



CSRS 41st Annual Meeting
December 5-7, 2013
Century Plaza Hyatt Regency Hotel
Los Angeles, CA

Program Chairs – John M. Rhee, MD and
 Justin S. Smith, MD, PhD
 President – K. Daniel Riew, MD

Revised 10-09-2013

Thursday, Dec 5, 2013
Los Angeles Ballroom

7:00–7:10 am	Welcome and Announcements <i>John M. Rhee, MD and Justin S. Smith, MD, PhD</i>
Session I <i>Moderators:</i>	COMPLICATIONS I <i>Jeffrey S. Fischgrund, MD and Eeric Truumees, MD</i>
7:11–7:17 am Paper #1	Complications and Mortality Associated with Cervical Spine Surgery: The Impact of Race and Ethnicity <i>Richard L. Skolasky, Jr., ScD; Roland J. Thorpe, PhD; Stephen T. Wegener, PhD; Lee H. Riley, III, MD</i>
7:18–7:24 am Paper #2	Post-Operative Hematoma after Anterior Cervical Spine Surgery: Risk Factors and Outcomes <i>Kevin R. O'Neill, MD, MS; Brian Neuman, MD; Colleen Peters, MA; K. Daniel Riew, MD</i>
7:25–7:31 am Paper #3	The Incidence and Mortality Associated with Reintubations following Anterior Cervical Fusion <i>Alejandro Marquez-Lara, MD; Steven J. Fineberg, MD; Sreeharsha V. Nandyala, BA; Miguel Pelton, BS; Alpesh A. Patel, MD, FACS; Kern Singh, MD</i>
7:32–7:38 am Paper #4	Esophageal Perforation following Anterior Cervical Surgery <i>K. Daniel Riew, MD; Bradley Riew, Jong-Beom Park, MD, PhD; Todd Albert, MD; Alexande R. Vaccaro, MD, PhD; Ahmad Nassr, MD; Bradford Currier, MD; Paul A. Anderson, MD; Do-Heum Yoon, MD; Paul M. Arnold, MD, FAANS, FACS; Ziya Gokaslan, MD; Sang-Hun Lee, MD; Mark Kurd, MD; Frank M. Phillips, MD; Joon Lee, MD; James D. Kang, MD; Rick C. Sasso, MD; Neill M. Wright, MD; Christopher I. Shaffrey, MD; Vincent C. Traynelis, MD; Michael P. Kelly, MD; Darrel S. Brodke, MD; John G. Heller, MD; John M. Rhee, MD; Alan S. Hilibrand, MD; Howard An, MD; Alexander C. Ching, MD; Robert A. Hart, MD; Jung U. Yoo, MD; Michael G. Fehlings, MD, PhD, FRCSC, FACS; Justin S. Smith, MD, PhD; Sang-Hyun Kim, MD</i>
7:39–7:49 am	Discussion
Session II <i>Moderators:</i>	ARTHROPLASTY <i>Neill M. Wright, MD and Kyung-Jin Song, MD</i>
7:50–7:56 am Paper #5	Clinical and Radiographic Analysis of an Artificial Cervical Disc: Seven-Year Clinical and Radiographic Outcomes from a Prospective Randomized Controlled Clinical Trial <i>Vincent C. Traynelis, MD; Praveen Mummaneni, MD; J. Kenneth Burkus, MD; Regis Haid, MD</i>
7:57–8:03 am Paper #6	Costs of Cervical Disc Replacement versus Anterior Cervical Discectomy and Fusion for Treatment of Single-Level Cervical Disc Disease: An Analysis of the Blue Health Intelligence Database for Acute and Long-Term Costs and Complications <i>Kristen E. Radcliff, MD; Jeffrey D. Zigler, JD; Jack E. Zigler, MD</i>
8:04–8:10 am Paper #7	Acute Complications following ACDF and TDA for Cervical Degenerative Disease: An Analysis of 77,318 Cases <i>Michael P. Kelly, MD; Claire Eliasberg, BA; Ronald A. Lehman, MD; Wilson Zack Ray, MD; Lukas P. Zebala, MD; Nelson Soohoo, MD</i>
8:11–8:17 am Paper #8	Revision Strategies in Cervical Disc Arthroplasty Failures <i>Ronald A. Lehman, MD; Daniel G. Kang, MD; K. Daniel Riew, MD</i>

