

Preliminary Program

ISSLS | SASS

ANNUAL MEETING

11-15 MAY 2026
CAPE TOWN



08:00 – 17:00
 Seal & Robben

Committee Meetings

08:00

Membership Committee Meeting

09:00

Program Committee Meeting

10:30

ISSLS Strategy Meeting

12:00

ISSLS Executive Committee Meeting

16:00

Education Committee Meeting

16:00 – 17:00
 Dassen

16:00

Social Media Committee Meeting

09:00 – 16:00

Focus Group Meetings

Focus Group Meeting 1

09:00 – 12:00
 Marion

VERTEBRA: Establishing minimal reporting standards for regenerative medicine trials in discogenic low back pain
Chairs: Vadalà G (Italy), Sakai D (Japan), Ambrosio L (Italy) & Schol J (Japan)

Focus Group Meeting 2

13:00 – 16:00
 Dassen

Real-world generalizability in spine research: Redefining controls and endpoints through functional normality
Chairs: Fairbank J (UK), Rade M (Finland), Teraguchi M & Hashizume H (Japan)

Focus Group Meeting 3

09:00 – 12:00
 Marion

ISSLS phenotypes/precision spine focus group proposal
Chairs: Hodges P (Australia) & Samartzis D (USA)

18:00 – 20:00
 Exhibition area

Welcome Reception

07:45	Welcome and official opening of the Congress
08:00 – 09:00	Session 1: Basic science of modic change and intervertebral disc generation
	Grand Ballroom
08:00	HTRA1 and HTRA1-derived fragments cause disc degeneration and modic-like changes in rats <i>Mengis T, Hatt LP, Nüesch A, Laimbacher A, Devan J, Distler O, Dudli S (Switzerland)</i>
08:05	Immunosenescence regulates endplate degeneration via THBS1 secretion from NDR2^{low} macrophages <i>Kong X, Chen J, Shan Z, Zhao F (China)</i>
08:10	THBS1+ macrophages exacerbate modic changes via SDC4-dependent activation of NLRP3 inflammasome <i>Kong X, Chen J, Shan Z, Zhao F (China)</i>
08:15	Discussion
08:30	Spinal hypersensitivity in lumbar endplate modic changes is mediated by NETRIN1 derived from osteoclasts <i>Huang B, Wei X, Shan Z, Chen J, Liu J, Zhao F (China)</i>
08:35	Pooled human BM-MSCs and hyaluronic acid synergistically enhance disc repair in a lumbar degeneration model of lower back pain <i>Tripathi G, Bhombe K, Sarangi P, Kannan S, Gupta PK, Kumar U, Kumar H (India)</i>
08:40	A comparison of bovine adipose-derived mesenchymal stromal cells with nucleus pulposus progenitor cells: Exploring extracellular vesicle therapy for intervertebral disk regeneration <i>Schlagenhof L, Raffaele C, Zivko C, Luciani P, Hashemi Gheinani A, Gantenbein B (Switzerland)</i>
08:45	Discussion
09:00 – 10:00	Session 2: Evaluation and outcomes of surgery for lumbar spinal stenosis
	Grand Ballroom
09:00	The relationship between patient related variables at assessment and progression to surgery for patients with lumbar radicular pain <i>Gregg C, Hoffman C, Ford R, Lange J (New Zealand)</i>
09:05	Preoperative factors associated with outcomes in patient undergoing lumbar spinal surgery for spinal stenosis <i>Ho WY, Stroud A, Anderson DB (Australia)</i>
09:10	Impact of family structure on functional recovery after surgery in older patients with lumbar spinal stenosis <i>Nagai S, Kawabata S, Kageshima K, Ito K, Akaike Y, Imai T, Takeda H, Ikeda D, Kaneko S, Fujita N (Japan)</i>
09:15	Discussion

09:30	Spinal surgeries for lumbar spinal stenosis improved mental health: Analysis of related factors in a multicenter study: First report <i>Takegami N, Akeda K, Kurata R, Ohara K, Suzuki Y, Hasegawa M (Japan)</i>
09:35	Reliability of CT versus MRI in reinvestigation of patients operated for lumbar spinal stenosis - A comparison of surgically and non-surgically treated levels <i>Hermansen E, Hebelka H, Brisby H, Indrekvam K, Storheim K, Hellum C, Myklebust TÅ, Aaen J, Franssen E, Banitalebi H (Norway & Sweden)</i>
09:40	Preoperative mild cognitive impairment in patients with lumbar spinal stenosis undergoing surgery: Associations with symptom burden, health-related quality of life, and CSF Alzheimer's disease biomarkers <i>Watanabe K, Otani K, Nikaido K, Kato K, Kobayashi H, Kobayashi K, Nakamura M, Yabuki S, Konno S, Matsumoto Y. (Japan)</i>
09:45	Discussion
10:00	Coffee Break
	Lobby
10:20 – 11:20	Session 3: Innovative technologies in lumbar spine care
	Grand Ballroom
10:20	Deep phenotyping of chronic low back pain using multimodal biopsychosocial assessments <i>Mageswaran P, Dufour J, Aurand A, Brock G, Alish Y, Knapik G, Hussain N, Vallabh J, Weaver T, Marras W (USA)</i>
10:25	Injectable biomimetic hydrogel supports cell delivery for nucleus pulposus regeneration in dynamic bovine organ culture <i>Torabi P, Kumar A, Schlagenhof L, Abdekhodaie M, Wöltje M, Gantenbein B (Switzerland, Iran, Canada & Germany)</i>
10:30	Identification of phenotypic variants underlying neuropathic and nociceptive low back pain mechanisms using multimodal biopsychosocial measures <i>Mageswaran P, Dufour J, Aurand A, Brock G, Alish Y, Knapik G, Hussain N, Vallabh J, Weaver T, Marras WS (USA)</i>
10:35	Discussion
10:50	From subjective grading to explainable AI: Toward transparent prognostication in metastatic spine surgery <i>Miyazaki K, Kanda Y, Yurube T, Takeoka Y, Kumagai N, Kuroshima K, Hiranaka Y, Kuroda R, Kakutani K (Japan)</i>
10:55	Incorporating uncertainty in predicting clinically meaningful improvement after spine surgery using Monte Carlo conformal prediction <i>Cina A, Galbusera F (Switzerland)</i>
11:00	Predicting patient-reported outcomes after lumbar spinal stenosis surgery: A comparison of predictive performance for logistic regression and machine learning using Swespine data <i>Brisby Enger E, Johansson F, Berman A, Parai C (Sweden)</i>
11:05	Discussion

11:20 – 12:05
Grand Ballroom

Symposium: Artificial Intelligence in spine: Revolution or risk?

