

PROGRAM

Monday 27 May 2024

9:00AM-12:00PM

Focus Group Meetings 1 & 2

ORIONE

Automated and human annotation of disc degeneration and other degenerative features; Definition of 'asymptomatic clinical status'

Host: Prof Jeremy Fairbank

ALFA

Surgical and non-surgical interventional treatments for sub-acute and chronic low back pain: an evidence review of up-to-date recommendations.

Host: A/Prof Steven J. Atlas, MD, MPH

1:00PM-4:00PM

Focus Group Meetings 3 & 4

ORIONE

International taskforce on diagnosis and management of lumbar spinal stenosis

Host: Dr Arnold Wong, PT PhD

ALFA

ISSLS phenotypes/precision spine focus group

Host: A/Prof Dino Samartzis

3:00PM

Registration Open

6:00PM-8:00PM

Welcome Reception

Event Foyer, Quark Hotel Milano

7:00PM

Registration Closes



50TH
ANNUAL
MEETING

PROGRAM

Tuesday 28 May 2024

7:00AM

Registration Open

7:45AM-8:00AM

Official Opening & Welcome

SCORPIO 📍

07:45

Welcome - Local Hosts: *Fabio Zaina & Stefano Negrini*

07:55

Program Chair Report: *Helena Brisby*

8:00AM-9:00AM

Main Program Session 1: Low Back Pain

Chairs: Kazuhiro Chibe
& Daisuke Sakai

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08:00

Describing available preoperative education methods and comparing outcomes for spinal fusion candidates: a cross-Canada study.

Eden A Richardson, Amanda Vandewint, Y. Raja Rampersaud, Jeffrey Hebert, Erin Bigney, Neil Manson, Chris Small, Rory McPhee, Jillian Kearney, Najmedden Attabib, Edward P Abraham (Canada) abs# MP-1a

08:05

Preoperative sleep disturbance and depression, in isolation and combined, are predictors of 12-month disability and pain after lumbar spine surgery.

Rogelio A Coronado, Jacquelyn S Pennings, Hiral Master, Carrie E Brintz, Keith R Cole, Joseph Helmy, Emily R Oleisky, Claudia Davidson, Amir M Abtahi, Byron F Stephens, Kristin R Archer (United States) abs# MP-1b

08:10

Association between new occurrence of modic changes and low back pain: 11-year follow-up Minami Aizu Study.

Kenji Kobayashi, Koji Otani, Miho Sekiguchi, Yoshihiro Matsumoto (Japan) abs# MP-1c

08:15

15 minute discussion

08:30

The association of hip muscle strength and asymmetry with functional performance and disability in individuals with chronic low back pain.

Sara R Piva, Mara A Hartoyo, Jaclyn M Sions, Charity G Patterson (United States) abs# MP-1d

08:35

Lumbar paraspinal muscles epimuscular fat is associated with intramuscular fat infiltration, BMI and low back pain in patients with back disorders.

Jacopo Vitale, Daniel Haschtmann, Mario Ropelato, Tamas Fekete, Frank Kleinstück, Markus Loibl, Fabio Galbusera (Switzerland) abs# MP-1e

08:40

An AI-based approach for automated paraspinal muscle analysis and disc identification in patients affected by low back pain.

Fabrizio Russo, Gianluca Vadalà, Giuseppe Francesco Papalia, Luca Ambrosio, Paolo Giaccone, Federico D'Antoni, Luca Vollero, Mario Merone, Rocco Papalia, Vincenzo Denaro (Italy) abs# MP-1f

08:45

15 minute discussion

9:00AM-10:00AM

**Main Program Session 2: Basic Science -
Cell, Signalling, Mechanotransduction**

Chairs: Cornelia Neidlinger-Wilke
& Miho Sekiguchi

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09:00

Alterations in nucleus pulposus oxygen, glucose and lactate concentrations in a preclinical goat model of disc degeneration.

Lachlan J Smith, Karthikeyan Rajagopal, Thomas P Schaer, Madeline Boyes, Rachel Hilliard, Kyle D Meadows, John C O'Donnell, George R Dodge, Dmitriy Petrov, Dawn M Elliott, Robert L Mauck, Neil R Malhotra (United States) abs# MP-2a

09:05

SHH and TBXT as target biomolecules to regenerate intervertebral disc tissue: lessons learned from extracellular vesicles.

Chantel Voskamp, A. Varela-Moreira, D. Corraini, J. C. van Maanen, F.M. Riemers, G.G.H. van den Akker, T.J.M. Welting, M.A. Tryfonidou (Netherlands) abs# MP-2b

09:10

Differentiation of hiPSCs into notochordal cells identifies the role of histone lysine demethylase (KDMs) as a regulator of notochordal differentiation.

Martha Elena Diaz Hernandez, Shizumasa Murata, Kimihide Murakami, Sreekala Shenoy, Nazir M Khan, Hicham Drissi (United States) abs# MP-2c

09:15

15 minute discussion



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- 09:30** Investigating the effects of stiffness and topography on TRPV4 activation in AF mechanotransduction.
Mikkael Lamoca, Johannes Hasler, Gabbie Wagner, Karin Wuertz (United States) abs# MP-2d
- 09:35** Selective RNA interference of RAPTOR/mTORC1 effectively alleviates degenerative disc disruption and also improve degenerated disc microenvironment in a rat tail temporary static compression model.
Naotoshi Kumagai, Takashi Yurube, Masao Ryu, Yoshiki Takeoka, Yutaro Kanda, Takeru Tsujimoto, Hiroki Ohnishi, Tomoya Matsuo, Kohei Kuroshima, Yoshiaki Hiranaka, Kunihiko Miyazaki, Ryosuke Kuroda, Kenichiro Kakutani (Japan) abs# MP-2e
- 09:40** Single-cell understanding of intervertebral disc degeneration yields new treatment strategies.
Marianna A Tryfonidou, Deepani W Poramba-Liyanage, Peter Zeller, Xiaole Tong, Frank M Riemers, Frances C Bach, Björn Meij, Anne Camus, Danny Chan, Alexander van Oudenaarden (Netherlands) abs# MP-2f
- 09:45** 15 minute discussion
- 10:00AM-10:30AM** Coffee Break
- 10:30AM-11:30AM** **Main Program Session 3: Surgical Outcomes** Chair: Teija Lund
SCORPIO 📍
- 10:30** Early lumbar interventions after presentation to the emergency setting: A comparison of post-operative outcomes.
Alex K Miller, Ethan Dimock, Daniel Park (United States) abs# MP-3a
- 10:35** Assessing the association of post-operative patient portal messaging with hospital readmission after lumbar spine surgery.
Theresa L Chua, Andreea R Lucaciu, David N Bernstein, Daniel G Tobert (United States) abs# MP-3b
- 10:40** Latent facet joint cyst after lumbar decompression surgery: Its impact on postoperative outcomes and its course.
Takahiro Tsutsumimoto, Toshimasa Futatsugi (Japan) abs# MP-3c
- 10:45** 15 minute discussion
- 11:00** The impact of prior arthroplasty on the Oswestry Disability Index and patient satisfaction two years after lumbar surgery.
Paul Köhli, Jan Hambrecht, Erika Chiaparelli, Krizia Amoroso, Jiaqi Zhu, Ali Guven, Gisberto Evangelisti, Marco Burkhard, Koki Tschuchiya, Roland Duculan, Jennifer Shue, Carol A Mancuso, Andrew A Sama, Frank P Cammisa, Federico P Girardi, Alexander P Hughes (United States) abs# MP-3d
- 11:05** Outcome prediction following lumbar disc surgery (OPtiDisc): A longitudinal study of outcome trajectories, prognostic factors, and risk models.
Erin Bigney, Jeffrey Hebert, Neils Wedderkopp, Sarah Nowell, Amanda Vandewint, Neil Manson, Edward P Abraham, Chris Small, Najmedden Attabib (Canada) abs# MP-3e
- 11:10** What happened to patients who received the charite lumbar artificial disc?
Donna D Ohnmeiss, Scott L Blumenthal, Richard D Guyer, Jessica L Shellock, Jack E Zigler (United States) abs# MP-3f
- 11:15** 15 minute discussion
- 11:30AM-12:15PM** **Symposium 1:** Chairs: Lisbet Haglund & Dino Samartzis
SCORPIO 📍
ORS-ISSLS Joint Symposium on Low Back Pain - Understanding Mechanisms, Animal Models and Patient Management
- Lars Arendt-Nilsen, MD, PhD - Aalborg University Hospital (Denmark)
- Laura Stone, PhD - Department of Anesthesiology, University of Minnesota (USA)
- Jaro Karppinen, MD, PhD - Oulu University (Finland)



PROGRAM

Tuesday 28 May 2024
continued

12:15PM-1:00PM

Lunch

1:00PM-2:00PM

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Main Program Session 4: Best Paper Award I

Chair: Gianluca Vadala

13:00

Immediate postoperative decrease in Hounsfield unit values at adjacent vertebral levels after long thoracolumbar fusion with pelvic fixation as a risk factor of proximal junctional kyphosis.

Koki Tsuchiya, Ichiro Okano, Yusuke Dodo, Chikara Hayakawa, Ryo Yamamura, Taiki Yasukawa, Toshiyuki Shirahata, Yoshifumi Kudo (United States) **abs# MP-4a**

13:05

Is spinal osteotomy associated with decreased life expectancy? - A nationwide population-based study.

Jae-Won Shin, Ju-Hyoung Park, Si-Young Park, Sang-Ho Kim, Hak-Sun Kim, Kyung-Soo Suk, Seong-Hwan Moon, Byung-Ho Lee, Ji-Won Kwon, Joong-Won Ha, Yung Park, Woo-Seok Jung (Japan) **abs# MP-4b**

13:10

The Ontario rapid access clinics – low back pain (RAC-LBP) interprofessional assessment and education program: Pilot to full-scale success story.

Y. Raja Rampersaud, Marcia Correale, Samra Mian-Valiante, Kelly Lane, Silvi Groe (Canada) **abs# MP-4c**

13:15

15 minute discussion

13:30

Chronic low back pain (CLBP) causal risk factors: A preliminary analysis of the backhome cohort.

Conor O'Neill, Patricia Zheng, Aaron Scheffler, Susan Ewing, Trisha Hue, Wolf Mehling, Jeffrey Lotz (United States) **abs# MP-4d**

13:35

A prospective longitudinal study to identify the modifiable determinants of walking in older adults after surgery for neurogenic claudication.

Suzanne McIlroy, Lindsay Bearne, John Weinmann, Sam Norton (United Kingdom) **abs# MP-4e**

13:40

Exploring the efficacy, feasibility and optimal training parameters for running in adults with non-specific chronic low back pain: The asteroid randomised controlled trial.

Christopher Neason, Claire L Samanna, Daniel L Belavy, Steven J Bowe, Matthew J Clarkson, David Conell, Romina Gollan, Emma A Craige, Luana C Main, Clint T Miller, Ulrike H Mitchell, Niamh L Mundell, David Scott, Scott D Tagliaferri, Jamie L Tait, Grace E Vincent, Patrick J Owen (Australia) **abs# MP-4f**

13:45

15 minute discussion

2:00PM-3:00PM

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Main Program Session 5: Best Paper Award II

Chairs: Dawn Elliott
& Frances Williams

14:00

Discovery of circulating blood biomarkers in patients with and without lumbar modic changes.

Jaro Karppinen, Khaled Aboushaala, Ana Chee, Sheila J. Toro, Catherine Yuh, Rajko Vucicevic, Alejandro Espinoza Orias, Chundo Oh, Jake Dourdourekas, Ishani Patel, Lena Al-Harhi, Frank Phillips, Edward Goldberg, Matthew Colman, Frances Williams, Jeffrey Borgia, Stefan Green, Christopher Forsyth, Howard An, Dino Samartzis (United States) **abs# MP-5a**

14:05

Magnetic resonance spectroscopy biomarker of Modic changes with bacterial etiology.

Aaron J Fields, Jiamin Zhou, Po-Hung Wu, Noah B Bonnheim, Conor W O'Neill, Jeffrey C Lotz, Thomas M Link (United States) **abs# MP-5b**

14:10

Paraspinal muscle fibre structural & contractile characteristics demonstrate distinct irregularities in spinal degeneration & deformity patients.

