

Monday, May 31, 2021

Program Committee Meeting

Membership Committee Meeting

Strategy Group Meeting

Focus Groups 1-4

Tuesday, June 1, 2021

Executive Committee Meeting

First Business meeting

Virtual Welcome Reception

Wednesday June 2, 2021

WELCOME AND PRESIDENTIAL LECTURE BY HELENA BRISBY - PRESIDENT

SESSION 1: BEST PAPERS (BASIC SCIENCE)

Chairs:

Human Lumbar Discs are not sterile! - Defining the Normal Intervertebral Disc Microbiome

Shanmuganathan Rajasekaran (India)

S. Dilip Chand Raja, T. Chitraa, N. Sharon Miracle, M. Raveendran, M.

Monica Steffi, K. Vijayanand

id# 2759

Kyphosis and early disc degeneration induced by paraspinal muscle insufficiency in female TSC1mKO mice

Wing Moon Raymond Lam (Singapore)

W. Zhuo, W. Chen, E. Combie, K. Tan, S. Cool, C. Chan, S. Tsai, H. Hey

id# 2565

Chromatin accessibility maps of human nucleus pulposus cells identify degeneration grade-specific epigenome signatures and gene regulatory networks

AM Steven M. Presciutti (USA)

N.M. Khan, J. Cotney, H. Drissi
id# 2593

Rapamycin Ameliorates Age-Associated Intervertebral Disc Degeneration In Male Marmosets

AM Rebecca Kritschil (USA)

D. Wang, C. Zhou, Q. Dong, D. Guo, J. Lee, G. Sowa, N. Vo
id# 2675

Expression and distribution of M1 and M2 macrophages in the degeneration process of human lumbar intervertebral disc herniation: A histological and clinical efficacy analysis

Xiao-Chuan Li (China)

W. Fan, C. Huang, S. Luo, M. Wang
id# 2543

Paraspinal muscle contractile function is impaired with chronic spine disease: a study using the ENT1 KO mouse

Alex M. Noonan (Canada)

C.A. Séguin, S.H. Brown
id# 2597

Evaluating Senolytics as a treatment option for Lower Back Pain in SPARC-null mice

Matthew Mannarino (Canada)

H. Cherif, L. Haglund
id# 2792

SESSION 2: BASIC SCIENCE: DISC BIOLOGY, MUSCLE, AND BONE QUALITY

Chairs:

Disc ‘Dysbiosis’ as a cause of Inflammaging and Lumbar Intervertebral Disc Degeneration – Revelations form Next Generation Sequencing Analysis

Shanmuganathan Rajasekaran (India)

S. Dilip Chand Raja , T. Chitraa, M. Raveendran, N. Sharon Miracle, M. Monica Steffi, K. Vijayanand
id# 2764

Effects of exosomes from mesenchymal stem cells on nucleus pulposus cells: a potential cell-free therapy.

Gianluca Vadala (Italy)

V. Tilotta, C. Cicione, G. Di Giacomo, L. Ambrosio, F. Russo, R. Papalia, V. Denaro
id# 2780

Single-cell RNA-seq of human disc cells reveals new diagnostic and therapeutic biomarkers for intervertebral disc degeneration and back pain

Lisbet Haglund (*Canada*)

H.H. Cherif, A.A. Pacis.

id# 2680

Potential of MSC secretome to modulate degenerative changes in a loaded annulus fibrosus organ culture model

Graciosa Q Teixeira (*Germany*)

A. Ekkerlein, R.M. Goncalves, J.R. Ferreira, A. Ignatius, H. Wilke, C.

Neidlinger-Wilke

id# 2504

The effect of posterior lumbar spinal surgery on biomechanical properties of rat paraspinal muscles 13 weeks post-surgery

Shun Yamamoto (*Canada*)

M. Malakoutian, T. Marine, J. Street, S.H. Brown, F. Rossi, M. Saito, T.R.

Oxland

id# 2733

The Impact of Preoperative Cross-sectional Area of Psoas Muscle on Postoperative Outcomes of Adult Spinal Deformity Surgery

Hikari Urakawa (*USA*)

K. Sato, J. Elysee, R. Lafage, A. Vaishnav, Y. Yao, H. Kim, F. Schwab, V.

Lafage, S. Qureshi

id# 2750

Thoracic Bone Mineral Density measured by Quantitative Computed Tomography in Patients undergoing Spine Surgery

Stephan N Salzmann (*USA*)

I. Okano, C. Jones, E. Basile, A. Iuso, J. Zhu, M. Reisener, E. Chiapparelli, J.

Shue, J.A. Carrino, F.P. Girardi, F.P. Cammisa, A.A. Sama, A.P. Hughes

id# 2724

SESSION 3: INTERVERTEBRAL DISCS AND MODIC CHANGE

Modic changes and endplate defects but not spinal stenosis affect low back pain in patients with lumbar spinal stenosis

Masakazu Minetama (*Japan*)

M. Kawakami, M. Teraguchi, Y. Mera, T. Sumiya, M. Nakagawa, Y.

Yamamoto, S. Matsuo, N. Sakon, T. Nakatani, T. Kitano, Y. Nakagawa

id# 2599

A Prospective, Three-Year Longitudinal Study of Modic changes of the Lumbar Spine in a Population-Based Cohort: the Wakayama Spine Study

Hide Nobu Tamai (Japan)

M. Teraguchi, H. Hashizume, H. Oka, D. Samartzis, S. Tanaka, M. Yoshida, N. Yoshimura, H. Yamada

id# 2559

The lack of image-based dynamic components in Modic changes suggest that Modic changes are not actively involved in biomechanically induced pain

Hanna Hebelka (Sweden)

H. Brisby, A. Erkmär, K. Lagerstrand

id# 2609

Integrative Analysis of Metabolomic, Genomic, and Imaging-based Phenotypes Identify Very Low Density Lipoprotein as a Potential Risk Factor for Lumbar Modic Changes

Dino Samartzis (USA)

Y. Li, J. Karppinen, K. Cheah, D. Chan, P.C. Sham

id# 2784

Does Preoperative Modic changes influence outcomes of Microdiscectomy: A prospective comparative cohort study

Shanmuganathan Rajasekaran (India)

K. Vijayanand, K. Dinesh, S. Dilip Chand Raja, K. Rishi Mugesh, S. Ajoy Prasad

id# 2766

Disc space narrowing influences clinical symptoms more in women than men : The Wakayama Spine Study

Yuyu Ishimoto (Japan)

N. Yoshimura, K. Walker-Bone, C. Cooper, G. Ntani, H. Hashizume, M. Teraguchi, S. Muraki, H. Oka, S. Tanaka, M. Yoshida, H. Yamada

id# 2500

Age and disc degeneration in low back pain: comparison of large cohorts of symptomatic and asymptomatic female subjects demonstrates interactions of age, spinal level and degenerative features

Jeremy Fairbank (UK)

A. Jamaludin, T. Kadir, A. Zisserman, I. McCall, F. Williams, H. Lang, E. Buchanan, J. Urban

id# 2618

SESSION 4: LOW BACK PAIN

The longitudinal analysis to determine whether current sexual activities among elderly people affect low back pain in future

Shoichiro Ohyama (Japan)

M. Hoshino, S. Takahashi, Y. Hori, A. Yabu, H. Terai, T. Tsujio, H. Nakamura
id# 2600

Healthcare utilization and pain outcomes in individuals with low back pain: an observational study of a large dataset

Anna H Bailes (USA)

S. Koscomb, O.C. Marroquin, A.D. Wasan, H.B. Gutstein, A. Delitto, N. Vo, G.A. Sowa
id# 2802

The association between subphenotypes of low back pain and degenerative imaging findings in a cohort of young adults from the Raine Study

Mark Hancock (Australia)

A. Smith, S. O'Hanlon, M. Krieser, P.B. O'Sullivan, F. Cicuttini, L.M. Straker, B. Adler, Y. Wang, J. Karppinen, D. Samartzis, D. Beales, P. Coenen, P. Kent
id# 2803

Epidemiology of lumbar degenerative phenotypes of children and adolescents: a large-scale imaging study

Zhong-Yuan Wan (China)

J. Zhang, H. Shan, T. Liu, F. Song, D. Samartzis, H. Wang
id# 2772

Classification of annular fissures and discography-provoked pain using multiparametric machine-learning analysis of magnetic resonance imaging

Kerstin M Lagerstrand (Sweden)

H. Hebelka, H. Brisby
id# 2576

Do both morphometric and mechanical characteristics of lumbar multifidus in people with chronic low back pain differ from those of asymptomatic counterparts?

Sabina Pinto (Hong Kong)

J. Cheung, Y. Zheng, M. Pang, J. Karppinen, D. Samartzis, A. Wong
id# 2811

Pelvic Compensation Accompanying Spinal Malalignment and Back Pain-Related Factors in a General Population

Shizumasa Murata (Japan)

H. Hashizume, S. Tsutsui, H. Oka, M. Teraguchi, Y. Ishimoto, K. Nagata, M.

*Takami, H. Iwasaki, A. Minamide, Y. Nakagawa, Y. Yukawa, N. Yoshimura,
M. Yoshida, H. Yamada*
id# 2831

Thursday, June 3, 2021

Special Poster Sessions 5:1-5:4

- 5.1: Pain generator and treatment
- 5.2: Surgery and clinical outcome
- 5.3. Osteoporosis, deformity, and balance
- 5.4. Artificial intelligence and novel techniques

SESSION 6: BEST PAPERS (CLINICAL)

Factors contributing to biomechanical changes in the lumbar spine following spaceflight and incidence for post-spaceflight intervertebral disc herniation

Jeannie F. Bailey (USA)

P. Nyayapati, G.T. Johnson, L. Dziesinski, A.W. Scheffler, R. Crawford, R. Scheuring, C.W. O'Neill, D.G. Chang, A.R. Hargens, J.C. Lotz
id# 2678

The Nocebo Effects of an MRI Report on the Patient and the Benefit of Reassurance - Results from a Randomized Clinical Trial of 44 patients

Shanmuganathan Rajasekaran (India)

S. Dilip Chand Raja, B. Pushpa, B. Anand, K. Rishi Mugesh, S. Ajoy Prasad
id# 2761

Progression of lumbar disc degeneration on MRI is not associated with occurrence of LBP, and LBP related QOL: an epidemiological study with 10-year follow-up

Kenji Kobayashi (Japan)

K. Otani, M. Sekiguchi, R. Tominaga, T. Watanabe, S. Konno
id# 2544

8 Extensive Subphenotyping of Lumbar Modic Changes and their Association with Low Back Pain in a Large Population-Based Cohort: the Wakayama Spine Study

Masatoshi Teraguchi (Japan)

H. Hashizume, H. Oka, D. Samartzis, H. Tamai, S. Tanaka, M. Yoshida, N. Yoshimura, H. Yamada
id# 2507

Influence of lumbar developmental spinal stenosis on back pain, leg pain and disability – prospective cohort 2206 subjects

