

Final Program

ISSLS | SASS

ANNUAL MEETING

11-15 MAY 2026
CAPE TOWN



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ISSLS Officers 25-26



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Daisuke Sakai



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Nobuyuki Fujita



Member program committee
Steve Brown



Member program committee
Marc-Antoine Rousseau

Dear Friends and Colleagues,

It is my great pleasure to welcome you to the 52nd Annual Meeting of the International Society for the Study of the Lumbar Spine (ISSLS), held in the beautiful and vibrant city of Cape Town, South Africa. This year's meeting is especially meaningful, as it marks a historic collaboration with the South African Spine Society (SASS). Bringing together colleagues from across the world at the meeting point of two great oceans, it truly reflects the global spirit of ISSLS.

Serving as President—and as the first President from mainland China—is a privilege I deeply value. To me, this represents not only a personal milestone, but also the continued growth of our international community. It highlights our shared commitment to integrating knowledge from diverse regions into a collective and globally relevant scientific framework.

The scientific program, led by our Program Committee Chair, Dr. Nobuyuki Fujita, showcases the very best of ISSLS. Our traditional single-stream format remains central to the meeting, encouraging focused discussion and meaningful exchange. This year's highlights include the Presidential Lecture, cutting-edge symposia such as "Artificial Intelligence in Spine: Revolution or Risk?", and a broad spectrum of outstanding presentations spanning basic science, biomechanics, and clinical care. We will also celebrate the recipients of the ISSLS Prizes and the Wiltse Lifetime Achievement Award, recognizing excellence and lifelong contributions to our field.

In addition to scientific excellence, this year's meeting offers a truly inspiring keynote experience. We are honored to welcome Joey Evans, whose extraordinary personal journey—from life-changing spinal injury to competing in one of the world's most demanding endurance races—reminds us of the resilience of the human spirit. His story goes beyond medicine, challenging us to think differently about recovery, perseverance, and the real impact of our work on patients' lives.

ISSLS thrives not only on science, but also on collaboration and community. I would like to express my sincere gratitude to our Program Committee, our local hosts Dr. Robert Gunzburg and Dr. Ian Vlok, and their teams for their dedication in organizing this exceptional meeting.

We are also deeply grateful to our industry partners—including Medtronic, Cerapedics and the European Spine Journal – whose continued support of research grants and awards plays an essential role in advancing innovation and translating science into better patient care.

Beyond the scientific sessions, I encourage you to take part in the social program and experience all that Cape Town has to offer. Events such as the visit to Webersburg Wine Estate and the Gala Dinner at the Two Oceans Aquarium will provide wonderful opportunities to reconnect with colleagues and build new friendships.

As we look ahead, ISSLS will continue to build bridges—between disciplines, between science and clinical care, and across regions of the world. I encourage each of you to actively engage, exchange ideas, and contribute to our shared mission of improving spine health globally.

Thank you for being part of this community. I look forward to meeting you all in Cape Town.

Warm regards,

Yong Hai, MD
President, ISSLS 2025–2026

SASS 2026 ORGANIZING COMMITTEE

SASS Executive Committee



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Ian Vlok



President Elect
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Treasurer
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Academic Coordinator
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Local Organizers



Local Organizer
Ian Vlok



Local Organizer
Robert Gunzburg

PRESIDENTIAL ADDRESS SASS

Dear Colleagues and Friends,

It is a great honor for me to welcome you to the 52nd Annual Meeting of the International Society for the Study of the Lumbar Spine (ISSLS) to be held in my home city of Cape Town, South Africa. This event also marks the first time ISSLS will be hosted on the African continent, a true milestone of the Society and one that I hope will inspire many future members and participation.

As always, the program promises a strong academic base, coupled with ample opportunity to connect and reconnect with global colleagues and friends.

Cape Town and the southern tip of Africa offer so much in terms of breathtaking scenery with a nearly endless variety of activities, not to mention being one of the world's best food and wine destinations, that I hope time can be found to take in and experience this unique South-African venue.

Cape Town has a rich medical history, with the first heart transplant performed but a few kilometers away from our conference venue in 1967. Today it is well-known for being one of the major spinal surgery venues in South Africa, with multiple advanced training and service delivery facilities available across the public and private sectors.

My co-host, Dr Robert Gunzburg has worked tirelessly to bring ISSLS to Cape Town, and together we hope this will be the first of many events across the continent.