Stephen H.M. Brown, Alex M. Noonan, Masoud Malakoutian, Iraj Dehghan-Hamani, Stephen Lewis, John Street, Thomas R. Oxland (Canada) **abs# MP-5c**

14:15

15 minute discussion



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14:30 **How is lumbar intradiscal pressure affected by disc degeneration, age, sex & level? Evaluation of an in vitro database comprising 107 human specimens.**
Christian Liebsch, Hans-Joachim Wilke (Germany) abs# MP-5d

14:35 **Epigenetic regulation of IL-4 promoter targeting p300 attenuating intervertebral disc degeneration and pain by inhibiting IL-1 β .**
Haowen Cui, Haitao Cui, Jianru Wang, Zhaomin Zheng (China) abs# MP-5e

14:40 **Increased HTRA1 generated fragment abundance in the degradome of modic type 1 discs.**
Tamara Mengis, Bernd Roschitzki, Irina Heggli, Nick Herger, Mazda Farshad, Oliver Distler, Stefan Dudli (Switzerland) abs# MP-5f

14:45 15 minute discussion

3:00PM-3:30PM Coffee Break

3:30PM-4:30PM **Main Program Session 6: Surgery - Fusion**

Chairs: Kazuyuki Watanabe
& Daniel Haschtmann

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15:30 **Using machine learning to predict the likelihood of success after lumbar fusion.**
Paul Licina, Morteza Namvar, Patrick Beaumont (Australia) abs# MP-6a

15:35 **Surgical site infections following posterior lumbar fusion.**
Kasra Araghi, Tejas Subramanian, Tomoyuki Asada, Chad Z Simon, Olivia C Tuma, Yusef Jordan, Troy B Amen, Austin Kaidi, Gregory Kazarian, Eric Mai, Pratyush Shahi, Francis Lovecchio, Han Jo Kim, Sravisht Iyer, Sheeraz A Qureshi (United States) abs# MP-6b

15:40 **Effectiveness and safety of OLIF51 based on pre-registry data from proctor facilities in Japan.**
Sumihisa Orita, Yoshihisa Kotani, Takahiro Iida, Masato Tanaka, Mitsuru Takemoto, Shunsuke Fujibayashi, Kazuhide Inage, Seiji Ohtori (Japan) abs# MP-6c

15:45 20 minute discussion

16:05 **Hip osteoarthritis after spinal fusion surgery: a 5-year follow-up study.**
Takuhei TK Kozaki, Takahiro TK Kozaki, Hiroshi HH Hashizume, Dino DS Samartzis, Howard HA An, Mamoru MK Kawakami, Hiroshi HY Yamada (Japan) abs# MP-6d

16:10 **Anterior lumbar interbody fusion for the treatment of failed transforaminal lumbar interbody fusion.**
Donna D Ohnmeiss, Richard D Guyer, Jessica L Shellock, Om J Neeley, Alexander M Satin (United States) abs# MP-6f

16:15 15 minute discussion

4:30PM-5:30PM **Symposium 2: ISSLS at 50 - Evolution**

Chairs: Kazuhiro Chibe
& Daisuke Sakai

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16:30 **Foundation of ISSLS**
Gunnar Andersson
*The Ronald L DeWald Professor and Chairman Emeritus
Orthopedic Surgery, Rush University (USA)*

Evolution of ISSLS Perspectives

16:50 **Europe**
Jiří Dvořák, MD, PhD
*Consultant to the board & Neurology, Spine Unit
Schulthess Hospital (Zurich)*

17:00 **North America**
James Kang, MD
*Chair, Department Of Orthopaedic Surgery
Brigham and Women's Hospital (Boston)*

17:10 **Australia, Hong Kong,
Singapore, India**
Peter Robertson, MB ChB, FRACS
*Orthopaedic Surgeon, Department of Orthopaedic Surgery
Mercy Specialist Hospital, Auckland (New Zealand)*

17:20 **Japan, Korea, China**
Seiji Ohtori, MD, PhD
*Chairman and Professor, Department of Orthopaedic Surgery
Graduate School of Medicine, Chiba University, (Japan)*



PROGRAM

Wednesday 29 May 2024

7:15AM Registration Open

7:45AM-8:45AM

ZENITH 

Special Poster Sessions 1 - 5

Session 1: Basic Science - Cells

Chairs: Benjamin Gantenbein
& Nam Vo

- 07:45 **Toll-like receptor 2 signaling of cartilage endplate cells amplifies inflammation in Modic type 1 changes.**
Tamara Mengis, Laura Bernahrd, Nick Herger, Irina Heggli, Jan Devan, Mazda Farshad, Oliver Distler, Stefan Dudli (Switzerland) **abs# SP-1a**
- 07:55 **An extra-erythrocyte role of haemoglobin body in hypoxia adaption of cell clusters in intervertebral discs.**
Fengdong Zhao, Bao Huang (China) **abs# SP-1b**
- 08:05 **Proteomic evaluation of age-related signalling pathways in the intervertebral disc and notochordal cell matrix niche.**
Kieran Joyce, Lisanne Laagland, Frank Riemers, Isma Liza Mohd Isa, Marianna A Tryfonidou, Abhay Pandit (Ireland) **abs# SP-1c**
- 08:15 **Complex, dynamic, six-axis daily activity profiles create a more challenging environment for intervertebral disc cells than single-axis loading - an in vitro study using a whole-organ intervertebral disc culture model.**
Timothy P Holsgrove, Isabelle Ebisch, Daniela Lazaro-Pacheco, Justin Cooper-White, Dominic J Farris (United Kingdom) **abs# SP-1d**
- 08:25 **Treatment of intervertebral disc cells with crispr modified MSC derived extracellular vesicles.**
Iker Martinez Zalbidea, Addisu Mesfin, Varun Puvanesarajah, Karin Wuertz (United States) **abs# SP-1e**
- 08:35 **Proteomics analysis assessment through a regulatory network model.**
Sofia Tseranidou, Maria Segarra-Queralt, Exarchos Kanelis, Paola Bermudez Lekerika, Leonidas Alexopoulos, Benjamin Gantenbein, Christine Le Maitre, Janet Piñero, Jérôme Noailly (Greece) **abs# SP-1f**

POLAR 

Session 2: Biomechanics

Chairs: John Costi
& Aaron Fields

- 07:45 **How does length of posterior fixation affect lumbar range of motion & intradiscal pressure? An in vitro study with entire thoracolumbar spine & rib cage specimens.**
Christian Liebsch, Peter Obid, Morten Vogt, Benedikt Schlager, Hans-Joachim Wilke (Germany) **abs# SP-2a**
- 07:55 **Effects of disc height & material properties on the metabolic transport in patient-specific intervertebral disc (IVD) morphologies.**
Zerihun G Workineh, Carlos W. Ruiz, Estefanos Muñoz-Moya, Jerome B. Noailly (Spain) **abs# SP-2b**
- 08:05 **Multiaxial fatigue in complex postures and subsequent failure mechanics.**
John J Costi, Michael P Russo, Daniel Ciric, Dhara B Amin (Australia) **abs# SP-2c**
- 08:15 **Cyclic tensile loading & IL-1 β stimulation interact to alter bovine caudal annulus fibrosus properties.**
Mitchel C Whittal, Sabrina I Sinopoli, Diane E Gregory (Canada) **abs# SP-2d**
- 08:25 **Impact of generic vs. subject-specific muscle parameters on spinal load prediction in musculoskeletal modelling.**
Nima Ashjaee, Sidney Fels, John Street, Thomas Oxland (Canada) **abs# SP-2f**



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Wednesday 29 May 2024
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7:45AM-8:45AM

URSA 📍

Special Poster Sessions 1 - 5

Chairs: TBC

Session 3: Surgery - Fusion

- 07:45** **Is ABO blood type a risk factor for adjacent segment degeneration after lumbar spine fusion?**
Arnold Wong, Dustin Massel, Samuel Rudisill, Alexander Hornung, Cameron Kia, Karan Patel, KHALED ABOUSHAALA, Mbagwu Chukwuemeka, Juan Barajas, Michael Mallow, Sheila J. Toro, Rahul Gawri, Philip K. Louie, Frank Phillips, Howard S. An, Dino Samartzis (United States) **abs# SP-3a**
- 07:55** **Sexual dysfunction and retrograde ejaculation after primary anterior lumbar interbody fusion in male patients: a survey on 98 patients.**
Elena Albertazzi, Timo Dennier, Yael Rachamin, Peter Diel, Lukas Kouba, Lorin M Benneker, Emin Aghayev, Paul Heini (Switzerland) **abs# SP-3b**
- 08:05** **Mid-term surgical outcomes of posterior lumbar interbody fusion for lumbar spondylolisthesis with diffuse idiopathic skeletal hyperostosis.**
Masahiro Ozaki, Satoshi Suzuki, Toshiki Okubo, Kazuki Takeda, Osahiko Tsuji, Narihito Nagoshi, Morio Matsumoto, Masaya Nakamura, Kota Watanabe (Japan) **abs# SP-3c**
- 08:15** **Comparison of complications, revisions, spinopelvic parameters, and health-related quality of life after posterior spinal fusion using multiple-rod constructs or two-rod constructs for adult spinal deformity: a systematic review and meta-analysis.**
Zhangfu Li, Honghao Yang, Yong Hai (China) **abs# SP-3d**
- 08:25** **Determinants of cage migration following posterior lumbar interbody fusion.**
Hyung-youl Park, Niabari Brownson, Myung Sup Ko, Young il Ko, Young-Hoon Kim (South Korea) **abs# SP-3e**
- 08:35** **Dural sac cross-sectional area measurement for predicting Cauda Equina Syndrome in lumbar disc herniation patients.**
Soo-Bin Lee, Su-Il Jung, Kyung-Yil Kang (South Korea) **abs# SP-3f**

TROPIC 📍

Session 4: Scoliosis, Deformity, Complex Surgery

Chair: Kentaro Yamada

- 07:45** **Personalised digital planning & precise execution for severe & complex adult spinal deformity surgery using three-dimensional technique.**
Yong Hai, Lijin Zhou, Yangpu Zhang, Yiqi Zhang, Honghao Yang (China) **abs# SP-4a**
- 07:55** **Utility of MRI-based & CT-based vertebral BMD assessments for patients with diffuse Idiopathic skeletal hyperostosis.**
Xu Sun, Haojie Chen, Yu Wang, Bin Wang, Zezhang Zhu, Yong Qiu (China) **abs# SP-4b**
- 08:05** **Pelvic incidence & segmental lumbar vertebral body lordosis change with skeletal maturation.**
Joe Baker (New Zealand) **abs# SP-4c**
- 08:15** **Comparative study between teriparatide and denosumab on the prevention of proximal junctional kyphosis: Prospective, randomized controlled trial.**
Ho-Joong Kim, Jin-Ho Park (South Korea) **abs# SP-4d**
- 08:25** **Impact of age on the occurrence of vascular complications in patients undergoing anterior lumbar approach surgery.**
Donna D Ohnmeiss, Junyong Ahn, Emily C Courtois, Richard D Guyer (United States) **abs# SP-4e**
- 08:35** **Long-term outcomes of spine surgery in dialysis patients, focusing on activities of daily living, life expectancy, and the risk factors for postoperative mortality.**
Masayuki Furuya, Yukitaka Nagamoto, Shinya Okuda, Tomiya Matsumoto, Yoshifumi Takahashi, Shota Takenaka, Motoki Iwasaki, Yuya Kanie, Takahito Fujimori, Seiji Okada (Japan) **abs# SP-4f**



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Wednesday 29 May 2024
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7:45AM-8:45AM

