

MEETING AT- A -GLANCE

MONDAY JUNE 8	TUESDAY JUNE 9	WEDNESDAY JUNE 10	THURSDAY JUNE 11	FRIDAY JUNE 12
08.00 Membership Com- mittee Meeting	07.00-07.45 Breakfast	07.00-07.45 Breakfast	07.00-07.30 Breakfast	07.00-07.45 Breakfast
09.30 Strategy Group Meeting	07.45 Welcome	07.45-08.45 Special Poster Session I	07.30-08.20 Fusion	07.45-08.45 Special Poster Session II
12.00 ExCom Meeting	08.00-09.00 Disc Herniation	09.00-10.00 Complications	08.20-09.00 Deformity	09.00-09.30 Report of Focus Groups
15.00 Registration opens	09.00-10.00 Disc Science	10.00-10.30 COFFEE	09.10-10.10 General Poster Ses- sion # 1 and 2	09:30-10:10 Adjacent segment degeneration
18.00 Welcome Reception	10.00-10.30 COFFEE	10.30-11.00 Osteoporosis	10.10-10.40 COFFEE	10.10-10.40 COFFEE
	10.30-11.40 Spinal Stenosis Sci- ence and Surgery	11.00-11.40 Presidential address	10.40-11.00 Fellow- ship Award Ceremony	10.40-11.30 Spinal Science
	11.40-12.10 Invited Lecture #1	11.40-12.20 Harry Farfan Presidential Lecture	11.00-12.10 The ISSLS Prize Papers	11.30-12.10 Spondylolisthesis
	12.10-13.30 LUNCH	13.00-19.00 Afternoon outing	12.10-13.30 LUNCH	12.10-12.30 Announcement – Best paper and poster awards
	13.30-14.30 Epidemiology		13.30-14.30 Spinal Stenosis	Closing Remarks Meeting adjourned
	14.30-15.30 Disc Degeneration Science		14.30-15.00 Invited Lecture #2	
	15.30-16.00 COFFEE		15.00-15.30 Spinal Science	
	16.00-16.40 Low Back Pain		15.30-16.00 COFFEE	
	16.40-17.40 Symposium #1		16.00-16.40 Modic Changes and Genetics	
	17.40- First Business Meeting		16.40-17.35 Symposium #2	
			17.35 Second Business meeting	
			19.00 Banquet	

Floor plan



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COMMITTEES

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WELCOME



Dear ISSLS members and guests,

It is with great pleasure that we welcome you to San Francisco for our 42nd Annual Meeting of the International Society for the Study of the Lumbar Spine.

It may measure less than 50 square miles/130 square kilometers, but with our historic Golden

Gate Bridge, cable cars, a sparkling bay, and streets lined with elegant Victorian homes, San Francisco is undeniably one of the world's great cities. Located in Northern California at the state's distinctive bend in the coast, the region has an alluring magic that stretches beyond the bay to diverse cities with invigorating outdoor activities, scintillating nightlife and trend-setting cuisine.

The Bay Area is also home to some of the world's finest wine regions, including Napa Valley which we will experience Wednesday evening on our social outing. There are also waterfront towns, dramatic beaches, and the tech-savvy south bay known as the Silicon Valley, where lunchtime ideas at Google, Facebook, and Apple turn into the next brilliant innovation.

The Program Committee, led by Peter Robertson, has planned scientific sessions, interest group sessions and symposia on Biomechanics as well as Sagittal Balance. Sessions will cover various subjects regarding the latest research in lumbar spine, along with guest lectures and debates. This year, we have a variety of invited speakers including NASA astronaut Bobby Satcher, MD, PhD, who is an orthopaedic surgeon; Professor David Bell, from Port Elisabeth, South Africa, and from David Wong, former president of NASS.

Our administrator, Ms. Katarina Olinder Eriksson, together with our Secretary, Dr. Tim Yoon, and we and all the Bay area ISSLS members, look forward to welcoming you to our 'City by the Bay' in June!

Serena S. Hu, MD
2015 Local Host
Professor and Chief, Spine Service
Department of Orthopedic Surgery,
Stanford University Medical Center,
Palo Alto, CA

Jeffrey C. Lotz, PhD
2015 Local Host
Professor, Vice Chair of Research
Department of Orthopaedic Surgery,
University of California at San Francisco

FELLOWSHIPS AND AWARDS

ISSLS Wiltse Lifetime Achievement Award sponsored by NuVasive, Speed of Innovation

A yearly award for exceptional achievement in the spinal field. This award will be announced at the Banquet dinner on Thursday, June 11

The ISSLS Prize for Lumbar Spine Research

The ISSLS Prize winning papers will be presented on Thursday, June 11 at 11.00' see page XXX for this year's winners.

The ISSLS Clinical Travelling Fellowship

Sponsored by Globus Medical, to be announced during the Fellowship ceremony, Thursday, June 11 at 10.40

Best Paper and Poster Award sponsored by Ono Pharmaceutical Co., Ltd

The two best paper and poster presentations will be announced during Closing Remarks on Friday June 12 at 12.10



Welcome to SpineWeek 2016

**Marina Bay Sands Congress Centre
Singapore, May 16-20**

For further information please visit

www.spineweek.org

SOCIAL PROGRAM

(included in registration fee for all)

Additional tickets, if available, can be purchased at the registration desk



Welcome reception

All participants are cordially invited to the Welcome Reception to be held at the Gold Ballroom. This is a great opportunity to mingle with one another over delicately prepared buffet.

Location: The Palace Hotel, Gold Ballroom

Date/Time: June 8 (Mon), 18:00



Afternoon Outing – Winery tour with BBQ to V Sattui Winery, Napa Valley

Date/Time: June 10 (Wed),

13:00 pm Buses depart from Palace Hotel

Reception (hors d'oeuvres and wine tasting)
Gourmet BBQ dinner and walk of grounds

19:00 pm Arrive Palace Hotel

More info: www.vsattui.com



Banquet

All participants are welcomed to join in this formal dinner to meet professionals and newcomers at the banquet and strengthen professional networks and friendship.

Dresscode: Business attire

Location: The Palace Hotel

Date/Time: June 11 (Thu), 19:00

ACCOMPANYING PERSONS TOURS

(included in registration fee for accompanying persons)

Additional tickets, if available, can be purchased at the registration desk



San Francisco City Tour in a Cable Car

Date: Tuesday, June 9

Departure: 12:30 pm from Palace hotel

Arrival: 3:00 pm at Palace Hotel

Box lunches, from the hotel, will be available to eat on the cable cars.

