

2020  
**SPINE  
WEEK™**  
Melbourne, Australia  
27 April – 1 May



[www.spineweek.org](http://www.spineweek.org)

Participating  
Societies



Program at a glance

Monday

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7
08.00	SSA	ASSI	NEURO-SPINE		SOSORT		CAOS
10.00	Break						
10.30	SSA	ASSI	NEURO-SPINE		SOSORT		CAOS
12.30	Lunch break + Industry workshops						
14.00	SSA	ASSI	NASS		SOSORT		SAUDI
16.00	Break						
16.30		ASSI	NASS		SOSORT		SAUDI

Tuesday

	Room 1	Room 2	Room 3	Room 4	Room 5
08.00	SSA	ASSI	APSS	KSSS	SOSORT
10.00	Break				
10.30	SSA	ASSI	APSS	KSSS	SOSORT
12.30	Lunch break + Industry workshops				
14.00	ISSLS	ASSI	APSS	SSA	SOSORT
16.00	Break				
16.30	ISSLS	ASSI	APSS		SOSORT

Wednesday

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7
08.00	ISSLS	ASSI	SOSORT		BIO-SPINE	APCSS	NASS
10.00	Break						
10.30	ISSLS	ASSI	SOSORT		BIO-SPINE	APCSS	NASS
12.30	Lunch break + Industry workshops						
14.00	ISSLS	ESJ	JSSR		BIO-SPINE	SIS	SOLAS
16.00	Break						
16.30	ISSLS	ESJ			BIO-SPINE	SIS	SOLAS

Program at a glance

Thursday

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7
08.00	ISSLS	ACA/CA	SIS		AO		AFRICA
10.00	Break						
10.30	ISSLS	ACA/CA	SIS		AO		AFRICA
12.30	Lunch break + Industry workshops						
14.00	KSNS	ACA/CA	SIS		NASS		SOLAS
16.00	Break						
16.30	KSNS	ACA/CA	SIS		NASS		SOLAS

Friday

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7
08.00	ISSLS	ACA/CA	AO		WORLD SPINE	SIS	BSS
10.00	Break						
10.30	ISSLS	ACA/CA	AO		WORLD SPINE	SIS	BSS
12.30	Lunch break + Industry workshops						
14.00	ISSLS	ACA/CA	AO		WORLD SPINE	APSS	AFRICA
16.00	Break						
16.30	ISSLS	ACA/CA	AO		WORLD SPINE	APSS	AFRICA

# Monday, April 27 Scientific Program

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7
08.00	SSA	ASSI	NEURO-SPINE		SOSORT		CAOS
10.00				Break			
10.30	SSA	ASSI	NEURO-SPINE		SOSORT		CAOS
12.30	Lunch break + Industry workshops						
14.00	SSA	ASSI	NASS		SOSORT		SAUDI
16.00				Break			
16.30		ASSI	NASS		SOSORT		SAUDI



- 08.00 **SSA 2020 Conference Opening**  
*Johnson M., Freeman B. (AU)*
- Free Paper Session 1: Cervical spine / Spinal trauma**
- 08.10 **3D Morphology of cervical vertebral endplate anatomy: A literature review**  
*Liu W. (AU)*
- 08.20 **10 kHz SCS for treatment of neck/upper limb pain: Combined results from two prospective studies**  
*Verrills P. (AU)*
- 08.30 **10 kHz Spinal cord stimulation for chronic upper limb and neck pain: Australian experience of quality of life outcomes**  
*Verrills P. (AU)*
- 08.40 **Assessment of degenerative cervical stenosis on T2 weighted MR imaging: Sensitivity to change and reliability of mid-sagittal and axial plane metrics**  
*Chamoli U. (AU)*
- 08.50 **A comparison of clinical and functional outcomes following anterior, posterior and combined approaches for management of cervical spondylotic myelopathy**  
*Zaveri G. (IN)*
- 09.00 **Complications of cervical total disc replacement and their associations with heterotopic ossification: A systematic review and meta-analysis**  
*Hui N. (AU)*
- 09.10 **Peri-prosthetic osteolysis: A late complication of cervical disc replacement**  
*Sears W.E. (AU)*
- 09.20 **Comparison of kinematic measures following cervical arthroplasty, arthrodesis, and hybrid procedures**  
*Luong S. (AU)*
- 09.30 **Surgical decompression after traumatic spinal cord injury as an outcome predictor for post-traumatic syringomyelia**  
*Fadhil M. (AU)*
- 09.40 **Experiences of adults with spinal cerebrospinal fluid leaks from Australia and New Zealand: Why is the diagnosis often delayed or missed?**  
*McQueen K.L. (AU)*
- 09.50 **Factors that influence pedicle screw instrumentation failure in patients with unstable thoracolumbar and lumbar spine Injuries**  
*Bokov A. (RU)*
- 10.00 Coffee Break



- Free Paper Session 2: Basic science**
- 10.30 **Spinal cord ultrastructure and the distribution of aquaporin-4 in a rodent model of post-traumatic syringomyelia**  
*Berliner J.A. (AU)*
- 10.40 **Three-dimensional analysis of lumbar vertebral endplate anatomy**  
*Singh T. (AU)*
- 10.50 **Using sequential MRI to quantify healthy growth in thoracic vertebral bodies of adolescent females: Preliminary methods and results**  
*Choi C. (AU)*
- 11.00 **Independent predictors of staphylococcal infection in posterior instrumented spinal surgery**  
*Lee H. (AU)*
- 11.10 **Circulating adipokines in predicting the transition from acute to persistent low back pain**  
*Klyne D. (AU)*
- 11.20 **Low back pain flares: Is a "flare" the same as an increase in pain?**  
*Costa N. (AU)*
- 11.30 **Central sensitization: Can it persist indefinitely after the initiating pain generator has resolved?**  
*Brazenor G.A. (AU)*
- 11.40 **A comparison of modified frailty index (mFI) variations for the prediction of spine surgery related morbidity and mortality in the elderly**  
*Kweh B. (AU)*
- 11.50 **Discussion**
- 12.00 **Keynote Lecture 1**  
**Chair: Freeman B. (AU)**
- The genetics of disc degeneration & the genetics of scoliosis**  
*Chan D. (HK)*
- 13.00 **Lunch Break**
- Free Paper Session 3: Lumbar spine**
- 14.00 **Is establishing a specialist back pain assessment and management service in primary care a safe and effective model? Twelve-month results from the back-pain assessment clinic (BAC) Prospective cohort pilot study**  
*De Gruchy A. (AU)*
- 14.10 **Can poor sleep and sedentary behaviour trigger a low back pain flare? Objective measures from wearable sensors**  
*Costa N. (AU)*
- 14.20 **Variations in primary discectomy and revision surgery for lumbar disc herniations: An online survey of neurosurgeons and spine surgeons in Australia and New Zealand**  
*Chen X.L. (AU)*



- 14.30 **Unilateral laminotomy and bilateral decompression compared to conventional laminectomy in decompression of lumbar spinal canal stenosis: A randomized prospective study**  
*Chahal R.S. (IN)*
- 14.40 **Direct paraspinal approach to foraminal and extraforaminal disc prolapse**  
*Malham G. (AU)*
- 14.50 **Novel technique in combining autograft iliac crest and allograft in anterior lumbar interbody fusion (Northumbria Technique)**  
*Kasis A. (GB)*
- 15.00 **Predictive model for clinical outcome in DDD patients undergoing L5/S1 ALIF**  
*Budiono G.R. (AU)*
- 15.10 **Restoring spino-pelvic harmony with lateral lumbar interbody fusion: Is it a realistic goal?**  
*Asaid M. (AU)*
- 15.20 **Functional and radiological outcomes of anterior lumbar interbody fusion (ALIF) for the treatment of symptomatic recurrent lumbar disc prolapse - 50 consecutive cases**  
*Kasis A. (GB)*
- 15.30 **Assessment of fusion in oblique lumbar interbody fusion using BMP and allograft blocks**  
*Ruparel S. (IN)*
- 15.40 **Adjacent segment disease following lumbar spinal fusion: An observational study of its incidence with or without 'topping off' using pedicle screw based dynamic stabilisers**  
*Sears W.R. (AU)*
- 15.50 **Discussion**
- 16.30 **Adjourn and Coffee Break**

- 08.00 **Mini Symposium: Planning surgery in severe rigid scoliosis**  
*Chair: Basu S. (IN)*
- 09.00 **Free Paper Session 1**
- 09.30 **Free Paper Session 2**
- 10.00 **Coffee Break**
- 10.30 **ASSI Focus Symposium: Missed spinal injuries**  
*Chair: Zaveri G. (IN)*
- 11.30 **VTI Gold Medal Free Paper Session**
- 12.30 **Lunch Break**
- 14.00 **Free Paper Session 3**
- 14.30 **Free Paper Session 4**
- 15.00 **Mini Symposium: Surgical site infections in spine surgery**  
*Chair: Chaddha R. (IN)*
- 16.00 **Coffee Break**
- Report on ASSI multicentric trials**
- 16.30 **Does timing since onset affect outcome of surgical management of PIVD with neurologic deficit**  
*Aithala J. (IN)*
- 16.37 **Correlation of MRI assessment and intra-operative assessment of PLC injury in thoracolumbar trauma: Assessment of PLC injury in thoracolumbar trauma: Does MRI predict PLC Injury**  
*Suri T. (IN)*
- 16.44 **Role of pet scan in management of secondaries of the spine: Retrospective study**  
*Chhabra H.S. (IN)*
- 16.51 **Correlation of clinical and radiological healing in spinal tuberculosis**  
*Babu N. (IN)*
- 16.58 **Cervical sagittal alignment changes following deformity correction in Lenke 1 AIS curves**  
*Garg B. (IN)*
- 17.05 **Retrospective study of complications of PIVD MISS surgery with various techniques**  
*Kulkarni A. (IN)*



**Interactive case discussion: Challenging cases/Unusual solutions**

- 17.15 **Neglected cervical trauma**  
*Kailash K. (IN)*
- 17.25 **A rare spinal Infection - Problem in diagnosis & management challenge**  
*Mulukutla R. (IN)*
- 17.35 **Complex cervical pathology - Unusual solution**  
*Dave B. (IN)*
- 17.45 **A vertebroplasty gone awry!!**  
*Debnath U. (IN)*
- 18.00 **Adjourn**

- 07.50 **Congratulatory address**  
*Ha Y. (KR)*
- Free Papers I**  
*Chairs: Kim K.S. (KR) & Huang W.C. (TW)*
- 08.00 **Surgical technique for cervical pedicle screw insertion using O-Arm navigation plus mini screws**  
*Shimokawa N. (JP)*
- 08.05 **Prospective animal study of five FDA-approved cervical artificial discs**  
*Baisden J.L. (US)*
- 08.10 **Comparative study of cervical laminoplasty: Cervical spondylotic myelopathy versus continuous ossification of posterior longitudinal ligament**  
*Moon B.J. (KR)*
- 08.15 **The effect of Haunsfield unit value with conventional computed tomography on subsidence in patients following stand-alone anterior cervical discectomy and fusion**  
*Son D.W. (KR)*
- 08.20 **Discussion**
- 08.25 **Computed tomography based morphometric analysis of C1-C2 vertebra to evaluate feasibility of anterior C1-C2 fixation**  
*Agarwal V. (IN)*
- 08.30 **Risk factors for delirium after posterior lumbar interbody fusion for spinal stenosis in elderly patients aged 65 years or older, comparing with age groups older than 75 years**  
*Choi M.K. (KR)*
- 08.35 **Complex tethered cord**  
*Muthukumar N. (IN)*
- 08.40 **Influence of trabecular bone density and morphology on thoracolumbar spine fracture types from axial impact loading**  
*Yoganandan N. (US)*
- 08.45 **Discussion**
- 08.50 **Accuracy of 'K-wireless' insertion of percutaneous pedicle screws using computer-assisted spinal navigation: A systematic review & single-center experience**  
*O'Donohoe T. (AU)*
- 08.55 **Influence of osteoporosis on reoperation, readmission and economic burden following spine surgery for 8 years: A nationwide population-based study**  
*Lee C.K. (KR)*
- 09.00 **Rod fracture after multiple-rod constructs for adult spinal deformity**  
*Jung J.M. (KR)*
- 09.05 **Assessment of symptomatic rod fracture after surgery for adult spinal deformity**  
*Lee S.K. (KR)*



- 09.10 **Short term clinical and radiological outcome of balloon kyphoplasty for vertebral compression fractures: A retrospective analysis with 1-year follow-up**  
*Chahal R.S. (IN)*
- Publications in Academic Spine Journals**  
**Chairs: Ha Y. (KR) & Lee E.J. (TW)**
- 09.15 **Publishing your research**  
*Gunzburg R. (BE)*
- 09.30 **The importance of registries or systematic reviews**  
*Blumenthal S. (US)*
- 09.45 **Peer review process: History value and limits**  
*Lamartina C. (IT)*
- 10.00 **Coffee Break**
- 10.30 **Robotics and AI in spine surgery**  
**Chairs: Cho Y.E. (KR) & Watanabe K. (JP)**
- 10.30 **Prediction modelling of surgery outcome and biologic network of bone aging using network based machine learning analysis**  
*Park S.B. (KR)*
- 10.40 **Automatic detection for osteoporotic vertebral fractures by artificial intelligence**  
*Norimoto M. (JP)*
- 10.50 **Single surgeon early experience of Globus Excelcius GPS robot in spine fusion surgery**  
*Choi J. (US)*
- 11.00 **Utilization of artificial intelligence in treatment for spinal scoliosis**  
*Watanabe K. (JP)*
- 11.10 **Neuromonitoring in adult spinal deformity surgery**  
*Kwan K. (HK)*
- Free Papers II**  
**Chairs: Han I. (KR) & Kwan K. (HK)**
- 11.20 **Indirect decompression by anterior lumbar interbody fusion for correction of inferior lamino-facet impingement in degenerative spondylolisthesis - A clinico-radiological analysis**  
*Bae J. (KR)*
- 11.25 **High grade spondylolisthesis-managed through single stage posterior approach with single segment spinal fusion**  
*Subramaniam M.H. (IN)*
- 11.30 **OLIF induced spinal canal remodeling through indirect decompression**  
*Kwon H.D. (KR)*
- 11.35 **Radiologic significance of ligamentum flavum hypertrophy as a major contributor for central lumbar spinal canal stenosis**  
*Hur J.W. (KR)*



- 11.40 **Discussion**
- 11.45 **Can the addition of robotic terminal cleaning via pulsed-xenon ultraviolet light reduce bioburden in the operating room compared to traditional manual methods alone?**  
*Xiong A. (US)*
- 11.50 **What constitutes the molecular signature of normal human intervertebral discs? – Revelations from high throughput proteomic analysis**  
*Dilip Chand Raja S. (IN)*
- 11.55 **An injectable heparin-Laponite hydrogel bridge FGF4 for spinal cord injury by stabilizing microtubule and improving mitochondrial function**  
*Wang C.G. (CN)*
- 12.00 **Discussion**
- 12.10 **Reliability of manual methods for measuring disc height and volume of healthy and degenerated lumbar intervertebral discs in MRI scans**  
*Meisel H.J. (DE)*
- 12.15 **Early results of full-endoscopic decompression of lumbar central canal stenosis by outside-in technique: A clinical and radiographic study**  
*Sharma S. (IN)*
- 12.20 **Augmented osteogenesis of mesenchymal stem cells using a fragmented Runx2 mixed with cell-penetrating, dimeric  $\alpha$ -helical peptide**  
*Park S.B. (KR)*
- 12.25 **Discussion**
- 12.30 **Adjourn and Lunch Break**