A point-counterpoint debate on the role of AI in research, clinical practice, and publishing

Panelists: Dino Samartzis, Chitra Dahia, Chris Colloca, Robert Dunn

12:05
Lobby

Lunch Break

13:05 – 14:05
Grand Ballroom

Session 4: Best Paper Award I

13:05

Slower walking, less running and fewer purposeful walks predict back pain in middle-aged and older people: A Walk Watch UK Biobank study
Zheng DKY, Sun XJ, Ma TY, Huang FF, Wang XQ, Kranz GS, Fu SN, Wong AYL, Lord SR, Chan LLY (China & Australia)

13:10

Quantitative changes in the nucleus pulposus of normal appearing lumbar intervertebral discs during childhood
Sharma A, Lund T, Whiteman A (USA & Finland)

13:15

Intradiscal propionic acid levels in chronic low back pain patients with modic type 1 changes are associated with systemic immune cell activation
Devan J, Zhou J, Wu P, Bonnheim N, O'Neill C, Distler O, Lotz JC, Link TM, Fields AJ, Dudli S (USA)

13:20

Discussion

13:35

Is adiposity associated with chronic low back pain? A discordant twin study from TwinsUK
Kalli I, Smith C, Freidin M, Falchi M, Williams FMK (UK)

13:40

How natural standing alters lumbar disc microarchitecture and solute transport in healthy, hypermobile, and immobile segments - Insights from a post-contrast upright MRI quantitative Radiomics study
Naresh-Babu J, Kamazala PKR, Gadwal A, Paishetty V (India)

13:45

Axial-loaded MRI performed five years post-decompression in LSS patients indicates a low risk of restenosis underestimation when using unloaded MRI
Banitalebi H, Hermansen E, Brisby H, Lagerstrand K, Hebelka H (Norway & Sweden)

13:50

Discussion

14:05 – 15:05
Grand Ballroom

Session 5: Best Paper Award II

14:05

New-onset psychiatric disorders after lumbar fusion: Predictors, timing, and risk stratification
Ballatori AM, Shahrestani S, Ton A, Chen XT, Buser Z, Wang J (USA)

14:10

Validated intraoperative bleeding severity scale (VIBe) for hemostasis assessment in lumbar spinal fusion: A prospective, randomized controlled trial
Kim N, Park SR, Shin JW, Kwon JW, Park SY, Park JO, Suk KS, Moon SH, Kim HS, Lee BH (Korea)

14:15

P-15L is superior to autograft in clinical success and time-to-fusion in higher-risk patients: Results from a multicenter randomized controlled trial
Kosmopoulos V, Harrop JS, O'Toole JE, Steinmetz MP (USA)

14:20

Discussion

14:35

Preliminary outcomes of endoscopic vs. microscopic Unilateral Laminotomy for Bilateral Decompression (ULBD) in lumbar spinal stenosis with stable degenerative spondylolisthesis: A multicenter prospective cohort study
Ambrosio L, Roh YH, Kim JH, Pedraza-Ciro MC, Auron M, Bae J, Kim JS (Italy & Korea)

14:40

Clinical significance of persisting redundant nerve roots two years after decompression for lumbar spinal stenosis: Secondary analysis of the NORDSTEN Spinal Stenosis Trial data
Franssen E, Myklebust TA, Austevoll IM, Brisby H, Hermansen E (Norway)

14:45

A comparative analysis of clinical outcomes following a moderate versus extensive decompression for lumbar spinal stenosis - Five years results from the NORDSTEN-SST
Brisby H, Myklebust TA, Indrekvam K, Hellum C, Storheim K, Austevoll I, Banitalebi H, Hermansen E (Sweden & Norway)

14:50

Discussion

15:05

Coffee Break

Lobby

15:25 – 16:25
Grand Ballroom

Session 6: Epidemiology of low back pain and disc degeneration

15:25

Follow-on care patterns for patients that receive initial low back pain care in emergency departments and urgent care settings
Rhon DI, Milan R, Yuan X (USA)

15:30

Associations between central sensitization and low back pain, chronic pain, disability, and psychosocial risk in a rural Japanese population: Wakayama Spine Study
Hashizume H, Kawabata A, Oka H, Nagata K, Ishimoto Y, Teraguchi M, Murata S, Kozaki T, Iidaka T, Takami M, Tsutsui S, Iwasaki H, Okamoto M, Iwane N, Mure K, Tanaka S, Yoshimura N, Yamada H (Japan)

15:35

Lifestyle-related factors associated with low back pain: A nationwide cross-sectional study in Japan
Kawabata S, Kurita N, Nikaido T, Tominaga R, Endo Y, Fujita N, Konno S, Ohtori S (Japan)

15:40

Discussion

15:55

Associations between biological age, disc degeneration, and chronic low back pain
Bonnheim N, Baldoni P, Nagar H, McKernan G, Fields A, Lotz J, Link T, Lobo R, Bowden A, Sowa G, Vo N (USA)