Tour map: www.issls.org/wp-content/uploads/2014/08/SF-City-Tour-Route-Map.pdf

Museum Tour

Date: Thursday, June 11

Departure: 9:30 am from Palace Hotel

Box lunch on grounds (12-12:30)



Museum #1—de Young

(10:00-12:00)

<https://deyoung.famsf.org/>



Museum #2—Legion of Honor

(12:30-14:30pm)

<https://legionofhonor.famsf.org/>

GENERAL INFORMATION

Meeting Venue

Palace Hotel, San Francisco
2 New Montgomery Street
San Francisco, CA 94105 · USA
Website: <http://www.sfpalace.com/>

Badges

Each delegate and registered accompanying person will receive a name badge at registration. For security reasons, all delegates are requested to wear or bring their badge during all the congress activities.

Internet

Internet is provided at the venue.

Conference registration desk

The registration desk and conference secretariat is located in Regency Foyer. Onsite registration will start on Monday, June 8 at 15:00

Opening hours of the registration desk

Monday, June 8	15:00-18:00
Tuesday June 9	07:00-18:00
Wednesday June 10	07:00-13:00
Thursday June 11	07:00-17:00
Friday June 12	07:00-13:00

Badges

Each delegate and registered accompanying person will receive a name badge at registration. For security reasons and for entry to all events included in registration, delegates are requested to wear or bring their badge during all the congress activities.

Disclaimer

ISSLS, its Organizing Committee and Professional Meeting Consultants, and The Palace Hotel accept no liability for any injuries/losses incurred by participants and/or accompanying persons, nor loss of, or damage to, any luggage and/or personal belongings. Delegates are advised to take out their own insurance to cover personal possessions, travel and cancellation as the Congress does not cover individuals against cancellation of bookings, theft or damage to belongings



MONDAY JUNE 8

08:00		Membership Committee Meeting Location: Breakfast room/French parlor
09:30		Strategy Group Meeting Location: Seminar Room 3/Telegraph Hill
12:00		Executive Committee – Lunch Location: Seminar Room 3/Telegraph Hill
15:00		Registration: Regency Foyer
18:00		Opening Ceremony & Welcome Reception Location: Gold Ballroom

TUESDAY JUNE 9

07.45-07.50		Welcome – Serena Hu/Jeff Lotz
07.50-08.00		Program Chairman – Peter Robertson
SESSION #1		TOPIC: DISC HERNIATION Moderators: Robert Gunzburg and Tim Yoon
08.00-08.05	1	Classification criteria for lumbar radicular pain due to disk herniation Genevay S, Courvoisier D, Konstantinou K, Kovacs FM, Marty M, Katz JN, Atlas SJ; Switzerland, UK
08.07-08.12	2	Does reduction in leg pain precede improvement in disability and physical function among those with degenerative lumbar spine disease? Analysis of data from the Spine Patient Outcomes Research Trial Skolasky RL, Wegener ST, Scherer EA, Tosteson TD; USA
08.14-08.19	3	PCR assay of Excised Intervertebral Discs from Patients Undergoing Single Level Primary Lumbar Microdiscectomy Alamin TF, Tendulkar N, Ith A, Cheng I, Scuderi G; USA
08.21-08.30		<i>Discussion</i>
08.30-08.35	4	Magnetic resonance image findings in the early post-operative period after micro lumbar discectomy Takayama K, Kita T, Yabu A, Nishino K, Sakanaka H, Yamano Y, Nakamura H; Japan
08.37-08.42	5	Does the High-intensity zone (HIZ) of Lumbar Intervertebral Discs always Represent an Annular Tear? Shan Z, Chen H, Liu J, Wang C, Fan S, Zhao F; China

TUESDAY JUNE 9 continued

08.44-08.49	6	Proteoglycan Profile” and Level-Specific Imaging Biomarkers of Lumbar Disc Displacement Pang H , Hui E, Bow C, Cheung J, Borthakur A, Karppinen J, Inoue N, Luk KDK, Cheung K, Samartzis D; Hong Kong, USA, Finland
08.51-09.00		Discussion
SESSION #2		TOPIC: DISC SCIENCE Moderators: Dino Samartzis and Jill Urban
09.00-09.05	7	Integration of the Cartilage Endplate-Intervertebral Disc junction in normal and degenerate human lumbar spines <i>Owen S, Wade K, Rodrigues S, McCall I, Broom N, Roberts S; New Zealand, UK</i>
09.07-09.12	8	Nucleus pulposus of bovine coccygeal intervertebral disc contains progenitor cells capable of differentiating into osteocytes and adipocytes Tekari A , Chan SCW, Wuertz K, Sakai D, Benneker LM, Grad S, Gantenbein B,, Switzerland
09.14-09.19	9	Toll-like Receptor Signaling, Granulocytic Dysregulation, and Neurogenesis in Vertebral Bone Marrow Lesions Dudli S , Burch S, Berven S, Deviren V, Lotz JC; USA
09.21-09.30		Discussion
09.30-09.35	10	The anti-aging agent rapamycin mitigates age-associated proteoglycan matrix loss in intervertebral discs of the nonhuman primate marmoset model Prashanti P , Ngo K, Pohl P, Takashi Y, Dong Q, Cory R, Tardif S, Sowa G, Kang J, Vo N; USA
09.37-09.42	11	Suppressive effect of anti-interleukin-6 receptor antibody on neuropathic pain-related factor in sciatic nerve-injured mice Nakayama S , Sainoh T, Yamauchi K, Orita S, Kubota G, Inage K, Sato J, Fujimoto K, Shiga Y, Takahashi K, Ohtori S; , Japan
09.44-09.49	12	Experimental chemonucleolysis with recombinant human matrix proteinase-7 Haro H , Takenouchi I, Kato T, Koyanagi S, Komori H; Japan
09.51-10.00		Discussion
10.00-10.30		COFFEE
SESSION # 3		TOPIC: SPINAL STENOSIS SCIENCE AND SURGERY Moderators: Max Aebi and Drew Bednar

