### Thursday, Nov 30, 2017

**Regency Ballroom**

<table>
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<tr>
<th>Time</th>
<th>Session/Abstract</th>
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<tr>
<td>7:00–7:10 am</td>
<td>Welcome and Announcements</td>
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<td><em>Louis G. Jenis, MD</em></td>
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<tr>
<td>7:11–7:48 am</td>
<td><strong>Session I: Myelopathy I</strong></td>
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<td><em>Moderators: D. Greg Anderson, MD and Erica F. Bisson, MD</em></td>
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<td>7:11–7:16 am</td>
<td>Presentation #1 Effect of Cervical Decompression Surgery on Gait in Cervical Spondylotic Myelopathy Patients</td>
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<td><em>Ram Haddas, PhD; Raj Arakal, MD; Akwasi Boah, MD; Theodore Belanger, MD; Kevin L. Ju, MD</em></td>
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<td>7:17–7:22 am</td>
<td>Presentation #2 Surgical Outcome of Elderly Patients Over 80 Years with Cervical Spondylotic Myelopathy</td>
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<td><em>Norihiro Isogai, MD; Junichi Yamane; Akio Iwanami; Hitoshi Kono; Yoshiomi Kobayashi, MD; Nobuyuki Fujita; Mitsuru Yagi, MD; PhD; Kota Watanabe, MD; PhD; Kazuya Kitamura; Yuta Shiono, MD; Ken Ishii, MD; Masaya Nakamura, MD; Morio Matsumoto, MD; Narihito Nagoshi</em></td>
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<td>7:23–7:28 am</td>
<td>Presentation #3 What is the Role of Gait Analysis in the Evaluation of Walking Disturbance in the Cervical Myelopathy Patients? A Comparison Between Pre- and Post-Operative Data in Surgically Treated Cervical Myelopathy Patients</td>
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<td><em>Nam Ik Cho, MD; Jae Hwan Cho, MD; Jung-Ki Ha, MD; Chang Ju Hwang, MD, PhD; Choon Sung Lee, MD, PhD; Dong-Ho Lee, MD, PhD</em></td>
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<td>7:29–7:34 am</td>
<td>Presentation #4 Two-Year Surgical Outcomes of Patients with Cervical Myelopathy: An Analysis of the Impact of Patient Characteristics, Operative Data, and Preoperative Nonoperative Treatment Modalities</td>
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<td><em>Peter G. Passias, MD; Kristen E. Radcliff, MD; Paul M. Arnold; Samantha Horn, BA; Gregory W. Poormann, BA; Anthony J. Boniello, BS; Sun Yang, BA; Alexander R. Vaccaro, MD, PhD; MBA; Michael C. Gerling, MD</em></td>
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<td>7:35–7:48 am</td>
<td>Discussion</td>
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<td>7:49–8:26 am</td>
<td><strong>Session II: Motion Preservation</strong></td>
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<td><em>Moderators: Darren R. Lebl, MD, MBA and Praveen V. Mummaneni, MD</em></td>
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<td>7:49–7:54 am</td>
<td>Presentation #5 Facet Joint Osteoarthritis Progress After Insertion of Artificial Disc Replacement: A Five-Year Follow-Up of a Prospective Randomized Controlled Study</td>
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<td><em>Anna MacDowall, MD; Martin Skeppholm, MD, PhD; Claes Olerud, MD, PhD</em></td>
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<td>7:55–8:00 am</td>
<td>Presentation #6 Long-Term Outcomes of Arthroplasty for Cervical Myelopathy vs. Radiculopathy, and Arthroplasty vs. Arthrodesis for Cervical Myelopathy</td>
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<td><em>Jeffrey R. McConnell, MD; Matthew F. Gornet, MD; K. Daniel Riew, MD; Todd H. Lanman, MD; J. Kenneth Burkus, MD</em></td>
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<td>8:01–8:06 am</td>
<td>Presentation #7 Comparison of 7-Year Results of One-Level vs. Two-Level Cervical Disc Arthroplasty and Anterior Cervical Fusion</td>
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<td><em>Jeffrey R. McConnell, MD; Todd H. Lanman, MD; Matthew F. Gornet, MD; J. Kenneth Burkus, MD</em></td>
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<td>8:07–8:12 am</td>
<td>Presentation #8 Single-Level Cervical Arthrodesis Increases Adjacent Segment Midrange Motion</td>
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<td><em>William Anderst, PhD; Tyler West; William Donaldson, MD; Joon Yung Lee, MD; James Kang, MD</em></td>
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<td>8:13–8:26 am</td>
<td>Discussion</td>
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8:27–9:04 am  Session III: Cervical Deformity I
Moderators:  Alexander R. Vaccaro, MD, PhD, MBA and Jeffrey C. Wang, MD

8:27–8:32 am  Presentation #9
Cervical Mismatch: The Normative Value of T1S-CL and Its Ability to Predict Ideal Cervical Lordosis
Blake Staub, MD; Renaud Lafage; Han Jo Kim, MD; Christopher I. Shaffrey, MD; Gregory M. Mundis, MD; Richard Hostin, MD; Douglas C. Burton, MD; Peter G. Passias, MD; Christopher P. Ames, MD; Eric O. Klineberg, MD; Robert Shay Bess, MD; Frank J. Schwab, MD; Virginie Lafage, PhD; International Spine Study Group

8:33–8:38 am  Presentation #10
Analysis of Prospective Collection of 374 Osteotomies in 99 Patients with Adult Cervical Deformity
Themistocles S. Protopsaltis, MD; Alexandra Soroceanu, MD; Justin S. Smith, MD; Munish Gupta, MD; Renaud Lafage; Peter G. Passias, MD; D. Kojo Hamilton; Eric O. Klineberg, MD; Virginie Lafage, PhD; Frank J. Schwab, MD; Douglas C. Burton, MD; Robert Shay Bess, MD; Christopher I. Shaffrey, MD; Christopher P. Ames, MD; International Spine Study Group

