



Scientific Program

This is the scientific program for ISASS16 and is subject to change before the conference. This document is current as of March 28, 2016. Note: All General Sessions will take place in the DaVinci Ballroom.

Wednesday, April 6, 2016

8:00 - 8:30 am - General Session: MIS-1

Moderator(s): Massimo Balsano, MD; James Yue, MD

- 8:00 am - 8:04 am **220 Does poor post-op Sagittal Vertical Alignment directly correlate with poor functional outcomes in patients with Circumferential Minimally Invasive correction of Adult Spinal Deformity?**
Speaker: [N. Anand](#)
Authors: N. Anand(1), B. Khandehroo(1), J. Cohen(1), R. Cohen(1), E. Baron(1), S. Kahwaty(1)
(1)Cedars-Sinai Medical Center, Spine Center, Los Angeles, CA, United States
- 8:05 am - 8:09 am **608 Effects of Intraoperative Anesthetic Medications on Postoperative Urinary Retention after Single Level Lumbar Fusion**
Speaker: [B. Mayo](#)
Authors: B. Mayo(1), D. Massel(1), P. Louie(1), D. Bohl(1), S. Iantorno(1), J. Ahn(1), E. Tabaraee(2), K. Singh(1)
(1)Rush University Medical Center, Orthopaedic Surgery, Chicago, IL, United States, (2)Stanislaus Orthopaedics, Modesto, CA, United States
- 8:10 am - 8:14 am **377 Radiographic analysis of indirect neural decompression for central canal stenosis following lateral lumbar interbody fusion (LLIF) Estimation of cutoff value for additional decompression**
Speaker: [S-J. Park](#)
Authors: S-J. Park(1), C-S. Lee(1), S-S. Chung(1), J-H. Kim(1), J-S. Kim(1)
(1)Samsung Medical Center, Sungkyunkwan University, School of medicine, Orthopedic Surgery, Seoul, Korea, Republic of
- 8:15 am - 8:19 am **34 Clinical and Radiographic Parameters Associated with Best vs. Worst Clinical Outcomes in Minimally Invasive Deformity Surgery**
Speaker: [P. Nunley](#)
Authors: K. Than(1), P. Park(2), K-M. Fu(3), S. Nguyen(4), M. Wang(5), C. Shaffrey(6), S. Bess(7), B. Akbarnia(4), V. Deviren(1), J. Uribe(8), D. Okonkwo(9), G. Mundis(4,10), P. Mummaneni(1), P. Nunley(1)
International Spine Study Group
(1)University of California, San Francisco, San Francisco, CA, United States, (2)University of Michigan, Ann Arbor, MI, United States, (3)Weill Cornell, New York, NY, United States, (4)San Diego Center for Spinal Disorders, San Diego, CA, United States, (5)University of Miami, Miami, FL, United States, (6)University of Virginia, Charlottesville, VA, United States, (7)Rocky Mountain Orthopaedics, Denver, CO, United States, (8)University of South Florida, Tampa, FL, United States, (9)University of Pittsburgh Medical Center, Pittsburgh, PA, United States, (10)Scripps Clinic, La Jolla, CA, United States
- 8:20 am - 8:30 am **Discussion**

8:30 am - 9:30 am - Co-Presidential Address and Presidential Guest Speaker

Address by Co-President Gunnar B.J. Andersson, MD, PhD; Presidential Guest Speaker Allen B. West

9:30 am - 10:30 am - General Session: MIS-2

Moderator(s): Massimo Balsano, MD; James Yue, MD

- 9:30 am - 9:34 am **416 Fusion Rates and Predictive Factors for Pseudarthrosis Following Minimally Invasive Transforaminal Lumbar Interbody Fusion using BMP or Stem Cell Fusion Adjuncts**
Speaker: [S. Overlay](#)
Authors: S. Overlay(1), S. McAnany(2), M. Anwar(1), A. Lovy(1), J. Guzman(1), D. Alicea(1), S. Qureshi(1)
(1)The Mount Sinai Hospital, Orthopaedic surgery, New York, NY, United States, (2)Emory University, Orthopaedic Surgery, Atlanta, GA, United States
- 9:35 am - 9:39 am **35 Comparison of Early and Late Complications after Circumferential Minimally Invasive and Hybrid Surgery for Adult Spinal Deformity**
Speaker: [J. Cuellar](#)(1)
Authors: J. Cuellar(1), N. Anand(1), K.-M. Fu(3), Z. Sardar(1), P. Park(2), M. Wang(3), V. Lafage(4), S. Nguyen(5), D. Okonkwo(6), J. Uribe(7), R. Eastlack(8), R. Fessler(9), V. Deviren(10), P. Mummaneni(10), C. Shaffrey(11), G. Mundis(5,8), International Spine Study Group
(1)Cedars Sinai, Los Angeles, CA, United States, (2)University of Michigan, Ann Arbor, MI, United States, (3)University of Miami, Miami, FL, United States, (4)NYU Langone Medical Center, New York, NY, United States, (5)San Diego Center for Spinal Disorders, San Diego, CA, United States, (6)University of Pittsburgh Medical Center, Pittsburgh, PA, United States, (7)University of South Florida, Tampa, FL, United States, (8)Scripps Clinic, La Jolla, CA, United States, (9)Rush University, Chicago, IL, United States, (10)University of California, San Francisco, San Francisco, CA, United States, (11)University of Virginia, Charlottesville, VA, United States
- 9:40 am - 9:44 am **225 Outcomes of Lumbopelvic Fixation in the Treatment of Complex Sacral Fractures Using Minimally Invasive Surgical Techniques**
Speaker: [E. Jazini](#)
Authors: E. Jazini(1), E. Nwodim(2), O. Tannous(1), C. Saifi(3), N. Caffes(2), T. Costales(4), T. Weir(1), E. Koh(4), K. Banagan(1), D. Gelb(2), S. Ludwig(1)
(1)University of Maryland Medical Center, Orthopaedics, Baltimore, MD, United States, (2)University of Maryland Medical Center, Orthopaedics, Baltimore, MD, United States, (3)N/A, Columbia University, New York, NY, United States, (4)University of Maryland Medical Center, School of Medicine, Baltimore, MD, United States
- 9:45 am - 9:49 am **245 MIS TLIF Improves Functional Ability in Injured Workers as Compared to Open TLIF**
Speaker: [R. Kube](#)
Authors: R. Kube(1), D. Morrow(1)
(1)Prairie Spine & Pain Institute, Peoria, IL, United States
- 9:50 am - 9:54 am **525 Does Level of Response to SI Joint Block Predict Response to SI Joint Fusion?**
Speaker: [D.W. Polly](#)
Authors: D.W. Polly(1), D. Cher(2), P. Whang(3), C. Frank(4), H. Lockstadt(5), C. Harvey(6), J. Sembrano(1)
(1)University of Minnesota, Orthopaedic Surgery, Minneapolis, MN, United States, (2)SI-BONE, Inc., San Jose, CA, United States, (3)Yale University, New Haven, CT, United States, (4)Integrated Spine Care, Wauwatosa, WI, United States, (5)Bluegrass Orthopedics, Lexington, KY, United States, (6)Riverside Hospital, Kankakee, IL, United States
- 9:55 am - 10:04 am **Discussion**
- 10:05 am - 10:09 am **616 Learning Curve of a Minimally Invasive Technique for Percutaneous Pedicular Screws (PPS) and Transforaminal Lumbar Interbody Fusion (MIS-TILF) in Treatment of Lumbar Degenerative Disease (LDD). Operative and Clinical Outcome in 246 Consecutive Cases**
Speaker: [H. Nicola](#)
Authors: H. Nicola(1), M. Da Silva(2), D. Onay(2)
(1)Hospital San Juan de Dios, Spine Surgery, Caracas, Venezuela, (2)Clinica Sanatrix, Caracas, Venezuela
- 10:10 am - 10:14 am **174 Hospital Re-admissions with the Kiva VCF Treatment System Compared to Balloon Kyphoplasty: Analysis of the Kiva System as a Vertebral Augmentation Treatment (KAST) Randomized Trial**
Speaker: [D. Beall](#)
Authors: S. Garfin(1), D. Beall(2), S. Tutton(3), P. Kakad(4), Q. Li(4), J. Hornberger(5)
(1)UC San Diego, Orthopaedic Surgery, San Diego, CA, United States, (2)Clinical Radiology of Oklahoma, Edmond, OK, United States, (3)Medical College of Wisconsin, Milwaukee, WI, United States, (4)Cedar Associates, LLC, Menlo Park, CA, United States, (5)Stanford University, Stanford, CA, United States
- 10:15 am - 10:19 am **187 Revision Discectomy and Eventual Need for Fusion after Lumbar Microdiscectomy via Open or Dilator Tube Approach: Correlation with Pre-Operative Risk Factors**
Speaker: [S. Overlay](#)
Authors: S. McAnany(1), S. Overlay(1), M. Anwar(1), H. Cutler(1), J. Guzman(1), J. Kim(1), S. Cho(1), A. Hecht(1), S. Qureshi(1)
(1)The Mount Sinai Hospital, Orthopaedic surgery, New York, NY, United States

- 10:20 am - 10:24 am **506 A Comparison of Clinical Outcomes to Assess Interlaminar Fusion to the Traditional Pedicle Screw Construct in Augmenting Lumbar Interbody Fusion**
Speaker: [B. Walker](#)
Authors: B. Walker(2), S. Miller(1), T. Callanan(2), C. Abjornson(2), R. Huang(2), F. Cammisa(2)
(1)Warren Alpert Medical School of Brown University, Providence, RI, United States, (2)Hospital for Special Surgery, New York, NY, United States
- 10:25 am - 10:30 am **Discussion**
- 9:25 am - 9:29 am **531 Interspinous Process Fixation versus Pedicle Screw Fixation in Circumferential Arthrodesis: 1-year Outcomes from a Prospective Randomized Multi-center Trial**
Speaker: [P. Passias](#)
Authors: K. Kim(1), R. DenHaese(2), C. Hill(3), B. Streng(3), A. de Moura(4), A. Kranenburg(5), M. Dennis(6), A. Cappuccino(7), T. Thaiyananthan(8), P. Arnold(9), P. Passias(4), B. Bejin(10), C. Moore(11), S. Martineck(12), C. Ferry(10), K. Martin(10)
(1)UC Davis Health System, Sacramento, CA, United States, (2)AXIS Neurosurgery and Spine, Williamsville, NY, United States, (3)Orthopaedic Institute, Paducah, KY, United States, (4)New York Spine Institute, New York, NY, United States, (5)Southern Oregon Orthopedics, Medford, OR, United States, (6)South Texas Spinal Clinic, San Antonio, TX, United States, (7)Buffalo Spine Surgery, Buffalo, NY, United States, (8)Brain and Spine Institute of California, Newport Beach, CA, United States, (9)University of Kansas Hospital, Kansas City, KS, United States, (10)Zimmer Biomet Spine, Broomfield, CO, United States, (11)University of Colorado Denver, Denver, CO, United States, (12)Medical Device Clinical Trial Consultant, Buffalo, NY, United States
- 9:30 am - 9:34 am **39 A Critical Analysis of Sagittal Plane Deformity Correction with Minimally Invasive Adult Spinal Deformity Surgery: A 2-year Follow up Study**
Speaker: [P. Nunley](#)
Authors: G. Mundis(1,2), V. Deviren(3), J. Uribe(4), P. Nunley(5), P. Mummaneni(3), N. Anand(6), P. Park(7), D. Okonkwo(8), M. Wang(9), S. Bess(10), A. Kanter(8), R. Fessler(11), S. Nguyen(2), B. Akbarnia(2), J. Zavatsky(2), International Spine Study Group
(1)Scripps Clinic, La Jolla, CA, United States, (2)San Diego Center for Spinal Disorders, San Diego, CA, United States, (3)University of California, San Francisco, San Francisco, CA, United States, (4)University of South Florida, Tampa, FL, United States, (5)Spine Institute of Louisiana, Shreveport, LA, United States, (6)Cedars Sinai, Los Angeles, CA, United States, (7)University of Michigan, Ann Arbor, MI, United States, (8)University of Pittsburgh Medical Center, Pittsburgh, PA, United States, (9)University of Miami, Miami, FL, United States, (10)Rocky Mountain Orthopaedics, Denver, CO, United States, (11)Rush University, Chicago, IL, United States
- 9:35 am - 9:44 am **Discussion**
- 9:45 am - 9:49 am **336 Should Cervical Disc Arthroplasty be done on Patients with Increased Intramedullary Signal Intensity on Magnetic Resonance Imaging?**
Speaker: [H-K. Chang](#)
Authors: H-K. Chang(1,2), J-C. Wu(1,2), P-Y. Chang(1,2), T-H. Tu(1,2), L-Y. Fay(1,2), W-C. Huang(1,2), H-C. Chang(3), H. Cheng(1,2)
(1)Taipei Veterans General Hospital, Neurological Institute, Taipei, Taiwan, Republic of China, (2)National Yang-Ming University, School of Medicine, Taipei, Taiwan, Republic of China, (3)Kaohsiung Veterans General Hospital, Surgery, Kaohsiung, Taiwan, Republic of China
- 9:50 am - 9:54 am **704 Analysis of Factors Associated with Heterotopic Ossification Following Cervical Disc Arthroplasty**
Speaker: [M. Gornet](#)
Authors: M. Gornet(1), J.A. Hipp(2), N.D. Wharton(2), F.W. Schranck(3), A.G. Copay(3), K. Wymore(4)
(1)The Orthopedic Center of St. Louis, St Louis, MO, United States, (2)Medical Metrics, Houston, TX, United States, (3)SPIRITT Research, St Louis, MO, United States, (4)University of Missouri, School of Medicine, Columbia, MO, United States
- 9:55 am - 9:59 am **655 Cost and Readmission Rates Based Analysis Comparing Single Level ACDF Procedures using Allograft and Plates versus PEEK Interbody Spacer with Integrated Screws: A Total of 6,894 Patients**
Speaker: [P.C. McAfee](#)
Authors: P.C. McAfee(1), I.L. Fedder(1), M.D. Dabbah(1), B.W. Cunningham(2), A.A. Murgatroyd(2), L. Chotikul(1), E. Shucosky(1)
(1)University of Maryland St. Joseph Medical Center, Scoliosis and Spine Institute, Towson, MD, United States, (2)Globus Medical, Musculoskeletal Education and Research Center, Audubon, PA, United States
- 10:00 am - 10:04 am **654 Clinical and Radiologic Results of Minimally Invasive Lateral Lumbar Interbody Fusion without the use of Bone Morphogenic Protein**
Speaker: [J.C. Lee](#)
Authors: J.C. Lee(1), H.-D. Jang(1), S.-W. Choi(1), J.-H. Kim(2), B.-J. Shin(1)

(1)Soonchunhyang University, Orthopaedic Surgery, Seoul, Korea, Republic of, (2)Inje University Sanggye Paik Hospital, Orthopaedic Surgery, Seoul, Korea, Republic of

10:05 am - 10:09 am
574 Comparative Safety and Efficacy of Percutaneous Pedicle Screw Fixation in the Lumbar Spinal Arthrodesis: A Systematic Review and Meta-analysis
Speaker: [Y. Park](#)
Authors: Y. Park(1), S.-O. Seok(2), S.-B. Lee(2), J.-W. Ha(2)
(1)National Health Insurance Service Ilsan Hospital, Yonsei University College of Medicine, Orthopedic surgery, Goyang, Korea, Republic of, (2)National Health Insurance Service Ilsan Hospital, Yonsei University College of Medicine, Goyang, Korea, Republic of

10:10 am - 10:14 am
527 Correlation between Implant Motion and Patient Reported Outcome Measures Following Single Level Cervical Disc Replacement Surgery
Speaker: [A.J. Berg](#)
Authors: A.J. Berg(1,2), C.D. Jensen(3), S. Khan(1), R. Malgatil(1), G.R. Reddy(1), C. Bhatia(1), T. Friesem(1)
(1)North Tees and Hartlepool NHS Foundation Trust, Spinal Unit, Stockton on Tees, United Kingdom, (2)Pennine Acute Hospitals NHS Trust, Manchester, United Kingdom, (3)Northumbria Healthcare NHS Foundation Trust, Trauma and Orthopaedics, Northumberland, United Kingdom