Jason Pui Yin Cheung (*Hong Kong*)

M. Lai, P. Cheung, D. Samartzis, J. Karppinen, K. Cheung id# 2534

Predicting the likelihood of complications in patients undergoing surgery for degenerative disorders of the lumbar spine – model development

Pascal Zehnder (*Zürich*)

U. Held, A. Luca, E. Munting, T. Pigott, T. Fekete, O. Distler, D. Haschtmann, R. Reitmeir, M. Loibl, A. Mannion

id# 2753

Evaluation of the association between "appropriate use of surgery" and patient-rated outcome in degenerative spondylolisthesis: a prospective, controlled, multicentre study

Anne F Mannion (*Switzerland*)

F. Mariaux, O. Proebstl, T.F. Fekete, F.S. Kleinstueck, D. Jeszenszky, M. Kohler, D. Haschtmann, J. Lurie, A. Pearson, P. Otten, I.M. Norberg, M. Loibl, V. Pittet, F. Porchet.

id# 2685

SESSION 7: SURGERY

Risk factors for symptomatic adjacent segment disease following lumbar fusion: A systematic review and meta-analysis

Arnold Wong (*China*)

K. Lau, N. To, D. Samartzis, G. Harada, H. An

id# 2822

Prospective comparison of the accuracy of the New England Spinal Metastasis Score (NESMS) to legacy scoring systems in spinal metastases

Andrew Schoenfeld (*USA*)

M. Ferrone, J. Schwab, M. Harris

id# 2529

"Readmission-free survival" in metastatic spine tumour surgical patients: A novel concept

Naresh Kumar (*Singapore*)

A. Thomas, M.R. Ramos, J.Y. Tan, L. Shen, S. Madhu, K.G. Lopez, J. Tan, B. Vellayappan

id# 2602

Comparison of opioid use in multilevel lumbar spinal fusion patients before and after implementation of an institutional opioid minimizing

Marie-Jacqueline Reisener (*USA*)

A.P. Hughes, I. Okano, J. Zhu, A. Arzani, J. Costas, S.N. Salzmann, J. Shue,

A.A. Sama, F.P. Girardi, E.M. Soffin
id# 2708

Preoperative Cross-sectional Area of Psoas Muscle Impacts Postoperative Functional Outcomes of Posterior Lumbar Surgery

Hikari Urakawa (USA)

K. Sato, A.S. Vaishnav, R. Lee, C. Chaudhary, J. Mok, Y. Katsuura, S.A. Qureshi
id# 2749

The extent, nature, and consequences of loss to follow-up in a long-established single-centre spine surgery registry of over 15'000 patients

Anne F Mannion (Switzerland)

D. O'Riordan, T.F. Fekete, F. Porchet, F.S. Kleinstueck, D. Jeszenszky, M. Loibl, R. Reitmeir, D. Haschtmann
id# 2722

Decompressive surgery without instrumented fusion in patients with low-grade degenerative spondylolisthesis patients: long-term patient Reported outcome

Judith M.P. van Grafhorst (The Netherlands)

C.L. Vleggeert-Lankamp, W.C. Peul
id# 2785

SESSION 8: CLINICAL TRIALS, DEFORMITY, AND BALANCE

Intervertebral disc repair with autologous nucleus pulposus-derived MSCs transplantation: a controlled clinical trial by 5-year follow-up

Dike Ruan (China)

C. Wang, Q. He, C. Zhang, C. Li, X. Bai, W. Ji, T. Wen
id# 2548

Viable Disc Tissue Allograft Supplementation in the Treatment of Degenerated Intervertebral Discs the One Year Results of a Randomized Control Trial

Douglas P Beall (USA)

id# 2677

Supervised exercise therapy versus unsupervised exercise for patients with lumbar spinal stenosis: one-year follow-up of a randomized controlled trial

Masakazu Minetama (Japan)

M. Kawakami, M. Teraguchi, Y. Mera, T. Sumiya, M. Nakagawa, Y. Yamamoto, S. Matsuo, N. Sakon, T. Nakatani, T. Kitano, Y. Nakagawa
id# 2612

Cone of Economy Classification: Evolution, Concept of Stability, Severity Level, and Correlation to Patient-Reported Outcome Scores

Ram Haddas (USA)

V. Sambhariya, T. Kosztowski, A. Block, I. Lieberman

id# 2523

Prevalence and characteristics of a spinal sagittal malalignment in patients with osteoporosis

Masayuki Miyagi (Japan)

T. Matsunaga, A. Kuroda, Y. Yokozeki, K. Murata, T. Koyama, A. Kawakubo, K. Uchida, T. Nakazawa, T. Imura, W. Saito, E. Shirasawa, S. Ikeda, Y. Mimura, G. Inoue, M. Takaso

id# 2737

Global Balance of the Spine, an Independent Contributor to Physical Function and Falls in Older Adults: the SAFE Cohort Study

Stephane Genevay (Switzerland)

M. Hars, A. Faundez, J. fechtenbaum, K. Briot, C. Roux, F. Hermann, S. Ferrar, S. Boudabbous, A. Trombetti

id# 2721

Learning-based coronal spine alignment prediction using smartphone-acquired scoliosis radiograph images

Teng Zhang (Hong Kong)

Y. Li, J. Cheung, K. Wong

id# 2695

PRESIDENTIAL LECTURE: MAMORU KAWAKAMI IMMEDIATE PAST PRESIDENT

Friday June 4

1 hr Second Business Meeting (for members only)

20 mins Fellowship Awards Ceremony

ISSLS Research Grant - Sponsored by Taisho Pharmaceutical

Olga Krupkova - 2019 winner

Graciosa Teixeira - 2020 winner

ISSLS Clinical Travelling Fellowship

Shashidhar Bangalore Kantharajanna - 2019 winner

Peng Yin – 2020 winner (hasn't travelled yet due to Covid)

ISSLS Wiltse Lifetime Achievement Award

John O'Brien - 2020 winner

SPECIAL POSTER SESSIONS 9.5-9.8

9.1: Intervertebral discs and Modic change

9.2. Surgery and clinical outcome

9.3: Muscle and intervertebral discs

9.4: Surgery and clinical outcome

SESSION 11 ISSLS PRIZE (70 mins)

Introduction: Björn Rydevik, ISSLS Prize Chairman

What are the risk factors for low back pain flares and does this depend on how flare is defined?

Paul Hodges (Australia)

id# 2834

A Novel Inducible System to Regulate Transgene Expression of TIMP1

Nam N Vo (USA)

Y. Han, Z. Ouyang, R.A. Wawrose, S.R. Chen, M. Hallbaum, Q. Dong, E. Dando, Y. Tang, B. Wang, J.Y. Lee, J.D. Shaw, J.D. Kang, G.A. Sowa

id# 2835

In vivo sagittal motion of the lumbar spine in low back pain patients: a radiological big data study

Fabio Galbusera (Milan)

F. Niemeyer, Y. Tao, A. Cina, L.M. Sconfienza, A. Kienle, H. Wilke

id# 2538

Closing Remarks - Scott Blumenthal, First Vice President

SPECIAL POSTER SESSION Thursday June 4

SESSION 5.1: PAIN GENERATOR AND TREATMENT

A systematic review on the risk factors for chronic low back pain in older adults

Arnold Wong (*Hong Kong*)

T. Kwok, M. Leung, R. Mak, J. Tsang, C. Wong, M. Ferreira, M. Funabashi, L. Macedo

id# 2771

Epidural Steroid Compared To Placebo Injection In Patients With Sciatica: A Systematic Review And Meta-analysis

Eduard J.A. Verheijen (*Netherlands*)

C.A. Bonke, E.M. Amorij, C.L. Vleggeert-Lankamp

id# 2626

Biomarkers as a predictive tool for the outcome of pain and function in acute low back pain.

Valerio Tonelli Enrico (*United States*)

G. Sowa, M. Schneider, M. Haas

id# 2690

A Study on the Clinical Features of Interspinous Ligament Lesion in Adolescent Patients with Low Back Pain

Kenji Hatakeyama (*Japan*)

M. Urushibara, A. Kojima, S. Ohtori

id# 2776

Axial loading during MRI induce lumbar foraminal area changes and may have the potential to improve diagnostics of nerve root compromise

Helena Brisby (*Sweden*)

N. Rydberg, H. Hebelka, J. Hutchins, K. Lagerstrand

id# 2649

Women with lumbar degenerative spondylolisthesis demonstrate delayed abdominal reflex latency

John M. Popovich, Jr. (*USA*)

J. Cholewicki, A.S. Lee, L.W. Mysliwiec, J.N. Flood, P.K. Pathak, N.P. Reeves, R. Kothe

id# 2801

Influences of limited flexibility of the lower extremities and occurrence of low back pain in adolescent baseball players: a prospective cohort study

Kinshi Kato (*Japan*)

K. Otoshi, S. Yabuki, K. Otani, T. Nikaido, K. Watanabe, H. Kobayashi, J. Handa, S. Konno id# 2582

SESSION 5.2: SURGERY AND CLINICAL OUTCOME

Loads at adjacent segment level before and after surgery – combined clinical and simulation study of 205 adult spinal deformity patients

Dominika Ignasiak (*Switzerland*)

P. Behm, A.F. Mannion, F. Kleinstück, T. Fekete, D. Haschtmann, D. Jeszenszky, L. Zimmermann, S. Wunderlin, A. Vila-Casademunt, F. Pellisé, I. Obeid, F.J. Sanchez Perez-Grueso, A. Alanay, C. YILGOR, S.J. Ferguson, M. Loibl
id# 2654

8 Risk Factors for Adjacent Segment Degeneration Following Lumbar Fusion: A Meta-analysis

Arnold Wong (*USA*)

S. Patel, C. Mestyanek, G. Harada, D. Samartzis
id# 2832

Predictive value of postoperative hypolordosis in the occurrence of adjacent segment disease after lumbar fusion surgery

Muyi Wang (*China*)

Y. Qiu, X. Sun
id# 2687

Peri-operative complications of open spine surgery in the elderly over 90 years of age

Takeru Tsujimoto (*Japan*)

M. Kanayama, K. Suda, F. Oha, M. Komatsu, M. Tanaka, Y. Hasegawa, T. Hashimoto, N. Iwasaki
id# 2567

A retrospective analysis of patients with early deterioration of general condition after spinal metastasis surgery: Could we predict the early deterioration with the preoperative blood test?

Zhongying Zhang (*Japan*)

Y. Takeoka, T. Yurube, Y. Junya, Y. Kakiuchi, K. Yutaro, R. Tsujimoto, K. Miyazaki, H. Ohnishi, T. Takada, R. Kuroda, K. Kakutani
id# 2823

The “spinal metastasis invasiveness index”: A novel scoring system to assess surgical invasiveness

Naresh Kumar (*Singapore*)

M.R. Ramos, R. Patel, B.W. Tan, K.G. Lopez, C.P. Nolan, A. Kumar, D. Shree Kumar,

*L.M. Benneker
id# 2605*

Can collective intelligence improve the outcome of spine surgery?