SOLAR 📍

Special Poster Sessions 1 - 5

Session 5: Fracture

Chair: John Glaser

- 07:45 **Check Mobile Program for update**
abs# SP-5a
- 07:55 **Efficacy of early posterior percutaneous pedicle screw fixation for acute osteoporotic vertebral body fracture with posterior wall injury.**
Tepei Muramoto, Yoshiaki Yamanaka, Eiichiro Nakamura, Shinji Yamada, Akira Saho, Shuhei Yoshida, Takamsa Toyoshima, Akinori Sakai, Yasuaki Okada (Japan) abs# SP-5b
- 08:05 **Clinical & radiographic outcomes of conservative treatment of acute osteoporotic spinal fractures using different anabolic anti-osteoporotic agents: A retrospective analysis of prospectively designed cohort.**
Gang-Un Kim, Young-Il Ko, Joonghyun Ahn, Hyung-youll Park, Young-Hoon Kim (South Korea) abs# SP-5c
- 08:15 **Efficacy of anabolic agents on subsequent domino vertebral fracture, pseudoarthrosis, and vertebral collapse in patients with conservative treatment for osteoporotic vertebral fracture**
Keishi Maruo, Fumihito Arizumi, kazuya kishima, Tomoyuki Kusukawa, Masakazu Toi, Toshiya Tachibana (Japan) abs# SP-5d
- 08:25 **Malnutrition and spinal sagittal malalignment are risk factors for incidence of new vertebral fractures in osteoporotic patients.**
Yuji Yokozeki, Masayuki Miyagi, Akiyoshi Kuroda, Kousuke Murata, Sho Inoue, Tomohisa Koyama, Yusuke Mimura, Daisuke Ishii, Motoki Makabe, Gen Inoue, Masashi Takaso (Japan) abs# SP-5e
- 08:35 **Vertebral body vascularity associated with treatment strategy in pyogenic spinal epidural abscess: a simple assessment on routine MRI.**
Joe Baker, Baptiste Boukebous, Liam Petrie (France) abs# SP-5f

8:55AM-9:50AM

SCORPIO 📍

Main Program Session 7: Stenosis

Chairs: Masayuki Miyagi
& Robert Gunzburg

- 08:55 **Real-world clinical accuracy of long cortical bone trajectory screw placement using a patient-specific template guide.**
Ryo Fujita, Itaru Oda, Hiroki Tanaka, Hirohito Takeuchi, Shigeki Ohshima, Hiroyuki Hasebe, Hiroyuki Ambo, Masanori Fujiya, Masahiko Takahata, Norimasa Iwasaki (Japan) abs# MP-7a
- 09:00 **Dural Sac Cross-sectional area change from preoperatively and up to 2 years after decompressive surgery for central lumbar spinal stenosis. - investigation of operated levels, data from the NORDSTEN study.**
Erlend EH Hermansen, Tor Åge TM Myklebust, Ivar Magne IMA Austevoll, Christian CH Hellum, Kjersti KS Storheim, Hasan HB Banitalebi, Kari KI Indrekvam, Helena HB Brisby (Norway) abs# MP-7b
- 09:05 **Clinical outcome of a randomized controlled trial for the treatment of lumbar spinal stenosis: The Uppsala Spinal Stenosis Trial (UPPSTEN).**
Konstantinos Pazarlis, Nikos Schizas, Bengt Sandén, Karl Michaëlsson, Peter Försth (Sweden) abs# MP-7c
- 09:10 15 minute discussion



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continued

- 09:25 **Age- and gender-related changes in diameter of the lumbar spinal canal: A cross-sectional analysis of 2220 patients with low back pain.**
Emel Ece Özcan-Ekşi, Murat Eksi, Fatma Topaloğlu, Nursena Tanriverdi, Arda Topçu, Uğur Öztaş, Sidar Yeşilyurt, Umut Duymaz, Fatima Abasova, Kumsal Kontaytekin, Jülide Hazneci, Ezel Yaltrık-Bilgin, Gürkan Berikol, Mahmoud Osama (Turkey) abs# MP-7d
- 09:30 **Assessment of lumbar spinal stenosis as a risk factor for development of sleep disorder: The Locomotive Syndrome and Health Outcome in Aizu Cohort Study (LOHAS).**
Hiroshi Kobayashi, Miho Sekiguchi, Koji Otani, Rei Ono, Takuya Nikaido, Kazuyuki Watanabe, Kinshi Kato, Yoshihiro Kobayashi, Shoji Yabuki, Shin-ichi Konno, Yoshihiro Matsumoto (Japan) abs# MP-7f
- 09:35 15 minute discussion
- 9:50AM-10:25AM Coffee Break
- 10:25AM-11:25AM **Main Program Session 8:**
Scoliosis and Deformity and Sagittal Alignment Chairs: Jon Lurie & Shoji Yabuki
SCORPIO
- 10:25 **What does proper postoperative Spinal Alignment mean? Which are the parameters that most correlate with outcome in Adult Spinal Deformity Correction? A machine learning approach.**
Pedro Berjano, Domenico Compagnone, Riccardo Cecchinato, Francesco Langella, Marco Damilano, Daniele Vanni, Andrea Redaelli, Claudio Lamartina (Italy) abs# MP-8a
- 10:30 **The effect of transpedicular injection of rhBMP-2 Injection on prevention of proximal junctional kyphosis.**
Ho-Joong Kim, Jin-Ho Park (South Korea) abs# MP-8b
- 10:35 **Exploring the missing link between sagittal alignment & PJK: Analysis of adjacent segment loads in a personalized musculoskeletal model.**
Dominika Ignasiak, Salvatore Conticello, Florian Rieger, Fabio Galbusera, Anne F Mannion, Frank Kleinstück, Tamas Fekete, Daniel Haschtmann, Dezső Jeszenszky, Sarah Richner-Wunderlin, Alba Vila-Casademunt, Ferran Pellisé, Ibrahim Obeid, Javier Pizones, Francisco J Sanchez Perez-Gruoso, Muhammed Ilkay Karaman, Ahmet Alanay, Caglar YILGOR, Stephen J Ferguson, Markus Loibl (Switzerland) abs# MP-8c
- 10:40 15 minute discussion
- 10:55 **More pronounced relative growth during pubertal growth spurt associated with advanced disc degeneration in early adulthood.**
Teija Lund, Leena Ristolainen, Hannu Kautiainen, Martina Lohman, Dietrich Schlenzka (Finland) abs# MP-8d
- 11:00 **Quantifying full spine paraspinal muscle volume, intramuscular fat and fat-free muscle (A)symmetry in Adolescent Idiopathic Scoliosis.**
Phoebe Duncombe, Taylor JM Dick, Phoebe Ng, Maree T Izatt, Peter Pivonka, Labrom Robert, Kylie Tucker (Australia) abs# MP-8e
- 11:05 **Predicting factors for achieving optimal brace compliance in Adolescent Idiopathic Scoliosis Treatment.**
Tomoyuki Asada, Toshiaki Kotani, Tsuyoshi Sakuma, Yasushi Iijima, Kotaro Sakashita, Yosuke Ogata, Tsutomu Akazawa, Shohei Minami, Seiji Ohtori, Masao Koda, Masashi Yamazaki (United States) abs# MP-8f
- 11:10 15 minute discussion



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Thursday 30 May 2024

7:30AM

Registration Open

8:00AM-9:00AM

Main Program Session 9: Metastases, Fracture

Chairs: Jan Van Meirhaeghe
& Koji Otani

SCORPIO 📍

08:00

Relationships between frailty and surgical outcomes of palliative surgery for spinal metastases.

Takeru Tsujimoto, Tomoya Matsuo, Takashi Yurube, Yoshiki Takeoka, Yutaro Kanda, Kunihiko Miyazaki, Hiroki Ohnishi, Masao Ryu, Naotoshi Kumagai, Kohei Kuroshima, Yoshiaki Hiranaka, Ryosuke Kuroda, Kenichiro Kakutani (Japan) **abs# MP-9a**

08:05

Frailty as a prognostic factor for survival in the elderly patients with spinal metastases: A prospective cohort study.

Yutaro Kanda, Tomoya Matsuo, Takashi Yurube, Takeru Tsujimoto, Yoshiki Takeoka, Kunihiko Miyazaki, Hiroki Ohnishi, Masao Ryu, Naotoshi Kumagai, Kohei Kuroshima, Yoshiaki Hiranaka, Ryosuke Kuroda, Kenichiro Kakutani (Japan) **abs# MP-9b**

08:10

An evaluation of prognostics scoring systems for survival in a surgically treated cohort of 318 patients.

Satyanarayan Naresh Kumar, Jiong Hao Tan, Si Jian Hui, Cherie Lin Hui Tan, Eugene Khye Gin Chua, James Hallinan, Yiong Huak Chan (Singapore) **abs# MP-9c**

08:15

15 minute discussion

08:30

Effects of orthotic treatment on fresh osteoporotic vertebral fractures -Propensity score matching test with and without braces.

Masayoshi Iwamae, Shinji Takahashi, Hidetomi Terai, Koji Tamai, Masatoshi Hoshino, Masayuki Umamo, YUTO KOBAYASHI, Ryo Sasaki, Masato Uematsu, Nagakazu Shimada, Hiroaki Nakamura (Japan) **abs# MP-9d**

08:35

The incidence and prognostic factors of delirium in elderly patients with osteoporotic vertebral fractures undergoing kyphoplasty.

Tomohiro Nakatani, Masakazu Minetama, Masatoshi Teraguchi, Masafumi Nakagawa, Yoshio Yamamoto, Sachika Matsuo, Nana Sakon, Ryota Hatanaka, Wakana Hatanaka, Tomoya Sakata, Seigo Kitaura, Yukihiko Nakagawa (Japan) **abs# MP-9e**

08:40

Evaluating the diagnostic utility of AI trained on axial and coronal CT scans for traumatic thoracolumbar spinal fractures.

Han-Dong Lee, Chang-Hoon Jeon, Nam-Su Chung, Hee-Woong Chung, Ki-Hoon Park, Jong-Min Jeon, Jin-Young Jun (South Korea) **abs# MP-9f**

08:45

15 minute discussion

9:00AM-9:40AM

ISSLS Prize Papers

Chairs: Helena Brisby
& Hans-Joachim Wilke

SCORPIO 📍

Introduction

09:00

Helena Brisby

ISSLS Prize Committee Chair

09:10

Superiority of nucleus pulposus cell- versus mesenchymal stromal cell-derived extracellular vesicles in attenuating disc degeneration and alleviating pain.

Luca Ambrosio, Jordy Schol, Clara Ruiz-Fernandez, Shota Tamagawa, Hazuki Soma, Veronica Tilotta, Giuseppina Di Giacomo, Claudia Cicione, Shunya Nakayama, Kosuke Kamiya, Rocco Papalia, Masato Sato, Gianluca Vadalà, Masahiko Watanabe, Vincenzo Denaro, Daisuke Sakai (Japan) **abs# PP-1a**

09:25

How standing effects nutrient transport in human lumbar discs? - An in-vivo serial post-contrast MRI study evaluating interplay between convection and diffusion.

