyder, BS; Jonathan S. Gal, MD; Jeremy Steinberger, MD; Brian C. Deutsch, BS; John M. Caridi, MD

Discussion

Session II: Surgical Technique
Moderators: Regis W. Haid, Jr., MD and Michael P. Kelly, MD

Presentation #5
Posterior Foraminotomy vs. Anterior Decompression and Fusion in Patients with Cervical Degenerative Disc Disease with Radiculopathy – Five-Year Outcomes from the National Swedish Spine Register
Anna MacDowall, MD, PhD; Marek Holy, MD; Claes Olerud, MD, PhD

Presentation #6
In-Situ Decompression to Spinal Cord During Anterior Controllable Antedisplacement Fusion Treating Degenerative Kyphosis with Stenosis: Surgical Outcomes and Analysis of C5 Nerve Palsy Based on 49 Patients
Haisong Yang, MD; Jiangang Shi, MD

Presentation #7
Subgroup Analysis on the Efficacy of Anterior Cervical Discectomy with or without Interbody Fusion or Arthroplasty in the Treatment of Cervical Radiculopathy: Combined Clinical Results of Two Randomised Controlled Trials
Caroline M.W. Goedmakers; Ronald H.M.A. Bartels; Erik W. van Zwet; Carmen L.A. Vleggeert-Lankamp

Presentation #8
A Comparison of Three Different Positioning Techniques on Surgical Corrections and Post-Operative Alignment in Cervical Deformity Surgery
Brandon Carlson, MD; Renaud Lafage, MS; Tejbir S. Pannu, MD, MS; Peter G. Passias, MD; Christopher P. Ames, MD; Robert A. Hart, MD; Christopher I. Shaffrey, MD; Gregory Mundis, MD;
8:13–8:26 am
Discussion

8:27–9:10 am **Session III: Risk Stratification/Complications**

**Moderators:**
R. Alden Milam, MD and Eric W. Nottmeier, MD

8:27–8:32 am **Presentation #9**
The Effect of Local Versus Intravenous Steroids on Dysphagia and Dysphonia Following Anterior Cervical Discectomy and Fusion (ACDF): 1-Year Data from a Single-Blinded, Prospective, Randomized Control Trial 15503

*Tyler J. Jenkins, MD; Reuben Nair, MD; Surabhi A. Bhatt, BS; Brett D. Rosenthal, MD; Jason W. Savage, MD; Wellington K. Hsu, MD; Alpesh A. Patel, MD*

8:33–8:38 am **Presentation #10**
What are the Important Predictors of Postoperative Functional Recovery in Patients with Cervical OPLL?

*Results of a Multivariate Analysis 15618*

*Hiroaki Nakashima, MD, PhD; Tokumi Kanemura, MD, PhD; Kotaro Satake, MD, PhD; Yoshimoto Ishikawa, MD, PhD; Jun Ouchida, MD; Shiro Imagama, MD, PhD*

8:39–8:44 am **Presentation #11**
Quantitative Risk Factor Analysis of Post-Operative Dysphagia After Anterior Cervical Discectomy and Fusion (ACDF) Using the Eating Assessment Tool-10 (EAT-10) 15631

*Andrey Y. Yew, MD; Matthew Nguyen, BS; Wellington Hsu, MD; Alpesh A. Patel, MD, FACS*

8:45–8:50 am **Presentation #12**
Reoperation for Late Neurological Deterioration After Laminoplasty in Cases with Degenerative Cervical Myelopathy: Comparison Between Cervical Spondylosis and Ossification of Posterior Longitudinal Ligament 15686

*Hiroaki Nakashima, MD, PhD; Tokumi Kanemura, MD, PhD; Kotaro Satake, MD, PhD; Yoshimoto Ishikawa, MD, PhD; Jun Ouchida, MD; Shiro Imagama, MD, PhD*

8:51–8:56 am **Presentation #13**
Complications After Instrumented Posterior Occipitocervical Fusion for Upper Cervical Spine Trauma

*15795*

*Jacob C. Hoffmann, MD; Aditya Srinivasan, BS; Ryan J. Warth, MD; Shah-Nawaz M. Dodwad, MD; Mark L. Prasarn, MD*

8:57–9:10 am Discussion

9:11–9:41 am **Break** Camelback Ballroom

9:42–10:25 am **Session IV: Deformity/Alignment I**

**Moderators:**
K. Daniel Riew, MD and Daniel M. Sciubba, MD

9:42–9:47 am **Presentation #14**
Predicting the Occurrence of Post-Operative Distal Junctional Kyphosis in Cervical Deformity Patients

*15628*

*Peter G. Passias, MD; Samantha R. Horn, BA; Virginie Lafage, PhD; Renaud Lafage, MS; Justin S. Smith MD; Themistocles S. Protopsaltis, MD; Cole A. Bortz, BA; Frank A. Segreto, BS; Alan H. Daniels, MD; Daniel M. Sciubba, MD; Robert A. Hart, MD; Shay Bess, MD; Christopher I. Shaffrey, MD; Christopher P. Ames MD; International Spine Study Group*

9:48–9:53 am **Presentation #15**
Therapeutic Outcomes for Dropped Head Syndrome

*16133*

*Hiroshi Miyamoto, MD; Terumasa Ikeda, MD; Masao Akagi, MD*

9:54–9:59 am **Presentation #16**
Postoperative Cervical Kyphosis After Correction of Adult Thoracolumbar Deformity: Is it Permanent?

*15900*

*Kyung-Chung Kang, MD; Jung-Hee Lee, MD; Won-Ju Shin, MD*

10:00–10:05 am **Presentation #17**
Surgical Outcomes in Rigid vs. Flexible Cervical Deformities 16094

*Themistocles S. Protopsaltis, MD; Nicholas Stekas, BS; Justin S. Smith, MD, PhD; Alexandra Soroceanu, MD; Renaud Lafage, MS; Alan Daniels, MD; Han Jo Kim, MD; Peter G. Passias, MD; Gregory Mundis, MD; Eric O. Klineberg, MD; D. Kojo Hamilton, MD; Munish Gupta, MD; Virginie Lafage, PhD; Robert A. Hart MD; Frank Schwab, MD; Douglas C. Burton, MD; Shay Bess, MD; Christopher I. Shaffrey, MD; Christopher P. Ames, MD; International Spine Study Group*

10:06–10:11 am **Presentation #18**
Cervical and Cervicothoracic Sagittal Alignment by Roussouly Thoracolumbar Subtypes in Asymptomatic Volunteers