- 14.00 **Welcome**
- Paper presentation: Thoracolumbar**
- 14.05 **Radiation exposure in posterior lumbar fusion: A comparison of CT image-guided navigation, robotic assistance and intraoperative fluoroscopy**  
*Buckland A. (US)*
- 14.11 **What is the role of surgery for spinal metastasis of lung cancer? Propensity score matched analysis between surgery with radiotherapy and radiotherapy alone**  
*Park H.Y. (KR)*
- 14.17 **Trajectories of PROMIS physical function, pain interference and participation in social roles in 24 months following lumbar spine surgery**  
*Pennings J.S. (US)*
- 14.23 **Preoperative clinico-radiologic clues for transdural disc herniation**  
*Kim K.H. (KR)*
- 14.29 **Pelvic incidence and sagittal balance changes between flexion and extension**  
*Kleck C.J. (US)*
- 14.35 **Efficacy of epidural instillation of novel cocktail (bupivacaine-morphine) on post operative pain management in patients undergoing elective lumbar fusion surgery: A prospective randomized control study**  
*Sridhar J. (IN)*
- 14.41 **Biportal endoscopic/ arthroscopic discectomy for high-grade migrated lumbar disc herniation**  
*Kang T.W. (KR)*
- 14.47 **Discussion**
- Paper Presentations: Motion preservation**
- 15.00 **Long-term clinical outcome of the Charité III total lumbar disc replacement**  
*Kitzen J. (NL)*
- 15.06 **Long-term clinical outcome of two revision strategies for failed total disc replacements**  
*Kitzen J. (NL)*
- 15.12 **Role of high sensitive C-reactive protein in determining functional outcome after epidural steroid injection in lumbar disc disease**  
*Goni V. (IN)*
- 15.18 **Tranexamic acid in elective spine surgery: A randomized controlled trial analyzing the efficacy of intravenous, local infiltration and topical administration of tranexamic acid**  
*Arun-Kumar V. (IN)*
- 15.24 **Subsidence after total lumbar disc replacement is related to clinical outcome and can be predicted**  
*Kitzen J. (NL)*

- 15.30 **Clinical outcome of a PEEK-on-ceramic total disc replacement: Data from 3 sites participating in the single-level cervical FDA IDE trial**  
*Guyer R. (US)*
- 15.36 **Does preventive care bundle have an impact on surgical site infections following spine surgery: An analysis of 9607 patients**  
*Kumarasamy D. (IN)*
- 15.42 **Discussion**
- 16.00 **Coffee Break**
- 16.30 **Symposium: Procedural management of low back pain**
- Discography – pro**
- Discography – con**
- Basivertebral nerve ablation**
- Lumbar disc arthroplasty**
- Lumbar fusion**



- 08.00 **Introduction**  
*Zaina F. (IT), Parent E. (CA) & McAviney J. (AU)*
- Session 1: Exercise**
- 08.06 **Effects of Schroth Exercises added to standard care in Adolescents with Idiopathic Scoliosis (AIS) on full -torso surface topography parameters - A Randomized Controlled Trial (RCT)**  
*Parent E. (CA)*
- 08.13 **Comparison between brace therapy alone and brace therapy in combination with exercise therapy for adolescent Idiopathic Scoliosis**  
*Yamazaki K. (JP)*
- 08.20 **The effects of an intensive course of physiotherapy scoliosis specific exercise on self-image in patients with Idiopathic Scoliosis**  
*Maude E. (GB)*
- 08.27 **Is swimming helpful or harmful in adolescents with Idiopathic Scoliosis**  
*Negrini A. (IT)*
- 08.34 **Discussion**
- 08.45 **Impact of functional exercises on balance in postural thoracic kyphosis**  
*Özdemir Görgü S. (TR)*
- 08.52 **The effect of dance performance on Idiopathic Scoliosis progression in adolescents**  
*Romano M. (IT)*
- 08.59 **Immediate effect of daily living postures on spinal curvatures and rotation from 3D ultrasound images in adolescent Idiopathic Scoliosis**  
*Parent E. (CA)*
- 09.06 **Discussion**
- Session 2: Scoliosis: Measurement**
- 09.15 **Comparison of automatic and manual measurements of spine curvatures on Scolioscan Ultrasound Images for 1000 cases**  
*Lai K.L. (HK)*
- 09.22 **The vertebra vectors: A simple method to determine the treatment result of thoracic and double major spine deformities in the horizontal plane**  
*Illés T. (BE)*
- 09.29 **Mismatch between Distal Radius and Ulna Classification, Sanders Staging and Risser Staging: Implications in management of Adolescent Idiopathic Scoliosis**  
*Cheung P. (HK)*
- 09.36 **Loss of body height due to severe thoracic curvature does impact pulmonary testing results in adolescents with Idiopathic Scoliosis**  
*Politarczyk K. (PL)*
- 09.43 **Discussion**

- 10.00 **Coffee Break**
- 10.30 **A preliminary study investigating the coronal-sagittal coupling phenomenon of the spine on patients with adolescent Idiopathic Scoliosis**  
*Lee T.Y. (HK)*
- 10.37 **Normative data in static and dynamic surface topography**  
*Diers H. (DE)*
- 10.44 **Is the clinical measurement of the hump helpful for X-ray prescription and good predictor of the curve? Results from a geometrical study from a large prospective cohort**  
*Donzelli S. (IT)*
- 10.51 **Use of Simplified Skeletal Maturity System (SSMS) and Thumb Ossification Composite Index (TOCI) to assess skeletal maturity and predict height velocity in Japanese female patients with Adolescent Idiopathic Scoliosis (AIS)**  
*Chazono M. (JP)*
- 10.58 **Discussion**
- 11.09 **Is there any difference in pulmonary testing parameters due to spirometry reference values? A study in adolescents with Idiopathic Scoliosis**  
*Politarczyk K. (PL)*
- 11.16 **Impact of inter-and intra-rater reliability of the simplified skeletal maturity scoring system on prognoses in AIS**  
*Dolan L.A. (US)*
- 11.23 **A glimpse of using 3D ultrasound imaging for the Adolescent Idiopathic Scoliosis Curve Classification**  
*Yang D. (HK)*
- 11.30 **A reliability and validity study using an alternative measurement method by 3D ultrasound imaging on patients with Adolescent Idiopathic Scoliosis**  
*Lee T.Y. (HK)*
- 11.37 **Discussion**
- 11.48 **Gait analysis of scoliosis adolescent on treadmill with Pantar pressure measurement in different walking speeds**  
*Huang Z. (CN)*
- 11.54 **Reliability of EOS imaging system for evaluating bracing in Adolescent Idiopathic Scoliosis**  
*Zhang X.H. (CN)*
- 12.00 **Sagittal spinal posture: Classification & agreement of three radiographic analysis systems**  
*Cohen L. (AU)*
- 12.07 **Discussion**
- 12.30 **Lunch**

**Session 3: Quality of life**

- 14.06 **Polish adaption of Italian Spine Youth Quality of Life (ISYQOL) questionnaire**  
*Kozinoga M. (PL)*
- 14.13 **Convergent validity, ceiling and floor effects of the ISYQOL against established Quality of Life Questionnaires (SRS-22r and SAQ) in adults with scoliosis**  
*Parent E. (CA)*
- 14.20 **ISYQOL, a Rasch consistent tool for Quality of life evaluation in scoliosis patients during adulthood: Comparison with the gold standard**  
*Zaina F. (IT)*
- 14.27 **Cross-cultural French-Canadian adaption and metrologic assessment of the Italian Spine Youth Quality of Life (ISYQOL) Questionnaire**  
*Parent E. (CA)*
- 14.34 **Discussion**
- 14.45 **Validation of the Korean version of the Body Image Disturbance Questionnaire-Scoliosis**  
*Lee J.S. (KR)*
- 14.52 **Validity of the ScolioGold Body Image Questionnaire**  
*Maude E. (GB)*
- 14.59 **Health mindset correlates with health-related quality of life assessment in children with Adolescent Idiopathic Scoliosis**  
*Tileston K.R. (US)*
- 15.06 **SRS-22 neither predicts nor is affected by brace compliance in AIS patients**  
*Dolan L. (US)*
- 15.12 **Discussion**
- 15.22 **TBC**
- 15.28 **What braced AIS adolescents say might help make wearing the brace to school easier: Results from a survey**  
*Harding R. (AU)*
- 15.35 **The effects of education about their scoliosis on self-image in patients with Idiopathic Scoliosis**  
*Kydd C. (GB)*
- 15.42 **Effects of combination of bracing and PSSE on the Cobb angle and psychological status in female AIS: A longitudinal study**  
*Liao B. (CN)*
- 15.49 **Discussion**
- 16.00 **Coffee Break**
- 16.30 **Invited Lecture**  
**Basic Biomechanics of the Spine – What have we learned in 25 years?**  
*Oxland T. (CN)*
- 17.16 **Discussion**
- 17.31 **Adjournment**

- 08.00 **Welcome**
- Session 1**
- 08.20 **Sagittal imbalances after growing rod surgery for early onset scoliosis**  
*Hai Y. (CN)*
- 08.40 **How to correct maximally in severe Potts deformity**  
*Cao K. (CN)*
- 09.00 **Staged circumferential minimally invasive surgery for degenerative scoliosis - Experience and lessons we've learned**  
*Liang Y. (CN)*
- 09.20 **Accuracy of thoracic pedicle screw placement in severe spinal deformities: A prospective controlled study comparing 3D-printed guide template with free-hand technique**  
*Wang X.Y. (CN)*
- 09.40 **Discussion**
- 10.00 **Coffee Break**
- Session 2**
- 10.30 **Reconsideration of the ideal indication of CDR based on minimum 10-year follow up results**  
*Zhou F. (CN)*
- 10.50 **Dysphagia after anterior cervical fusion - Evaluation, risk factor, prevention**  
*Chang Y. (CN)*
- 11.10 **Radiographic and clinical outcomes after instrumented reduction and interbody fusion of grade 2 and 3 isthmic spondylolisthesis with complete disc collapse**  
*Chen L. (CN)*
- 11.30 **OLIF for revision surgery in the treatment of pseudoarthrosis after TLIF**  
*Wu W. (CN)*
- 11.50 **Rethinking of anterolateral lumbar interbody fusion**  
*Wang B. (CN)*
- 12.10 **Discussion**
- 12.30 **Adjourn and Lunch Break**



- 14.00 **Complex Spine Surgery in Saudi Arabia**  
Assiri I. (SA)
- Session 1: Abstract presentations**  
Chair: Awwad W. (SA)
- 14.11 **Spinal cord injury following lower limb surgery**  
Alturkistani A. (SA)
- 14.19 **Surgical outcomes of anterior and posterior approaches for the treatment of thoracic myelopathy secondary to ligamentous ossification: A systematic review**  
Alabduljabbar F. (SA)
- 14.27 **Dual lilac screws in spinopelvic fixation: A systematic review**  
Bourghli A. (SA)
- 14.35 **Best paper 3rd SSS annual conference**  
TBA
- 14.43 **Burnout among spine care practitioners in Saudi Arabia**  
Alabduljabbar F. (SA)
- 14.51 **Discussion**
- Session 2: Rare Spine Cases – Case reports from Saudi Arabia**  
Chair: Alturkistani A. (SA)
- 15.00 **Life threatening complication following simple spine procedure**  
Konbaz F. (SA)
- 15.10 **Gun shot injury: What to do?**  
Bourghli A. (SA)
- 15.20 **Rare cause of Torticollis**  
Alshaya W. (SA)
- 15.30 **Lumbar spineous process aggressive lesion**  
Konbaz F. (SA)
- 15.40 **Discussion**
- 16.00 **Coffee Break**



- Session 3: Pediatrics spine**  
Chair: Konbaz F. (SA)
- 16.30 **MIS scoliosis**  
Alturkistani A. (SA)
- 16.45 **Nuances in craniocervical fusion in infancy**  
Alshaya W. (SA)
- 17.00 **S2AI in severe neuromuscular scoliosis - The outcome in deformity correction & restoring pelvic obliquity**  
Alhelal F. (SA)
- 17.15 **Discussion**
- Session 4: Adult spine**  
Chair: Alhelal F. (SA)
- 17.30 **New classification of pedicle subtraction osteotomies**  
Bourghli A. (SA)
- 17.45 **Updates in diagnosis and management of postoperative spinal infection**  
Alabduljabbar F. (SA)
- 18.00 **Spinopelvic dissociation injuries management**  
Awwad W. (SA)
- 18.15 **Discussion**

# Tuesday, April 28 Scientific Program

	Room 1	Room 2	Room 3	Room 4	Room 5
08.00	SSA	ASSI	APSS	KSSS	SOSORT
10.00	Break				
10.30	SSA	ASSI	APSS	KSSS	SOSORT
12.30	Lunch break + Industry workshops				
14.00	ISSLS	ASSI	APSS	SSA	SOSORT
16.00	Break				
16.30	ISSLS	ASSI	APSS		SOSORT



**Free Paper Session 4: New technology**

- 08.00 **The Australian Spine Registry (ASR): Engaging surgeons and patients in data collection**  
*Apos E. (AU)*
- 08.10 **Robotic-assisted spine surgery: Learning curve, accuracy and radiation exposure of Excelsius-GPS Spine Robot System**  
*Sarkar M. (AU)*
- 08.20 **Bone healing using antimicrobial loaded allograft bone**  
*Lovric V. (AU)*
- 08.30 **Lateral lumbar interbody fusion: Early experience using expandable titanium cages with multimodal neurophysiological monitoring**  
*Malham G. (AU)*
- 08.40 **3D printed models can guide safe halo pin placement in patients with diastrophic dysplasia**  
*Sidhu V. (AU)*
- 08.50 **Initial stability and cage migration within cervical constructs using 3D-printed generic versus patient-specific interbody devices for anterior cervical discectomy and fusion (ACDF): An in-vitro study**  
*Ng M. (AU)*
- 09.00 **Effects of dash and cutting movement on the spine: To prevent the onset and recurrence of low back pain in soccer players**  
*Goto T. (JP)*
- 09.10 **The NeuroSpine Surgery Research Group (NSURG) grading system - A cohort study comparing navigation versus 3D printed patient specific drill guides for cortical bone trajectory**  
*Choy W.J. (AU)*
- 09.20 **Discussion**
- 09.25 **Presidential Lecture**  
**Introduction by Johnson M. (AU)**
- The challenges and future direction of private health insurance in Australia**  
*David R. (AU)*
- 10.10 **Coffee Break**
- Free Paper Session 5: Spinal deformity**
- 10.30 **Do children with spinal deformity who have metal implants and frequent exposure to X-rays increase the risk of cancer?**  
*Freeman B.J.C. (AU)*
- 10.40 **Sequential MRI reveals vertebral body wedging significantly contributes to coronal plane deformity progression in adolescent idiopathic scoliosis during growth**  
*Labrom F. (AU)*