J.Naresh-Babu, Gajendra Gajendra, GS Prajwal (India) **abs# PP-1b**

9:40AM-10:10AM

Coffee Break



PROGRAM

Thursday 30 May 2024
continued

10:10AM-10:55AM
SCORPIO 📍

Symposium 3:

Chair: Christine Le Maitre
& Karin Wuertz-Kozak

Degeneration and regeneration of the intervertebral disc: an update from EU training network Disc4ALL

Jérôme Noailly, PhD - Universitat Pompeu Fabra (Spain)

Benjamin Gantenbein, PhD - University of Bern (Switzerland)

Frances Williams, PhD - King's College London (UK)

10:55AM-11:55AM
SCORPIO 📍

Main Program Session 10: Biomechanics

Chair: Diane Gregory

- 10:55 **Sex-based differences in the association between chronic low back pain & biomechanical function.**
Erin S Archibeck, Karim Khattab, Abel Torres Espin, Ryan Halvorson, Robert P Matthew, Jeffrey C Lotz, Grace D OConnell, Jeannie F Bailey (United States) abs# MP-10a
- 11:00 **Refining gender-based musculoskeletal models: The impact of age adjustment.**
Nima Ashjaee, Sidney Fels, John Street, Thomas Oxland (Canada) abs# MP-10b
- 11:05 **Unveiling the interactions between IVD local morphologies & mechanical behaviour through a novel morphing process: A step towards personalized medicine.**
Estefano Muñoz-Moya, Morteza Rasouligandomani, Carlos Ruiz, Gemma Piella, Jérôme Noailly (Spain) abs# MP-10c
- 11:10 15 minute discussion
- 11:25 **Domino toppling: When the disruption of one disc negatively impacts its neighbour. An investigation of adjacent segment disease.**
Noah Chow, Sabrina I Sinopoli, Mitchel C Whittal, Drew A Bednar, Diane E Gregory(Canada) abs# MP-10d
- 11:30 **Recovering in vivo intervertebral disc geometry, pressure, and T2 relaxation time in cadaveric segments.**
Dawn M Elliott, Harrah R Newman, Axel C Moore, Kyle D Meadows, Thomas P Schaer, Edward J Vresilovic (United States) abs# MP-10e
- 11:35 **A new spine tester "TO GO" and its first ex vivo application abroad.**
Jan Ulrich Jansen, Ann-Kathrin Greiner-Perth, Laura Zengerle, Claudia Cicione, Christine L Le Maitre, Abhay Pandit, Gianluca Vadalà, Marianna Tryfonidou, Hans-Joachim Wilke (Germany) abs# MP-10f
- 11:40 15 minute discussion
- 11:55AM-1:05PM Lunch



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PROGRAM

Thursday 30 May 2024
continued

1:05PM-2:05PM

SCORPIO 📍

Main Program Session 11:

Physical Activity, Loading, Exercise

Chairs: Fabio Galbusera
& Jeannie Bailey

- 13:05 **The association between physical activity, sitting behaviour and low back pain: Findings from HALO study.**
Kimberley Edwards, Maryam Kazemi (United Kingdom) **abs# MP-11a**
- 13:10 **Different load induced behaviour in intervertebral discs between low back pain patients & controls demonstrated in a large scale T2 map study.**
Leif LT Torén, Helena HB Brisby, Christian CW Waldenberg, Kerstin KL Lagerstrand, Hanna HH Hebelka (Sweden) **abs# MP-11b**
- 13:15 **Local temporal variability in physical activity may be more important for episodic pain trajectory classification than patient-reported outcomes and summary measures of activity: implications for objective patient tracking.**
Karim Khattab, Elisabetta Di Rinaldis, Trisha Hue, Patricia Zheng, Abel Torres-Espin, Jeffrey C Lotz, Jeannie F Bailey (United States) **abs# MP-11c**
- 13:20 15 minute discussion
- 13:35 **Effects of sustained locomotion training-based outpatient rehabilitation on the sagittal spinopelvic alignment in locomotive syndrome: a 2-year prospective cohort study.**
Takashi Yurube, Toru Takeoka, Yoshiaki Hiranaka, Yoshiki Takeoka, Yutaro Kanda, Takeru Tsujimoto, Hiroki Ohnishi, Tomoya Matsuo, Masao Ryu, Naotoshi Kumagai, Kohei Kuroshima, Kunihiko Miyazaki, Kenichiro Kakutani, Ryosuke Kuroda, Hideyo Inaoka, Nobuyoshi Watanabe (Japan) **abs# MP-11d**
- 13:40 **The impact of exercise prescription variables on intervention outcomes in low back pain disorders: an umbrella review of systematic reviews.**
Nitin Kumar Arora, Lars Donath, Patrick Owen, Clint Miller, Tobias Saueressig, Felicitas Winter, Marina Hambloch, Christopher Neason, Vera Karner, Daniel Belavy (Germany) **abs# MP-11e**
- 13:45 **Evaluation of structural alterations and mechanical properties of the lumbar multifidus muscle in chronic low back pain using contemporary images-based methods.**
Maryse Fortin, Neda Naghdi, Cleo Bertrand, Sara Masi, Brent Rosenstein (Canada) **abs# MP-11f**
- 13:50 15 minute discussion

2:05PM-2:35PM

SCORPIO 📍

ISSLS Awards

Chairs: Miho Sekiguchi
& Daisuke Sakai

- 14:05 **2024 ISSLS Wiltse Lifetime Achievement Award recipient announced and presentation**
- 14:20 **2023 Basic Science Research Grant award winner presentation**
Sponsored by **Kaken pharmaceutical Co., LTD and Seikagaku Corporation**
Stefan Dudli
- 14:25 **2023 Clinical Science Research Grant award winner presentation**
Sponsored by **Medtronic**
Fabio Galbusera
- 14:30 **2023 Clinical Travelling Fellowship award winner presentation**
Sponsored by **Nippon Zoki**
Dr Hong-Jae Lee

2:35PM-3:35PM

EXPO 📍

General Poster Session & Coffee Break

See page 36 for poster listing



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Thursday 30 May 2024
continued

3:35PM-4:35PM

SCORPIO 📍

Main Program Session 12: Degeneration

Chairs: Mak Risbud
& Sumihisa Orita

15:35

TRPC6 regulates inflammation and catabolism in intervertebral disc degeneration.

Janitri Venkatachala Babu, Alexandra Sadowska, Addisu Mesfin, Varun Puvanesarajah, Karin Wuertz (United States) **abs# MP-12a**

15:40

A population-based cohort longitudinal study identified genetic effects of intervertebral disc degeneration progression.

Tsuyoshi Deguchi, Hiroshi Hashizume, Noriko Yoshimura, Hiroshi Yamada (Japan) **abs# MP-12b**

15:45

The T1 ρ Z-score: a novel method for quantifying age-relative disc degeneration.

Noah B Bonnheim, Zehra Akkaya, Jiamin Zhou, Po-Hung Wu, Misung Han, Xiaojie Guo, Ann A. Lazar, Thomas M. Link, Conor O'Neill, Jeffrey C. Lotz, Aaron J. Fields (United States) **abs# MP-12c**

15:50

15 minute discussion

16:05

Coexistence of vertebral and intervertebral disc changes in low back pain patients – in depth characterization with same day MRI and CT discography.

Kerstin Lagerstrand, Hanna Hebelka, Alfred Erkmär, Helena Brisby (Sweden) **abs# MP-12d**

16:10

Prevalence and distribution of Schmorl node and endplate signal change, and correlation with disc degeneration in a population-based cohort: The Wakayama Spine Study.

Masatoshi Teraguchi, Hiroshi Hashizume, Hiroyuki Oka, Keiji Nagata, Yuyu Ishimoto, Sakae Tanaka, Munehito Yoshida, Noriko Yoshimura, Hiroshi Yamada (Japan) **abs# MP-12e**

16:15

Chronic alcohol consumption causes degenerative changes in spinal structures.

Svenja Illien-Junger, Madeleine D Gordon, Tushar Singh, Alan Liu, Samantha M Yeliger (United States) **abs# MP-12f**

16:20

15 minute discussion

4:35PM-5:20PM

SCORPIO 📍

Symposium 4:

Chairs: Richard Skolasky
& Esther R.C. Janssen

Prehabilitation in spine surgery from an international perspective: a nominal group approach

Michael J. Schneider, DC, PhD - Dept. of Physical Therapy, University of Pittsburgh (USA)

James E. Eubanks, MD, DC, MS - Medical University of South Carolina (MUSC), Dept. of Orthopaedics, Division of Physical Medicine and Rehabilitation; University of Pittsburgh Medical Center (UPMC), Dept. of Physical Medicine and Rehabilitation (USA)

Rob JEM Smeets, MD, PhD - Dept. of Rehabilitation Medicine, Maastricht University and CIR Revalidatie Eindhoven (The Netherlands); Pain in Motion International Research Group

5:20PM-6:20PM

SCORPIO 📍

Second Business Meeting (Members Only)

6:30PM

Registration Closes

6:30PM-11:00PM

Gala Dinner

Museo della Scienza e della Tecnica



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Friday 31 May 2024

7:30AM

Registration Open

7:45AM-8:45AM

Special Poster Sessions 6 - 10

ZENITH

Session 6: Basic Science

Chair: Stefan Dudlii

07:45

Transcriptomic analysis of lumbar & caudal intervertebral discs reveals anatomical level-dependent differences in immune regulatory pathway.

[MinKyu \(Mark\) Kim](#), Troy Anderson, Joanna Smeeton, Nadeen O. Chahine (United States) **abs# SP-6a**

07:55

Effects of age on immune cell modulated annulus fibrosus repair in mouse intervertebral disc herniation injury.

[James Iatridis](#), Timothy Jacobsen, Timothy Hoang, Emma Cavendish, Damien Laudier, Woojin Han, Alice Huang (United States) **abs# SP-6b**

08:05

A mechanically active nucleus-pulposus on-chip model to reveal the interplay between mechanical loading & disc degeneration.

[Andrea Mainardi](#), Arne Mehrkens, Bianca Aterini, Nader Rahal, Karoliina Pelttari, Ivan Martin, Andrea Barbero, Olga Krupkova (Switzerland) **abs# SP-6c**

08:15

Lipid Nanoparticles as mRNA delivery platform for intervertebral disc regeneration.

[Aida Moreira](#), Chantal Voskamp, Daniele Corraini, Raymond M. Schiffelers, Marianna A. Tryfonidou (Netherlands) **abs# SP-6d**

08:25

Accumulation of activated TCR $\alpha\beta$ +CD8+ and TCRV δ 1+T-cells in vertebral bone marrow of Modic change 1 patients.

[Stefan Dudli](#), Jan Devan, Nick Herger, Irina Heggli, Tamara Mengis, Florian Brunner, Mazda Farshad, Oliver Distler (Switzerland) **abs# SP-6e**

08:35

Muscle location-specific degeneration difference between the core & limb muscles: TSC1mKO mice model.

[Wing Moon Raymond Lam](#), Wenhai Zhuo, Hoey Lit Loo, Hee-Kit Wong, Hey Hwee Weng Dennis (Singapore) **abs# SP-6f**

POLAR

Session 7: Muscle, Posture, Movement

Chairs: Martha Funabashi & Steven Brown

07:45

Pain-related patterns of multifidus fat infiltration are spatially distinct from age-related and BMI-related patterns of fat infiltration.

[Karim Khattab](#), Lucas K Dziesinski, Jessica Ornowski, Jiamin Zhou, Conor W. O'Neill, Noah Bonnheim, Aaron J Fields, Abel Torres-Espin, Jeffrey C Lotz, Jeannie F Bailey (United States) **abs# SP-7a**

07:55

Poor lumbar spine coordination in acute low back pain predicts persistent long-term pain & disability.

[Paul W Hodges](#), Mansour Alshehri, Wolbert ven den Hoorn, David M Klyne, Jaap van Dieën, Jacek Cholewicki (Australia) **abs# SP-7b**

08:05

Prediction of symptomatic intravertebral vacuum cleft sign with machine learning algorithms - risk factor findings & muscle variables strategy.

[Joonghyun Ahn](#), Young H Kim, Kee Y Ha, June Lee, Youjin Shin (South Korea) **abs# SP-7c**

08:15

Improvement in lumbar multifidus muscle composition after a 12-week exercise intervention in patients with chronic low back pain: A randomized controlled trial.

[Brent Rosenstein](#), Meaghan Rye, Alexa Roussac, Neda Naghdi, Luciana G Macedo, James M Elliott, Richard DeMont, Michael H Weber, Véronique Pepin, Geoff Dover, Maryse Fortin (Canada) **abs# SP-7d**

08:25

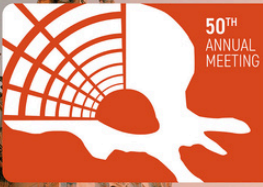
Disc degeneration & paraspinal muscles on preoperative CT & MRI & their association with revision surgery after lumbar fusion.

[Marco D. Burkhard](#), Erika Chiapparelli, Krizia Amaroso, Ali Guven, Jan Hambrecht, Paul Köhli, Franziska C. S. Altorfer, Koki Tsuchiya, Gisberto Evangelisti, Jiaqi Zhu, Jennifer Shue, Michael J. Kelly, Federico Girardi, Andrew A. Sama, Frank P. Cammisa, Alexander P. Hughes (United States) **abs# SP-7e**

08:35

Postural control & physical activity before & after surgery for lumbar spinal stenosis: Pilot study.