10:15 am - 10:29 am
Discussion

10:30 am - 11:00 am - Break on Exhibit Floor

11:00 am - 12:00 pm - General Session: MIS-3

Moderator(s): Massimo Balsano, MD; James Yue, MD

11:00 am - 11:04 am
531 Interspinous Process Fixation versus Pedicle Screw Fixation in Circumferential Arthrodesis: 1-year Outcomes from a Prospective Randomized Multi-center Trial
Speaker: [P. Passias](#)
Authors: K. Kim(1), R. DenHaese(2), C. Hill(3), B. Strenge(3), A. de Moura(4), A. Kranenburg(5), M. Dennis(6), A. Cappuccino(7), T. Thaiyananthan(8), P. Arnold(9), P. Passias(4), B. Bejin(10), C. Moore(11), S. Martineck(12), C. Ferry(10), K. Martin(10)
(1)UC Davis Health System, Sacramento, CA, United States, (2)AXIS Neurosurgery and Spine, Williamsville, NY, United States, (3)Orthopaedic Institute, Paducah, KY, United States, (4)New York Spine Institute, New York, NY, United States, (5)Southern Oregon Orthopedics, Medford, OR, United States, (6)South Texas Spinal Clinic, San Antonio, TX, United States, (7)Buffalo Spine Surgery, Buffalo, NY, United States, (8)Brain and Spine Institute of California, Newport Beach, CA, United States, (9)University of Kansas Hospital, Kansas City, KS, United States, (10)Zimmer Biomet Spine, Broomfield, CO, United States, (11)University of Colorado Denver, Denver, CO, United States, (12)Medical Device Clinical Trial Consultant, Buffalo, NY, United States

11:05 am - 11:09 am
39 A Critical Analysis of Sagittal Plane Deformity Correction with Minimally Invasive Adult Spinal Deformity Surgery: A 2-year Follow up Study
Speaker: [P. Nunley](#)
Authors: G. Mundis(1,2), V. Deviren(3), J. Uribe(4), P. Nunley(5), P. Mummaneni(3), N. Anand(6), P. Park(7), D. Okonkwo(8), M. Wang(9), S. Bess(10), A. Kanter(8), R. Fessler(11), S. Nguyen(2), B. Akbarnia(2), J. Zavatsky(2), International Spine Study Group
(1)Scripps Clinic, La Jolla, CA, United States, (2)San Diego Center for Spinal Disorders, San Diego, CA, United States, (3)University of California, San Francisco, San Francisco, CA, United States, (4)University of South Florida, Tampa, FL, United States, (5)Spine Institute of Louisiana, Shreveport, LA, United States, (6)Cedars Sinai, Los Angeles, CA, United States, (7)University of Michigan, Ann Arbor, MI, United States, (8)University of Pittsburgh Medical Center, Pittsburgh, PA, United States, (9)University of Miami, Miami, FL, United States, (10)Rocky Mountain Orthopaedics, Denver, CO, United States, (11)Rush University, Chicago, IL, United States

11:10 am - 11:14 am
336 Should Cervical Disc Arthroplasty be done on Patients with Increased Intramedullary Signal Intensity on Magnetic Resonance Imaging?
Speaker: [H-K. Chang](#)
Authors: H-K. Chang(1,2), J-C. Wu(1,2), P-Y. Chang(1,2), T-H. Tu(1,2), L-Y. Fay(1,2), W-C. Huang(1,2), H-C. Chang(3), H. Cheng(1,2)
(1)Taipei Veterans General Hospital, Neurological Institute, Taipei, Taiwan, Republic of China, (2)National Yang-Ming University, School of Medicine, Taipei, Taiwan, Republic of China, (3)Kaohsiung Veterans General Hospital, Surgery, Kaohsiung, Taiwan, Republic of China

11:15 am - 11:19 am
704 Analysis of Factors Associated with Heterotopic Ossification Following Cervical Disc Arthroplasty

Speaker: M. Gornet

Authors: M. Gornet(1), J.A. Hipp(2), N.D. Wharton(2), F.W. Schranck(3), A.G. Copay(3), K. Wymore(4)

(1)The Orthopedic Center of St. Louis, St Louis, MO, United States, (2)Medical Metrics, Houston, TX, United States, (3)SPIRITT Research, St Louis, MO, United States, (4)University of Missouri, School of Medicine, Columbia, MO, United States

11:20 am - 11:29 am

Discussion

11:30 am - 11:34 am

655 Cost and Readmission Rates Based Analysis Comparing Single Level ACDF Procedures using Allograft and Plates versus PEEK Interbody Spacer with Integrated Screws: A Total of 6,894 Patients

Speaker: P.C. McAfee

Authors: P.C. McAfee(1), I.L. Fedder(1), M.D. Dabbah(1), B.W. Cunningham(2), A.A. Murgatroyd(2), L. Chotikul(1), E. Shucosky(1)

(1)University of Maryland St. Joseph Medical Center, Scoliosis and Spine Institute, Towson, MD, United States, (2)Globus Medical, Musculoskeletal Education and Research Center, Audubon, PA, United States

11:35 am - 11:39 am

654 Clinical and Radiologic Results of Minimally Invasive Lateral Lumbar Interbody Fusion without the use of Bone Morphogenic Protein

Speaker: J.C. Lee

Authors: J.C. Lee(1), H.-D. Jang(1), S.-W. Choi(1), J.-H. Kim(2), B.-J. Shin(1)

(1)Soonchunhyang University, Orthopaedic Surgery, Seoul, Korea, Republic of, (2)Inje University Sanggye Paik Hospital, Orthopaedic Surgery, Seoul, Korea, Republic of

11:40 am - 11:44 am

574 Comparative Safety and Efficacy of Percutaneous Pedicle Screw Fixation in the Lumbar Spinal Arthrodesis: A Systematic Review and Meta-analysis

Speaker: Y. Park

Authors: Y. Park(1), S.-O. Seok(2), S.-B. Lee(2), J.-W. Ha(2)

(1)National Health Insurance Service Ilsan Hospital, Yonsei University College of Medicine, Orthopedic surgery, Goyang, Korea, Republic of, (2)National Health Insurance Service Ilsan Hospital, Yonsei University College of Medicine, Goyang, Korea, Republic of

11:45 am - 11:49 am

527 Correlation between Implant Motion and Patient Reported Outcome Measures Following Single Level Cervical Disc Replacement Surgery

Speaker: A.J. Berg

Authors: A.J. Berg(1,2), C.D. Jensen(3), S. Khan(1), R. Malgatil(1), G.R. Reddy(1), C. Bhatia(1), T. Friesem(1)

(1)North Tees and Hartlepool NHS Foundation Trust, Spinal Unit, Stockton on Tees, United Kingdom, (2)Pennine Acute Hospitals NHS Trust, Manchester, United Kingdom, (3)Northumbria Healthcare NHS Foundation Trust, Trauma and Orthopaedics, Northumberland, United Kingdom

11:50 am - 12:00 pm

Discussion

12:00 pm - 1:30 pm - Industry Workshops (not CME)

Globus Medical - Room: Raphael 3 - How Expandable Technology Has Changed My Practice

Speakers: Domagoj Coric, MD; Choll W. Kim, MD, PhD; W. Zachary Ray, MD

LDR - Room: Raphael 1 - MIVo Lumbar Solutions

Speaker: Hieu Ball, MD

Medtronic - Room: Raphael 2 - The Value of Navigation in Minimally Invasive Spine Surgery

NuVasive - Room: Michaelangelo - Alignment Matters: Anterior Column Realignment (ACR®) with Computer Assisted Surgery

Zyga - Room: Donatello 2 - Clinical Data and Experience with a Minimally-Invasive Decortication and Fixation System for Sacroiliac Joint Fusion

Speakers: Richard A Kube, MD; Ali Araghi, MD

1:30 pm - 2:30 pm - The Spine Ortho-Neuro ASC: Staying Ahead of the Curve in Spine Care

Moderators: James Yue, MD; Matthew Gornet, MD

Structuring A Compliant Independently Owned ASC

Structuring a Compliant Joint Venture ASC with Doctors and Hospitals, Regent Surgical Health

The ASC Spine Surgery Practice: What cases can be done in an ASC - Matthew Gornet, MD

Building a Spine ASC, 5 key Points - Richard Kube, MD

2:30 pm - 3:30 pm - General Session: Cervical-1

Moderator(s): Ali Araghi, MD; Seok-Woo Kim, MD

- 2:30 pm - 2:34 pm **517 Cervical kyphosis does not imply cervical deformity: predicting cervical curvature required for horizontal gaze based on spinal global alignment and thoracic kyphosis.**
Speaker: [B. Diebo](#)
Authors: B. Diebo(1), J. Oren(2), M. Spiegel(2), S. Vira(2), E. Tanzi(2), B. Liabaud(1), R. Lafage(2), J. Henry(2), T. Protopsaltis(2), T. Errico(2), F. Schwab(1), V. Lafage(1)
(1)Hospital for Special Surgery, New York, NY, United States, (2)NYU Hospital for Joint Diseases, Orthopedic Surgery, New York, NY, United States
- 2:35 pm - 2:39 pm **366 The Positive Effect of Continued Motion of a Cervical Artificial Disc Replacement on Radiographic Adjacent Level Degeneration at Long Term Follow-Up**
Speaker: [J. Spivak](#)
Authors: J. Spivak(1), J. Zigler(2), M. Janssen(3), B. Darden(4), K. Radcliff(5)
(1)New York University, Orthopedic Surgery, New York, NY, United States, (2)Texas Back Institute, Plano, TX, United States, (3)Spine Education and Research Institute, Denver, CO, United States, (4)OrthoCarolina Spine Center, Charlotte, NC, United States, (5)Rothman Institute Thomas Jefferson University, Philadelphia, PA, United States
- 2:40 pm - 2:44 pm **319 Long-Term Serum Metal Concentrations Up to 84 Months after Surgery in Patients with Metal-on-Metal Cervical Disc Arthroplasty**
Speaker: [J.K. Burkus](#)
Authors: J.K. Burkus(1), V. Singh(2), A. Skipor(3), J. Jacobs(4)
(1)The Hughston Clinic, Spine Surgery, Columbus, GA, United States, (2)Medtronic Spinal and Biologics, Memphis, TN, United States, (3)Rush University Medical Center, Chicago, IL, United States, (4)Midwest Orthopaedics at RUSH, LLC, Chicago, IL, United States
- 2:45 pm - 2:49 pm **326 Impact of Age on Patient Outcomes after Cervical Disc Arthroplasty or Anterior Cervical Discectomy and Fusion: Comparison at 5-Year Follow-up**
Speaker: [M. Hisey](#)
Authors: M. Hisey(1), J. Zigler(2), R. Guyer(2), D. Ohnmeiss(3)
(1)Texas Back Institute, Denton, TX, United States, (2)Texas Back Institute, Plano, TX, United States, (3)Texas Back Institute Research Foundation, Plano, TX, United States
- 2:50 pm - 2:54 pm **129 Impact of Race and Insurance Status on Surgical Approach for Cervical Spondylotic Myelopathy in the United States: A Population-based Analysis**
Speaker: [S. McClelland III](#)
Authors: S. McClelland III(1), B.J. Marascalchi(2), P.G. Passius(1), T.S. Protopsaltis(1), A.K. Frempong-Boadu(3), T.J. Errico(1)
(1)New York University, Division of Spine Surgery, Hospital for Joint Diseases, New York, NY, United States, (2)Johns Hopkins Hospital, Anesthesiology, Baltimore, MD, United States, (3)New York University, Neurosurgery, New York, NY, United States
- 2:55 pm - 3:04 pm **Discussion**
- 3:05 pm - 3:09 pm **321 Impact of Operative Time on Adverse Events Following Anterior Cervical Discectomy and Fusion**
Speaker: [D. Massel](#)
Authors: D. Bohl(1), J. Ahn(1), B. Mayo(1), D. Massel(1), B. Basques(1), W. Long(1), K. Modi(1), K. Singh(1), J. Grauer(2)
(1)Rush University Medical Center, Orthopaedic Surgery, Chicago, IL, United States, (2)Yale School of Medicine, Department of Orthopaedics and Rehabilitation, New Haven, CT, United States
- 3:10 pm - 3:14 pm **259 A MRI characterization of the dorsal cervical cord migration behaviour in hybrid open-door laminoplasty.**
Speaker: [G. Liu Ka Po](#)
Authors: G. Liu Ka Po(1), B.H. Lee(2), E. Poh(3), H.K. Wong(1)
(1)National University Hospital, Singapore, Singapore, (2)Yong Loo Lin School of Medicine, National University of Singapore, Singapore, Singapore, (3)University of Manchester, Manchester, United Kingdom
- 3:15 pm - 3:19 pm **145 Influence of Adverse Events on Clinical Outcomes of Patients in an FDA IDE Clinical Trial of Cervical Total Disc Replacement versus Anterior Cervical Discectomy and Fusion**
Speaker: [D. Ohnmeiss](#)
Authors: D. Ohnmeiss(1), M. Hisey(2), H. Bae(3)

(1)Texas Back Institute Research Foundation, Plano, TX, United States, (2)Texas Back Institute, Denton, TX, United States, (3)Cedars-Sinai Spine Center, Los Angeles, CA, United States

3:20 pm - 3:24 pm **283 Predictors of Hospital Length of Stay and 30-Day Readmission in Cervical Spondylotic Myelopathy Patients: An Analysis of 3057 Patients Using the ACS-NSQIP Database**
Speaker: C. Jalai
Authors: P. Passias(1), C. Jalai(2), N. Worley(2), G. Poorman(3), S. Vira(2), S. Hasan(2), A. White(4), M. Gerling(2), V. Lafage(5), T. Errico(2)
(1)NYU Hospital for Joint Diseases, Department of Orthopaedic Surgery, NYC, NY, United States, (2)NYU Hospital for Joint Diseases, Department of Orthopaedic Surgery, New York, NY, United States, (3)New York University, Hospital for Joint Diseases, New York, NY, United States, (4)Harvard Medical School, Department of Orthopaedic Surgery, Boston, MA, United States, (5)Hospital for Special Surgery, Department of Orthopaedics, New York, NY, United States

3:25 pm - 3:29 pm **Discussion**

3:30 pm - 4:00 pm - Break on Exhibit Floor

4:00 pm - 5:00 pm - General Session: Tumor, Trauma, Infection, Image

Moderator(s): Ulrich Berlemann, MD; Stephen Hochschuler, MD

4:00 pm - 4:04 pm **535 Anterior Fixation Is Important for Pelvic Ring Stability with a Posterior-only Lumbopelvic Approach for a Complex Sacral Zone II Fracture with Anterior Ring Disruption**
Speaker: E. Jazini
Authors: E.Jazini(1), N. Klocke(2), O. Tannous(1), H. Johal(1), J. Hao(2), D. Gelb(1), J. Nascone(1), R. O'Toole(1), B. Bucklen(2), S. Ludwig(3)
(1)University of Maryland, Department of Orthopaedics at Shock Trauma, Baltimore, MD, United States, (2)Musculoskeletal Education and Research Center (MERC), A Division of Globus Medical, Inc., Audubon, PA, United States, (3)University of Maryland, Baltimore, MD, United States

4:05 pm - 4:09 pm **635 Are Two Trans-iliac Trans-sacral Screws Necessary for Biomechanical Stabilization of Zone II Sacral Fractures? A "Floating Hip Model" Cadaveric Investigation**
Speaker: R. O'Toole
Authors: E. Jazini(1), N. Klocke(2), O. Tannous(1), H. Johal(1), J. Hao(2), D. Gelb(1), J. Nascone(1), R. O'Toole(1), B. Bucklen(2), S. Ludwig(3)
(1)University of Maryland, Department of Orthopaedics at Shock Trauma, Baltimore, MD, United States, (2)Musculoskeletal Education and Research Center (MERC), A Division of Globus Medical, Inc., Audubon, PA, United States, (3)University of Maryland, Baltimore, MD, United States

4:10 pm - 4:14 pm **177 Analysis of Postoperative Thoracolumbar Spine Infections in a Prospective Randomized Controlled Trial Using the Centers for Disease Control Surgical Site Infection Criteria**
Speaker: S. McClelland III
Authors: S. McClelland III(1), R.C. Takemoto(1), B.S. Lonner(2), A.M. Tate(1), J.J. Park(1), P.A. Ricart-Hoffiz(1), J.A. Bendo(1), J.A. Goldstein(1), J.M. Spivak(1), T.J. Errico(1)
(1)New York University, Division of Spine Surgery, Hospital for Joint Diseases, New York, NY, United States, (2)Mount Sinai Beth Israel, Orthopaedics, New York, NY, United States