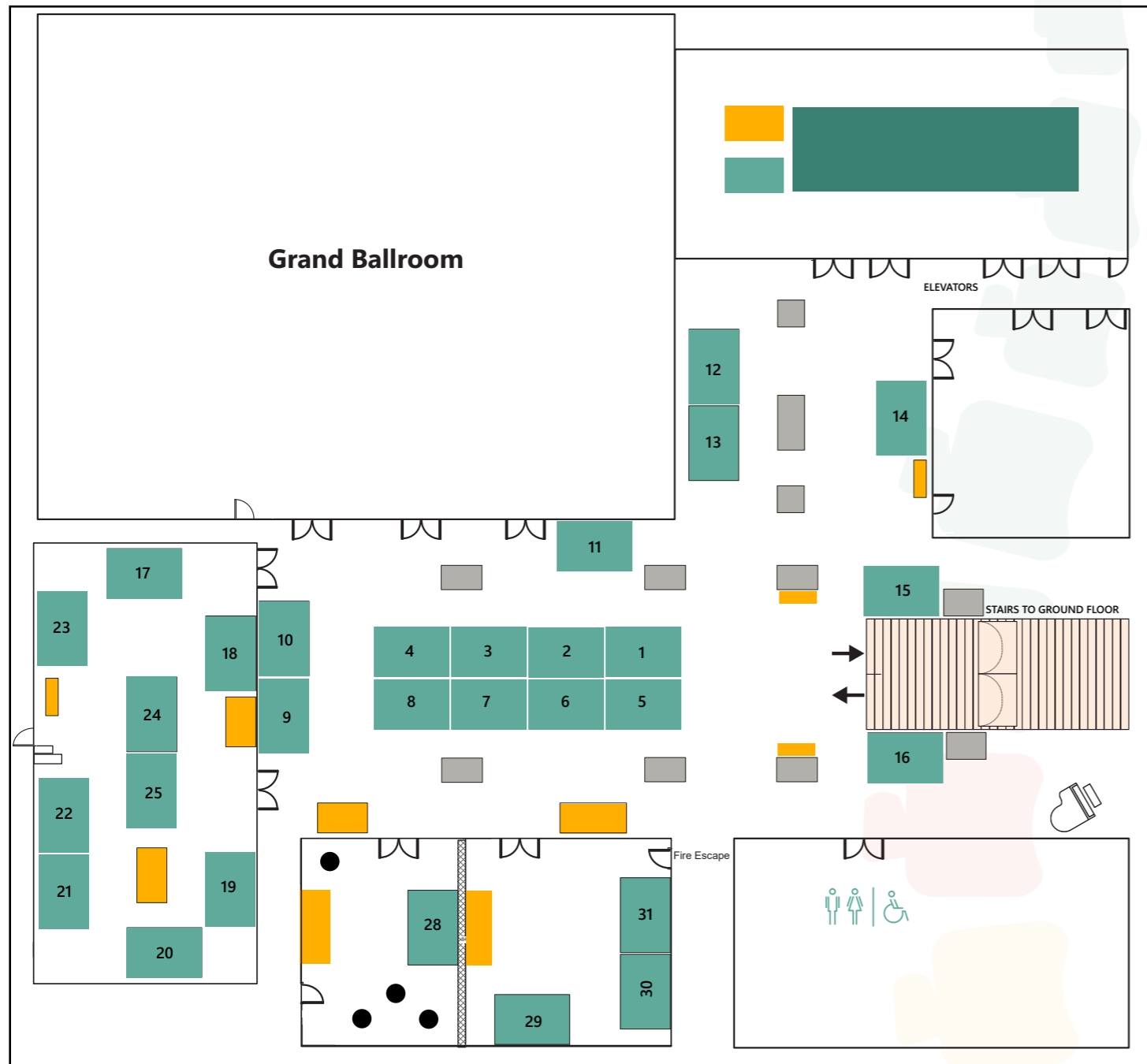
I hope you enjoy our hospitality, the true beauty of Cape Town and this world-class event.
Kind regards