16:00	<p>Clinical profiles and low back pain in thoracic- and lumbar-dominant types of adult spinal deformity: The Wakayama Spine Study <i>Nagata K, Hashizume H, Murata S, Asai Y, Teraguchi M, Iidaka T, Yoshimura N, Yamada H (Japan)</i></p>
16:05	<p>Epidemiology and image analysis of interspinous high signal change on MRI in 263 young athletes with low back pain <i>Takahiro K, Kanda Y, Yurube T, Takeoka Y, Kuroshima K, Kumagai N, Hiranaka Y, Furuya M, Nakagawa D, Inoue Y, Miyajima A, Miyazaki S, Tadokoro K, Kuroda R (Japan)</i></p>
16:10	Discussion
16:25 – 17:25 Grand Ballroom	<p>Session 7: Outcomes and techniques in lumbar spine fusion</p>
16:25	<p>Lateral interbody release technique improves the bone union at L5/S1 in posterior lumbar interbody fusion for adult spinal deformity surgery <i>Kozaki T, Taiji R, Hashizume H, Iwasaki H, Tsutsui S, Takami M, Ishimoto Y, Nagata K, Teraguchi M, Murata S, Nakanishi R, Yamamoto Y, Yamada H (Japan)</i></p>
16:30	<p>The effect of preoperative depression on postoperative outcomes in lumbar spinal TLIF surgery for degenerative disease: A retrospective assessment <i>Naude L, Geldenhuys E, Miseur S, Burger MC, King PR (South Africa)</i></p>
16:35	<p>SBF50: A functional testing protocol that assesses the outcome of lumbar fusion surgery <i>Licina P, Beaumont P, Dal Bon C, Lehmann C, Meehan X (Australia)</i></p>
16:40	Discussion
16:55	<p>Safety assessment of performing same-day outpatient prone lateral lumbar interbody fusion <i>Simonds JG, Elde N, Edge L, Kelly S, Joseph JR SA (USA)</i></p>
17:00	<p>Clinical outcomes after decompression followed by fusion versus primary fusion for lumbar degenerative spondylolisthesis: An analysis of propensity score-matched registry data <i>Haschtmann D, Gocević M, O’Riordan D, Cina A, Mariaux F, Mannion AF, Galbusera F (Switzerland)</i></p>
17:05	<p>Patient specific finite element model outputs better predict fusion cage subsidence than clinically measured variables <i>Lali F, Levy H, Raftery K, Freedman B, Newell N (USA)</i></p>
17:10	Discussion
17:25 – 18:25 Grand Ballroom	<p>First Business Meeting (Members only)</p>

07:00 – 08:00 Grand Ballroom	<p>Special Poster Session 1: Basic Science</p>
07:00	<p>Blood immune signatures of nociplastic and neuropathic Chronic Low Back Pain (CLBP) <i>Devan J, Sirucek L, Mengis T, Hatt LP, Schweinhardt P, Dudli S (Switzerland)</i></p>
07:10	<p>Variation in serum magnesium changes in an Acute Traumatic Spinal Cord Injury (ATSCI) and its association with neurological recovery - A prospective observational study <i>Waliullah S (India)</i></p>
07:20	<p>Transplantation of Tie2-enriched NP cells show restoration of extracellular matrix in an induced disc degeneration in a canine model <i>Schol J, Warita T, Matsushita E, Susumu T, Kawachi A, Tamagawa S, Sato M, Watanabe M, Sakai D (Japan)</i></p>
07:30	<p>In a degenerate intervertebral disc-mimicking environment notochordal cells release fewer extracellular vesicles involved in extracellular matrix deposition <i>Corraini D, Voskamp C, Eversdijk A, Vader P, Ito K, Wauben MHM, Tryfonidou MA (The Netherlands)</i></p>
07:40	<p>Development of tough hydrogel for intervertebral disc nucleus pulposus replacement to treat degenerative disc disease <i>Oh SH, Lee SB, Kang YM, Moon SH, Lee BH (Republic of Korea)</i></p>
07:50	<p>Mesenchymal stromal cell spheroid-loaded microscaffolds for intervertebral disc repair: In vitro and ex vivo evaluation <i>Muerner M, Balasubramanian RV, Ma J, Fernández-Pérez J, Ovsianikov A, Grad S (Switzerland & Austria)</i></p>
07:00 – 08:00 Grand Ballroom	<p>Special Poster Session 2: Biomechanics</p>
07:00	<p>Chronic low back pain is associated with remotely collected gait quality and quantity parameters from a wrist-worn accelerometer <i>Zheng DKY, Sun XJ, Ma TY, Lo ASY, Wu JL, Chow J, Chiu TSH, Wang XQ, Kranz GS, Fu SN, Lord SR, Chan LLY, Wong AYL (China & Australia)</i></p>
07:10	<p>Sacral fixation: Two bicortical or four unicortical screws? A biomechanical study <i>Paxinos O, Zindrick M, Voronov L, Havey R, Patwardhan A (Greece & USA)</i></p>
07:20	<p>Changes in multifidus muscle stiffness following restorative neurostimulation for chronic low back pain <i>Beaumont P, Pincheira Miranda P, Licina P, Nowitzke A, Hodges PW (Australia)</i></p>
07:30	<p>Paraspinal muscle quality in chronic low back pain: A systematic review and meta-analysis of muscle atrophy and fat infiltration <i>Kalli J, Marili N, Kazemi Naeini M, Freidin M, Thomas L, Menni C, Williams F. (UK & Italy)</i></p>
07:40	<p>Spinal movement dysfunction during gait persists independent of walking speed and pain intensity <i>Viraraghavan G, Harris N, Chin E, Ragusa A, Bailey JF (USA)</i></p>