4:15 pm - 4:19 pm **154 Risk Factors for Kyphotic Change after Short-segment Temporary Fixation for Thoracolumbar Burst Fractures**
Speaker: H. Aono
Authors: H. Aono(1), K. Ishii(2), H. Tobimatsu(1), S. Takenaka(1), Y. Nagamoto(1), M. Iwasaki(3)
(1)Osaka National Hospital, Orthopedic Surgery, Osaka, Japan, (2)University of California, San Francisco Orthopedic Trauma Institute, Orthopedic Surgery, San Francisco, CA, United States, (3)Osaka Rosai Hospital, Orthopedic Surgery, Sakai, Japan

4:20 pm - 4:24 pm **644 Robot-assisted vs. Freehand Pedicle Screw Fixation in the Lumbar Spine - A Prospective Randomized Controlled Trial – A Perspective for Early Radiological and Perioperative Outcomes**
Speaker: H-J. Kim
Authors: H-J. Kim(1)
(1)Seoul National University Medical College and Seoul National University Bundang Hospital, Orthopaedic Surgery, Bundang, Korea, Republic of

4:25 pm - 4:34 pm **Discussion**

4:35 pm - 4:39 pm **514 The Influence of Histological Subtype in Predicting Survival of Lung Cancer Patients with Spinal Metastases**
Speaker: D. Hey
Authors: N. Kumar(1), K-A. Tan(1), J. Tan(1), A.S. Zaw(1), D. Hey(1)
(1)National University Health System, Singapore, Singapore

- 4:40 pm - 4:44 pm **226 Can stand-alone construction achieve fusion in anterior lumbar procedure using self-blocking cage? A CT study**
 Speaker: [L. Pimenta](#)
 Authors: L. Marchi(1), R. Amaral(1), F. Fortti(1), L. Oliveira(1), E. Coutinho(1), R. Jensen(1), L. Pimenta(1,2)
 (1)Instituto de Patologia da Coluna, Sao Paulo, Brazil, (2)USCD, Neurosurgery, San Diego, CA, United States
- 4:45 pm - 4:49 pm **83 Can Occult Infection be Demonstrated in the Setting of Pain in Patients who Have Undergone Spinal Surgery?**
 Speaker: [T. Callanan](#)
 Authors: T. Callanan(1), D. Lebl(1), C. Abjornson(1), F. Cammisa(1)
 (1)Hospital for Special Surgery, New York, NY, United States
- 4:50 pm - 4:54 pm **686 Minimal Invasive Management of Spondylodiscitis: About 28 Cases**
 Speaker: [P. Tropiano](#)
 Authors: B. Blondel(1), P. Tropiano(2), S. Fuentes(3)
 (1)Université Aix-Marseille, Orthopaedic Surgery, Marseille, France, (2)Université Aix-Marseille, Spine Unit, Marseille, France, (3)Université Aix-Marseille, Marseille, France
- 4:55 pm - 5:00 pm **Discussion**

5:00 pm - 6:00 pm - Oral Posters: MIS

Moderator(s): Steven Garfin, MD

- 5:00 pm - 5:04 pm **102 Postoperative Narcotic Following a Single-level Minimally Invasive Transforaminal Lumbar Interbody Fusion: A Comparison by Body Mass Index**
 Speaker: [B. Mayo](#)
 Authors: D. Massel(1), B. Mayo(1), W. Long(1), K. Modi(1), K. Singh(1)
 (1)Rush University Medical Center, Orthopaedic Surgery, Chicago, IL, United States
- 5:05 pm - 5:09 pm **188 The Effect of Obesity on the Improvement In Health State Outcomes Following Minimally Invasive Transforaminal Interbody Fusion**
 Speaker: [S. Overlay](#)
 Authors: S. McAnany(1), S. Overlay(1), D. Patterson(1), D. Alicea(1), J. Guzman(1), S. Qureshi(1)
 (1)The Mount Sinai Hospital, Orthopaedic surgery, New York, NY, United States
- 5:10 pm - 5:14 pm **365 Safety and Effectiveness of Minimally Invasive Sacroiliac Joint Fusion in Women with Persistent Post-partum Posterior Pelvic Girdle Pain: 12-month outcomes from a prospective, multi-center trial**
 Speaker: [C. Reckling](#)
 Authors: C. Reckling(1), R. Capobianco(1), D. Cher(1), SIFI Study Group
 (1)SI-BONE, Inc., San Jose, CA, United States
- 5:15 pm - 5:19 pm **193 A cost-effectiveness analysis of minimally invasive versus open surgery techniques for lumbar spinal fusion in the US**
 Speaker: [B. Borgman](#)
 Authors: B. Borgman(1), S. Vertuani(2), J. Nilsson(2)
 (1)Medtronic International, Global Health Economics & Reimbursement Spine & Biologics, Tolochenaz, Switzerland, (2)Mapi Group, Stockholm, Sweden
- 5:20 pm - 5:24 pm **141 Differences in Clinical Outcomes between Isthmic and Degenerative Spondylolisthesis Following a Minimally Invasive Transforaminal Lumbar Interbody Fusion**
 Speaker: [K. Singh](#)
 Authors: D. Massel(1), B. Mayo(1), W. Long(1), K. Modi(1), B. Basques(1), G. Lopez(1), K. Singh(1)
 (1)Rush University Medical Center, Orthopaedic Surgery, Chicago, IL, United States
- 5:25 pm - 5:29 pm **533 Is the Different Component of Intravertebral Cleft Influence the Clinical Efficacy of Percutaneous Kyphoplasty?**
 Speaker: [J. Niu](#)
 Authors: J. Niu(1), B. Meng(1), H. Yang(1)
 (1)The First Affiliated Hospital of Soochow University, Department of Orthopaedics, Suzhou, China
- 5:30 pm - 5:34 pm **252 Percutaneous Transforaminal Lumbar Interbody Fusion (pTLIF) with a Posterolateral Transforaminal Approach**
 Speaker: [R. Morgenstern](#)
 Authors: R. Morgenstern(1), C. Morgenstern(2)

(1)Hospital Quirón Teknon, Barcelona, Spain, (2)Charité Universitätsmedizin Berlin, Department for Orthopedic Surgery, Berlin, Germany

- 5:35 pm - 5:39 pm **227 Are stand-alone cages sufficient for anterior lumbar interbody fusion for L5S1 low-grade spondylolisthesis? A case series**
Speaker: [L. Pimenta](#)
Authors: L. Marchi(1), F. Fortti(1), L. Oliveira(1), R. Amaral(1), E. Coutinho(1), R. Jensen(1), L. Pimenta(1,2)
(1)Instituto de Patologia da Coluna, Sao Paulo, Brazil, (2)USCD, Neurosurgery, San Diego, CA, United States
- 5:40 pm - 5:44 pm **162 Minimally Invasive Transforaminal Lumbar Interbody Fusion: Comparison of Grade I vs. Grade II Isthmic Spondylolisthesis**
Speaker: [D. Massel](#)
Authors: D. Massel(1), B. Mayo(1), W. Long(1), K. Modi(1), B. Basques(1), G. Lopez(1), K. Singh(1)
(1)Rush University Medical Center, Orthopaedic Surgery, Chicago, IL, United States
- 5:45 pm - 5:49 pm **186 The Effect of Obesity on Patient Reported Outcome Measures Following Minimally Invasive Transforaminal Lumbar Interbody Fusion**
Speaker: [S. Overlay](#)
Authors: S. McAnany(1), S. Overlay(1), S. Andelman(2), D. Alicea(2), M. Anwar(2), J. Kim(2), S. Qureshi(2)
(1)The Mount Sinai Hospital, Orthopaedic Surgery, New York, NY, United States, (2)The Mount Sinai Hospital, Orthopaedic surgery, New York, NY, United States
- 5:50 pm - 5:59 pm **Discussion**

5:00 pm - 6:00 pm - Oral Posters: Cervical

Moderator(s): Donna Ohnmeiss, Dr.Med

- 5:00 pm - 5:04 pm **687 Focal and Dynamic Cervical Alignment Pathology Correlates with Myelopathy Severity in Cervical Deformity Patients**
Speaker: [R. Lafage](#)
Authors: R. Lafage(1), V. Lafage(1), T. Protopsaltis(2), R. Hart(3), P. Passias(2), E. Klineberg(4), J. Smith(5), B. Neuman(6), D.K. Hamilton(7), A. Jain(8), G. Mundis(9), L. Zabala(10), C. Shaffrey(5), C. Ames(11), International Spine Study Group
(1)Hospital for Special Surgery, New York, NY, United States, (2)NYU Hospital for Joint Diseases, New York, NY, United States, (3)OHSU, Portland, OR, United States, (4)UC Davis Health System, Sacramento, CA, United States, (5)University of Virginia, Charlottesville, NH, United States, (6)Rocky Mountain Scoliosis & Spine, Denver, CO, United States, (7)University of Pittsburgh, Pittsburgh, PA, United States, (8)Johns Hopkins Hospital, Baltimore, MD, United States, (9)San Diego Center for Spinal Disorders, San Diego, CA, United States, (10)Washington University in St. Louis, St. Louis, MO, United States, (11)UCSF, San Francisco, CA, United States
- 5:05 pm - 5:09 pm **614 A Comparative Cohort Study of Cervical 1-2 Instrumentation: Fluoroscopy versus CT-image Guided Navigation**
Speaker: [D. Drazin](#)
Authors: L. Ross(1), D. Drazin(1), C. Lagman(1), J. Hsieh(2), E.M. Baron(3), T.T. Kim(3,4), J.P. Johnson(3,5)
(1)Cedars Sinai Medical Center, Neurosurgery, Los Angeles, CA, United States, (2)University of Texas Health Science Center at Houston, Neurosurgery, Houston, TX, United States, (3)Cedars Sinai Spine Center, Neurosurgery, Los Angeles, CA, United States, (4)Cedars Sinai Spine Center, Orthopaedic Spine Surgery, Los Angeles, CA, United States, (5)University of California, Davis, Neurosurgery, Sacramento, CA, United States
- 5:10 pm - 5:14 pm **528 Long Term Follow Up of Multi-Level (Three & Four Levels) Cervical Disc Arthroplasty - Results from a Single Center**
Speaker: [S. Friesem](#)
Authors: S. Friesem(1), S. Khan(1), M. Rajesh(1), A. Berg(1), G. Reddy(1), C. Bhatia(1)
(1)University Hospital of North Tees, Orthopaedics, Stockton on Tees, United Kingdom
- 5:15 pm - 5:19 pm **421 Radiographic Analysis of Postoperative Delayed Cervical Palsies**
Speaker: [R. Puffer](#)
Authors: P. Maloney(1), M. Gates(1), G. Mallory(1), R. Puffer(1), R. Planchard(1), M. Clarke(1)
(1)Mayo Clinic, Rochester, MN, United States
- 5:20 pm - 5:24 pm **88 Cervical and Lumbar Nerve Root Compression: Comparison of Sensory Symptoms and Recovery after Surgery**
Speaker: [D. Ohnmeiss](#)

Authors: D. Sengupta(1,2), D. Ohnmeiss(3), P. Huang(2,4)
(1)Texas Back Institute, Mansfield, TX, United States, (2)Dartmouth-Hitchcock Medical Center, Lebanon, NH, United States, (3)Texas Back Institute Research Foundation, Plano, TX, United States, 4301 Hospital, Department of Orthopaedics, Beijing, China

5:25 pm - 5:29 pm **330 Clinical and Radiographic Outcomes Following 4-level Anterior Cervical Discectomy and Fusion: A Single Surgeon Experience of 38 patients.**
Speaker: [A. Richter](#)
Authors: A. Richter(1), J. Deckey(1), M. Hoang(1), J. Smith(1)
(1)Hoag Orthopaedic Institute, Irvine, CA, United States

5:30 pm - 5:34 pm **178 Operative Fusion of Multilevel Cervical Spondylotic Myelopathy: Impact of Patient Demographics**
Speaker: [S. McClelland III](#)
Authors: S. McClelland III(1), B.J. Marascalchi(2), P.G. Passius(1), T.S. Protopsaltis(1), A.K. Frempong-Boadu(3), T.J. Errico(1)
(1)New York University, Division of Spine Surgery, Hospital for Joint Diseases, New York, NY, United States, (2)Johns Hopkins Hospital, Anesthesiology, Baltimore, MD, United States, (3)New York University, Neurosurgery, New York, NY, United States

5:35 pm - 5:39 pm **423 Analysis of prevertebral soft tissue swelling after one and two level anterior cervical discectomy and fusion using standard external plate or low profile plate and spacer**
Speaker: [J. Sclafani](#)
Authors: C. Jones(1), J. Sclafani(2), R. Gordon(3), C. Gordon(3)
(1)University of Texas Health Science Center at San Antonio, San Antonio, TX, United States, (2)Milestone Research Organization, San Diego, CA, United States, (3)Precision Spine Care, Tyler, TX, United States

5:40 pm - 5:44 pm **344 Diabetes as a Predictor for Extended Hospital Stay and Complications in Surgically Treated CSM Patients**
Speaker: [G. Poorman](#)
Authors: N. Worley(1), C. Jalai(1), G. Poorman(1), S. Vira(1), S. Wang(2), T. Errico(1), M. Gerling(1), P. Passias(1)
(1)NYU Hospital for Joint Diseases, Department of Orthopaedic Surgery, New York, NY, United States, (2)Peking University Third Hospital, Orthopaedic Department, Beijing, China

5:45 pm - 5:49 pm **493 Usefulness of Three-dimensional Measurement of Ossification of the Posterior Longitudinal Ligament (OPLL) in Patients with OPLL-induced Myelopathy**
Speaker: [S. Yi](#)
Authors: N. Lee(1), G.Y. Ji(1), H.C. Shin(2), Y. Ha(1), D.A. Shin(1), S. Yi(1)
(1)Severance Hospital, Yonsei University, Neurosurgery, Seoul, Korea, Republic of, (2)Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Neurosurgery, Seoul, Korea, Republic of

5:50 pm - 5:59 pm **Discussion**

5:00 pm - 6:00 pm - Oral Posters: Biomechanics

Moderator(s): Leonard Voronov, MD, PhD

5:00 pm - 5:04 pm **274 Biomechanical Evaluation of an In Situ Cured Silicone Rubber Nucleus Replacement Device**
Speaker: [B. Norton](#)
Authors: B. Norton(1), W.L. Francis(2), T. Sherman(1), J. Sherman(3)
(1)Medavise, Eden Prairie, MN, United States, (2)Spinal Stabilization Technologies, San Antonio, TX, United States, (3)Twin Cities Orthopedics, Edina, MN, United States

5:05 pm - 5:09 pm **664 Correlation between Polyurethane Foam and Human Cancellous Bone Maximum Pedicle Screw Pullout Load Properties as a Function of Density**
Speaker: [D. Cook](#)
Authors: D. Cook(1), M. Yeager(1), J. Zheng(1), J. McCool(2), J. Schmidt(2), B. Cheng(1)
(1)Allegheny Health Network, Pittsburgh, PA, United States, (2)K2M, Leesburg, VA, United States

5:10 pm - 5:14 pm **545 Analysis of the Biomechanical Response of the Postoperative Lumbar Spine Implanted with 3D-printed Cages**
Speaker: [S.J. Yoo](#)
Authors: S.J. Lee(1), S.H. Kim(1), S.J. Yoo(1), J.W. Lee(1), W.M. Chen(1), S.H. Woo(2), J.W. Jang(2), K.M. Lim(2), D.S. Huh(3), S.S. Chung(4), H. Yong(5), J.B. Choi(6)
(1)Inje University, Biomedical Engineering, Kimhae, Korea, Republic of, (2)Medyssey Co., Ltd, R&D Center, Uijeongbu, Korea, Republic of, (3)CM Chungmu General Hospital, Department of Orthopedic Surgery, Seoul, Korea, Republic of, (4)Samsung Hospital, Department of Orthopedic Surgery, Seoul, Korea, Republic of, (5)Chaoyang Hospital, Capital Medical University, Department of Orthopedic Surgery, Beijing, China, (6)Hansung University, Department of Mechanical Systems Engineering, Seoul, Korea,