Prof Ian Vlok
ISSLS Local Host 2026
President South African Spine Society

FLOOR PLANS

FLOOR PLANS

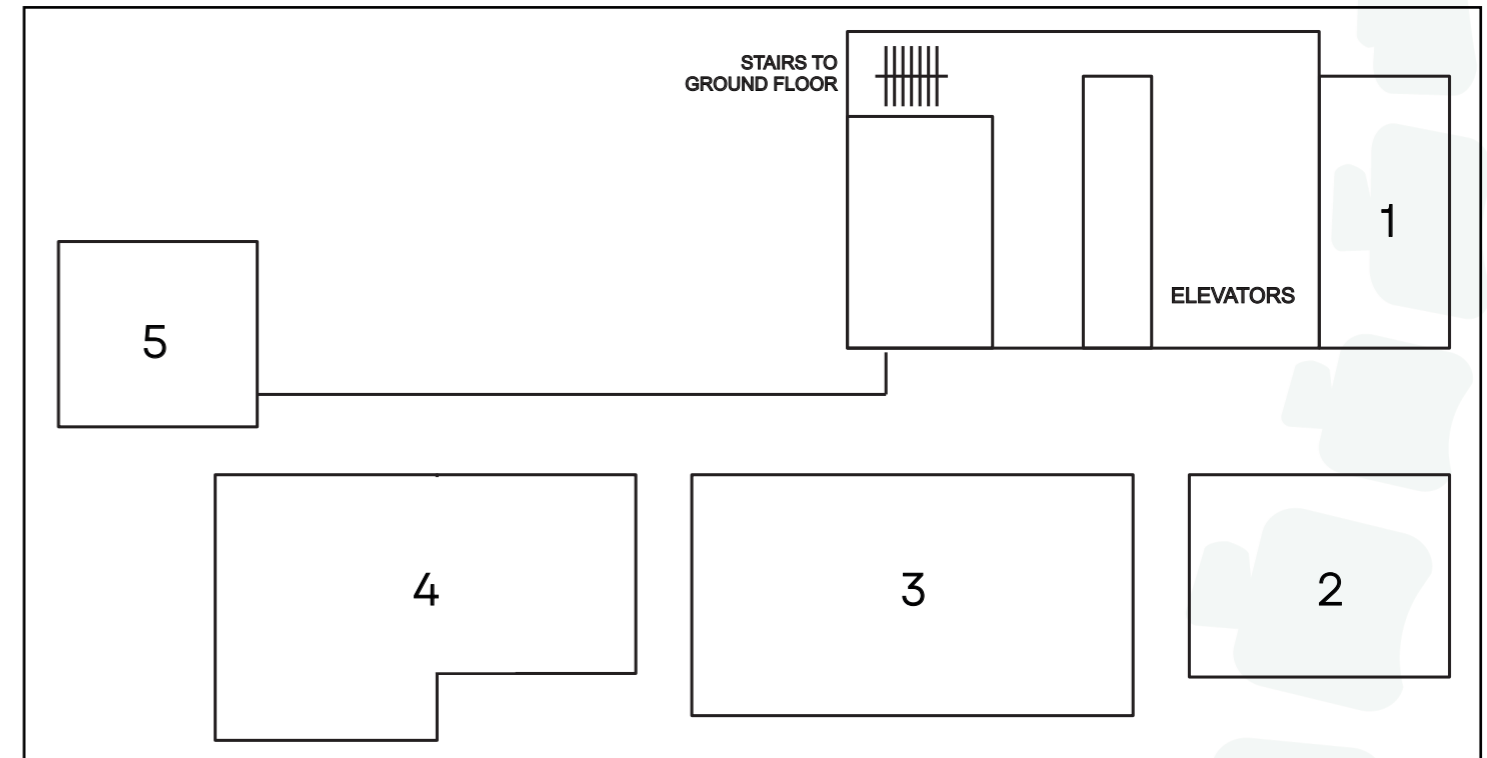
OLD HARBOUR LEVEL



Exhibitors

- | | | |
|-------------------------|-----------------------|---------------------|
| 01 QSurgical | 11 Prime Surgical | 21 SNT |
| 02 Royal Ortho | 12 Globus Medical | 22 Hicren |
| 03 Royal Ortho | 13 Globus Medical | 23 Anstem |
| 04 Creatori Health | 14 TecMed | 24 Vertice |
| 05 Intamed | 15 Tara Healthcare | 25 Vertice |
| 06 Ziehm | 16 Kingfisher Medical | 28 Bone SA |
| 07 Elite Surgical | 17 Medtronic | 29 AOS South Africa |
| 08 Southern Medical | 18 Baxter | 30 Zeiss |
| 09 Pinnacle Innovations | 19 Saspine | 31 Zeiss |
| 10 Pinnacle Innovations | 20 DISA Life Sciences | |

MEZZANINE LEVEL



- 1 MARION ISLAND
- 2 DASSEN ISLAND
- 3 ROBBEN & SEAL ISLAND
- 4 PRINCE EDWARD & SCHAPPEN ISLAND
- 5 RALEIGH'S BAR

LOBBY: REGISTRATION DESK

MEZZANINE LEVEL: POSTER AREA & FOCUS GROUP MEETINGS

OLD HARBOUR LEVEL: EXHIBITION AREA & MEETING



09:00 – 16:00 **Focus Group Meetings**

09:00 - 12:00

Focus Group Meeting 1

Robben & Seal
Island

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

09:00 - 12:00

Focus Group Meeting 2

Prince Edward &
Schappen Island

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)