- 10.50 **Effect of surgical correction on torso segmental symmetry and rotation in adolescent idiopathic scoliosis**  
*Grant C.A. (AU)*
- 11.00 **Three-dimensional morphometric analysis of growth at the apical vertebra in adolescent idiopathic scoliosis**  
*Jennings H.A. (AU)*
- 11.10 **Posterior vertebral column resection for correction of rigid spinal deformity**  
*Prasath V. (IN)*
- 11.20 **Immediate effect of spinal bracing on curve magnitude in coronal and axial planes in adolescent scoliosis utilizing EOSTM imaging**  
*Gatehouse C. (AU)*
- 11.30 **An FE investigation of vertebral body tethering surgery: A preliminary study**  
*Little J. (AU)*
- 11.40 **Intraoperative neurological monitoring? A valuable tool in recognizing and avoiding new onset post-operative neurological deficits in paediatric deformity corrections**  
*Kadiri V. (IN)*
- Free Paper Session 6: Biomechanics**
- 11.50 **The effect of axial compression and distraction on cervical facet cartilage articulation during shear and bending motions**  
*Quarrington R. (AU)*
- 12.00 **Insights into trabecular bone adaptation in adolescent idiopathic scoliosis using microCT analysis**  
*Pivonka P. (AU)*
- 12.10 **A braced arm-to-thigh technique reduces spinal loads for activities of daily living**  
*Jones C.F. (AU)*
- 12.20 **The changes in cervical biomechanics after CTDR and its association with heterotopic ossification: A systematic review and meta-analysis**  
*Hui N. (AU)*
- 12.30 **Towards developing a novel approach of investigating spinal motion using ultrasound**  
*Meszaros L. (AU)*
- 12.40 **Application of 3-D modelling techniques for prediction of deep tissue pressure injuries interfacing the coccyx and sacrum**  
*Rayward L. (AU)*
- 12.50 **Evaluation of endplate - Implant interactions on axial rotational loading: A biomechanical study**  
*Pelletier M. (AU)*
- 13.00 **Lunch Break**





- 14.00 **Welcome**  
Local Hosts
- 14.05 **Welcome**  
Samartzis D. (US), Program Chairman
- Session 1: Disc degeneration I**  
**Moderators: Chiba K. (JP) & Kawakami M. (JP)**
- 14.15 **The mechanism study of inhibitory role of CBP/p300 on intervertebral disc degeneration and discogenic pain**  
Zheng Z. (CN)
- 14.22 **The impact of hyaluronic acid catabolism on intervertebral disc degeneration**  
Yamamoto T. (JP)
- 14.29 **Lactate-dependent metabolic symbiosis in intervertebral discs**  
Vo V. (US)
- 14.36 **Discussion**
- 14.45 **Intervertebral disc regeneration effectuated by cellular homing of vertebral delivered cells - A proof of concept study**  
Schol J. (JP)
- 14.52 **Proteomic profile of mesenchymal stromal cell secretome in response to degenerative intervertebral disc: Implications for cell-free regenerative treatment**  
Grad S. (CH)
- 14.59 **Intervertebral disc repair with autologous nucleus pulposus-derived MSCs transplantation: A controlled clinical trial by 5-year follow-up**  
Ruan D. (CH)
- 15.06 **Discussion**
- Session 2: Disc degeneration II**  
**Moderators: Lotz J. (US) & Vo N. (US)**
- 15.15 **N-Cadherin deficiency enhances response of chondrogenic genes to mechanical loading in chordoma culture**  
Hsu Y.C. (HK)
- 15.22 **Does type II diabetes induce early senescence and degeneration in human intervertebral discs? A tissue biomarker evaluation**  
Sudhir G. (IN)
- 15.29 **Human lumbar discs are not sterile! - Defining the normal intervertebral disc microbiome**  
Rajasekaran S. (IN)



- 15.36 **Inflammaging as an etiology of disc degeneration - Molecular evidence from a comparative proteomic study of healthy young, aged and degenerate discs**  
Rajasekaran S. (IN)
- 15.43 **Moving beyond degenerative disc disease: A systematic review**  
Battie M. (US)
- 15.48 **Discussion**
- 16.00 **Coffee Break**
- Session 3: Invited Guest Lecture**  
**Chair: Samartzis D. (US)**
- 16.30 **Disc disease and osteoarthritis- same same but different - Opportunities for cross-fertilisation**  
Hunter D. (AU)
- 17.30 **First business meeting (members only)**





Program available soon

- 08.00 **Current issues in management of spinal tuberculosis**  
*Chair: Shetty A. (IN)*
- 09.00 **Free Paper Session 5**
- 09.30 **Free Paper Session 6**
- 10.00 *Coffee Break*
- 10.30 **Presidential Oration**  
*Chair: Chhabra H.S. (IN)*
- 11.00 **Invited Guest Oration**
- 11.30 **ASSI Research Awards**
- 12.10 **Launch of ASSI E-learning program**
- 12.30 *Lunch Break*
- 14.00 **Mini Symposium: Deformity correction in ankylosing spondylitis**  
*Chair: Jhala A. (IN)*
- 15.00 **General body meeting of ASSI**
- 16.00 *Coffee Break*
- ASSI open theatre: Video presentations**
- 16.30 **UB Endoscopy: A paradigm shift in management of lumbar disc and stenosis pathology**  
*Rege A. (IN)*
- 16.36 **Minimally invasive over the top tubular decompression in lumbar canal stenosis**  
*Unnikrishnan R. (IN)*
- 16.42 **MISS for high grade spondylolisthesis**  
*Peshatiwar V. (IN)*
- 16.48 **Microendoscopic posterior cervical discectomy**  
*Gupte V. (IN)*
- 16.54 **Transforaminal endoscopic approach for upward migrated disc**  
*Bhave A. (IN)*
- 17.00 **Free Paper Session 7**
- 17.30 **Free Paper Session 8**
- 18.00 **Adjourn**



**LUMBAR SPINE**

**Session 1: Surgical technique: Anterior-lateral access surgery on lumbar spine**

Moderators: Jeon C.-H. (KR) & Shin D.E. (KR)

- 08.00 **Redefining**  
Hong C.H. (KR)
- 08.05 **Technical tip for getting the larger correction of lumbar lordotic angle**  
Kim S.B. (KR)
- 08.10 **Tip and pitfall of using cage for achieving both indirect decompression and segmental angle restoration**  
Kim Y.-C. (KR)
- 08.15 **Strategies of prevention for surgical complication: Hernia, neurovascular injury, etc.**  
Kim T.-H. (KR)
- 08.20 **Discussion**
- Session 2: Coronal plane balance in ASD: the forgotten stepchild!**  
Moderators: Shin B.-J. (KR) & Koh Y.-D. (KR)
- 08.28 **Recognizing and correcting the stiff fractional lumbosacral curve**  
Park D.-H. (KR)
- 08.33 **Intraop correction of flexible vs stiff coronal plane imbalance**  
Lee B.H. (KR)
- 08.38 **Intraop methods to analyze and confirm optimal coronal alignment**  
Nam W.D. (KR)
- 08.43 **Postop coronal imbalance: Risk factor and solutions?**  
Kim Y.-W. (KR)
- 08.48 **Discussion**
- Session 3: Special issue**  
Moderators: Lee H.-M. (KR) & Chang B.S. (KR)
- Debate: Post-laminectomy syndrome with sagittal imbalance**
- 08.55 **Posterior only is enough**  
Ahn S.J. (KR)
- 09.00 **Anterior and posterior is needed**  
Kim Y.B. (KR)
- 09.05 **Discussion**



**Prevention and management after elderly spine surgery**

- 09.10 **Perioperative delirium after elderly spine surgery: Prevention and management**  
Shin H.K. (KR)
- 09.15 **Discussion**
- Cervical Spine**
- Session 4: Intraoperative painful experiences**  
Moderators: Yeom J.S. (KR) & Park J.-B. (KR)
- 09.20 **Vertebral artery injury**  
Kim M.W. (KR)
- 09.27 **Esophageal injury**  
Ko S.-B. (KR)
- 09.34 **Dural tear & neurologic deficit**  
Park M.S. (KR)
- 09.41 **Cervicothoracic junctional approach**  
Baik J.M. (KR)
- 09.48 **Discussion**
- 10.00 **Coffee Break**
- Session 5: Postoperative painful experiences**  
Moderators: Shim D.M. (KR) & Kang J.W. (KR)
- 10.30 **Retropharyngeal hematoma and management (emergency cricothyrotomy)**  
Park J.-B. (KR)
- 10.37 **Dysphagia and dysphonia**  
Min W.-K. (KR)
- 10.44 **Postoperative surgical site infection**  
Lee G.W. (KR)
- 10.51 **Pseudoarthrosis diagnosis and management**  
Yang J.J. (KR)
- 10.58 **Discussion**

Monday

Tuesday

Wednesday

Thursday

Friday







**MISS**

**Session 6: Endoscopic Spinal Surgery**

Moderators: Kang C.N. (KR) & Park Y. (KR)

- 11.10 Percutaneous endoscopic revision decompression for recurrent disc herniation of pas open lumbar disc surgery
- 11.15 **Multifidus muscle changes after biportal endoscopic spinal surgery: Magnetic resonance imaging evaluation**  
Lee H.-J. (KR)
- 11.20 **A novel preoperative trajectory evaluation method for L5-S1 transforaminal percutaneous endoscopic lumbar discectomy**  
Eun S.S. (KR)
- 11.25 **Decompression procedure using unilateral biportal endoscopy for thoracic myelopathy caused by ossification of the ligamentum flavum: A technical note and preliminary clinical results**  
Choi S.-H. (KR)
- 11.30 **Discussion**
- Session 7: Minimally Invasive Spinal Fusion I**  
Moderators: Rhyu K.-W. (KR) & Lee J.C. (KR)
- 11.42 **Combination of OLIF plus BESS for lumbar spinal stenosis: Comparison with conventional open TLIF**  
Lee H.-J. (KR)
- 11.47 **Unilateral biportal endoscopic lumbar interbody fusion versus conventional posterior lumbar interbody fusion for 2 lumbosacral segment: Clinical and radiological outcomes of one-year follow-up**  
Choi S.H. (KR)
- 11.52 **Biportal endoscopic transforaminal interbody fusion**  
Kim J.E. (KR)
- 11.57 **Discussion**
- Session 8: Minimally Invasive Spinal Fusion II**  
Moderators: Kim W.J. (KR) & Seo H.-Y. (KR)
- 12.06 **Minimally invasive lateral fusion and posterior segmental osteotomy for correction of adult sagittal deformity**  
Lee J.C. (KR)
- 12.11 **MI anterior and posterior support surgery for vertebral burst fractures**  
Hong J.-Y. (KR)
- 12.16 **Discussion**
- 12.30 Adjourn and Lunch Break



- 14.00 **Keynote Lecture 2**  
Chair: Freeman B. (AU)  
  
Predictive analytics; the relationship of patient frailty to surgical outcomes and complications & Cervical spine deformity correction techniques  
Ames C. (US)
- 15.00 **Presentations of Awards**
- 16.00 *Adjourn and Coffee Break*
- 16.00 **Spine Society of Australia Annual General Meeting (Members only)**

### Session 4: SOSORT Award Session

- 08.00 Introduction
- 08.06 **Misalignment between patient, payer and societal costs for non-operative compared to operative scoliosis care**  
*Zeller S. (US)*
- 08.15 **A pilot study to investigate the Adolescent Idiopathic Scoliosis Screening Referral Status using 3D ultrasound imaging**  
*Yang D. (HK)*
- 08.24 **Scoliosis, increasing injury in young dancers**  
*Wong A.Y.L. (HK)*
- 08.33 **Monitoring of spine curvature progression of Adolescent Idiopathic Scoliosis (AIS) patients using three-dimensional ultrasound**  
*Lai K.L. (HK)*
- 08.42 **Discussion**
- 09.03 **Bracing outcomes in adolescent Idiopathic Scoliosis are associated with biological endophenotypes**  
*Moreau A. (CA)*
- 09.12 **Thoracic kyphosis value in the early stage could differentiate between progressive and non- progressive patients with Adolescent Idiopathic Scoliosis: A prospective study**  
*Lee T.Y. (HK)*
- 09.21 **Long-term results of conservative treatment in Adolescent Idiopathic Scoliosis: A minimum follow-up of 20 years**  
*Aulisa A. (IT)*
- 09.30 **Final results of brace treatment of adolescents with Idiopathic Scoliosis prediction: 30-days out-of-brace is better than In-brace X-ray**  
*Donzelli S. (IT)*
- 09.39 **Discussion**
- 10.00 **Coffee Break**
- 10.30 **Invited Lecture**  
**Changes in back muscle structure and function with spinal conditions**  
*Hodges P. (AU)*
- 11.16 **Discussion**
- 11.32 **Controversial issue: Exercise or bracing in AIS, when to switch?**
- 12.30 **Lunch**

### Session 5: Scoliosis basic knowledge

- 14.00 **Impaired mechanotransduction in Idiopathic Scoliosis patients: From the bench to bedside**  
*Moreau A. (CA)*
- 14.07 **The evaluation of the Trunk/ Side Shift exercise using surface EMG and motion analysis: Muscle asymmetry and motion patterns during the Trunk/ Side Shift**  
*Betts T. (GB)*
- 14.14 **Prediction of final body height at initial presentation for Idiopathic Scoliosis female patients**  
*Cheung P.W.H. (HK)*
- 14.21 **Assessing the literature landscape for sagittal posture-related research**  
*Cohen L. (AU)*
- 14.28 **Generalised hypermobility and scoliosis in a population of patients referred for physiotherapy at The Royal National Orthopaedic Hospital: A prospective clinical study**  
*Betts T. (GB)*
- 14.35 **Discussion**
- 14.48 **Degenerative paraspinal muscles impact thoracic spine compensation in ASD patients**  
*Elysee J.C. (US)*
- 14.55 **Effects of the change in back extensor strength on the progression of kyphotic deformity in postmenopausal women**  
*Hongo M. (JP)*
- 15.02 **Any effective and sustainable way to decrease pain and improve quality of life for symptomatic adult scoliosis in Hong Kong?**  
*Lui M.W.M. (HK)*
- 15.08 **Orthotic management of progression & pain in Adult Degenerative Scoliosis**  
*Mills A.J. (GB)*
- 15.14 **Discussion**
- 15.24 **SOSORT Presidential Address**  
*Parent E. (CA)*
- 16.00 **Coffee break**
- 16.30 **SOSORT Business Meeting**
- 17.30 **Adjourn**



# Wednesday, April 29 Scientific Program

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7
08.00	ISSLS	ASSI	SOSORT		BIO-SPINE	APCSS	NASS
10.00				Break			
10.30	ISSLS	ASSI	SOSORT		BIO-SPINE	APCSS	NASS
12.30	Lunch break + Industry workshops						
14.00	ISSLS	ESJ	JSSR		BIO-SPINE	SIS	SOLAS
16.00				Break			
16.30	ISSLS	ESJ			BIO-SPINE	SIS	SOLAS

Monday

Tuesday

Wednesday

Thursday

Friday



07.30

## Session 4: Special Poster Session 1 (Poster Area)

### Session 5: Muscles

Moderators: Belavy D. (AU) & Hodges P. (AU)

08.45

The increased fatty atrophy and decreased lumbar muscle cross sectional area throughout the lumbar spine associated with spondylolisthesis  
Qureshi S. (US)

08.52

Reciprocal relationship between multifidus and psoas at L4-L5 level in women with low back pain  
Özcan-Ekşi E.E. (TR)

08.59

A new MRI-based parameter for the evaluation of age-related lumbar paraspinal muscle degeneration: The Hangzhou Lumbar Spine Study  
Wang Y. (CN)

09.06

Reduced leg muscle mass and lower grip strength in women are associated with osteoporotic vertebral compression fractures  
Yawara E. (JP)

09.13

### Discussion

### Session 6: Disc herniation

Moderators: Fraser R. (AU) & Babu N. (IN)

09.25

Multifidus atrophy and endplate pathology elevate risk for lumbar disc herniation following prolonged spaceflight  
Bailey J.F. (US)

09.32

Relation between duration of sciatica and patient reported outcome measures after lumbar disc herniation surgery in 6,216 patients  
Beck P.J.M. (SE)

09.39

Does the presence of inflammation impact surgical and conservative management outcomes for people with lumbar disc herniation with associated radiculopathy?  
Hahne A. (AU)

09.46

Comparative effects of discectomy, physiotherapy or advice for people with lumbar disc herniation with associated radiculopathy: Results of a 3-group comparison across two prospective studies  
Hahne A. (AU)