8:18–8:28 am	Discussion
Session III <i>Moderators:</i>	OCCIPITOCERVICAL Sanford E. Emery, MD, MBA and Howard S. An, MD
8:29–8:35 am Paper #9	Atlantoaxial Instability in Os Odontoideum: Etiology, Presentation, Surgical Treatment and Outcomes in a Series Of 279 Cases <i>Deng Zhao, MD; Peter G. Passias, MD; Shenglin Wang, MD; Chao Wang, MD</i>
8:36–8:42 am Paper #10	Risk of Odontoid Fracture is Directly Correlated to the Presence of Intraosseous Cyst Formation at the Base of the Odontoid and Synovitis of the Atlanto-Odontoid Joint <i>Matthew S. Shinseki, BS; Natalie L. Zusman, BS; Jung U. Yoo, MD</i>
8:43–8:49 am Paper #11	Vertebral Artery Anomalies at the Craniovertebral Junction in the Us Population. <i>Courtney M. O'Donnell, MD; Zachary Childs, MD; Quynh T. Nguyen, MD; Paul A. Anderson, MD; Michael J. Lee, MD</i>
8:50–8:56 am Paper #12	“Inline” Axial Reconstructed CT Scans provide Significantly Larger Assessment of C2 Pedicle Diameter for Screw Placement than “Standard” Axial Scans: Implications for Surgical Planning <i>David E. Vizurraga, MD; John M. Rhee, MD; Ashton Mansour, MD; Timothy Borden, MD</i>
8:57–9:07 am	Discussion
Session IV <i>Moderators:</i>	BASIC SCIENCE Philippe Bancel, MD and James D. Kang, MD
9:08–9:14 am Paper #13	Cortistatin in the Human Disc: Presence in Vivo and Molecular Evidence that TNF-alpha Exposure Significantly Decreases Cortistatin Expression in Human Annulus Cells in Vitro <i>Helen E. Gruber, PhD; Gretchen L. Hoelscher, MS; Edward N. Hanley, MD</i>
9:15–9:21 am Paper #14	A Novel Nanocapsule for BMP-2 Delivery with Alleviated Inflammatory Reaction <i>Haijun Tian, MD, PhD; Michael D. Daubs, MD; Juanjuan Du, PhD; Jing Wen, PhD; Scott R. Montgomery, MD; Trevor P. Scott, MD; Bayan Aghdasi, MD; Chengjie Xiong, MD; Suzuki Akinobu, MD, PhD; Tetsuo Hayashi, MD; Monchai Ruangchainikom, MD; Kevin H. Phan, BS; Gil Weintraub, BS; Raed Alobaidan, MD; Jeffrey C. Wang, MD</i>
9:22–9:28 am Paper #15	A Novel Mouse Model of Cervical Spondylotic Myelopathy: An Opportunity to Exploit Genetics for the First Time in CSM <i>Spyridon K. Karadimas, MD, PhD; Wenru Yu, MD; Kajana Satkundrarajah, PhD; Michael G. Fehlings, MD, PhD, FRCSC, FACS</i>
9:29–9:35 am Paper #16	Riluzole Provides Neuroprotection Against the Development of Axonal Damage and Spinal Hypersensitivity, While Abolishing Radicular Pain <i>Kristen Nicholson, MSE; Sijia Zhang, BSE; Beth Winkelstein, PhD</i>
9:36–9:46 am	Discussion
9:47–10:17 am	Break
Session V <i>Moderators:</i>	OUTCOMES Frank J. Eismont, MD and Jacob M. Buchowski, MD, MS
10:18–10:24 am Paper #17	Anterior and Posterior Cervical Fusion in Patients with High Body Mass Index are not Associated with Greater Complications: An Analysis of 4,071 Patients in the ACS-NSQIP Database <i>Rafael A. Buerba, BA; Michael C. Fu, BS; Jonathan N. Grauer, MD</i>
10:25–10:31 am Paper #18	Medicare Charges and Payments for Cervical Spine Surgery: Influence of Hospital Characteristics <i>Richard L. Skolasky, Jr., ScD; Lee H. Riley, III, MD</i>
10:32–10:38 am Paper #19	Assessment of the Rapid Increase in Incidence and Cost of Treating C2 Fractures in the United States from 2000-2010 <i>Alan H. Daniels, MD; Sean M. Esmende, MD; Melanie Arthur, PhD; Hari Vigneswaran, BS; Mark A. Palumbo, MD</i>