Republic of

- 5:15 pm - 5:19 pm **173 Does Sacroiliac Joint Fusion Alter Contralateral Joint Loading? Finite Element Analysis of a Minimally Invasive Procedure**
Speaker: [D. Lindsey](#)
Authors: D. Lindsey(1), A. Kiapour(2), M. Gundanna(3,4), S. Yerby(1), V. Goel(2)
(1)SI-BONE, Inc., San Jose, CA, United States, (2)E-CORE, Toledo, OH, United States, (3)The Physicians Centre, Bryan, TX, United States, (4)College Station Medical Center, College Station, TX, United States
- 5:20 pm - 5:24 pm **26 Finite Element Modeling of the Full Lumbar Spine with an Intervertebral Disc Nucleus Replacement Device**
Speaker: [D. Lopresti](#)
Authors: D. Lopresti(1), J. Coogan(1), W.L. Francis(2), T. Eliason(1), T. Bredbenner(1), J. Lutz(2), N. Hibri(2), D. Nicoletta(1)
(1)Southwest Research Institute, San Antonio, TX, United States, (2)Spinal Stabilization Technologies, San Antonio, TX, United States, (3)NovaSpine Pain Institute, Sun City, AZ, United States
- 5:25 pm - 5:29 pm **475 Biomechanical Analysis of a Sliding Pedicle Screw System for Early-onset Scoliosis**
Speaker: [W. Wang](#)
Authors: Z. Ouyang(1,2), W. Wang(2), K. Bell(1)
(1)University of Pittsburgh, Pittsburgh, PA, United States, 21st Affiliated Hospital of South China University, Hengyang, China
- 5:30 pm - 5:34 pm **140 An in-vitro Biomechanical Evaluation of a Novel Interspinous Fixation Device with in-situ Shortening/Extension Capabilities**
Speaker: [C. Ferry](#)
Authors: C. Wagener(1), R. DenHaese(2), A. Gandhi(3), C. Ferry(3), S. Farmer(3)
(1)Coordinated Health, Bethlehem, PA, United States, (2)AXIS Neurosurgery and Spine, Williamsville, NY, United States, (3)Zimmer Biomet Spine, Broomfield, CO, United States
- 5:35 pm - 5:39 pm **257 Determining the Weighted Impact of Factors Leading to Intervertebral Cage Subsidence**
Speaker: [P. Suh](#)
Authors: P. Suh(1), C. Lewis(2), C. Puttlitz(3), K. McGilvray(3)
(1)Orthopedic Specialists of NC, Raleigh, NC, United States, (2)Amedica, Salt Lake City, UT, United States, (3)Colorado State University, Fort Collins, CO, United States
- 5:40 pm - 5:44 pm **310 A Finite Element Analysis Of Lumbar Instability After Pedicle Subtraction Osteotomy: A Comparison Of Different Hardware Constructs**
Speaker: [A. Luca](#)
Authors: A. Luca(1), A. Lovi(1), M. Brayda-Bruno(1), C. Ottardi(2), F. Galbusera(3), T. Villa(2)
(1)IRCCS GALEAZZI INSTITUTE, Spine Unit III, Milan, Italy, (2)Politecnico di Milano, Laboratory of Biological Structure Mechanics, Milan, Italy, (3)IRCCS GALEAZZI INSTITUTE, Laboratory of Biological Structure Mechanics, Milan, Italy
- 5:45 pm - 5:49 pm **116 Biomechanical Evaluation of a Less Invasive Lumbar Fixation Device for Midline Bilateral Decompression**
Speaker: [J.P. Malloy](#)
Authors: C.D. Chaput(1), J.P. Malloy(2), H.E. Soriano-Baron(3), N.G. Rodriguez-Martinez(3), N.R. Crawford(3), L. Ferrara(4)
(1)BaylorScott&White Health, Orthopedics, Temple, TX, United States, (2)Broward Health North, Orthopedics, Pompano Beach, FL, United States, (3)Barrow Neurological Institute, Spinal Biomechanics Laboratory, Phoenix, AZ, United States, (4)OrthoKinetic Technologies, Southport, NC, United States
- 5:50 pm - 6:00 pm **Discussion**

5:00 pm - 6:00 pm - Oral Posters: Melting Pot

Moderator(s): Mamoru Kawakami, MD, PhD

- 5:00 pm - 5:04 pm **288 The Qualification of Polycrystalline Diamond as a Bearing Material Enabling Novel Disc Replacement Designs**
Speaker: [D. Harding](#)
Authors: D. Harding(1), G. Loesener(1), D. Blackburn(1), R. Dixon(1), B.-K. Nguyen(1), J. Taylor(1)
(1)Dymicron Inc, Orem, UT, United States
- 5:05 pm - 5:09 pm **150 Development, Characterization, and in vitro Assessment of Additive Manufactured Biomimetic Implant Surfaces**
Speaker: [R. MacBarb](#)
Authors: R. MacBarb(1), D. Lindsey(1), C. Bahney(2), S. Woods(3), M. Wolfe(3), S. Yerby(1)
(1)SI-BONE, Inc., San Jose, CA, United States, (2)UCSF, Orthopaedic Surgery, San Francisco, CA, United States

States, (3)MPI Research, Mattawan, MI, United States

- 5:10 pm - 5:14 pm **634 Spinal Stenosis in the Absence of Spondylolithesis: Can Interlaminar Stabilization at Single and Multi-levels Provide Sustainable Relief?**
Speaker: [C. Abjornson](#)
Authors: C. Abjornson(1), B.V. Yoon(1), S. Grinberg(1), F. Cammisa(2)
(1)Hospital for Special Surgery, Integrated Spine Research Program, New York, NY, United States, (2)Hospital for Special Surgery, New York, NY, United States
- 5:15 pm - 5:19 pm **498 Thoracic Volume Progressively Decreases in a Virtual Osteoporotic Vertebral Wedging Model with Increasing Severity of Kyphotic Deformity**
Speaker: [D.W. Polly](#)
Authors: P-C. Lee(1), C.G.T. Ledonio(2), D.W. Polly(2), K.E. Jones(3), A.G. Erdman(1)
(1)University of Minnesota, Mechanical Engineering, Minneapolis, MN, United States, (2)University of Minnesota, Orthopaedic Surgery, Minneapolis, MN, United States, (3)University of Minnesota, Neurosurgery, Minneapolis, MN, United States
- 5:20 pm - 5:24 pm **467 Disc Gene Therapy: Development of a novel inducible system to regulate expression of the therapeutic transgene TIMP1**
Speaker: [Z. ouyang](#)
Authors: Z. ouyang(1,2), G. Sowa(1)
(1)University of Pittsburgh, Pittsburgh, PA, United States, 21st Affiliated Hospital of South China University, Hengyang, China
- 5:25 pm - 5:29 pm **267 Improved fusion performance of rhBMP-2 by new carrier in porcine posterolateral fusion**
Speaker: [H-K. Wong](#)
Authors: M. Wang(1), R.W.M. Lam(1), S.A. Abbah(1), T. Hu(1), S. Cool(2), K. Bhakoo(3), J. Li(4), J.C.H. Goh(4), H-K. Wong(1)
(1)National University of Singapore, Department of Orthopaedic Surgery, Singapore, Singapore, (2)Institute of Medical Biology, Singapore, Singapore, (3)Singapore Bioimaging Consortium, Singapore, Singapore, (4)National University of Singapore, Department of Bioengineering, Singapore, Singapore
- 5:30 pm - 5:34 pm **441 Patient-Specific ROM Predicted by Pre-operative Templating after Total Disc Replacement Surgery**
Speaker: [C. Cain](#)
Authors: C. Cain(1), J. Hollenbeck(2), J. Fattor(1), V. Patel(1), E. Burger(1), P. Rullkoetter(2)
(1)University of Colorado Anschutz Medical Campus, Aurora, CO, United States, (2)University of Denver, Denver, CO, United States
- 5:35 pm - 5:39 pm **205 Prevalence and Factors Affecting Cervical Deformity in Adolescent Idiopathic Scoliosis Patients**
Speaker: [I. Lieberman](#)
Authors: I. Lieberman(1), X. Hu(1)
(1)Texas Back Institute, Texas Health Presbyterian Hospital Plano, Scoliosis and Spine Tumor Center, Plano, TX, United States
- 5:40 pm - 5:44 pm **346 Fibromyalgia as a risk factor for patients undergoing spinal arthrodesis**
Speaker: [D. Crandall](#)
Authors: D. Crandall(1), J. Revella(2), J. Nelson(3), J. Datta(1), M. Chang(1), T. Crowder(1), L. Young(1), R. Mclemore(2)
(1)Sonoran Spine, Tempe, AZ, United States, (2)Sonoran Spine Research and Education Foundation, Tempe, AZ, United States, (3)University of Michigan, Department of Orthopedic Surgery, Ann Arbor, MI, United States
- 5:45 pm - 5:49 pm **208 Robotic-guided Sacro-Pelvic Fixation Using S2 Alar-Iliac Screws: Feasibility and Accuracy**
Speaker: [I. Lieberman](#)
Authors: I. Lieberman(1), X. Hu(1)
(1)Texas Back Institute, Texas Health Presbyterian Hospital Plano, Scoliosis and Spine Tumor Center, Plano, TX, United States
- 5:50 pm - 6:00 pm **Discussion**

5:00 pm - 6:00 pm - Oral Posters: Tumor, Trauma, Infection, Image

Moderator(s): Stephen Hochschuler, MD

- 5:00 pm - 5:04 pm **652 Cemented versus Uncemented Posterior Fixation for Unstable Traumatic Spinal Fractures: A One Year Follow up Study**
Speaker: [J. Schroeder](#)
Authors: Y. Gellman(1), J. Schroeder(1), A. Shani(2), A. Hasharoni(1), L. Kaplan(1), N. Rahamimov(2)

(1)Hadassah Hebrew University Medical Center, Jerusaelm, Israel, (2)Western Galilee Hospital, Spine Surgery, Nahriah, Israel

- 5:05 pm - 5:09 pm **713 Hyperbaric Oxygen Intervention Reduces Secondary Spinal Cord Injury in Rats Via Regulation of HMGB1/TLR4/NF- κ B Signaling Pathway**
Speaker: [N. Kang](#)
Authors: N. Kang(1), Y. Hai(1)
(1)Beijing Chaoyang Hospital Affiliate Capital Medical University, Orthopaedic Department, Beijing, China
- 5:10 pm - 5:14 pm **394 Fracture Gap Size Matters: Lumbopelvic Fixation Provides Better Fixation Than One Trans-Sacral Screw in Complex Sacral Fractures**
Speaker: [N. Klocke](#)
Authors: E. Jazini(1), N. Klocke(2), O. Tannous(3), H. Johal(3), J. Hao(2), D. Gelb(3), J. Nascone(3), R. O'Toole(3), B. Bucklen(2), S. Ludwig(3)
(1)University of Maryland, Department of Orthopaedics at Shock Trauma, Baltimore, MD, United States, (2)Globus Medical, Inc., Audubon, PA, United States, (3)University of Maryland, Baltimore, MD, United States
- 5:15 pm - 5:19 pm **403 Thromboembolic events after traumatic lumbar vertebral fractures: an analysis of 80,558 patients**
Speaker: [A. Samuel](#)
Authors: A. Samuel(1), P. Diaz-Collado(1), R. Gala(1), M. Webb(1), A. Lukasiewicz(1), B. Basques(2), D. Bohl(2), J. Grauer(1)
(1)Yale University School of Medicine, New Haven, CT, United States, (2)Rush University Medical Center, Chicago, IL, United States
- 5:20 pm - 5:24 pm **522 Preoperative Embolization in Spinal Tumour Surgery: Evaluation of Blood Loss and Transfusion Requirements**
Speaker: [D. Hey](#)
Authors: N. Kumar(1), A.S. Zaw(2), A. Gopinathan(2), B. Tan(2), D. Hey(3)
(1)National University Hospital, Orthopaedic Surgery, Singapore, Singapore, (2)National University Health System, Singapore, Singapore, (3)University Orthopaedics, Hand and Reconstructive Microsurgery (UOHC) National University Health System, Singapore, Orthopaedics, Singapore, Singapore
- 5:25 pm - 5:29 pm **418 Hospital-acquired pneumonia occurs in 20.5% of cervical spinal cord injury patients and is associated with poor inpatient outcomes: An analysis of 5,198 patients**
Speaker: [A. Samuel](#)
Authors: A. Samuel(1), P. Diaz-Collado(1), M. Fu(2), A. Lukasiewicz(1), M. Webb(1), D. Bohl(3), B. Basques(3), J. Grauer(1)
(1)Yale University School of Medicine, New Haven, CT, United States, (2)Hospital for Special Surgery, New York City, NY, United States, (3)Rush University Medical Center, Chicago, IL, United States
- 5:30 pm - 5:34 pm **287 Minimally Invasive Lateral Approach Corpectomy and Fusion for Thoracolumbar Fracture: Clinical and Radiographic Outcomes**
Speaker: [W. Smith](#)
Authors: W. Smith(1), L. Xueshi(2)
(1)University Medical Center, Chief of Neurosurgery, Las Vegas, NV, United States, (2)Jiangmen Central Hospital, Department of Orthopedics, Jiangmen, China
- 5:35 pm - 5:39 pm **651 Computer Assisted Robotic Surgery in the Octogenarians: A Case Controlled Study**
Speaker: [J. Schroeder](#)
Authors: J. Schroeder(1), Y. Barzilay(2), E. Itzhayek(1), L. Kaplan(1)
(1)Hadassah Hebrew University Medical Center, Jerusaelm, Israel, (2)Sharei Tzedek Hospital, Jeruaslem, Israel
- 5:40 pm - 5:44 pm **106 Causal Factors for Upper Extremity Positional Nerve Injuries as Seen by Somatosensory Evoked Potentials in Patients Undergoing Thoracolumbar and Lumbosacral Spine Surgery**
Speaker: [J. Silverstein](#)
Authors: J. Silverstein(1,2), E. Matthews(2), L. Mermelstein(3), H. DeWal(3)
(1)Neuro Protective Solutions, LLC, Clinical Neurophysiology, Hauppauge, NY, United States, (2)AT Still University, College of Graduate Health Studies, Mesa, AZ, United States, (3)Long Island Spine Specialists, Orthopedic Spine Surgery, Commack, NY, United States
- 5:45 pm - 5:49 pm **343 Surgical Site Infections After CSM Treatment: Prevalence, Predictors, and Influence on Peri-operative Outcomes.**
Speaker: [C. Jalai](#)
Authors: C. Jalai(1), P. Passias(2), N. Worley(1), S. Vira(1), G. Poorman(1)
(1)NYU Hospital for Joint Diseases, Department of Orthopaedic Surgery, New York, NY, United States, (2)NYU Hospital for Joint Diseases, Department of Orthopaedic Surgery, NYC, NY, United States
- 5:50 pm - 6:00 pm **Discussion**