09.51

### Discussion

10.00

### Coffee Break

### Session 7: Vertebral endplate

Moderators: Rajasekaran S. (IN) & Zhao F. (CN)

10.30

Compositional and structural changes of the endplate are associated with disc degeneration: A quantitative MRI study in rhesus monkeys and humans  
Zou X.N. (CN)

10.37

Association of vertebral endplate changes with degeneration scores, inflammation and innervation in prolapsed lumbar discs  
Zehra U. (PK)

Monday

Tuesday

Wednesday

Thursday

Friday



- 10.44 **Association between endplate pathology and annular fissures, using discography and a detailed MRI/CT endplate scoring system**  
Hebelka H. (SE)
- 10.51 **Postoperative endplate injury after minimally invasive lateral lumbar interbody fusion: Risk factor analysis**  
Kim S.I. (KR)
- 10.58 **Discussion**
- Harry Farfan Presidential Lecture**  
Chair: Kawakami M. (JP)
- 11.10 **The Health Care Market Place - How to leverage Public/Private Partnerships - Challenging the traditional delivery of health care, the emerging ecosystem**  
Weinstein J., VP Microsoft Health (US)
- Presidential Address**  
Chair: Chiba K. (JP)
- 11.50 **The inclusive philosophy of ISSLS and the experience of two figures in Wakayama's history**  
Kawakami M. (JP)
- 12.30 **Lunch**
- Session 8: Modic changes**  
Moderators: Kawaguchi Y. (JP) & Samartzis D. (US)
- 14.00 **Histomorphometry of Modic changes**  
Dudli S. (CH)
- 14.07 **Dysregulated adhesion properties of Modic type I change bone marrow stromal cells**  
Heggli I. (CH)
- 14.14 **Pro-inflammatory cytokines are not increased in Modic type 1 change bone marrow plasma**  
Heggli I. (CH)
- 14.21 **Discussion**
- 14.30 **Clinical and pathological significances of cartilage endplate within herniated disc: Relation to Modic changes, endplate defects, and residual lower back pain, and activation of NLRP3/caspase1/IL-1 $\beta$  axis**  
Feng Z.Y. (CN)
- 14.37 **Absence of preoperative Modic changes and end plate damage determines better clinical outcomes following microdiscectomy**  
Rajasekaran S. (IN)
- 14.44 **A randomized placebo controlled trial of antibiotic treatment in patients with chronic low back pain and Modic changes (the AIM-study)**  
Bråten V. (NO)
- 14.51 **Discussion**



- Session 9: Biomechanics**  
Moderators: Oxland T. (CA) & Wilke J.H. (DE)
- 15.00 **Relationship between internal strains and failure locations in human intervertebral discs under axial compression: A 9.4T MRI study**  
Freedman B. (GB)
- 15.07 **Lumbar inter-vertebral motion sharing during spine flexion and return to neutral: Replacing assumptions with data**  
Breen A.X. (GB)
- 15.14 **MicroCT analysis of the lumbar spine pedicle isthmus**  
Irie T.Y. (US)
- 15.21 **Discussion**
- 15.30 **Monitoring changes in gait over time: A comparison of lumbar spinal stenosis and knee osteoarthritis**  
Smuck M. (US)
- 15.37 **Mechanical changes in the spine following two lumbopelvic traction approaches on asymptomatic individuals – A randomized crossover study**  
Wong A.Y.L. (HK)
- 15.44 **Lack of correlation between the SINS and the biomechanical outcomes in metastatic vertebrae**  
Barbanti Brodano G. (IT)
- 15.51 **Discussion**
- 16.00 **Coffee Break**
- 16.30 **Debate: Artificial intelligence for evaluation and treatment of lumbar spinal disease**  
Moderator: Inoue G. (JP)
- Pro: Maki S. (JP) & Watanabe K. (JP)  
Con: Sakai D. (JP) & Takahashi S. (JP)
- Session 10: Artificial Intelligence/Machine learning**  
Moderators: Inoue G. (JP) & Sakai D. (JP)
- 17.30 **Using artificial intelligence algorithms to identify existing knowledge within the back pain literature**  
Kawchuk G. (CA)
- 17.37 **Automatic detection for osteoporotic vertebral fractures by artificial intelligence**  
Norimoto M. (JP)
- 17.44 **Can collective intelligence improve the outcome of spine surgery?**  
Fekete T.F. (CH)
- 17.51 **Discussion**





- 08.00 **Mini Symposium: Craniovertebral junction**  
*Chair: Kundnani V. (IN)*
- 09.00 **Free Paper Session 9**
- 09.30 **Free Paper Session 10**
- 10.00 *Coffee Break*
- 10.30 **Combined session of APSS with ASSI**
- 12.30 **Adjourn and Lunch Break**

- 14.00 **Welcome**  
*Gunzburg R. (BE) and Chairmen*
- Session 1**  
**Moderators: Gunzburg R. (BE) & Szpalski M. (BE)**
- 14.05 **Classification of isthmic spondylolisthesis**  
*Roussouly P. (FR)*
- 14.25 **Classification of degenerative spondylolisthesis**  
*Obeid I. (FR)*
- Case Based Topics**  
**Moderator: Berjano P. (IT)**
- 14.40 **Degenerative spondylolisthesis**  
*Case presenter: Pascal-Moussellard H. (FR)*  
*Lecturer: Obeid I. (FR)*
- 15.20 **Low grade isthmic spondylolisthesis**  
*Case presenter: Obeid I. (FR)*  
*Lecturer: Pascal-Moussellard H. (FR)*
- 16.00 *Coffee Break*
- Case Based Topics**  
**Moderator: Lamartina C. (IT)**
- 16.30 **High grade isthmic spondylolisthesis**  
*Case presenter: Lamartina C. (IT)*  
*Lecturer: Roussouly P. (FR)*
- 17.10 **Revision surgery in isthmic spondylolisthesis**  
*Case presenter: Berjano P. (IT)*  
*Lecturer: Lamartina C. (IT)*
- 17.50 **Final Remark**  
*Berjano P. (IT) & Lamartina C. (IT)*
- 18.00 **End of the Meeting**





- 08.00 **Introduction**
- Session 5: Bracing**
- 08.06 **Three-dimensional effects of bracing in Adolescent Idiopathic Scoliosis**  
*Kwan K.Y.H. (HK)*
- 08.13 **Alternately repetitive cast and brace treatment in patients with Infantile Idiopathic Scoliosis**  
*Kawakami N. (JP)*
- 08.20 **A randomized clinical trial of 3D-printed brace for the treatment of Adolescent Idiopathic Scoliosis (AIS) – A preliminary result**  
*Lou E. (CA)*
- 08.27 **Analyzing correlation among coronal, sagittal and transverse parameters in AIS with different types of Rigo classification**  
*Liu C.Z. (CN)*
- 08.34 **Discussion**
- 08.43 **Early weaning in the brace treatment of Adolescent Idiopathic Scoliosis: When and why**  
*Aulisa A.G. (IT)*
- 08.50 **Conservative treatment with PSSE and Cheneau brace reduces Cobb angle in AIS patients, also in late skeletal maturity: A retrospective observational study from The Netherlands**  
*Kerstholt J.M.C. (NL)*
- 08.57 **Bracing is associated with decreased back pain in AIS patients**  
*Dolan L.A. (US)*
- 09.04 **Supine flexibility predicts curve progression for patients with Adolescent Idiopathic Scoliosis undergoing underarm bracing**  
*Cheung P.W.H. (HK)*
- 09.11 **Discussion**
- 09.20 **Predictive factors for successful bracing in the treatment of Adolescent Idiopathic Scoliosis: Evidence to date**  
*Karavidas N. (GR)*
- 09.27 **3D classification of the spine and rib cage for brace effectiveness prediction**  
*Pasha S. (US)*
- 09.34 **Brace treatment of patients with Infantile Idiopathic Scoliosis**  
*Lein G. (RU)*
- 09.41 **Preliminary results from a cohort of Juvenile Idiopathic Scoliosis patients, treated with Providence Nighttime Braces**  
*Simony A. (DK)*
- 09.48 **Discussion**



- 10.00 **Coffee Break**
- 10.30 **Invited Lecture**
- 11.01 **SOSORT Awards Announcement**
- 11.12 **Controversial issue: Bracing or surgery, where is the limit?**
- 12.13 **Closing Remarks**
- 12.30 **Lunch**





**Session 1**

**Chair: Haro H. (JP)**

- 14.00 **Osteoporosis in a general population - Do osteoporosis and spinal degenerative disorders synergistically affect low back pain and related disorders?**  
**The Wakayama Spine Study**  
*Hashizume H. (JP)*
- 14.07 **Natural course of osteoporotic vertebral fracture**  
*Takahashi S. (JP)*
- 14.14 **Osteoporotic vertebral fracture: Effect of medication**  
*Inage K. (JP)*
- 14.21 **Conservative treatment (physical therapy)**  
*Miyakoshi N. (JP)*
- 14.28 **Conservative treatment (Brace) for acute osteoporotic vertebral fracture (OVF): Through a prospective, randomized, multicenter study by the comparison of hard and soft-brace treatments**  
*Kato T. (JP)*

14.35 **Discussion**

**Session 2**

**Chair: Matsuyama Y. (JP)**

- 14.50 **Balloon Kyphoplasty (BKP): Tips and pitfalls**  
*Togawa D. (JP)*
- 14.57 **Advances in osteoporosis treatment reduce the risk of failure in anterior spinal reconstruction for osteoporotic spine**  
*Kanayama M. (JP)*
- 15.04 **3-column osteotomy for kyphosis following osteoporotic vertebral fracture**  
*Yamato Y. (JP)*
- 15.11 **Strategies to decide on surgical procedures for delayed union of osteoporotic vertebral fractures**  
*Ohba T. (JP)*

15.18 **Discussion**



**Session 3**

**Chair: Takahashi S. (JP)**

- 15.30 **Association between MRI findings and back pain after osteoporotic vertebral fractures: A multicenter prospective cohort study**  
*Ahmadi S. (AF)*
- 15.35 **Evaluation of cement leakage using Computed Tomography after Balloon Kyphoplasty: Comparison between patients underwent within 4 weeks and patients underwent after 4 weeks**  
*Yasuda H. (JP)*
- 15.40 **Pelvic incidence influences sagittal spinopelvic kinematics in hip osteoarthritis**  
*Kobayashi T. (JP)*
- 15.45 **Clinically significant changes in pain along the Pain Intensity Numerical Rating Scale in patients with chronic low back pain**  
*Suzuki H. (JP)*
- 15.50 **Diagonal trajectory posterior screw instrumentation for compromised bone quality spine: Groove-entry technique/Hooking screw hybrid**  
*Sekiguchi I. (JP)*
- 15.55 **Closing Remarks**
- 16.00 **Coffee Break**

Monday

Tuesday

Wednesday

Thursday

Friday





07.50

**Welcome Address**

Cho Y. (KR), President of the Bio-Spine Asia Pacific Congress 2020  
Sakai D. (JP), President of Biospine Japan

**Session 1: Bone Research**

**Moderator: Cho Y. (KR) & Sakai D. (JP)**

08.00

**The imaging of myelination during fracture healing in vivo in Myelin Protein Zero (MPZ) transgenic medaka**

Dodo Y. (JP)

08.10

**Biocompatibility of whitlockite nanocrystals synthesized by tri-solvent system: In vitro study**

Han I.H. (KR)

08.20

**Bone loss caused by dopaminergic degeneration and levodopa treatment in Parkinson's disease model mice**

Ishikawa K. (JP)

08.30

**Activin A and BMP chimera (AB204) induced bone fusion in osteoporotic spine using an ovariectomized rat model**

Yoon S.H. (KR)

08.40

**ABM/P-15 versus allograft in non-instrumented lumbar fusion surgery: A blinded randomized controlled trial**

Andersen M. (DK)

08.50

**Development of a novel osteogenic artificial bone with plasma technology**

Kodama J. (JP)

09.00

**Serum biomarkers for the pathogenesis of ossification of the posterior longitudinal ligament**

Kawaguchi Y. (JP)

09.10

**The radiological and functional fusion rates of posterior lumbar interbody fusion with bone morphogenic protein: One-year follow-up study**

An S.B. (KR)

09.20

**Anti-osteoporosis treatment supports BMP-induced osteogenesis in ovariectomized mice**

Tsukazaki H. (JP)

09.30

**Stem cell therapy for osteoporotic vertebral compression fracture**

Han I.B. (KR)

09.40

**Treatment effect with weekly teriparatide in the vertebral compression fractures in patients with severe osteoporosis**

Suh S.P. (KR)

09.50

**Pull out strength of the screw and compression force of vertebra gained with a 3-month course of romosozumab treatment**

Ishikawa K. (JP)

10.00

Coffee Break



10.30

**Session 2: Innovative techniques in spine care**

**Moderators: Othori S. (JP) & Park J.B. (KR)**

**Prediction model for bridging bone formation in transforaminal lumbar interbody fusion using Bayesian network**

Park S.B. (KR)

10.40

**Automatic detection for osteoporotic vertebral fractures by artificial intelligence**

Norimoto M. (JP)

10.50

**Increased motion probing gradient directional diffusion tensor imaging of lumbar nerves using Multi-Band SENSE improves the visualization and accuracy of FA values**

Norimoto M. (JP)

11.00

**Augmented and mixed reality applications in spinal deformity surgery**

Sakai D. (JP)

11.10

**Capture the feature of adolescent idiopathic scoliosis patients maintenance of dynamic balance ability – Using three dimensional motion capture**

Horikita N. (JP)

11.20

**Update on roadmap for development of brand new spine surgery robot in Korea**

Yi S. (KR)

11.30

**Development of smartphone application to detect the adolescent idiopathic scoliosis**

Inoue G. (JP)

11.40

**Comparative study of the bone graft area, fusion rate in unilateral transforaminal lumbar interbody fusion between endoscopic and microscopic approaches**

Lim K.T. (KR)

11.50

**Factors related to anatomical structure of successful of percutaneous endoscopic transforaminal lumbar discectomy**

Ju C.I. (KR)

12.00

**Full-endoscopic trans-Kambin's triangle lumbar interbody fusion (full-endoscopic KLIF): Technique and clinical outcome**

Tezuka F. (JP)

12.10

**Percutaneous endoscopic transforaminal lumbar interbody fusion for the treatment of lumbar spinal stenosis: A prospective study**

Hai Y. (CH)

12.20

**Patient personalized custom-made cervical implant using high technology: Process from research to clinical approach**

Sung U.K. (KR)

12.30

Photo & Lunch



Monday

Tuesday

Wednesday

Thursday

Friday



**Session 3: Disc & spinal cord research**

**Moderators: Alini M. & Khang G.S.**

- 14.00 **Investigation of resident and recruited macrophages following disc injury in mice**  
*Kawakubo A. (JP)*
- 14.10 **One strike loading organ culture model to investigate the post-traumatic disc degenerative condition**  
*Zhen L. (CH)*
- 14.20 **The relationships between nutrition status and pain-related molecules in degenerated intervertebral disc**  
*Yokozei Y. (JP)*
- 14.30 **A novel retroperitoneal approach for the targeted annular tear injury for the induction of disc degeneration**  
*Moon H.J. (KR)*
- 14.40 **Autophagy protects against human disc cellular apoptosis and senescence but not extracellular matrix degradation**  
*Yurube T. (JP)*
- 14.50 **Involvement of Atg5-dependent autophagy in homeostasis maintenance of rat intervertebral discs**  
*Tsujimoto R. (JP)*
- 15.00 **Dual-specificity phosphatase 1 as a novel molecule for the management of discogenic low back pain**  
*Maekawa A. (JP)*
- 15.10 **Growth factor mediated pre-conditioning of MSCs for enhancement of cell therapy against intervertebral disc degeneration**  
*Schol J. (JP)*
- 15.20 **Comparative analysis of optical tissue clarity of the transparent brains using advanced tablet-based functional clarity measuring method in currently tissue clearing technologies**  
*Cho Y.E. (KR)*
- 15.30 **High-resolution investigation of expression pattern of Prdm7 and Prdm12 in mouse embryo development by using a modified passive clearing technique**  
*Cho Y.E. (KR)*
- 15.40 **Enoxaparin promotes recovery after axonal injury through antagonizing PTPR $\sigma$**   
*Ito S. (JP)*
- 15.50 **Chronic hyperglycemia before spinal cord injury increases inflammatory reaction and astrogliosis after the injury: Human and animal studies**  
*Kim K.T. (KR)*
- 16.00 **Coffee Break**