13:00 - 16:00

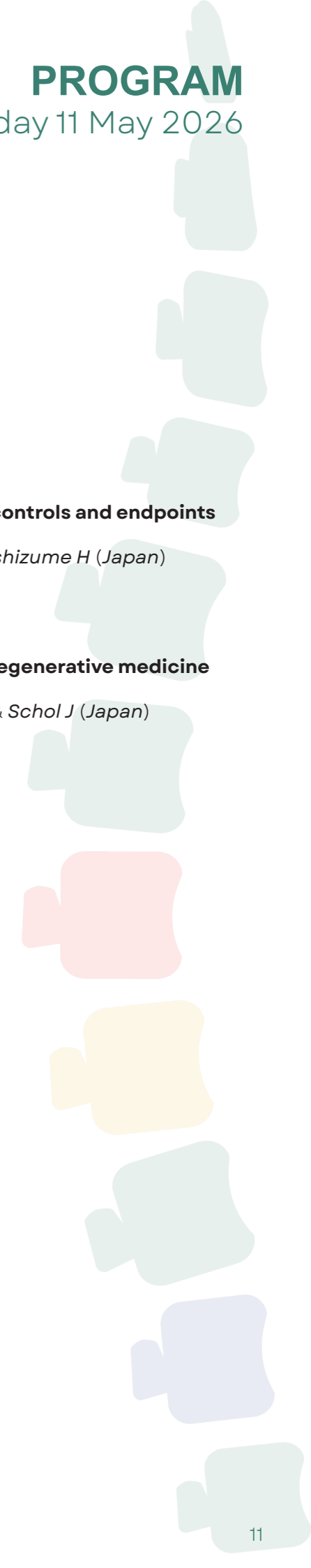
Focus Group Meeting 3

Robben & Seal
Island

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)

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		Chairs: Yong Hai & Daisuke Sakai
08:00	0001	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	0002	Immunosenescence regulates endplate degeneration via THBS1 secretion from NDR2low macrophages <i>Kong X, Chen J, Shan Z, Zhao F (China)</i>
08:10	0003	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	0004	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	0005	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	0006	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		Chairs: Peter Robertson & Gianluca Vadalà
09:00	0007	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	0008	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	0009	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	0010	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	0011	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 TA, Aaen J, Franssen E, Banitalebi H (Norway & Sweden)</i>
09:40	0012	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
Exhibition area		
10:20 – 11:20		Session 3: Innovative technologies in lumbar spine care
Grand Ballroom		Chairs: Robert Gunzburg & Noah Bonnheim
10:20	0013	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	0014	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	0015	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	0016	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	0017	Incorporating uncertainty in predicting clinically meaningful improvement after spine surgery using Monte Carlo conformal prediction <i>Cina A, Galbusera F (Switzerland)</i>
11:00	0018	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 **Symposium: Artificial Intelligence in spine: Revolution or risk?**

Grand Ballroom

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
Exhibition area
Lunch Break

13:05 – 14:05 **Session 4: Best Paper Award I**

Grand Ballroom

Chairs: Dino Samartzis & Nam Vo

13:05 O019 **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 O020 **Quantitative changes in the nucleus pulposus of normal appearing lumbar intervertebral discs during childhood**
Sharma A, Lund T, Whiteman A (USA & Finland)

13:15 O021 **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 O022 **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 O023 **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 O024 **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 **Session 5: Best Paper Award II**

Grand Ballroom

Chairs: Marc-Antoine Rousseau & Nobuyuki Fujita

14:05 O025 **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 O026 **Validated intraoperative bleeding severity scale (VIBe) for hemostasis assessment in lumbar spinal fusion: A prospective, randomized controlled trial**
Shin JW, Park SR, Kwon JW, Park SY, Park JO, Suk KS, Moon SH, Kim HS, Lee BH (Korea)

14:15 O027 **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 O028 **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 O029 **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 TÅ, Austevoll IM, Brisby H, Hermansen E (Norway)

14:45 O030 **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 TÅ, Indrekvam K, Hellum C, Storheim K, Austevoll I, Banitalebi H, Hermansen E (Sweden & Norway)

14:50 Discussion

15:05
Exhibition area
Coffee Break

15:25 – 16:25 **Session 6: Epidemiology of low back pain and disc degeneration**

Grand Ballroom

Chairs: Teija Lund & Masatoshi Teraguchi

15:25 O031 **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 O032 **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 O033 **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 O034 **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	O035	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>
16:05	O036	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>
16:10		Discussion
16:25 – 17:25		Session 7: Outcomes and techniques in lumbar spine fusion Chairs: Ian Vlok & Fabio Galbusera
16:25	O037	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>
16:30	O038	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>
16:35	O039	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>
16:40		Discussion
16:55	O040	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>
17:00	O041	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>
17:05		Discussion
17:25 – 18:25		First Business Meeting (Members only)
		Grand Ballroom

07:00 – 08:00		Special Poster Session 1: Basic Science Chairs: Sibylle Grad & Raphaël Vialle
07:00	SP1-1	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>
07:10	SP1-2	ZDHHC8 regulates VDAC1 palmitoylation to modulate mitochondrial metabolic homeostasis in nucleus pulposus <i>Wei X, Chen J, Zhao F (China)</i>
07:20	SP1-3	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>
07:30	SP1-4	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>
07:40	SP1-5	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>
07:50	SP1-6	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>
07:00 – 08:00		Special Poster Session 2: Biomechanics Chairs: Koji Akeda & Hans-Joachim Wilke
		Mezzanine Level - Foyer
07:00	SP2-1	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>
07:10	SP2-2	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>
07:20	SP2-3	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>
07:30	SP2-4	Paraspinal muscle quality in chronic low back pain: A systematic review and meta-analysis of muscle atrophy and fat infiltration <i>Kalli I, Marili N, Kazemi Naeini M, Freidin M, Thomas L, Menni C, Williams F (UK & Italy)</i>
07:40	SP2-5	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>