8:39–8:44 am  Presentation #11
Prospective Multicenter Analysis of Clinical and Radiographic Outcomes Following Surgical Correction of Patients with Moderate to Severe Cervical Deformities and Horizontal Gaze Disruption
Themistocles S. Protopsaltis, MD; Subaraman Ramchandran, MD; Jared C. Tishelman, BA; Justin S. Smith, MD; Daniel M. Sciubba, MD; Peter G. Passias, MD; Renaud Lafage; Eric O. Klineberg, MD; Virginie Lafage, PhD; Frank J. Schwab, MD; Douglas C. Burton, MD; Robert Shay Bess, MD; Christopher I. Shaffrey, MD; Frank J. Schwab, MD; Christopher P. Ames, MD; International Spine Study Group

8:45–8:50 am  Presentation #12
Assessment of Cervical Spine Deformity Flexibility Using Supine Advanced Imaging
Brandon P. Hirsch, MD; Nina Fisher, BS; Yosef Dastagirzada, BA; Jared C. Tishelman, BA; Themistocles S. Protopsaltis, MD

8:51–9:04 am  Discussion

9:05–9:35 am  Break  Exhibit Hall–Grand Ballroom

9:36–10:13 am  Session IV: Trauma
Moderators:  Kristen E. Radcliff, MD and Daniel M. Sciubba, MD

9:36–9:41 am  Presentation #13
The Role of CT Angiography in Changing Management in Patients with Cervical Fractures
Arash Emami, MD; Conor Dunn, MD; Jeffrey Moore, MD; Nancy Moontasri, MD; Kimona Issa, MD; Michael Faloon, MD; Kumar Sinha, MD; Ki Soo Hwang, MD

9:42–9:47 am  Presentation #14
Early vs. Delayed Reduction of Cervical Spine Dislocation with Complete Motor Paralysis – A Multicenter Study
Kosei Nagata, MD; Yasushi Oshima, MD, PhD; Hirotaka Chikuda, MD, PhD

9:48–9:53 am  Presentation #15
Cervical Spine Trauma in Children: Analysis of Changes in Incidence, Etiology, and Concurrent Injuries Among 11,323 Pediatric Patients Over a 10-Year Period
Gregory W. Poorman, BA; Bryan M. Beaubrun; Samantha R. Horn, BA; Bassel G. Diebo, MD; Shaleen Vira; Olivia Bono; John Moon; Charles Wang; Brandon P. Hirsch, MD; Jared C. Tishelman, BA; Peter L. Zhou; Michael C. Gerling, MD; Peter G. Passias, MD

9:54–9:59 am  Presentation #17
Incidence of Cervical Spine Injuries Sustained During Sporting Activities
J. Mason DePasse, MD; Wesley Durand, BS; Mark A. Palumbo, MD; Alan H. Daniels, MD

10:00–10:13 am  Discussion

10:14–10:18 am  Special Presentation

10:19–10:24 am  Introduction of Presidential Guest Speaker
Darrel S. Brodke, MD

Col. Lynn I. Scheel, USAF

11:16–11:25 am  Discussion

11:25 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: Medtronic: Prestige LP™ Cervical Disc System: Long Term Data, Two-Level Indication, and New Streamlined Instruments

11:30 am–1:30 pm Workshop 2: K2M: A 360 Review of Cervical Solutions featuring Balance™ ACS

11:30 am–1:30 pm Workshop 3: NuVasive: Cervical Alignment Matters™: Emerging Techniques to Restore Global Alignment with Computer-assisted Surgery

11:30 am–1:30 pm Workshop 4: Stryker: Evidence Based Biomaterials in Spine

11:30 am–1:30 pm Workshop 5: Zimmer Biomet: An Interactive Debate on Myelopathy in the Multilevel Cervical Patient: Motion Preservation, Fusion and Everything in Between

11:30 am–1:30 pm Workshop 6: Globus Medical Inc.: Laminectomy vs. Laminoplasty, A Retrospective Analysis on Outcomes

1:35–2:30 pm Symposium: How the Experts Deal with Adverse Events - Prevention, Identification and Management
Moderator: Darrel S. Brodke, MD
Panel - Paul A. Anderson, MD; Bradford L. Currier, MD; John G. Heller, MD; K. Daniel Riew, MD

2:17–2:30pm Discussion

2:31–2:51 pm Break

2:52–3:41 pm Session V: Anterior Surgery I
Moderators: Paul M. Arnold, MD and Mark L. Prasarn, MD

2:52–2:57 pm Presentation #18 Return to Play After Anterior Cervical Discectomy and Fusion in Professional Athletes
Robert G. Watkins IV, MD; David Chang, MD; Robert G. Watkins III, MD

2:58–3:03 pm Presentation #19 Does Local Intraoperative Corticosteroids Delivered in a Gel-Matrix Minimize Dysphagia Following Anterior Discectomy and Fusion (ACDF): A Preliminary Analysis of an Ongoing Double Blinded Randomize Controlled Trial (RCT)
Daniel H. Stein, BS; Han Jo Kim, MD; Darren R. Lebl, MD; Russel C. Huang, MD; Shari T. Jawetz, MD; Virginie Lafage, PhD; Okezie K. Aguwa, MD; Todd J. Albert, MD

3:04–3:09 pm Presentation #20 Preliminary Results: Cervical Degenerative Disc Disease and Subclinical Discitis: Cause or Contaminant?
Amit Bhandutia, MD; Luke Brown, MD, MBA; Eve Hoffman, MD; Eugene Koh, MD, PhD; Kelley Banagan, MD; Steven Ludwig, MD; Daniel Gelb, MD

Do-Yon Hwang, MD; Dong-Ho Lee, MD, PhD; Jae Hwan Cho, MD; Chang Ju Hwang, MD, PhD; Choon Sung Lee, MD, PhD; Sae Min Hwang, MD