**Session 4: Recent advancements in clinical application for spine**

**Moderator: Yurube T. (JP) & Kim Y.Y. (KR)**

- 16.30 **Accuracy of rib cage parameters from 3-dimensional reconstruction images obtained using simultaneous biplanar radiographic scanning technique in adolescent idiopathic scoliosis: Comparison with conventional computed tomography**  
*Machino M. (JP)*
- 16.40 **Effect of facet joint effusion on clinical and radiographic outcomes of decompression for degenerative lumbar spinal stenosis**  
*Chough C.K. (KR)*
- 16.50 **The change of sagittal alignment after in situ fusion for degenerative lumbar spondylolisthesis**  
*Takaoka H. (JP)*
- 17.00 **Minimally invasive spine surgery with midline cortical bone trajectory screw fixation for lumbar degenerative disease in a single-institution retrospective cohort study of 200 patients**  
*Noh S.H. (KR)*
- 17.10 **Novel classification and risk factors of high intensity zones of the lumbar spine: Is HIZ imaging biomarkers for severe, prolonged low back pain and sciatica?**  
*Teraguchi M. (JP)*
- 17.20 **Prevention effects of silk solution against laminectomy-induced dural adhesion formation and inflammation**  
*Cho Y.J. (KR)*
- 17.30 **Minimally invasive radio-pulse intradiscal surgery for the chronic discogenic low back pain**  
*Yamashita K. (JP)*
- 17.40 **Biological approaches for the chronic discogenic low back pain**  
*Han I.B. (KR)*
- 17.50 **Early result of lumfix correction power in adolescent idiopathic scoliosis**  
*Lim P. (ID)*
- 18.00 **Comparative study of percutaneous pedicle screw fixation after direct decompression with anterior column reconstruction for thoracolumbar burst fracture**  
*Lee S.K. (KR)*
- 18.10 **Potential association between spinal epidural lipomatosis and metabolic syndrome**  
*Ishihara S. (JP)*
- 18.20 **Clinical and radiological results of indirect decompression after anterior lumbar interbody fusion (ALIF) in central spinal canal stenosis**  
*Lee D.H. (KR)*
- 18.30 **Closing Remarks**

Monday

Tuesday

Wednesday

Thursday

Friday





- 07.50 **Welcome Address**  
*Nakase H. (JP), APCSS President*
- Free paper session I**  
*Moderators: Kim W.K. (KR) & Shimokawa N. (JP)*
- 08.00 **Cervical Cord Compression and Whole-Spine Sagittal Balance: Retrospective study using Whole-Spine Magnetic Resonance Imaging and Cervical Cord Compression Index**  
*Oh J.K. (KR)*
- 08.05 **Does cervical laminoplasty have a kyphosing effect? Analysis of cervical alignment before and after cervical laminoplasty**  
*Borkar S.A. (IN)*
- 08.10 **Less-invasive cervical laminoplasty with new metallic spacers for multi-level cervical spondylosis or ossification of the posterior longitudinal ligament**  
*Mizuno J. (JP)*
- 08.15 **Systematic review of newly designed radiological factors for predict postoperative kyphotic change after laminoplasty**  
*Song G.S. (KR)*
- 08.20 **Study of the transverse foramen in the subaxial cervical spine in Korean patients with degenerative changes: Anatomical note**  
*Kim S.B. (KR)*
- 08.25 **Preoperative asymmetry of deep posterior paraspinal neck muscles "predicts" early-onset radiographic adjacent segment degeneration in anterior cervical discectomy and fusion patients**  
*Wong A.Y.L. (HK)*
- 08.30 **Clinical application of an improved design for a cervical interbody cage that includes flanges and anchoring screws**  
*Im S.B. (KR)*
- 08.35 **Effect of the presence and type of plate augmentation on post-operative dysphagia among adult patients undergoing elective anterior cervical discectomy and fusion for spondylosis: A randomized trial**  
*O'Donohoe T. (AU)*
- 08.40 **Clinical outcomes of correcting cervical deformity in cerebral palsy patients**  
*Ha Y. (KR)*
- 08.45 **Evaluation of cervical motion in anterior cervical fusion and total disc replacement patients**  
*Pelletier M.H. (AU)*
- 08.50 **Surgical treatment for the patients with the upper cervical fractures**  
*Matsumoto H. (JP)*
- 08.55 **A modified posterior approach for decompression of a multi-loculated atlanto-axial cyst with myelopathy**  
*Patel B. (IN)*



- Keynote speech**  
*Moderator: Kim S.H. (KR)*
- 09.00 **The strategic planning using virtual reality simulation for craniovertebral junction lesions**  
*Nakase H. (JP)*
- Debate session**  
*Moderators: Fan T. (CN) & Hong J.T. (KR)*
- 09.15 **Craniovertebral junction deformity case**  
*Chen Z. (CN) & Patkar S. (IN)*
- 09.30 **Cervical cord injury (Central cord syndrome: Early vs late surgery)**  
*Shimokawa N. (JP) & Kim S.H. (KR)*
- 09.45 **Posterior decompression technique for OPLL (laminoplasty vs fusion)**  
*Mizuno J. (JP) & Shin H.C. (KR)*
- 10.00 **Coffee Break**
- Important thesis**
- 10.20 **Classification and surgical strategy of congenital CVJ malformation**  
*Fan T. (CN)*
- 10.30 **A new nomenclature system for the surgical treatment of cervical spine deformity**  
*Hong J.T. (KR)*
- 10.40 **Transarticular facet screw fixation of the subaxial cervical spine**  
*Muthukumar N. (IN)*
- 10.50 **Radiological and clinical outcomes of three-level cervical disc arthroplasty**  
*Huang W.-C. (TW)*
- 11.00 **Full endoscopic anterior cervical discectomy and interbody fusion in patients with cervical spondylotic myelopathy: A preliminary report for clinical outcome and its feasibility, and technical specification**  
*Lim K.T. (KR)*
- Free paper session II**  
*Moderators: Patkar S. (IN) & Kim K.N. (KR)*
- 11.10 **Clinical results of foramen magnum decompression with microsurgical resection of outer layer of the dura for Chiari malformation**  
*Tanaka N. (CN)*
- 11.15 **Is foramen magnum decompression really needed after C1-C2 posterior fixation for congenital atlantoaxial dislocation/basilar invagination with Chiari malformation?**  
*Madhivanan K. (IN)*
- 11.20 **Radiologic parameters affect the clinical outcomes after C1-2 posterior fusion for atlantoaxial dislocation**  
*Park J.-H. (KR)*



- 11.25 **Bicortical C2 facet screws: Anatomical study, feasibility and clinical experience about 48 cases**  
*Barrey C. (FR)*
- 11.30 **Accuracy and outcomes of screw placement using O-arm navigated C1-C2 fusion in atlantoaxial instability: Comparison study with fluoroscopic guidance**  
*Kim K.N. (KR)*
- 11.35 **Clinical outcome related to C2 nerve root sacrifice and the feasibility of its preservation in patients with congenital atlantoaxial dislocation**  
*Madhivanan K. (IN)*
- 11.40 **Our surgical strategy and outcome of cervical bacterial spondylitis**  
*Shimokawa N. (JP)*
- 11.45 **Surgical method of syringomyelia: Syringo-cisterna magna shunt (syringocisternostomy)**  
*Kim S.H. (KR)*
- 11.50 **Minimal invasive surgical treatment of compression syndromes in patients with uncovertebral arthrosis**  
*Popsuyshapka K. (UA)*
- 11.55 **How to do it: Cervical foraminotomy via technique of biportal endoscopic spine surgery**  
*Ha J. (KR)*
- 12.00 **Endoscopic cervical laminectomy for treating cervical spondylotic myelopathy by unilateral biportal endoscopic approach**  
*Kim J.Y. (KR)*
- Interesting Cases discussion**  
**Moderator: Sutrisno A. (IN)**
- 12.05 **Symptomatic atlantoaxial instability in an adult with Down's syndrome**  
*Mannem A. (IN)*
- 12.10 **Modified molded cast for a case of developmental rotatory atlanto-axial subluxation**  
**Can it be an alternative to atlanto-axial fusion or contemporary reduction?**  
*Dilip Chand Raja S. (IN)*
- 12.15 **Vertebral body sliding osteotomy for ossification of posterior longitudinal ligament of the cervical spine (first case in Japan)**  
*Sekiguchi I. (JP)*
- 12.20 **Closing Remarks**
- 12.30 **Lunch**

- Emerging Technologies in Spine Interventions**  
**Moderator: Kennedy D.J. (US)**
- 14.00 **Intradiscal platelet-rich plasma**  
*Wright R.E. (US)*
- 14.20 **Stem cells**  
*Bates D. (US)*
- 14.40 **Ultrasound guidance**  
*Stout A. (US)*
- 14.55 **Basivertebral nerve ablation**  
*Smuck M. (US)*
- 15.15 **High frequency focused ultrasound**  
*Shah V. (US)*
- 15.30 **Dorsal root ganglion intervention**  
*Maus T. (US)*
- 15.45 **Discussion**
- 16.00 **Coffee Break**
- Sacroiliac Joint Pain: Up-to-date diagnosis and treatment strategies**  
**Moderator: Schwarzer A. (AU)**
- 16.30 **Updates on diagnosis: Imaging and physical exam**  
*Kennedy D.J. (US)*
- 16.50 **The role of therapeutic intra-articular injections**  
*MacVicar J. (US)*
- 17.10 **Lateral branch radiofrequency neurotomy: Selection criteria and outcomes**  
*Stout A. (US)*
- 17.30 **Sacroiliac Joint Fusion: Selection criteria and outcomes**  
*Dohring E.J. (US)*
- 17.50 **Discussion**



- 08.00 **Welcome**
- Paper Presentations: Complications**
- 08.05 **Incidence and risk factors of postoperative delirium after spinal surgery in older patients**  
*Kang T.W. (KR)*
- 08.11 **Can inflammatory pain in disc herniation be mediated by infection? A comparative proteomic analysis of normal and herniated discs**  
*Dilip Chand Raja S. (IN)*
- 08.17 **Robotic-assisted lumbar fusion vs conventional: Differences in radiculopathy**  
*Ton A. (US)*
- 08.23 **Comparison of sacroplasty with or without balloon assistance for the treatment of sacral insufficiency fractures**  
*Yang S. (TW)*
- 08.29 **Rhabdomyolysis after spinal fusion surgery: Management schema and prevention of catastrophic complications**  
*Pressman E. (US)*
- 08.35 **Uncertainty in perioperative Xa inhibitor management: A survey of current spine surgeon practices**  
*Xiong A. (US)*
- 08.41 **Xa inhibitor use and post-operative outcomes following elective spine surgery: Is it safe?**  
*Xiong A. (US)*
- 08.47 **Discussion**
- Paper Presentations: Epidemiology**
- 09.05 **Adding 3-month patient data improves prognostic models of 12-month disability, pain and satisfaction after lumbar spine surgery**  
*Archer K. (US)*
- 09.06 **Influence of goal attainment scaling on cognitive-behavioral-based physical therapy outcomes after lumbar spine surgery**  
*Coronado R. (US)*
- 09.12 **The influence of ethnicity/race and sex on lumbar spinal fusion outcomes**  
*Chen X. (US)*
- 09.18 **Causes and patient-related risk factors associated with postoperative emergency department visits following 1 to 2 level lumbar fusion**  
*Mo A. (US)*
- 09.24 **Postoperative outpatient physical therapy and opioid utilization after spine surgery**  
*Coronado R. (US)*

- 09.30 **Evaluation of health related quality of life improvement in patients undergoing spine versus adult reconstructive surgery**  
*Buckland A. (US)*
- 09.36 **Risk factors for emergency department visits following 4 to 6 level primary lumbar fusion**  
*Mo A. (US)*
- 09.42 **Discussion**
- 10.00 **Coffee Break**
- 10.30 **Symposium: Cervical myelopathy**
- Neuromonitoring pro**  
**Neuromonitoring con**  
**Surgery – anterior**  
**Surgery – laminoplasty**  
**Surgery – laminectomy and fusion**

Monday

Tuesday

Wednesday

Thursday

Friday



- 14.00 **Welcome**  
*Choi J. (AU)*
- Session 1: Indirect decompression with LLIF**  
**Moderators: Hynes R. (US), Taneichi H. (JP) & Hansen M. (AU)**
- 14.05 **What are the best indications?**  
*Hey D. (SG)*
- 14.15 **What are the contra-indications?**  
*Rao P. (AU)*
- 14.25 **Mechanisms behind indirect decompression**  
*Park S.W. (KR)*
- Debate: Degenerative spondylolisthesis with stenosis at L3/4**  
**Moderators: Shin B.J. (KR), Hai Y. (CN) & Tanaka M. (JP)**
- 14.35 **I prefer LLIF with PPS: Realignment achieves everything**  
*Edis D. (AU)*
- 14.45 **I prefer MIS-TLIF: I don't believe indirect decompression**  
*Wang I. (AU)*
- 14.55 **Endoscopic decompression only: I don't believe indirect Decompression and you don't need fusion**  
*Kim L.J.S. (KR)*
- 15.05 **Discussion**
- SOLAS Spineweek Invited Lecture 1**  
**History of lateral interbody fusion surgery and resurgence of anterior column surgery in the last decade**  
*Hynes R. (AU)*
- Session 2: Neuro-monitoring**  
**Moderators: Rao P. (AU), Bokov A. (RU) & Huntsman K. (US)**
- 15.30 **Neuromonitoring is essential for LIF – Results and utility**  
*Villamil F. (US)*
- 15.40 **LIF can be done without neuromonitoring, it is unnecessary**  
*Tanaka M. (JP)*
- 15.50 **Discussion**
- 16.00 **Coffee Break**



- Session 3: Single position surgery**  
**Moderators: Berjano P. (IT), Yamato Y. (JP) & Park S.W. (KR)**
- 16.30 **I DO NOT flip – Single Position (Benefits/Caution/Tips)**  
*Kotani Y. (JP)*
- 16.40 **I DO flip – Dual Position (Benefits/Caution/Tips)**  
*Liang Y. (CN)*
- 16.50 **Single position surgery for deformity: Is it acceptable?**  
*Buckland A. (US)*
- 17.00 **Discussion**
- SOLAS Spineweek Invited Lecture 2**  
**L5/S1 circumferential fusion in lateral position without an access surgeon: Experience / tips and tricks**  
*Keem S. (US)*
- 17.25 **Discussion**
- Session 4: How to avoid complications in lateral access surgery**  
**Moderators: Kotani Y. (JP), Keem S. (US) & Cheung P. (HK)**
- 17.30 **Vascular considerations and examples**  
*Brooks C. (AU)*
- 17.40 **Bowels and ureteric injuries and examples**  
*Orita S. (JP)*
- 18.00 **Subsidence, union and instrumentation**  
*Selby M. (AU)*
- 18.10 **Neurological injuries and its implications**  
*Kwan K. (HK)*
- 18.20 **Discussion**