07:50 SP2-6 **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**
Margraf H, Domokos B, Domokos J, Alfen F, Raschka C, Spang C (Germany)

07:00 – 08:00 Special Poster Session 3: Epidemiology
 Chairs: Hiroshi Hashizume & John Popovich
 Robben & Seal Island

07:00 SP3-1 **Trends in healthcare utilization, prescribed medication, and work-productivity loss for spinal disorders: A nationwide cohort study from 2008 to 2021**
Grotle M, Zouch JH, Bråten LCH, Gjefsen E, Storheim K, Zwart JA, Pripp AH, Kjørnø LG, Magnusson K, Rysstad T, Berg B (Norway & Australia)

07:10 SP3-2 **Short bursts of fast walking reduce the risk of low back pain recurrence: A dose-response analysis of peak cadence**
Sun XJ, Zheng DKY, Zhang HY, Ng CYJ, Wong AYL, Ma TY (China)

07:20 SP3-3 **Association between training load, disc degeneration, and low back pain in elite cross-country skiers**
Aavikko A, Pesonen J, Ristolainen L, Murto N, Kautiainen H, Lund T (Finland)

07:30 SP3-4 **Decadal trends in the prevalence of MRI-defined lumbar spinal stenosis: Findings from the Wakayama Spine Study 2008-2018**
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)

07:40 SP3-5 **Paraspinal muscle degeneration predicts progression of adult spinal deformity: A 6-year longitudinal cohort study**
Nagata K, Hashizume H, Murata S, Asai Y, Teraguchi M, Iidaka T, Yoshimura N, Yamada H (Japan)

07:50 SP3-6 **Longitudinal investigation of the pathophysiology and relationships between progressive disc degeneration and sagittal alignment of the lumbar spine**
Rieger F, Roijackers A, Peek M, O'Riordan D, Dall'Ara E, Ignasiak D, Ferguson SJ, Haschtmann D, Galbusera F (Switzerland & United Kingdom)

07:00 – 08:00 Special Poster Session 4: Spine surgery
 Chairs: Marc-Antoine Rousseau & Ian Vlok
 Prince Edward & Schappen Island

07:00 SP4-1 **Radiographic characteristics and clinical implications of spino-pelvic sagittal alignment in double-level degenerative lumbar spondylolisthesis**
Cai X, Zhou Q, Sun X (China)

07:10 SP4-2 **Feasibility, usability, acceptability, and potential benefit of a personalised digital self-management intervention supporting workers with low back pain**
Chen M, Sparkes, V, Sheeran L (UK & China)

07:20 SP4-3 **Clinical outcomes of and risk factors for non-elective surgery for spinal metastases: A nationwide multicenter prospective study**
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)

07:30 SP4-4 **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**
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)

07:40 SP4-5 **Wrong-site surgery in lumbar spine operations: A nationwide analysis of 69 cases reported to the Japan Council for Quality Health Care**
Oshita Y, Okano I, Hirano T, Koyama S, Tsuchiya K, Hayakawa C, Hoshino Y, Kudo Y (Japan)

07:50 SP4-6 **From prediction to actionable intervention: An explainable AI framework for preventing adjacent segment disease using anchors and counterfactuals**
Feng Z, Hai Y (China)

08:15 – 09:15 Session 8: Modeling and biomechanics of lumbar spine
 Grand Ballroom
 Chairs: Raphaël Vialle & Hans-Joachim Wilke

08:15 O042 **Intervertebral disc distraction stiffness predicts endplate subsidence following transforaminal interbody cage expansion: An ex vivo study**
Raftery KA, Levy H, Singh R, Madi M, Slater TD, Crossman AJ, Kedgley AE, Freedman BA, Newell N (UK)

08:20 O043 **Large-cohort finite element simulation of lumbar discs: Associations with back pain**
Nispel K, Lerchl T, Kirschke JS (Germany)

08:25 O044 **Lumbar spinal kinematics and loading adjacent to single-level surgical stabilization differ between standard loading conditions and muscle force simulation**
Remus R, Liebsch C, Ritter M, Selkmann S, Neumann M (Germany)

08:30 Discussion

08:45 O045 **Quantitative CT is superior to MRI-based bone quality for predicting vertebral compression strength**
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)

08:50 O046 **Associations between spinal balance parameters and loads during standing and trunk motion in patients with lumbar spinal stenosis**
Caimi A, Alaimo G, Simona J, Koch D, Netzer C, La Barbera L, Nüesch C, Mündermann A, Ferguson SJ, Ignasiak D (Switzerland & Italy)

08:55 O047 **Asymptomatic aging disc mechanics from in vivo human MRI**
Newman HR, Peloquin JM, Vresilovic EJ, Elliott DM (USA)

09:00 Discussion

09:15 Coffee Break
 Exhibition area

09:45 **The Harry Farfan Presidential Lecture - From Para to Dakar**
 Grand Ballroom
 Joey Evans
 Chair: Yong Hai

10:30 **Presidential Lecture - Bridges of evidence: Harmonizing clinical evolution with a global scientific future**
 Grand Ballroom
 Yong Hai
 Chair: Daisuke Sakai

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

Grand Ballroom Chairs: Gianluca Vadalà & Seong Yi

11:05 O048 **Risk factors for recurrent lumbar disc herniation after unilateral bi-portal endoscopy (UBE): A retrospective study**
Zhang Y, Hai Y (China)

11:10 O049 **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 O050 **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 O051 **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 O052 **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 O053 **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

12:00 Lunch Break

Managing of challenging cases

Chair: Seroto Paseka

13:00 **Paediatric Cervical Spine Trauma**
Vlok I.