3:16–3:21 pm Presentation #22 CT Scan: Always Necessary for the Preoperative Planning in the Cervical Spine Surgery?
Seungjin Choi, MD; Kyung-Soo Suk, MD; Hak-Sun Kim, MD; Seong-Hwan Moon, MD; Hwan-Mo Lee, MD; Jae-Ho Yang, MD; Michael Nelson Perez Lim, MD; Sung-Jin Park, MD; Adrian Alaras, MD

3:22–3:27 pm Presentation #23 Prevalence, Progression, Clinical Implications, and Risk Factors of Heterotopic Ossification After Cervical Total Disc Replacement at 7 Years
Pierce D. Nunley, MD; David A. Cavanaugh, MD; Eubulus J. Kerr III, MD; Phillip Andrew Utter, MD; Peter G. Campbell, MD; Kelly A. Frank, MS; Marcus B. Stone, PhD

3:28–3:41 pm Discussion

3:42–4:30 pm Session VI: Myelopathy II
Moderators: Themistocles S. Protopsaltis, MD and Masatoshi Sumi, MD, PhD

3:42–3:47 pm Presentation #24 Comparison of Anterior and Posterior Surgery for Degenerative Cervical Myelopathy – An MRI-Based Propensity Score-Matched Analysis Using Data from the Prospective Multicenter AOSpine CSM North America and International Studies
So Kato, MD; Aria Nouri, MD, MSc; Dongjin Wu, MD; Satoshi Nori, MD, PhD; Michael G. Fehlings, MD, PhD
Narihito Nagoshi, MD, PhD; Akio Iwanami, MD, PhD; Norihiro Isogai, MD; Masayuki Ishikawa, MD, PhD; Kenya Nojiri, MD, PhD; Nobuyuki Fujita, MD, PhD; Mitsuru Yagi, MD, PhD; Kota Watanabe, MD, PhD; Takashi Tsuji, MD, PhD; Kenshi Daimon, MD; Ken Ishii, MD, PhD; Masaya Nakamura, MD, PhD; Morio Matsumoto, MD, PhD; Junichi Yamane, MD, PhD

3:54–3:59 pm  Presentation #26  A Comparative Study for Cervical Spondylotic Myelopathy with One- or Two-Level Lesions – Anterior Cervical Disectomy with Fusion vs. Selective Laminoplasty  
Kenichiro Sakai, MD, PhD; Toshitaka Yoshii, MD, PhD; Hitoshi Kono, MD, PhD; Tokunaga Shigeyuki, MD, PhD; Satoshi Suzuki, MD, PhD; Hitoshi Watanabe, MD, PhD; Norihiro Isogai, MD; Satoshi Suzuki, MD, PhD; Yoshiomi Kobayashi, MD, PhD; Ken Ishii, MD; Masaya Nakamura, MD; Morio Matsumoto, MD; Narihito Nagoshi, MD

4:00–4:05 pm  Presentation #27  Comparison of Surgical Outcomes Between Open-Door, Double-Door Laminoplasty, and Selective Lamincotomy with Muscle Preservation for Cervical Spondylotic Myelopathy: A Multicenter Study of 881 Cases  
Junichi Yamane, MD, PhD; Akio Iwanami, MD; Hitoshi Kono, MD; Tokunaga Shigeyuki, MD, PhD; Mitsuru Yagi, MD, PhD; Nobuyuki Fujita; Kota Watanabe, MD, PhD; Norihiro Isogai, MD; Satoshi Suzuki, MD, PhD; Yoshiomi Kobayashi, MD, PhD; Ken Ishii, MD; Masaya Nakamura, MD; Morio Matsumoto, MD; Narihito Nagoshi, MD

2nd Place Resident/Fellow Research Award Winner

4:06–4:11 pm  Presentation #28  Investigating the Utility of Intra-Operative Neurophysiological Monitoring for Anterior Cervical Discectomy and Fusion: Analysis of Over 140,000 Cases from a National Inpatient Dataset  
Jetan H. Badhiwala, MD; Farshad Nassiri, MD; Christopher D. Witiw, MD, MSc; Alireza Mansouri, MD, MSc; Saleh A. Almenawer, MD, MSc; Leodante da Costa, MD, MSc; Michael G. Fehlings, MD, PhD; Jefferson R. Wilson, MD, PhD

3rd Place Resident/Fellow Research Award Winner

4:12–4:17 pm  Presentation #29  Comparison of Preoperative and Postoperative Cervical Lordosis in Patients Undergoing Cervical Laminoplasty - Effect of C3 Laminectomy  
Philip M. Sinatra, MD; Colleen Peters, MA; Steven J. McAnany, MD; Michael P. Kelly, MD; Lukas P. Zebala, MD

4:18–4:30 pm  Discussion

4:30-6:30 pm  Welcome Reception

Welcome Reception

Exhibit Hall–Grand Ballroom

Friday, Dec 1, 2017
Regency Ballroom

7:00–7:10 am  Welcome and Announcements  
Louis G. Jenis, MD

7:11–7:54 am  Session VII: Posterior Surgery  
Moderators: James S. Harrop, MD, FAANS and Clifford B. Tribus, MD

7:11–7:16 am  Presentation #30  A Comparative Study Between Two Types of Cervical Laminoplasty on the Deep-Extensor Volume and Axial Neck Pain-Minimum Two-Year Follow-Up Results  
Feifei Zhou, MD; Yu Sun, MD

7:17–7:22 am  Presentation #31  The Correlation Between Cervical Alignment and Posterior Cervical Muscle Fatty Infiltration at Baseline in Cervical Deformity Patients  
Peter G. Passias, MD; Colleen Peters, MA; Steven J. McAnany, MD; Michael P. Kelly, MD; Lukas P. Zebala, MD