*16454*

*Alekos A. Theologis, MD; Sravisht Iyer, MD; Lawrence G. Lenke, MD; Han Jo Kim, MD; Michael P. Kelly, MD, MSc*
10:12–10:25 am  Discussion
10:26–10:30 am  **Introduction of Presidential Guest Speaker**  
*Jeffrey C. Wang, MD, President*
10:31–11:20 am  **Henry H. Bohlman Presidential Guest Lecture**  
*Helen Turnbull, PhD, CSP; CEO Human Facets*
11:21–11:30 am  Discussion
11:30 am  **Adjourn to Industry Workshops – Lunch Available for Workshop Attendees Only, Prior Registration Not Required, No CME Credits**
11:30 am–1:30 pm  Workshop 1: DePuy Synthes Spine, Room 18  
Innovation in Complex Cervical Reconstruction:  
What the Research Evidence Tells Us About Alignment, Deformity, Revision and Complications  
*Faculty: Christopher P. Ames, MD*
11:30 am–1:30 pm  Workshop 2: Globus Medical, Inc., Room 15  
Treatment of Severe Stenosis: Anterior v. Posterior v. 360  
*Faculty: Timothy Moore, MD*
11:30 am–1:30 pm  Workshop 3: Medtronic, Room 16  
Posterior Cervical Fixation with Infinity: Techniques & Technologies  
*Faculty: John G. Heller, MD and Blake Staub, MD*
11:30 am–1:30 pm  Workshop 4: NuVasive, Room 17  
Challenges of Cervical Surgery  
Discussion topics include evaluation and management of cervical malalignment, nuances of dysphagia prevention, and posterior infection and treatment.  
*Faculty: Christopher I. Shaffrey, MD; Rick C. Sasso, MD; Vincent C. Traynelis, MD*
11:30 am–1:30 pm  Workshop 5: Stryker, Room 19  
A Clinical Update on Tritanium – A Novel, Highly Porous Material Designed for Bone In-Growth and Biological Fixation  
3D printed interbody devices have flooded the market but most lack evidence. Stryker’s proprietary Tritanium In-Growth Technology, used to build the Tritanium PL, TL and C Cages, was designed for bone in-growth and biological fixation. Join us as our distinguished surgeon faculty, Clinton J. Devin, MD, shares the science behind Tritanium In-Growth Technology.  
*Faculty: Clinton J. Devin, MD*
11:30 am–1:30 pm  Workshop 6: Zimmer Biomet, Room 21  
Cervical Disc Replacement, Why We’re Undertreating Patients and How to Solve the Problem  
*Faculty: Woosik M. Chung, MD; John M. Rhee, MD; Stephen I. Ryu, MD; Neill M. Wright, MD*
1:30–2:49 pm  **Symposium I: Scoliosis Research Society**  
*Moderator: Robert A. Hart, MD*
1:30–1:40 pm  Background and History of Development of the Schwab Clinical Impact Based ASD Classification and Osteotomy Classification Systems in Collaboration with the SRS  
*Frank J. Schwab, MD*
1:41–1:51 pm  History of the Development, Validation and Modifications of the SRS-22r Outcomes Questionnaire  
*Douglas C. Burton, MD*
1:52–2:02 pm  Initiation and Completion of the Scoli-Risk 1 as a Collaborative Effort Between SRS and AOSpine  
*Christopher I. Shaffrey, MD*
2:03–2:13 pm  History of the SRS from Inception to 2018  
*David W. Polly Jr., MD*
2:14–2:24 pm  Development and Management of the HSG and Use of Benchmarking for Quality Improvement, Including the History of SRS Initiatives with Respect to Pediatric Patients  
*Peter O. Newton, MD*
Program is tentative; times & topics may change

2:25–2:35 pm  The Evolution in Thinking about Cervical Deformity over the Past 25 Years: Touchpoints Between SRS and CSRS
   Todd J. Albert, MD

2:36–2:49 pm  Discussion

2:50–3:20 pm  Break

3:16–3:21 pm  Session V: Predictive Analytics/Shared Decision Making
   Moderators: Thomas E. Mroz, MD and Leo R. Spector, MD
   Presentation #19
   Can the American College of Surgeons Risk Calculator Predict 30-Day Complications After Cervical Spine Surgery? 15809
   Michael H. McCarthy, MD, MPH; Tyler J. Jenkins, MD; Joseph P. Maslak, MD; Wellington K. Hsu, MD; Alpesh A. Patel, MD

3:22–3:27 pm  Presentation #20
   Difference in Patient Cohorts for Cervical Disc Arthroplasty (CDA) and Anterior Cervical Discectomy and Fusion (ACDF) 15496
   W. Ryan Spiker, MD; Darrel S. Brodke, MD; Nicholas Spina, MD; Brandon Lawrence, MD; Vadim Goz, MD; Brook I. Martin, PhD

3:28–3:33 pm  Presentation #21
   Does Payer Type Affect Patient Satisfaction Scores? 15408
   Michael P. Silverstein, MD; Susan Odum, PhD; Michael Conti Mica, MD; Bruce Darden, MD; Eric Laxer, MD; Alden Milam, MD; Alfred Rhyne, MD; P. Bradley Segebarth, MD; Leo R. Spector, MD

3:34–3:39 pm  Presentation #22
   Development of a Novel Cervical Deformity Surgical Invasiveness Index 15918
   Peter G. Passias, MD; Samantha R. Horn, BA; Alexandra Soroceanu, MD; Cheongun Oh, PhD; Tamir Alon, MD, MPH; Brian J. Neuman, MD; Virginie Lafage, PhD; Renaud Lafage, MS; Justin S. Smith, MD; Cole A. Bortz, BA; Frank A. Segreto, BS; Shay Bess, MD; Christopher I. Shaffrey MD; Christopher P. Ames, MD; International Spine Study Group

3:40–3:45 pm  Presentation #23
   A Clinical and Radiologic Study on Patients of Cervical Spondylotic Myelopathy with Anterior Cervical Spondyloolisthesis Treated by Posterior Decompression Surgery: Retrospective Multicenter Study of 867 Cases 15724
   Ken Ninomiya, MD, PhD; Narihito Nagoshi, MD, PhD; Ryoma Aoyama, MD, PhD; Satoshi Suzuki, MD, PhD; Yuta Shiono, MD, PhD; Yuichiro Takahashi, MD, PhD; Nobuyuki Fujita, MD, PhD; Eijirou Okada, MD, PhD; Osahiko Tsuji, MD, PhD; Mitsuji Yagi, MD, PhD; Takahito Iga, MD; Masaya Nakamura, MD, PhD; Morio Matsumoto MD, PhD; Kota Watanabe, MD, PhD; Ken Ishii, MD, PhD; Junichi Yamane, MD, PhD