07:50	Determining the value of manual therapy at different starting points during a medical strengthening intervention in patients with chronic specific low back pain related to perceived pain, functionality and quality of life - A randomised controlled study <i>Margraf H, Domokos B, Domokos J, Alfen F, Raschka C, Spang C (Germany)</i>
07:00 – 08:00 Grand Ballroom	Special Poster Session 3: Epidemiology
07:00	Trends in healthcare utilization, prescribed medication, and work-productivity loss for spinal disorders: A nationwide cohort study from 2008 to 2021 <i>Grotle M, Zouch JH, Bråten LCH, Gjefsen E, Storheim K, Zwart JA, Pripp AH, Kj n LG, Magnusson K, Rysstad T, Berg B (Norway & Australia)</i>
07:10	Short bursts of fast walking reduce the risk of low back pain recurrence: A dose-response analysis of peak cadence <i>Sun XJ, Zheng DKY, Zhang HY, Ng CYJ, Wong AYL, Ma TY (China)</i>
07:20	Association between training load, disc degeneration, and low back pain in elite cross-country skiers <i>Aavikko A, Pesonen J, Ristolainen L, Murto N, Kautiainen H, Lund T (Finland)</i>
07:30	Decadal trends in the prevalence of MRI-defined lumbar spinal stenosis: Findings from the Wakayama Spine Study 2008-2018 <i>Nakatsuka S, Ishimoto Y, Hashizume H, Nagata K, Teraguchi M, Iwasaki H, Tsutsui S, Takami M, Kozaki T, Nakanishi R, Iidaka T, Tanaka S, Yoshida M, Yoshimura N, Yamada H (Japan)</i>
07:40	Paraspinal muscle degeneration predicts progression of adult spinal deformity: A 6-year longitudinal cohort study <i>Nagata K, Hashizume H, Murata S, Asai Y, Teraguchi M, Iidaka T, Yoshimura N, Yamada H (Japan)</i>
07:50	Longitudinal investigation of the pathophysiology and relationships between progressive disc degeneration and sagittal alignment of the lumbar spine <i>Rieger E, Roijakkars A, Peek M, O'Riordan D, Dall'Ara E, Ignasiak D, Ferguson SJ, Haschtmann D, Galbusera F (Switzerland & United Kingdom)</i>
07:00 – 08:00 Grand Ballroom	Special Poster Session 4: Spine surgery
07:00	Radiographic characteristics and clinical implications of spino-pelvic sagittal alignment in double-level degenerative lumbar spondylolisthesis <i>Cai X, Zhou Q, Sun X (China)</i>
07:10	Oblique lumbar interbody fusion combined with posterior percutaneous pedicle screw internal fixation: Does variability in cage position influence clinical outcomes? <i>Tang JJ (China)</i>
07:20	Clinical outcomes of and risk factors for non-elective surgery for spinal metastases: A nationwide multicenter prospective study <i>Kanda Y, Yurube T, Takeoka Y, Furuya T, Inoue G, Suzuki A, Kato S, Tominaga H, Ishihara M, Nagoshi N, Funayama T, Inoue H, Iimura T, Nakajima H, Akeda K, Nakanishi K (Japan)</i>

07:30	Clinical features, risk factors, and preventive measures for surgical site infection following spine surgery in a university-affiliated satellite hospital: A 10-year retrospective study <i>Kumagai N, Yurube T, Takeoka Y, Kanda Y, Kuroshima K, Hiranaka Y, Furuya M, Nakagawa D, Inoue Y, Kitano T, Miyajima A, Kuroda R, Kakutani K (Japan)</i>
07:40	Wrong-site surgery in lumbar spine operations: A nationwide analysis of 69 cases reported to the Japan Council for Quality Health Care <i>Oshita Y, Okano I, Hirano T, Koyama S, Tsuchiya K, Hayakawa C, Hoshino Y, Kudo Y (Japan)</i>
07:50	From prediction to actionable intervention: An explainable AI framework for preventing adjacent segment disease using anchors and counterfactuals <i>Feng Z, Hai Y (China)</i>
08:15 – 09:15 Grand Ballroom	Session 8: Modeling and biomechanics of lumbar spine
08:15	Intervertebral disc distraction stiffness predicts endplate subsidence following transforaminal interbody cage expansion: An ex vivo study <i>Raftery KA, Levy H, Singh R, Madi M, Slater TD, Crossman AJ, Kedgley AE, Freedman BA, Newell N (UK)</i>
08:20	Large-cohort finite element simulation of lumbar discs: Associations with back pain <i>Nispel K, Lerchl T, Kirschke JS (Germany)</i>
08:25	Lumbar spinal kinematics and loading adjacent to single-level surgical stabilization differ between standard loading conditions and muscle force simulation <i>Remus R, Liebsch C, Ritter M, Selkmann S, Neumann M (Germany)</i>
08:30	Discussion
08:45	Quantitative CT is superior to MRI-based bone quality for predicting vertebral compression strength <i>Mielke AM, Tani S, Ishikawa K, Burkhard MD, Verna B, Guven AE, Tan ET, Carrino JA, Shue J, Girardi FP, Sama AA, Cammisa FP, Hughes AP (Japan & USA)</i>
08:50	Associations between spinal balance parameters and loads during standing and trunk motion in patients with lumbar spinal stenosis <i>Caimi A, Alaimo G, Simona J, Koch D, Netzer C, La Barbera L, Nüesch C, Mündermann A, Ferguson SJ, Ignasiak D (Switzerland & Italy)</i>
08:55	Asymptomatic aging disc mechanics from in vivo human MRI <i>Newman HR, Peloquin JM, Vresilovic EJ, Elliott DM (USA)</i>
09:00	Discussion
09:15 Lobby	Coffee Break
09:45 Grand Ballroom	Guest Lecture Joey Evans
10.30 Grand Ballroom	Presidential Lecture

11:05 – 12:05
Grand Ballroom
Session 9: Minimally invasive techniques in lumbar spine surgery

- 11:05 **Risk factors for recurrent lumbar disc herniation after unilateral bi-portal endoscopy (UBE): a retrospective study**
Zhang Y, Hai Y (China)
- 11:10 **Clinical efficacy of full surgical area closure technique in percutaneous co-axial large-channel endoscopic lumbar interbody fusion in the treatment of degenerative lumbar spondylolisthesis**
Kong Q (China)
- 11:15 **Uniportal interlaminar endoscopic lumbar discectomy vs. lumbar microdiscectomy for L5-S1 disc herniation: A mid-term follow-up of a prospective randomized controlled trial**
Ambrosio L, Roh YH, Liu Y, Kim JH, Bae J, Kim JS (Italy & South Korea)
- 11:20 Discussion
- 11:35 **Is percutaneous endoscopic lumbar discectomy superior to open fenestration discectomy in treating adolescent patients with lumbar disc herniation?**
Zhang B, Sun X, Zhou Q (China)
- 11:40 **Trans-sacral canal plasty for lumbar spinal stenosis: Comparative analysis by prior lumbar surgery and pathological classification**
Yamamoto Y, Teraguchi M, Iwasaki H, Tsutsui S, Takami M, Ishimoto Y, Nagata K, Murata S, Kozaki T, Nakanishi R, Kozaki T, Hashizume H, Yamada H (Japan)
- 11:45 **Results of a randomized controlled trial comparing a novel hand-held image-guided navigation system to traditional CT-based navigation for the placement of thoracolumbar pedicle screws**
van der Gaag N, Arts MP, Lycklama à Nijeholt G, Wolfs JFC (The Netherlands)
- 11:50 Discussion
- 12:05 Lunch Break SASS