7:23–7:28 am  Presentation #32  Increase in Cervical Lordosis Decreases Postoperative Neck Pain After Laminectomy and Fusion  
Anthony M. DiGiorgio, DO, MHA; Darryl Lau, MD; Ethan A. Winkler, MD, PhD; Khoi Than, MD; Andrew Chan, MD; Dean Chou, MD; Praveen V. Mummaneni, MD

7:29–7:34 am  Presentation #33  A Prospective Cohort Study of Postoperative Spinal Epidural Hematoma After Cervical Laminoplasty  
Kenichiro Sakai, MD, PhD; Toshitaka Yoshii, MD, PhD; Atsuyuki Kawabata, MD; Yu Matsukura; Tsuyoshi Yamada, MD, PhD; Takashi Hirai, MD, PhD; Yoshiyasu Arai, MD, PhD; Astushi Okawa, MD, PhD
7:35–7:40 am  
Presentation #34  
Long-Term Fate of C3-7 Arthrodesis: 4-Level ACDF vs. Cervical Laminectomy and Fusion  
Colin W. Niezgoda, PA; John K. Houten, MD, FAANS

7:41–7:54 am  
Discussion

7:55–8:00 am  
Presentation #35  
Moderators:  
What is a Right Distal Fusion Level for Prevention of Sagittal Imbalance in Multilevel Posterior Cervical Spine Surgery; C7 or T1?  
Seungjin Choi, MD; Kyung-Sooh Suk, MD; Hak-Sun Kim, MD; Hwan-Mo Lee, MD; Seong-Hwan Moon, MD; Jae-Ho Yang, MD; Michael Lim, MD; Sung-Jin Park, MD; Adrian, Alaras, MD

8:01–8:06 am  
Presentation #36  
Moderators:  
3rd Place Clinical Research Award Winner  
Distal Junctional Kyphosis (DJK) After Cervical Deformity Surgery: Analysis with in-Construct Measurements  
Themistocles S. Protopsaltis, MD; Jared C. Tishelman, BA; Subaraman Ramchandran, MD; Renaud Lafage, Justin S. Smith, MD; Han Jo Kim, MD; Peter G. Passias, MD; Gregory M. Mundis, MD; D. Kojo Hamilton, Munish C. Gupta, MD; Robert A. Hart, MD; Robert Shay Bess, MD; Christopher I. Shaffrey, MD; Christopher P. Ames, MD; International Spine Study Group

8:07–8:12 am  
Presentation #37  
Peter G. Passias, MD; Gregory W. Poorman, BA; Virginie Lafage, PhD; Justin Smith, MD; Christopher P. Ames, MD; Frank J. Schwab, MD; Christopher I. Shaffrey, MD; Samantha R. Horn, BA; Charles Wang, BA; Robert Hart, MD; Douglas C. Burton, MD; Renaud Lafage; Robert Shay Bess, MD; Daniel M. Sciubba, MD; International Spine Study Group

8:13–8:18 am  
Presentation #38  
High C2-T3 Sagittal Imbalance is an Independent Predictor of Recurrent Proximal Junctional Kyphosis  
Shan-Jin Wan; Okezie K. Agwu, MD; Christopher I. Shaffrey, MD; Gregory M. Mundis, MD; Richard A. Hostin, Douglas C. Burton, MD; Christopher P. Ames, MD; Eric O. Klineberg, MD; Renaud Lafage, Justin S. Smith, MD; Peter G. Passias, MD; Frank J. Schwab, MD; Virginie Lafage, PhD; Han Jo Kim, MD; International Spine Study Group

8:19–8:24 am  
Presentation #39  
Improvement in Ames- ISSG Cervical Deformity Classification Modifier Grades Correlate to Clinical Improvement and Likelihood of Reaching Mcid in Multiple Metrics: Series of 73 Patients with 1-Year Follow-Up  
Samantha R. Horn, BA; Peter G. Passias, MD; Renaud Lafage; Justin S. Smith MD; Gregory W. Poorman, BA; Bassel G. Diebo, MD; Christopher I. Shaffrey, MD; Daniel M. Sciubba, MD; Eric O. Klineberg, MD; Themistocles S. Protopsaltis, MD; Frank J. Schwab, MD; Robert Shay Bess, MD; Virginie Lafage, PhD; Christopher P. Ames, MD; International Spine Study Group

8:25–8:38 am  
Discussion

8:39–8:47 am  
2017 CSRS European Traveling Fellowship Report  
Ahmad Nassr, MD

8:48–8:53 am  
Preview CSRS 2018 Annual Meeting in Scottsdale, AZ  
TBD

8:54–8:59 am  
Preview CSRS Asia Pacific Section 2018 Annual Meeting in New Delhi, India  
Kuniyoshi Abumi, MD

9:00–9:05 am  
Preview CSRS European Section 2018 Annual Meeting in Lisbon, Portugal  
Ronald H M A Bartels, MD, PhD

9:06–9:36 am  
BREAK  
Exhibit Hall–Grand Ballroom

9:37–10:39 am  
Session IX: HIGHLIGHT POSTER PRESENTATIONS  
Moderators:  
Ahmad Nassr, MD and John M. Rhee, MD

9:37–9:39 am  
Presentation #40  
Diagnostics/Imaging  
Increased Signal Intensity of the Spinal Cord on T2-Weighted Magnetic Resonance Images and Correlation with Cervical Sagittal Alignment and the Severity of Spinal Cord Compression  
Bang-Ping Qian, MD; Ji-Chen Huang, MD; Xin-Kun Cheng, MD; Yong Qiu, MD; Yang Yu, MD
9:40–9:42 am Presentation #41
Congenital Cervical Spine Stenosis in a Global Cohort of Patients with Degenerative Cervical Myelopathy: A Report Based on a MRI Diagnostic Criterion
Aria Nouri, MD, MSc; Allan Martin, MD; Satoshi Nori, MD; Michael G. Fehlings, MD, PhD