13:45 **Thoracic Ventral Dural Defect**
Vlok I.

14:30 **Cervical intradural Cyst - Novel management**
Vlok I.

15:15 Case reports & case discussions

15:15 – 16:15 Second Business Meeting (Members only)

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

Grand Ballroom Chairs: Gen Inoue & Jambuladinne Naresh-Babu

08:00 O054 **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 O055 **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 O056 **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 O057 **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 O058 **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 ISSLS Prize Papers

Grand Ballroom Chairs: Helena Brisby & Hans-Joachim Wilke

08:50 Introduction by Helena Brisby

08:53 O059 **Early markers of mechanical intervertebral disc degeneration of whole bovine discs loaded in a multiaxial bioreactor**
Kubincova B, Muerner M, Ma J, Mueller J, Šećerović A, Farshad M, Grad S (Switzerland & Denmark)

09:05 O060 **Data-driven classification of lumbar spine degeneration trajectories in chronic low back pain**
McSweeney TP, Akkaya Z, Zhou J, Wu PH, Bonnheim NB, Link TM, Karppinen J, Lotz JC, Saarakkala S, Fields AJ, Tiulpin A (Finland, Turkey & USA)

09:17 O061 **Hidden in plain sight: Machine learning-assisted MRI reveals novel vertebral body biomarkers of chronic low back pain in humans**
Ng CYJ, Armani N, Sun X, Pinto SM, Samartzis D, Wong AYL (China)

09:30 Coffee Break
Exhibition area

10:00 – 11:00		Session 11: Molecular mechanisms of intervertebral disc degeneration
Grand Ballroom		Chairs: Jeffrey Lotz & Sibylle Grad
10:00	O062	Obesity associated adipose secretomes reprogram human nucleus pulposus cells toward inflammation and catabolism <i>Ruiz-Fernandez C, Schol J, Soma H, Sakai D, Sato M, Watanabe M (Japan)</i>
10:05	O063	Low-magnitude high-frequency vibration drives catabolic remodeling in human intervertebral disc independently of Piezo1 <i>de Roy L, Goerlich C, Schoppa A, Haffner-Luntzer M, Ignatius A, Neidlinger-Wilke C, Teixeira GQ (Germany)</i>
10:10	O064	D-allose attenuates intervertebral disc degeneration by restoring mitophagy and inhibiting the cGAS-STING-ADM2 Axis <i>Zhao Z, Liu H, Li Z, Zheng Z, Wang J (China)</i>
10:15		Discussion
10:30	O065	How does mechanical loading influence disc swelling? An in vitro study <i>Greiner-Perth AK, Liebsch C, Unseld H, Wilke HJ (Germany)</i>
10:35	O066	Proteomic atlas of notochordal cell-derived extracellular vesicles uncovers a functional protein corona affecting regenerative signaling pathways <i>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)</i>
10:40	O067	A longitudinal single-cell transcriptomic atlas of MRSA-induced intervertebral infection reveals time-dependent nucleus pulposus subtypes and fibrotic trajectories <i>Guan M, Chu GY, Liu T, Hu YH, Wang Y (China)</i>
10:45		Discussion
11:00 - 12:00		Session 12: Advanced imaging of lumbar spine structure
Grand Ballroom		Chairs: James Kang & Aseem Sharma
11:00	O068	Two distinct pathological pathways in ligamentum flavum hypertrophy: Collagen accumulation and amyloid deposition revealed by two-photon imaging <i>Ikuta M, Furuya M, Seno'o S, Shinyashiki K, Kanie Y, Fujimori T, Okada S (Japan)</i>
11:05	O069	T1ρ MRI relaxation times are sensitive to aggrecan cleavage independent of proteoglycan content <i>Bonnheim N, Veres J, Han M, Li L, Habib M, Barylak J, Haglund L, Fields A (USA)</i>
11:10	O070	Evolution of Pfirrmann grades of the lumbar intervertebral discs during childhood <i>Sharma A, Lund T, Whiteman A (USA & Finland)</i>
11:15		Discussion
11:30	O071	Radiomics of discs and vertebrae reveal MRI tissue patterns related to dural sac area <i>Waldenberg C, Hermansen E, Hebelka H, Banitalebi H, Brisby H, Indrekvam K, Lagerstrand K (Sweden & Norway)</i>