5:00 pm - 6:00 pm - Oral Posters: Spine Smorgasbord

Moderator(s): James Yue, MD

- 5:00 pm - 5:04 pm **195 Does Prophylactic Use of Reduction Bands Above a Long-Rigid Construct Have Feasibility in the Context of PJK Avoidance? A Biomechanical Analysis**
Speaker: [B. Bucklen](#)
Authors: F. Lamarca(1), C. Farley(1), E. Matheis(2), J. Hao(2), B. Bucklen(2)
(1)University of Michigan, Ann Arbor, MI, United States, (2)Globus Medical, Audubon, PA, United States
- 5:05 pm - 5:09 pm **196 Does Prophylactic Use of Reduction Bands Above a Long-Rigid Construct Have Feasibility in the Context of PJK Avoidance? An Analysis of Intradiscal Pressure.**
Speaker: [B. Bucklen](#)
Authors: F. Lamarca(1), C. Farley(1), E. Matheis(2), J. Hao(2), B. Bucklen(2)
(1)University of Michigan, Ann Arbor, MI, United States, (2)Globus Medical, Audubon, PA, United States
- 5:10 pm - 5:14 pm **413 Measuring Cobb's angle in scoliosis – Can Smartphones match manual methods and software based analysis? A three way crossover study**
Speaker: [S. Pramod](#)
Authors: S. Pramod(1), P. Aditya Prasad(1), P. Aghilavendan(1), V. Vamsi Krishna(1), K. Sajan Hegde(1)
(1)Apollo hospital, Orthopedics, Chennai, India
- 5:15 pm - 5:19 pm **675 Nano-TiO₂ Surface Sealant Combined with Mimetic Laser Etching Promotes Bone Differentiation and Does Not Affect Cell Viability**
Speaker: [W. Weston](#)
Authors: W. Weston(1), H. Hoskin(2), L. Detter-Hoskin(3), T. Ganey(4)
(1)UMTB/Vivex Biomedical, Miami, FL, United States, (2)Washnigton and Lee University, Lexington, VA, United States, (3)Georgia Institute of Technology, Atlanta, GA, United States, (4)Atlanta Medical Center, Atlanta, GA, United States
- 5:20 pm - 5:24 pm **615 Augmentation of Pedicle Screws with a Self-curing Elastomeric Material**
Speaker: [W. Schmoelz](#)
Authors: W. Schmoelz(1), A. Keiler(1), M. Konschake(2), N. Marotta(3), A. Gasbarrini(4)
(1)Medical University of Innsbruck, Trauma Surgery, Innsbruck, Austria, (2)Medical University of Innsbruck, Anatomy, Innsbruck, Austria, (3)University of Rome, Rome, Italy, (4)Rizzoli Institute, Bologna, Italy
- 5:25 pm - 5:29 pm **577 Verification of Nerve Decompression Using Mechanomyography (MMG)**
Speaker: [B. Cook](#)
Authors: W. Ghacham(1), N. Wessell(1), J. Khalil(1), J. Zavatsky(2), S. Bartol(1), B. Cook(1)
(1)Henry Ford Medical Center, Detroit, MI, United States, (2)Spine and Scoliosis Specialists, Tampa, FL, United States
- 5:30 pm - 5:34 pm **714 Long-term Prospective Randomized Outcomes Following Lumbar Total Disc Replacement: A Single Site Experience with 6 Years Follow-up**
Speaker: [J. Yue](#)
Authors: J. Yue(1)
(1)Yale University School of Medicine, Orthopaedic Surgery, New Haven, CT, United States
- 5:35 pm - 5:39 pm **153 Minimal Access Surgical Treatment of Lumbar Spondylolisthesis in the Elderly Patient: Trans-facet Pedicle Screw Instrumentation**
Speaker: [J. Kushkuley](#)
Authors: J. Kushkuley(1), F. Pennings(2)
(1)University of Massachusetts Medical School, Worcester, MA, United States, (2)University of Massachusetts Medical School, Neurosurgery, Worcester, MA, United States
- 5:40 pm - 5:44 pm **537 Anterior versus Lateral Circumferential Lumbar Fusion: 1-year Outcomes from a Prospective Multi-center Study**
Speaker: [A. de Moura](#)
Authors: K. Kim(1), R. DenHaese(2), C. Hill(3), B. Strenge(3), A. de Moura(4), A. Kranenburg(5), M. Dennis(6), A. Cappuccino(7), T. Thaiyananthan(8), P. Arnold(9), P. Passias(4), B. Bejin(10), C. Moore(11), S. Martineck(12), C. Ferry(10), K. Martin(10)
(1)UC Davis Health System, Sacramento, CA, United States, (2)AXIS Neurosurgery and Spine, Williamsville, NY, United States, (3)The Orthopaedic Institute, Paducah, KY, United States, (4)New York Spine Institute, New York, NY, United States, (5)Southern Oregon Orthopedics, Medford, OR, United States, (6)South Texas Spinal Clinic, San Antonio, TX, United States, (7)Buffalo Spine Surgery, Buffalo, NY, United States, (8)Brain and Spine Institute of California, Newport Beach, CA, United States, (9)University of Kansas Hospital, Kansas City, KS, United States, (10)Zimmer Biomet Spine, Broomfield, CO, United States, (11)University of Colorado Denver, Denver, CO, United States, (12)Medical Device Clinical Trial Consultant, Buffalo, NY, United States
- 5:45 pm - 5:49 pm **656 Novel ALIF Cage with Self-adapting Lordosis Performs Well in Initial Clinical Usage**

Speaker: [J-C. LeHuec](#)

Authors: J. Castelain(1), J. Rigal(1), A. Cogniet(1), S. Aunoble(1), J-C. LeHuec(1)
(1)Univ Bordeaux, CHU Pellegrin, Dept Orthorachis (2), Bordeaux, France

5:50 pm - 6:00 pm **Discussion**

6:00 pm - 8:00 pm - Opening Reception

Thursday, April 7, 2016

8:00 am - 8:30 am - General Session: Value and Outcomes in Spine Surgery

Moderator(s): Alex Vaccaro, MD; Michael Wang, MD

- 8:00 am - 8:04 am **673 Site Variability in Surgical Technique and Outcomes in Adult Spinal Deformity**
Speaker: [H. Bao](#)
Authors: T. Cheriyan(1), H. Bao(2), F. Schwab(2), K. Kebaish(3), M. Gupta(4), C. Ames(5), C. Shaffrey(6), E. Tanzi(7), M. Kelly(8), J. Smith(6), S. Bess(9), R. Hart(10), R. Hostin(11), T. Errico(1), V. Lafage(2), International Spine Study Group
(1)NYU Hospital for Joint Diseases, New York, NY, United States, (2)Hospital for Special Surgery, New York, NY, United States, (3)Johns Hopkins Hospital, Baltimore, MD, United States, (4)UC Davis Health System, Sacramento, CA, United States, (5)UCSF, San Francisco, CA, United States, (6)University of Virginia, Charlottesville, VA, United States, (7)Memorial Sloan Kettering Cancer Center, New York, NY, United States, (8)Washington University in St. Louis, St. Louis, MO, United States, (9)Rocky Mountain Scoliosis & Spine, Denver, CO, United States, (10)OHSU, Portland, OR, United States, (11)Baylor Scott & White Health, Plano, TX, United States
- 8:05 am - 8:09 am **313 The Impact of Commercial Health Plan Prior Authorization Programs on the Utilization of Services for Low Back Pain**
Speaker: [P. Park](#)
Authors: R. Goodman(1), C. Powell(2), P. Park(3)
(1)Blue Care Network of Michigan, Southfield, MI, United States, (2)University of Michigan, Center for Statistical Consultation and Research, Ann Arbor, MI, United States, (3)University of Michigan, Neurosurgery, Ann Arbor, MI, United States
- 8:10 am - 8:14 am **167 What Is the Clinical Relevance of Nonunion after Lumbar Arthrodesis? A Meta-analysis of the YODA Project Database**
Speaker: [C. Cain](#)
Authors: A. Noshchenko(1), E. Lindley(1), E. Burger(1), C. Cain(1), V. Patel(1)
(1)University of Colorado Anschutz Medical Campus, Denver, CO, United States
- 8:15 am - 8:19 am **181 Outpatient Procedures Reduce Short-term Complications in One- and Two-level Anterior Cervical Discectomy and Fusion: A Propensity-adjusted Analysis of 14,434 Patients**
Speaker: [A. Samuel](#)
Authors: M. Fu(1), A. Samuel(2), E. Sheha(1), P. Derman(1), S. Iyer(1), J. Grauer(2), H.J. Kim(1)
(1)Hospital for Special Surgery, New York, NY, United States, (2)Yale University School of Medicine, Orthopaedics, New Haven, CT, United States
- 8:20 am - 8:30 am **Discussion**

8:30 am - 9:30 am - General Session: Adult Spinal Deformity

Moderator(s): Hee Kit Wong, MD, PhD; Isador Lieberman, MD, MBA, FRCS

- 8:30 am - 8:34 am **518 Defining the Role of Lower Limbs in Compensating for Sagittal Malalignment**
Speaker: [R. Lafage](#)
Authors: R. Lafage(1), B. Liabaud(1), B. Diebo(1), J. Oren(2), I. Gammal(2), S. Vira(2), M. Spiegel(2), E. Tanzi(2), T. Protopsaltis(2), T. Errico(2), F. Schwab(1), V. Lafage(1)
(1)Hospital for Special Surgery, New York, NY, United States, (2)NYU Hospital for Joint Diseases, Orthopedic Surgery, New York, NY, United States
- 8:35 am - 8:39 am **221 Analysis of actual segmental lordosis obtained with lordotic and hyperlordotic lateral cages- Analysis of 218 levels**
Speaker: [N. Anand](#)
Authors: N. Anand(1), B. Khandehroo(1), J. Cohen(1), R. Cohen(1), E. Baron(1), S. Kahwaty(1)

(1) Cedars-Sinai Medical Center, Spine Center, Los Angeles, CA, United States

- 8:40 am - 8:44 am **258 How is the Spine Different in Standing and in Sitting? – Important Considerations in Spinal Deformity Correction**
Speaker: [D. Hey](#)
Authors: D. Hey(1), A.Q.A. Teo(1), N.L.W. Ng(1), D. Chong(1), J. Ruiz(1), L-L. Lau(1), K-P.G. Liu(1), H-K. Wong(1)
(1)University Orthopaedics, Hand and Reconstructive Microsurgery (UOHC) National University Health System, Singapore, Orthopaedics, Singapore, Singapore
- 8:45 am - 8:49 am **266 Is Degenerative Scoliosis a Risk Factor for Adult Thoracolumbar Spinal Fractures? : A 7000 Multi-Racial Asian Patients Review**
Speaker: [J.H. Tan](#)
Authors: G. Liu(1), J.H. Tan(1), M.T.M. Win(2), H.K. Wong(1)
(1)National University Hospital, Singapore, University Spine Centre, Department of Orthopaedic Surgery, SINGAPORE, Singapore, (2)National University of Singapore, Yong Loo Lin School of Medicine, National University of Singapore, SINGAPORE, Singapore
- 8:50 am - 8:55 am **684 Reducing Rod Breakage and Nonunion in Pedicle Subtraction Osteotomy: The Importance of Rod Number and Configuration in 264 Patients with 2-year Follow-up**
Speaker: [B. Liabaud](#)
Authors: M. Gupta(1), B. Liabaud(2), J. Henry(3), V. Lafage(2), F. Schwab(2), C. Ames(4), E. Klineberg(1), J. Smith(5), V. Deviren(1), C. Shaffrey(5), R. Hart(6), R. Hostin(7), G. Mundis(8), H.J. Kim(2), D. Burton(9), International Spine Study Group
(1)UC Davis Health System, Sacramento, CA, United States, (2)Hospital for Special Surgery, New York, NY, United States, (3)NYU Hospital for Joint Diseases, New York, NY, United States, (4)UCSF, San Francisco, CA, United States, (5)University of Virginia, Charlottesville, VA, United States, (6)OHSU, Portland, OR, United States, (7)Baylor Scott & White Health, Texas, TX, United States, (8)San Diego Center for Spinal Disorders, La Jolla, CA, United States, (9)The University of Kansas Hospital, Kansas, KS, United States
- 8:55 am - 9:04 am **Discussion**
- 9:05 am - 9:09 am **40 Comparison of Complications, Clinical and Radiographic Outcomes between Non-obese and Obese Patients with Adult Spinal Deformity Undergoing Minimally Invasive Surgery**
Speaker: [P. Park](#)
Authors: P. Park(1), M. Wang(2), S. Nguyen(3), G. Mundis(3,4), F. La Marca(1), J. Uribe(5), N. Anand(6), D. Okonkwo(7), A. Kanter(7), R. Fessler(8), R. Eastlack(4), D. Chou(9), V. Deviren(9), P. Nunley(10), C. Shaffrey(11), P. Mummaneni(9), International Spine Study Group
(1)University of Michigan, Ann Arbor, MI, United States, (2)University of Miami, Miami, FL, United States, (3)San Diego Center for Spinal Disorders, San Diego, CA, United States, (4)Scripps Clinic, La Jolla, CA, United States, (5)University of South Florida, Tampa, FL, United States, (6)Cedars Sinai, Los Angeles, CA, United States, (7)University of Pittsburgh Medical Center, Pittsburgh, PA, United States, (8)Rush University, Chicago, IL, United States, (9)University of California, San Francisco, San Francisco, CA, United States, (10)Spine Institute of Louisiana, Shreveport, LA, United States, (11)University of Virginia, Charlottesville, VA, United States
- 9:10 am - 9:14 am **381 Different risk factors of proximal junctional kyphosis (PJK) and proximal junctional failure (PJF) following long instrumented fusion to the sacrum for degenerative adult spinal deformity Survivorship analysis of 160 patients**
Speaker: [S-J. Park](#)
Authors: S-J. Park(1), C-S. Lee(1), J-H. Kim(1), J-S. Kim(1)
(1)Samsung Medical Center, Sungkyunkwan University, School of medicine, Orthopedic Surgery, Seoul, Korea, Republic of
- 9:15 am - 9:19 am **682 Age-adjusted Alignment Goals Have the Potential to Reduce PJK**
Speaker: [H. Bao](#)
Authors: F. Schwab(1), H. Bao(1), R. Lafage(1), S. Glassman(2), S. Bess(3), B. Harris(4), J. Scheer(5), R. Hart(6), B. Line(3), D. Burton(7), H.J. Kim(1), E. Klineberg(8), T. Protopsaltis(4), C. Ames(9), V. Lafage(1), International Spine Study Group
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- 9:20 am - 9:24 am **277 Predictive Model For Cervical Alignment Following Surgical Correction Of Adult Spinal Deformity**
Speaker: [P. Passias](#)
Authors: P. Passias(1), C. Oh(1), C. Jalai(1), N. Worley(1), R. Lafage(2), J. Scheer(3), E. Klineberg(4), R.

Hart(5), H.J. Kim(2), J. Smith(6), V. Lafage(2), C. Ames(7), International Spine Study Group
(1)NYU Hospital for Joint Diseases, Department of Orthopaedic Surgery, NYC, NY, United States,
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(3)Northwestern University, Department of Neurosurgery, Chicago, IL, United States, (4)University of
California, Davis, Department of Orthopaedic Surgery, Sacramento, CA, United States, (5)Oregon Health &
Science University, Department of Orthopaedic Surgery, Portland, OR, United States, (6)University of
Virginia, Department of Neurosurgery, Charlottesville, VA, United States, (7)University of California, San
Francisco, Department of Neurosurgery, San Francisco, CA, United States

9:25 am - 9:30 am **Discussion**

9:30 am - 10:10 am - Co-Presidential Address

Hee Kit Wong, MD, PhD

Presidential Guest Speaker: Robin Young

10:10 am - 10:40 am - Break on Exhibit Floor

10:40 am - 11:50 pm - General Session: Lumbar

Moderator(s): Jack Zigler, MD; Sajjan Hegde, MBBS, MS

10:40 am - 10:44
am **282 Complications Associated with the Anterior Approach to the Lumbar Spine: Analysis of 2,881
Consecutive Cases during a 6-year Period**
Speaker: [J. Zigler](#)
Authors: J. Zigler(1), J. Shivers(1), R. Guyer(1), D. Ohnmeiss(2)
(1)Texas Back Institute, Plano, TX, United States, (2)Texas Back Institute Research Foundation, Plano,
TX, United States

10:45 am - 10:49
am **512 When Does Compensation for Lumbar Stenosis Become a Deformity?**
Speaker: [L. Day](#)
Authors: A. Buckland(1), S. Vira(1), J. Oren(1), R. Lafage(2), B. Harris(1), M. Spiegel(1), B. Diebo(2), B.
Liabaud(2), T. Protopsaltis(1), F. Schwab(2), T. Errico(1), V. Lafage(2), J. Bendo(1)
(1)NYU Hospital for Joint Diseases, Orthopedic Surgery, New York, NY, United States, (2)Hospital for
Special Surgery, New York, NY, United States

10:50 am - 10:54
am **671 Identifying Thoracic Compensation and Predicting Reciprocal Thoracic Kyphosis and PJK**
Speaker: [B. Diebo](#)
Authors: T. Protopsaltis(1), B. Diebo(2), R. Lafage(2), J. Smith(3), D. Sciubba(4), P. Passias(1), E.
Klineberg(5), D. Burton(6), C. Ames(7), C. Shaffrey(3), S. Bess(8), R. Hart(9), F. Schwab(2), V. Lafage(2),
International Spine Study Group
(1)NYU Hospital for Joint Diseases, New York, NY, United States, (2)Hospital for Special Surgery, New
York, NY, United States, (3)University of Virginia, Charlottesville, NH, United States, (4)Johns Hopkins
Hospital, Baltimore, MD, United States, (5)UC Davis Health System, Sacramento, CA, United States,
(6)The University of Kansas Hospital, Kansas City, KS, United States, (7)UCSF, San Francisco, CA, United
States, (8)Rocky Mountain Scoliosis & Spine, Denver, CO, United States, (9)OHSU, Portland, OR, United
States

10:55 am - 10:59
am **497 Lumbar Spinal Fusion as a Risk Factor for Adjacent Segment Degeneration – Results of a
Secondary Analysis of Data from a Clinical, Multicenter, Randomized Controlled Trial**
Speaker: [W. Sears](#)
Authors: W. Sears(1), G. Maislin(2), R. Davis(3), J. Auerbach(4), T. Errico(5), H. Bae(6)
(1)Wentworth Spine Clinic, Sydney, NSW, Australia, (2)Biomedical Statistical Consulting, Wynnwood, PA,
United States, (3)Greater Baltimore Neurosurgical Associates, Baltimore, MD, United States, (4)Albert
Einstein College of Medicine, Bronx, NY, United States, (5)NYU Hospital for Joint Diseases, New York, NY,
United States, (6)Cedars Sinai Spine Center, Los Angeles, CA, United States