3:46–3:59 pm  Discussion

4:00–4:05 pm  Session VI: Diagnostics/Imaging
   Moderators: Alexander J. Ghanayem, MD and James S. Harrop, MD
   Presentation #24
   1ST PLACE CLINICAL RESEARCH AWARD
   Effect of Cervical Decompression Surgery on Spine and Lower Extremity Biomechanics in Adult Cervical Spondylotic Myelopathy Patients 15659
   Ram Haddas, PhD; Isador Lieberman, MD; Raj Arakal, MD; Akwasi Boah, MD; Theodore Belanger, MD; Kevin Ju, MD

   3rd PLACE CLINICAL RESEARCH AWARD
   The Impact of K-Line (-) in the Neck-Flexion Position on Patient-Based Outcomes After Cervical Laminoplasty for Patients with Ossification of the Posterior Longitudinal Ligament 15844
   Atsushi Kimura, MD, PhD; Yasuyuki Shiraishi, MD; Ryo Sugawara, MD; Hirokazu Inoue, MD, PhD; Teruki Endo, MD, PhD; Katsushi Takeshita, MD, PhD

   Presentation #25
   Brain Functional Connectivity Predicts for Neurological Improvement in Patients with Cervical Myelopathy – A Resting-State fMRI Study 15761
   Takashi Kaito, MD, PhD; Shotaro Takenaka, MD, DMSc; Takahiro Makino, MD, DMSc; Yusuke Sakai, MD; Junichi Kushioka, MD; Hisashi Tanaka, MD; Yoshiyuki Watanabe, MD, PhD; Shigeyuki Kan, PhD; Masahiko Shibata, MD
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<th>Time</th>
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<tr>
<td>4:18 pm–4:23 pm</td>
<td>Multiparametric Quantitative Magnetic Resonance Imaging of the Cervical Spine to Measure Microstructure and Tissue Injury 15742</td>
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<td><strong>Muhammad Ali Akbar, MD; Allan R. Martin, MD, PhD; Jetan H. Badhiwala, MD; Michael G. Fehlings, MD, PhD, FRCSC, FACS</strong></td>
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<td>4:24–4:37 pm</td>
<td>Discussion</td>
<td>Camelback Ballroom</td>
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<td>4:38–6:30 pm</td>
<td>Welcome Reception</td>
<td>Camelback Ballroom</td>
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**Friday, Dec. 7, 2018**

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<th>Time</th>
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<tr>
<td>7:00–7:10 am</td>
<td>Welcome and Announcements</td>
<td>Ballroom DEFG</td>
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<td></td>
<td>Christopher P. Ames, MD and Robert A. Hart, MD, Program Co-Chairs</td>
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<td>7:11–7:48 am</td>
<td><strong>Session VII: Outcomes II</strong></td>
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<td><strong>Moderators:</strong></td>
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<td><strong>Alpesh A. Patel, MD and John M. Rhee, MD</strong></td>
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<td>7:11–7:16 am</td>
<td>Minimal Clinically Important Difference and Substantial Clinical Benefit Using PROMIS CAT in Cervical Spine Surgery 16045</td>
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<td><strong>Sravisht Iyer, MD; Benjamin Khechen, BA; Daniel Stein, BS; Michael Steinhaus, MD; Thomas Ross, RN; Jingyan Yang, PhD; Kari Singh, MD; Todd Albert, MD; Darren Lebl, MD; Russel Huang, MD; Harvinder Sandhu, MD; Bernard Rawlins, MD; Frank Schwab, MD; Virginie Lafage, PhD; Hamid Jiki, MD</strong></td>
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<td>7:17–7:22 am</td>
<td>Discordance Between Functional Outcome and Self-Reported Ratings of Health Status After Surgery for Degenerative Cervical Myelopathy 16119</td>
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<td><strong>Jefferson R. Wilson, MD, PhD; Lindsay Tetreault, PhD; Michael Fehlings, MD, PhD, FRCSC, FACS</strong></td>
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<td>7:23–7:28 am</td>
<td>Does Severity of Preoperative Myelopathy Symptoms Impact Health-Related Quality of Life in Cervical Spondylotic Myelopathy? 15764</td>
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<td><strong>Daniel Tarazona, MD; Gregory D. Schroeder, MD, Emily Pflug, BS; I. David Kaye, MD; Christopher K. Kepler, MD, MBA; Mark F. Kurd, MD; Alan S. Hillbrand, MD; Barrett I. Woods, MD; Jeffrey A. Rihn MD; D. Greg Anderson, MD; Alexander R. Vaccaro MD, PhD, MBA; Kristen E. Radcliff, MD</strong></td>
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<td>7:29–7:34 am</td>
<td>Risk Factors Associated with Failure to Reach Minimal Clinically Important Difference in Patient-Reported Outcomes Following Anterior Cervical Discectomy and Fusion 15781</td>
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<td><strong>Benjamin Khechen, BA; Brittany E. Haws, MD; Dil V. Patel, BS; Ankur S. Narain, BA; Fady Y. Hijji, MD; Daniel D. Bohl, MD, MPH; Jordan A. Guntin, BS; Kaitlyn L. Cardinal, BS; Kari Singh, MD</strong></td>
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<td>7:35–7:48 am</td>
<td>Discussion</td>
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<td>7:49–8:38 am</td>
<td><strong>Session VIII: Motion/Motion Preservation</strong></td>
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<td><strong>Moderators:</strong></td>
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<td><strong>Frank M. Phillips, MD and Vincent C. Traynelis, MD</strong></td>
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<td>7:49–7:54 am</td>
<td>Evaluating Range of Motion During In-Vivo Dynamic Cervical Spine Motions in Spondylosis Patients 16242</td>
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<td><strong>Thomas D. Cha, MD, MBA; Kamran Z. Khan, MS; Tao Guo; Yan Yu; Guoan Li, PhD</strong></td>
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<td>7:55–8:00 am</td>
<td>The Rate of Heterotopic Ossification Following Cervical Disc Arthroplasty: A Systematic Review and Comparison of Data 15998</td>
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<td><strong>Sam C. Overley, MD; Jay Levin; Jun Sup Kim, MD; James E. Dowdell III, MD; Steve McAnany, MD; Thomas E. Mroz, MD; Andrew C. Hecht, MD</strong></td>
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<td>8:01–8:06 am</td>
<td>Comparing Range of Motion in Follow Up of Anterior Cervical Discectomy with or without Interbody Fusion and Arthroplasty 15879</td>
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<td><strong>Xiaoyu Yang, MD; Mark P. Arts, MD, PhD; Carmen Vieggeert-Lankamp, MD, MSc, PhD</strong></td>
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<td>8:07–8:12 am</td>
<td>Timing of Tracheostomy After Anterior Cervical Discectomy and Fusion 15811</td>
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<td><strong>Shah-Nowaz Dodwad, MD; Mark L. Prasarn, MD; Jason W. Savage, MD, Charles E. Wade, PhD; Sasha D. Adams, MD</strong></td>
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<td>8:13–8:18 am</td>
<td>Clinical Adjacent Segment Pathology Risk is Less Following Cervical Disc Arthroplasty Compared to Anterior Cervical Discectomy and Fusion at 7 Years Postop 16100</td>
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*Program is tentative; times & topics may change*
Program is tentative; times & topics may change