Tamas F Fekete (*Switzerland*)
D. Haschtmann, M. Loibl, F.S. Kleinstueck, D. Jeszenszky, A. Mannion
id# 2720

SESSION 5.3. OSTEOPOROSIS, DEFORMITY, AND BALANCE (30 mins)

Can We Predict the Cone of Economy Measurement using Only a Force Plate?

Ram Haddas (*USA*)
A. Wood, I. Lieberman, P. Derman
id# 2524

Risk factors of worsening global spinal mal-alignment after osteoporotic vertebral fracture

Akira Iwata (*Japan*)
M. Kanayama, O. Fumihito, T. Hashimoto, M. Takahata, N. Iwasaki
id# 2519

Impact of Lumbar Fusion Length on Sitting Spino-pelvic Balance: Multi-segmental Versus Mono-segmental

Sinian Wang (*China*)
X. Sun, Y. Qiu
id# 2557

Age and Gender Related Differences in Gait Amongst Patients with Degenerative Spinal Disorders

Ram Haddas (*USA*)
V. Sambhariya, I.H. Lieberman
id# 2633

An Active Hybrid Model of the Human Lumbosacral Spine: Facet Joint Integration in a Multi-Objective Optimization of Muscle Forces

Alina Hoffmann (*Germany*)
R. Remus, B. Bender
id# 2662

Deficits in proprioceptive reweighting in middle-aged people with chronic low back pain and asymptomatic people: a cross-sectional study

Sabina Pinto (*Hong Kong*)
A. Wong, Y. Zheng, M. Pang, J. Cheung, J. Karppinen, D. Samartzis
id# 2821

Lumbar disc degeneration and vertebral fracture at thoracolumbar junction are risk factors for chronic low back pain with disability: 7 years' follow-up of the Wakayama Spine Study

Hiroshi Hashizume (Japan)

M. Teraguchi, H. Oka, Y. Ishimoto, K. Nagata, R. Kagotani, H. Iwahashi, M. Takami, S. Tsutsui, H. Iwasaki, A. Minamide, Y. Yukawa, S. Tanaka, M. Yoshida, N. Yoshimura, H. Yamada

id# 2642

SESSION 5.4. ARTIFICIAL INTELLIGENCE AND NOVEL TECHNOLOGIES

AI-based automated detection of traumatic thoracolumbar fractures on sagittal X-rays

Fabio Galbusera (Italy)

A. Cina, G. Sanchez, P. Varga, B. Gueorguiev-Rüegg, M. Alini, G. Schirò, P. Giorgi, E. Gallazzi

id# 2539

Learning-based fully automated prediction of lumbar disc degeneration progression with specified clinical parameters and preliminary validation

Jason Pui Yin Cheung (Hong Kong)

X. Kuang, M. Lai, K. Cheung, J. Karppinen, D. Samartzis, H. Wu, F. Zhao, Z. Zheng, T. Zhang

id# 2693

Disc Height Assessment and Inter-observer Variability Using Auto-segmentation

Douglas Beall (USA)

C. Hancock, M. Crotsenburg, N. Georgiev

id# 2793

Predicting Disc Re-Herniation After Lumbar Decompression: A Machine Learning Approach

Dino Samartzis (USA)

G.K. Harada, Z.K. Siyaji, G.M. Mallow, A.L. Hornung, F. Hassan, B.A. Basques, H.A. Mohammed, A.J. Sayari, H.S. An

id# 2789

A novel tool to provide predictable alignment data irrespective of source and image quality acquired on mobile phones: what engineers can offer clinicians

Teng Zhang (Hong Kong)

C. Zhu, Q. Lu, J. Liu, A. Diwan, J. Cheung

id# 2696

Proposal for a new scoring system for spinal degeneration: Mo-Fi-Disc

Emel Ozcan-Eksi (Turkey)

M. Eksi, O. Orhun, V. Turgut, M. Pamir
id# 2594

Radiographic Lumbar Spondylosis Evaluated by a Novel Semi-quantitative Method
in a Population Based-cohort Study

Junichi Yamada (Japan)

K. Akeda, N. Takegami, T. Fujiwara, A. Sudo
id# 2568

SPECIAL POSTER SESSION Friday June 5

SESSION 9.1: INTERVERTEBRAL DISCS AND MODIC CHANGE

The longitudinal impact of static intervertebral disc distraction on disc health –
magnetic resonance imaging study in a rabbit model

Hwee Weng Dennis Hey (Singapore)

W. Lam, X. Ren, K. Tan, W. Zhuo, K. Bhakoo, K. Tan, H. Wong
id# 2689

Lactate oxidative phosphorylation by annulus fibrosus cells: Evidence for lactate-
dependent metabolic symbiosis in intervertebral discs

Nam Vo (USA)

D. Wang, R. Hartman, C. Han, J. Kang, J. Lee, G. Sowa
id# 2577

In-vitro and in-vivo maintenance of rat intervertebral disc homeostasis through
Atg5-dependent autophagy

Ryu Tsujimoto (Japan)

T. Yurube, Y. Takeoka, Y. Kanda, K. Miyazaki, H. Ohnishi, Y. Kakiuchi, J. Yamamoto,
Z. Zhang, T. Takada, R. Kuroda, K. Kakutani
id# 2532

Involvement of autophagy in human lumbar spine herniated and degenerative disc
diseases

Takashi Yurube (Japan)

Y. Kakiuchi, M. Ito, R. Tsujimoto, Y. Kanda, K. Miyazaki, H. Ohnishi, Y. Takeoka, S.
Miyazaki, J. Yamamoto, Z. Zhang, T. Takada, K. Tadokoro, R. Kuroda, K. Kakutani
id# 2653

Can the COX-2 Inhibitor Celecoxib Influence Discogenic Pain Signals? An In Vitro Study with Inflamed Annulus Fibrosus Cells

Sibylle Grad (Switzerland)

S. Häckel, S. Häne, J. Eglauf, J. Ma, Z. Li, J.J. Pfannkuche, M. Peroglio, S. Hoppe, L.M. Benneker, G.M. Lang, M. Alini

id# 2732

The pathophysiological duality of Modic Type 1 changes: Transcriptomical differences of infectious and sterile etiology

Irina Heggli (Switzerland)

R. Schüpbach, A. Jüngel, N. Farshad-Amacker, N. Herger, M. Betz, J. Spirig, F. Wanivenhaus, N. Ulrich, M. Farshad, O. Distler, S. Dudli id# 2661

Type III collagen is a hallmark of the fibrotic pathomechanism in Modic type 1 changes and is linked to myofibroblast differentiation

Stefan Dudli (Switzerland)

I. Heggli, L. Guidici, R. Schüpbach, N. Farshad-Amacker, N. Herger, A. Juengel, M. Betz, J.M. Spirig, F. Wanivenhaus, N. Ulrich, F. Brunner, M. Farshad, O. Distler

id# 2655

SESSION 9.2. SURGERY AND CLINICAL OUTCOME (30 min)

Endplate Volumetric Bone Mineral Density Is a Predictor for Cage Subsidence following Lateral Lumbar Interbody Fusion: A Risk Factor Analysis

Conor Jones (USA)

I. Okano, S. Salzmann, E. Chiapparelli, M. Reisener, J. Shue, A. Sama, F. Cammisa, F. Girardi, A. Hughes

id# 2598

Gluteus maximus atrophy affects postoperative deterioration of sagittal alignment after short segment corrective fusion for adult spinal deformity

Masaru Tanaka (Japan)

M. Kanayama, T. Hashimoto, F. Oha, Y. Shimamura, T. Tsujimoto, Y. Hasegawa

id# 2560

Does sarcopenia affect short-term clinical outcomes following posterior/transforaminal lumbar interbody fusion?

Yuichi Y.H. Hasegawa (Japan)

M.M. Tanaka, M.M. Kanayama, T.T. Tsujimoto, Y.Y. Shimamura, F.F. Oha, T.T. Hashimoto, N.N. Iwasaki

id# 2547

Design and Implementation of an Enhanced Recovery After Surgery (ERAS) Protocol in Elective Lumbar Spine Fusion by Posterior Approach: A Retrospective, Comparative Study

Bhavuk Garg (India)

N. Mehta, T. Bansal, P. Khanna

id# 2638

Inflammatory response patterns of different surgical approaches to the spine. Is this the answer to quantification of surgical invasiveness?

Pedro Berjano (Italy)

F. Langella, R. Cecchinato, C. Martini, A. Redaelli, C. Lamartina

id# 2787

Preoperative MRI-based Vertebral Bone Quality (VBQ) Score Assessment in Patients undergoing Lumbar Spinal Fusion

Stephan N Salzmann (USA)

I. Okano, C. Jones, J. Zhu, S. Lu, I. Onyekwere, V. Balaji, M. Reisener, E. Chiapparelli, J. Shue, J.A. Carrino, F.P. Girardi, F.P. Cammisa, A.A. Sama, A.P. Hughes

id# 2730

The Platelet derived from induced pluripotent stem cells accelerates bone union with adequate rigidity in posterolateral lumbar fusion surgery model in rats

Yasuhiro Shiga (Japan)

M. Sato, N. Mizuki, S. Orita, K. Inage, Y. Eguchi, M. Narita, T. Hozumi, G. Kim, T. Odagiri, T. Mukaihata, S. Maki, T. Furuya, K. Kosaka, N. Takayama, K. Eto, S. Ohtori

id# 2734

SESSION 9.3: MUSCLE AND INTERVERTEBRAL DISCS (30 min)

Trunk muscle mass is associated with low back pain, spinal malalignment, and physical function in female patients with lumbar spinal stenosis

Sachika Matsuo (Japan)

M. Kawakami, M. Teraguchi, Y. Mera, T. Sumiya, M. Minetama, M. Nakagawa, Y. Yamamoto, T. Nakatani, Y. Nakagawa

id# 2562

How Effective is Therapeutic Exercise for Back Pain in the Patients with Adult Spinal Deformity?; An analysis focused on minimal clinically important difference

Tatsuya Endo (Division of Rehabilitation, Aizu Medical Center(AMEC) at Fukushima Medical University(FMU), Aizuwakamatsu city,, FUKUSHIMA, Japan)

T. Ito, K. Sato, T. MIURA, J. Omata, R. Tominaga, M. Iwabuchi, O. Shirado

id# 2797

Obesity is associated with poor paraspinal muscle quality at upper lumbar levels and degenerated spine at lower lumbar levels: Is this a domino effect?