10:39–10:45 am Paper #20	Patient Reported Outcomes 3-Months after Cervical Spine Surgery: Is it an Accurate Predictor of 12-Month Outcome in Real World Registry Platforms? <i>Saniya S. Godil, MD; Joseph S. Cheng, MD; Matthew J. McGirt, MD</i>
10:46–10:52 am Paper #21	A Clinical Prediction Model to Assess Surgical Outcome in Patients with Cervical Spondylotic Myelopathy: Internal and External Validation using the Prospective Multicenter North American and International Datasets in 764 Patients <i>Lindsay Tetreault, BSc; Paul M. Arnold, MD, PhD; Branko Kopjar, MD, PhD; Michael G. Fehlings, MD, PhD, FRCSC, FACS</i>
10:53–11:05 am	Discussion
11:06 am–12:10 pm <i>Moderator:</i>	Symposium I: Neuromonitoring in Degenerative Cervical Spine Surgery John G. Heller, MD
11:06–11:16 am	Understanding Different Modalities (SSEP, MEP, EMG), What They Mean, How They are Obtained Wellington K. Hsu, MD
11:17–11:27 am	Proponent: Neuromonitoring is useful and should be routinely used for Degenerative (i.e. Non-deformity Correction) Cervical Spine Surgery (Radiculopathy, Myelopathy) Alan S. Hilibrand, MD
11:28–11:38 am	Opponent: Neuromonitoring is not routinely useful for Degenerative Cervical Spine Cases, it really is only beneficial for Medico-legal Purposes John M. Rhee, MD
11:39–11:54 am	AUDIENCE VOTE / DISCUSSION
11:55 am–12:10 pm	CLINICAL CASE: We discuss various clinical scenarios in which motors/ and or sensory potentials are lost/diminished intraop, and ask the panel what they would do at each step along the way
12:11–1:15 pm	Non-Member Lunch – California Showroom
12:11–1:15 pm	Member Lunch – Pacific Palisades Room
Session VI <i>Moderator:</i>	Research Session Robert F. Heary, MD
1:16–1:32 pm	Announcement of 2013 21st Century Premier Donor Research Grant Winners Funded by CSRS 21st Century Research & Education Premier Donors <i>Aesculap Synthes Spine</i> <i>Medtronic Stryker Spine</i> 21st Century Research and Education Grant Seed Starter Research and Education Grants Resident Fellow Research and Education Grants
1:33–1:34 pm	Introduction – Research Grant Updates
1:35–1:40 pm	21st Century Research & Education Grant The Effects of Peri-Operative Steroids on Dysphagia following Anterior Cervical Spine Surgery: A Randomized, Prospective, Double-Blind Study <i>Sanford E. Emery, MD, MBA; John C. France, MD; Scott D. Daffner, MD</i>
1:41–1:46 pm	Seed Starter Research & Education Grant Ameliorating the Inflammatory Response to BMP-2 with a BMP Binding Protein <i>Michael D. Daubs, MD; Samuel S. Murray, MD; Jeffrey C. Wang, MD</i>
1:47–1:52 pm	Seed Starter Research & Education Grant Improving Patient Safety During Management of Spine Trauma <i>Ryan P. Conrad, PhD; Mary Beth Horodyski, EdD; Gianluca Del Rossi, PhD; Mark L. Prasarn, MD, Glenn R. Rechtine, II, MD</i>