11:00 am - 11:04
am **341 Segmental Range of Motion Preservation Following Lumbar Total Disc Replacement: Post Hoc
Analysis of a Randomized Controlled IDE Trial**
Speaker: [R. Garcia](#)
Authors: R. Garcia(1), J. Yue(2), L. Miller(3), Yue
(1)Orthopedic Care Center, Aventura, FL, United States, (2)Yale University School of Medicine, Orthopedic
Surgery, New Haven, CT, United States, (3)Miller Scientific Consulting, Ashville, NC, United States

11:05 am - 11:19
am **Discussion**

11:20 am - 11:24 **492 The Incidence of Adjacent Segment Disease and Index Level Revision and Outcomes of**

- am **Secondary Surgical Intervention Following Single Level Lumbar Total Disc Replacement**
 Speaker: [M. Scott-Young](#)
 Authors: M. Scott-Young(1), L. McEntee(1), J. Cho(1), I. Luukkonen(1)
 (1)Gold Coast Spine, Southport, QLD, Australia
- 11:25 am - 11:29 am **708 Total Disc Replacement - Effective Treatment for Lumbar Disc Herniation with Radiculopathy?**
 Speaker: [G. Edgard-rosa](#)
 Authors: G. Edgard-rosa(1), G. Geneste(1), T. Marnay(1)
 (1)Clinique du Parc, Centre de Chirurgie Vertébrale, Castelnau le Lez, France
- 11:30 am - 11:34 am **136 Influence of Preoperative Sagittal Balance and Rousouly's Back Type on Clinical and Radiological Outcomes after Single-level Total Disc Replacement**
 Speaker: [A. Faure](#)
 Authors: A. Faure(1), C-H. Flouzat Lachaniette(1), M. Khalife(1), A. Poignard(1), J. Allain(1)
 (1)CHU Henri Mondor, Créteil, France
- 11:35 am - 11:39 am **144 Analysis of Hospital Length of Stay Following Lumbar Anterior/Posterior Combined Fusion: Is there a Disadvantage Associated with Shorter Stays?**
 Speaker: [R. Guyer](#)
 Authors: R. Guyer(1), E. Putney(2), D. Ohnmeiss(2), J. Zigler(1)
 (1)Texas Back Institute, Plano, TX, United States, (2)Texas Back Institute Research Foundation, Plano, TX, United States
- 11:40 am - 11:44 am **661 After Nine Years of Three-column Osteotomies, Are we Doing Better? Performance Curve Analysis of 573 Surgeries with 2-year Follow up**
 Speaker: [J. Varghese](#)
 Authors: B. Diebo(1), J.J. Varghese(1,2), V. Lafage(3), M. Gupta(4), D. Sciubba(5), C. Ames(6), K. Kebaish(5), C. Shaffrey(7), R. Hostin(8), I. Obeid(9), D. Burton(10), R. Hart(11), R. Lafage(1), T. Errico(12), F. Schwab(1), International Spine Study Group
 (1)Hospital for Special Surgery, New York, NY, United States, (2)State University of New York, Downstate Medical Center, Brooklyn, NY, United States, (3)Hospital for Special Surgery, Spine Service, New York, NY, United States, (4)UC Davis Health System, Orthopaedic Surgery, Sacramento, CA, United States, (5)Johns Hopkins Hospital, Baltimore, MD, United States, (6)UCSF, San Francisco, CA, United States, (7)University of Virginia, Charlottesville, VA, United States, (8)Baylor Scott & White Health, Plano, TX, United States, (9)Bordeaux University Hospital, France, Bordeaux, France, (10)The University of Kansas Hospital, Kansas City, KS, United States, (11)OHSU, Portland, OR, United States, (12)NYU Hospital for Joint Diseases, New York, NY, United States
- 11:45 am - 12:00 am **Discussion**

12:00 pm - 1:30 pm - Industry Workshops (Not CME)

Aesculap - Room: Raphael 1 - Advocating for a New Standard of Care for the Active Patient: A Novel Network Meta-Analysis of Lumbar TDR vs. Fusion

Speaker: Richard Guyer, MD, President, Texas Back Institute and Key Stakeholder Panel

Medtronic - Room: Raphael 2 - Transforming Your TLIF Procedure - The Latest Innovations in MIS Technologies

Paradigm Spine - Room: Raphael 3 - A Spinal Stenosis Summit. What's really important and why? Join spinal stenosis experts in case discussion and EBM approach to better outcomes for patients.

Speakers: Jason Garber, MD; John Peloza, MD; Christopher Yeung, MD; Michael Musacchio, MD

Zimmer Biomet - Room: Michaelangelo - Looking Ahead at 2016: MIS Technique and Technologies in the Outpatient Setting

Speaker: Reginald Davis, MD, FACS

1:30 pm - 2:30 pm - Symposium: Minimally Invasive Correction of Adult Spinal Deformity

Moderator(s): Alexander Vaccaro, MD

- 1:30 pm - 1:39 pm Principles of Adult Spinal Deformity
- 1:40 pm - 1:49 pm Multilevel MIS TLIF for ASD
- 1:50 pm - 1:59 pm Multilevel LLIF for ASD
- 2:00 pm - 2:09 pm ACR for ASD
- 2:10 pm - 2:19 pm Circumferential MIS Correction of ASD
- 2:20 pm - 2:30 pm Discussion

2:30 pm - 3:00 pm -General Session: Pediatric Spine

Moderator(s): Gunnar Andersson, MD, PhD; Luiz Pimenta, MD, PhD

- 2:30 pm - 2:34 pm **617 Long Term Experience with Reduction Technique in High Grade Spondylolisthesis in the Young**
Speaker: [P. Sudarshan](#)
Authors: P. Sudarshan(1), P. Aditya Prasad(1), P. Aghilavendan(1), V. Vamsi Krishna(1), K. Sajan Hegde(1)
(1)Apollo Hospital, Orthopedics, Chennai, India
- 2:35 pm - 2:39 pm **477 Pedicle Morphometric Analysis in Adolescent Idiopathic Scoliosis – Importance of Surgeon Familiarity with Patient Specific Variables**
Speaker: [P. Sudarshan](#)
Authors: P. Sudarshan(1), P. Aditya Prasad(1), P. Aghilavendan(1), V. Vamsi Krishna(1), K. Sajan Hegde(1)
(1)Apollo Hospital, Orthopedics, Chennai, India
- 2:40 pm - 2:44 pm **237 Results of surgical treatment in children with spinal cord injury of thoracic and lumbar spine**
Speaker: [S. Beljanchikov](#)
Authors: S. Beljanchikov(1), A. Baidurashvili(1), S. Vissarionov(1), D. Kokushin(1), I. Solokhina(1), V. Murashko(1)
(1)The Turner Scientific Research Institute for Children's Orthopedics, Saint-Petersburg, Russian Federation
- 2:45 pm - 2:49 pm **700 AIS Curves Cause Restricted Motion and Dis-coordination of Axial Plane Motion**
Speaker: J.J. Varghese
Authors: V. Lafage(1), J.J. Varghese(1,2), A. Patel(1,2), D. Leven(2), L. Day(2), E. Godwin(2), C. Paulino(2)
(1)Hospital for Special Surgery, New York, NY, United States, (2)State University of New York, Downstate Medical Center, Brooklyn, NY, United States
- 2:50 pm - 3:00 pm **Discussion**

3:00 pm - 3:30 pm - Awards Ceremony/Transfer of Presidency

3:30 pm - 4:00 pm - Break on Exhibit Floor

4:00 pm - 5:00 pm - General Session: Cervical-2

Moderator(s): Matthew Scott-Young, MBBS, FRACS, FAOrthA; Hyun-Chal Shin, MD, PhD

- 4:00 pm - 4:04 pm **158 Effect and Prognostic Factors of Laminoplasty for Cervical Myelopathy with an Occupying Ratio Greater than 50%**
Speaker: [G-D. Chen](#)
Authors: G-D. Chen(1), H-L. Yang(1), Z-P. Luo(1)
(1)Soochow University, Suzhou, China
- 4:05 pm - 4:09 pm **8 ACDF Survivorship Using a Combined Integrated Plate, PEEK Interbody Spacer and Integral Screws: 460 Levels in 238 Consecutive Patients**
Speaker: [P. McAfee](#)
Authors: P. McAfee(1), L. Chotikul(1), I. Fedder(1), M. Dabbah(1), E. Shucosky(1)
(1)University of Maryland St Joseph Medical Center, Orthopedic Surgery, Towson, MD, United States
- 4:10 pm - 4:14 pm **640 Cervical Arthroplasty vs. ACDF: Procedural Impact on Adjacent Level Surgery**
Speaker: [J. McConnell](#)
Authors: J. McConnell(1), J. Highsmith(2), K. Baker(3), J. Myer(3)
(1)OAA Orthopaedic Specialists, Allentown, PA, United States, (2)Charleston Brain and Spine, Charleston, SC, United States, (3)Globus Medical, Inc., Audubon, PA, United States
- 4:15 pm - 4:19 pm **327 Comparison of One- and Two-Level Treatment with Cervical Disc Arthroplasty or Anterior Cervical Discectomy and Fusion**
Speaker: [M. Hisey](#)
Authors: M. Hisey(1), H. Bae(2), D. Ohnmeiss(3)
(1)Texas Back Institute, Denton, TX, United States, (2)Cedars-Sinai Spine Center, Los Angeles, CA, United States, (3)Texas Back Institute Research Foundation, Plano, TX, United States
- 4:20 pm - 4:24 pm **409 Most 30-day readmissions after anterior cervical discectomy and fusion are not due to surgical site-related issues: An analysis of 10,006 patients**
Speaker: [A. Samuel](#)
Authors: A. Samuel(1), J. Toy(1), M. Fu(2), A. Lukasiewicz(1), M. Webb(1), D. Bohl(3), B. Basques(3), T.

Albert(2), J. Grauer(1)

(1)Yale University School of Medicine, New Haven, CT, United States, (2)Hospital for Special Surgery, New York City, NY, United States, (3)Rush University Medical Center, Chicago, IL, United States

4:25 pm - 4:29 pm **Discussion**

4:30 pm - 4:34 pm **530 Comparison of 1 & 2 Level versus 3 & 4 Level Cervical Disc Arthroplasty: An Outcome Analysis – Results from a Single Centre**

Speaker: [S. Friesem](#)

Authors: S. Friesem(1), S. Khan(1), M. Rajesh(1), A. Berg(1), G. Reddy(1), C. Bhatia(1), K. Aneiba(1)
(1)University Hospital of North Tees, Orthopaedics, Stockton on Tees, United Kingdom

4:35 pm - 4:39 pm **662 SF-12 PCS and VAS Neck as Preoperative Predictors of Patient Success at 60 Months Following Single Level Cervical Surgery with TDR or ACDF**

Speaker: [P. Nunley](#)

Authors: P. Nunley(1), E. Kerr(1), D. Cavanaugh(1), A. Utter(1), K. Frank(1), M. Stone(1)
(1)Spine Institute of Louisiana, Shreveport, LA, United States

4:40 pm - 4:44 pm **133 Multi-level Fusion versus Hybrid Surgery in Three-level Cervical Disc Disease: Retrospective Matched Analysis of Clinical and Radiologic Results in Minimum 2-year Follow-up**

Speaker: [J-W. Hur](#)

Authors: J-W. Hur(1), K-S. Ryu(1), J-S. Kim(1), J-H. Seong(1)

(1)Seoul St. Mary's Hospital, The Catholic University of Korea, Neurosurgery, Spine Center, Seoul, Korea, Republic of

4:45 pm - 4:49 pm **176 A Comparative Study of Axial Pain in Cervical Myelopathy Patients Treated with Laminoplasty and Healthy Volunteers**

Speaker: [M. Kawakami](#)

Authors: M. Kawakami(1), Y. Ishimoto(1), K. Nagata(1), T. Kitagawa(1), T. Matsuoka(1)
(1)Wakayama Medical University Kihoku Hospital, Spine Care Center, Ito Gun, Japan

4:50 pm - 4:54 pm **203 Randomized Controlled Trial Between Two Different Cervical Disc Arthroplasty Implants - Three Year Follow-Up**

Speaker: [A.J. Berg](#)

Authors: A.J. Berg(1,2), M-C. Killen(1), C.D. Jensen(3), P. Karpe(1), S. Khan(1), R. Malgatil(1), G.R. Reddy(1), T. Friesem(1)

(1)North Tees and Hartlepool NHS Foundation Trust, Spinal Unit, Stockton on Tees, United Kingdom,
(2)Pennine Acute Hospitals NHS Trust, Manchester, United Kingdom, (3)Northumbria Healthcare NHS Foundation Trust, Trauma and Orthopaedics, Northumberland, United Kingdom

4:55 pm - 5:00 pm **Discussion**

5:00 pm - 6:00 pm - Spine Talk

Case Studies Spine Talks

Room 1 - Raphael 1

Case Study: Grade 1 Degenerative Spondylolisthesis: MIS TLIF vs Laminotomy without fusion, Lami with Inter-Spinous Stabilization

Moderator(s): Ali Araghi, MD

Room 2 - Raphael 3

Case Study: Cervical Radiculopathy Adjacent to Fusion

Moderator(s): Matthew Scott-Young, MBBS, FRACS, FAOrthA

Friday, April 8, 2016

8:00 am - 9:00 am - General Session: Innovative Technologies

Moderator(s): Ulrich Berlemann, MD; Jeffrey Goldstein, MD

8:00 am - 8:04 am **632 Prospective, Randomized Trial Comparing Lumbar Decompression with or without Interlaminar Stabilization with 24 Month Follow-up**

Speaker: [M. Rauschmann](#)

Authors: M. Rauschmann(1), D. Adelt(2), J. Franke(3), S. Schmidt(4), S. Sola(5), G. Maislin(6), R. Davis(7)
(1)Orthopädische Universitätsklinik Friedrichsheim, Orthopaedic Spine, Frankfurt, Germany,

(2)Ostseeklinik Damp, Damp, Germany, (3)Klinikum Dortmund, Dortmund, Germany, (4)University of Frankfurt, Frankfurt, Germany, (5)University of Rostock, Rostock, Germany, (6)Biomedical Statistical Consulting, Wynnewood, PA, United States, (7)Greater Baltimore Medical Center, Baltimore, MD, United States