Emel Ozcan-Eksi (Turkey)

M. Eksi, O. Orhun, V. Turgut, M. Guduk, M. Kara, C. Canbolat, M. Pamir

id# 2596

Effect of Posture on Lumbopelvic Muscle Morphometry and Geometry in Adult Spinal Deformity Patients from Upright MRI

Noor Shaikh (Canada)

H. Zhang, N. Beresford-Cleary, J. Street, D. Wilson, T. Oxland id# 2731

The natural course of the paravertebral muscles after the onset of osteoporotic vertebral fracture

Shinji Takahashi (Japan)

M. Hoshino, H. Terai, H. Toyoda, K. Tamai, Y. Hori, A. Yabu, H. Nakamura id# 2528

The effectiveness of motor control exercise in improving lumbar multifidus muscles morphology in patients with low back pain - a systematic review

Sabina PINTO (Hong Kong)

S. Boghra, L. Macedo, Y. Zheng, M. Pang, J. Cheung, J. Karppinen, D. Samartzis, A. Wong id# 2820

Pressure characteristic in lumbar discs correlate with degeneration but not necessarily with the proteoglycan content

Hans-Joachim Wilke (Germany)

L. Zengerle, L. Zöllner, G. Teixeira, C. Neidlinger-Wilke id# 2536

SESSION 9.4: SURGERY AND CLINICAL OUTCOME (30 mins)

Which Conditions Could Aggravate the Regional and Global Sagittal Balance following Single Level L5-S1 Posterior Lumbar Interbody Fusion?

Hyung Rae Lee (Korea, Republic of)

C. Jaehwan, C. Hwang, D. Lee, C. Lee id# 2688

Comparison of Outcomes of Primary and Revision Minimally Invasive Lumbar Microdiscectomy

Avani Vaishnav (USA)

H. Urakawa, J. Mok, C. Chaudhary, S. Qureshi id# 2742

Use of a cumulative summation test for determining the learning curve for microscopic unilateral laminectomy for bilateral decompression surgery

Jiwon Park (Korea, Republic of)

H. Kim, D. Ham, J. Lee, O. Kwon, B. Kwon id# 2566

Facet joint opening on CT is a predictor for poor clinical outcomes after less-invasive decompression surgery for lumbar spinal stenosis

Kentaro Yamada (Japan)

H. Toyoda, K. Tamai, S. Takahashi, A. Suzuki, M. Hoshino, H. Terai, H. Nakamura. id# 2706

The relative efficacy of lumbar fusion for low grade isthmic compared with degenerative spondylolisthesis

Daniel Haschtmann (Switzerland)

C. Brand, T.F. Fekete, D. Jeszenszky, F.S. Kleinstueck, M. Loibl, A. Mannion id# 2723

Improvement in gait pattern and its relationship with preoperative pelvic compensation after surgery in patients with sagittal plane deformity

Jae Won Lee (Korea)

H. Kim, J. Park, D. Ham, B. Kwon, O. Kwon id# 2580

Preoperative psychological predictors of satisfaction after lumbar surgery for lumbar spinal stenosis

Yoshio Yamamoto (Japan)

M. Kawakami, M. Minetama, M. Nakagawa, M. Teraguchi, Y. Mera, T. Sumiya, S. Matsuo, T. Kitano, Y. Nakagawa id# 2613

General Posters - Basic Science

Can Small Leucine-Rich Proteoglycans be Ideal Molecular Targets for Regeneration in IVD? - evidence from proteomic signatures of fetal, adult, and degenerative discs

Shanmuganathan Rajasekaran (India)

S. Dilip Chand Raja, T. Chitraa, M. Raveendran, N. Sharon Miracle, K. Vijayanand, M. Monica Steffi id# 2758

SERPIN'S: A potential target for molecular blockade in disc degeneration

Shanmuganathan Rajasekaran (India)

T. Chitraa, K. Vijayanand, M. Raveendran, N. Sharon Miracle, S. Dilip Chand Raja id# 2767

Activation of Nrf2 signaling by 4-octyl itaconate attenuates the cartilaginous endplate degeneration by inhibiting E3 ubiquitin ligase ZNF598

Bao Huang (China)

*J. Chen, J. Liu, X. Zhang
id# 2503*

Supplemented chondroitin sulfate proteoglycan promotes anabolic turnover in bovine nucleus pulposus cells under *in-vivo*-like physicochemical stresses

Yoshiki Takeoka (USA)

*J.D. Kang, S. Mizuno
id# 2540*

Larger Muscle Fibers and Fiber Bundles Manifest Smaller Elastic Modulus in Paraspinal Muscles of Rats and Humans

Masoud Malakoutian (Canada)

*M. Theret, S. Yamamoto, I. Dehghan-Hamani, M. Lee, J. Street, F. Rossi, S. Brown, T. Oxland
id# 2783*

RCAN1.4-calcineurin/NFAT signalling pathway is essential for hypoxic adaption of intervertebral discs

Bao Huang (China)

*J. Chen, J. Liu, Z. Shan
id# 2502*

Nose to back: spheroids derived from human nasal chondrocytes for nucleus pulposus repair

Olga Krupkova (Switzerland)

J. Kasamkattil, A. Gryadunova, M. Gay, V. Mironov, I. Martin, A. Barbero, S.

Schären, A. Mehrkens
id# 2499

Targeted proteomic analysis to explore the anti-inflammatory effects of notochordal cell-derived matrix

Frances Bach (*Netherlands*)

L. Laagland, F. Riemers, G. Erdmann, L. Creemers, C. Sachse, K. Ito, M. Templin, M. Tryfonidou
id# 2620

Regulators of Extracellular Matrix of Intervertebral Discs identified through Proteomic Analysis of Human Fetal Intervertebral Discs

Shanmuganathan Rajasekaran (*India*)

T. Chitraa, R. Muthurajan, D. Niek, S. Dilip Chand Raja, K. Vijayanand, N. Sharon Miracle, M. Monica Steffi
id# 2762

Anti-hypertrophic Effect of Adipose Cell Derived Mesenchymal Stem Cells on Mechanically Stressed Ligamentum Flavum Cells

Joohan Kim (*Republic of Korea*)

id# 2825

The Effect of Vertebral Level on Biomechanical Properties of the Lumbar Paraspinal Muscles in a Rat Model

Masoud Malakoutian (*Canada*)

S. Yamamoto, S. Sadaram, J. Speidel, J. Liu, J. Street, S. Brown, T. Oxland
id# 2805

Tissue Digestion with Chondroitinase or Papain – a suitable method to create degenerated discs for in vitro experiments?

Jan Ulrich Jansen (*Germany*)

G. Teixeira, A. Vernengo, S. Grad, C. Neidlinger-Wilke, H. Wilke
id# 2606

Metformin reduces NF- κ B nuclear translocation under inflammatory stress in rat annulus fibrosus cells

Ayesha Firdous (*USA*)

Q. Dong, D. Wang, N. Vo, G. Sowa
id# 2735

The effect of anti-RANKL monoclonal antibody on spinal fusion in a mouse spinal fusion model

Soji Tani (*Japan*)

K. Ishikawa, T. Negishi-Koga, Y. Kudo, T. Toyone, K. Inagaki
id# 2705

Effect of different Cryopreservation Media on Human Nucleus Pulposus Cells' Viability and Trilineage Potential

Andreas Croft (Switzerland)

J. Guerrero, K. Oswald, S. Häckel, C. Albers, B. Gantenbein
id# 2644

TAK1 inhibition by 5Z-7-oxozeaenol prevents rat nucleus pulposus fibrosis in vitro and vivo

Jiaxin Chen (China)

id# 2615

The role of ASIC2 modulated by BDNF-p38MAPK pathway in the adaption of nucleus pulposus mesenchymal stem cells to the hyperosmotic microenvironment of degenerated disc

Bin Han (China)

F. Li, Y. Tao, H. Li, Y. Zhang, X. Zhou, J. Wang
id# 2648

Effect of Adiponectin receptor agonist AdipoRon on human intervertebral disc cell in a three-dimensional cell culture

Hiroki Ohnishi (Japan)

Z. Zhang, K. Miyazaki, R. Tsujimoto, Y. Kanda, Y. Kakiuchi, J. Yamamoto, T. Yurube, T. Takada, R. Kuroda, K. Kakutani
id# 2554

The effects of 3D culture on the expansion and maintenance of nucleus pulposus progenitor cell multipotency

Julien Guerrero (Switzerland)

S. Häckel, A.S. Croft, C.E. Albers, B. Gantenbein. id# 2643

Homocysteine Induces Oxidative Stress and Ferroptosis of Nucleus Pulposus Via Enhancing Methylation of GPX4

Xuyang Zhang (China)

Z. Zheng, X. Wei, B. Huang, J. Chen, F. Zhao
id# 2498

Effect of serum concentration on the biological activity of human nucleus pulposus mesenchymal stem cells

Hua Zhang (China)

H. Tao
id# 2639

Investigating the effect of culture medium osmolarity on the phenotype and regenerative capacity of canine nucleus pulposus cells

Lisanne T Laagland (*The Netherlands*)

D.W. Poramba-Lyanage, F.C. Bach, L.B. Creemers, M.A. Tryfonidou id# 2629

General Posters - Epidemiology

The Effect of 'Clinical Reporting' on The Perception of Severity and Prognosis of LBP - Results from Blinded Trials in Four Groups of Health Care Professionals

Shanmuganathan Rajasekaran (*India*)

S. Dilip Chand Raja , B. Pushpa, B. Anand, K. Rishi Mugesh, S. Ajoy Prasad id# 2765

Relationship between lower extremity muscle tightness and low back pain in elementary school-aged baseball players: a cross-sectional study

Kinshi Kato (*Japan*)

K. Otoshi, S. Yabuki, K. Otani, T. Nikaido, K. Watanabe, H. Kobayashi, J. Handa, S. Konno id# 2581

Low trunk muscle mass impacts on lumbar disability, kyphosis, and quality of life: A multicenter longitudinal study

Yusuke Hori (*Japan*)

M. Hoshino, M. Miyagi, K. Inage, S. Takahashi, S. Ohyama, T. Tsujio, A. Suzuki, H. Terai, H. Toyoda, S. Orita, G. Inoue, S. Ohtori, M. Takaso, H. Nakamura, id# 2509

Central sensitivity is associated with chronic low back pain in the general population

Koji Akeda (*Japan*)

N. Takegami, J. Yamada, T. Fujiwara, A. Sudo id# 2738

A Handheld Spine Scanner for Home Monitoring of Scoliosis Patients Can Reduce Clinic Attendance by 60%: A Prospective Longitudinal Study

Jack Z Wei (*Hong Kong*)

J. Ha, P. Yu, B. Cheung, J. Lau, K. Cheung id# 2828

The profile of the spinal column in subjects with lumbar developmental spinal stenosis

Jason Pui Yin Cheung (*Hong Kong*)

M. Lai, P. Cheung, D. Samartzis, J. Karppinen, K. Cheung id# 2535

Association between Low Back Pain in Activities of Daily Living and Quality of Life: A Population-based Cohort Study