TUESDAY JUNE 9 continued

10.30-10.35	13	Defining the clinical syndrome of lumbar spinal stenosis: An International Delphi Study <i>ISSLS Focus Group: The International Taskforce on Diagnosis and Management of Lumbar Spinal Stenosis: Tomkins-Lane C, Melloh M, Battié M, Freeman B, Haig A, Smuck M, Lurie J, Staub L, Hu R, Macedo L, Tuber K, Mannion A, Comer C, Barz T, Steurer J, Schizas C, Samartzis D, Cheung J, Ahn S, Takahashi K; USA</i>
10.37-10.42	14	Relationship between bony spinal canal stenosis and the occurrence of clinical symptoms of lumbar spinal stenosis –The Wakayama Spine Study <i>Iwahashi H, Yoshimura N, Hashizume H, Yamada H, Oka H, Shinto K, Ishimoto Y, Nagata K, Teraguchi, M, Kagotani R, Muraki S, Minamide A, Nakagawa Y, Yoshida M; Japan</i>
10.44-10.49	15	The Mechanism of Ligamentum Flavum Hypertrophy: Introducing angiogenesis as a critical link that couples mechanical stress and hypertrophy <i>Hur JW, Kim BJ, Park JH, Kim JH, Park YK, Kwon TH, Moon HJ; Korea</i>
10.51-11.00		<i>Discussion</i>
11.00-11.05	16	Effectiveness of posterior decompression techniques compared with conventional laminectomy for lumbar stenosis, a systematic review <i>Moojen WA, Overvest GM, Jacobs W, Vleggeert-Lankamp C, Thomé C, Gunzburg R, Peul W; Netherlands, Austria, Belgium</i>
11.07-11.12	17	No benefit from fusion in decompressive surgery for lumbar spinal stenosis. 2 year-results from the Swedish Spinal Stenosis Study, a multicenter RCT of 233 patients. <i>Försth P, Carlsson T, Michaelsson K, Sandén B; Sweden</i>
11.14-11.19	18	Short-term improvements in disability mediate patient satisfaction after epidural corticosteroid injections for lumbar spinal stenosis <i>Suri P, Pashova H, Heagerty PJ, Jarvik JG, Turner JA, Bauer Z, Annaswamy T, Friedly JL; USA</i>
11.21-11.26	19	Postoperative recovery of psychiatric problems and surgical outcomes in the patients with lumbar spinal stenosis: a cohort study using the Brief Scale for Psychiatric Problems in Orthopaedic Patients (BS-POP) <i>Kato K, Yabuki S, Otani K, Nikaido T, Watanabe K, Kikuchi S, Konno S; Japan</i>
11.28-11.40		<i>Discussion</i>
11.40-12.00		INVITED LECTURE #1 Moderator – Jeffrey Lotz Orthopaedics in Orbit: The final frontier for Orthopaedics Robert L. Satcher Jr. MD PhD, Astronaut (Ret.). Assistant Professor, Orthopaedic Oncology. MD Anderson Cancer Center
12.00-12.10		<i>Discussion</i>
12.10-13.30		LUNCH

TUESDAY JUNE 9 continued

SESSION # 4	TOPIC: EPIDEMIOLOGY Moderators: Chris Colloca and David Hall	
13.30-13.35	20	Systematic literature review of imaging features of spinal degeneration in asymptomatic populations <i>Brinjikji W, Luetmer PH, Comstock B, Bresnahan BW, Chen LE, Deyo RA, Halabi S, Turner JA, Avins AL, James K, Wald JT, Kallmes DF, Jarvik JG; USA</i>
13.37-13.42	21	Pessimistic back beliefs and lack of exercise: a risky combination for future shoulder, neck, and back pain <i>Elfering A, Mueller U, Rolli C, Tamcan O, Mannion AF; Switzerland</i>
13.44-13.49	22	Bench-marking the outcome of lumbar spine surgery using a spine register database Strömqvist B, Fritzell P, Hägg O, Jönsson B, Knutsson B, Sandén B: Sweden
13.51-14.00	<i>Discussion</i>	
14.00-14.05	23	Potentially Modifiable Risk Factors for Low Back Pain in Adult Population of the United States <i>Yang H, Haldeman S; USA</i>
14.07-14.12	24	Early Imaging in Older Adults with Back Pain is Associated with No Improvement in Back-Related Disability but Increased Resource Utilization: An Observational Study Jarvik JG, Gold LS, Comstock BA, Heagerty PJ, Rundell SD, Turner JA, Avins AL, Z Bauer S, Bresnahan BW, Friedly JL, James K, Kessler L, Nedeljkovic SS, Nerenz DR, Shi X, Sullivan SD, Chan L, Schwalb JM, Deyo RA; USA
14.14-14.19	25	The association of different sport activities with lumbar disc degeneration among young Finnish adults - A subsample of northern Finland birth cohort 1986 Takatalo J, Karppinen J, Niinimäki J, Blanco Sequeiros R, Näyhä S, Auvinen J; Finland
14.21-14.30	<i>Discussion</i>	
SESSION # 5	TOPIC: DISC DEGENERATION SCIENCE Moderators: Ashish Diwan and Jim Kang	
14.30-14.35	26	Efficacy of anti-RANKL on the sensory nervous system in a rat model of lumbar intervertebral disc injury. Sato M, Ohtori S, Sakuma Y, Orita S, Yamauchi K, Kubota G, Oikawa Y, Inage K, Sainoh T, Sato J, Fujimoto K, Shiga Y, Abe K, Kanamoto H, Takahashi K; Japan
14.37-14.42	27	The effects of human umbilical cord Wharton's jelly cells transplantation on the intervertebral disc in a canine disc degeneration model Ruan D, Zhang Y, Tao H, Gu T, Zhou M, Jia Z, Jiang G, Chen C, Han Z, Xu C, Wang D, He Q; China

TUESDAY JUNE 9 continued

14.44-14.49	28	Association and Functional Analysis of ADAMTS5 in Lumbar Disc Degeneration <i>Li Y, Kao P, Yip MS, Sze KL, Fosang A, McCulloch D, Cheung KMC, Samartzis D, Luk KDK, Karppinen J, Youqiang S, Cheah K, Sham PC, Chan D; Hong Kong</i>
14.51-15.00		<i>Discussion</i>
15.00-15.05	29	Circulating CCL5/RANTES: a potential biomarker for human intervertebral disc degeneration <i>Grad S, Bow C, Karppinen J, Cheung KMC, Samartzis D, Alini M; Switzerland, Hong Kong, Finland</i>
15.07-15.12	30	Allogeneic Mesenchymal Stem Cells Improve Indices of Lumbar Intervertebral Disc Degeneration without Site Specificity of Injection in an Ovine Model <i>Freeman BJC, Zarrinkalam MR, Kuliwaba JS, Jones CF, Shu CC, Colloca CJ, Melrose J, Mulaibrahimovic A, Gronthos S, Zannettino ACW, Howell S; Australia</i>
15.14-15.19	31	UTE MRI Disc Sign (UDS): a novel imaging biomarker associated with spine degeneration, pain and disability <i>Pang H, Hui E, Bow C, Cheung J, Borthakur A, Karppinen J, Inoue N, Wang HQ, Luk KDK, Cheung K, Samartzis D; Hong Kong, USA, Finland, China</i>
15.21-15.30		<i>Discussion</i>
15.30-16.00		COFFEE
SESSION # 6		TOPIC: LOW BACK PAIN Moderators: Helena Brisby and Lois Jenis
16.00-16.05	32	Can the clinician accurately appraise the severity and impact of a patient's back problem during the clinical consultation? <i>Zaina F, Mutter U, Donzelli S, Lusini M, Kleinstueck FS, Minnella S, Negrini S, Mannion AF; Italy, Switzerland</i>
16.07-16.12	33	A comparison of spinal manipulation methods and usual medical care for low back pain: a randomized clinical trial <i>Schneider M, Haas M, Glick R, Stevans J, Landsittel D; USA</i>
16.14-16.19	34	Coccygectomy: A Prospective, Observational Study of 98 Patients <i>Hanley EN, Ode GE, Jackson JB, Seymour RA; USA</i>
16.21-16.26	35	Sacroiliac joint score as a simple clinical diagnostic support tool to identify patients with sacroiliac joint dysfunction <i>Kurosawa D, Murakami E, Ozawa H, Koga K, Isu T, Chiba Y, Abe E, Unoki E, Musha Y, Ito K, Kato S, Yoshida T, Yamaguchi T; Japan</i>
16.28-16.40		<i>Discussion</i>