11:35	O072	Twenty-year natural course of lumbar modic changes in a community cohort: Comparative MRI data from 2004 to 2025 <i>Fukuda Y, Watanabe K, Otani K, Sekiguchi M, Kobayashi H, Endo Y, Matsumoto Y (Japan)</i>
11:40	O073	Age-related changes in lumbar intervertebral disc height distribution: regional quantitative analysis using 3D-CT data in healthy subjects <i>Suzuki Y, Akeda K, Kurata R, Ohara K, Takegami N, Inoue N, Hasegawa M (Japan & USA)</i>
11:45		Discussion
12:00		Lunch Break
Exhibition area		
13:00 – 13:40		Fellowship Award Ceremony
Grand Ballroom		Chair: Daisuke Sakai
13:00		Wiltse Lifetime Achievement Award Introduction & Presentation 1
13:10		Basic Science Research Grant
13:18		Clinical Science Research Grant
13:26		Clinical Travelling Fellowship
13:34		Young Investigator Travel Grant Winners
13:40 – 14:40		General Poster Session
Mezzanine level		
14:10		Coffee Break
Exhibition area		
14:40 – 14:55		Focus Group Reports
Grand Ballroom		
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 Chairs: Jeannie Bailey & Takashi Yurube

- 14:55 O074 **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 O075 **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 O076 **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 O077 **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 O078 **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 O079 **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 Chairs: Giovanni Barbanti Brodano & Xu Sun

- 15:55 O080 **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 O081 **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 O082 **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 O083 **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 O084 **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 O085 **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 Third Business Meeting (Members only)

Grand Ballroom

19:00 Conference Dinner

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

Grand Ballroom Chairs: Nam Vo & Noah Bonnheim

- 07:00 SP5-1 **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 SP5-2 **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 SP5-3 **Does charged particles radiation therapy matter in the management of intralaminar 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 SP5-4 **The Davis Bucket-Handle Technique: A Level-sparing approach for high-grade lytic L5-S1 spondylolisthesis**
Neethling W, Vlok AJ, Mann TN, Buys T, Davis JH (South Africa)
- 07:40 SP5-5 **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 SP5-6 **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 Special Poster Session 6: Imaging

Mezzanine Level - Foyer Chairs: Gianluca Vadalà & Helena Brisby

- 07:00 SP6-1 **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 SP6-2 **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 SP6-3 **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 SP6-4 **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 SP6-5 **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 SP6-6 **Assessment of static pelvic parameters according to ethnicity: cohort analysis of 500 computed tomography scans**
Baker J (New Zealand)

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

Robben & Seal Island Chairs: Jeannie Bailey & Paul Hodges

- 07:00 SP7-1 **Prospective evaluation of an AI-powered mobile system for outpatient low back pain care: A single-institution experience**
Zhang T (China)
- 07:10 SP7-2 **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 SP7-3 **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 SP7-4 **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 SP7-5 **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 SP7-6 **Patients' experiences of real-time group telerehabilitation for chronic low back pain - An interview study**
Sivertsson J, Sernert N, Brisby H, Hebelka H, Lagerstrand K, Ahlund K (Sweden)

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

Prince Edward & Schappan Island Chair: Masahiro Ozaki

- 07:00 SP8-1 **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 SP8-2 **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 SP8-3 **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 SP8-4 **Clinical effectiveness and long-term durability of repositioned laminoplasty for lumbar spinal stenosis**
Masuda K, Kumakawa T, Morita E, Higashikawa A, Kobayashi Y, Sasaki K, Hirai S (Japan)
- 07:40 SP8-5 **Wrong-level spine surgery: A multicenter analysis of 34,544 consecutive cases**
Furuya M, Fujimori T, Takenaka S, Nagamoto Y, Matsumoto T, Takahashi Y, Iwasaki M, Kanie Y, Shinyashiki K, Okada S (Japan)
- 07:50 SP8-6 **Complete decompression of the articular segment in microscopic endoscopic laminotomy for lumbar degenerative spondylolisthesis can improve low back pain**
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)
- 08:15 – 09:15 Session 15: Anatomy, imaging, and clinical support system**
Grand Ballroom
Chairs: John Popovich & Kazuyuki Watanabe
- 08:15 O086 **Anatomical classification of fractures and factors influencing bone union in 155 cases of progressive adolescent lumbar spondylolysis**
Kitano T, Miyazaki S, Kroshima K, Hiranaka Y, Ryu M, Inoue S, Yurube T, Kakutani K, Tadokoro (Japan)
- 08:20 O087 **Two trajectories of lumbar disc degeneration from adolescence to adulthood: A 23-year longitudinal MRI study**
Lund T, Aavikko A, Ristolainen L, Kautiainen H, Lohman M, Schlenzka D (Finland)
- 08:25 O088 **Global shifts in pain management for low back pain in emergency departments: The impact of CDC opioid guidelines - A systematic review and meta-analysis**
Chan KCK, Ng JCY, Chang JR, Samartzis D, Wong AYL (China)
- 08:30 Discussion
- 08:45 O089 **Prevalence and associated factors of retro-renal colon in Japanese patients: A cross-sectional CT-based study**
Hirata H, Takeshita G, Toda Y, Yoshihara T, Tsukamoto M, Togao O, Morimoto T (Japan)
- 08:50 O090 **Effects of sustained locomotion training-based outpatient rehabilitation on the whole-spine sagittal alignment in locomotive syndrome: A 2-year prospective cohort study**
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)
- 08:55 O091 **Evaluation of an AI-enhanced mobile platform supporting home-based PSSE for mild adolescent idiopathic scoliosis: A prospective multicenter observational study**
Zhou J, Wu H, Wang L, Di D, Wang G, Dou H, Wang Y, Zhang T (China)
- 09:00 Discussion