1:53–2:00 pm	Discussion
Session VII <i>Moderators:</i>	CERVICAL FUSION <i>TBD and Steven C. Ludwig, MD</i>
2:01–2:07 pm Paper #22	Prospective, Multicenter, Historically Controlled Trial Comparing RhBMP-2 with Allograft in Single-Level Anterior Cervical Discectomy and Fusion <i>Randall F. Dryer, MD; Paul M. Arnold, MD; Kevin T. Foley, MD; J. Kenneth Burkus, MD</i>
2:08–2:14 pm Paper #23	Trends In Bone Morphogenetic Protein (BMP) Usage Since The US Food And Drug Administration (FDA) Advisory In 2008: What Happens To Physician Practices When The FDA Issues An Advisory? <i>Janay Mckie, MD; Sheeraz Qureshi, MD; James Iatridis, PhD; Natalia Egorova, PhD, MPH; Samuel K. Cho, MD; Andrew C. Hecht, MD</i>
2:15–2:21 pm Paper #24	Adjacent Level Cervical Disc Degeneration after Fusion - Prospective Study for 8 Years <i>Sandip Chatterjee, MBBS, FRCS(SN), MNAMS</i>
2:22–2:28 pm Paper #25	Risk Factor Analysis for Adjacent Segment Pathology in 1358 Anterior, Posterior, Fusion and Non-fusion Cervical Spine Operations <i>Jae Chul Lee, MD, PhD; Sang-Hun Lee, MD, PhD; Sang Do Kim, MD; K. Daniel Riew, MD</i>
2:29–2:39 pm	Discussion
2:40–2:47 pm	Special Projects Committee Report: Jens R. Chapman, MD
2:48–2:52 pm	Discussion
2:53–3:23 pm	Break
3:24–3:26 pm <i>Moderator:</i>	Case Presentation: Multilevel CSM with Mild Kyphosis that does not Passively Correct <i>Alexander R. Vaccaro, MD, PhD</i>
3:27–3:34 pm	Laminoplasty is Best <i>Jens R. Chapman, MD</i>
3:35–3:42 pm	Lami Fusion is Best and Prevents Neck Pain and Kyphosis <i>Jeffrey C. Wang, MD</i>
3:43–3:50 pm	Haven't you heard about Sagittal Alignment? Do it Ant/Post and get it Right <i>Paul A. Anderson, MD</i>
3:51–4:00 pm	Discussion
4:01–4:03 pm <i>Moderator:</i>	Refractory Axial Neck Pain from DDD - Is it a Surgical Disorder? CLINICAL CASE: Neck Pain in a Patient with Some Cord Compression but absolutely no Neurologic Symptoms or Signs <i>Michael G. Fehlings, MD, PhD, FRCSC, FACS</i>
4:04–4:14 pm	Position 1: YES, Surgery should be offered to such a Patient (either ACDF or Disc Replacement) <i>Rick C. Sasso, MD</i>
4:15–4:25 pm	Position 2: NO, this is not a Surgical Disorder unless there are Neurologic Symptoms or Signs <i>Alexander R. Vaccaro, MD, PhD</i>
4:26–4:36 pm	Discussion
Session VIII <i>Moderators:</i>	POSTERIOR CERVICAL <i>Thomas A. Zdeblick, MD and Sang-Hun Lee, MD</i>
4:37–4:43 pm Paper #26	Safety Evaluation of Free-hand Lateral Mass Screw Fixation in the Subaxial Cervical Spine; Evaluation of 1256 Screws <i>Kyung-Soo Suk, MD, PhD; Sang-Hun Lee, MD; Ki-Tack Kim, MD; Jung-Hee Lee, MD; Chul-Hee Lee, MD; Jin-Soo Kim, MD; Jae-Hyung Eoh, MD; Il-Hun Choi, MD; Il-Young Kim, MD</i>

4:44–4:50 pm Paper #27	The Feasibility of Multiple Fixation Points in C2 <i>Jin Sup Yeom, MD; Sang-Hun Lee, MD; Jae Chul Lee, MD; So Min Lee, Bachelor; Jemin Yi, MD; John M. Rhee, MD; Ronald A. Lehman, Jr., MD; K. Daniel Riew, MD</i>
4:51–4:57 pm Paper #28	Rates of Anterior Cervical Discectomy and Fusion following Initial Posterior Cervical Foraminotomy <i>Timothy Y. Wang, BS; Daniel Lubelski, BA; Kalil G. Abdullah, MD; Michael P. Steinmetz, MD; Edward C. Benzel, MD; Thomas E. Mroz, MD</i>
4:58–5:04 pm Paper #29	Complications, Outcomes and Need for Fusion following Minimally Invasive Posterior Cervical Foraminotomy and Microdiscectomy <i>Branko Skovrlj, MD; Yakov Gologorsky, MD; Raqueeb Haque, MD; Richard G. Fessler, MD, PhD; Sheeraz A. Qureshi, MD</i>
5:05–5:15 pm	Discussion
5:15 pm	Adjourn
5:30–7:30 pm	Welcome Reception – California Showroom