Norihiko Takegami (Japan)

K. Akeda, J. Yamada, T. Fujiwara, A. Sudo
id# 2578

Trends of Spine Surgeries During COVID-19 Pandemic: Survey in Non-epidemic Region in Japan

Masaru Tanaka (Japan)

M. Kanayama, T. Hashimoto, F. Oha, Y. Shimamura, T. Tsujimoto, Y. Hasegawa
id# 2556

The difference of union rate of early stage spondylolysis among each affected lumbar spinal level in young athletes

Akihiro Nagamachi (Japan)

S. Yoshioka, K. Wada, Y. Yamasaki, A. Hashimoto, K. Sairyo. id# 2623

Do Grit and Self-Control Impact Outcomes following Spine Surgery? A Retrospective Analysis

Jung Kee Mok (New York)

A. Vaishnav, P. Louie, S. Qureshi
id# 2810

Current status of the oral hygiene in spine surgery patients

Yushi Hoshino (Japan)

Y. Kudou, I. Okano, H. Maruyama, I. Kawashima, A. Adachi, K. Yoshida, Y. Imaizumi, T. Toyone, K. Inagaki
id# 2545

Does lumbar spinal stenosis on MRI affect quality of life? -A large scale general population survey-: The Wakayama Spine Study-

Stashi Arita (Japan)

y. Ishimoto, K. Nagata, H. Hashizume, Y. Nakagawa, A. Minamide, H. Iwasaki, Y. Yukawa, S. Tsutsu, M. Takami, S. Murata, R. Taiji, T. Kozaki, H. Oka, S. Tanaka, N. Yoshimura, M. Yoshida, H. Yamada
id# 2704

Effect of Postmenopausal State on Distribution of Bone Mineral Density in the Lumbar Spine

Avani Vaishnav (USA)

P. Louie, C. Chaudhary, M. McCarthy, Y. Katsuura, S. Qureshi
id# 2745

AGEs are associated with the intensity of back pain symptoms in patients with lumbar spinal stenosis

Masatoshi Teraguchi (Japan)

M. Kawakami, M. Nakagawa, M. Minetama, S. Matsuo, Y. Yamamoto, Y. Enyo, Y. Nakagawa id# 2506

Reciprocal relationship between multifidus and psoas at L4-L5 level in women with low back pain

Emel Ozcan-Eksi (Turkey)

M. Eksi, V. Turgut, C. Canbolat, M. Pamir id# 2624

Comparing Routine Elective Inpatient Spine Surgery to Orthopedic and Non-Orthopedic Surgery Trends

Mustfa Manzur (USA)

A. Samuel, S. Qureshi id# 2806

Future Activity Goals of Patients Considering Spine Surgery: A Pilot Study

Mustfa Manzur (USA)

M. Fontana, Y. Othman, A. Vaishnav, A. Khorana, H. Kim, J. Farmer, R. Huang, S. Iyer, H. Sandhu, T. Albert, C. MacLean, S. Qureshi id# 2808

Construct validity and responsiveness to change of the US English version of the Core Outcome Measures Index (COMI)

Adam Pearson (USA)

F. Mariaux, J. Lurie, K. McGuire, W. Abdu, F. Porchet, A. Mannion id# 2686

Total and subscale score patterns of Oswestry disability index and Short-Form 36 based on medical comorbidities, and sagittal and coronal parameters in degenerative scoliosis patient: A prospective study

Han-Dong Lee (South Korea)

C. Jeon, N. Chung, H. Chung, K. Park id# 2683

General Posters - Low back pain, Degenerative lumbar disease

Which movement and muscular activity biomarkers to discriminate non-specific low back pain patients from an asymptomatic population?

Stéphane Genevay (Switzerland)

F. Moissenet, K. Rose-Dulcina, S. Armand id# 2781

Characteristics of relief and residual low back pain after discectomy in patients with lumbar disc herniation: analysis using a detailed visual analogue scale

Hiroshi Takahashi (Japan)

Y. Aoki, M. Inoue, J. Saito, K. Koyama, M. Koda, T. Abe, T. Funayama, H. Noguchi,

K. Miura, K. Mataka, Y. Shibao, F. Eto, M. Kono, T. Asada, K. Sato, A. Nakajima, K. Nakagawa, S. Ohtori, M. Yamazaki
id# 2520

Risk factors for low back pain increase in patients with rheumatoid arthritis

Kentaro Yamada (Japan)

A. Suzuki, S. Takahashi, A. Yabu, Y. Hori, H. Toyoda, H. Nakamura
id# 2608

Lumbar Spinal Stenosis Stepwise Treatment Pathway: A Delphi Study for International Consensus

Christine Comer (UK)

B. Andre, A. Haig, A. Wong, C. Ammendolia, C.J. Standaert, C. Tomkins-Lane, E. Williamson, J. Fairbank, M. Melloh, M. Battie, M.J. Schneider
id# 2718

Influences of intramuscular fatty degeneration on low back pain and activities of daily living in patients with lumbar spinal canal stenosis

Junji Nishimoto (Japan)

C. Goto, M. Fujimoto, M. Yamamoto, K. Saita, S. Ogihara *id# 2558*

Kenta Suzuki (Department of Rehabilitation, Saitama Medical Center, Saitama Medical University, Kawagoe, Saitama, Japan)

Y. Hasebe, M. Yamamoto, K. Akasaka, K. Saita, S. Ogihara

Risk factor analysis for fat infiltration in the lumbar paraspinal muscles in lumbar degenerative disease patients *id# 2651*

The comparison of spinopelvic parameters between normal population and patients with the lumbar degenerative disease at L5-S1.

Han-Dong Lee (South Korea)

C. Jeon, N. Chung, H. Chung, K. Park *id# 2681*

Endplate injuries in osteoporotic vertebral fractures were associated with the progression of vertebral collapse

Tatsuhiko Fujiwara (Japan)

K. Akeda, N. Takegami, J. Yamada, A. Sudo, T. Kondo, Y. Asanuma, T. Imanishi, T. Sudo
id# 2702

Intramuscular circulation of lumbar multifidus in different trunk positions on sitting -Comparison between subjects with and without LBP-

Masaru Kanda (Japan)

T. Kitamura, I. Konishi, Y. Suzuki, K. Watanabe, N. Sato
id# 2778

Risk factor analysis of lumbar paraspinal muscle atrophy in patients with lumbar degenerative diseases

Yuki Hasebe (*Japan*)

K. Suzuki, M. Yamamoto, K. Akasaka, K. Saita, S. Ogihara
id# 2650

Variation of Bone Mineral Density in the Lumbar Spine

Avani Vaishnav (*USA*)

P. Louie, C. Chaudhary, M. McCarthy, Y. Katsuura, S. Qureshi
id# 2744

Emerging tetrad issues remodeling treatment strategies for degenerative lumbar spine diseases

Zhong-Yuan Wan (*China*)

J. Zhang, K. Ma, F. Song, Z. Liu, H. Wang *id# 2775*

Association between vertebral endplate structural defects and back pain: A systematic review and meta-analysis

Aliyu Lawan (*Canada*)

J. Crites Videman, M. Crites Battié
id# 2794

Effect modifiers of PTED versus OM for lumbar disk herniation: subgroup analyses of the PTED-study

Pravesh Gadjradj (*Netherlands*)

W. Peul, S. Rubinstein, M. van Tulder, B. Harhangi
id# 2492

Characteristics of acute lumbar vertebral fractures associated with osteoporosis

Hiroki Hirabayashi (*Japan*)

id# 2501

Status Quo of Osteoporosis Issues in Hematologic Malignancy Patients using Big Data Analysis

Jae Won Lee (*South Korea*)

Y. Kim, S. Kim, H. Park, H. Kim, C. Cho
id# 2634

L3-L4 Level in Limbo: Does it belong to the Upper or the Lower Lumbar Spine?

Murat Eksi (*Turkey*)

E. Ozcan-Eksi, A. Yayla, O. Orhun, V. Turgut, M. Kara, M. Guduk, I. Usseli, B. Bozkurt
id# 2589

General Posters - Surgery

Effectiveness of amino-acid supplementation after decompression surgery for lumbar spinal stenosis: a randomized controlled trial

Masakazu Minetama (Japan)

M. Kawakami, M. Teraguchi, Y. Mera, T. Sumiya, M. Nakagawa, Y. Yamamoto, S. Matsuo, N. Sakon, T. Nakatani, T. Kitano, Y. Nakagawa
id# 2583

Is there a place for surgical repair in adults with spondylolysis or grade I spondylolisthesis? – A systematic review and treatment algorithm

Naresh Kumar (Singapore)

N. Pandita, S. Madhu, M.R. Ramos, B.W. Tan, J. Tan, K.G. Lopez, C.P. Nolan, D. Shree Kumar
id# 2604

Characteristics of Patients With Short-Term Versus Long-Term Readmission-Free Survival After Metastatic Spine Tumor Surgery

Naresh Kumar (Singapore)

S. Madhu, L. Sheng, S.S. Tang, S.A. Ramakrishnan, A. Thomas
id# 2621

Analysis of unplanned hospital readmissions up to two-years after metastatic spine tumour surgery

Andrew Thomas (Singapore)

S. Madhu, M.R. Ramos, L. Shen, J.Y. Tan, N. Kumar
id# 2603

Characteristics of patients with poor short-term outcomes after symptomatic postoperative lumbar spinal epidural hematoma

Takeru Tsujimoto (Japan)

M. Kanayama, F. Oha, Y. Shimamura, M. Tanaka, Y. Hasegawa, T. Hashimoto, N. Iwasaki
id# 2555

Does instability occur after transforaminal full-endoscopic ventral facetectomy?