- 8:05 am - 8:09 am **624 Interim Results from a Prospective, Randomized Clinical Trail Investigating an Anular Closure Device**
Speaker: [G.J. Bouma](#)
Authors: G.J. Bouma(1), P.D. Klassen(2), F. Martens(3), J. Fandino(4), Anular Closure RCT Study Group (1)Sint Lucas Andreas Ziekenhuis, Amsterdam, Netherlands, (2)St. Bonifatius Hospital GmbH, Lingen, Germany, (3)Onze Lieve Vrouziekenhuis, Aalst, Belgium, (4)Kantonsspital Aarau AG, Aarau, Switzerland
- 8:10 am - 8:14 am **694 Axial Rotation in Lumbar Disc Herniation Patients Treated with Novel Dynamic Stabilization Device – A Pilot Study**
Speaker: [K. Rickers](#)
Authors: K. Rickers(1), S. Kitahata(2), A.A.E. Orias(2), S. Ringgaard(3), F.B. Christensen(3), G.B. Anderson(2), C. Bunger(1), J. Peterson(2), H. Li(1), E.S. Hansen(3), N. Inoue(2), B. Robie(4) (1)Aarhus University Hospital, Department of Orthopedic Surgery, Aarhus, Denmark, (2)Rush University Medical Center, Chicago, IL, United States, (3)Aarhus University Hospital, Aarhus, Denmark, (4)ARO Medical ApS, Risskov, Denmark
- 8:15 am - 8:19 am **107 Improvement in Sacroiliac Joint Pain 2 Years after Fusion with the Distraction Interference Arthrodesis Neurovascular Anticipating (DIANA™) Device**
Speaker: [T. Freeman](#)
Authors: K. Duncan(1), B. Manchec(1), C. Borlongan(2), D.L. Scott(3), F. Bernardo(1), W. Monahan(1), T. Freeman(4) (1)University of South Florida, Morsani College of Medicine, Tampa, FL, United States, (2)University of South Florida, Center of Excellence for Aging and Brain Repair, Tampa, FL, United States, (3)University of South Florida, Neurosurgery & Brain Repair, Tampa, FL, United States, (4)University of South Florida, Neurosurgery, Tampa, FL, United States
- 8:20 am - 8:24 am **451 A novel minimally invasive percutaneous disc hydration filament for treating discogenic low back pain: mechanism and clinical outcome**
Speaker: [J. Shi](#)
Authors: J. Shi(1), Y. Yang(1), F. Zhou(1), H. Zhang(1), H. Yang(1), J. Yeung(2), H. Yuan(3) (1)The First Affiliated Hospital of Soochow University, Suzhou, China, (2)Aleeva Medical Inc, San Francisco, CA, United States, (3)State University of New York, Upstate Medical University, New York, NY, United States
- 8:25 am - 8:29 am **Discussion**
- 8:30 am - 8:34 am **349 Expandable vs. static height TLIF cages: Is cage performance affected by pre-op disc height or segmental lordosis?**
Speaker: [D. Crandall](#)
Authors: D. Crandall(1), J. Revella(2), M. Chang(1), L. Young(1), A. Chung(3), L. Taylor(1), M. Immediato(1), R. Mclemore(2) (1)Sonoran Spine, Tempe, AZ, United States, (2)Sonoran Spine Research and Education Foundation, Tempe, AZ, United States, (3)Banner University Medical Center Phoenix, Orthopedic Residency Program, Phoenix, AZ, United States
- 8:35 am - 8:39 am **691 Porous Silicon Nitride Spacers versus PEEK Cages with Autograft: 12 Month Data from the CASCADE Randomized Trial**
Speaker: [M. Arts](#)
Authors: M. Arts(1), J. Wolfs(1), T. Corbin(2) (1)Medical Center Haaglanden, Neurosurgery, Den Haag, Netherlands, (2)University of Minnesota, Clinical Outcomes Research Center, Maple Grove, MN, United States
- 8:40 am - 8:44 am **633 Long Term Durability of ILS: A 5 Year Level 1 Study of Spinal Stenosis Disease Management**
Speaker: [M. Musacchio](#)
Authors: M. Musacchio(1), C. Laurysen(2), R. Davis(3), H. Bae(4), S. Leary(5) (1)NorthShore University HealthSystem, Neurological Institute, Evanston, IL, United States, (2)NeuroTexas Brain and Spinal Surgery, Austin, TX, United States, (3)Greater Baltimore Medical Center, Baltimore, MD, United States, (4)The Spine Institute, Santa Monica, CA, United States, (5)Senta Clinic, San Diego, CA, United States
- 8:45 am - 8:49 am **424 Assessment of the intracanal, endoscopic transforaminal decompression technique: A prospective analysis after multilevel or revision decompression with one-year follow-up**
Speaker: [J. Sclafani](#)
Authors: J. Sclafani(1), K. Raiszadeh(1), C. Kim(1) (1)Spine Institute of San Diego, San Diego, CA, United States

8:50 am - 8:54 am **429 Radiological Signs of Adjacent Segment Degeneration in Patients with Cervical Radiculopathy Treated with Posterior Cervical Cages - 2 Years Follow-up**
Speaker: [K. Siemionow](#)
Authors: K. Siemionow(1), P. Janusz(1,2), J. Bou Monsef(1)
(1)University of Illinois at Chicago, Department of Orthopaedic Surgery, Chicago, IL, United States,
(2)University of Medical Sciences, Department of Spine Disorders and Pediatric Orthopedics, Poznan, Poland

8:55 am - 9:00 am **Discussion**

9:00 am - 10:00 am - Symposium: New Technologies - Hype or Incremental Value?

Moderators(s): Neel Anand, MD

9:00 am - 9:04 am Coflex
9:05 am - 9:09 am Discussion
9:10 am - 9:14 am Endoscopic Surgery
9:15 am - 9:19 am Discussion
9:20 am - 9:24 am Expandable Interbody Cages
9:25 am - 9:29 am Discussion
9:30 am - 9:34 am LLIF for Degenerative Spondylolisthesis
9:35 am - 9:39 am Discussion

10:00 am - 10:30 am - Break on Exhibit Floor

10:30 am - 12:00 pm - General Session: Biomechanics

Moderator(s): Lisa Ferrara, PhD; Leonard Voronov, MD, PhD

10:30 am - 10:34 am **702 New Evidence Supporting Instability as a Contra-indication to Lumbar Disc Arthroplasty**
Speaker: [M. Gornet](#)
Authors: M. Gornet(1), J.A. Hipp(2), N.D. Wharton(2), F.W. Schranck(3), A.G. Copay(3), K. Wymore(4)
(1)The Orthopedic Center of St. Louis, St Louis, MO, United States, (2)Medical Metrics, Houston, TX, United States, (3)SPIRITT Research, St Louis, MO, United States, (4)University of Missouri, School of Medicine, Columbia, MO, United States

10:35 am - 10:39 am **339 Slump sitting X-ray of the lumbar spine is better than conventional flexion view**
Speaker: [D. Hey](#)
Authors: D. Hey(1), E.T.C. Lau(1), D. Choong(1), C-S. Tan(2), H-K. Wong(1)
(1)University Orthopaedics, Hand and Reconstructive Microsurgery (UOHC) National University Health System, Singapore, Orthopaedics, Singapore, Singapore, (2)Saw Swee Hock School of Public Health, National University Health System, Singapore, Public Health, Singapore, Singapore

10:40 am - 10:44 am **163 A Comparative Analysis of Lumbo-sacral Fixation Strengths: What Is Best in a Long Fusion?**
Speaker: [C. Cain](#)
Authors: C. Kleck(1), D. Illing(1), E. Lindley(1), V. Patel(1), C. Barton(1), T. Baldini(1), C. Cain(1), E. Burger(1)
(1)University of Colorado Anschutz Medical Campus, Denver, CO, United States

10:45 am - 10:49 am **246 Sagittal Balance Considerations In Planning Multilevel Cervical Intervention: Effect of Arthroplasty vs. Fusion on Adjacent Segment Motions**
Speaker: [S. Khayatzadeh](#)
Authors: S. Khayatzadeh(1), L. Voronov(1,2), J. Goodsitt(1), Z. Smith(3), A. Germanwala(1,4), G. Carandang(1), R. Havey(1,2), C. Laurysen(5), C. Schätz(6), A. Ghanayem(2), A. Patwardhan(1,2)
(1)Edward Hines Jr. VA Hospital, Hines, IL, United States, (2)Loyola University Chicago, Orthopaedic Surgery and Rehabilitation, Maywood, IL, United States, (3)Northwestern University, Neurological Surgery, Chicago, IL, United States, (4)Loyola University Chicago, Neurological Surgery, Maywood, IL, United States, (5)Laurysen Neurosurgical Spine Institute, Austin, TX, United States, (6)Orthopaedic Clinic, Markgroeningen, Markgröningen, Germany

10:50 am - 10:59 am **Discussion**

11:00 am - 11:04 **292 Biomechanical Comparison of Stand-Alone Anterior Lumbar Interbody Fusion Devices with**

- am
Secured Fixation: Four-Screw Locking Plate vs. Three-Screw Variable Angle vs. Blade Fixation
Speaker: [A. Freeman](#)
Authors: A. Freeman(1), J. Walker(2), M. Fenn(2), M. Bushelow(2), C. Cain(3), A. Tsantrizos(2)
(1)Excelen, Center for Bone and Joint Research and Education, Minneapolis, MN, United States, (2)DePuy Synthes, West Chester, PA, United States, (3)University of Colorado Hospital, Aurora, CO, United States
- 11:05 am - 11:09 am
399 Cortical vs. Traditional Pedicle Screw Fixation in Osteopenic Spine: Biomechanical Assessment
Speaker: [M. Conti Mica](#)
Authors: M. Conti Mica(1), J.I. Romo(2), E. Miliavski(3), D. Baluch(1), L. Voronov(1,4), R. Havey(1,4), B. Wojewnik(1), A. Ghanayem(1), A. Patwardhan(1,4)
(1)Loyola University Chicago, Orthopaedic Surgery and Rehabilitation, Maywood, IL, United States, (2)Loyola University Chicago, Stritch School of Medicine, Maywood, IL, United States, (3)Loyola University Chicago, Chicago, IL, United States, (4)Edward Hines Jr. VA Hospital, Hines, IL, United States
- 11:10 am - 11:14 am
114 Biomechanical Stability of Lumbar Integrated Fixation Spinal Cages under Fatigue Loading
Speaker: [S. Nagaraja](#)
Authors: V. Palepu(1), J. Peck(2), M. Helgeson(3), D. Simon(1), S. Nagaraja(1)
(1)US Food and Drug Administration, Division of Applied Mechanics, Silver Spring, MD, United States, (2)US Food and Drug Administration, Office of Device Evaluation, Silver Spring, MD, United States, (3)Walter Reed National Military Medical Center, Bethesda, MD, United States
- 11:15 am - 11:19 am
244 The Effects of Forward Head Posture on the Suboccipital Triangle Region
Speaker: [O. Kalmanson](#)
Authors: O. Kalmanson(1), S. Khayatzadeh(2), A. Germanwala(2,3), R. Havey(2), L. Voronov(2,4), A. Patwardhan(2,4)
(1)Loyola University Chicago, Stritch School of Medicine, Maywood, IL, United States, (2)Edward Hines Jr. VA Hospital, Hines, IL, United States, (3)Loyola University Chicago, Neurological Surgery, Maywood, IL, United States, (4)Loyola University Chicago, Orthopaedic Surgery and Rehabilitation, Maywood, IL, United States
- 11:20 am - 11:29 am
Discussion
- 11:30 am - 11:34 am
398 Biomechanical Evaluation of Lumbar Decompression Adjacent to Instrumented Segments
Speaker: [P. Grunert](#)
Authors: P. Grunert(1,2), P.M. Reyes(3), A.G.U.S. Newcomb(3), B. Kelly(3), R. Härtl(1)
(1>Weill Cornell Medical College, Neurosurgery, New York, NY, United States, (2)Medical University of Vienna, Neurosurgery, Vienna, Austria, (3)Barrow Neurological Institute, Neurosurgery, Phoenix, AZ, United States
- 11:35 am - 11:39 am
130 Biomechanical Analysis of S2AI Fixation in Long Posterior Fusion Constructs
Speaker: [L. Ferrara](#)
Authors: C. Sutterlin(1), A. Field(2,3), A. Freeman(4), L. Ferrara(5)
(1)LifeHealthCare, Sydney, NSW, Australia, (2)Auckland City Hospital, Auckland, New Zealand, (3)Starship Children's Hospital, Auckland, New Zealand, (4)Fortus Medical, Minneapolis, MN, United States, (5)OrthoKinetic Technologies, Southport, NC, United States
- 11:40 am - 11:44 am
419 In Situ Motions of Subaxial Cervical Segments During Side-to-Side Head-Neck Axial Rotation
Speaker: [J. Goodsitt](#)
Authors: J. Goodsitt(1), S. Khayatzadeh(1), L. Voronov(1,2), R. Havey(1,2), A. Patwardhan(1,2)
(1)Edward Hines Jr. VA Hospital, Research, Hines, IL, United States, (2)Loyola University Chicago, Orthopaedic Surgery and Rehabilitation, Maywood, IL, United States
- 11:45 am - 11:49 am
161 Biomechanical Assessment of Gradual Stabilization Using Semi-rigid Fixation in the Thoracolumbar Spine
Speaker: [B. Bucklen](#)
Authors: I. Cheng(1), F. Lamarca(2), J. Pirolo(3), C. Farley(2), S. Yandamuri(4), E. Matheis(5), B. Bucklen(4)
(1)Stanford University, Orthopaedic Surgery, Palo Alto, CA, United States, (2)University of Michigan, Ann Arbor, MI, United States, (3)Stanford University, Palo Alto, CA, United States, (4)Globus Medical, Audubon, PA, United States, (5)Globus Medical, Musculoskeletal Education and Research Center, Audubon, PA, United States
- 11:50 am - 12:00 am
Discussion

12:00 pm - 1:00 pm - Lunch on Own

1:00 pm - 2:25 pm - General Session: MIS -2

Moderator(s): Yu-Po Lee, MD; Michael Wang, MD

- 1:00 pm - 1:04 pm **222 The incidence of Proximal Junctional Kyphosis (PJK) in Patients Undergoing Circumferential Minimally Invasive Surgery (cMIS) for Adult Spinal Deformity (ASD) – A 7 year experience**
Speaker: N. Anand
Authors: N. Anand(1), J. Cohen(1), R. Cohen(1), B. Khandehroo(1), E. Baron(1), S. Kahwaty(1)
(1)Cedars-Sinai Medical Center, Spine Center, Los Angeles, CA, United States
- 1:05 pm - 1:09 pm **198 Alerts for femoral nerve monitoring during transposas lateral lumbar interbody fusion procedures**
Speaker: J.W. Silverstein
Authors: J.W. Silverstein(1), J. Block(2), R. Madhok(3), M.J. Goldstein(4), S.K. Basra(5), L.E. Mermelstein(5), H. DeWal(5), D. Porter(1), H. Ball(6)
(1)Neuro Protective Solutions/Spine Medical Services, Clinical Neurophysiology, Long Island, NY, United States, (2)ION Intraoperative Neurophysiology, Clinical Neurophysiology, San Fransisco, CA, United States, (3)Neuroaxis Neurosurgical Associates, Neurosurgery, New York, NY, United States, (4)Orthopedic Associates of Manhasset, Orthopedic Spine, Long Island, NY, United States, (5)Long Island Spine Specialists, Orthopedic Spine, Long Island, NY, United States, (6)California Comprehensive Spine Institute, Orthopedic Spine, San Fransisco, CA, United States
- 1:10 pm - 1:14 pm **276 Does Greater Body Mass Index Increase the Risk for Revision Procedures Following a Single-Level Minimally Invasive Lumbar Discectomy?**
Speaker: B. Mayo
Authors: D. Bohl(1), J. Ahn(1), B. Mayo(1), D. Massel(1), W. Long(1), K. Modi(1), B. Basques(1), K. Singh(1)
(1)Rush University Medical Center, Orthopaedic Surgery, Chicago, IL, United States
- 1:15 pm - 1:19 pm **217 MIS TLIF techniques: comparison of a direct visualization approach vs. a pedicle based anatomic approach.**
Speaker: J. Larson
Authors: J. Larson(1), B. Hathaway(1)
(1)Coeur d'Alene Spine & Brain, PLLC, Coeur d'Alene, ID, United States
- 1:20 pm - 1:29 pm **Discussion**
- 1:30 pm - 1:34 pm **557 Percutaneous Endoscopically-Assisted Trans-Osseous Decompression and Interbody Fusion of L5-S1**
Speaker: S. Osman
Authors: S. Osman(1,2), O. Ojeyemi(1,3), A. Malik(4), S. Sherlekar(4)
(1)American Spine, Orthopedic Surgery, Frederick, MD, United States, (2)Frederick Memorial Hospital, Orthopedic Surgery, Frederick, MD, United States, (3)Frederick Memorial Hospital, Frederick, MD, United States, (4)American Spine, Pain Medicine, Frederick, MD, United States
- 1:35 pm - 1:39 pm **29 Treatment of Grade II and Higher Isthmic Spondylolisthesis: Comparison of Minimally Invasive Transforaminal and Anterior Lumbar Interbody Fusion**
Speaker: D. Massel
Authors: B. Mayo(1), D. Massel(1), K. Modi(1), W. Long(1), G. Lopez(1), K. Singh(1)
(1)Rush University Medical Center, Orthopaedic Surgery, Chicago, IL, United States
- 1:40 pm - 1:44 pm **33 Circumferential Fusion for Thoracolumbar Adult Deformity Surgery: Effect of Open versus Percutaneous Pedicle Screw Fixation after MIS Lateral Interbody Fusion**
Speaker: M. Wang
Authors: A. Theologis(1), S. Nguyen(2), G. Mundis(2,3), B. Akbarnia(2), R. Eastlack(3), M. Wang(4), P. Mummaneni(1), J. Uribe(5), D. Okonkwo(6), N. Anand(7), A. Kanter(6), P. Park(8), R. Fessler(9), V. Deviren(1), International Spine Study Group
(1)University of California, San Francisco, San Francisco, CA, United States, (2)San Diego Center for Spinal Disorders, San Diego, CA, United States, (3)Scripps Clinic, La Jolla, CA, United States, (4)University of Miami, Miami, FL, United States, (5)University of South Florida, Tampa, FL, United States, (6)University of Pittsburgh Medical Center, Pittsburgh, PA, United States, (7)Cedars Sinai, Los Angeles, CA, United States, (8)University of Michigan, Ann Arbor, MI, United States, (9)Rush University, Chicago, IL, United States
- 1:45 pm - 1:49 pm **501 Randomized Controlled Trial of Minimally Invasive Sacroiliac Joint Fusion Using Triangular Titanium Implants vs. Non-surgical Management for Sacroiliac Joint Dysfunction**
Speaker: D.W. Polly
Authors: D.W. Polly(1), D. Cher(2), K. Wine(2), P. Whang(3), C. Frank(4), H. Lockstadt(5), C. Harvey(6), J. Sembrano(1)
(1)University of Minnesota, Orthopaedic Surgery, Minneapolis, MN, United States, (2)SI-BONE, Inc., San Jose, CA, United States, (3)Yale University, New Haven, CT, United States, (4)Integrated Spine Care, Wauwatosa, WI, United States, (5)Bluegrass Orthopedics, Lexington, KY, United States, (6)Riverside Hospital, Kankakee, IL, United States