Friday, Dec 6, 2013
Los Angeles Ballroom

7:00–7:10 am	Welcome and Announcements <i>John M. Rhee, MD and Justin S. Smith, MD, PhD</i>
Session IX Moderators:	LAMINOLASTY <i>Vo Van Thanh, MD, PhD (AP President) and Christopher I. Shaffrey, MD</i>
7:11–7:17 am Paper #30	Predictors of Patient Satisfaction with Outcome after Cervical Laminoplasty <i>Atsushi Kimura, MD, PhD; Teruaki Endo, MD, PhD; Hirokazu Inoue, MD, PhD; Atsushi Seichi, MD, PhD</i>
7:18–7:24 am Paper #31	Characteristics of Risk Factor for Poor Outcome after Laminoplasty in Patients with Cervical Spondylotic Myelopathy with Diabetes <i>Masaaki Machino, MD; Yasutsugu Yukawa, MD; Keigo Ito, MD; Taro Inoue, MD; Jun Ouchida, MD; Fumihiko Kato, MD</i>
7:25–7:31 am Paper #32	Prospective Comparative Study of Open-Door Laminoplasty and French-Door Laminoplasty in Patients with Cervical Compressive Myelopathy <i>Hiroaki Nakashima, MD; Fumihiko Kato, MD; Yasutsugu Yukawa, MD, PhD; Shiro Imagama, MD, PhD; Zenya Ito, MD, PhD; Naoaki Ishiguro, MD, PhD</i>
7:32–7:38 am Paper #33	Prophylactic Bilateral C4/5 Foraminotomy for C5 Palsy after Open-door Laminoplasty - A Prospective Study <i>Keiichi Katsumi, MD; Toru Hirano, MD, PhD; Kei Watanabe, MD, PhD; Masayuki Ohashi, MD; Naoto Endo, MD, PhD; Akiyoshi Yamazaki, MD, PhD; Tomohiro Izumi, MD</i>
7:39–7:49 am	Discussion
Session X Moderators:	COMPLICATIONS 2 <i>Robert A. Hart, MD and Darrel S. Brodke, MD</i>
7:50–7:56 am Paper #34	Increased Risk of Complications after ACDF in the Elderly: An Analysis of 3,671 Patients in the ACS-NSQIP Database <i>Rafael A. Buerba, BA; Michael C. Fu, BS; Jonathan N. Grauer, MD</i>
7:57–8:03 am Paper #35	Outcomes and Complications of Anterior and Posterior Cervical Fusion with Bone Morphogenic Protein <i>Sreeharsha V. Nandyala, BA; Steven J. Fineberg, MD; Alejandro Marquez-Lara, MD; Miguel Pelton, BS; Kern Singh, MD</i>
8:04–8:10 am Paper #36	Postoperative Cervical Sagittal Imbalance Negatively affects Outcome following Surgery for Cervical Spondylotic Myelopathy <i>Zoher Ghogawala, MD, FACS; Subu N. Magge, MD; Jill N. Curran, MS; Erica F. Bisson, MD; Ajit A. Krishnaney, MD; Michael P. Steinmetz, MD; Jean-Valery Coumans, MD; William E. Butler, MD; Robert F. Heary, MD; Edward C. Benzel, MD</i>

8:11–8:17 am Paper #37	Cervical Dural Tears: Risk Factors and Outcomes <i>Kevin R. O'Neill, MD, MS; Brian J. Neuman, MD; Colleen Peters, MA; K. Daniel Riew, MD</i>
8:18–8:24 am Paper #38	Adjacent Segment Pathology after Anterior Cervical Fusion C4-C7 <i>Tapanut Chuntarapas, MD; Han Jo Kim, MD; Addisu Mesfin, MD; Moon Soo Park, MD; Chaiwat Piyaskulkaew, MD; Samuel Romero-Vargas, MD, MS; Lukas P. Zebala, MD; K. Daniel Riew, MD</i>
8:25–8:37 am	Discussion
8:38–8:45 am	Introduction of Henry H. Bohlman Presidential Guest Speaker <i>K. Daniel Riew, MD</i>
8:46–9:36 am	Henry H. Bohlman Presidential Guest Lecture - Jack Welch <i>Town hall Meeting</i>
9:37–10:07 am	BREAK
10:08–10:18 am	Introduction of CSRS President - Bruce V. Darden, II, MD
10:19–10:59 am	PRESIDENTIAL ADDRESS - K. Daniel Riew, MD
11:00–11:10 am	Discussion
11:11–11:16 am	Preview CSRS 2014 Annual Meeting in Orlando, FL <i>Glenn R. Rechtine, II, MD</i>
11:17–11:23 am	Preview CSRS Asia Pacific Section 2014 Annual Meeting in Viet Nam <i>Vo Van Thanh, MD, PhD</i>
11:24–11:30 am	Preview CSRS European Section 2014 Annual Meeting in Pamplona, Spain <i>Philippe Bancel, MD</i>
11:30 am–1:30 pm	Guided Poster Session and Pizza – California Showroom