8:19–8:24 am  Analysis of Re-Operations After Cervical Total Disc Replacement in a Consecutive Series of 504 Patients Receiving the Same Device Type 15529

**Presentation #37**

**Moderators:**

**9:28–10:33 am**

**Session IX: FOCUSED PODIUM PRESENTATIONS**

**Moderators:** Wellington P. Hsu, MD and Michael P. Steinmetz, MD

**OUTCOMES**

9:28–9:30 am  Are Outcomes of ACDF Influenced by Presurgical Depressive Symptoms on the Mental Component Score of the Short Form 12 Survey? 15789

Taolin Fang, MD; Daniel Tarazona, MD; Kristen J. Nicholson, PhD; I. Matthew S. Galetta, BS; I. David Kaye, MD; Christopher K. Kepler, MD, MBA; Mark F. Kurdi, MD; Alan S. Hilibrand, MD; Barrett I. Woods, MD; Kristen E. Radcliff, MD; Jeffrey A. Rith, MD; D. Greg Anderson, MD; Alexander R. Vaccaro, MD, PhD, MBA; Gregory D. Schroeder, MD

9:31–9:33 am  Crossing the Cervicothoracic Junction in Cervical Spine Fusion Surgery Involves Higher Operative Risks, but Superior Long-Term Outcomes 15832

Alvaro Ibaseta, MS; Rafa Rahman, BS; Richard L. Skolasky, ScD; Jay S. Reider, MD, MPH; Lee H. Riley III, MD; Daniel M. Sciubba, MD; David B. Cohen, MD, MPH; Brian J. Neuman, MD

9:34–9:36 am  Metabolic Syndrome and 30-Day Outcomes Following Elective Anterior Cervical Discectomy and Fusion (ACDF) 15817

Azeem Tariq Malik, MBBS; Nikhil Jain, MD; Jeffery Kim, MD; Elizabeth Yu, MD; Safran N Khan, MD

9:37–9:39 am  Role of the Sodium/Glutamate Blocker Riluzole in Enhancing Functional Outcomes in Patients Undergoing Surgery for Degenerative Cervical Myelopathy: Results of the Prospective, Multicentre Double Blind Controlled CSM-Protect Randomized Trial 15873

Michael Fehlings, MD, PhD, FRSCS, FACS; Jetan H. Badhiwala, MD; Branko Kopjar, MD, PhD; Henry Ahn, MD; Francis Farhadi, MD, PhD; Christopher I. Shaffrey, MD; Ahmad Nassr, MD; Praveen Mummaneni, MD; Paul M. Arnold, MD; W. Bradley Jacobs, MD; K. Daniel Riew, MD; Darrel S. Brodke, MD; Alexander R. Vaccaro, MD, PhD; Alan Hilibrand, MD; Jason D. Wilson, MD; James Harrop, MD; S. Tim Yoon, MD, PhD; Kee Kim, MD; Daryl Fournery, MD, FRCSC, FACS; Carlo Santiguida, MD

9:40–9:46 am  Discussion

**INNOVATION AND ECONOMICS**

9:47–9:49 am  Use of Recombinant Human Bone Morphogenetic Protein-2 at the C1-2 Lateral Articulation in Posterior Atlantoaxial Fusion in Adult Patients with or without Conventional Structural Bone Graft 15933

Wataru Ishida, MD; Seba Ramhmdani, MD; Yuanxuan Xia, BS; Thomas A. Kosztowski, MD; Rafael Dela Garza Ramos, MD; John Choi, BS; Benjamin D. Elder, MD, PhD; Nicholas Theodore, MD; Ziya L. Gokaslan, MD; Jean-Paul Wolinsky, MD; Daniel M. Sciubba, MD; Ali Bydon, MD; Timothy F. Witham, MD; Sheng-Fu L. Lo, MD

9:50–9:52 am  Functional Integration of a Tissue Engineered Intervertebral Disc and Translation to a Large Animal Cervical Spine Model 15818

Sarah E. Guiblbrand, PhD; Beth G. Ashinsky, Edward Bonnevie; Dong Hwa Kim; Lachlan J. Smith, PhD; Thomas P. Schaer, DVM; Dawn M. Elliott, PhD; Harvey E. Smith, MD; Robert L. Mauck, PhD