- 1:50 pm - 1:59 pm **Discussion**
- 2:00 pm - 2:04 pm **215 Stand-alone LLIF procedure: in which patient it can be used without cage subsidence?**
 Speaker: L. Pimenta
 Authors: L. Marchi(1), R. Amaral(1), F. Fortti(1), L. Oliveira(1), E. Coutinho(1), R. Jensen(1), L. Pimenta(1,2)
 (1)Instituto de Patologia da Coluna, Sao Paulo, Brazil, (2)USCD, Neurosurgery, San Diego, CA, United States
- 2:05 pm - 2:09 pm **37 The Impact of Minimally Invasive Spinal Deformity Surgery on ICU and Hospital Stay**
 Speaker: M. Wang
 Authors: D. Chou(1), M. Wang(2), K-M. Fu(2), G. Mundis(3,4), C. Shaffrey(5), D. Okonkwo(6), A. Kanter(6), V. Deviren(1), J. Uribe(7), P. Nunley(8), N. Anand(9), P. Park(10), P. Mummaneni(1), International Spine Study Group
 (1)University of California, San Francisco, San Francisco, CA, United States, (2)University of Miami, Miami, FL, United States, (3)Scripps Clinic, La Jolla, CA, United States, (4)San Diego Center for Spinal Disorders, San Diego, CA, United States, (5)University of Virginia, Charlottesville, VA, United States, (6)University of Pittsburgh Medical Center, Pittsburgh, PA, United States, (7)University of South Florida, Tampa, FL, United States, (8)Spine Institute of Louisiana, Shreveport, LA, United States, (9)Cedars Sinai, Los Angeles, CA, United States, (10)University of Michigan, Ann Arbor, MI, United States
- 2:10 pm - 2:14 pm **219 Analysis of the 10 best and 10 worst functional outcomes of Circumferential Minimally Invasive Surgical (CMIS) correction of Adult Spinal Deformity (ASD)**
 Speaker: J. Millard
 Authors: N. Anand(1), J. Millard(1), R. Cohen(1), J. Cohen(1), B. Khandehroo(1), E. Baron(1), S. Kahwaty(1)
 (1)Cedars-Sinai Medical Center, Spine Center, Los Angeles, CA, United States
- 2:15 pm - 2:19 pm **38 Can MCID Be Achieved in Elderly Patients Undergoing MIS Deformity Surgery?**
 Speaker: P. Park
 Authors: P. Park(1), D. Okonkwo(2), K-M. Fu(3), S. Nguyen(4), M. Wang(5), J. Uribe(6), N. Anand(7), G. Mundis(4,8), V. Deviren(9), R. Fessler(10), C. Shaffrey(11), D. Chou(9), P. Mummaneni(9), International Spine Study Group
 (1)University of Michigan, Ann Arbor, MI, United States, (2)University of Pittsburgh Medical Center, Pittsburgh, PA, United States, (3>Weill Cornell, New York, NY, United States, (4)San Diego Center for Spinal Disorders, San Diego, CA, United States, (5)University of Miami, Miami, FL, United States, (6)University of South Florida, Tampa, FL, United States, (7)Cedars Sinai, Los Angeles, CA, United States, (8)Scripps Clinic, La Jolla, CA, United States, (9)University of California, San Francisco, San Francisco, CA, United States, (10)Rush University, Chicago, IL, United States, (11)University of Virginia, Charlottesville, VA, United States
- 2:20 pm - 2:25 pm **Discussion**

2:25 pm - 3:30 pm - General Session: Adult Spinal Deformity-2

Moderator(s): Seok-Woo Kim, MD; Isador Lieberman, MD, MBA, FRCSC

- 2:25 pm - 2:29 pm **550 Importance of Preoperative Planning for Adult Spinal Deformity Correction**
 Speaker: J. Henry
 Authors: M. Spiegel(1), J. Henry(1), I. Gammal(1), C. Jalai(1), E. Tanzi(1), S. Vira(1), J. Oren(1), T. Protopsaltis(1), T. Errico(1), V. Lafage(2), F. Schwab(2)
 (1)NYU Hospital for Joint Diseases, Orthopedic Surgery, New York, NY, United States, (2)Hospital for Special Surgery, New York, NY, United States
- 2:30 pm - 2:34 pm **166 Risk Factors Associated with Mechanical Complications Including Proximal Junctional Failure after Osteotomy for Adult Spinal Deformity**
 Speaker: C. Cain
 Authors: C. Barton(1), A. Noshchenko(1), V. Patel(1), C. Cain(1), C. Kleck(1), E. Burger(1)
 (1)University of Colorado Anschutz Medical Campus, Denver, CO, United States
- 2:35 pm - 2:39 pm **264 A Morphology and Prevalence Study of Degenerative Lumbar Scoliosis in over 7000 Multi-Racial Asian Adults**
 Speaker: J.H. Tan
 Authors: G. Liu(1), J.H. Tan(1), G. Ee(1), Y.H. Chan(2), S.L. Low(3), H.K. Wong(1)
 (1)National University Hospital, Singapore, University Spine Centre, Department of Orthopaedic Surgery, SINGAPORE, Singapore, (2)Yong Loo Lin School of Medicine, National University of Singapore, Biostatistics Unit, SINGAPORE, Singapore, (3)National University Hospital, Singapore, Orthopaedic Diagnostic Centre, SINGAPORE, Singapore

- 2:40 pm - 2:44 pm **523 Is there a Gender-specific Recruitment Pattern in the Setting of Progressive Sagittal Malalignment?**
Speaker: [S. Vira](#)
Authors: S. Vira(1), B. Diebo(2), M. Spiegel(1), B. Liabaud(2), J. Henry(1), J. Oren(1), R. Lafage(2), E. Tanzi(1), T. Protopsaltis(1), T. Errico(1), F. Schwab(2), V. Lafage(2)
(1)NYU Hospital for Joint Diseases, Orthopedic Surgery, New York, NY, United States, (2)Hospital for Special Surgery, New York, NY, United States
- 2:45 pm - 2:49 pm **278 Development of New Onset Cervical Deformity in Non-Operative ASD Patients with 3-Year Follow-Up**
Speaker: [C. Jalai](#)
Authors: P. Passias(1), C. Jalai(1), N. Worley(1), J. Scheer(2), A. Soroceanu(1), T. Protopsaltis(1), E. Klineberg(3), D. Sciubba(4), B. Neuman(5), H.J. Kim(6), D.K. Hamilton(7), J. Smith(8), V. Lafage(6), C. Ames(9), International Spine Study Group
(1)NYU Hospital for Joint Diseases, Department of Orthopaedic Surgery, New York, NY, United States, (2)Northwestern University, Department of Neurosurgery, Chicago, IL, United States, (3)University of California, Davis, Department of Orthopaedic Surgery, Sacramento, CA, United States, (4)Johns Hopkins Hospital, Department of Neurosurgery, Baltimore, MD, United States, (5)Johns Hopkins Hospital, Department of Orthopaedics, Baltimore, MD, United States, (6)Hospital for Special Surgery, Department of Orthopaedics, New York, NY, United States, (7)University of Pittsburgh Medical Center, Department of Neurological Surgery, Pittsburg, PA, United States, (8)University of Virginia, Department of Neurosurgery, Charlottesville, VA, United States, (9)University of California, San Francisco, Department of Neurosurgery, San Francisco, CA, United States
- 2:50 pm - 2:54 pm **Discussion**
- 3:00 pm - 3:04 pm **690 Post-operative Alignment in ASD Surgery Can Be Predicted Based on Construct Length, Termination Level and Procedure Type: Series of 222 Patients**
Speaker: [J.J. Varghese](#)
Authors: J.K. Henry(1), J.J. Varghese(2,3), F. Schwab(2), T. Protopsaltis(1), J. Smith(4), C. Ames(5), M. Kelly(6), J. Gum(7), G. Mundis(8), R. Hostin(9), R. Hart(10), K. Kebaish(11), D. Burton(12), S. Bess(13), V. Lafage(2), International Spine Study Group
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- 3:05 pm - 3:09 pm **348 Expandable TLIF cages produce better sagittal alignment than static height cages for degenerative scoliosis**
Speaker: [D. Crandall](#)
Authors: D. Crandall(1), J. Revella(2), M. Chang(1), L. Young(1), A. Chung(3), L. Taylor(1), M. Immediato(1), R. Mclemore(2)
(1)Sonoran Spine, Tempe, AZ, United States, (2)Sonoran Spine Research and Education Foundation, Tempe, AZ, United States, (3)Banner University Medical Center Phoenix, Orthopedic Residency Program, Phoenix, AZ, United States
- 3:10 pm - 3:14 pm **31 Utility of Lateral Interbody Fusion of the Thoracolumbar Curve's Apex in Adult Deformity Surgery**
Speaker: [M. Wang](#)
Authors: A. Theologis(1), G. Mundis(2,3), D. Okonkwo(4), P. Mummaneni(1), C. Shaffrey(5), R. Fessler(6), S. Bess(7), F. Schwab(8), B. Diebo(8), D. Burton(9), R. Hart(10), C. Ames(1), V. Deviren(1), J. Zavatsky(2), M. Wang(4), International Spine Study Group
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- 3:15 pm - 3:19 pm **382 Anterolateral versus posterior-only approach for the correction of adult spinal deformity A matched cohort analysis**
Speaker: [C-S. Lee](#)
Authors: C-S. Lee (1), S-J Park(1), S-S. Chung(1), J-H. Kim(1), J-S. Kim(1)
(1)Samsung Medical Center, Sungkyunkwan University, School of medicine, Orthopedic Surgery, Seoul, Korea, Republic of

3:20 pm - 3:24 pm 412 **Operative time better predictor of perioperative outcomes after long posterior fusions for adult spinal deformity than other surgical variables**
Speaker: [A. Samuel](#)
Authors: A. Samuel(1), M. Fu(2), N. Anandasivam(1), A. Lukasiewicz(1), M. Webb(1), H.J. Kim(2), J. Grauer(1)
(1)Yale University School of Medicine, New Haven, CT, United States, (2)Hospital for Special Surgery, New York City, NY, United States

3:25 pm - 3:30 pm **Discussion**

3:30 pm - 4:30 pm - Symposium: The Good, the Bad and the Ugly - Reimbursement in a Value-Based World: A Forum for Surgeons and Industry

Moderated/Hosted By: ISASS Research Committee Chair, Dr. Lisa Ferrara and ISASS Coding & Reimbursement Task Force Chair, Dr. Morgan Lorio

3:30 pm - 3:34 pm 510 **Pilot and Pivotal Paired Comparison Survey(s) Analyses Utilizing Rasch Methodology of the Relative Difficulty and Estimated Work RVU of CPT 27279**

Speaker: [M. Lorio](#)

Authors: M. Lorio(1), K. Hallas(2), M. Martinson(3), L. Ferrara(4)

(1)Neuro Spine Solutions/ISASS, Bristol, TN, United States, (2)Emerson Consultants/ ISASS, Excelsior, MN, United States, (3)Technomics Research, LLC, Medina, MN, United States, (4)OrthoKinetic Testing Technologies, LLC, Southport, SC, United States

3:35 pm - 3:39 pm 430 **How Much Work is Involved in Minimally Invasive Sacroiliac Joint Fusion?**

Speaker: [D.W. Polly](#)

Authors: C.G.T. Ledonio(1), T. Garber(1), J. Sembrano(1), E.R. Santos(1), D.W. Polly(1)

(1)University of Minnesota, Orthopaedic Surgery, Minneapolis, MN, United States

3:40 pm - 3:44 pm 444 **Spine Surgeons' Perceptions of the Incidence and Impact of Third Party Payers' Delay or Denial of Coverage in the Pre-Authorization of Surgical Procedures and Subsequent Payment**

Speaker: [P. Nunley](#)

Authors: P. Nunley(1), J. Small(2), K. Frank(1), M. Stone(1)

(1)Spine Institute of Louisiana, Shreveport, LA, United States, (2)Florida Orthopedic Institute, Tampa, FL, United States

3:45 pm - 3:49 pm 206 **Working towards Bundled Payments for Adolescent Scoliosis Surgery, an Analysis of Real Costs**

Speaker: [I. Lieberman](#)

Authors: X. Hu(1), S. Brice(1), I. Lieberman(1)

(1)Texas Back Institute, Texas Health Presbyterian Hospital Plano, Scoliosis and Spine Tumor Center, Plano, TX, United States

3:50 pm - 4:40 pm **Open Forum**

Discussion Themes:

Surgeon work and the valuation of spine procedures;

Measuring clinical and economic outcomes in spine surgery;

Harnessing the power of data to build advocacy plans and shape policy;

Setting the agenda--the future of spine surgery.

3:30 pm - 5:30 pm - Special Session: The Role of Endoscopic Spine Surgery in Spinal Care: The State of the Art

Session Director: Anthony T. Yeung, MD

Note: An additional fee of \$25 is required to attend this Special Session.

3:30 pm - 3:34 pm Introduction and Opening Remarks - Gunnar Anderson, MD, PhD

3:35 pm - 3:44 pm Endoscopic Spine Surgery from the Perspective of a Traditional Spine Surgeon Beginner Adopting Endoscopic Spine Surgery - Choll Kim, MD, PhD

3:45 pm - 3:59 pm The Ideal Procedure for Endoscopic Spine Surgery: An Accomplished Endoscopic Surgeons' Perspective - Christopher Alan Yeung, MD

4:00 pm - 4:29 pm	The Future of Endoscopic spine Surgery: A Master's Perspective - Anthony T. Yeung, MD
4:30 pm - 4:44 pm	Endoscopic Spine Surgery: A Sage's Perspective - Hansen Yuan, MD, PhD
4:45 pm - 4:54 pm	Endoscopic Treatment of Common Conditions: Toxic Annular Tears - Tony Mork, MD
4:55 pm - 5:14 pm	Endoscopic treatment of FBSS and Lateral Recess Stenosis - Anthony T. Yeung, MD
5:15 pm - 5:30 pm	Questions and Remarks from Attendees - Gunnar Anderson, MD and Anthony T. Yeung MD

3:30 pm - 5:30 pm - Cadaver Lab Lecture - Room: Raphael 1

3:30 pm - 5:30 pm	Cadaver Lab Lecture - Room: Raphael 1 <i>Chair: Ali Araghi, DO</i>
3:30 pm - 4:00 pm	Posterior Screw Fixation Using Dynamic Surgical Navigation <i>Faculty: Professor Hee-Kit Wong</i>
4:00 pm - 4:30 pm	Application of Novel Integrated Plate Fixation to Lateral Lumbar Surgery with Avenue® L and VerteBRIDGE® Plating <i>Faculty: Daniel D. Lee, MD</i>
4:30 pm - 5:30 pm	Expanding Your Practice - Innovations in the Oblique Lateral and Transforaminal Approaches <i>Faculty: Scott Hodges, DO</i>

4:30 pm - 4:40 pm - ISASS Business Meeting

4:40 pm - 4:50 pm - Closing of ISASS16

Saturday, April 9, 2016

7:00 am - 6:00 pm - Cadaver Lab

7:00 am - 6:00 pm	Cadaver Lab - Room: Raphael 1 <i>Chair: Ali Araghi, DO</i>
7:00 am - 7:45 am	Breakfast; Raphael 1 Transition to Lab, Raphael 2 & 3 Station 1: OLIF; Faculty: Neel Anand, MD
7:45 am - 8:00 am	Station 2: MIS TLIF; Faculty: Scott Hodges, DO Station 3: Lateral Lumbar Fusion Surgery Utilizing LDR's Avenue® L Cage and VerteBRIDGE® Plating; Faculty: Daniel D. Lee, MD; Hieu Ball, MD Station 4: Posterior Fusion/Osteotomy; Faculty: William Smith, MD
8:00 am - 11:00 am	Station Rotation 1
11:00 am - 12:00 pm	Lunch, Raphael 1
12:00 pm - 3:00 pm	Station Rotation 2
3:00 pm - 6:00 pm	Station Rotation 3