[Oliver B Zielinski](#), Dennis W Hallager, Kasper Y Jensen, Leah Y Carreon, Mikkel Ø Andersen, Louise Diederichsen, Rune D Bech (Denmark) **abs# SP-7f**



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Friday 31 May 2024
continued

7:45AM-8:45AM

URSA 📍

Special Poster Sessions 6 - 10

Session 8: Decompression, Stenosis

Chair: Sumihisa Orita

- 07:45 **Candidate epigenetic polygenic risk score (E-PRS) to predict pain response following surgical intervention for lumbar spinal stenosis due to spine osteoarthritis.**
Y. Raja Rampersaud, Noah Fine, Kala Sundararajan, Anthony Perruccio, Igor Jurisica, Laura Stone, Mohit Kapoor (Canada) **abs# SP-8a**
- 07:55 **Prediction of low back pain improvement in decompression surgery for lumbar spinal stenosis- usefulness of the BS-POP.**
Kazuyuki Watanabe, Koji Otani, Nikaido Takuya, Kinshi Kato, Hiroshi Kobayashi, Yoshihiro Kobayashi, Shoji Yabuki, Shinichi Konno, Yoshihiro Matsumoto (Japan) **abs# SP-8b**
- 08:05 **Does sarcopenia affect postoperative clinical outcomes in lumbar decompression surgery?**
Yukitoshi Shimamura, Masahiro Kanayama, Fumihiro Oha, Michihaya Kono, Ryota Hyakkan, Kohei Shiota, Shogo Fukase, Shotaro Fukuda, Tomoyuki Hashimoto (Japan) **abs# SP-8c**
- 08:15 **Clinical factors associated with patient satisfaction following decompression surgery for lumbar spinal stenosis.**
Junichi Yamada, Koji Akeda, Norihiko Takegami, Tatsuhiko Fujiwara, Koichiro Murata, Toshifumi Kono, Takao Sudo, Takao Imanishi, Tetsushi Kondo, Tatsuya Kurata, Eiji Kawakita, Kenji Takegami, Toshihiko Sakakibara, Masayoshi Sato, Akihiro Sudo (Japan) **abs# SP-8d**
- 08:25 **Establishment of a nomogram for assessing the risk of ambulatory surgery conversion to extended stay for lumbar decompression patients.**
Koki Tsuchiya, Gisberto Evangelisti, Ichiro Okano, Yusuke Dodo, Paul Kohil, Jan Hambrecht, Ali Guven, Soji Tani, Erika Chiapparelli, Jennifer Shue, Frank P Cammisa, Federico P Girardi, Alexander P Hughes, Andrew A Sama (United States) **abs# SP-8e**
- 08:35 **Older people's experience recovering from surgery to treat neurogenic claudication. A qualitative study to inform rehabilitation to improve post-operative walking.**
Suzanne McIlroy, Lisa Brighton, Sam Norton, John Weinmann, Lindsay Bearne (United Kingdom) **abs# SP-8f**

TROPIC 📍

Session 9: Low Back Pain

Chairs: Hans Hans Jörg Meisel & Xu Sun

- 07:45 **Simulation of multimodal interventions using a comprehensive collaborative model of low back pain.**
Jacek Cholewicki, Angela S Lee, Payam Aminpour, John M Popovich, Paul W Hodges, Steven Gray (United States) **abs# SP-9a**
- 07:55 **The influence of lumbar intervertebral disc degeneration on low back pain is modified by genetic propensity to pain.**
Frances Williams, Pradeep Suri, Maryam Kazemi Naeini, Maxim Freidin, Yakov Tsepilov, Elizaveta Elgaeva, Isabelle Granville Smith, Roger Compte (United Kingdom) **abs# SP-9b**
- 08:05 **Chronic low back pain mechanistic phenotypes: association with clinical features.**
Conor O'Neill, Colin A Roach, Aaron Scheffler, Susan Ewing, Patricia Zheng, Trisha Hue, Jeffrey Lotz, Wolf Mehling (United States) **abs# SP-9c**
- 08:15 **Measurement properties of self-reported outcome measures for older people with non-specific low back pain: a systematic review.**
Frank Fan Huang, Jitong Liang, Dino Samartzis, Jaro Karppinen, Yongping Zheng, Zhixing Zhou, Daniel KY Zheng, Jeremy Chang, Arnold Wong (Hong Kong) **abs# SP-9d**
- 08:25 **Trajectories of promised physical function, pain interference, & spine legacy measures in 24 months following lumbar spine surgery.**
Kristin R Archer, Jacquelyn S Pennings, Rogelio A Coronado, Emily R Oleisky, Stephen T Wegener, Richard L Skolasky (United States) **abs# SP-9e**
- 08:35 **Cost-effectiveness of condoliase injection versus micro-endoscopic discectomy: A multicenter study.**
Takuya Takahashi, Takashi Hirai, Hiroyuki Sato, Yohei Takahashi, Kota Watanabe, Tomohiro Banno, Kyohei Sakaki, Yuichi Takano, Yawara Eguchi, Yuki Taniguchi, Satoshi Maki, Yasuchika Aoki, Akihiro Hirakawa, Hiroataka Haro, Seiji Ohtori (Japan) **abs# SP-9f**



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Friday 31 May 2024
continued

7:45AM-8:45AM

SOLAR 📍

Special Poster Sessions 6 - 10

Session 10: Modic and Metastasis

Chair: Jaro Karppinen

- 07:45 **Bacterial & autoimmune endotypes of modic type 1 change patients have distinct blood cytokine profiles.**
Irina Heggli, Tamara Mengis, Christoph J. Laux, Nick Herger, Danilo Menghini, Nadja A Farshad-Amacker, Aaron J. Fields, Mazda Farshad, Oliver Distler, Stefan Dudli (United States) **abs# SP-10a**
- 07:55 **Sex-specific associations between schmorl nodes, modic Changes, and osteoporosis in a large population-based study: the Wakayama Spine Study.**
Masatoshi Teraguchi, Hiroshi Hashizume, Dino Samartzis, Hiroyuki Oka, Keiji Nagata, Yuyu Ishimoto, Ryohei Kagotani, Munehito Yoshida, Sakae Tanaka, Noriko Yoshimura, Hiroshi Yamada (Japan) **abs# SP-10b**
- 08:05 **Disruption of the cartilaginous endplate may be the root pathology underlying so-called Modic changes on lumbar spine MR images: an experimental study of rabbits.**
Yue Wang, Zhiyun Feng, Shuchen Ding, Miao Liu, Honghao Wu, Xiaojian Hu, Lunhao Chen, Michele Battié (China) **abs# SP-10c**
- 08:15 **Does intraoperative cell-salvaged autologous blood transfusion in metastatic spine tumour surgery improve long term clinical outcomes? A prospective clinical study.**
Satyanarayan Naresh Kumar, Si Jian Hui, Jiong Hao Tan, Yiong Huak Chan (Singapore) **abs# SP-10d**
- 08:25 **Surgical outcome for spinal metastasis of renal cell carcinoma.**
Yoshiki Takeoka, Takashi Yurube, Takeru Tsujimoto, Yutaro Kanda, Kunihiko Miyazaki, Hiroki Ohnishi, Tomoya Matsuo, Masao Ryu, Naotoshi Kumagai, Kohei Kuroshima, Yoshiaki Hiranaka, Ryosuke Kuroda, Kenichiro Kakutani (Japan) **abs# SP-10e**
- 08:35 **Total en bloc spondylectomy for primay malignant & locally aggressive intermediate bone tumors arising in the lower lumbar spine.**
Yoshihiro Matsumoto, Keiichiro Iida, Yoshihiro Kobayashi, Hiroshi Kobayashi, Kinshi Kato, Kazuyuki Watanabe, Takuya Nikaido (Japan) **abs# SP-10f**

8:55AM-9:05AM

SCORPIO 📍

Focus Group Reports

Chair: Daisuke Sakai

9:05AM-10:05AM

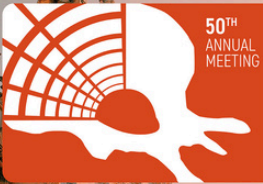
SCORPIO 📍

Main Program Session 13:

Chairs: Sibylle Grad
& Svenja Illien-Junger

Regeneration, Cell Therapy, Repair

- 09:05 **Development of intervertebral disc regenerative therapy using highly-purified mesenchymal stem cells and bioabsorbable alginate gel: Translational research using a large animal model.**
Daisuke Ukeba, Katsuhisa Yamada, Takashi Suyama, Norimasa Iwasaki, Masatoki Watanabe, Yumi Matsuzaki, Hideki Sudo (Japan) **abs# MP-13a**
- 09:10 **Hydrogel-based delivery of hypoxic preconditioned stem cell-derived extracellular vesicles mitigates senescence in nucleus pulposus cells: Regulating redox homeostasis for disc degeneration treatment.**
Ming Guan, Can Liu, Qiangqiang Zheng, Yihe Hu, Yue Wang (China) **abs# MP-13b**
- 09:15 **Off-the-shelf NP cell therapy for canine disc degeneration at different severity levels.**
Jordy Schol, Takayuki Warita, Erika Matsushita, Asami Kawachi, Shota Tamagawa, Yuto Otani, Daisuke Sakai, Masato Sato, Masahiko Watanabe (Japan) **abs# MP-13c**
- 09:20 15 minute discussion



PROGRAM

Friday 31 May 2024
continued

- 09:35** **Injectable cell encapsulated hyaluronic acid microgels for nucleus pulposus regeneration.**
Parisa Torabi-Rahvar, Leon Schlagenhof, Mohammad J. Abdekhodaie, Benjamin Gantenbein (Switzerland) abs# MP-13d
- 09:40** **The potential of nasal chondrocyte spheroids for intervertebral disc repair.**
Raphael Schmid, Janhavi Apte, Andrea Barbero, Ivan Martin, Stefan Schären, Karoliina Pelttari, Olga Krupkova, Arne Mehrkens (Switzerland) abs# MP-13e
- 09:45** **A pro-degenerative environment promotes the regenerative potential of extracellular vesicles derived from notochordal cells.**
Daniele Corraini, Chantal Voskamp, Aida Moreira, Marianna Tryfonidou (Netherlands) abs# MP-13f
- 09:50** 15 minute discussion
- 10:05AM-10:20AM** Coffee Break
- 10:20AM-11:20AM** **Main Program Session 14:** Chairs: Satyanarayan Kumar
SCORPIO **Spondylolisthesis, Imaging, Surgery**
- 10:20** **The role of paraspinal muscles in degenerative spondylolisthesis L4/L5: A cross-sectional study in 138 patients undergoing surgery.**
Paul C Köhli, Lukas Schönagel, Jan Michael Hambrecht, Jiaqi Zhu, Erika Chiapparelli, Ali Guven, Gisberto Evangelisti, Krizia Amoroso, Roland Duculan, Jennifer Shue, Koki Tsuchiya, Marco D Burkhard, Carol Mancuso, Andrew A Sama, Frederico P Girardi, Frank P Camissa, Alexander P Hughes (United States) abs# MP-14a
- 10:25** **Evaluation of “appropriate use criteria” for surgical decision making in lumbar degenerative spondylolisthesis. A controlled, multicentre, prospective observational study.**
Francine Mariaux, Adam M Pearson, Paul M Werth, Jon D Lurie, Tamas Fekete, Frank Kleinstück, Deszoe Jeszenszky, Markus Köhler, Philippe Otten, Daniel Haschtmann, Markus Loibl, Michael Norberg, Francois Porchet, Anne F Mannion (Switzerland) abs# MP-14b
- 10:30** **Does facet joint angulation difference pre-exist or result from remodeling in degenerative spondylolisthesis? A radiological study in double-level versus single-level degenerative spondylolisthesis.**
Xu Sun, Zhentao Zhang, Zhen Liu, Bin Wang, Yong Qiu, Zezhang Zhu, Yu Wang (China) abs# MP-14c
- 10:35** 15 minute discussion
- 10:50** **Risk factors of postoperative ileus in corrective spinal surgery: The analysis of the retrocrural space.**
Shuhei Ohyama, Toshiaki Kotani, Tsuyoshi Sakuma, Yasushi Iijima, Tsutomu Akazawa, Kazuhide Inage, Shiga Yasuhiro, Shohei Minami, Seiji Ohtori (Japan) abs# MP-14d
- 10:55** **Validation study of MR bone like image for staging lumbar spondylolysis in children.**
Yutaka Kinoshita, Toshinori Sakai, Kosuke Sugiura, Jiro Kobayashi, Misaki Okita, Koki Moriyama, Shigeki Ueki, Nozomu Yanaida, Koichi Sairyō (Japan) abs# MP-14e
- 11:00** **A focus on intervertebral disc injury in the correction loss of percutaneous pedicle screw fixation for high energy traumatic thoracolumbar spine injury.**
Shinichi Ishihara (Japan) abs# MP-14f
- 11:05** 15 minute discussion