9:53–9:55 am  Correlating Radiologic Signs of Disc Degeneration with Changes in Cervical Spine Biomechanics 16122
<table>
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<tr>
<th>Presentation #44</th>
<th><strong>Vijay Permeswaran, PhD</strong>; Anup Gandhi, PhD; Vikas Patel, MD; John Wanebo, MD; Ripul Panchal, MD</th>
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<td>9:56–9:58 am</td>
<td>Cost-Utility of Revisions for Cervical Deformity Correction Warrants Minimization of Reoperations 15622</td>
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<td>Samantha R. Horn, BA; Peter G. Passias, MD; Renaud Lafage, MS; Virginie Lafage PhD; Hamid Hassanzadeh, MD; Jason A. Horowitz, BA; Cole A. Bortz, BA; Frank A. Segreto, BS; <strong>Justin S. Smith, MD</strong>; Daniel M. Sciuoppa, MD; Alan H. Daniels, MD; Christopher I. Shaffrey, MD; Richard A. Hostin, MD; Christopher P. Ames, MD; International Spine Study Group</td>
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<td>9:59–10:01 am</td>
<td>Economic Impact of Older Age on the Initial Spine Care of Individuals with Acute Spine Trauma 16130</td>
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<td><strong>Julio C. Furlan, MD, LLB, MBA, MSc, PhD, FRCPC</strong>; Michael G. Fehlings, MD, PhD, FRCSC, FACS; Catherine Craven, BA, MD, MSc, FRCPC</td>
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<td>10:02–10:08 am</td>
<td>Discussion</td>
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<td><strong>PREDICTIVE ANALYTICS AND SHARED DECISION MAKING</strong></td>
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<td><strong>2nd PLACE RESIDENT/FELLOW RESEARCH AWARD</strong></td>
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<td>10:09–10:11 am</td>
<td>30-Day Preoperative Opioid Dosage Predicts 12-Month Satisfaction in Cervical Spine Surgery 15862</td>
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<td><strong>Jeffrey Hills, MD</strong>; Joseph Wick, BA; Jacquelyn Pennings, PhD; Inamullah Khan, MD; Ahilan Sivaganesan, MD; Kristin R. Archer, PhD, DPT; Clinton J. Devin, MD</td>
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<td>10:12–10:14 am</td>
<td>Impact of Neck Disability Index on 12-Months Satisfaction After Elective Surgery for Cervical Radiculopathy 16235</td>
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<td><strong>Inamullah Khan, MD</strong>; Ahilan Sivaganesan, MD; Anthony L. Asher, MD; Panagiotis Kerezoudis, MD; Hui Nian, PhD; Frank E. Harrell Jr., PhD;Mohamad Bydon, MD; Kristin R. Archer, PhD, DPT; Clinton J. Devin, MD</td>
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<td>Piyush Kalakoti, MD; Alexander J. Volkmar, BS; Alan Shamrock, BS; Yubo Gao, PhD; <strong>Nathan R. Hendrickson, MD</strong>; Andrew J. Pugely, MD</td>
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<td>10:18–10:20 am</td>
<td>Using a Machine Learning Approach to Predict Outcome After Surgery for Degenerative Cervical Myelopathy 16218</td>
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<td><strong>Zamir Merali, MD</strong>; Christopher D. Witiw, MD, MSc; Jetan Badhiwala, MD; Jefferson Wilson, MD, PhD, FRCSC; Michael G. Fehlings, MD, PhD, FRCSC, FACS</td>
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<td>10:21–10:23 am</td>
<td>Model for 90-Day and 1-Year Outcome Prediction After Cervical Spine Arthrodesis: A Web-Based Clinical Utility Tool 16318</td>
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<td>Piyush Kalakoti, MD; Nicholas A. Bedard, MD; <strong>Alan Shamrock, BS</strong>; Alexander J. Volkmar, BS; Nathan R. Hendrickson, MD; Andrew J. Pugely, MD</td>
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<td>10:24–10:26 am</td>
<td>The Predictor of Patients Who Failed to Achieve the Minimum Clinical Important Differences Following Laminoplastic for Cervical Spondylotic Myelopathy 15551</td>
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<td><strong>Koji Tama; MD</strong>; Akinobu Suzuki; MD, PhD; Akito Yabu; Hidetomi Terai; MD, PhD; Masatoshi Hoshino, MD, PhD; Hiromitsu Toyoda; Shinji Takahashi; MD; Shoichiro Ohyama; MD; Yusuke Hori; MD; Hiroaki Nakamura, MD</td>
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<td>10:27–10:33 am</td>
<td>Discussion</td>
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<td><strong>SESSION X: RESEARCH SESSION</strong></td>
<td><strong>Moderator:</strong> Zoher Ghogawala, MD, FACS</td>
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<tr>
<td>10:34–10:39 am</td>
<td>Announcement—2018 Research Grant Winners</td>
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<td>10:38–10:39 am</td>
<td>Introduction—2017 Research Grant Updates</td>
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<td>10:40–10:45 am</td>
<td><strong>2017 Medtronic</strong> Randomized, Controlled Trial of Posterior C1-2 Fusion vs. Bracing Alone for Treatment of Type II Odontoid Process Fractures in the Elderly</td>
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<td>Christopher K. Kepler, MD, MBA</td>
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<td>10:46–10:51 am</td>
<td><strong>2017 CSRS 21st Century Research and Education Grants</strong> Biodegradable Microspheres and Hydrogel Drug Delivery System of Anti-Inflammatory Therapeutics for the Treatment of Chronic Degenerative Disc Disease</td>
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<td>Anna Chee, PhD</td>
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<td>Time</td>
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<td>10:52-10:57 am</td>
<td><strong>2017 Seed Starter Grants</strong> Exosomes from Hypoxic Pre-conditioned Bone Marrow Stem Cell Media for Acute Spinal Cord Injury</td>
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<td>10:58–11:03 am</td>
<td>Development of an Innovative Diagnostic Tool for Cervical Spondylotic Myelopathy Using Somatosensory Evoked Potentials Elicited by Proprioceptive Stimulation: A Proof-of-Concept Pilot Study</td>
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<td>11:04–11:09 am</td>
<td>Effect of Cervical Decompression Surgery on Neuromuscular Control and Kinematics During Gait in Adult Patients with Cervical Spondylotic Myelopathy</td>
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<td>11:10–11:11 am</td>
<td><strong>Introduction–2016 and 2015 Resident Fellow Research Grant Updates</strong></td>
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<td>11:12–11:17 am</td>
<td>In Situ Tissue Engineering Approach to Intervertebral Disc Regeneration</td>
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<td>11:18–11:23 am</td>
<td>Omega 3 Fatty Acid Supplementation to Reduce Intervertebral Disc Degeneration</td>
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<td>11:24–11:29 am</td>
<td>Improvement in Grip and Pinch Strength Following Anterior Cervical Discectomy and Fusion Procedures</td>
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<td>11:30–11:34 am</td>
<td><strong>Introduction of CSRS President</strong></td>
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<td>11:35-12:00 pm</td>
<td><strong>PRESIDENTIAL ADDRESS</strong></td>
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<td>12:00–12:55 pm</td>
<td>Non-Member Lunch</td>
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<td>12:00–12:55 pm</td>
<td>Member Lunch (CSRS Members Only)</td>
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<tr>
<td>1:00–3:40 pm</td>
<td><strong>Symposium II: International Collaborative Approaches to Complex Cervical Surgery</strong></td>
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<td>Moderators:</td>
<td>Christopher P. Ames, MD</td>
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<td>1:00–1:15 pm</td>
<td>Surgical Approaches to CVJ</td>
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<td>1:16–1:31 pm</td>
<td>Primary Bone Tumors of Cervical Spine</td>
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<td>1:32–1:47 pm</td>
<td>Management of High Cervical Defects After Tumor Resections: Approaches and Biomechanics</td>
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<td>1:48–2:03 pm</td>
<td>Correction Techniques for CT Deformity</td>
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<td>2:04–2:19 pm</td>
<td>Anterior vs. Posterior Approach to OPLL</td>
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<td>2:20–2:35 pm</td>
<td>Posterior Correction Techniques with Pedicle Screws</td>
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<td>2:36–2:51 pm</td>
<td>The Surgical Challenge of Cervical Sagittal Balance</td>
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<td>2:52–3:07 pm</td>
<td>The Value and Application of Pre-operative Correction in the Treatment of Severe Cervical Kyphosis</td>
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<td>3:08–3:23 pm</td>
<td>Discussion</td>
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<td>3:24–3:40 pm</td>
<td><strong>BREAK</strong></td>
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<td>3:41–4:30 pm</td>
<td><strong>Session XI: Deformity/Alignment II</strong></td>
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<tr>
<td>Moderators:</td>
<td>Erica F. Bisson, MD and Robert F. Heary, MD</td>
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</table>
3:41–3:46 pm  Presentation #53
Selective Surgical Treatment Strategies for Severe Cervical Kyphosis 15891