TUESDAY JUNE 9 continued

16.40-17.40	SYMPOSIUM 1: Biomechanics and its relationship to the lumbar spine Moderator: Tom Oxland
16.40-16.50	What can biomechanics teach us about disc degeneration? - <i>Michael Adams</i>
16.50-17.00	Comparisons of in vivo loading measurements to FEM and cadaveric studies - <i>Hans-Joachim Wilke</i>
17.00-17.10	Role of the biomechanics to understand the pathomechanism of the spondylolysis and spondylolisthesis - <i>Koichi Sairyo</i>
17.10-17.20	Mechanical testing methodologies of cadaveric spine: Follower load, pure moments, vs combined axial load and bending moments? - <i>Avinash Patwardhan</i>
17.20-17.30	Nano, micro, or macro biomechanics – what each level of detail can tell us - <i>Dawn Elliott</i>
17.30-17.40	<i>Discussion</i>
17.40-	FIRST BUSINESS MEETING

WEDNESDAY JUNE 10

SESSION # 7 07.45-08.45	SPECIAL EMPHASIS POSTER SESSION #1
SESSION # 8	TOPIC: COMPLICATIONS Moderators: Yoshiharu Kawaguchi and Everard Munting
09.00-09.05	36 Does provocative discography cause clinically important injury to the lumbar intervertebral disc? A ten-year matched cohort study <i>Cuellar JM, Stauff MP, Herzog R, Carrino JA, Baker G, Carragee EJ; USA</i>
09.07-09.12	37 Monthly Fluctuations of Surgical Site Infections Following Elective Spinal Surgery: A Retrospective Analysis Using the Japanese Diagnosis Procedure Combination Database <i>Ohya J, Chikuda H, Oshima Y, Taniguchi Y, Matsubayashi Y, Kumano Y, Hayakawa K, Fukushima M, Oichi T, Tanaka S; Japan</i>
09.14-09.19	38 The Effect of Vancomycin Powder on Bone Healing in a Rat Spinal Arthrodesis Model <i>Mendoza MC, Sonn K, Kannan AS, Bellary S, Mitchell SM, Singh G, Park C, Yun C, Yun J, Ghosh A, Stock SR, Hsu EL, Hsu WK; USA</i>
09.21-09.30	<i>Discussion</i>

WEDNESDAY JUNE 10 continued

09.30-09.35	39	The effect of incidental durotomy on cost and length of stay in primary, short, posterior lumbar fusion for lumbar spinal stenosis: An analysis of 17,232 cases <i>Buck JS, Yoon T; USA</i>
09.37-09.42	40	Effect of Obesity on Complications of Spinal Surgery Related to Mechanical Factors Including Re-operation Rate and Adjacent Segment Disease. Flippin MA , <i>Chen J, Harris J, Fithian DC, Ward SR, Gombatto SP; USA</i>
09.44-09.49	41	Prospective Multicenter Surveillance and Risk Factor Analysis of Deep Surgical Site Infections after Lumbar Laminectomy and/or Herniotomy in Adults Ogihara S , <i>Yamazaki T, Maruyama T, Oka H, Inanami H, Miyoshi K, Azuma S, Yamada T, Chikuda H, Murakami M, Kawamura N, Yamakawa K, Oshima Y; Japan</i>
09.51-10.00		<i>Discussion</i>
10.00-10.30		COFFEE
SESSION # 9		TOPIC: OSTEOPOROSIS Moderators: Chang-Hoon Jeon and Douglas Wardlaw
10.30-10.35	42	Characteristics of osteoporotic back pain without fracture Fujimoto K , <i>Ohtori S, Inage K, Yamauchi K, Orita S, Kubota G, Saino T, Sato J, Shiga Y, Abe K, Kanamoto H, Takahashi K; Japan</i>
10.37-09.42	43	What MRI findings predict pseudarthrosis of osteoporotic vertebral fracture? – a multicenter prospective cohort study between 2012 and 2014 Takahashi S , <i>Hoshino M, Toyoda H, Tsujio T, Iseki K, Takayama K, Sasaoka R, Yasuda H, Kanematsu F, Kohno H, Nagayama R, Nakamura H; Japan</i>
10.44-09.49	44	Effect of teriparatide on subsequent vertebral fracture following long instrumented fusion surgery for osteoporotic vertebral collapse Maruo K , <i>Tachibana T, Inoue S, Arizumi F, Yoshiya S; Japan</i>
10.51-11.00		<i>Discussion</i>
11.00-11.40		PRESIDENTIAL ADDRESS – Robert Gunzburg Introduction – Tim Yoon
11.40-12.20		HARRY FARFAN PRESIDENTIAL LECTURE Introduction – Robert Gunzburg Guest Speaker – Professor Stuart Firestein , Chair of the Department of Biological Sciences at Columbia University, New York, USA
13.00		AFTERNOON OUTING