PROGRAM

Friday 31 May 2024
continued

11:20AM-12:15PM

SCORPIO 📍

Main Program Session 15: Infection and Inflammation

Chair: Christopher Colloca

- 11:20 **Modic change bone marrow neutrophils are activated neutrophils degrade cartilage endplates.**
Irina Heggli, Nick Herger, Tamara Mengis, Mazda Farshad, Mohamed Habib, Christopher P Ames, Oliver Distler, Aaron Fields, Stefan Dudli (United States) **abs# MP-15b**
- 11:25 **Cutibacterium acnes is present in non-herniated human discs; its positivity rate correlates with the patient's age.**
Andrea Nüesch, Maria Paola Ferri, Exarchos Kanelis, Lee Breakwell, Leonidas G. Alexopoulos, Frances Williams, Benjamin Gantenbein, Melissa Lacey, Christine Le Maitre (United Kingdom) **abs# MP-15c**
- 11:30 **Harnessing the immunosuppressive potential of primed MSCs to suppress inflammation in degenerating intervertebral discs.**
Nick Herger, Irina Heggli, Tamara Mengis, Jan Devan, Leonardo Arpesella, Florian Brunner, Oliver Distler, Stefan Dudli (Switzerland) **abs# MP-15d**
- 11:35 20 minute discussion
- 11:55 **Annulus fibrosus injury drives acute inflammation and chronic glial activation in dorsal root ganglion and spinal cord: An in-vivo rat discogenic pain model.**
James C Iatridis, Alon Lai, Denise Illiff, Kashaf Zaheer, Jennifer Gansau, Damien M Laudier, Venetia Zachariou (United States) **abs# MP-15e**
- 12:00 **Characteristics of the extracellular vesicles from human intervertebral disc cells.**
Lisbet Haglund, Li Li, Hadiil Al-Jallad, Miltiadis Georgiopoulos, Rakan Bokhari, Jean Ouellet, Peter Jarzem, Hosni Cherif (Canada) **abs# MP-15f**
- 12:05 15 minute discussion

12:15PM-12:25PM

SCORPIO 📍

Closing Remarks

Chair: Daisuke Sakai

Best Abstract Paper & Poster Prize Presentations

Closing remarks: Peter Robertson - Incoming ISSLS President

1:00PM

Registration Closes



GENERAL POSTERS

Thursday 30 May 2024

2:35PM-3:35PM

General Poster Session

Poster Number 001

Does the quality and the quantity of posterior paraspinal muscles increase the risk of symptomatic intravertebral vacuum cleft sign following vertebral compression fracture at the thoracolumbar junction?

[Joonghyun Ahn](#), Seunghun Ha, Young H Kim, Gang-Un Kim, Kee Y Ha

002

A Novel "Inflammation-Preserving" Treatment for Promoting Lumbar Disc Herniation Resorption in Symptomatic Patients: a Prospective, Multi-Imaging and Clinical Outcomes Study.

[Hanne Albert](#), Arash J. Sayari, Juan N. Barajas, Alexander Hornung, Garrett Harada, Michael Nolte, Ana Chee, Dino Samartzis, Alexander Tkachev (United States)

003

Sexual dysfunction after primary anterior lumbar interbody fusion in women: a retrospective survey at a high-volume centre.

[Elena Albertazzi](#), Tabea Annina Roth, Yael Rachamin, Lorin M Benneker, Emin Aghayev, Paul Heini (Switzerland)

004

Image-based wall shear stresses calculations in cartilage endplate explants and scaffolds in perfusion culture.

[Ahmad Alminnawi](#), Gabriele Nasello, Liesbet Geris (Belgium)

005

Comparative efficacy of endoscopic unilateral laminotomy with bilateral decompression versus interbody fusion in the treatment of grade 1 lumbar spondylosisthesis.

[Sungjae An](#), Subum Lee, Younggyu Oh, Junseok W Hur (South Korea)

006

Efficacy of 18F-FDG PET-CT for identification of primary lesions in patients with back or radicular pain and spinal metastases of unknown primary origin.

[Yusuke Aoki](#), Hiromichi Oshiro, Takanao Shimabukuro, Hideo Kinjo, Yoshimaro Miyahira, Taiki Fujimoto, Ryo Katsuki, Yasunori Tome, Kotaro Nishida (Japan)

007

Prevention for cage retropulsion following posterior lumbar interbody fusion.

[Hiroyuki Aono](#), Shota Takenaka, Yukitaka Nagamoto, Hidekazu Tobimatsu, Masayuki Furuya, Tomoya Yamashita, Hiroyuki Ishiguro, Atsunori Ohnishi, Motoki Iwasaki (Japan)

008

Impact of spinal instrumentation on early postoperative inflammatory markers: a comparative analysis in the same patient cohort with or without instrumentation.

[Hiroyuki Aono](#), Shota Takenaka, Yukitaka Nagamoto, Hidekazu Tobimatsu, Masayuki Furuya, Tomoya Yamashita, Hiroyuki Ishiguro, Atsunori Ohnishi, Motoki Iwasaki (Japan)

009

Reliability and minimal detectable change in vertebral pelvic angle measurements in adult spinal deformity.

[Kasra Araghi](#), Chad Z Simon, Hiroyuki Nakarai, Samuel Adida, Han Jo Kim, Francis C Lovecchio (United States)

010

Ultrasound assessment of the anterior neck and hematoma before and after anterior cervical spine surgery.

[Kasra Araghi](#), Chad Simon, Lauren Barber, Daniel Shinn, Sumeha Singh, Philip Louie, Ogonna Nwawka, Theodore Miller, Sheeraz Qureshi (United States)

011

Change in promis pf and pi associated with clinically meaningful improvement in ODI, back pain, leg pain, and patient satisfaction after spine surgery.

[Kristin R Archer](#), Jacquelyn S Pennings, Rogelio A Coronado, Emily R Oleisky (United States)

012

Factors associated with improved lumbar spine function after adult spinal deformity surgery.

[Fumihiko Arizumi](#), Keishi Maruo, Kazuya Kishima, Tomoyuki Kusukawa, Masakazu Toi, Toshiya Tachibana (Japan)

013

Efficacy and safety of completely autologous fibrin glue in adult spinal deformity surgery.

[Fumihiko Arizumi](#), Keishi Maruo, Kazuya Kishima, Tomoyuki Kusukawa, Masakazu Toi, Tomoya Iseki, Toshiya Tachibana (Japan)

014

The relationship between contrast ratio of bone marrow edema on MRI and exercise prohibition period in lumbar spondylolysis patients.

[Reo Asai](#), Masaki Tatsumura, Satoshi Matsuura, Katsuya Nagashima, Yousuke Takeuchi, Toru Funayama, Masashi Yamazaki (Japan)



GENERAL POSTERS

Thursday 30 May 2024

2:35PM-3:35PM

General Poster Session

Poster Number 015

Can muscle short-range stiffness stabilize the spine?

Nima Ashjaee, Jeff M Barrett, Masoud Malakoutian, Sidney S Fels, Stephen HM Brown, Thomas R Oxland (Canada)

016

The structure of spine biomechanics research.

Nima Ashjaee, Jeff Barrett, Stephen HM Brown, Thomas R Oxland (Canada)

017

The relationship between HRQOL-based recovery trajectories and sagittal balance following surgery for adult spinal deformity.

Jeannie F Bailey, Ryan T Halvorson, Elisabetta de Rinaldis, Stephanie Younan, Bobby Tay, Alexander A Theologis (United States)

018

Prevalence of lumbosacral transitional anatomy in a new zealand cohort – whole spine computed tomography analysis.

Joe Baker, Ben Petry, Baptiste Boukebous (New Zealand)

019

The delivery of humidified, warmed air to the surgical site during spinal surgery: findings from a first in human clinical trial.

Joe Baker, Simon Manners, Alpesh Patel, Dharshini Sreenivasan, Callum Spence (New Zealand)

020

Association between MRI measurements of lumbar spine alterations and self-reported outcomes of pain and disability in subjects with non-specific low back pain.

Tito Bassani, Alessandra Colombini, Ludovica Pallotta, Luca Maria Sconfienza, Domenico Albano, Marco Brayda-Bruno (Italy)

021

Prospective prophylactic antibiotics regimen in scheduled spine surgery - the pparisss cohort. An independently verified and validated cohort study of extended antibiotic prophylaxis combined with standardized tissue handling and perioperative wound care in 1000 scheduled lumbar pedicle-screw implant surgeries.

Drew A Bednar, Alyson Love, soroush Nedaie, Pranjan Gandhi (Canada)

022

Il-4 and il-10 role in human and bovine intervertebral disc degeneration.

Paola Bermudez Lekerika, Sofia Tseranidou, Andrea Nüesch, Katherine B. Crump, Exarchos Kanelis, Karin Wuertz, Leonidas G. Alexopoulos, Jérôme Noailly, Christine Le Maitre, Benjamin Gantenbein (Switzerland)

023

Ischemic spinal nerve root injury secondary to herniated lumbar intervertebral disc.

Paul B Bishop, Nicolas A Dea, Tamir B Ailon, Charles C Fisher, John D Street, Jeffrey E Quon, Gabriella F Petrollini (Canada)

024

Association between skin ultrasound parameters and revision surgery after spinal lumbar fusion.

Marco D. Burkhard, Erika A Chiapparelli, Krizia Amoroso, Gaston Camino-Willhuber, Thomas Caffard, Ali Guven, Jiaqi Zhu, Gisberto Evangelisti, Jan Michael Hambrecht, Paul Kohli, Koki Tsuchiya, Franziska Altorfer, Jennifer Shue, Andrew A Sama, Frank P Cammisa, Federico P Girardi, Alexander P Hughes (United States)

025

Distinct quantitative sensory testing profiles in female chronic low back pain individuals with and without insomnia.

Jeremy Chang, Rachel Kwan, Eliza Sun, Shirley Li, Ping Liang, Jae Liu, Daniel Zheng, Zing Zhou, Fan Huang, Dino Samartzis, Amy Fu, Arnold Wong (China)

026

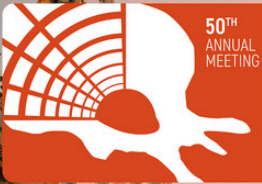
Conditioned medium of intervertebral disc cells inhibits osteogenesis on autologous bone-marrow-derived mesenchymal stromal cells and osteoblasts.

Shuimu Chen, Andreas S. Croft, Sebastian Bigdon, Zhen Li, Christoph E. Albers, Katherine B. Crump, Paola Bermudez, Benjamin Gantenbein (Switzerland)

027

Risk factors of revision operation and early revision for adjacent segment degeneration after lumbar fusion surgery: A case-control study.

Jae Hwan Cho, Sehan Park, Chang Ju Hwang, Dong-Ho Lee, Nam Yeop Kim, Hyun Wook Nam (South Korea)



50TH
ANNUAL
MEETING

GENERAL POSTERS

Thursday 30 May 2024

2:35PM-3:35PM

General Poster Session

Poster Number 028

Factors contributing to local recurrence in metastatic spinal cord compression after surgery.

Jae Hwan Cho, Jeong Bong Kim, Sehan Park, Chang Ju Hwang, Dong-Ho Lee, Jae Woo Park, Jin Hoon Park (South Korea)

029

The biomechanical viability of fixed human cadavers: can fixed cadavers offer science one more gift?