12:20 – 16:15
Half day Outing to Webersburg

08:00 – 08:50
Grand Ballroom
Session 10: Global sagittal alignment and deformity surgery

- 08:00 **Relationship between preoperative global sagittal alignment and changes in cervical alignment following lumbar pedicle subtraction osteotomy**
Verna B, Caffard T, Burkhard MD, Guven AE, Mielke AM, Wimmer J, Folkerts T, Rocha Torres PA, Lan R, Shue J, Sama AA, Girardi FP, Cammisa FP, Hughes AP (USA, Germany & Brazil)
- 08:05 **The influence of sagittal spinal alignment on the associations between symptoms and gait parameters in patients with symptomatic lumbar spinal stenosis**
Nüesch C, Koch D, Ferguson SJ, Schären S, Mündermann A, Netzer C (Switzerland)
- 08:10 **Vacuum discs are associated with greater sagittal imbalance and disability in adult spine deformity patients**
Skaggs KF, Salinas JC, Koltsov JCB, Pius AK, Johnson T, Follett M, Sambare TD, Kleimeyer JP, Wood KB, Alamin TF, Mitchell LA, Riley GM, Carragee EJ, Hu SS (USA)
- 08:15 Discussion
- 08:30 **Effectiveness and safety of intravenous administration of low- versus high-dose tranexamic acid in adolescent idiopathic scoliosis posterior corrective fusion surgery: A prospective randomized controlled trial**
Huang X, PU X, Zhou Q, Qiu Y, Zhu Z, Sun X (China)
- 08:35 **Evaluating clinically meaningful outcomes in adult spinal deformity surgery: MCID analysis of functional and social improvements**
Singh D, Truumees E, Geck M, Stokes J, Mayer E, Adams A, Krishnagiri S, Rice E, Harris A (USA)
- 08:40 Discussion

08:50 – 09:30
Grand Ballroom
ISSLS Prize Papers

- 08:50 Introduction
- 08:53 **Early markers of mechanical intervertebral disc degeneration of whole bovine discs loaded in a multiaxial bioreactor**
Grad S (Switzerland)
- 09:05 **Data-driven classification of lumbar spine degeneration trajectories in chronic low back pain**
McSweeney T (Finland)
- 09:17 **Hidden in plain sight: Machine learning-assisted MRI reveals novel vertebral body biomarkers of chronic low back pain in humans**
Armani N (Canada)
- 09:30 Coffee Break
Lobby

10:00 – 11:00
Grand Ballroom

Session 11: Molecular mechanisms of intervertebral disc degeneration

10:00

Obesity associated adipose secretomes reprogram human nucleus pulposus cells toward inflammation and catabolism
Ruiz-Fernandez C, Schol J, Soma H, Sakai D, Sato M, Watanabe M (Japan)

10:05

Low-magnitude high-frequency vibration drives catabolic remodeling in human intervertebral disc independently of Piezo1
de Roy L, Goerlich C, Schoppa A, Haffner-Luntzer M, Ignatius A, Neidlinger-Wilke C, Teixeira GQ (Germany)

10:10

D-allose attenuates intervertebral disc degeneration by restoring mitophagy and inhibiting the cGAS-STING-ADM2 Axis
Zhao Z, Liu H, Li Z, Zheng Z, Wang J (China)

10:15

Discussion

10:30

How does mechanical loading influence disc swelling? An in vitro study
Greiner-Perth AK, Liebsch C, Unseld H, Wilke HJ (Germany)

10:35

Proteomic atlas of notochordal cell-derived extracellular vesicles uncovers a functional protein corona affecting regenerative signaling pathways
Voskamp C, Van Maanen JC, Riemers FM, Vos HR, Van Herwijnen MJC, Bach FC, Welting TJM, Le Maitre CL, Van den Akker GGH, Wauben MHM, Tryfonidou MA (The Netherlands & UK)

10:40

A longitudinal single-cell transcriptomic atlas of MRSA-induced intervertebral infection reveals time-dependent nucleus pulposus subtypes and fibrotic trajectories
Guan M, Chu GY, Liu T, Hu YH, Wang Y (China)

10:45

Discussion

11:00 – 12:00
Grand Ballroom

Session 12: Advanced imaging of lumbar spine structure

11:00

Two distinct pathological pathways in ligamentum flavum hypertrophy: Collagen accumulation and amyloid deposition revealed by two-photon imaging
Ikuta M, Furuya M, Seno'o S, Shinyashiki K, Kanie Y, Fujimori T, Okada S (Japan)

11:05

T1p MRI relaxation times are sensitive to aggrecan cleavage independent of proteoglycan content
Bonnheim N, Veres J, Han M, Li L, Habib M, Barylak J, Haglund L, Fields A (USA)

11:10

Evolution of Pfirrmann grades of the lumbar intervertebral discs during childhood
Sharma A, Lund T, Whiteman A (USA & Finland)

11:15

Discussion

11:30

Radiomics of discs and vertebrae reveal MRI tissue patterns related to dural sac area
Waldenberg C, Hermansen E, Hebelka H, Banitalebi H, Brisby H, Indrekvam K, Lagerstrand K (Sweden & Norway)

11:35

Twenty-year natural course of lumbar modic changes in a community cohort: Comparative MRI data from 2004 to 2025
Fukuda Y, Watanabe K, Otani K, Sekiguchi M, Kobayashi H, Endo Y, Matsumoto Y (Japan)