Kazuya Kishima (Japan)

K. Yagi, M. Morimoto, H. Tezuka, K. Yamashita, Y. Takata, T. Maeda, T. Sakai, K. Sairyo
id# 2663

Transforaminal full-endoscopic discectomy for the patients with down-migrated lumbar disc herniation

Fumitake FT Tezuka (Japan)

K.K. Kishima, K.K. Yagi, K.K. Sugiura, M.M. Morimoto, K.K. Yamashita, Y.Y. Takata,

T.T. Sakai, K.K. Sairyo
id# 2809

Clinical results of transforaminal full-endoscopic ventral facetectomy for lateral recess stenosis

Kazuya Kishima (*Japan*)

K. Yagi, M. Morimoto, F. Tezuka, K. Yamashita, Y. Takata, T. Maeda, T. Sakai, K. Sairyo. id# 2659

Risk factors for deep surgical site infection following posterior instrumented surgery for spinal trauma: A multicenter study with registry of 623 consecutive adult cases

Satoshi Ogihara (*Japan*)

T. Yamazaki, S. Azuma, N. Kawamura, Y. Oshima, Y. Takeshita, S. Tanaka, K. Saita, T. Maruyama
id# 2526

Hand grip strength can predict clinical outcomes and risk of falls after decompression and instrumented posterolateral fusion for lumbar spinal stenosis

Ji-Won Kwon (*South Korea*)

B. Lee, S. Lee, S. Sung, H. Lee, S. Moon id# 2710

Incidence & Risk Factors of Postoperative Delirium After Spinal Surgery in Older Patients

Taewook Kang (*South Korea*)

S. Park, H. Jung
id# 2698

The advantages of revisional transforaminal full-endoscopic spine surgery for patients underwent posterior spine surgery

Kiyoshi Yagi (*Japan*)

K. Sugiura, M. Takeuchi, K. Kishima, M. Morimoto, F. Tezuka, K. Yamashita, T. Yoichiro, T. Sakai, T. Maeda, K. Sairyo
id# 2521

Uniportal-bichannel foraminoplasty for percutaneous endoscopic transforaminal discectomy: a technical note

Zhi Zhou (*China*)

H. Ni, C. Wang, Y. Fan, C. Feng, S. He
id# 2552

Percutaneous endoscopic transforaminal lumbar interbody fusion (PE-TLIF) with a Uniportal Bichannel Spinal Endoscopic System (UBiSES): technical note

Shisheng He (China)

Z. Zhou, H. Ni, Y. Fan, C. Wang, Y. Zhu, C. Feng, J. Chen, G. Gu
id# 2553

Sacral Insufficiency Fracture after Instrumented Lumbosacral Fusion: Focusing Pelvic Deformation -A Retrospective Case Series-

Sang-II Kim (South Korea)

Y. Kim, K. Ha, R. Cho
id# 2551

Ten-year results of lumbar spinal stenosis with degenerative spondylolisthesis treated with decompression alone

Kazuyuki Watanabe (Japan)

K. Otani, T. Nikaido, K. Kato, H. Kobayashi, J. Handa, S. Yabuki, S. Kikuchi, S. Konno
id# 2754

Five-year reoperation rates and causes for reoperations following lumbar microendoscopic discectomy and decompression

Takato Aihara (Japan)

K. Endo, H. Suzuki, A. Kojima, M. Urushibara, Y. Sawaji, Y. Matsuoka, T. Takamatsu, K. Murata, T. Konishi, H. Yamauchi, H. Endo, K. Yamamoto
id# 2513

A Randomized Controlled Trial of Full-endoscopic Discectomy versus Open Discectomy for Sciatica

Pravesh S Gadjradj (Netherlands)

S.M. Rubinstein, M.W. van Tulder, P.R. Depauw, C.L. Vleggeert-Lankamp, J.L. Susante, M.R. de Boer, W.C. Peul, B.S. Harhangi
id# 2489

Trends and measures against postoperative wound dehiscence after surgery for spinal metastasis

Kenichiro Kakutani (Japan)

Y. Sakai, Z. Zhang, T. Yurube, J. Yamamoto, Y. Kakiuchi, Y. Takeoka, Y. Kanda, R. Tsujimoto, . Miyazaki, H. Ohnishi, T. Takada, S. Miyazaki, . Kuroda
id# 2777

Risk assessment of abdominal and retroperitoneal organ injuries performing transforaminal full-endoscopic spine surgery

Kiyoshi Yagi (Japan)

K. Sugiura, M. Takeuchi, K. Kishima, M. Morimoto, F. Tezuka, K. Yamashita, Y. Takada, T. Sakai, T. Maeda, K. Sairyo
id# 2579

Assessing Changes in Cervical Epidural Pressure During Biportal Endoscopic Lumbar Discectomy

Taewook Kang (*South Korea*)
S. Park, H. Jung
id# 2697

General Posters - Fusion Surgery

Relationship between preoperative intervertebral instability and bone union after facet fusion with a percutaneous pedicle screw system for degenerative lumbar spondylolisthesis

Tomohiro Miyashita (*Japan*)
H. Ataka, K. Kato, H. Takaoka, S. Ohtori, T. Tanno
id# 2700

Analysis of medium long-term effect of microendoscopic assisted mis-TLIF on lumbar instability and spondylolisthesis

Xu Xiang (*China*)
Y. Heping id# 2714

Lumbar and Anterior Cervical Spine Fusion Results using an Injectable Bioactive Glass Microfiber-Based Material for Bone Grafting

Hyun Bae (*USA*)
P. Slosar, A. Bruggeman, E. Chung
id# 2611

Postoperative endplate injury after minimally invasive lateral lumbar interbody fusion: Risk factor analysis

Sang-Il Kim (*South Korea*)
Y. Kim, K. Ha, S. Yang
id# 2550

The Feasibility of 3D Intraoperative Navigation in Lateral Lumbar Interbody Fusion: Perioperative Outcomes, Accuracy of Cage Placement and Radiation Exposure

Hikari Urakawa (*USA*)
A. Sivaganesan, A. Vaishnav, E. Sheha, C. Gang, S. Qureshi
id# 2804

Does the position of the cage affect the recovery of the angle of the intervertebral disc? Which position is the Optimal choice

Ke Gong (*China*)
W. Xiong. id# 2619

An Active Hybrid Model of the Human Lumbosacral Spine: Simple and Robust Modeling of Facet Joints

Robin Remus (*Germany*)

A. Hoffmann, B. Bender

id# 2664

Lumbar Posterolateral Fusion using a Bioactive Fiber-Based Bone Graft Substitute: A Multi-Center Clinical Evaluation

Hyun Bae (*USA*)

P. Slosar, A. Bruggeman, E. Chung

id# 2729

Minimally Invasive Spinal Fusion Surgery Using Percutaneous Pedicle Screwing Can Provide Better Lumbar Function in Early Stage than Conventional Methods in the Treatment of Degenerative Lumbar Spinal Diseases; A minimum of one-year follow-up study

Masumi Iwabuchi (*Japan*)

R. Tominaga, Y. Sakuma, T. Sato, S. Suzuki, O. Shirado

id# 2511

Incidence rate of adjacent-segment disorder after oblique lateral interbody fusion at more than two levels: Data from the Chiba Spine Surgery Registry database

Geundong Kim (*Japan*)

H. Takaoka, K. Inage, S. Orita, Y. Eguchi, Y. Shiga, T. Furuya, S. Maki, Y. Aoki, M. Inoue, T. Fujiyoshi, S. Nakamura, T. Kinoshita, T. Kamada, H. Takahashi, J. Saito, M. Norimoto, T. Kotani, T. Sakuma, Y. Iijima, T. Ishikawa, T. Umimura, M. Ohta, M. Narita, T. Sato, M. Sato, M. Suzuki, K. Enomoto, T. Hozumi, N. Mizuki, T. Otagiri, R. Tsuchiya, T. Mukaihata, T. Hishiya, S. Ohtori

id# 2645

Comparison of the facet fusion rates between percutaneous pedicle screw and cortical bone trajectory screw fixation for degenerative lumbar spondylolisthesis

Tomohiro Miyashita (*Japan*)

K. Kato, H. Ataka, S. Ohtori, T. Tanno

id# 2703

Polyethylene tapes at the proximal end in long spinal fusions reduce the revision rate due to Proximal Junctional Kyphosis

Yuji Kakiuchi (*Japan*)

K. Kakutani, Z. Zhang, T. Yurube, J. Yamamoto, Y. Kanda, R. Tsujimoto, K. Miyazaki, H. Ohnishi, T. Takada, R. Kuroda

id# 2740

Corrective capacity of ALIF procedure in a fused spine in revision cases of iatrogenic lumbar hypolordosis

Riccardo Cecchinato (*Italy*)

P. Berjano, A. Redaelli, C. Martini, F. Langella, C. Lamartina

id# 2779

Bilateral double iliac screw fixation for traumatic sacral fracture

Satoru Matsutani (*Japan*)

K. Masuda, T. Iga, T. Kondo

id# 2485

Effects of bone cement augmentation for upper instrumented vertebra on adjacent segment degeneration in lumbar fusions

Jae Won Lee (*South Korea*)

Y. Kim, S. Kim, H. Park, H. Kim, C. Cho

id# 2616

Evolution of Image Guidance in Minimally Invasive Transforaminal Lumbar Interbody Fusion (MI-TLIF): Comparing the Learning Curves of Fluoroscopy, Navigation, and Robotics

Avani Vaishnav (*USA*)

J. Mok, H. Urakawa, C. Chaudhary, S. Qureshi

id# 2741

The influence of ethnicity/race and sex on lumbar spinal fusion outcomes

Zorica Buser (*USA*)

X. Chen, A. Ballatori, S. Shahrestani, A. Ton, J.C. Wang

id# 2798

Three-dimensional analysis for pedicle screw deviation in thoracolumbar spinal fusion

Tomonori Ozaki (*Japan*)

K. Yamada, H. Nakamura

id# 2746

Discrepancies in nosocomial urinary tract infection rates between patients receiving single-level and multi-level lumbar fusion

Shane Shahrestani (*USA*)

A. Ton, A. Ballatori, X. Chen, J.C. Wang, Z. Buser

id# 2796

Bilateral Lumbar Erector Spinae Plane Blocks Reduce Postoperative Pain and Opioid Requirements in Minimally Invasive Transforaminal Lumbar Interbody Fusion (MI-TLIF)

Avani Vaishnav (*USA*)

D. Wetmore, J. Beckman, T. Albert, S. Qureshi

id# 2743

The Role of Hounsfield Unit in Intraoperative Endplate Violation and Delayed Cage Subsidence with Oblique Lateral Interbody Fusion

Hao Wu (*Hong Kong*)

J. Cheung, T. Zhang, Z. Shan, X. Zhang, J. Liu, S. Fan, F. Zhao id# 2617

General Posters - Non-Surgical Treatment

The Outcome Of Epidural Injections In Sciatica Is Not Dependent On The Presence Of Disc Herniation On MRI: Assessment Of Short-term And Long-term Efficacy

Eduard J.A. Verheijen (*Netherlands*)

*A.G. Munts, O.B. van Haagen, D. de Vries, C.L. Vleggeert-Lankamp
id# 2627*

Chronic low back pain and self-efficacy in the community

Koji KO Otani (*Japan*)

*R.R. Ono, K.K. Uchida, S.S. Murata, M.M. Sekiguchi, S.S. Kikuchi, S.S. Konno id#
2782*

Determining Low Back Pain Specific Targets for Physical Activity Interventions

Matthew Smuck (*USA*)

*C. Tomkins-Lane, A. Muaremi, P. Zheng, M. Ith, R. Sun
id# 2637*

Comparative effectiveness of four major drugs prescribed for chronic low back pain in Japan

Gen Inoue (*Japan*)

*T. Kaito, Y. Matsuyama, T. Yamashita, M. Kawakami, K. Takahashi, M. Yoshida, S. Imagama, S. Ohtori, T. Taguchi, H. Haro, H. Taneichi, M. Yamazaki, K. Nishida, H. Yamada, D. Kabata, A. Shintani, M. Iwasaki, M. Ito, N. Miyakoshi, H. Murakami, K. Yonenobu, T. Takura, J. Mochida
id# 2490*