THURSDAY JUNE 11

SESSION # 10		TOPIC: FUSION
		Moderators: Jeremy Fairbank and Scott Blumenthal
07.30-07.35	45	What do patients consider to be an acceptable level of pain to live with after surgery for lumbar degenerative disorders? <i>Fekete TF, Kleinstueck FS, Porchet F, Haschtmann D, Jeszszky D, Mannion AF; Switzerland</i>
07.37-07.42	46	A comparative effectiveness study of mini-open versus open transforaminal interbody fusion for lumbar degenerative disorders <i>Kleinstück FS, Haschtmann D, Fekete TF, Jeszszky D, Mannion AF; Switzerland</i>
07.44-07.49	47	Bone Union rate of PLIF using local bone graft in long term bisphosphonates users <i>Park SY, Suh SW, Hong JY, Yang JH, Lee HM; Korea</i>
07.51-07.56	48	Surgical treatment of Adult Spinal Deformity results in vastly superior back and leg pain improvement compared to non op treatment: Analysis of 421 patients with 2-year follow-up <i>Deviren SB, Scheer JK, Smith JS, Clark AJ, Lafage V, Kim HJ, Rolston JD, Eastlack R, Hart RA, Protosaltis TS, Kelly MP, Kebaish K, Gupta M, Klineberg E, Hostin R, Shaffrey CI, Schwab F, Ames CP, and the International Spine Study Group (ISSG); USA</i>
07.58-08.03	49	Circumferential fusion for thoracolumbar adult deformity surgery: comparison of MIS lateral interbody fusion with open or percutaneous pedicle screw fixation <i>Theologis AA, Nguyen S, Mundis Jr G, Akbarnia B, Eastlack RK, Wang M, Mummaneni PV, Uribe J, Okonkwo D, Anand N; USA</i>
08.05-08.20		<i>Discussion</i>
SESSION # 11		TOPIC: DEFORMITY
		Moderators: Alastair Gibson and Keith Luk
08.20-08.25	50	Is the Core Outcome Measures Index (COMI) as responsive as the SRS-22 for the assessment of outcome in adult spinal deformity? <i>Mannion AF, Vila-Casademunt A, Domingo-Sabat M, Wunderlin S, Pellisé F, Acaroglu E, Alanay A, Pérez-Gruoso FS, Obeid I, Kleinstück FS; Switzerland, Spain, Turkey</i>
08.27-08.32	51	Spino-pelvic sagittal malalignment determined by a new slot-scanning X-ray Imager (EOS) has a positive relationship with ODI score <i>Hasegawa K, Okamoto M, Ishii K, Shimoda H, Ono M, Homma T; Japan</i>
08.34-08.39	52	Adult Spinal Deformity: Clinical and Radiological Analysis using Community-based Cohort <i>Kobayashi T, Chiba H, Aono K, Jimbo S, Senoo I, Atsuta Y, Ito H, Sugisawa H, Sugawara T, Habagushi T; Japan</i>

THURSDAY JUNE 11 continued

08.41-08.46	53	Patient and Surgeon Radiation Exposure during Spinal Instrumentation using Intraoperative CT-Based Navigation <i>Mendelsohn D, Strelzow J, Batke J, Dvorak M, Fisher C, Street J; Canada</i>
08.48-09.00		<i>Discussion</i>
SESSION # 12 09.10-09.40		GENERAL POSTER SESSION, ODD NUMBERS
SESSION # 13 09.40-10.10		GENERAL POSTER SESSION, EVEN NUMBERS
10.10-10.40		COFFEE
SESSION # 14 10.40-11.00		FELLOWSHIP AWARD CEREMONY Moderator : Tim Yoon Introduction of Fellowships – Brian Freeman Announcement of Globus Fellowship for 2015 Globus Fellowship Report 2014 Recipient - Dr Chinmay Nath Presentation of Spine Young Investigators Award —by Scott Boden: <ul style="list-style-type: none"> • Cervical Nerve Root Displacement and Strain During Upper Limb Neural Tension Testing: Part 1. A Minimally Invasive Assessment in Unembalmed Cadavers • Cervical Nerve Root Displacement and Strain During Upper Limb Neural Tension Testing: Part 2. Role of Foraminal Ligaments in the Cervical Spine <i>Chelsea M. Lohman, Mesa, Arizona</i>
SESSION # 15		THE ISSLS PRIZE PAPERS
11.00-11.10		Introduction and Award Ceremony Moderator - Björn Rydevik
11.10-11.20	54	ISSLS PRIZE - BASICS A Detailed Examination of the Elastic Network Leads to A New Understanding of Annulus Fibrosus Organisation <i>Yu J, Schollum ML, Wade KR, Broom ND, Urban JPG; UK, New Zealand</i>
11.20-11.30		<i>Discussion</i>
11.30-11.40	55	ISSLS PRIZE – BIOENGINEERING Cyclic Loading-Induced Convection Enhances Net Transport Into the Intervertebral Disc <i>Gullbrand SE, Peterson J, Ahlborn J, Mastropolo R, Fricker A, Roberts TT, Abousayed M, Lawrence JP, Glennon JC, Ledet EH; USA</i>
11.40-11.50		<i>Discussion</i>
11.50-12.00	56	ISSLS PRIZE – DISC BIOLOGY Vertebral endplate (Modic) change is an independent risk factor for episodes of severe and disabling low back pain <i>Määttä J, Wadge S, MacGregor A, Karppinen J, Williams FMK; Finland</i>

THURSDAY JUNE 11 continued

12.00-12.10		<i>Discussion</i>
12.10-13.30		LUNCH
SESSION # 16		TOPIC: SPINAL STENOSIS Moderators: Charles Greenough and Björn Rydevik
13.30-13.35	57	Influence of pain sensitivity on surgical outcomes after lumbar spine surgery in patients with lumbar spinal stenosis Kim HJ , Lee JI, Kang KT, Chang BS, Lee CK, Ruscheweyh R, Kang SS, Yeom JS; Korea
13.37-13.42	58	Posterolateral Lumbar Arthrodesis with and without Interbody Arthrodesis for L4-5 Degenerative Spondylolisthesis: A Comparative Value Analysis Gottschalk MB, Premkumar A, Sweeney BSK, Boden SD , Heller J, Yoon ST, Rhee J; USA
13.44-13.49	59	Interrelation between surgical treatment outcomes and psychiatric problems in lumbar spinal stenosis patients: a 2-year cohort study using Brief Scale for Psychiatric Problems in Orthopaedic Patients (BS-POP) Watanabe K , Otani K, Nikaido T, Kato K, Yabuki S, Kikuchi S, Konno S; Japan
13.51-14.00		<i>Discussion</i>
14.00-14.05	60	A Prospective, Randomized, Multicenter Study Comparing Two Interspinous Devices for the Treatment of Lumbar Stenosis Blumenthal SL , Bradley WD, Ohnmeiss DD; USA
14.07-14.12	61	Lumbar spinal stenosis: are decompression alone, decompression with instrumented fusion, or decompression with posterior dynamic stabilization treating the same patient? Berlemann U , Kleinstück F, Porchet F, Mannion AF, Röder C, Munting E, Pigott T, Aghayev E; Switzerland
14.14-14.19	62	Risk factors of residual low back pain associated with lumbar spinal stenosis following decompression surgery Yamada H , Yoshida M, Hashizume H, Minamide A, Nakagawa Y, Nishi H, Iwasaki H, Tsutsui S, Okada M, Nakao S, Okada S, Oka H; Japan
14.21-14.30		<i>Discussion</i>
SESSION # 17		INVITED LECTURE #2 Moderator: Serena Hu
14.30-14.50		Radiation and Spine Surgery - <i>David Wong</i>
14.50-15.00		<i>Discussion</i>
SESSION # 18		TOPIC: SPINAL SCIENCE Moderators: Dawn Elliott and Sally Roberts
15.00-15.05	63	Stress enhances gait disturbance induced by lumbar facetectomy in the rat Fukui D , Matsumoto T, Naiki M, Masuda K, Kawakami M; Japan, USA