Saturday, Dec 7, 2013
Los Angeles Ballroom

7:00–7:05 am	Welcome and Announcements - John M. Rhee, MD and Justin S. Smith, MD, PhD
Session XI <i>Moderators:</i>	TRAUMA <i>Todd J. Albert, MD and Paul A. Anderson, MD</i>
7:06–7:12 am Paper #39	Human Fetal Neural Stem/Progenitor Cell Transplantation in Patients with Traumatic Cervical Spinal Cord Injury <i>Keung Nyun Kim, MD, PhD; Do-Heum Yoon, MD, PhD; Yoon Ha, MD, PhD; Seong Yi, MD, PhD; Dong Ah Shin, MD, PhD</i>
7:13–7:19 am Paper #40	Neuroprotective Therapy using Granulocyte Colony-stimulating Factor for Acute Spinal Cord Injury: A Comparison with the High-dose Methylprednisolone Therapy <i>Koshiro Kamiya, MD; Masashi Yamazaki, MD, PhD; Akihiko Okawa, MD, PhD; Takeo Furuya, MD, PhD; Hiroshi Takahashi, MD, PhD; Kei Kato, MD, PhD; Taigo Inada, MD; Mitsutoshi Ota, MD; Satoshi Maki, MD; Yasuo Ito, MD, PhD; Kazuhisa Takahashi, MD, PhD; Masao Koda, MD, PhD</i>
7:20–7:26 am Paper #41	Human Hepatocyte Growth Factor Promotes Functional Recovery in Primates after Spinal Cord Injury: A Novel Treatment Strategy for Spinal Cord Injury <i>Kazuya Kitamura, MD, PhD; Kanehiro Fujiyoshi, MD, PhD; Junichi Yamane, MD, PhD; Akio Iwanami, MD, PhD; Hideyuki Okano, MD, PhD; Yoshiaki Toyama, MD, PhD; Masaya Nakamura, MD, PhD</i>
7:27–7:33 am Paper #42	Allogeneic Transplantation of Embryonic Stem Cells Derived Neural Stem/progenitor Cells Promotes Functional Recovery after Spinal Cord Injury in Common Marmosets <i>Hiroki Iwai, MD; Hiroko Ishii, PhD; Soraya Nishimura, MD; Yoshiomi Kobayashi, MD, PhD; Go Itakura, MD; Keigo Hikishima, PhD; Osahiko Tsuji, MD, PhD; Kanehiro Fujiyoshi, MD, PhD; Hideyuki Okano, MD, PhD; Yoshiaki Toyama, MD, PhD; Masaya Nakamura, MD, PhD</i>
7:34–7:44 am	Discussion