**Huajiang Chen, MD; Jianxi Wang**

3:47–3:52 pm  Presentation #54
Successful Clinical Outcomes Following Surgery for Severe Cervical Deformity are Dependent Upon Achieving Sufficient Cervical Sagittal Alignment 16097

**Themosocles S. Protopsaltis, MD; Nicholas Stekas, BS; Justin S. Smith MD, PhD; Alexandra Soroceaneu, MD; Renaud Lafage, MS; Alan Daniels, MD; Han Jo Kim, MD; Peter G. Passias, MD; Gregory Mundis, MD; Eric O. Klineberg, MD; D. Kojo Hamilton, MD; Munish Gupta, MD; Virginie Lafage, PhD; Robert A. Hart, MD; Frank Schwab, MD; Douglas C. Burton, MD; Shay Bess, MD; Christopher I. Shaffrey, MD; Christopher P. Ames MD; International Spine Study Group**

3:53–3:58 pm  Presentation #55
Effect of Correction Surgery for Cervical Kyphosis on Compensatory Mechanisms in Overall Spinopelvic Sagittal Alignment 15880

**Hirosi Miyamoto MD; Terumasa Ikeda, MD; Masao Akagi, MD**

3:59–4:04 pm  Presentation #56
Validation of a Cervical Spine Deformity Classification System Using a Long-Term Follow-Up Data After Multilevel Posterior Cervical Fusion Surgery 15420

**Seung-Jae Hyun, MD, PhD; Jong-myung Jung, MD; Ki-Jeong Kim, MD, PhD**

4:05–4:10 pm  Presentation #57
Changes in Cervical Sagittal Alignment in Adolescent Idiopathic Scoliosis Following Posterior Spinal Instrumented Fusion 15379

**Ryan J. Berger, MD; William A. Cantrell, BS; Joseph Tanenbaum, BA; David P. Gurd, MD; Thomas E. Kuivila, MD; Thomas E. Mroz, MD; Michael P. Steinmetz, MD; Ryan C. Goodwin, MD**

4:11–4:16 pm  Presentation #58
Recovery Kinetics: Comparison of Patients Undergoing Primary or Revision Procedures for Adult Cervical Deformity Using a Novel Area Under the Curve Methodology 15563

**Frank A. Segreto, BS; Virginie Lafage, PhD; Renaud Lafage, MS; Justin S. Smith, MD, PhD; Breton G. Line, BS; Justin K. Scheer, MD; Dean Chou, MD; Nicholas J. Frangella, BS; Cole A. Bortz, BA; Bassec G. Diebo, MD; Themistocles S. Protopsaltis, MD; Han Jo Kim, MD; Christopher P. Ames, MD; Brian J. Neuman, MD; Peter G. Passias, MD; International Spine Study Group**

4:17–4:30 pm  Discussion

4:30 pm  Adjourn

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7:00–7:05 am  Welcome and Announcements
Christopher P. Ames, MD and Robert A. Hart, MD, Program Co-Chairs

7:06–7:49 am  Session XII: Outcomes III
**Moderators:**
Douglas G. Orndorff, MD and W. Ryan Spiker, MD

7:06–7:11 am  Presentation #59
Characteristics of Residual Symptoms Following Laminoplasty in Elderly Patients with Cervical Spondylotic Myelopathy: A Prospective Comparative Study of Clinical Outcomes for 1025 Patients 15359

**Masaaki Machino, MD; Shiro Imagama, MD, PhD; Kei Ando, MD; Naoki Ishiguro, MD, PhD**

7:12–7:17 am  Presentation #60
How Does Everyone Stack Up? A Risk-Adjusted Ranking Scheme for Surgeons Performing ACDF for Radiculopathy 15704

**Ahilan Sivaganesan, MD; Anthony Asher, MD; Mohamad Bydon, MD; Inamullah Khan, MBBS, MD; Hui Nian, PhD; Frank E. Harrell Jr., PhD; Kristin Archer, PhD; Clinton J. Devin, MD**

7:18–7:23 am  Presentation #61
Health Outcomes and Patient Satisfaction After Elective Cervical Spine Surgery for Cervical Spondylotic Myelopathy: A Prospective 24-Month Study 15528

**Marjorie C. Wang, MD MPH; Jianing Li, PhD**

7:24–7:29 am  Presentation #62
Preoperative Promis Score Is Not Predictive of Postoperative Pain or Narcotics Consumption After Anterior Cervical Discectomy and Fusion 15669

**Brittany E. Haws, MD; Benjamin Khechen, BA; Dil V. Patel, BS; Ankur S. Narain, BA; Jordan A. Guntin, BS; Kaitlyn L. Cardinal, BS; Kern Singh, MD**

7:30–7:35 am  Presentation #63
Limited Morbidity and Radiographic Benefit of C2 vs. Subaxial Cervical Upper-Most Instrumented Vertebrae 15596

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*Program is tentative; times & topics may change*
7:36–7:49 am  Discussion

7:50–7:54 am  Symposium III: Managing Difficult Complications
**Moderators:**  Christopher P. Ames, MD and Robert A. Hart, MD

7:50–8:00 am  Complication Classification: Surgeon, Patient and Payor and Limitations of Society MM Registries  
*Justin S. Smith, MD*

8:01–8:11 am  Risk Stratification and Invasiveness  
*Peter G. Passias, MD*

8:12–8:22 am  Loss of Fixation in Cervical Spine  
*Sang-Hun Lee, MD*

8:23–8:33 am  Distal Junctional Failure  
*Themistocles S. Protopsaltis, MD*

8:34–8:44 am  Anterior CSF Leak  
*Christopher I. Shaffrey, MD*

8:45–8:55 am  Dural Involvement in Tumor Surgery  
*Ziya L. Gokaslan, MD, FAANS, FACS*

8:56–9:06 am  Oesophagus Fistula After Anterior Cervical Spine Approach, How to manage this Complication?  
*Philippe Bancel, MD*

9:07–9:17 am  MEP Loss, C5 and C8 Weakness  
*Lee Tan, MD*

9:18–9:28 am  Intraoperative Vertebral Artery Injuries: The Uncertainty Continues  
*Jens R. Chapman, MD*

9:29–9:42 am  Discussion

9:43–10:20 am  Session XIII: Diagnostics/Imaging
**Moderators:**  Darrel S. Brodke, MD and Brian K. Kwon, MD

*Yohei Ito, MD; Hisanori Mihara, MD; Yasunori Tatara, MD*

*Robert P. Norton, MD; Jordan Pasternack, MD; John K. Houten, MD, FAANS*

9:55–10:00 am  Assessment of Standing Balance in Normal vs. Cervical Spondylotic Myelopathy Patients 15661  
*Mikhail Lew P. Ver, MD; Jeffrey L. Gum, MD; Steven D. Glassman, MD; Portia A. Steele, APRN; Leah Y. Carreon, MD, MSc*