9:43–9:45 am Presentation #42
Best Clinical Poster Award Winner
A 20-Year Prospective Longitudinal Study on Degeneration of the Cervical Spine Using MRI in Volunteers
Kenshi Daimon, MD; Hirokazu Fujiwara, MD, PhD; Yuji Nishiwaki, MD, PhD; Eijiro Okada, MD, PhD; Kenya Nogiri, MD, PhD; Masahiko Watanabe, MD, PhD; Hiroyuki Katoh, MD, PhD; Kentaro Shimizu, MD, PhD; Hiroko Ishihama, MD; Nobuyuki Fujita, MD, PhD; Takashi Tsuji, MD, PhD; Masaya Nakamura, MD, PhD; Morio Matsumoto, MD, PhD; Kota Watanabe, MD, PhD

9:46–9:48 am Presentation #43
Does the Sagittal Alignment of the Cervical Spine Have an Impact on Disc Degeneration? 20-Year Follow-Up of Asymptomatic Volunteers
Eijiro Okada, MD, PhD; Kenshi Daimon, MD; Hirokazu Fujiwara, MD, PhD; Yuji Nishiwaki, MD, PhD; Kenya Nogiri, MD, PhD; Masahiko Watanabe, MD, PhD; Hiroyuki Katoh, MD, PhD; Kentaro Shimizu, MD, PhD; Hiroko Ishihama, MD; Nobuyuki Fujita, MD, PhD; Takashi Tsuji, MD, PhD; Masaya Nakamura, MD, PhD; Morio Matsumoto, MD, PhD; Kota Watanabe, MD, PhD

9:49–9:51 am Presentation #44
The Many Faces of the Japanese Orthopedic Association (JOA) Score: An Outcome Measure with Face Validity for Assessment of Patients with Cervical Spondylotic Myelopathy
Julio C. Furlan, MD, MBA, MSc, PhD, FRCP; B. Catharine Craven, BA, MD, MSc, FRCP

9:52–9:57 am Discussion

9:58–10:00 am Presentation #45
Surgical Techniques
The Effectiveness of Local Autogenous Bone Dust as an Implantation Filler in Anterior Cervical Discectomy and Fusion
Sae Min Hwang, MD; Dong-Ho Lee, MD, PhD; Jae Hwan Cho, MD; Chang Ju Hwang, MD, PhD; Choon Sung Lee, MD, PhD; Do-yon Hwang, MD; Sung Hoo Kim, MD

10:01–10:03 am Presentation #46
Safety and Efficacy of a Novel Anterior Decompression Technique (Vertebral Body Sliding Osteotomy) for Ossification of Posterior Longitudinal Ligament of the Cervical Spine
Chul Gie Hong, MD; Jae Hwan Cho, MD; Chang Ju Hwang, MD, PhD; Choon Sung Lee, MD, PhD; Jung-Ki Ha, MD; Dong-Ho Lee, MD

10:04–10:06 am Presentation #47
Dose Additional Uncinate Resection Increase Pseudarthrosis Following Anterior Cervical Discectomy and Fusion?
Jong-Min Baik, MD; Jae Hwan Cho, MD; Youn-Suk Joo, MD; Chang Ju Hwang, MD; Choon Sung Lee, MD, PhD; Dong-Ho Lee, MD

10:07–10:09 am Presentation #48
Best Basic Science Poster Award Winner
Sulfated Glycopeptide Nanostructures Scaffold for Spinal Arthrodesis
Gurmit Singh, BS; Sungsoo S. Lee, PhD; Timmy Fymer, PhD; Mark T. McClendon, PhD; Andrew D. Schneider, MD; Karina M. Katchko, BS; Danielle S. Chun, MD; Joseph A. Weiner, BS; Ralph W. Cook, BS; Sameer Singh, BS; Soyoen Jeong, MS; Chawon Yun, PhD; Samuel I. Stupp, PhD; Erin L. Hsu, MD; Wellington K. Hsu, MD

10:10–10:12 am Presentation #49
Surgical Site Drains and Postoperative Complications Following Posterior Cervical Spine Surgery: A Multicenter Retrospective Study
Daniel B. Herrick; Joseph E. Tennenbaum; Marc Mankarious; Sagar Vallabh; Eitan Fleischman; Swamy Kurra, MBBS; Shane M. Burke, MD; Marie Roguski, MD; Thomas E. Mroz, MD; William F. Lavelle, MD; Jeffrey E. Florman, MD; Ron I. Riesenburger, MD

10:13–10:18 am Discussion

10:19–10:21 am Presentation #50
Healthcare Economics/Value
Cost-Utility Analysis of Cervical Deformity Surgeries Using One-Year Outcome
Gregory W. Poorman, BA; Peter G. Passias, MD; Rabia Qureshi, BS; Hamid Hassanzadeh, MD; Michael P. Kelly, MD; Richard A. Hostin, MD; Christopher P. Ames, MD; Justin S. Smith, MD; Virginie LaFage, PhD; Douglas C. Burton, MD; Robert Shay Bess, MD; Christopher I. Shaffrey, MD; Frank J. Schwab, MD; Munish C. Gupta, MD; International Spine Study Group

10:22–10:24 am Presentation #51
Preparing for Bundled Payments in Cervical Spine Surgery: Do We Understand the Influence of Patient, Hospital, and Procedural Factors on the Cost and Length of Stay?
Andrew J. Pugely, MD; Cameron Barton, MD; Comron Saifi, MD; Yubo Gao, PhD
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<td>10:25–10:27 am</td>
<td>Presentation #52</td>
<td>What are the Costs of Cervical Radiculopathy in the Year Prior to Anterior Cervical Discectomy and Fusion? Cameron Barton, MD; Nicholas Bedard, MD; Comron Saifi, MD; Andrew J Pugely, MD</td>
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<td>10:28–10:30 am</td>
<td>Presentation #53</td>
<td>Reimbursement and Charges Related to a 90-Day Episode of Care for a One- Or Two-Level Anterior Cervical Discectomy and Fusion Sohrab S. Virk, MD, MBA; Frank M. Phillips, MD; Nikhil Jain, MD; Safdar N. Khan, MD</td>
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<td>10:31–10:33 am</td>
<td>Presentation #54</td>
<td>The Medico-Legal Landscape of Spine Surgery: How Do Surgeons Fare? Melvin C. Makhni, MD, MBA; Paul J. Park, MD; Comron S. Saifi, MD; Jon-Michael Caldwell, MD; Alex Ha, MD; Ronald A. Lehman Jr., MD; Mark Weidenbaum, MD</td>
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<td>10:34–10:39 am</td>
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1:12-1:17 pm  Presentation #61  Risk Factor Analysis of Postoperative Subaxial Cervical Alignment Change Following Upper Cervical Fixation  
Jae Taek Hong, MD, PhD