# Thursday, April 30 Scientific Program

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7
08.00	ISSLS	ACA/CA	SIS		AO		AFRICA
10.00	Break						
10.30	ISSLS	ACA/CA	SIS		AO		AFRICA
12.30	Lunch break + Industry workshops						
14.00	KSNS	ACA/CA	SIS		NASS		SOLAS
16.00	Break						
16.30	KSNS	ACA/CA	SIS		NASS		SOLAS



Room 1  
ISSLS

Monday

Tuesday

Wednesday

Thursday

Friday

Monday

Tuesday

Wednesday

Thursday

Friday

## Session 11: Low back pain

Moderators: Sowa G. (US) & Zaina F. (IT)

- 07.30 **Age-specific SNP-by-sex interaction analysis of chronic low back pain**  
*Williams F. (GB)*
- 07.37 **Physiotherapy aided by a clinical decision support system versus standard physiotherapy for treating persistent low back pain: Results of a pilot randomised controlled trial**  
*Hahne A. (AU)*
- 07.44 **Low back pain and impaired balance ability cause incidence of slip, trip and fall accident among workers – A 2-year cohort study of 18,475 subjects**  
*Nakamura E. (JP)*
- 07.51 **Discussion**
- 08.00 **Session 12: Spondylolisthesis**  
Moderators: An H.S. (US) & Hashizume H. (JP)
- 08.00 **Utility of neutral sitting lateral radiographs for assessment of lumbar segmental instability in lumbar spondylolisthesis**  
*Sun X. (CN)*
- 08.07 **Significance of the extraosseous signal changes on MRI in patients with early-stage lumbar spondylolysis**  
*Sakai T. (JP)*
- 08.14 **Women with lumbar degenerative spondylolisthesis demonstrate delayed abdominal reflex latency**  
*Popovich J. (US)*
- 08.21 **Discussion**
- 08.30 **Minimally invasive transforaminal lumbar interbody fusion for isthmic spondylolisthesis: Comparison between decompression with and without resection of fibrocartilage tissue**  
*Miyazaki S. (JP)*
- 08.37 **Validity of “Appropriate Use Criteria” for surgery in degenerative spondylolisthesis: A prospective, controlled, multicentre study**  
*Mannion A.F. (CH)*
- 08.44 **The Sciatica-Gill Trial: Isthmic spondylolisthesis: Decompression with vs. without instrumented fusion - A randomized controlled trial**  
*Azizpour K. (NL)*
- 08.51 **Discussion**
- 10.00 **Coffee Break**





**Session 13: Stenosis**

**Moderators: Gunzburg R. (BE) & Wong A. (HK)**

- 10.30 **Diagnostic tests in the clinical diagnosis of lumbar spinal stenosis: Consensus and results of an International Delphi Study**  
*Tomkins-Lane C. (CA)*
- 10.37 **Postoperative changes in the balance ability of patients with lumbar spinal canal stenosis**  
*Ujigo S. (JP)*
- 10.44 **NPY and COMT pain-related SNPs: Association with lumbar spinal stenosis patient experience and treatment outcomes**  
*Schneider M.J. (US)*
- 10.51 **Discussion**
- 11.00 **Clinical significance of physical findings in Lumbar Spinal Stenosis: Ten-year follow-up on the community**  
*Otani K. (JP)*
- 11.07 **Long-term outcomes following lumbar microendoscopic decompression for lumbar spinal stenosis with and without degenerative spondylolisthesis: Minimum 10-year follow-up**  
*Aihara T. (JP)*
- 11.14 **Effectiveness of amino-acid supplementation after decompression surgery for lumbar spinal stenosis: A randomized controlled trial**  
*Minetama M. (JP)*
- 11.21 **Discussion**
- Session 14: Population cohort studies**  
**Moderators: Battié M. (CA) & Williams F. (GB)**
- 11.30 **Lumbar disc degeneration and vertebral fracture at thoracolumbar junction are risk factors for chronic low back pain with disability: 7 years' follow-up of the Wakayama Spine Study**  
*Hashizume H. (JP)*
- 11.37 **Disc space narrowing influences clinical symptoms more in women than men: The Wakayama Spine Study**  
*Ishimoto Y. (JP)*
- 11.44 **Integrative analysis of metabolomic, genomic, and phenotype imaging data related to lumbar Modic changes – A large-scale, population-based study**  
*Samartzis D. (US)*
- 11.51 **Discussion**
- 12.00 **Second Business Meeting (members only)**  
**Frontiers in conservative spine care**



- 14.00 **Opening Remarks**  
*Kim J.H. (KR)*
- Welcome**  
*Kim K.S. (KR)*
- Session 1: Korean Cervical Spine Research Society**  
**Surgical strategy of OPLL and CSM**  
**Chairs: Kim K.S. (KR) & Kim S.-H. (KR)**
- 14.05 **C5 palsy multicenter study of Korean CSRS**  
*Oh J.K. (KR)*
- 14.18 **Anterior surgical technique**  
*Kim S. (KR)*
- 14.32 **Posterior surgical technique**  
*Kim S.-H. (KR)*
- 14.46 **Timing of surgery of CSM and OPLL**  
*Shin J.J. (KR)*
- Session 2: Korean Spinal Research Society**  
**Bone remodeling and healing current**  
**Chairs: Koo S.W. (KR) & Sims N.A. (AU)**
- 15.00 **Bone corticalization requires local SOCS3 activity and is promoted by androgen action via interleukin-6**  
*Cho D.-C. (KR)*
- 15.20 **Identifying patients at risk for fracture beyond bone mineral density**  
*Zebaze R. (AU)*
- 15.40 **Preclinical models or orthopaedic repair and the application of anabolic and antiresorptive drugs**  
*Schindeler A. (AU)*
- 16.00 **Coffee Break**
- Session 3: Korean Minimally Invasive Spine Surgery Society**  
**Current status of endoscopic spine surgery and future possibility**  
**Chairs: Lee S.-G. & Park S.W.**
- 16.30 **Why should we do endoscopic surgery?**  
*Lee S.-G. (KR)*
- 16.45 **What is the best indication in one-portal endoscopic spine surgery?**  
*Son S. (KR)*
- 17.00 **Standard steps and tips for one-portal endoscopic surgery**  
*Lee C.-W. (KR)*
- 17.15 **What is the best indication in bi-portal endoscopic spine surgery?**  
*Jang J.-W. (KR)*
- 17.30 **Standard steps and tips for bi-portal endoscopic surgery**  
*Park J.-Y. (KR)*
- 17.45 **Current states of endoscopic lumbar interbody fusion**  
*Heo D.-H. (KR)*
- 18.00 **Closing Remarks**  
*Kim J.H. (KR)*



08.00	<b>Welcome</b> Fisher M. (US)
	<b>Session 1: Knowledge translation</b> <b>Chair: Coxon A. (AU)</b>
08.05	<b>Translation</b> French S. (AU)
08.40	<b>Radiography, perils and pitfalls in conservative spine care</b> Jenkins H. (AU)
09.15	<b>Implementing a structured program to promote self-management for back pain: Be prepared to swim upstream</b> Hartvigsen J. (DK)
10.00	Coffee Break
	<b>Session 2: Best Practice</b> <b>Chair: Kawchuck G. (CA)</b>
10.30	<b>First contact spine care clinician</b> Schneider M. (US)
11.00	<b>What lies beyond conservative spine care? The A-Z of non-conservative intervention referral</b> Buchbinder R. (AU)
11.40	<b>Best practice in conservative spine care</b> Maher C. (AU)
12.15	<b>Is de-implementation needed to advance conservative spine care?</b> Panel discussion with Schneider M. (US), Buchbinder R. (AU), Maher C. (AU)
12.30	Lunch
	<b>Session 3: Sports and physical activity</b> <b>Chair: Hartvigsen J. (DK)</b>
14.00	<b>Conservative management of Spinal Disorders: My personal experience after 45 years</b> Dvorak J. (CH)
14.40	<b>Is appropriate advice on sitting and sedentary behaviour important in conservative spine care?</b> De Carvalho D. (CA)
15.20	<b>Promoting physical activity in conservative spine care</b> Fernandez M. (AU)
16.00	Coffee Break

	<b>Scientific symposium on research</b> <b>Chair: French S. (AU)</b>
16.30	<b>A systematic review of clinical practice guidelines for the management of lumbar spinal stenosis</b> De Luca K. (AU)
16.40	<b>Characteristics for forces transmitted through older adults during thoracic spinal manipulation therapy – Preliminary results</b> Funabashi M. (CA)
16.50	<b>Demonstration of autonomic nervous system function and cervical sensorimotor control after cervical lordosis rehabilitation in patients with chronic non-specific neck pain: A randomized controlled trial</b> Harrison D. (US)
17.00	<b>Beliefs about low back pain in patients presenting to general practice in Australia</b> Jenkins H. (AU)
17.10	<b>The feasibility of implementing an English language version of GLA:D Back</b> Lemieux J. (CA)
17.20	<b>The relationship between sedentary behaviour and spinal pain in children and adolescents: A systematic review and meta-analysis</b> Montgomery L. (AU)
17.30	<b>A qualitative process evaluation of physical treatments and MoodGYM for chronic low back pain</b> Petrozzi M.J. (AU)
17.40	<b>Comparison of active vs. passive surveillance adverse event reporting in a pediatric ambulatory chiropractic care setting: A cluster randomized controlled trial</b> Pohlman K.A. (US)
17.50	<b>The contribution of neck proprioceptive inputs on cardiovascular responses during orthostasis</b> Polus B. (AU)
18.00	<b>Discussion</b>

Monday

Tuesday

Wednesday

Thursday

Friday





**Spine care pearls from neuroradiologists**

**Moderator: Maus T. (US)**

- 08.00 **Imaging biomarkers of pain generation**  
*Shah V. (US)*
- 08.17 **Using advanced imaging to choose a level for TFESI**  
*Maus T. (US)*
- 08.34 **Imaging of postsurgical spine pain**  
*Shah V. (US)*
- 08.51 **Understanding flow patterns in epidural injections**  
*Maus T. (US)*
- 09.09 **Imaging of cervicogenic headache**  
*Shah V. (US)*
- 09.27 **When not to inject**  
*Maus T. (US)*
- 09.45 **Discussion**
- 10.00 **Coffee Break**
- Do epidural injections influence spine surgery outcomes?**  
**Moderator: Shah V. (US)**
- 10.30 **SNRB vs. TFESI: Is there a difference?**  
*Smuck M. (US)*
- 10.45 **Diagnostic SNRB: A surgeon's perspective**  
*Alamin T. (US)*
- 11.00 **Epidural steroid injections: Indications and outcomes**  
*Kennedy D.J. (US)*
- 11.20 **Epidural steroid injections: Predictors of success**  
*MacVicar J. (US)*
- 11.40 **Surgical and health risks after epidural injections**  
*Stout A. (US)*
- 12.10 **Discussion**
- 12.30 **Lunch**
- Advanced concepts in neuromodulation**  
**Moderator: Verrills P. (AU)**
- 14.00 **The Brain Salience Network: Why pain becomes overwhelming**  
*De Ridder D. (BE)*
- 14.18 **New waveform changing the state of play**  
*Keys M. (AU)*



- 14.35 **Discogenic pain: Fusion vs. neuromodulation**  
*Awad M. (SA)*
- 14.53 **Neuromodulation for failed back surgery syndrome: An evolving algorithm**  
*Sullivan R. (AU)*
- 15.10 **Foot pain and peripheral neuropathy: An interventional algorithm**  
*Bates D. (US)*
- 15.28 **Breakthrough technologies: The future**  
*Chakravarthy K. (US)*
- 15.45 **Discussion**
- 16.00 **Coffee Break**
- Cervicogenic headache: The role of injections and surgery**  
**Moderator: Smuck M. (US)**
- 16.30 **Diagnosis of cervicogenic headache**  
*Bogduk N. (AU)*
- 16.45 **Third occipital nerve radiofrequency neurotomy**  
*MacVicar J. (US)*
- 17.00 **Suboccipital joint injection**  
*Wright R.E. (US)*
- 17.15 **A spine surgeon's role in treating cervicogenic headache**  
*Veeravagu A. (US)*
- 17.30 **Neuromodulation for headache**  
*Verrills P. (AU)*
- 17.45 **Discussion**



- 08.00 **Symposium**
- Paper Session**
- 09.00 **Clinical features and post-treatment complications of C2 odontoid fractures: A retrospective analysis using a Japanese national inpatient database**  
*Honda A. (JP)*
- 09.07 **The Mandible-C2 Angle: A new radiographic assessment of occipito-cervical alignment**  
*Bransford R. (US)*
- 09.15 **Gunshot and missile injuries of the spine**  
*Bhatoe H.S. (IN)*
- 09.22 **Vertebral artery injury in cervical spine fractures: A cohort study and review of the literature**  
*Darwish N. (GB)*
- 09.29 **Traumatic atlanto-occipital dislocation: Analysis of 15 survival cases with emphasis on associated upper cervical spine injuries**  
*Chang D.G. (KR)*
- 09.36 **New insights into neuroplasticity mechanisms and biomarkers in cervical spondylotic myelopathy using resting-state functional magnetic resonance imaging**  
*Takasawa E. (JP)*
- 09.45 **Discussion**
- 10.00 **Coffee Break**
- 10.30 **Symposium**
- Paper Session**
- 11.30 **Does the fixation span impact on results of surgical correction of pediatric congenital spine deformities caused by hemivertebrae? Analysis of a monocentric cohort**  
*Filatov E.U. (RU)*
- 11.37 **A prospective randomized study analyzing post-operative clinical recovery to identify difference between fresh whole blood and blood component transfusion in major spine surgeries**  
*Rajasekaran S. (IN)*
- 11.44 **Fat infiltration and spine flexibility are risk factors for proximal junctional kyphosis**  
*Elysee J.C. (US)*
- 11.51 **Reproducibility of a low-dose radiation protocol for whole spine radiography using heavy metal filters**  
*Demura S. (JP)*
- 11.58 **Proximal junctional kyphosis according to the type of lumbar degenerative kyphosis following lumbosacral long fusion**  
*Jeon W.K. (KR)*
- 12.05 **Systematic review of cost-effectiveness analyses in US spine literature**  
*Chang D. (US)*
- 12.15 **Discussion**
- 12.30 **Lunch**



- 14.00 **Welcome**
- Paper Presentations: Deformity**
- 14.05 **Spinal alignment and lumbar fusion: Implications on spinopelvic alignment in dynamic hyperextended and flexed postures**  
*Buckland A. (US)*
- 14.11 **Ilio-sacral screws in minimally invasive bipolar fixation for neuromuscular scoliosis outcomes and mechanical complications**  
*Miladi L. (FR)*
- 14.17 **Patterns of lumbar spine malalignment leading to revision surgery for PJK: A cluster analysis of over versus under-correction**  
*Lafage R. (US)*
- 14.23 **Adult spinal deformity surgery in patients with movement disorders: A propensity-matched analysis of outcomes and cost**  
*Varshneya K.V. (US)*
- 14.29 **Radiographic and surgical outcome analysis of Lenke 1A Adolescent Idiopathic Scoliosis (AIS) correction: Open vs. minimally invasive**  
*Truumees E. (US)*
- 14.35 **What level of symptoms are patients with adult spinal deformity prepared to live with?**  
*Mannion A.F. (CH)*
- 14.41 **Do we have an ideal system for classifying adult spinal deformity patients: The characteristics, clinical utility and methodological quality of classification systems for adult spinal deformity: A systematic review**  
*Naresh-Babu J. (IN)*
- 14.47 **Discussion**
- Paper Presentations: Diagnostics/ Imaging**
- 15.00 **The impact of cervical alignment, dynamic factor and type of ossification associated with the neurological findings and severity of myelopathy in cervical OPLL**  
*Funaba M. (JP)*
- 15.06 **Is the axial spinal cord classification predictive of intraoperative neurologic alert for pediatric scoliosis patients? A validation study**  
*Mathew S. (US)*
- 15.12 **Retrospective analysis of lumbar radiculopathy treatment: Do care pathways emphasizing conservative measures really work**  
*Truumees E. (US)*
- 15.18 **Does improved radiographic alignment truly enhance dynamic functional balance?**  
*Haddas R. (US)*
- 15.24 **Feasibility of elastographic visualization of surgically induced spinal cord injury in a rabbit model**  
*Weiner B.K. (US)*