THURSDAY JUNE 11 continued

15.07-15.12	64	Lesions in the intervertebral disc and herniations can be induced under complex loading conditions and detected with ultra highfield MRI @ 11.7 T Wilke H-J, Berger-Roscher N, Maile S, Rasche V, Kienle A; Germany
15.14-15.19	65	Transcranial Direct Current Stimulation (tDCS) in the Management of Acute Post-Spine Surgery Pain: A Prospective Randomized Controlled Trial Borckardt JJ, Glaser J, Reeves S, George MS; USA
15.21-15.30		<i>Discussion</i>
15.30-16.00		COFFEE
SESSION # 19		TOPIC: MODIC CHANGES AND GENETICS Moderators: Keita Ito and Stuart McGill
16.00-16.05	66	The Association of Modic Changes and Disabling Low Back Pain: a Large-Scale, Population-Based Study Määttä J, Karppinen J, Bow C, Luk KDK, Cheung KMC, Samartzis D; Finland, Hong Kong
16.07-16.12	67	Associations between types of Modic changes in the lumbar region and lower back pain in a large cohort in Japan: the Wakayama Spine Teraguchi M, Yoshimura N, Hashizume H, Muraki S, Yamada H, Oka H, Minamide A, Nakagawa H, Ishimoto Y, Nagata K, Kagotani R, Tanaka S, Kawaguchi H, Nakamura K, Akune T, Yoshida M; Japan
16.14-16.19	68	Association of Vertebral Bone Marrow Edema with Low Back Pain in Degenerative Lumbar Scoliosis in the Elderly: A Cross-sectional Observational Study Nakamae T, Fujimoto Y, Yamada K, Suzuki O, Hashimoto T, Matsuura M, Morisako T, Olmarker K; Japan. Sweden
16.21-16.26	69	A Novel Pathway Associated with Lumbar Disc Degeneration: a Genome-wide Association Study Li Y, Samartzis D, Campbell D, Cherny S, Cheung KMC, Luk KDK, Karppinen J, Youqiang S, Cheah K, Sham PC, Chan D; Hong Kong
16.28-16.40		<i>Discussion</i>
		SYMPOSIUM #2 - Sagittal Balance Moderator: Peter Robertson
16.40-16.55		An overview of Sagittal Balance and surgical principles – <i>Serena Hu</i>
16.55-17.10		A viewpoint – Striving to Optimise Sagittal Balance is Best! – <i>Jean Charles LeHuec</i>
17.10-17.25		A viewpoint – Sagittal Balance – Where is the evidence? Challenging Excessive Intervention - <i>Alastair Gibson</i>
17.25-17.35		<i>Discussion</i>
17.35		SECOND BUSINESS MEETING
19.00		ISSLS BANQUET

FRIDAY JUNE 12

SESSION # 20

07.45-08.45

SPECIAL POSTER SESSION # 2

09.00-09.30

REPORT OF SPECIAL INTEREST GROUP CHAIRS

Moderator: Tim Yoon

SESSION # 21

TOPIC: ADJACENT SEGMENT DEGENERATION

Moderators: Finn Christensen and Ed Hanley

09.30-09.35

70

Age, pro-inflammatory gene polymorphisms and fusion are associated with adjacent segment disc degeneration in patients treated for chronic low back pain.

Omair A, Mannion AF, Leivseth G, Fairbank J, Holden M, Lie BA, Hägg O, Fritzell P, Brox JI; Norway, Switzerland, United Kingdom, Sweden

09.37-09.42

71

Severity of Adjacent Disc Disease Due to Lower Lumbar Disc Degeneration is Equally Important as those due to Lumbar Fusion

Natarajan RN and Andersson GBJ; USA

09.44-09.49

72

Comparative study of adjacent segment disease between TLIF and Microscopic bilateral decompression via unilateral approach in L4 spondylo-
listhesis: a minimum 5-year follow-up.

Ohyama S, Matsumura A, Kato M, Namikawa T, Nakamura H; Japan

09.51-09.56

73

Prevention of acute proximal junctional fractures after long thoracolumbar posterior fusions using two-level cement augmentation at the upper instrumented vertebra and the vertebra one level proximal to the upper instrumented vertebra

Theologis AA, Burch S; USA

09.58-10.10

Discussion

10.10-10.40

COFFEE

SESSION # 22

TOPIC: SPINAL SCIENCE

Moderators: Raghu Natarajan and Koichi Sairyo

10.40-10.45

74

Functional Assessment of Local Versus Distal Transplantation of Human Neural Stem Cells Following Chronic Spinal Cord Injury

Cheng I, Githens M, Rao A, Johnston T, Tileston K, Salari N, Stauff M, Smith RL; USA

10.47-10.52

75

Prognosis in surgical management of symptomatic spinal metastasis - Prospective cohort study of surgical outcome-

Kakutani K, Sakai Y, Maeno K, Yurube T, Kurakawa T, Miyazaki S, Terashima Y, Ito M, Takada T, Iguchi T, Kurosaka M, Nishida K; Japan

10.54-10.59

76

Improved patient selection by stratified surgical intervention: Aarhus Spinal Metastases Algorithm

Wang M, Bünger CE, Li H, Sun M, Helmig P, Borhani-Khomani G, Wu CS, Stender Hansen E, Choi D, Hoey K; Denmark, UK

FRIDAY JUNE 12 continued

11.01-11.06	77	Cost-utility of surgical treatment for patients with spinal metastasis Miyazaki S, Kakutani K, Sakai Y, Maeno K, Takada T, Yurube T, Kurakawa T, Terashima Y, Ezima Y, Kawamoto T, Hara H, Sakashita A, Sasaki R, Akisue T, Iguchi T; Kurosaka M, Nishida K; Japan
11.08-11.13	78	Impact of Non-operative care utilization on post thoracolumbar spine surgery outcomes McIntosh G, Johnson M, Passmore S, Rasskazoff S, Hall H; Canada
11.15-11.30		<i>Discussion</i>
SESSION # 23		TOPIC: SPONDYLOLISTHESIS Moderators: Anne Mannion and Kazuhisa Takahashi
11.30-11.35	79	Outcome of decompression with and without fusion in spinal stenosis with degenerative spondylolisthesis in relation to preoperative pain pattern - A register study of 1,624 patients Sigmundsson FG, Strömqvist B, Jönsson B; Sweden
11.37-11.42	80	Long-term outcome of surgery for lumbar degenerative spondylolisthesis in a prospective randomized clinical trial Kato T, Yoshii T, Inose H, Hirai T, Yamada T, Sakai K, Arai Y, Okawa A; Japan
11.44-11.49	81	Predictors of return to work status following lumbar fusion surgery among workers' compensation subjects with spondylolisthesis Anderson JT, Duff RJ, Ahn UM, Ahn NU; USA
11.51-11.56	82	Increasing Rate of Surgical Management of Adult Spinal Deformity in Patients Over Sixty Sing DC, Shaw JD, Metz LN, Khanna R, Burch S, Berven SH; USA
11.58-12.10		<i>Discussion</i>
12.10-12.30		ANNOUNCEMENT - BEST PAPER AND POSTER AWARDS Moderator: Peter Robertson Closing Remarks – James Kang