Session XII	DEFORMITY
<i>Moderators:</i>	<i>Louis G. Jenis, MD and Gregory D. Carlson, MD</i>
7:45–7:51 am Paper #43	T1 Slope Minus Cervical Lordosis (TS-CL), The Cervical Analog Of Pi-II Defines Cervical Sagittal Deformity In Patients Undergoing Thoracolumbar Osteotomy <i>Themistocles S. Protopsaltis, MD; Jamie S. Terran, BS; Nicolas Bronsard, MD; Justin S. Smith, MD, PhD; Eric O. Klineberg, MD; Gregory Mundis, MD; Han Jo Kim, MD; Robert A. Hart, MD; Christopher I. Shaffrey, MD; Shay Bess, MD; Christopher P. Ames, MD; Frank J. Schwab, MD; Virginie Lafage, PhD; International Spine Study Group, NA</i>
7:52–7:58 am Paper #44	The Relationship Between T1 Slope and Cervical Alignment following Adult Cervical Fusion Procedures <i>Jessica A. Tang, BS; Christopher S. Shaffrey, MD; Frank J. Schwab, MD; Justin K. Scheer, BS; Justin S. Smith, MD, PhD; Shay Bess, MD; Christopher P. Ames, MD</i>
7:59–8:05 am Paper #45	Prevalence and Type of Cervical Deformity Among 470 Adults with Thoracolumbar Deformity <i>Justin S. Smith, MD, PhD; Christopher I. Shaffrey, MD; Virginie Lafage, PhD; Frank J. Schwab, MD; Themistocles S. Protopsaltis, MD; Eric O. Klineberg, MD; Justin K. Scheer, BS; Kai-Ming G. Fu, MD, PhD; Richard Hostin, MD; Vedat Deviren, MD; Robert A. Hart, MD; Doug Burton, MD; Shay Bess, MD; Christopher P. Ames, MD; International Spine Study Group (ISSG), NA</i>
8:06–8:12 am Paper #46	How the Neck affects the Back: Changes in Cervical Sagittal Alignment Correlate to HRQL Improvement in Adult Thoracolumbar Deformity Patients <i>Themistocles S. Protopsaltis, MD; Justin K. Scheer, BS; Jamie S. Terran, B.S; Justin S. Smith, MD PhD; Gregory Mundis, MD; Christopher I. Shaffrey, MD; Robert A. Hart, MD; Ian McCarthy, PhD; Eric O. Klineberg, MD; Virginie Lafage, PhD; Shay Bess, MD; Frank J. Schwab, MD; Christopher P. Ames, MD; International Spine Study Group, NA</i>
8:13–8:23 am	Discussion
8:24–9:23 am <i>Moderator:</i>	Symposium II: Treating Cervical Pseudo Bruce V. Darden, II, MD
8:24–8:34 am	How do you Diagnose it after an ACDF, PCF? K. Daniel Riew, MD
8:35–8:45 am	Do Non-operative Treatments like Braces, Bone Growth stim, etc. work Zoher Ghogawala, MD, FACS
8:46–8:56 am	When do you Treat it Surgically after an ACDF? After PCF? Frank M. Phillips, MD
8:57–9:07 am	How do you Treat it after ACDF: Anterior Redo or Posterior? How do you Treat it after a Posterior: Redo Posterior or Anterior? Vincent C. Traynelis, MD
9:08–9:23 am	Discussion
Session XIII	MYELOPATHY
<i>Moderators:</i>	<i>Christopher P. Ames, MD and Jens R. Chapman, MD</i>
9:24–9:30 am Paper #47	Feasibility of Novel Transcranial Electrical Stimulation Technique in Intraoperative Neurophysiologic Monitoring during Spinal Surgery: Multi-train Stimulation <i>Shunji Tsutsui, MD; Hiroshi Iwasaki, MD; Hiroshi Yamada, MD; Hiroshi Hashizume, MD; Akihito Minamide, MD; Yukihiro Nakagawa, MD; Hideto Nishi, MD; Munehito Yoshida, MD</i>
9:31–9:37 am Paper #48	Association of Myelopathy Scores with Cervical Sagittal Balance and Normalized Spinal Cord Volume: Analysis of 56 Preoperative Cases from the AOSpine North America Myelopathy Study <i>Justin S. Smith, MD, PhD; Virginie Lafage, PhD; Devon J. Ryan, BA; Christopher I. Shaffrey, MD; Frank J. Schwab, MD; Alpesh A. Patel, MD; Darrel S. Brodke, MD; Paul M. Arnold, MD; K. Daniel Riew, MD; Vincent C. Traynelis, MD; Kristen E. Radcliff, MD; Alexander R. Vaccaro, MD, PhD; Michael G. Fehlings, MD, PhD; Christopher P. Ames, MD</i>