- 15.30 **Computed tomography Hounsfield units accurately estimate the severity of cervical paraspinal muscle fat infiltration**  
*Xiong A. (US)*
- 15.36 **Residual lumbar hyperlordosis is associated with worsened hip status 5 years after scoliosis correction in non-ambulatory cerebral palsy patients**  
*Buckland A. (US)*
- 15.42 **Discussion**
- 16.00 **Coffee Break**
- 16.30 **Symposium: Spine controversy updates**  
  
 Navigation and robotics – where do we go from here  
 Regenerative medicine – are we ready to recommend utilization  
 Facet mediated pain – diagnosis and treatment  
 Decompression vs. decompression and fusion for degenerative spondylolisthesis



- Session 1**
- 08.00 **Anatomical analysis of human ligamentum flavum in thoracic spine - Clinical implication for posterior thoracic spinal surgery**  
*Ahmadi S. (AF)*
- 08.25 **Comparison of outcome of paraspinal (Wiltse) approach with conventional midline approach in pedicle screw fixation of thoracolumbar fractures - A two year follow up study**  
*Thomas A. (IN)*
- 08.50 **Retrospective audit of stabilisation for upper thoracic spinal lesions**  
*Nadkarni S. (IN)*
- 09.15 **Minimally invasive posterior lumbar interbody fusion without operating microscope – How effective is it?**  
*Murugan Y. (IN)*
- 09.20 **Discussion**
- 10.00 **Coffee Break**
- Session 2**
- 10.30 **Spinal surgery in 21st century Africa and prospects**  
*Awoyomi O. (NG)*
- 10.55 **History of anterior lumbar interbody fusion - A review of the literature**  
*Choy W. J. (AU)*
- 11.20 **MIS in developing world: An indigenous approach to avoid economic burden**  
*Arun-Kumar V. (IN)*
- 11.45 **The Annual Uganda Spine Surgery Mission: Our 14 year experience**  
*Lieberman I. (US)*
- 12.10 **Discussion**
- 12.30 **Lunch**

Monday

Tuesday

Wednesday

Thursday

Friday



**Session 5: What is the best approach for L5/S1 fusion?**

**Moderators:** Kim J.S. (KR), Villamil F. (US) & Liang Y. (CN)

- 14.00 **TLIF**  
Shirirapa P. (TH)
- 14.10 **PLIF**  
Inoue G. (JP)
- 14.20 **Oblique/ATP**  
Seex K. (AU)
- 14.30 **ALIF**  
McEntee L. (AU)
- 14.40 **Lateral ALIF**  
Hansen M. (AU)
- SOLAS SpineweeK Invited Lecture 3**  
**Recent advances in lateral surgery: Materials and technology**  
Huntsman K. (US)
- 14.50
- 15.05 **Discussion**
- Session 6: Free topics**  
**Moderators:** Selby M. (AU), Ha Y. (KR) & Rasanawipas W. (TH)
- 15.10 **Challenging anterior column lateral access surgery**  
Yip R. (HK)
- 15.20 **ACR for spinal deformity – Does it replace PSO?**  
Cheung P. (HK)
- 15.30 **OLIF in JAPAN – Cautionary tale**  
Orita S. (JP)
- 15.40 **LLIF in Russia – Utility of LLIF vs TLIF**  
Bokov A. (RU)
- 15.50 **Discussion**
- 16.00 **Coffee Break**
- SOLAS SpineweeK Invited Lecture 4**  
**Moderators:** Yip R. (HK), Choi J. (AU) & Sasiprahpha P. (TH)
- 16.30 **OLIF/ATP is not perfect – What are your personal experiences and cautions for beginners?**  
Kwon B. (US)
- 16.45 **Discussion**

**Session 7: Robotics**

**Moderators:** McEntee L. (AU), Buckland A. (AU) & Huntsman K. (US)

- 16.50 **Where are we now?**  
Ha Y. (KR)
- 17.00 **I don't use a robot - Why should I?**  
Tassanawipas W. (TH)
- 17.10 **Use of robot in spinal deformity surgery in China**  
Hai Y. (CN)
- 17.20 **I use a robot - What's been good; What's been challenging**  
Choi J. (AU)
- SOLAS SpineweeK Invited Lecture 5**  
**Moderators:** Inoue G. (JP), Kwon B. (US) & Kwan K. (HK)
- 17.30 **What have we learnt about use of LLIF in adult spinal deformity surgery?**  
Berjano P. (IT)
- 17.45 **Discussion**
- Session 8: How to avoid complications in lateral access surgery**  
**Moderators:** Seex K. (AU), Wang I. (AU) & Edis D. (AU)
- 17.50 **Review of LLIF in Japan and current recommendations**  
Yamato Y. (JP)
- 18.00 **Fractures, loosening, subsidence and ASD in LIF**  
Malham G. (AU)
- 18.10 **Insights gained after >1000 L5/S1 OLIF: Sharing the wisdom**  
Hynes R. (US)
- 18.20 **Award Ceremony for international guest speakers**  
Berjano P. (IT) & Choi J. (AU)
- 18.25 **Closing Remarks**  
Diwan A. (AU)
- 18.30 **Adjourn**



# Friday, May 1 Scientific Program

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7
08.00	ISSLS	ACA/CA	AO		WORLD SPINE	SIS	BSS
10.00				Break			
10.30	ISSLS	ACA/CA	AO		WORLD SPINE	SIS	BSS
12.30	Lunch break + Industry workshops						
14.00	ISSLS	ACA/CA	AO		WORLD SPINE	APSS	AFRICA
16.00				Break			
16.30	ISSLS	ACA/CA	AO		WORLD SPINE	APSS	AFRICA



Room 1  
ISSLS

Monday

Tuesday

Wednesday

Thursday

Friday

07.30

## Session 15: Special Poster Session 2

### Session 16: Management - Spinal fusion

Moderators: Blumenthal S. (US) & Teraguchi M. (JP)

08.45

**What drives spinal fusion within graft materials, cells or growth factors?**  
Buser Z. (US)

08.52

**A novel anti-sclerostin small molecule with the potential to enhance spinal fusions**  
Presciutti S.M. (US)

08.59

**The influence of selective serotonin reuptake inhibitors on lumbar arthrodesis**  
Pirkle S. (US)

09.06

**The impact of NSAID use after lumbar fusion surgery on fusion rate and complications: A meta-analysis**  
Qureshi S. (US)

09.13

### Discussion

09.25

**Assessing correlation between radiographic and intraoperative electrophysiological monitoring findings consistent with nerve root encroachment for adult spine patients undergoing elective sacroiliac fusion**  
Barley J. (US)

09.32

**The impact of lower lumbar lordosis on surgical results after long spinal fusion**  
Taiji R. (JP)

09.39

**Optimal reconstruction of sagittal alignment according to global alignment and proportion score may help reduce adjacent segment degeneration after lumbar fusion surgery**  
Sun X. (CN)

09.46

**Does Interbody fusion change ASD in disc next to the fusion – 10 year MRI follow-up on a randomized controlled study**  
Høy K. (DK)

09.51

### Discussion

10.00

Coffee Break

### Session 17: Management injections/Surgery

Moderators: Smuck M. (US) & Meisel H.J. (DE)

10.30

**Preoperative lumbar epidural steroid injections administered within 6 weeks of microdiscectomy are associated with increased rates of reoperation**  
Bhattacharjee S. (US)

10.37

**A randomised controlled trial of consenting behaviours in patients undergoing spinal injections: The Risks in Spinal Consenting for Surgery (RISCS) trial**  
Thorpe P. (GB)

Monday

Tuesday

Wednesday

Thursday

Friday



- 10.44 **Multi-centre randomised trial comparing the clinical outcome of trans-foraminal epidural steroid injection to surgical microdiscectomy for the treatment of radicular pain secondary to prolapsed intervertebral disc: Nerve Root Block Versus Surgery (NERVES)**  
*Wilby M.J. (GB)*
- 10.51 **Discussion**
- 11.00 **Report of Focus Groups**  
*Moderator: Chiba K. (JP)*
- Session 18: Fellowship Award Ceremony**  
*Moderator: Chiba K. (JP)*
- 11.05 **Introduction of Fellowships – Recipients**
- Session 19: The ISSLS Prize Papers**  
*Moderator: TBA*
- 11.15 **Introduction and Award Ceremony**  
*Rydevik B. (SE)*
- 11.25 **Examining causal effects of body mass index on back pain: A Mendelian randomization study**  
*Williams F. (GB)*
- 11.35 **Discussion**
- 11.45 **The reliability and interpretability of score change in lumbar spine research**  
*Parai C. (SE)*
- 11.55 **Discussion**
- 12.05 **Beyond microstructure: circumferential specialization within the lumbar intervertebral disc annulus extends to collagen nanostructure, with counterintuitive relationships to macroscale material properties**  
*Veres S.P. (CA)*
- 12.15 **Discussion**
- 12.30 **Lunch**
- 14.00 **Symposium: Outcomes in Spine Care: How to best measure meaningful outcomes in an evolving world**  
*Moderators: Wong A. (HK) & Smuck M. (US)*  
*Speakers: Tomkins-Lane C. (CA), Melloh M. (CH) & Schneider M. (US)*
- Session 20: Surgical outcomes**  
*Moderators: Lurie J.D. (US) & Mannion A. (CH)*
- 14.40 **A novel tool to provide predictable alignment data irrespective of source and image quality acquired on mobile phones: What engineers can offer clinicians**  
*Zhang T. (HK)*



- 14.47 **Negative impact of spinal epidural lipomatosis on the surgical outcome of posterior lumbar spinous-splitting decompression surgery: A multicenter retrospective study**  
*Ishihara S. (JP)*
- 14.54 **Long-term survival rate of posterior motion-preservation surgery: A retrospective observation up to 28 years**  
*Ota M. (JP)*
- 15.01 **Prospective long-term follow-up of a multi-level lumbar total disc replacement cohort: Re-operation rates and outcomes**  
*Scott-Young M. (AU)*
- 15.08 **Discussion**
- 15.20 **Non-medical factors significantly influence the length of hospital stay after surgery for degenerative spinal disorders**  
*Mannion A.F. (CH)*
- 15.27 **Diabetes is related to worse patient-reported outcomes and pain in lower extremities at one year after lumbar spine surgery**  
*Nagata K. (JP)*
- 15.34 **The Cauda Equina Syndrome Core Outcome Set: International Delphi survey and consensus meeting**  
*Srikandarajah N. (GB)*
- 15.41 **Intraoperative salvaged autologous blood transfusion is safe in metastatic spine tumour surgery: Early outcomes of prospective clinical study**  
*Kumar N. (SI)*
- 15.48 **Discussion**
- Session 21: Complications**  
*Moderators: Hai Y. (CN) & Ohtori S. (JP)*
- 16.10 **Prognostic impact of intra- and postoperative management of dural tear on postoperative complications in primary degenerative lumbar diseases: A multicenter database study**  
*Takenaka S. (JP)*
- 16.17 **Lumbar puncture increases risk of lumbar degenerative disc disease: Analysis from the Rochester Epidemiology Project**  
*Moinuddin F.M. (US)*
- 16.24 **Spinal surgery complications - An unsolved problem - Is the World Health Organization Safety Surgical Checklist a useful tool to reduce them?**  
*Barbanti Brodano G. (IT)*
- 16.31 **Discussion**
- 16.40 **Closing Remarks**  
*Brisby H. (SE)*



- 08.00 **Welcome**  
*Bonello R. (AU)*
- Session 4: Paediatrics**  
**Chair: Bonello R. (AU)**
- 08.05 **Conservative spine care in infants and children**  
*Pohlman K. (US)*
- 08.40 **Conservative care of spinal pain in adolescents**  
*Swain M. (AU)*
- 09.10 **SCV inquiry into chiropractic spinal manipulation of children under 12 -  
A summary of findings**  
*Coxon A. (AU)*
- 09.45 **Panel discussion**  
*Pohlman K. (US), Swain M. (AU) & Coxon A. (AU)*
- 10.00 **Coffee Break**
- Session 5: Patient management**  
**Chair: TBA**
- 10.30 **Contemporary approaches to categorising patients in conservative spine care -  
New definitions and clinical approaches (Practical lecture)**  
*Downie A. (AU)*
- 11.10 **The Nordic maintenance care program: How does maintenance care work?  
(Practical lecture)**  
*Eklund A. (SE)*
- 12.00 **TED Talks**  
**New technology in the conservative management of spine disorders**  
*Wassell M. (AU), Wong A. (HK), Funabashi M. (CA)*
- 12.30 **Lunch Break**
- Session 6: Biomechanics in conservative spine care**  
**Chair: Charlton S. (AU)**
- 14.00 **Tissue in lesion diagnosis: Maybe, miracle or myth?**  
*Bogduk N. (AU)*
- 14.35 **Frontiers in neurophysiological mechanisms of manual interventions for spine care**  
*Colloca C. (US)*
- 15.10 **Enhancing the effects of SMT: Identifying responders to spine care**  
*Kawchuk G. (CA)*
- 15.45 **Panel discussion**  
*Bogduk N. (AU), Colloca C. (US), Kawchuk G. (CA), Funabashi M. (CA),  
Wong A. (HK) & Wassell M. (AU)*
- 16.00 **Coffee Break**

- Session 7: Geriatrics**  
**Chair: Fisher M.**
- 16.30 **Mechanisms and management of low back pain in older people**  
*Ferreira M. (AU)*
- 17.00 **Frontiers in conservative spine care for older people**  
*de Luca K. (AU)*
- Session 8: PBRNs**  
**Chair: Fisher M. (US)**
- 17.30 **Back pain research via established practice-based research networks**  
*Adams J. (AU)*
- 18.00 **Announcement of Awards and Closing Remarks**

- 08.00 Symposium
- Paper Session**
- 09.00 **Selective posterior decompression with Coflex Inter-Laminar Dynamic Stabilization for degenerative lumbar stenosis: Minimum 10-year outcome**  
*Hai Y. (CN)*
- 09.07 **A potential influence of fusion type on pedicle screw fixation stability in patients with degenerative diseases of lumbar spine**  
*Bokov A. (RU)*
- 09.15 **High incidence of persistent leg pain 12 months after surgery for isthmic spondylolisthesis - Results from the Norwegian Registry for Spine Surgery (NORspine)**  
*Rossvoll I. (NO)*
- 09.22 **A multi-centre, prospective, randomized controlled trial comparing the efficacy and safety of ProDisc®C implant to Anterior Cervical Discectomy and Fusion (ACDF) surgery in the treatment of Symptomatic Cervical Disc Disease (SCDD) at twenty-four months**  
*Kumar N. (SG)*
- 09.29 **Radiographic and clinical outcomes can correlate in cervical deformity correction: A discriminant analysis of HRQL outcomes and correlation with an established morphological classification**  
*Lafage R. (US)*
- 09.36 **New technique of craniovertebral fixation**  
*Patkar S.V. (IN)*
- 09.45 **Discussion**
- 10.00 **Coffee Break**
- 10.30 Symposium
- Paper Session**
- 11.30 **Degenerate-disc Infection Study with Contaminant Control (DISC): A multi-centre prospective case-control trial**  
*Maharaj M. (NZ)*
- 11.37 **An objective scoring system for structural instability in spinal tuberculosis**  
*Sinha Roy V. (IN)*
- 11.44 **Optimization of revised Tokuhashi score: New prognostic criteria for preoperative evaluation of metastatic spine tumor**  
*Linuma M. (JP)*
- 11.51 **Validation of an online risk calculator to predict outcome after surgery for symptomatic spinal metastases**  
*Weger C. (AU)*
- 11.58 **Spine analysis of two zebrafish mutants corroborates the link between CSF flow and spine deformities**  
*Marie-Hardy L. (FR)*