Noah Chow, Sabrina I Sinopoli, Mitchel C Whittal, Diane E Gregory (Canada)

030

The effect of progressive herniation on ovine lumbar functional spinal unit six degree of freedom mechanics.

John J Costi, Michael P Russo, Claire F Jones (Australia)

031

Senses and surgical success: exploring surgeon perceptions during cortical wall breach and the impact of breach on screw purchase.

John J. Costi, Tyra Lange, Michael P. Russo, Egon Perilli, Karen J. Reynolds (Australia)

032

Investigation of the combined effects of a catabolic microenvironment and complex mechanical loading on intervertebral disc degeneration.

Katherine Crump, Kim de Graaf, Paola Bermudez Lekerika, Christine Le Maitre, Jérôme Noailly, Benjamin Gantenbein (Switzerland)

033

TNF induces catabolism in dynamically loaded human cartilaginous endplate cells in 3D agarose culture.

Katherine B Crump, Paola Bermudez-Lekerika, Liesbet Geris, Jérôme Noailly, Benjamin Gantenbein (Switzerland)

034

Differences in demographic and pain-related features between non-specific chronic low back pain patients with or without potential discogenic pain.

Elisabetta de Rinaldis, Karim Khattab, Noah B. Bonnheim, Conor O'Neill, Jeannie F. Bailey, Jeffrey C. Lotz (Italy)

035

Can the passive stiffness of human paraspinal muscles be predicted from fiber bundle cross-sectional area and number of fibers?

Iraj Dehghan Hamani, Masoud Malakoutian, John Street, Stephen Brown, Thomas Oxland (Canada)

036

PDGF AB and BB mitigate IVD degeneration through promoting mitogenesis and inhibiting inflammation.

Martha Diaz-Hernandez, Changli Zhang, Takanori Fukunaga, Sreekala Shenoy, Hicham Drissi (United States)

037

Runx1 promotes intervertebral disc aging.

Martha Elena Diaz-Hernandez, Takanori Fukunaga, Changli Zhang, Sreekala Shenoy, Hicham Drissi (United States)

038

Associations between non-spinal comorbid medical conditions and neuropathic low back pain - a further unravelling of pain complexities in the context of low back pain.

Ashish Diwan, Stone Sima, Zachary Gan, Sam Lapkin (Australia)

039

Low back pain classifications and their associations with disability, quality of life and sociodemographic factors - a comprehensive examination using the pain detect questionnaire.

Ashish Diwan, Zachary Gan, Stone Sima, Sam Lapkin (Australia)

040

The efficacy of a novel spinous process osteotomy technique in the management of lumbar stenosis with and without degenerative spondylolisthesis.

Ashish Diwan, Lauren A Barber, Stone Sima, Charmian Stewart, Alisha sial (Australia)

041

The utility of clavicle cortex index as a screening tool for low bone mineral density among spine and hip surgery patients.

Yusuke Dodo, Ichiro Okano, Koki Tsuchiya, Chikara Hayakawa, Ryo Yamamura, Yoshifumi Kudo (Japan)

042

The effects of combined isolated Lumbar Extension Resistance Exercise (ILEX), general exercise and manual therapy versus ILEX alone on paraspinal muscle morphology and quality as well as strength, pain and disability in chronic, neuropathic and specific low back pain patients.

Bruno Domokos, Julia Ettinger, Christoph Raschka, Christoph Spang (Germany)



GENERAL POSTERS

Thursday 30 May 2024

2:35PM-3:35PM

General Poster Session

Poster Number 043

Osteoporosis could be associated with fatty psoas at upper lumbar levels: a possible mechanism underlying proximal junctional disorders.

Murat Eksi, Emel Ece Özcan-Ekşi, Gürkan Berikol, Mahmoud Osama, Nursena Tanrıverdi, Fatma Topaloğlu, Uğur Ozan Öztaş (Turkey)

044

How much is physical activity in the early postoperative period after fusion surgery in lumbar degenerative diseases?; An analysis using tri-axis wearable accelerometer.

Tatsuya Endo, Osamu Shirado, Masumi Iwabuchi, Keita Sato, Takuya Miura, Toshikazu Ito (Japan)

045

Phenotyping opioid chronicity and predicting change in opioid usage from physical therapy electronic health records.

Aaron Fields, Naoki Takegami, Kazuhito Morioka, Abel Torres Espin, Sachin Umrao, Adam Ferguson, Jeffrey Lotz, Sang Pak, Thomas Peterson (United States)

046

Effects of aquatic therapy on paraspinal and gluteal muscle strength and psychological outcomes in individuals with chronic low back pain: Preliminary results.

Maryse Fortin, Chanelle Montpetit, Nicolas Vaillancourt, Brent Rosenstein (Canada)

047

Correlation of the German Society for Orthopaedics and Trauma (Deutsche Gesellschaft für Orthopädie und Unfallchirurgie) (DGOU) osteoporotic fracture classification with neurological symptoms and surgical interventions for lower lumbar osteoporotic vertebral fractures.

Kazuki KF Fujimoto, Daisuke DH Hashiba, Ryosuke RN Nakagawa, Hajime HA Arai, Seiji SO Ohtori (Japan)

048

Dynamic non-fusion stabilization versus interbody fusion for degenerative lumbar spondylolisthesis: Minimum 10-year follow-up.

Shota Fujimura, Yohei Iguchi, Kenichi Tahara, Akitaka Yoshimura, Yoshikuni Kida, Hideki Ohta, Yoshiharu Takemitsu (Japan)

049

Association between low back pain and fatigue in inhabitants -population-based study in mountain village.

Tatsuhiko Fujiwara, Norihiko Takegami, Koji Akeda, Yusuke Togo, Kento Watanabe, Koki Kawaguchi, Akihiro Sudo (Japan)

050

Clinical characteristics of sleep disturbance in patients with degenerative spine diseases.

Tatsuhiko Fujiwara, Koji Akeda, Norihiko Takegami, Koki Kawaguchi, Akihiro Sudo (Japan)

051

Expression of Caspase Recruitment Domain-Containing Protein 14 (CARD14) in human nucleus pulposus: Implication for intervertebral disc degeneration.

Tatsuhiko Fujiwara, Koki Kawaguchi, Koji Akeda, Yusuke Togo, Kento Watanabe, Norihiko Takagami, Akihiro Sudo (Japan)

052

Postoperative muscle mass changes and clinical outcomes in sarcopenic patients with lumbar degenerative diseases.

Shotaro Fukada, Masahiro Kanayama, Fumihiko Oha, Michihaya Kono, Yukitoshi Shimamura, Ryota Hyakkan, Shogo Fukase, Kohei Shiota, Tomoyuki Hashimoto (Japan)

053

Screw insertion into infected vertebrae in posterior fixation for pyogenic spondylitis.

Hiroki Fukui, Toshio Nakamae, Naosuke Kamei, Toshiaki Maruyama, Kazuto Nakao, Fadly F ansyah, Nobuo Adachi (Japan)

054

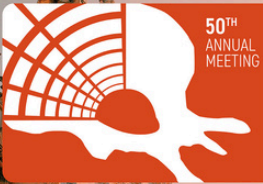
Effects of two spinal manipulative therapy techniques on six degree of freedom mechanical properties of porcine spinal segment models.

Martha Funabashi, Daniel Kim, Gregory N Kawchuk, Dhara Amin, John J Costi (Canada)

055

Do cells of intervertebral discs with type 1 Modic change on MRI show a history of impaired spinal fusion?

Benjamin Gantenbein, Andrea Oberli, Tamara Mengis, Harald Bonel, Christoph Albers, Oliver Hausmann, Oliver Distler, Stefan Dudli (Switzerland)



GENERAL POSTERS

Thursday 30 May 2024

2:35PM-3:35PM

General Poster Session

Poster Number 056

The bone morphogenetic protein 2 analogue L51P enhances spinal fusion in combination with BMP2 in an in-vivo rat tail model.

Benjamin Gantenbein, Katharina AC Oswald, Georg F Erbach, Andreas S Croft, Paola Bermudez Lekerika, Franziska Strunz, Sebastian Bigdon, Christoph Albers (Switzerland)

057

COVID-19 shortened length of stay but worsen mental health of patients after lumbar fusion.

Bo Gao, Fang Xie, Xueyu Hu, Zhuojing Luo (China)

058

Interventional procedures for chronic noncancer spine pain: a systematic review and network meta-analysis of randomised trials.

Stephane Genevay, Xiaoqin Wang, grace Martin, Behnam Sadeghirad, Yaping Chang, Ivan D Florez, rachel Couban, Fatemeh Mehrabi, Holly N Crandon, Meisam Abdar Esfahani, Laxsanaa Sivananthan, Neil Sengupta, Elena Kum, Preksha Rathod, Rami Z Morsi, Brett R Stacey, Norman Buckley, Gordon H Guayatt, Y. Raja Y Rampersaud, Christopher J Standaert, Thomas Agoritsas, Jason W Busse (Switzerland)

059

New antibacterial dressings for the treatment of surgical and non-surgical wounds in spine surgery and the treatment of deformity.

Gabriela Graziani, Daniele Ghezzi, Tessa Tuerlings, Martina Cappelletti, Chris Arts, Lorenza Draghi, Silvia Fare' (Italy)

060

Antimicrobial functionalization of custom-made vertebral implants by nanostructured metal-based films opposes infection by multi-drug resistant S. aureus.

Gabriela Graziani, Maria Sartori, Daniele Ghezzi, Donato Monopoli, Martina Cappelletti, Enrico Sassoni, Marco Boi, Nicola Baldini, Milena Fini (Italy)

061

A combined exercise programme involving ashtanga yoga and aerobic exercise in runners with lower back pain: a randomized-controlled study.

Rhiannon RG Green, Zoe ZB Bamber, Kimberley KLE Edwards (France)

062

A retrospective analysis of correlation between sagittal alignment and distal junctional failure in lumbar spine pathology.

Cristiana Griffoni, Sara Montanari, Luca Cristofolini, Alessandro Gasbarrini, Giovanni Barbanti-Brodano (Italy)

063

Potential pathways mediating the senotherapeutic effect of o-vanillin and RG-7112.

Lisbet LH Haglund, Hosni HC Cherif, Kai KS Sheng, Jean JO Ouellet (Canada)

064

Lumbar spine coronal balance parameters as a predictor of the rehabilitation management outcomes in patients with radiculopathy due to lumbar disc herniation: A multicenter prospective cohort study.

Deed E Harrison, Yaser AH Aljallad, Ibrahim M. Moustafa, Mohamed Badr, Nouran Hamza, Paul A Oakley (United States)

065

A study on the outcome of lumbar spondylolysis treated with "FRACTURE" imaging without CT.

Kenji Hatakeyama, Atsushi Kojima, Tomonori Sodeyama, Shigeru Kamitani, Hirohito Suzuki, Naoki Tsujishima (Japan)

066

A study on the clinical features of interspinous ligament lesion in adolescent patients with low back pain~Second report.

Kenji Hatakeyama, Atsushi Kojima, Tomonori Sodeyama, Hirohito Suzuki, Shigeru Kamitani, Naoki Tsujishima (Japan)

067

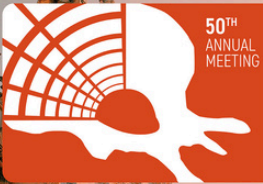
Analysis of insertion torque of pedicle screw using penetrating endplate screw technique for L5-S1 interbody fusion.

Masaru Hatano, Keishi Maruo, Fumihito Arizumi, Masakazu Toi, Tomoyuki Kusukawa, Hayato Oishi, Tetsuto Yamaura, Kazuma Nagao, Shoji Nishio, Yoshiteru Nakamura, Toshiya Tachibana (Japan)

068

Evaluating 1above-1below versus 2above-2below posterior fusion strategies in thoracolumbar fractures with load sharing classification scores ≥ 7 .

Nobuaki Hattori, Akihiko Hiyama, Daisuke Sakai, Hiroyuki Katoh, Masato Sato, Masahiko Watanabe (Japan)



GENERAL POSTERS

Thursday 30 May 2024

2:35PM-3:35PM

General Poster Session

Poster Number 069

The accuracy of intuitive diagnosis of osteoporosis using radiographs and cts of the lumbar spine.