1:17-1:22 pm  Presentation #62  The Risk Factor Analysis of Change of Intraoperative Neurophysiologic Monitoring During Cervical Open-Door Laminoplasty  
Sanghyun Han, MD; Seung-Jae Hyun, MD, PhD; Ki-Jeong Kim, MD, PhD; Kyung Seok Park, MD, PhD

1:23-1:28 pm  Presentation #63  What is the Best Available Patient-Reported Outcome Measure for Dysphagia in Cervical Spine Surgery? A Comparison of the Eating Assessment Tool (Eat-10) and Swal-Qol  
Tyler J. Jenkins, MD; Surabhi Bhatt, BS; Kern Singh, MD; Wellington K. Hsu, MD; Alpesh A. Patel, MD

1:29-1:34 pm  Presentation #64  Etiology and Surgical Strategies of Reoperation After Cervical Laminoplasty  
Yanbin Zhao, MD; Yu Sun, MD

1:35–1:40 pm  Presentation #65  Prevention of Pseudoarthrosis in Multilevel ACDF with Individual Level Plate Fixation vs. Single Long Plate  
Richard A. Hynes, MD: Devin K. Datta, MD

1:41-1:53 pm  Discussion

1:54-2:04 pm  Special Projects Committee Report  
Jeffrey A. Rihn, MD

2:05-3:11 pm  Session XII: RESEARCH SESSION  
Moderators: Zoher Ghogawala, MD, FACS

Announcement—2017 Research Grant Winners

2:16–2:17 pm  Introduction—Research Grant Updates

2:18–2:23 pm  2016 Medtronic  
Analysis of the Human Serum Proteome in Cervical Radiculopathy Patients to Predict Who Will Fail Conservative Treatment and Require Surgery  
Steven M. Presciutti, MD

Does Psychological Distress Impact the Clinical Outcomes in Patients Undergoing Cervical Spine Surgery, and Should We Intervene? A Prospective, Blind and Placebo-Controlled Trial  
Peter G. Passias, MD

2:30–2:35 pm  2016 CSRS 21st Century Research and Education Grants  
Resveratrol as a Therapeutic to Reverse the Adverse Effects of Cigarette Smoke on Bone  
Wellington K. Hsu, MD

2:36–2:41 pm  Exploration for Novel Molecular Biomarkers of Acute Spinal Cord Injury  
Masao Koda, MD

2:42–2:47 pm  2016 Seed Starter Grants  
Loss of Range of Motion Following Cervical Fusion: Effect on Activities of Daily Living Kinematics and Patient Satisfaction  
Kevin M. Bell, PhD

Evaluation of Gait Recovery and Energy Expenditure Following Decompression and Stabilization for Cervical Spondylotic Myelopathy  
Hamid Hassanzadeh, MD