Improved sagittal spinal alignment and balance by a “locomotion training” rehabilitation program in patients with “locomotive syndrome

Takashi Yurube (*Japan*)

T. Takeoka, N. Watanabe, H. Inaoka, Y. Kakiuchi, Y. Takeoka, Y. Kanda, R. Tsujimoto, K. Miyazaki, H. Ohnishi, S. Miyazaki, Z. Zhang, T. Takada, R. Kuroda, K. Kakutani” id# 2657

Plaster cast fixation for patients with osteoporotic vertebral compression fractures: Part 2 Comparison of reduction in standing position and suspension in supine position

Kazuji Aoki (*Japan*)

*T. Uehara, J. Yamada, S. Yamada, . Inada
id# 2516*

The clinical results of the spinal nerve root block with foraminal and extraforaminal lesions

Makoto Urushibara (*Japan*)

T. Aihara, K. Hatakeyama, A. Kojima

id# 2601

Gabapentinoids associated with lower explantation rate in 203 patients with Spinal Cord Stimulation for Failed Back Surgery Syndrome

Mette Nissen (*Finland*)

T. Ikäheimo, V. Leinonen, M. Fraunberg

id# 2755

Novel Inflammation-Preserving Treatment for Symptomatic Lumbar Disc Herniation: a Prospective Imaging and Clinical Outcomes Study

Alexander Tkachev (*Denmark*)

H. Albert, A. Sayari, M.T. Nolte, D. Samartzis

id# 2790

SpineTrak: The First Randomized Control Trial Using the Apple Watch to Objectively Track Spine Surgical Patients

Christopher Leung (*USA*)

P. Fatemi, K. Yerneni, A. Desai, C. Tomkins-Lane, C. Zygorakis

id# 2791

Lumbar PLIF reconstruction without inpatient admission. Results of a standardized care protocol in over 100 selected patients treated over a five-year period.

Drew A Bednar (*Canada*)

id# 2572

Foot tapping test as a predictor of postoperative gait disorder in lumbar spinal stenosis

Hiroshi Kobayashi (*Japan*)

K. Otani, T. Nikaido, K. Watanabe, K. Kato, J. Handa, S. Yabuki, S. Konno

id# 2628

Extending the Straight Leg Raise Test for Improved Clinical Evaluation of Sciatica: Reliability of Hip Rotation and Ankle Dorsiflexion

Janne Pesonen (*Finland*)

M. Shacklock, P. Rantanen, L. Karttunen, J. Mäki, M. Kankaanpää, O. Ariksinen, M. Rade

id# 2656

Correlation between preoperative CT measurement/evaluation of lumbar paraspinous muscle and postoperative ambulatory status in patients with femoral neck fractures

Akihito Suto (Japan)

*K. Fujii, T. Nakatani, K. Ogawa, T. Ichihara, S. Li
id# 2712*

Assessing nonspecific effects of osteopathic manipulative treatment for low back pain

Jacek Cholewicki (USA)

*J.M. Popovich, Jr., A.S. Lee, L.A. DeStefano, J.J. Rowan, T.J. Francisco, L.L. Prokop, M.A. Zatzkin, N.P. Reeves
id# 2713*

Cervical Spine Steroid Injections for Delay of Surgery for Cervical Spondylotic Myelopathy

Mustfa Manzur (USA)

*A. Samuel, S. McAnany, T. Albert, A. Vaishnav, S. Iyer, S. Qureshi
id# 2807*

General Posters - Intervertebral disc (IVD)

Exploring the Core matrisome Profile of Fetal Intervertebral Discs in search of Molecular targets of therapeutic Potential

Shanmuganathan Rajasekaran (India)

*T. Chitraa, D. Niek, M. Raveendran, S. Dilip Chand Raja , K. Vijayanand, N. Sharon Miracle, M. Monica Steffi
id# 2760*

Validity of Scoliotic discs as controls in Inter vertebral disc research

Shanmuganathan Rajasekaran (India)

T. Chitraa, K. Vijayanand, M. Raveendran, N. Sharon Miracle, S. Dilip Chand Raja id# 2768

Exploring the influence of Modic Changes and spinal level on macrophage differentiation in disc herniations

Niek Djuric (Netherlands)

G. Lafeber, S.G. van Duinen, C.L. Vleggeert-Lankamp. id# 2769

Increased risk of delamination following rapid pressurization of the intervertebral disc

Diane Gregory (Canada)

*R. Ghelani, D. Zwambag
id# 2673*

Is the lumbar disc degeneration profile on imaging interconnected with the degenerative status of its adjacent or non-adjacent segments ?

Youping Tao (*Germany*)

F. Galbusera, F. Niemeyer, D. Samartzis, D. Vogele, H. Wilke id# 2646

The Residual Strain State of the Intervertebral Disc

Dawn M Elliott (*USA*)

H. Newman, J. Peloquin, E. Vresilovic id# 2676

Anatomical localization of type 1 Modic change

Yuji Yamada (*Japan*)

*K. Sairyo, T. Maeda, M. Morimoto
id# 2563*

Spinal kinematics of Type 1 Modic change

Yuji Yamada (*Japan*)

*K. Sairyo, T. Maeda, M. Morimoto
id# 2564*

Efficacy of growth differentiation factor-6 on three-dimensionally cultured human intervertebral disc cells and a rat tail puncture model

Kunihiko Miyazaki (*Japan*)

*S. Miyazaki, Y. Kanda, R. Tsujimoto, H. Ohnishi, Y. Kakiuchi, J. Yamamoto, T. Yurube, Z. Zhang, T. Takada, R. Kuroda, K. Kakutani
id# 2591*

Intervertebral Disc Degeneration at Lower Lumbar Levels is Associated with More Coronally Aligned L1-L2 and Misaligned L5-S1 Facet Joints

Murat Eksi (*Turkey*)

*E. Ozcan-Eksi, O. Orhun, S. Huet, V. Turgut, M. Pamir
id# 2587*

End-plate defects could start the inflammatory process in the bone marrow and cause Modic changes

Murat Eksi (*Turkey*)

*A. Yayla, O. Orhun, V. Turgut, M. Guduk, H. Arslan, I. Usseli, M. Kara, E. Ozcan Eksi
id# 2590*

Mole Holes in the Spine: Schmorl's Nodes Could be Associated with Intervertebral Disc Degeneration at Upper Lumbar Levels and End-plate Disease at Lower Lumbar Level

Emel Ozcan-Eksi (*Turkey*)

*M. Eksi, O. Orhun, V. Turgut, M. Guduk, M. Kara
id# 2595*

Is the distribution pattern of Modic changes in vertebral end-plates associated with the severity of intervertebral disc degeneration?: A cross-sectional analysis of 527 Caucasians

Murat Eksi (Turkey)

E. Ozcan-Eksi, A. Yayla, O. Orhun, V. Turgut, H. Arslan, M. Guduk, I. Usseli, M. Aytar, B. Bozkurt, S. Ozgen, M. Pamir
id# 2586

Physiological method to provoke lumbar disc herniations

Laura Zengerle (Germany)

E. Debout, B. Kluger, H. Wilke
id# 2537

Clinical Outcome of Anterior Lumbar Interbody Fusion Using a Stand-alone Cage for the Treatment of Symptomatic Disc Degeneration

Richard D Guyer (USA)

D.D. Ohnmeiss, S.L. Blumenthal, J.E. Zigler
id# 2517

A computerised analysis of the aetiology of Modic Changes associated with intervertebral disc degeneration

Teng Zhang (Hong Kong)

Y. Hu, K. Luk, U. Chamoli, F. Zhao, X. Zhang, K. Sze, J. Cheung
id# 2694

Lumbar disc extrusions reduce faster than bulging disc due to an active role of macrophages in sciatica

Niek Djuric (Netherlands)

X. Yang, A. El_Barzouhi, R. Ostelo, S.G. van Duinen, G.J. Lycklama à Nijeholt, B.F. Van der Kallen, W. Peul, C.L. Vleggeert-Lankamp
id# 2709

Is Intradiscal Vacuum Phenomenon Associated with Intervertebral Disc Degeneration and Modic Changes?

Murat Eksi (Turkey)

M. Zarbizade, O. Orhun, D. Kucuksuleymanoglu, T. Dinc, S. Huet, B. Ozmen, E. Ozcan-Eksi id# 2588

Neutrophils in Modic type I changes are in an activated (pro-inflammatory) state

Irina Heggli (Switzerland)

R. Schüpbach, A. Jüngel, N. Farshad-Amacker, N. Herger, M. Betz, J. Spirig, F. Wanivenhaus, N. Ulrich, F. Brunner, M. Farshad, O. Distler, S. Dudli id# 2658

General Posters - Spinal Alignment, Adolescent Idiopathic Scoliosis(AIS)

Intradiscal pressure at L4L5 level in adolescent idiopathic scoliosis: A computational study based on musculoskeletal modelling approach

Tito Bassani (*Italy*)

N. Barba, D. Ignasiak, T. Villa, F. Galbusera

id# 2514

Comparison of sacroiliac joint degeneration between patients with sagittal imbalance and lumbar spinal stenosis

Byung-Taek Kwon (*South Korea*)

H. Kim, D. Ham, J. Park, O. Kwon, J. Lee

id# 2561

Validity and responsiveness of the Core Outcome Measures Index (COMI) in patients with adolescent idiopathic

Tamas F Fekete (*Switzerland*)

D. Haschtmann, D. Jeszenszky, S. Richner-Wunderlin, L. Zimmermann, K.

Thekkanath, A. Mannion

scoliosis id# 2719

Altered proprioception on balance control, repositioning, and evoked potential in adolescent idiopathic scoliosis: A systematic review

Kenney Ki-Lee Lau (*Hong Kong*)

K.Y. Kwan, K.M. Cheung, A.Y. Wong

id# 2815

The effect of curve location on the prediction rate of the severity index for adolescent idiopathic scoliosis

Claudio Vergari (*France*)

W. Skalli, K. Abelin-Genevois, J. Bernard, Z. Hu, J. Chun-yiu Cheng, W. Chiu Wing

Chu, A. Assi, M. Karam, I. Ghanem, T. Bassani, F. Galbusera, L. Sconfienza, M.