- 12.05 **Functional cell phenotype induction with TGFβ1-collagen-polyurethane construct for annulus fibrosus repair**  
*Li Z. (CH)*
- 12.15 **Discussion**
- 12.30 **Lunch**
- 14.00 Symposium
- Paper Session**
- 15.00 **Association of cranial and upper cervical bony avulsion fractures with traumatic craniocervical dissociation**  
*Bransford R. (US)*
- 15.07 **Evaluation of instrumentation-related complication-free survival in adult spinal deformity surgery**  
*Masevnin S. (RU)*
- 15.14 **Development of an Eight Item Spine Oncology Study Group Outcomes Questionnaire (SOSGOQ-8D)**  
*Fisk F. (US)*
- 15.21 **Foetal matrix biologics: A new hope for low back pain?**  
*Caldeira J. (PT)*
- 15.28 **A caprine model of intervertebral disc degeneration: A testing platform for an injectable hydrogel**  
*Snuggs J. (GB)*
- 15.35 **Teriparatide anabolic therapy as a potential treatment of type II odontoid fracture non-union in elderly patients**  
*Pola E. (IT)*
- 15.45 **Discussion**
- 16.00 **Coffee Break**
- 16.30 Symposium
- Paper Session**
- 18.00 **Comparative analysis of transforaminal endoscopic thoracic discectomy and microscopic discectomy for symptomatic thoracic disc herniation**  
*Bae J. (KR)*
- 18.07 **Clinical and radiological outcome of modified mini open and open transforaminal lumbar interbody fusion – A comparative study**  
*Sudhir G. (IN)*
- 18.14 **Minimally invasive C1-C2 posterior fusion: Technical note**  
*Vega M.B. (AR)*
- 18.21 **Discussion**







**Free Papers I: New technologies & biomechanics**

Moderators: Dahlan R. (ID) & Darwish S. (GB)

- 08.00 **Posterior atlantoaxial fixation using customized steffee screws and Variable Screw Placement (VSP) plates and a new sub facetel axis screw trajectory enhancing safety and biomechanics of atlantoaxial fixation**  
*Patkar S. (IN)*
- 08.05 **A prospective multicentric study of controlled thermal energy and rotational capsular tissue shaving system in patients with facet joint syndrome**  
*Kapoor V. (GB)*
- 08.12 **Posterior correction of Lenke type 1 scoliosis: Mini-open technique compared to open surgery**  
*Oggiano L. (IT)*
- 08.19 **Range of motion, disc pressure, and facet load sharing from cervical artificial disc arthroplasty, and anterior cervical discectomy and fusion**  
*Baisden J.L. (US)*
- 08.26 **Finite element analysis of stress variation in adjacent vertebrae and intervertebral discs after vertebroplasty for osteoporotic vertebral compression fractures**  
*Sudhir G. (IN)*
- 08.33 **A novel surgical technique aiding the reduction of lumbar**  
*Darwish N. (GB)*
- 08.40 **Conjoint nerve root an intraoperative challenge in minimally invasive tubular discectomy**  
*Sharma A. (IN)*

**Session I: Controversies in spinal cord injury**

Moderators: Polythodorakis I. (GR) & Angelov L. (US)

- 08:50 **Presidential Address**  
**Early surgery improves outcome in spinal cord injury**  
*Polythodorakis I. (GR)*
- 09.05 **Timing for surgery in traumatic central cord injury**  
*Pereira P. (PT)*
- 09.15 **Update on cauda equina injury**  
*Shad A. (UK)*
- 09.25 **Current status of stem cells and spinal cord stimulators in SCI**  
*Vaishya S. (IN)*
- 09.35 **Discussion**
- 09.50 **Presentation of WorldSpine 9 in Seoul, Korea**  
*Kim J.H. (KR)*
- 10.00 **Coffee Break**



**Free papers II: Trauma, spine and sport, value-based healthcare**

Moderators: Lykomiros V. (GR) & Pereira C. (PT)

- 10.30 **Mortality, complication and fusion rates after C1-C2 injury - Results from a prospective observational multicenter study (417 cases)**  
*Barrey C. (FR)*
- 10.37 **Surgical management of unstable sacral fractures - A single center experience of sacro-iliac screw and lumbopelvic fixation techniques in 67 cases**  
*Rajasekaran S. (IN)*
- 10.44 **Cauda equina syndrome: Impact of surgical timing on postoperative bladder function at a national spinal centre**  
*Ruddell J. (GB)*
- 10.51 **Characteristics of traumatic spinal cord injuries in neurosurgery department of dr. Hasan Sadikin Hospital Bandung, 2015-2018**  
*Kurniawan C.B. (ID)*
- 10.58 **'Holding them back': Is posterior C2-3 fusion, a more rational way to realign unstable Hangman's fracture?**  
*Madhivanan K. (IN)*
- 11.05 **Spine lesions in athletes - 12 year experience - Retrospective study**  
*Vaz De Lima M.V.L. (BR)*
- 11.12 **Cost comparison of minimally invasive (MI) vs. open Transforaminal Lumbar Interbody Fusion (TLIF) procedures**  
*Kovari V.Z.S. (HU)*

**Session II: Spinal tumors**

Moderators: Gokaslan Z. (TR) & Saoud A. (EG)

- 11.20 **Keynote Lecture**  
**How to manage spine tumors effectively and safely**  
*Gokaslan Z. (US)*
- 11.35 **Spine tumors boards**  
*Kahraman S. (TR)*
- 11.45 **Differences in philosophy of surgery for primary and metastatic spine tumors**  
*Naderi S. (TR)*
- 11.55 **MISS techniques for spine tumors**  
*Vaishya S. (IN)*
- 12.05 **Separation surgery and SRS**  
*Angelov L. (US)*
- 12.15 **Discussion**
- 12.30 **Lunch Break**



**Free Papers III: Deformity, aging spine, spine around the world**

Moderators: Peev N. (GB) & Kim H.S. (KR)

- 14.00 **Convex manipulation versus all level one side instrumentation in Lenke type 3 and type 6 scoliosis: Technical features, results and complications**  
*Oggiano L. (IT)*
- 14.07 **Can homogenous halo gravity traction achieve good functional outcomes in neglected rigid spine deformities? A prospective cohort analysis**  
*Dilip Chand Raja S. (IN)*
- 14.14 **Do we inadvertently improve sagittal balance during posterior scoliosis correction?**  
*Darwish S. (GB)*
- 14.21 **Is low volume vertebroplasty answer to adjacent vertebral fractures in osteoporotic vertebral fractures?**  
*Bhave A. (IN)*
- 14.28 **Transpedicular bone grafting with pedicle screw fixation – An effective treatment for pseudoarthrosis following osteoporotic thoracolumbar fractures – A retrospective study with 2 year follow up**  
*Thomas A. (IN)*
- 14.35 **Proximal control on motor evoked potentials during craniovertebral junction and upper cervical complex spine surgery: A valuable information**  
*Cabrera Cousiño J.P. (CL)*
- 14.42 **How can chronification of lumbar back pain be avoided?**  
*Müller R. (DE)*
- Session III: MISS**  
**Moderators: Naderi S. (TR) & Pereira P. (PT)**
- 14.50 **Keynote Lecture**  
**Tailoring MISS to patients' needs**  
*Pereira P. (PT)*
- 15.05 **Full endoscopic vs. tube endoscopic**  
*Kim H.S. (KR)*
- 15.15 **Minimally invasive scoliosis surgery**  
*Lykomitros V. (GR)*
- 15.25 **Minimally invasive sacral and sacroiliac fixation**  
*Saoud A. (EG)*
- 15.35 **Radiation protection in MISS Surgery**  
*Peev N. (GB)*
- 15.45 **Discussion**
- 16.00 **Coffee Break**



**Free papers IV: Tumor, infection, MISS**

Moderators: Coskun E. (TR) & Kahraman S. (TR)

- 16.30 **Is there an optimal timing between radiotherapy and surgery to reduce wound complications in spinal metastases? A systematic review**  
*Kumar N. (SG)*
- 16.37 **Analysis of patients with with delayed diagnosis of pyogenic spondylitis**  
*Sumiyoshi N. (JP)*
- 16.44 **A cross-sectional epidemiological and clinical outcomes study of primary cervical spondylodiscitis**  
*Dilip Chand Raja S. (IN)*
- 16.51 **Single stage anterior corpectomy and posterior instrumentation in tuberculous spondylitis with varying degrees of neurological deficit**  
*Debnath U. (IN)*
- 16.58 **Endoscopic 4 MHz radiofrequency treatment of the facet joint syndrome**  
*Woiciechowsky C. (DE)*
- 17.05 **Bi-portal endoscopic transforaminal interbody fusion under intraoperative CT-based navigation: The step-by-step technique and preliminary clinical and radiological outcomes**  
*Quillo-Olvera J. (MX)*
- 17.12 **Endoscopic 4 MHz radiofrequency treatment of the sacroiliac joint syndrome**  
*Woiciechowsky C. (DE)*
- Session IV: Future of Spine Surgery**  
**Moderators: Goel A. (IN) & Vaishya S. (IN)**
- 17.20 **Keynote Lecture**  
**Spinal instability - Personal views**  
*Goel A. (IN)*
- 17.35 **Surgical strategy to prevent PJK**  
*Barrey C. (FR)*
- 17.45 **Dynamic spinal surgery: Lessons learned**  
*Ozer F. (TR)*
- 17.55 **What brings robotic surgery and navigation?**  
*Nair G. (AU)*
- 18.05 **Role of new biomaterials and biomechanics in future spine surgery**  
*Dahlan R. (ID)*
- 18.15 **How do I foresee the future of publications?**  
*Gunzburg R. (BE)*
- 18.25 **Discussion**
- 18.30 **Adjourn**





Room 6  
SIS

### Masqueraders of spine disease

Moderator: Vivian D.G. (AU)

- 08.00 **Shoulder vs. neck**  
*Kennedy D.J. (US)*
- 08.20 **Hip vs. spine**  
*Bell I.J. (NZ)*
- 08.40 **Vascular**  
*Smuck M. (US)*
- 09.00 **Peripheral nerve**  
*Stout A. (US)*
- 09.20 **Neurologic and systemic disease**  
*Schwarzer A. (AU)*
- 09.45 **Discussion**
- 10.00 **Coffee Break**
- Optimizing treatment outcomes for lumbar facet joint pain**  
Moderator: Stout A. (US)
- 10.30 **History of diagnosis and treatment**  
*Bogduk N. (AU)*
- 11.00 **SIS guidelines: How diagnostic interventions can impact outcomes**  
*MacVicar J. (US)*
- 11.20 **SIS guidelines: How radiofrequency neurotomy technique can impact outcomes**  
*Vivian D. (AU)*
- 11.40 **Actual outcomes when SIS guidelines are not followed**  
*Bell I.J. (NZ)*
- 12.00 **Actual outcomes when SIS guidelines are followed**  
*Schwarzer A. (US)*
- 12.20 **Discussion**
- 12.30 **Lunch**



Program available soon

Room 6  
APSS

Monday

Tuesday

Wednesday

Thursday

Friday

### Session 1

**Chair: Vinhal de Carvalho M. (BR)**

**Moderators: Cristante A.F. (BR) & Risso M. (BR)**

- 08.00 **CT based new classification of the lumbar lateral recess stenosis**  
*Takeuchi M. (JP)*
- 08.12 **Does kyphectomy improve the quality of life of patients with myelomeningocele?**  
*Cristante A.F. (BR)*
- 08.24 **Severity score in adolescent idiopathic scoliosis: A review of the literature and score proposal for surgical priority**  
*Cristante A.F. (BR)*
- 08.36 **New principles in the treatment of adolescent idiopathic scoliosis and similar**  
*Beraldo E. (BR)*
- 08.48 **Lumbar discectomies: Outpatient management - Cross-sectional cohort study**  
*Herrera F.M. (CO)*
- 09.00 **Correction of spine deformities: Applying convergent or divergent screws**  
*Beraldo E. (BR)*
- 09.12 **Cost based analysis of the Diagnostic Related Group system (DRG) in private care for spine surgery in South America**  
*Weissmann K.A. (CL)*
- 09.24 **The use of drains does not affect Surgical Site Infections (SSIs) rates in pediatric scoliosis surgery: A cohort study**  
*Weissmann K.A. (CL)*
- 09.36 **Discussion**
- 10.00 Coffee Break
- Session 2**  
**Chair: Vinhal de Carvalho M. (BR)**  
**Moderators: Cristante A.F. (BR) & Risso M. (BR)**
- 10.30 **Increasing incidence of pyogenic spondylodiscitis: Is it time to stop empirical ATT?**  
*Prasath V. (IN)*
- 10.42 **Revision surgery in transforaminal lumbar interbody surgery**  
*Carvalho F. (BR)*
- 10.54 **Adolescent idiopathic scoliosis and similar conditions: New tool to measure the coronal plane**  
*Beraldo E. (BR)*

- 11.06 **Is there correlation between Nurick grade and the modified Japanese orthopaedic association score in patients undergoing surgical intervention for cervical myeloradiculopathy**  
*Akbari K. (IN)*
- 11.18 **Evaluation of cervical motion in anterior cervical fusion and total disc replacement patients**  
*Schlesinger M. (AU)*
- 11.30 **C1-C2 arthrodesis with facets spacers for cranio-cervical junction diseases**  
*Carvalho F.S.C. (BR)*
- 11.42 **Evaluation of medular neurostimulators in medular diseases and failed back syndrome**  
*Carvalho F.S.C. (BR)*
- 11.54 **Incidence of surgical site infection in patients with spinal surgery with the use of topical vancomycin: Retrospective cohort study**  
*Herrera F.M. (CO)*
- 12.06 **Lateral and oblique approach for lumbar degenerative diseases**  
*Carvalho F.S.C. (BR)*
- 12.18 **Discussion**
- 12.30 Lunch



### Session 3

14.00 **Management of dorsal and lumbar spine infection - An analysis and outcome**  
*Subramaniam M.H. (IN)*

14.20 **De novo pyogenic spondylodiscitis - A retrospective study of 27 cases**  
*Rege A. (IN)*

14.40 **Spinal epidural abscess in melioidosis**  
*Das G. (IN)*

15.00 **Recurrent hydatid cyst of dorsal spine masquerading as tubercular infection**  
*Das G. (IN)*

15.20 **Osteosynthesis in the septic context: Our experience in Pott's disease**  
*Moumouni A.K. (TG)*

15.40 **Discussion**

16.00 **Coffee Break**

### Session 4

16.30 **Infective spondylodiscitis: How empirical are we in choosing an empirical antibiotic regime?**  
*Prasath V. (IN)*

16.55 **Multidisciplinary management of pyogenic spondylodiscitis: Epidemiological and clinical features, prognostic factors and long-term outcomes in 207 patients**  
*Pola E. (IT)*

17.20 **Conservative treatment of atlantoaxial rotatory fixation**  
*Oshita Y. (JP)*

17.45 **Treatment of the trauma of the cervical spine of the child in Martinique**  
*Moumouni A.K. (TG)*

18.10 **Discussion**

18.30 **Adjourn**