2:54–3:11 pm  Discussion

3:11 pm  Adjourn

Saturday, Dec 2, 2017

7:00–7:05 am  Welcome and Announcements  
Louis G. Jenis, MD
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<th>Time</th>
<th>Session Title</th>
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<tr>
<td>7:06–7:49 am</td>
<td>Session XIII: Anterior Surgery II                                                                  Kazuhiro Chiba, MD, PhD and Timothy A. Garvey, MD</td>
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<td>Moderators:</td>
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<td>7:06–7:11 am</td>
<td>1st Place Clinical Research Award Winner</td>
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<tr>
<td>Presentation #66</td>
<td>The Real Costs of ACDF: A Time-Driven Activity-Based Costing Analysis</td>
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<tr>
<td>Gregory D. Schroeder, MD</td>
<td>Alan S. Hiliibrand, MD; Christopher K. Kepler, MD, MBA; Kristen J. Nicholson, PhD; Christie Stawicki, BS; Jonathan Paul, BS; Priyanka Kumar, BS; Douglas Hollem, MD; Hamadi Murphy, MD, Mark F. Kurd, MD, Barret I. Woods, MD, Kristen E. Radcliff, MD; D. Greg Anderson MD; Alexander R. Vaccaro, MD, PhD, MBA; Jeffery A. Rihn MD</td>
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<tr>
<td>7:12–7:17 am</td>
<td>1st Place Fellow Research Award Winner</td>
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<tr>
<td>Presentation #67</td>
<td>Favorable Prognosis for Significant Preoperative Upper Extremity Weakness Following Elective Anterior Cervical Discectomy and Fusion</td>
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<td>Arjun S. Sebastian, MD</td>
<td>Scott C. Wagner, MD; Patrick B. Morrissey, MD; Ian D. Kaye, MD; Alan S. Hiliibrand, MD; Alexander Vaccaro, MD, PhD, MBA; Christopher K. Kepler, MD MBA</td>
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<tr>
<td>7:18–7:23 am</td>
<td>Comparison of Neck Pain and Complications of Stand-Alone vs. Conventional Plate and Interbody Fusion</td>
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<td>Presentation #68</td>
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<td>7:24–7:29 am</td>
<td>Is Two-Level Cervical Disc Replacement More Cost-Effective than Anterior Cervical Discectomy and Fusion at 7-Years?</td>
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<td>Presentation #69</td>
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<tr>
<td>7:29–7:35 am</td>
<td>Impact of Body Mass Index on Surgical Outcomes, Narcotic Consumption, and Costs Following Anterior Cervical Discectomy and Fusion</td>
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<td>Presentation #70</td>
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<td>7:36–7:49 am</td>
<td>Discussion</td>
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<tr>
<td>7:50–8:45 am</td>
<td>Symposium: Eight Unique Tips and Pearls for Cervical Spine Surgeons</td>
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<td>Moderator:</td>
<td>Louis G. Jenis, MD</td>
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<td>Panel – Frank J. Eismont, MD; Jeffrey S. Fischgrund, MD; Robert F. Heary, MD; Rick Sasso, MD; Christopher I. Shaffrey, MD; Alexander R. Vaccaro, MD, PhD, MBA; Jeffrey C. Wang, MD; Thomas A. Zdeblick MD</td>
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<td>8:33–8:45 am</td>
<td>Discussion</td>
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<td>8:50–9:33 am</td>
<td>Session XIV: Outcomes</td>
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<td>Moderators:</td>
<td>Bruce V. Darden II, MD and R. Alden Milam, IV, MD</td>
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<tr>
<td>8:50–8:55 am</td>
<td>Clinical and Radiographic Outcomes of Patients with Cervical Deformity Secondary to Thoracolumbar Proximal Juncional Kyphosis</td>
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<td>Presentation #71</td>
<td>Peter G. Passias, MD; Samantha R. Horn, BA; Gregory W. Poorman, BA; Alan H. Daniels, MD; D. Kojo Hamilton, MD; Daniel M. Sciubba, MD; Justin S. Smith, MD; Christopher I. Shaffrey, MD; Renaud Lafage, MS; Virginie Lafage, PhD; Christopher P. Ames, MD; Gregory Mundis, MD; Robert Eastlack, MD; Frank J. Schwab, MD; International Spine Study Group</td>
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<td>8:56–9:01 am</td>
<td>The Relationship Between Improvements in Myelopathy and Sagittal Realignment in Cervical Deformity Surgery</td>
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<td>Presentation #72</td>
<td>Brian J. Neuman, MD</td>
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<td>Peter G. Passias, MD; Samantha R. Horn, BA; Subaraman Ramchandran, MD; Douglas C. Burton, MD; Themistocles S. Protopsaltis, MD; Renaud Lafage; Virginie Lafage, PhD; Gregory W. Poorman, BA; Justin S. Smith, MD; Christopher P. Ames, MD; Christopher I. Shaffrey, MD; Han Jo Kim, MD; Alexandra Soroceaneu, MD; Eric O. Klineberg, MD; International Spine Study Group</td>
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<td>9:02–9:07 am</td>
<td>Cost-Effectiveness Analysis of Intraoperative Corticosteroid Administration in Anterior Cervical Discectomy and Fusion for Degenerative Disease</td>
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<td>Presentation #73</td>
<td>Juneyoung L. Yi, MD; Brandon K. Bellows, PharmD, MD; Tyler J. Jenkins, MD; Alpesh A. Patel, MD; Erica F. Bisson, MD, MPH</td>
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<td>9:08–9:13 am</td>
<td>Is There a Preoperative Morphine Equianalgesic Dose that Predicts Ability to Achieve a Clinically Meaningful Improvement Following Spine Surgery?</td>
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<td>Presentation #74</td>
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<td>9:14–9:19 am</td>
<td>Presentation #75: The Natural History of Acute Cervical Radicular Pain</td>
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<td>9:20–9:33 am</td>
<td>Discussion</td>
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<td>9:34–9:38 am</td>
<td>Announcement of Poster Award Winners</td>
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<td>9:39–9:44 am</td>
<td>Presentation of CSRS Medallion to Jeffrey C. Wang, MD</td>
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<td>9:45–10:00 am</td>
<td>Break</td>
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<tr>
<td>10:01–10:06 am</td>
<td>Session XV: Surgical Outcomes</td>
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<td>10:07–10:12 am</td>
<td>2nd Place Clinical Research Award Winner</td>
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<tr>
<td>10:13–10:18 am</td>
<td>Presentation #76: The Impact Of Local Steroid Application on Dysphagia Following an Anterior Cervical Discectomy and Fusion: Preliminary Results of a Prospectively, Randomized, Single Blind Trial</td>
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<td>10:19–10:24 am</td>
<td>Presentation #77: Do Cervical Spine Surgery Patients Recall Their Preoperative Status? A Cohort Study of Recall Bias in Patient-Reported Outcomes</td>
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<td>10:25–10:30 am</td>
<td>Presentation #78: The Impact of Preoperative Depression on Hospital Consumer Assessment of Healthcare Providers and Systems (Hcahps) Survey Results in a Cervical Spine Surgery Setting</td>
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<td>10:31–10:44 am</td>
<td>Discussion</td>
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<td>10:45–11:00 am</td>
<td>Session XVI: HIGHLIGHT POSTERS II</td>
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<td>10:45–10:47 am</td>
<td>Presentation #81: DEFORMITY</td>
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<td>10:48–10:50 am</td>
<td>Presentation #82: Predictive Model for Distal Junctional Kyphosis After Cervical Deformity Surgery</td>
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<td>10:51–10:53 am</td>
<td>Presentation #83: Identifying Sources of Improvement of Axial Pain in Corrective Cervical Deformity Surgery</td>
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**Moderators:**
- Michael D. Daubs, MD and Michael G. Fehlings, MD
- Joseph B. Wick, BA; Ahilan Sivaganesan, MD; Silky Chotai, MD; Kristin R. Archer, PhD, DPT; Samuel L. Posey, BS; Parker T. Evans, BS; Joel R. Campbell, MD; Clinton J. Devin, MD