Brayda-Bruno, I. Courtois, E. Ebermeyer, R. Vialle, T. Langlais, J. Dubousset

id# 2622

Relationship between radiological parameters of the lumbar spine and low back pain in the community

Yota Kaneko (*Japan*)

K. Otani, M. Sekiguchi, R. Tominaga, M. Nakamura, K. Kobayashi, S. Konno

id# 2795

Dynamic Lumbopelvic-hip Alignment in the Patients with Degenerative Lumbar Spinal Canal Stenosis is Closely Correlated with Lower Limb Pain intensity during Walking; Three-dimensional motion analysis

Takuya Miura (*Japan*)

T. Ito, K. Sato, J. Omata, T. Endo, R. Tominaga, I. Masumi, O. Shirado id# 2641

Correction of apical vertical translation may prevent unfused lumbar intervertebral disc degeneration after posterior spinal fusion for adolescent idiopathic scoliosis

Satoshi Suzuki (*Japan*)

E. Okada, S. Nori, O. Tsuji, N. Nagoshi, N. Fujita, M. Yagi, M. Nakamura, M. Matsumoto, K. Watanabe

id# 2774

Computed Tomography Study of the Relationship Between Pelvic Incidence and Osseous Contribution to Lumbar Lordosis in Children

Joseph F Baker (*New Zealand*)

id# 2751

Impact of diffuse idiopathic skeletal hyperostosis on sagittal spinal alignment in the general elderly population: A Japanese cohort survey randomly sampled from a basic resident registry

Masashi Uehara (*Japan*)

J. Takahashi, S. Ikegami, R. Tokida, H. Nishimura, H. Kato

id# 2592

Barycentremetry and external shape analysis in idiopathic scoliosis: what can the physician expect from it?

Tristan Langlais (*France*)

C. Vergari, G. Rougereau, L. Gajny, A. Assi, I. Ghanem, J. Dubouset, R. Vialle, R. Pietton, W. Skalli

id# 2679

EOS Analysis of Sagittal Alignment of Spine and Pelvis in Korean Adult Population

Min-gu Jang (*South Korea*)

S. Kim

id# 2814

Minimally invasive versus conventional open approach for correction and posterior spinal fusion in patients with adolescent idiopathic scoliosis

Tamas F Fekete (*Switzerland*)

A. Mannion, D. Haschtmann, M. Loibl, F.S. Kleinstueck, D. Jeszenszky

id# 2725

Risk Factors for Worsening of Sagittal Imbalance after Revision Posterior Fusion Surgery in Patients with Adjacent Segment Disease

SangYun Seok (*South Korea*)

C. Jaehwan, W. Lee, H. Lee, C. Byun, D. Lee, C. Hwang, C. Lee

id# 2542

The impact of lower lumbar lordosis on surgical results after long spinal fusion

Ryo Taiji (*Japan*)

M. Takami, H. Hashizume, H. Iwasaki, S. Tsutsui, K. Nagata, S. Murata, T. Kozaki, H. Yamada

id# 2833

The comparison of the spinopelvic parameters between the decompression and the fusion for degenerative lumbar disease at L5-S1

Han-Dong Lee (*South Korea*)

C. Jeon, N. Chung, H. Chung, K. Park

id# 2682

General Posters - Adult spinal deformity (ASD)

Predicting spondylolisthesis correction with prone traction radiographs

Jason Pui Yin Cheung (*Hong Kong*)

P. Cheung

id# 2533

Functional Ability Classification based on Moderate and Severe Kinesophobia and Demoralization Scores in Degenerative Spine Patients

Ram Haddas (*USA*)

I.H. Lieberman, C.D. Sandu, V. Sambhariya, A. Block

id# 2635

Etiology and clinical manifestations of double-level versus single-level lumbar degenerative **spondylolisthesis**

Kazuhiro KH Hasegawa (*Japan*)

M. Okamoto, S. Hatsushikano, H. Shimoda, Y. Sato

id# 2491

Influence of hand grip strength on surgical outcomes after surgery for adult spinal deformity

Ohsang Kwon (*Korea, Republic of*)

H. Kim, D. Ham, J. Park, B. Kwon

id# 2505

Comparison of prevalence of thoracolumbar junctional problem between patients with adult spinal deformity and lumbar spinal stenosis: an age-sex matched case-control study

Jiwon Park (*Korea, Republic of*)

J. Kim, H. Kim, D. Ham, B. Kwon, O. Kwon

id# 2716

The Effect of Scoliosis Support Orthosis Bracing on Adult Spinal Deformity Patients: Evaluation of Gait and Dynamic Balance

Ram Haddas (USA)

*A. Satin, D.E. Mar, T. Belanger, I.H. Lieberman, R.S. Kakar
id# 2631*

Adjacent segment disease as a complication of adult spinal deformity surgery,
including S2 alar-iliac screw fixation on the hip joint

Takuhei Kozaki (Japan)

*H. Hashizume, Y. Yukawa, H. Iwasaki, S. Tsutsui, M. Takami, K. Nagata, R. Taiji, S.
Murata, H. Yamada
id# 2827*

Spine user is significantly related to proximal junctional kyphosis after spinal
deformity surgery

Takuhei Kozaki (Japan)

*H. Hashizume, H. Iwasaki, S. Tsutsui, M. Takami, K. Nagata, R. Taiji, S. Murata, H.
Yamada. id# 2830*

Hip extensor strength affects dynamic postural change on walking in the patients
with adult spinal deformity; A three-dimensional motion analysis

Keita Sato (Japan)

*T. Ito, J. Omata, T. Endo, T. Miura, R. Tominaga, M. Iwabuchi, O. Shirado
id# 2799*

Radiographic and Clinical results using dual rod for adult spinal deformity surgery

Shugo Kuraishi (Japan)

*S.I. Ikegami, M.M. Uehara, H.H. Oba, T.T. Takizawa, R.R. Munakata, T.T.
Hatakenaka, T.T. Kamanaka, J.J. Takahashi
id# 2531*

Correlation between Morphological Parameters of Vertebral Foramen and Aging

Masahiro Kashima (Japan)

*Y. Yamada, N. Yoshida, H. Takami, T. Maeda, K. Sairyo
id# 2569*

Validity of the Global Alignment Proportion (GAP) Score in Predicting Mechanical
Complications and Proximal Junctional Failure after Adult Spinal Deformity
Surgery in Elderly Patients

Dae-Woong Ham (South Korea)

*H. Kim, B. Kwon, J. Park, O. Kwon, J. Lee
id# 2756*

Risk factors for acute proximal junctional kyphosis after adult spinal deformity
surgery in preoperative motion analysis

Ho-Joong Kim (*Korea, Republic of*)

J. Park, H. Han, B. Kwon, O. Kwon, D. Ham, J. Lee

id# 2652

The comparison of clinical and radiological parameters between degenerative scoliosis patients between with and without vertebral rotatory subluxation

Han-Dong Lee (*South Korea*)

C. Jeon, N. Chung, H. Chung, K. Park

id# 2684

Junctional Kyphosis/Failure after Long Instrumentation for Posttraumatic Thoracolumbar Kyphosis: Characteristics and Risk Factors

Xiaojiang Pu (*China*)

B. Wang, B. Qian, Z. Liu, J. Jiang, Z. Zhu, Y. Qiu, X. Sun

id# 2660

Correlation between the preoperative motion analysis results and clinical outcomes in terms of patient-reported outcome (PRO) after the adult spinal deformity surgery

Ho-Joong Kim (*South Korea*)

D. Ham, J. Park, B. Kwon, O. Kwon, J. Lee

id# 2757

Surgical management of sagittal imbalance in adult degenerative thoracolumbar kyphoscoliosis: preoperative planning using computed tomography in the supine position

Takashi Chikawa (*Japan*)

H. Manabe, K. Sairyou

id# 2607

Hyperlordotic ALIF cages in the treatment of adult deformities. Clinical outcomes in a monocentric experience

Claudio Lamartina (*Italy*)

A. Redaelli, R. Cecchinato, C. Martini, P. Berjano

id# 2786

General Posters - Imaging, biomechanics, Artificial intelligence (AI)

Different disc characteristics between young elite skiers with diverse training histories revealed with a novel quantitative magnetic resonance imaging method

Kerstin Lagerstrand (*Sweden*)

A. Baranto, H. Hebelka id# 2575

Deep learning based fully automated pathology classification of lumbar spine

Xihe Kuang (China)

J. Cheung, M. Lai, T. Zhang

id# 2715

Effect of Pelvic Retroversion on Lumbopelvic Geometry and Muscle Morphometry from Upright MRI

Noor Shaikh (Canada)

H. Zhang, J. Shewchuk, J. Street, D. Wilson, T. Oxland

id# 2525

Investigation of Thoracic Muscle Morphology with Open Upright MRI

Anoosha Pai S (Canada)

H. Zhang, S.H. Brown, D.R. Wilson, J. Street, T.R. Oxland

id# 2727

Morphological Analysis of Paraspinal Muscles Using Magnetic Resonance Imaging and a novel software to Diagnose Sarcopenia

Shanmuganathan Rajasekaran (India)

S. Dilip Chand Raja, B. Balagurunathan, K. Rishi Mugesh, S. Ajoy Prasad

id# 2763

Trunk muscle analysis using dual-energy X-ray absorptiometry and magnetic resonance imaging

Masaru Tanaka (Japan)

M. Kanayama, T. Hashimoto, F. Oha, Y. Shimamura, T. Tsujimoto, Y. Hasegawa

id# 2614

MRI-SegFlow V2.0: a novel unsupervised deep learning pipeline enabling accurate semantic segmentation of lumbar MR images with preliminary validation

Xihe Kuang (China)

J. Cheung, H. Wu, C. Lam, C. Lam, R. Choy, D. Chan, T. Zhang

id# 2739

Fusion pattern analysis of posterior lumbar interbody fusion using CT scan multi-planer reconstruction images: difference between L5/S1 level and the other levels

Kengo Fujii (Japan)

T. Funayama, T. Tsukanishi, M. Yamazaki

id# 2487

Teng Zhang (*The University of Hong Kong, Sandy Bay, HONG KONG, Hong Kong*)

Y. Jin, Y. Wang, J. Li, W. Lu, K. Sze, J. Cheung

Prediction of heterogeneity-adapted mechanical properties of thoracolumbar vertebral body using bone mineral measurements in both compression and wedge fractures *id# 2773*

A Comprehensive MRI Analysis of Paraspinal and Psoas Muscle Size, Lean Muscle, and Fatty Infiltration in Patients undergoing Lumbar Spinal Fusion

Stephan N Salzmänn (USA)

I. Okano, E.T. Tan, O.C. Sax, E. Chiapparelli, M. Reisener, J. Shue, F.P. Girardi, F.P. Cammisa, A.A. Sama, D.B. Sneag, A.P. Hughes

id# 2726

Toxic annular tear and high signal intensity zone of patients with discogenic low back pain

Fumitake FT Tezuka (Japan)

K.K. kishima, K.K. Yagi, K.K. Sugiura, M.M. Morimoto, K.K. Yamashita, K.K. Sairyo

id# 2812

Importance of the Epiphyseal Ring in OLIF Stand-alone Surgery: A Biomechanical Study on Cadaveric Spines

Fengdong Zhao (China)

X. Zhang, H. Wu, Y. Chen, T. Zhang, J. Cheung, P. Dolan, M. Adams

id# 2497