Chikara Hayakawa, Ichiro Okano, Yusuke Dodo, Koki Tsuchiya, Ryo Yamamura, Tomoaki Toyone, Yoshifumi Kudo (Japan)

070

Fractions and cellular interactions of cd16+monocytes and plasmacytoid dendritic cells are increased in modic type 1 change bone marrow.

Irina Heggli, Dominik Burri, Jan Devan, Nick Herger, Tamara Mengis, Michaela Zavolan, Mazda Farshad, Oliver Distler, Stefan Dudli (United States)

071

Vitamin D insufficiency in elderly patients undergoing spinal surgery: a comprehensive evaluation.

Hirohito Hirata, Tadatsugu Morimoto, Tomohito Yoshihara, Masatsugu Tsukamoto, Masaaki Mawatari (Japan)

072

Evaluating the precision of percutaneous pedicle screw placement in lateral spine surgery: A retrospective analysis of intraoperative CT navigation.

Akihiko Hiyama, Daisuke Sakai, Hiroyuki Katoh, Satoshi Nomura, Masahiko Watanabe (Japan)

073

The design of a six-axis bioreactor for the application of complex, daily activity profiles to whole-organ intervertebral disc cultures.

Timothy P Holsgrave, Daniela Lazaro-Pacheco, Isabelle Ebisch, Michael Ward (United Kingdom)

074

Single cell microgel encapsulation promoted MSC survival and improved the therapeutic efficacy of MSC in treating intervertebral disc degeneration via suppressing pyroptosis.

Guanrui Huang, Haotian Shen, Hongyuan Xing, Guangyu Chu, Yifan Shen, Zhiyun Feng, Yue Wang (China)

075

Effects of decompression surgery on sleep disorders in patients with lumbar spinal stenosis.

Masahiro Inoue, Sumihisa Orita, Kazuhide Inage, Shiga Yasuhiro, Yawara Eguchi, Seiji Ohtori (Japan)

076

Relationship between paraspinal muscle cross-sectional area, fatty infiltration, and muscle strength in patients with chronic low back pain.

Olivia C Iorio, Brent Rosenstein, Neda Naghdi, Maryse Fortin (Canada)

077

Facet joint morphology and tropism in adolescents: Association with lumbar disc herniation and spondylolysis.

Yoshihiro Ishihama, Koichi Sairyō (Japan)

078

Utilizing a modified elliptical tubular wound opener in microscopic lumbar decompression reduces early postoperative pain.

Tetsuhiro Ishikawa, Jun Sato, Kenta Kono, Seiji Ohtori (Japan)

079

Progression for radiographic lumbar spondylolisthesis in the general population : a 10-year follow-up of the ROAD study.

Yuyu Ishimoto, Satoshi Arita, Hiroshi Hashizume, Keiji Nagata, Shigeyuki Muraki, Hiroyuki Oka, Masanari Takami, Shunji Tsutsui, Hiroshi Iwasaki, Toshiko Iidaka, Hiroshi Kawaguchi, Sakae Tanaka, Kozo Nakamura, Munehito Yoshida, Noriko Yoshimura (Japan)

080

Serum periostin is associated with disc degeneration.

Hayato Ito, Tadatsugu Morimoto, Hirohito Hirata, Tomohito Yoshihara, Masatsugu Tsukamoto, Masaaki Mawatari (Japan)

081

Net Promoter Score in lumbar Surgeries.

Hiroki Iwai, Hirohiko Inanami, Yuichi Takano, Hisashi Koga (Japan)

082

Surgical approach using retrograde transposition of erector spinae by cutting posterior iliac crest for the L5 lesion.

Akira Iwata, Masahiko Takahata, Katsuhisa Yamada, Tsutomu Endo, Norimasa Iwasaki, Hiroaki Hiraga (Japan)

083

Comparison of monobloc and modular cages for different ALIF implantation procedures. An in vitro study.

Jan Ulrich Jansen, Vincenza Sciortino, Hans-Joachim Wilke (Germany)



GENERAL POSTERS

Thursday 30 May 2024

2:35PM-3:35PM

General Poster Session

Poster Number 084

Use of transabdominal motor evoked potential neurophysiological monitoring- a single institution's experience.
Lakota Jones, Jessica Barley, Lindsay Akers, Annaleigh Tucker, Ezequiel Gleichgerrcht, Gabriella Rivas, Jaime Cooner, John Glaser (United States)

085

Phenotypic characterisation of the degenerated intervertebral disc: correlating signalling pathway regulation with MRI imaging features.
Kieran Joyce, Aoibhinn Kennelly, Sarah McDonnell, Aiden Devitt, Isma Liza Mohd Isa, Abhay Pandit (Ireland)

086

Short-term outcomes of full-endoscopic disc cleaning surgery for intractable discogenic low back pain with Modic type1 change.
Yutaro Kanda, Kosuke Sugiura, Fumitake Tezuka, Saori Soeda, Masashi Kumon, Kozaburo Mizutani, Kazuta Yamashita (Japan)

087

Sacral deformity associated with adolescent idiopathic scoliosis and appropriate parameters for measuring sacral tilt.
Yuya Kanie, Masayuki Furuya, Takahito Fujimori, Seiji Okada (Japan)

088

Association of motivation for home exercise and health-related quality of life in patients with chronic low back pain: a population-based internet survey in Japan.
Kinshi Kato, Ryoji Tominaga, Takuya Nikaido, Kazuyuki Watanabe, Hiroshi Kobayashi, Yoshihiro Kobayashi, Kenji Kobayashi, Shin-ichi Konno, Yoshihiro Matsumoto (Japan)

089

Evaluation of conservative treatment (brace) for acute osteoporotic vertebral fracture (ovf) about non-union rate and long-term results.
Tsuyoshi Kato (Japan)

090

Administration of autologous platelet-rich plasma to the intervertebral discs of patients with Modic type 1 change experiencing low back pain: A prospective study.
Soya Kawabata, Sota Nagai, Kei Ito, Hiroki Takeda, Daiki Ikeda, Yusuke Kawano, Shinjiro Kaneko, Yukako Shiraishi, Yuichiro Sano, Yoshiharu Ohno, Nobuyuki Fujita (Japan)

091

TOMO magnetic resonance elastography of the lumbar spine: a proof-of-concept using a novel multi-frequency dual-actuator setup.
Gregory N Kawchuk, Johannes Castelein, Tue Secher Jensen, Karen Kettless, Lau Brix, Ronald JH Borra (Canada)

092

Transcutaneous spinal cord stimulation for treatment of chronic low back pain: a pilot clinical trial.
Anastasia Keller, Abel Torres-Espin, Emma Iorio, Naoki Takegami, Esmeralda Mendoza, Adam Ferguson, Jeannie Bailey (United States)

093

Sensitivity of spinal segment stiffness to loading co-ordinate system position in finite element models.
Emily S Kelly, Akbar A Javadi, Tim Holsgrove, Michael Ward, David Williams, Dionne Shillabeer, Jenny Williams, Cathy Holt, Judith Meakin (United Kingdom)

094

Lordosis loss in degenerative spinal conditions.
Will K M Kieffer, Angus Don, Antony Field, Peter A Robertson (United Kingdom)

095

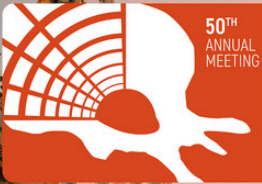
Comparative Analysis of Extended Endoscopic Lumbar Foraminoplasty (EELF) and Transforaminal Lumbar Interbody Fusion (TLIF): A preliminary report from a prospective observational study.
Jun-Hoe Kim, Chi Heon Kim, Chang-Hyun Lee (South Korea)

096

Aging lumbar intervertebral disc reveals upregulation in immune pathways and activated immune cell populations.
MinKyu (Mark) Kim, Troy Anderson, Joanna Smeeton, Nadeen O. Chahine (United States)

097

Predictors of Complications and Unfavorable Outcomes of MIS Treatment in Elderly Patients with Degenerative Lumbar Spine Pathologies.
Vladimir Klimov, Sergey Ryabykh (Russia)



GENERAL POSTERS

Thursday 30 May 2024

2:35PM-3:35PM

General Poster Session

Poster Number 098

Clinical results of intervertebral disc enzyme injection therapy for lumbar disc herniation in 100 consecutive patients at our institution.

Atsushi Kojima, Kenji Hatakeyama, Naoki Tsujishima, Shigeru Kamitani, Hirohito Suzuki, Tomonori Sodeyama (Japan)

099

Spinopelvic alignment-driven etiology of endplate abnormalities of the lumbar spine in humans.

Takuhei Kozaki, Sheila J. Toro, KHALED ABOUSHAALA, Andrew Savoia, Harman Singh, Masatoshi Teraguchi, Hiroshi Hashizume, Mamoru Kawakami, Arnold Wong, Uruj Zehra, Ana Chee, Alejandro Espinoza Orias, David Polly, Frank Phillips, Howard An, Dino Samartzis (United States)

100

Semisupervised spinal tumor segmentation based on three-dimensional topological constraints and uncertainty analysis.

Xihe Kuang, Feng Wei, Zihe Li, Panpan Hu, Yue Zhang, Haozheng Li, Shenxin Zeng, Teng Zhang (China)

101

NiTinol shape memory smart implants for orthopedics: A review of precision 3D printing, biocompatibility, potential clinical and surgical applications.

Satyanarayan Naresh Kumar, Jagadeesh babu Veluru, Praveen Jeyachandran, Liebin Daryl Renick Lee, Si Jian Hui, Jonathan Jiong Hao Tan, Jerry Fuh Y H, Kumar A Senthil (Singapore)

102

Can a deep learning artificial intelligence model lead to earlier diagnosis of high grade metastatic epidural spinal cord compression and reduction in treatment delay?

Satyanarayan Naresh Kumar, Jiong Hao Tan, Si Jian Hui, Cherie Lin Hui Tan, Eugene Khye Gin Chua, James Hallinan, Yiong Huak Chan, Joel Yong Hao Tan, Beng Chin Ooi (Singapore)

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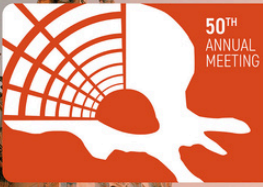
Elastin degradation products accelerate chondrogenesis and calcification of human ligamentum flavum-derived cells.

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Tomoya Matsuo, Yoshiki Takeoka, Takashi Yurube, Takeru Tsujimoto, Yutaro Kanda, Kunihiko Miyazaki, Hiroki Ohnishi, Masao Ryu, Naotoshi Kumagai, Kohei Kuroshima, Yoshiaki Hiranaka, Ryosuke Kuroda, Kenichiro Kakutani (Japan)

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Comparison of trunk muscle activity during sit-to-stand movement at different seat heights.

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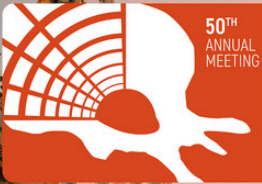
Utility of MR bone imaging in the diagnosis of pediatric lumbar spondylolysis: a potential substitute for ct.

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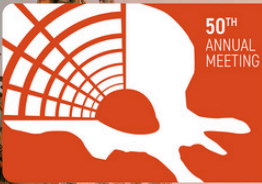
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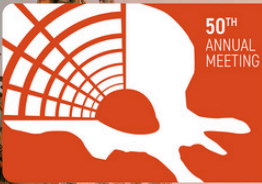
Investigation of bone healing rate with three types of braces for elementary children with lumbar spondylolysis.

Noritaka Suzuki, Atsushi Terakado, Masahiro Inoue, Sumihisa Orita, Kazuhide Inage, Yasuhiro Shiga, Yawara Eguchi, Noriyasu Toshi, Kohei Okuyama, Soichiro Tokeshi, Shuhei Ohyama, Seiji Ohtori (Japan)

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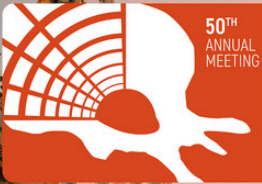
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