11:40

Age-related changes in lumbar intervertebral disc height distribution: regional quantitative analysis using 3D-CT data in healthy subjects
Suzuki Y, Akeda K, Kurata R, Ohara K, Takegami N, Inoue N, Hasegawa M (Japan & USA)

11:45

Discussion

12:00

Lunch Break

Lobby

13:00 – 13:40
Grand Ballroom

Fellowship Award Ceremony

13:00

Wiltse Lifetime Award Introduction & Presentation 1

13:10

Wiltse Lifetime Award Presentation 2

13:15

Basic Science Research Grant

13:22

Clinical Science Research Grant

13:29

Clinical Travelling Fellowship

13:36

Young Investigator Travel Grant Winners

13:40 – 14:40
Mezzanine

General Poster Session

14:40 – 14:55
Grand Ballroom

Focus Group Reports

14:40

Report 1

14:45

Report 2

14:50

Report 3

14:55 – 15:55 **Session 13: Advanced conservative approaches to the lumbar spine**

Grand Ballroom

- 14:55 **Efficacy of a TNF inhibitor in chronic low back pain with modic changes type 1: The BackToBasic study - A randomized controlled trial**
Bråten LCH, Gjefsen E (Norway)
- 15:00 **Current challenges in empiric antibiotic therapy for culture-negative pyogenic spondylitis**
Oshita Y, Okano I, Hirano KT, Koyama S, Tsuchiya K, Hayakawa C, Hoshino Y, Kudo Y (Japan)
- 15:05 **The VERTEBRA Project: Toward improved reporting and design standards for regenerative medicine clinical trials in disc degeneration**
Schol J, Ambrosio L, Sakai D, Vadala G (Japan & Italy)
- 15:10 Discussion
- 15:25 **Influence of supervision in improving exercise adherence in chronic low back pain: A cross-sectional qualitative study of patients' perspectives (ADHERE II secondary study)**
Traineau M, Giraudo J, Toko-Kamga L, Daste C, Kirren Q, Lefèvre-Colau MM, Martin-Chagnas MO, Nicol V, Rannou F, Rören A, Tran VT, Nguyen C (France)
- 15:30 **Culturally tailored and psychologically informed physical therapy improves outcomes of chronic spine pain compared to usual care: A randomized controlled trial**
Monroe KS, Jun H, Lin S, Van Dyke J, Godino J, Gombatto SP (USA)
- 15:35 **How to train "strategic" spine surgeons? - Validation of an RGB-D and AI-based clinical decision support system for physician training**
Li W, Duan W, Zhang T (China)
- 15:40 Discussion
- 15:55 – 16:55** **Session 14: Complex conditions of lumbar spine: Fracture, infection, and metastasis**
- Grand Ballroom
- 15:55 **Prophylactic antibiotics in vertebroplasty and kyphoplasty: A nationwide analysis of infection rates and antibiotic use in South Korea**
Park HY, Lee JS, Jung YS, Joh YW, Kim YH, Kim SI (Korea)
- 16:00 **Characteristics of adjacent subsequent vertebral fractures following early-phase balloon kyphoplasty for osteoporotic vertebral fractures at the thoracolumbar junction**
Yamada J, Fujiwara T, Kondo R, Ikemura S (Japan)
- 16:05 **Bacterial growth in patients with low back pain and modic changes: A multicentre, case-control biopsy study**
Rolfesen MP, Gammelsrud KW, Bråten LCH, Holberg-Petersen M, Storheim K, Hellum C (Norway)
- 16:10 Discussion

- 16:25 **Local disease control and survival analysis after surgical treatment of spinal metastases: Comparison between carbon fiber-reinforced polyetheretherketone and titanium implants for posterior stabilization**
Falzetti L, Griffoni C, Rosa S, Terzi S, Alcherigi C, Intagliata M, Bandiera S, Barbanti Brodano G, Ghermandi R, Tedesco G, Evangelisti G, Pipola V, Girolami M, Pasini S, Tosini G, Cini C, Gasbarrini A (Italy)
- 16:30 **Risk stratification and clinical outcomes in hematogenous spinal osteomyelitis: A multivariate approach**
Singh D, Truumees E, Geck M, Stokes J, Mayer E, Adams A, Krishnagiri S, Rice E, Harris A (USA)
- 16:35 **Clinical significance of prognostic nutritional index in patients who underwent palliative surgery for spine metastasis**
Park HY, Ihm JS, Kim SI, Ha KY, Kim YH, Kwon K (Republic of Korea)
- 16:40 Discussion

16:55 – 17:25 **Second Business Meeting (Members only)**

Grand Ballroom

19:00 **Gala Dinner**

The Aquarium

07:00 – 08:00
Grand Ballroom
Special Poster Session 5: Emerging Technologies

- 07:00 **Development of a machine-learning model for patient satisfaction prediction in lumbar spinal stenosis surgery: A multicenter study with ZCQ and JOABPEQ Scores**
Kawabata S, Akaike Y, Nagai S, Imai T, Takeda, Kaneko S, Fujita N (Japan)
- 07:10 **Automated laminectomy using collaborative robot: A proof-of-concept study**
Kishimoto K, Fujimori T, Furuya M, Kanie Y, Imai H, Shinyashiki K, Hosozawa K, Okada S (Japan)
- 07:20 **Does charged particles radiation therapy matter in the management of intralesional resection of primary spine tumors? Retrospective analysis of a cohort of 36 patients treated at a tertiary spine centre**
Pipola V, Griffoni C, Cosentino E, Cosentino M, Belotti LMB, Bandiera S, Barbanti Brodano G, Ghermandi R, Terzi S, Girolami M, Tedesco G, Evangelisti G, Pasini S, Falzetti L, Tosini G, Cini C, Fiore MR, Cianchetti M, Boriani S, Gasbarrini A (Italy & Spain)
- 07:30 **Unlocking potential: Feasibility, usability, and acceptability of BACK-on- LINE™**
Chen M, Sparkes V, Sheeran L (UK & China)
- 07:40 **Restorative neurostimulation of the lumbar multifidus muscles improves mobility, strength, pain and disability in patients with chronic mechanical low back pain**
Nowitzke N, Beaumont P, Dal Bon C, Hodges PW, Licina P (Australia)
- 07:50 **Age-related structural, biochemical, and mechanical changes in the mouse intervertebral discs**
Hallmark AP, Bogdan S, Ali AM, Dahia CL (USA)