- 09:15 – 10:15 Session 16: Integrative basic science of lumbar spine**
Grand Ballroom
Chairs: Chitra Dahia & Jordy Schol
- 09:15 O092 **Intervertebral disc stratification according to metabolic risk, based on personalized morphological modelling and chemo-mechanical simulations**
Muñoz-Moya E, Ruiz Wills C, Piella G, Noailly J (Spain)
- 09:20 O093 **Promoting intervertebral disc fusion using BMP2, L51P, and the EP4 agonist KMN159: Synergistic osteogenesis in human annulus fibrosus cells**
Chen S, Tian X, Zwingenberger S, Albers C E, Gantenbein B, Häckel S (Switzerland & Germany)
- 09:25 O094 **Neurovascular intervertebral disc system to investigate the role of endothelial cells on neurite outgrowth**
Ma J, Müller J, Serra T, Grad S (Switzerland)
- 09:30 Discussion
- 09:45 O095 **Antibiotic-loaded hyaluronic acid-tyramine hydrogel to prevent bacteria-mediated disc degeneration of herniated discs**
Menghini D, Kuhn E, Muerner M, Distler O, Farshad M, Grad S, D'Este M, Moriarty TF, Snedeker JG, Dudli S (Switzerland)
- 09:50 O096 **Can magnetic pulse improve spinal muscle quality and kyphosis under high mTORC condition - TSC1mKO mice model?**
Koh EL, Lam WMR, Zhuo W, Franco-Obregon A, Hey HWD (Singapore)
- 09:55 O097 **A meta-model of low back pain to examine expert knowledge of treatment effects and mechanisms**
Cholewicki J, Hodges PW, Popovich Jr JM (USA & Australia)
- 10:00 Discussion
- 10:10 Coffee Break
Exhibition area
- 10:45 – 11:40 Session 17: Muscle function and clinical outcomes in spine disorders**
Grand Ballroom
Chair: Paul Hodges
- 10:45 O098 **Chronicity and physical activity levels independently associate with spatial patterns of multifidus fat infiltration in chronic low back pain patients**
Khatab K, Dziesinski LK, Zhou J, Scheffler A, Fields A, O'Neill CW, Lotz JC, Bailey JF (USA)
- 10:50 O099 **Reduced paraspinal muscle fatigue is associated with greater global spinal imbalance in symptomatic lumbar spinal stenosis**
Koch D, Li S, Schären S, Ferguson SJ, Mündermann A, Nüesch C, Netzer C (Switzerland)
- 10:55 O100 **Targeted neurostimulation changes muscle fibre type composition of multifidus muscle in an animal model of intervertebral disc injury**
James G, Ahern BJ, Goodwin W, Goss B, Hodges PW (Australia & USA)
- 11:00 Discussion

- 11:15 O101 **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 O102 **European retrospective multicenter study in patients with vertebral metastases (Train-META STRA)**
Barbanti Brodano G, Lazary A, Verlaan JJ, Vajkoczy P, Intagliata M, Griffo ni C, Szita J, Harlianto N, Miller H, Moscato S, Santello A, Mellone S, Cristofolini L (Italy, Hungary, The Netherlands & Germany)
- 11:25 O103 **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 – 12:20**
Grand Ballroom **Session 18: Innovations and outcomes in lumbar spine treatment**
Chair: David Anderson
- 11:40 O104 **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 O105 **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 O106 **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 O107 **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 O108 **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)
- 12:40 – 12:50**
Closing Remarks
Jeffrey Lotz - Incoming ISSLS President

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The registration and help desk is located in the lobby of The Westin Hotel and will open daily from 7.00 hrs for the duration of the Meeting.

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The dress code for the Meeting and social events is smart casual.

Exhibition

We invite all participants to meet our industry partners and view their latest innovations and products. Companies will be available to meet with participants daily.



GENERAL INFORMATION

Speakers' corner

All speakers are requested to load their presentations on arrival, no later than two hours before the start of their session. The Speakers' corner is located at the back of the Grand Ballroom located on the Old Harbour Level.

Refreshments

Complimentary refreshments and lunches will be served in the exhibition area as stated in the program. We encourage delegates to interact and support the exhibitors during the breaks.

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