10:01–10:06 am  Clinically Predictive Value of Gray Matter Volume Loss in Cervical Spondylotic Myelopathy (CSM): A Prospective Case-Control Study Utilizing 3T MRI and Volumetric Mapping 16169  
*Benjamin Hopkins, BS; Kenneth A. Weber, PhD; Alex Barry, MS; Todd B. Parrish, PhD*

10:07–10:20 am  Discussion

10:21–10:26 am  Presentation of CSRS Medallion to Alexander R. Vaccaro, MD, PhD

10:27–10:48 am  BREAK  
**EAST FOYER**

10:49–11:26 am  Session XIV: Biology and Fusion
**Moderators:**  Jens R. Chapman, MD and Timothy A. Garvey, MD
3rd PLACE BASIC SCIENCE RESEARCH AWARD

10:49–10:54 am
Presentation #68
Juli Kauri Inhibits Reduces the Inflammatory Response and Improves Bone Formation in rhBMP-2-Mediated Spine Fusion 15650
Juliane D. Glaeser, PhD; Phillip H. Behrens, MD; Khorosgood Salehi, BS; Linda E.A. Kanim, MA; Dmitriy Sheyn, PhD; Zachary NaPier, MD; Jason M. Cuéllar, MD, PhD; Hyun W Bae, MD

10:55–11:00 am
Presentation #69
A Thienoindazole Derivative Small Compound Prevented and Regenerated Intervertebral Disc Degeneration by Enhancing Extracellular Matrix Production 15790
Junichi Kushikina, MD; Takashi Kaito, MD, PhD; Ryota Chijimatsu; Rintaro Okada, MD; Hiroyuki Ishiguro; Joe Kodama; Yuichiro Ukon; Hideki Yoshikawa, MD

11:01–11:06 am
Presentation #70
Usage Patterns of Intraoperative Neuromonitoring During Degenerative, Non-Deformity, Cervical Spine Surgery: A Survey of the Cervical Spine Research Society 15572
Jeffrey A. Konopka, MD; Zachary J. Grabel, MD; John M. Rhee, MD

11:07–11:12 am
Presentation #71
Posterior Instrumented Fusion Suppresses the Progression of Ossification of the Posterior Longitudinal Ligament: A Comparison of Laminoplasty with and without Instrumented Fusion by 3-Dimensional Analysis 16470
Keilichi Katsumi; MD, PhD; Toru Hirano, MD; Kei Watanabe, MD, PhD; Masayuki Ohashi, MD, PhD; Naoto Endo, MD

11:13–11:26 am
Discussion

11:27 am–12:56 pm
Session XV: FOCUSED PODIUM PRESENTATIONS

Moderators: Alexander R. Vaccaro III, MD and Jeffrey C. Wang, MD

EPIDEMIOLOGY AND OUTCOMES

11:27–11:29 am
Presentation #72
Chronic Obstructive Pulmonary Disease (COPD) is an Independent Predictor for 30-Day Complications and Readmissions Following 1-To-2 Level Anterior Cervical Discectomy and Fusion 15820
Azeem Tariq Malik, MBBS; Nikhil Jain, MD; Jeffery Kim, MD; Safdar N. Khan, MD; Elizabeth Yu, MD

11:30–11:32 am
Presentation #73
Epidemiology of C5 Palsy After Cervical Spine Surgery: 21 Multicenter Studies 15752
Jae Keun Oh, MD, PhD; Dong Ho Kang, MD, PhD; Ki-Jeong Kim, MD, PhD; Young Jin Kim, MD, PhD; Chi Heon Kim, MD, PhD; Seong Yi, MD, PhD; Jun Ho Lee, MD; Chang-Hyun Lee, MD; Yong Jun Jin, MD, PhD; Jae Taek Hong, MD, PhD

11:33–11:35 am
Presentation #74
Age Is Not a Significant Predictor of Adverse Events After Cervical Spine Surgery: Analysis from the Michigan Spine Surgery Improvement Collaborative (MSSIC) 15751
Jad G. Khall; MD; Hesham Mostafa Zakaria; Daniel Possley, DO; Daniel Park, MD; Victor Chang, MD

11:36–11:38 am
Presentation #75
Frequency of Typical Myelopathic Symptoms in a Large Surgical Cohort of Cervical Myelopathy Patients: Association with the Level of Maximal Cord Compression and MRI T2 Signal Change 16227
Shuo Niu, MD, PhD; Thomas M. Neustein, MD; Albert T. Anastasio, BA; Samuel D. Maidman, BA; Razan R. Faraj, MS; John M. Rhee, MD

11:39–11:41 am
Presentation #76
Effect of Modified Japanese Orthopedic Association Scores on Satisfaction with Outcomes 12 Months After Elective Surgery for Cervical Spine Myelopathy 15902
Benjamin Weisenthal, MD; Ahilan Sivaganesan, MD; Silky Chotai, MD; Inamullah Khan, MBBS, MD; Hui Nian, PhD; Frank E. Harrell Jr., PhD; Kristin Archer, PhD; Jacqueline S. Penning, PhD; Mohamad Bydon, MD; Praveen V. Mummianeni, MD; Anthony Asher, MD, FACS; Kevin T. Foley, MD; Clinton J. Devin, MD

11:42–11:48 am
Discussion

CRANIO-CERVICAL JUNCTION AND ALIGNMENT

11:49–11:51 am
Presentation #77
Increasing Incidence of Non-Rheumatic Retro-Odontoid Pseudotumor with Varied Etiology in Elderly 16249
Ryouta Hyakkan, MD; Masahiko Takahata, MD

11:52–11:54 am
Presentation #78
The Impact of Cervical Sagittal Balance and Cervical Spine Alignment on Craniocervical Junction Kinematic: An Analysis Using Upright Kinematic MRI 16196
Permsak Patholak, MD; Blake Formanek; Andrew Vega, BS; Koji Tamai, MD; Kittipong Sessumpun, MD; Zorica Buser, PhD; Jeffrey C. Wang, MD

Program is tentative; times & topics may change
11:55–11:57 am

**Presentation #79**

Does Target Level Sagittal Alignment Determine Adjacent Level Disc Height Loss? 15624

**Ryan Snowden, MD; Justin W. Miller, MD; Tome Saidon, MS; Joseph D. Smucker, MD; K. Daniel Riew, MD; Rick C. Sasso, MD**

11:58–12:00 pm

**Presentation #80**

Redefining the Cervical Disability Threshold of T1 Slope Minus Cervical Lordosis 15640