07:00 – 08:00
Grand Ballroom
Special Poster Session 6: Imaging

- 07:00 **Development and validation of multiple deep learning models using paired X-rays for detecting fresh osteoporotic vertebral fractures**
Morita T, Tachibana R, Kawaguchi S, Tsukamoto A, Fukushi R, Fujimoto S, Takashima H, Yamashita T, Teramoto A (Japan)
- 07:10 **High association between diabetes mellitus and lumbar disc degeneration based on spine MRI in middle-aged adults**
Park CH, Kim DK, Lee YT, Yoon KJ (South Korea)
- 07:20 **From MRI to report: Automated 3D quantification of lumbar spine degeneration**
Molinier N, Connolly JA, Schilaty ND, Weber AK, Cohen-Adad J (Canada & USA)
- 07:30 **Prediction of postoperative proximal junctional kyphosis/failure in adult degenerative scoliosis via magnetic resonance imaging-based vertebral bone quality, computed tomography-based Hounsfield units, and sagittal vertical axis**
Geng H, Hai Y (China)
- 07:40 **Disrupted cognitive function and brain network topology in older adults with chronic back and/or knee pain: A resting-state fMRI study**
Huang FF, Hsu CL, Zhou Z, Zhang H, Al Zoubi FM, Sun CW, Chang JR, Zheng DKY, Wong CYC, Fu A, Wong AYL (China & Taiwan)

- 07:50 **Assessment of static pelvic parameters according to ethnicity: cohort analysis of 500 computed tomography scans**
Baker J (New Zealand)

07:00 – 08:00
Grand Ballroom
Special Poster Session 7: Non-surgery

- 07:00 **Prospective evaluation of an AI-powered mobile system for outpatient low back pain care: A single-institution experience**
Zhang T (China)
- 07:10 **A study on slip progression in adolescent patients with lumbar isthmic spondylolisthesis**
Hatakeyama K, Kojima A, Tsujishima N, Suzuki H, Koda M, Kamitani S (Japan)
- 07:20 **Does the morphology of lumbosacral transitional vertebrae affect the predilection sites and sides of lumbar disc herniation?**
Zhou Q, Sun X, Zhang B (China)
- 07:30 **Prevalence and clinical implications of kissing spine: A retrospective study**
Hirata H, Yokota S, Nagahama T, Ino T, Toda Y, Yoshihara T, Tsukamoto M, Morimoto T (Japan)
- 07:40 **The forgotten spine score: Advancing the validation of a patient-centered measure after lumbar fusion**
Ambrosio L, Schol J, de Rinaldis E, Seto K, Kawachi A, Otani Y, Tamagawa S, Petrucci G, Russo F, Papalia R, Sakai D, Vadalà G, Denaro V (Italy & Japan)
- 07:50 **Empirical second line therapy in drug-resistant spinal tuberculosis: Is drug sensitivity imperative?**
Kandwal P, Bondarde P, Ahuja K (India)

07:00 – 08:00
Grand Ballroom
Special Poster Session 8: Global spinal alignment and surgical outcomes

- 07:00 **The validity of the concept of age-adjustment alignment goals for corrective surgery in adult spinal deformity in the elderly**
Takami M, Tsutsui S, Nagata K, Ishimoto Y, Teraguchi M, Kozaki T, Nakanishi R, Yamamoto Y, Iwasaki H, Hashizume H, Yamada H (Japan)
- 07:10 **Relationship between preoperative lumbar muscle composition and cervical alignment changes following lumbar pedicle subtraction osteotomy**
Verna B, Burkhard MD, Caffard T, Guven AE, Mielke AM, Folkerts T, Wimmer J, Rocha Torres PA, Zhu J, Shue J, Sama AA, Girardi FP, Cammisa FP, Hughes AP (USA, Germany & Brazil)
- 07:20 **Clinical and radiographic predictors of postoperative outcomes in spinal surgery for Scheuermann's Kyphosis**
Singh D, Truumees E, Geck M, Stokes J, Mayer E, Adams A, Krishnagiri S, Rice E, Harris A (USA)

07:30	Clinical effectiveness and long-term durability of repositioned laminoplasty for lumbar spinal stenosis <i>Masuda K, Kumakawa T, Morita E, Higashikawa A, Kobayashi Y, Sasaki K, Hirai S (Japan)</i>
07:40	Wrong-level spine surgery: A multicenter analysis of 34,544 consecutive cases <i>Furuya M, Fujimori T, Takenaka S, Nagamoto Y, Matsumoto T, Takahashi Y, Iwasaki M, Kanie Y, Shinyashiki K, Okada S (Japan)</i>
07:50	Complete decompression of the articular segment in microscopic endoscopic laminotomy for lumbar degenerative spondylolisthesis can improve low back pain <i>Yamamoto Y, Kouzaki T, Iwasaki H, Tsutsui S, Takami M, Nagata K, Ishimoto Y, Teraguchi M, Murata S, Nakanishi R, Kouzaki T, Hashizume H, Yoshida M, Yamada H (Japan)</i>
08:15 – 09:15 Grand Ballroom	Session 15: Anatomy, imaging, and clinical support system
08:15	Anatomical classification of fractures and factors influencing bone union in 155 cases of progressive adolescent lumbar spondylolysis <i>Kitano T, Miyazaki S, Kuroshima K, Hiranaka Y, Ryu M, Inoue S, Yurube T, Kakutani K, Tadokoro (Japan)</i>
08:20	Two trajectories of lumbar disc degeneration from adolescence to adulthood: A 23-year longitudinal MRI study <i>Lund T, Aavikko A, Ristolainen L, Kautiainen H, Lohman M, Schlenzka D (Finland)</i>
08:25	Global shifts in pain management for low back pain in emergency departments: The impact of CDC opioid guidelines - A systematic review and meta-analysis <i>Chan KCK, Ng JCY, Chang JR, Samartzis D, Wong AYL (China)</i>
08:30	Discussion
08:45	Prevalence and associated factors of retro-renal colon in Japanese patients: A cross-sectional CT-based study <i>Hirata H, Takeshita G, Toda Y, Yoshihara T, Tsukamoto M, Togao O, Morimoto T (Japan)</i>
08:50	Effects of sustained locomotion training-based outpatient rehabilitation on the whole-spine sagittal alignment in locomotive syndrome: A 2-year prospective cohort study <i>Yurube T, Takeoka T, Hiranaka Y, Takeoka Y, Kanda Y, Kuroshima K, Kumagai N, Furuya M, Nakagawa D, Inoue Y, Kitano T, Miyajima A, Miyazaki K, Miyamoto H, Kakutani K, Kuroda R, Inaoka H, Watanabe N (Japan)</i>
08:55	Evaluation of an AI-enhanced mobile platform supporting home-based PSSE for mild adolescent idiopathic scoliosis: A prospective multicenter observational study <i>Zhou J, Wu H, Wang L, Di D, Wang G, Dou H, Wang Y, Zhang T (China)</i>
09:00	Discussion