9:38–9:44 am Paper #49	A Clinical Prediction Rule for Clinical Outcomes in Patients Undergoing Surgery for Degenerative Cervical Myelopathy: Analysis of an International Prospective Multicentre Dataset of 771 Subjects <i>Michael G. Fehlings, MD, PhD, FRCSC, FACS; Lindsay Tetreault, BSc; Branko Kopjar, MD, PhD; Paul M. Arnold, MD; Alexander R. Vaccaro, MD; Sangwook Tim Yoon, MD; Jens R. Chapman, MD; Christopher I. Shaffrey, MD; Eric Woodard, MD; Michael Janssen, DO; Rick C. Sasso, MD; Mark Dekutoski, MD; Ziya L. Gokaslan, MD; Christopher M. Bono, MD; Shashank Kale, MD; Helton Defino, MD; Giuseppe Barbagallo, MD; Ronald Bartels, MD; Qiang Zhou, MD; Mehmet Zileli, MD; Gamaliel Tan, MD; Osmar Moraes, MD; Yasutsugu Yukawa, MD; Manuel Alvarado, MD; Massimo Scerrati, MD; Tomoaki Toyone, MD; Masato Tanaka, MD; Ciaran Bolger, MD</i>
9:45–9:51 am Paper #50	Surgical Management of Cervical Myelopathy Due to Ossification of the Posterior Longitudinal Ligament: A Decision Analysis <i>Andrew H. Milby, MD; Mark Attiah, BA; Paul R. Massey, BS; Neil R. Malhotra, MD; Sherman C. Stein, MD</i>
9:52–10:02 am	Discussion
10:03–10:18 am	BREAK
Session XIV Moderators:	SURGICAL ISSUES Paul M. Arnold, MD, FAANS, FACS and Robert F. Heary, MD
10:19–10:25 am Paper #51	Predicting Patients with Concurrent Noncontiguous Spinal Epidural Abscess Lesions <i>Kevin L. Ju, MD; Sang Do Kim, MD; Rojeh Melikian, MD; Christopher M. Bono, MD; Mitchel B. Harris, MD</i>
10:26–10:32 am Paper #52	Preoperative Narcotic Use and its Association with Perioperative Narcotic Demand and Postoperative Narcotic Independence in Patients Undergoing Spine Surgery <i>Dennis Lee, MD; Sheyan Armaghani, MD; Jesse E. Bible, MD; David Shau, BS; Harrison F. Kay, BS; Chi E. Zhang, BA; Matthew McGirt, MD; Clinton Devin, MD</i>
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Christopher K. Kepler, MD, MBA; Muhammad Zubair, MD; Nikolaus Hjelm, BS; Niels Martin, MD; Kristen E. Radcliff, MD; Todd J. Albert, MD; Michael Weinstein, MD; Alexander R. Vaccaro, MD, PhD

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Morphometric Parameters of the C1 lateral mass, axis and subaxial cervical vertebra for the three different types of screw fixation techniques in children Under 10 Years of Age : Computerized Tomographic Study

Jae Taek Hong, MD, PhD; Ho Jin Lee, MD

Poster #76

When is it Safe to Return to Driving Following Cervical and Lumbar Spinal Surgery?

Trevor P. Scott, MD; William Pannell, MD; David D. Savin, MD; Stephanie S. Ngo, BS, MPH; Jessica Ellerman, MD; Kristin Toy, BS; Michael D. Daubs, MD; Daniel C. Lu, MD, PhD; Jeffrey C. Wang, MD

Poster #77

Degenerative Cervical Spondylolisthesis : Fusion VS Non-fusion Surgery

Tapanut Chuntarapas, MD; Samuel Romero-Vargas, MD, MS.; Seung-Jae Hyun, MD, PhD; Chaiwat Piyaskulkaew, MD; Addisu Mesfin, MD; Han Jo Kim, MD; Lukas P. Zebala, MD; K. Daniel Riew, MD

Poster #78

Subaxial Cervical Pedicle Fractures: Operative vs Non-Operative Treatment

Basem I. Awad, MD; Daniel Lubelski, BA; Margaret Carmody, MD; Thomas E. Mroz, MD; James S. Anderson, MD; Timothy A. Moore, MD; Michael P. Steinmetz, MD

Poster #79

How Often Are Interfacility Transfers of Spine Injury Patients Truly Necessary?

Jesse E. Bible, MD, MHS; Rishin J. Kadakia, BA; Harrison F. Kay, BA; Chi E. Zhang, BS; Geoffrey E. Casimir, BA; Clinton J. Devin, MD

Poster #80

Stabilization of the Craniocervical Junction after an Internal Dislocation Injury: An *In-Vitro* Study.

Kristen E. Radcliff, MD; Mir Hussain, BS; Mark Moldavsky, MS; Noelle Klocke, MS; Todd J. Albert, MD; Alexander R. Vaccaro, MD; Saif Khalil, PhD; Brandon Bucklen, PhD

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