**Peter G. Passias, MD; Dennis Vasquez-Montes, MS; Samantha R. Horn, BA; Cole A. Bortz, BA; Frank A. Segreto, BS; Aaron J. Buckland, MD; Themistocles S. Protopsaltis, MD; Han Jo Kim, MD; Michael Gerling, MD; Renaud Lafage, MS; Thomas J. Errico, MD; Frank J. Schwab, MD; Virginie Lafage, PhD**

12:01–12:03 pm

Dynamic Changes in the Reflex Exam of Patients with Sub-Axial Cervical Stenosis 16046

**Alexander Tuchman, MD; Lee A. Tan, MD; Jamal N. Shillingford, MD; Xudong J. Li, MD, PhD; K. Daniel Riew, MD**

12:04–12:10 pm

**Discussion**

**COMPLICATIONS AND NON-OPERATIVE APPROACHES**

12:11–12:13 pm

Do Preoperative Cervical Epidural Steroid Injections Affect Outcomes After ACDF for Radiculopathy? 15766

**Daniel Tarazona, MD; Eric Warner, BS; Michael Motto, BS; Taolin Fang, MD; Matthew Galetta, BS; I. David Kaye, MD; Christopher K. Kepler, MD, MBA; Mark F. Kurd, MD; Alan S. Hillbrand, MD; Barrett I. Woods, MD; Kristen E. Radcliff, MD; Jeffrey A. Rihn, MD; D. Greg Anderson, MD; Alexander R. Vaccaro MD, PhD, MBA; Gregory D. Schroeder, MD**

12:14–12:16 pm

Perioperative Anesthesia Lean Implementation Is Associated with Increased Operative Efficiency in Posterior Cervical Surgeries at a High-Volume Spine Center 16135

**Simon Ammanuel, BS; Andrew Chan, MD; Anthony DiGiorgio, DO; Catherine Miller, MD; Praveen Mummaneni, MD**

12:17–12:19 pm

Undergoing Bariatric Surgery Lowers Complication Rates Following Spine Surgery in Morbidly Obese Patients 15604

**Peter G. Passias, MD; Samantha R. Horn, BA; Dennis Vasquez-Montes, MS; Frank A. Segreto, BS; Cole A. Bortz, BA; Cyrus M. Jalal, BA; Daniel M. Sciubba, MD; Micheal Raad, MD; Bassel G. Diebo, MD; Shaleen Vira, MD; Jason A. Horowitz, BA; Hamid Hassanzadeh, MD; Renaud Lafage, MS; Virginie Lafage, PhD; Michael C. Gerling, MD**

12:20–12:22 pm

The Risk of Recurrent Laryngeal Nerve Injury with Laterality of Approach in Anterior Cervical Discectomy and Fusion Procedures: A Randomized, Prospective Study Over 10 Years 15375

**Shalin Shah, DO; Manminder Bhatia, DO**

12:23–12:25 pm

Perioperative Complications of Anterior Decompression with Fusion vs. Posterior Decompression with Fusion for the Treatment of Cervical Ossification of the Posterior Longitudinal Ligament: Propensity Score Matching Analysis Using a National Inpatient Database 16066

**Toshitaka Yoshii, MD; Shingo Morishita, MD; Takashi Hirai, MD; Kenichiro Sakai, MD; Tsuyoshi Yamada, MD; Masato Yuasa, MD; Atsushi Okawa, MD**

12:26–12:32 pm

**Discussion**

**SURGICAL TECHNIQUES AND TRAUMA**

12:33–12:35 pm

The Clinical Study on a Minimally Invasive Muscle-Splitting Approach to Posterior C1–C2 Fixation for the Treatment of Fresh Odontoid Fracture 15883

**Guohua Xu, MD; Xiaogang Bao**

12:36–12:38 pm

Short-Term Outcomes Following Cervical Laminoplasty and Laminectomy and Fusion with Instrumentation 15601

**Anthony J. Boniello MD; Samantha R. Horn BA; Frank A. Segreto, BS; Cole A. Bortz, BA; Amrit Khalsa, MD; Michael C. Gerling, MD; Peter G. Passias, MD**

12:39–12:41 pm

Surgical Treatment for Cervical Spine Trauma in Ankylosing Spine with Diffuse Idiopathic Skeletal Hyperostosis; Surgery within 8-Hours After Injury Affects Prognosis 15786

**Osahiko Tsuji, MD; Kota Suda, MD, PhD; Masahiko Takahata, MD; Miki Komatsu, MD, PhD; Norimasa Iwasaki, MD, PhD; Morio Matsumoto, MD; Masaya Nakamura, MD; Kota Watanabe, MD, PhD**

**3rd PLACE RESIDENT/FELLOW RESEARCH AWARD**

12:42–12:44 pm

SMaRT Human Neural Stem Cells to Degrade Scar and Optimize Regeneration After Traumatic Cervical Spinal Cord Injury 16232

**Barrett I. Woods, DO; Catherine Miller, MD; Praveen Mummaneni, MD**
Radiologic Factors to Predict Injury of Transverse Atlantal Ligament in Unilateral Sagitally Split Fracture of C1 Lateral Mass 15393

Jae Won Lee, MD; Jong-Beom Park, MD, PhD; Han Chang, MD, PhD

Treatment Algorithm for Dens Fractures 16137

Amelie Kanovsky, MD; Ernst Josef Mueller

Discussion

Adjourning Notices
Alexander Vaccaro, MD, PhD

CSRS 2018 Annual Meeting – Events
Wednesday, December 5

Faculty Appreciation Reception
Open to all registered attendees
Camelback Ballroom, 5:00 pm—6:00 pm
No prior registration required

NuVasive Industry Event
An Evening & Discussion with Cervical Thought Leaders – A Collegial Exchange of Ideas
Prior registration required
6:00 pm—8:00 pm, Grand Ballroom ABC
Hosted by Daniel Riew, MD; Todd Albert, MD; Regis Haid, MD; Christopher Shaffrey, MD; Vincent Traynelis, MD; Rick Sasso, MD; Michael Groff, MD; Alpesh Patel, MD; Trey Crawford, MD; and Tyler Koski, MD
Invitation only event. If you would like to attend this event, please contact Jennica Reeves at jreeves@nuvasive.com

Thursday, December 6

Welcome Reception
Open to all registered attendees
Camelback Ballroom, 4:30 pm—6:30 pm
No prior registration required

Medtronic Industry Dinner
How to Navigate Posterior Cervical: SynergyPCFSM with Infinity™ OCT System
Live Surgeon Panel Broadcast with Navigated C1-T3 Case Discussion
Faculty: Paul Holman, MD; Taro Kaibara, MD; and Blake Staub, MD
Phoenician Hotel Ballroom A, 6:30 pm dinner; 7:00 pm Case Discussion, Grand Ballroom ABC
If you would like to attend this event, please register through the link provided here: Medtronic.