09:15 – 10:15 Grand Ballroom	Session 16: Integrative basic science of lumbar spine
09:15	Intervertebral disc stratification according to metabolic risk, based on personalized morphological modelling and chemo-mechanical simulations <i>Muñoz-Moya E, Ruiz Wills C, Piella G, Noailly J (Spain)</i>
09:20	Promoting intervertebral disc fusion using BMP2, L51P, and the EP4 agonist KMN159: Synergistic osteogenesis in human annulus fibrosus cells <i>Chen S, Tian X, Zwingenberger S, Albers C E, Gantenbein B, Häckel S (Switzerland & Germany)</i>
09:25	Neurovascular intervertebral disc system to investigate the role of endothelial cells on neurite outgrowth <i>Ma J, Müller J, Serra T, Grad S (Switzerland)</i>
09:30	Discussion
09:45	Antibiotic-loaded hyaluronic acid-tyramine hydrogel to prevent bacteria-mediated disc degeneration of herniated discs <i>Menghini D, Kuhn E, Muerner M, Distler O, Farshad M, Grad S, D'Este M, Moriarty TF, Snedeker JG, Dudli S (Switzerland)</i>
09:50	Can magnetic pulse improve spinal muscle quality and kyphosis under high mTORC condition - TSC1mKO mice model? <i>Koh EL, Lam WMR, Zhuo W, Franco-Obregon A, Hey HWD (Singapore)</i>
09:55	A meta-model of low back pain to examine expert knowledge of treatment effects and mechanisms <i>Cholewicki J, Hodges PW, Popovich Jr JM (USA & Australia)</i>
10:00	Discussion
10:10 Lobby	Coffee Break
10:45 – 11:40 Grand Ballroom	Session 17: Muscle function and clinical outcomes in spine disorders
10:45	Chronicity and physical activity levels independently associate with spatial patterns of multifidus fat infiltration in chronic low back pain patients <i>Khattab K, Dziesinski LK, Zhou J, Scheffler A, Fields A, O'Neill CW, Lotz JC, Bailey JF (USA)</i>
10:50	Reduced paraspinal muscle fatigue is associated with greater global spinal imbalance in symptomatic lumbar spinal stenosis <i>Koch D, Li S, Schären S, Ferguson SJ, Mündermann A, Nüesch C, Netzer C (Switzerland)</i>
10:55	Targeted neurostimulation changes muscle fibre type composition of multifidus muscle in an animal model of intervertebral disc injury <i>James G, Ahern BJ, Goodwin W, Goss B, Hodges PW (Australia & USA)</i>
11:00	Discussion

11:15 **Contribution of knee and hip osteoarthritis to physical dysfunction in individuals with cLBP**
Bell KM, Mesoros M, Roos RA, Alfikri Z, Greco CM, McKernan GP, Piva SR (USA)

11:20 **European retrospective multicenter study in patients with vertebral metastases (Train-METAstra)**
Barbanti Brodano G, Lazary A, Verlaan JJ, Vajkoczy P, Intagliata M, Griffoni C, Szita J, Harlianto N, Miller H, Moscato S, Santello A, Mellone S, Cristofolini L (Italy, Hungary, The Netherlands & Germany)

11:25 **Metabolic signatures in intervertebral disc degeneration, and shared hallmarks with atherosclerosis and knee osteoarthritis: a population-based study**
Chemorion FK, Sarkissian M, Natarajan S, Baumgartner L, Bisotti MA, Piella G, Noailly J (Spain & Italy)

11:30 Discussion

11:40 – 12:00
 Grand Ballroom **Session 18: Innovations and outcomes in lumbar spine treatment**

11:40 **Synergistic regenerative potential of platelet-rich plasma and microfragmented adipose tissue in the treatment of degenerative disc disease; a biomarker - Stratified phase 2b trial with randomized comparison**
Kolić Z, Vukas D, Jurak Begonja A, Čabrijan S, Rade M (Croatia & Finland)

11:45 **Surgical management of cervical and lumbar stenosis: A prospective cohort study on surgical outcomes and pre-operative symptom variability**
Wang V, Stroud A, Anderson DB (Australia)

11:50 **Radiation-free navigation for lumbar pedicle screws: A clinical pilot comparison of synthetic CT (MRI) and standard CT**
Hallsten J, Hutchins J, Lagerstrand K, Hebelka H, Brisby H (Sweden)

11:55 Discussion

12:10 **The safety and effectiveness of multi-segment cortical bone trajectory screws in adult degenerative scoliosis with stenosis among the elderly: Minimum 5-year follow-up study**
Wang J, Liu Y, Hai Y (China)

12:15 **Influence of ethnicity and NZ Deprivation Index on complications following spinal surgery**
Bloy C, Porea T, Baker J (New Zealand)

12:20 Discussion

12:30 – 12:40
 Grand Ballroom **Announcement of Poster and Paper Awards and Closing of the Meeting**
Daisuke Sakai (Japan)