**Identifying Sources**
- Peter G. Passias, MD; Benjamin Abramoff, MD; Laura Ward, Jacob Lee, DO; Marly Dows-Martinez, S. Tim Yoon, MD, PhD
10:54–10:56 am  
Presentation #84  
Sagittal Alignment Parameters Associated with Adjacent Segment Pathology After Anterior Cervical Discectomy and Fusion  
Justin C. Paul, MD; Bryce A. Basques, MD; Philip K. Louie, MD; Arya Varthi, MD; Jonathan Markowitz, BS; Steve Heidt, BS; Sumender Sharma, MD; Edward J. Goldberg, MD; Howard S. An, MD

10:57–10:59 am  
Presentation #85  
Predictive Model for Achieving a Good Overall Outcome at One-Year Following Surgical Correction of Adult Cervical Deformity  
Alan H. Daniels, MD  
Peter G. Passias, MD; Cheongeun Oh, PhD; Samantha R. Horn, BA; Gregory W. Poorman, BA; Renaud Lafage, MS; Bassel G. Diebo, MD; Justin K. Scheer, MD; Justin S. Smith MD; Christopher I. Shaffrey, MD; Themistocles S. Protopsaltis, MD; Han Jo Kim, MD; Robert A. Hart MD; Virginie Lafage, PhD; Christopher P. Ames, MD; International Spine Study Group

11:00–11:13 am  
Discussion

11:14–11:16 am  
Presentation #86  
The Relationship Between MRI Signal Intensity Changes, Clinical Presentation, and Surgical Outcome in Degenerative Cervical Myelopathy: Analysis of a Global Cohort  
Aria Nouri, MD, MSc; Allan Martin, MD; So Kato, MD; Lauren Riehm; Michael G. Fehlings, MD, PhD

11:17–11:19 am  
Presentation #87  
Correlation of Radiographic Outcomes and Quality of Life for Multilevel Cervical Spondylotic Myelopathy  
Heath Patrick Gould, MD; Kelsey C. Goon, BS; Emily Hu, BA; Joseph E. Tanenbaum; BA; Colin Haines, MD; Don K. Moore, MD; Thomas E. Mroz, MD

11:20–11:22 am  
Presentation #88  
Brain Changes in Functional Connectivity and Anatomy in Patients with Cervical Myelopathy: A Resting-State Functional MRI Study  
Junichi Kushioka, MD; Takashi Kaito, MD, PhD; Shota Takenaka, MD, PhD; Takahiro Makino, MD, MSc; Yusuke Sakai; Hisashi Tanaka, MD; Yoshiyuki Watanabe, MD; Shigeyuki Kan, Masahiko Shibata, MD, PhD

11:23–11:25 am  
Presentation #89  
Monitoring for Myelopathic Progression with Multiparametric Quantitative MRI  
Allan R. Martin, MD; Benjamin De Leener; Julien Cohen-Adad; Sukhinder Kalsi-Ryan, BSc PT, MSc, PhD; David W. Cadotte, MD; Jefferson R. Wilson, FRCS, MD, PhD; Aria Nouri, MD, MSc; David J. Mikulis, MD; Howard Ginsberg, MD; Eric M. Massicotte, MD; Michael G. Fehlings, MD, PhD

11:26–11:28 am  
Presentation #90  
Brain Connectivity Can be a Novel Predictor for Neurological Improvement in Patients with Cervical Myelopathy  
Takashi Kaito, MD, PhD; Shota 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

11:29–11:42 am  
Discussion

11:43–11:45 am  
Presentation #91  
Risk Factors for Inpatient Morbidity and Mortality After One- and Two-Level ACDF  
Ashley Rogerson, MD; Jessica Aidlen, MD; Andrew Mason, MS; Ayal Pierce, BS; David Tybor, PhD; Matthew Salzter, MD

11:46–11:48 am  
Presentation #92  
Bleeding vs. Clotting Complications After Cervical Spine Surgery: An Analysis of 207,794 Patients  
Haroutioun H. Boyajian, MD; Olumuyiwa A. Iidoru, BA; William P. Mosenthal, MD; Edwin Ramos, MD; Lewis L. Shi, MD; Michael J. Lee, MD

11:49–11:51 am  
Presentation #93  
Does Screw Density Affect the Revision Rate of a Multilevel Posterior Cervical Decompression and Fusion  
Gregory D. Schroeder, MD; Christopher K. Kepler, MD, MBA; Kristen J. Nicholson, PhD; Mark F. Kurf, MD; Alan S. Hillbrand, MD; Loren Mead, BS; Brittany Moliver, BS; Hamadi Murphy, MD; Barret I. Woods, MD, Kristen E. Radcliff, MD; Jeffery A. Rihn, MD, D. Greg Anderson, MD; Alexander R. Vaccaro, MD, PhD, MBA

11:52–11:54 am  
Presentation #94  
Neurological Complications and Recovery Rates in Adult Cervical Deformity Surgery  
Han Jo Kim, MD; Hongda Bao, MD; Christopher I. Shaffrey, MD; Justin S. Smith, MD; Michael P. Kelly, MD; Munish Gupta, MD; Todd J. Albert, MD; Themistocles S. Protopsaltis, MD; Gregory M. Mundis, MD; Peter G. Passias, MD; Eric O. Klineberg, MD; Virginie Lafage, PhD; Christopher P. Ames, MD; International Spine Study Group
11:55–11:57 am  Presentation #95  The Rothman Index as a Predictor of Post-Discharge Adverse Events After Elective Spine Surgery  
Ryan P. McLynn, BS; Jonathan J. Cui, BS; Nathaniel T. Ondeck, BS; David R. Swanson, MS; Blake N. Shultz, BA; Patawut Bovonratwet, BS; Arya Varthi, MD; Jonathan N. Grauer, MD

11:58–12:11 pm  Discussion

12:12–12:13 pm  Closing Remarks  
Louis G. Jenis, MD

12:14 pm  Adjourning Notices  
Jeffrey C. Wang, MD