SPECIAL POSTER SESSION #1

Wednesday, June 10, 07:45-08:45

A. SURGERY COMPLICATIONS

Moderators: Mark Brown and Richard Hu

- SP1 Risk factors for incidental durotomy during posterior spine surgery for degenerative diseases in adults: a prospective multicenter study
Ishikura H, Ogihara S, Yamazaki T, Maruyama T, Oka H, Inanami H, Miyoshi K, Azuma S, Yamada T, Murakami M, Kawamura N, Chikuda H, Oshima Y, Yamakawa K, Morii J; Japan
- SP2 Incidence, pathologies and risk factors for revisional spinal fusion after posterior lumbar decompression
Watanabe T, Kanayama M, Oha F, Iwata A, Onda S, Tashiro K, Hashimoto T, Iwasaki N; Japan
- SP3 Predictors of chronic opioid analgesia after lumbar fusion among 1407 workers compensation subjects with degenerative disc disease
Anderson JT, Duff RJ, Ahn UM, Ahn NU; USA
- SP4 Predictors of return to work status following lumbar fusion surgery among workers compensation subjects with degenerative disc disease
Anderson JT, Duff RJ, Ahn UM, Ahn NU; USA
- SP5 How Does Obesity Affect Early Complications in Patients Undergoing Revision Spine Surgery?
Yue JK, **Sing DC**, Burch S; USA
- SP6 Large increase in blood pressure after extubation increase the risk of spinal epidural hematoma after lumbar surgery
Yamada K, Abe Y, Yanagibashi Y, Hyakumachi T, Satoh S; Japan

B. DISC BIOLOGY

Moderators: Paul Bishop and Patricia Dolan

- SP7 Quantitative Analysis of Long-term Efficacy of Cell Therapy for Intervertebral Disc Repair
Gu W, Zhu Q, Gao X, Temple T, Brown MD; USA
- SP8 Nucleus pulposus Cells inhibit Osteogenesis of Mesenchymal Stem Cells
Chan SCW, Benneker LM, Heini P, **Gantenbein B**; Switzerland
- SP9 Link protein N-terminal peptide (LPP) Uses The BMP-Receptor to Increase Cartilage Production by Intervertebral Disc Cells.
Wang Z, Weitzmann MN, Sangadala S, Hutton WC, Yoon ST; USA
- SP10 Dynamic imaging demonstrates the effect of pulsed electromagnetic fields (PEMF) treatment on IL-6 transcription in bovine nucleus pulposus cells
Tang X, Dezba D, 1; Waldorff E, Ryaby J, Tamara A, Lotz J; USA
- SP11 The effect of anti-vascular endothelial growth factor injection into intervertebral degenerative discs in rats
Sato J, Orita S, Miyagi M, Yamauchi K, Kubota G, Inage K, Sainoh T, Fujimoto K, Shiga Y, Abe K, Kanamoto H, Takahashi K, Ohtori S; Japan

SPECIAL POSTER SESSION #1 continued

- SP12 Protective Effects of Rapamycin Against Intervertebral Disc Cellular Apoptosis, Senescence, and Extracellular Matrix Degradation Are Linked to Akt Phosphorylation as Well as to Autophagy Induction
Yurube T, Lozito TP, Hartman RA, Pohl PHI, Zhongying Z, Nishida K, Kurosaka M, Vo NV, Sowa GA, Kang JD; USA

C. SPINE DEFORMITY

Moderator: Angus Don and Shinichi Konno

- SP13 Sagittal flat back alignment is common in young patients with symptomatic lumbar disc herniation
*Thoreson O, Kovac P, Halldin K, Jonasson P, **Brisby H**, Baranto A; Sweden*
- SP14 Targeted therapy of low back pain associated with de novo degenerative lumbar scoliosis in the elderly: prospective observation cohort study
***Yamada K**, Fujimoto Y, Nakamae T, Hashimoto T, Suzuki O, Matsuura M, Morisako T, Olmarker K; Japan, Sweden*
- SP15 The prognosis of L5 radiculopathy after reduction and instrumented fusion of adult isthmic high-grade lumbosacral spondylolisthesis and the role of multimodal intraoperative neuromonitoring (MIOM)
Schär RT, Sutter M, Mannion AF, Eggspühler A, Jeszenszky D, Fekete T, Kleinstück F, Haschtmann D; Switzerland
- SP16 Influence of spinopelvic alignment on the residual low back pain after lumbar spinal fusion.
***Tashiro K**, Kanayama M, Iwata A, Onda S, Watanabe T, Hashimoto T, Kaneko K; Japan*
- SP17 Preoperative fibrinogen plasma concentration but not factor XIII activity predicts bleeding in lumbar spinal fusion patients
*Carling M, Jeppsson A, Ericsson B, **Brisby H**; Sweden*
- SP18 Paraspinal muscles and sagittal spinopelvic alignment in patients with degenerative spondylolisthesis
***Demir-Deviren S**, Ozcan-Eksi EE, Pekmezci M, Kapucu I, Eksi M, Tay B, Berven S, Burch S, Deviren V; USA, Turkey*

D. ECONOMICS AND SURGERY

Moderators: Scott Boden and Donna Ohnmeiss

- SP19 High-dose acetaminophen has neither analgesic nor anti-inflammatory advantage over loxoprofen sodium hydrate for the acute pain after spine surgery.
***Nagamoto Y**, Tobimatsu H, Aono H; Japan*
- SP20 Minimally Invasive Transforaminal Lumbar Interbody Fusion: Meta-Analyses Of The Fusion Rates. What is the optimal graft material?
*Parajón A, **Alimi M**, Christos P, Torres-Campa JM, 1, Navarro-Ramirez R, Moriguchi Y, Härtl R; USA*

SPECIAL POSTER SESSION #1 continued

- SP21 Factors associated with improvement of spinal sagittal alignment after microendoscopic laminotomy in patients with lumbar spinal canal stenosis.
Dohzono S, Toyoda H, Suzuki A, Hoshino M, Terai H, Nakamura H; Japan
- SP22 External Comparisons of a Treatment Outcomes Calculator for Surgical and Nonsurgical Treatment of Disc Herniation
Scherer EA, Lurie J, Atlas S, Jacobs WC, Peul W, Spratt K, Zhao W, Weinstein J, **Tosteson TD**; USA, Netherlands
- SP23 The Impact of New Policy Restriction on Indications for Lumbar Fusion Surgery
Martin BI, Deyo RA, Lurie JD, Tosteson ANA, Carey T, Mirza SK; USA
- SP24 Economic evaluation of intra-operative CT based navigation for the placement of spinal pedicle screws: A patient-level cost effectiveness analysis
Dea N, Fisher CG, **Batke J**, Street J; Canada

E. METASTATIC DISC AND FUSION

Moderators: **Robert Fraser and Mohammed Mossaad**

- SP25 Analysis of Internet Information on Lateral Lumbar Interbody Fusion
Belayneh R, Mesfin A; USA
- SP26 Assessment of Intervertebral Disc Degeneration Based on Quantitative Magnetic Resonance Imaging Analysis in a Dog Model
Chen C, Jia Z, Han Z, Gu T, Li W, Wang D, He Q, Ruan D; China
- SP27 Dioxin exposure inhibits osteogenic differentiation and impairs bone healing in a rat spine fusion model
Mendoza M, Yun C, Mitchell S, Kannan A, Sonn K, Bellary S, Yun J, Hashmi S, Nelson J, Nickoli M, Ghodasra J, Park C, Ashketar A, Ghosh A, Jain A, Stock S, Hsu W, Hsu E; USA
- SP28 Comparative study of the efficacy of limaprost and pregabalin as single agents and in combination for the treatment of lumbar spinal stenosis: A prospective, double blind, randomized controlled non-inferiority trial
Kim HJ, Kim JH, Park YS, Soo SK, Lee JH, Park MS, Moon SH; Korea
- SP29 Metastatic spine tumour surgery: a comparative study of minimally invasive approach using percutaneous pedicle screws fixation versus
Kumar N, Wu PH, Zaw AS, Malhotra R, Makandura M, Liu G, Thambiah J, **Wong HK**; Singapore
- SP30 Safety of Intraoperative Cell Salvage in Metastatic Spine Tumour Surgery
Kumar N, Zaw AS, Victor QA, Goy LR, **Wong HK**; Singapore

SPECIAL POSTER SESSION #2

Friday, June 12, 07:45-08:45

F. BIOMECHANICS

Moderators: Michael Adams and Thomas Steffen

- SP31 An anatomical study of middle cluneal nerve entrapment.
Konno T, Kuniya H, Saito T, Aota Y, Kyoku N, Hayashi S, Kawada S, Itoh M; Japan
- SP32 The Influence of Spinal Deformity on Acetabular Orientation in Total Hip Arthroplasty
Phan D, Schwarzkopf RS, Bederman S; CA, USA
- SP33 In vivo evidence that task-specific modifications of trunk muscle activity protect painful spines
Wong A, Kawchuk G, Parent E, Huang C; Canada
- SP34 Vertebral endplate defects and disc degeneration
Zehra U, Flower L, Robson-Brown K, Adams MA, **Dolan P**; UK
- SP35 Radiographic features of lumbo-pelvic contour in sit-to-stand motion in the elderly
Suzuki H, Endo K, Nishimura H, Tanaka H, Shishido T, Yamamoto K; Japan
- SP36 Paraspinal muscle asymmetry and fat infiltration in patients with symptomatic disc herniation
Fortin M, Lazáry À, Varga PP, Battié MC; Canada

G. STENOSIS

Moderators: Hamilton Hall and Markus Melloh

- SP37 A morphometric study of L4-L5 lumbar spine in L4 spondylolisthesis: analysis of feasibility of the Oblique Lateral Interbody Fusion approach
Hori Y, Hoshino M, Mandai K, Tsujio T, Seki M, Ando Y, Iwakiri K, Kobayashi A, Nakamura H; Japan
- SP38 Influence of lumbar spinal stenosis on the sagittal imbalance of the whole spine
Hashimoto K, Miyamoto H, Ikeda T, Akagi M; Japan
- SP39 Radiographic parameters associated with revision surgery for proximal junctional kyphosis in adult spinal deformity
Ekşi MS, Nicholls F, Pekmezci M, Gün BK, Demirkiran G, Berven S, Burch S, Choue D, Mummaneni P, Tay B, Ames C, Deviren V; USA, Turkey
- SP40 The six-minute walk test for patients with lumbar spinal stenosis
Imoo Y, Mamizuka N, Kubota Y, Suzuki H, Hirano A, Fujie K, Hashimoto K, Nakata Y, Sakane M, Yamazaki M; Japan
- SP41 Improvement in Low back pain associated with lumbar spinal canal stenosis following spinal microendoscopic surgery
Yamada H, Yoshida M, Hashizume H, Minamide A, Nakagawa Y, Nishi H, Iwasaki H, Tsutsui S, Okada M, Nakao S, Okada S, Oka H; Japan
- SP42 The influence of preoperative low back pain on surgical outcome of decompression for lumbar spinal stenosis.
Watanabe K, Otani K, Nikaido T, Kato K, Yabuki S, Kikuchi S, Konno S; Japan

SPECIAL POSTER SESSION #2 continued

H. OBESITY & DEFORMITY

Moderators: Brian Freeman and Björn Strömqvist

- SP43 Spinopelvic Parameters and Reliability Between Imaging Modalities: 36-Inch-Long Cassette vs. Dedicated Lumbar Lateral Radiographs
Cheng I, Woodall J; USA
- SP44 Radiographic changes in the paravertebral muscles of the lumbar spine associated with the C7 sagittal vertical axis: The Wakayama Spine Study
Hashizume H, Yoshimura N, Yamada H, Oka H, Iwahashi H, Asai Y, Tsutsui S, Sasaki T, Teraguchi M, Kagotani R, Muraki S, Minamide A, Nakagawa Y, Yoshida M; Japan
- SP45 TOEI study - cutoff values of spinopelvic sagittal parameters causing QOL deterioration in high age volunteers
Togawa D, Yasuda T, Hasegawa T, Yamato Y, Kobayashi S, Oe S, Banno T, Arima H, Ide K, Watanabe Y, Yamada T, Nakai K, Hoshino H, Matsuyama Y; Japan
- SP46 Association of Obesity with increase in back and leg pain in patients with spinal conditions: A Study of 2,636 Patients
Segar AH, Fairbank J, Urban J, Judge A; UK
- SP47 Obesity is associated with a clinical diagnosis of lumbar spine stenosis but not lumbar disc herniation or degenerative spondylolisthesis
Segar AH, Fairbank J, Urban J, Judge A; UK
- SP48 Obesity is Associated with Intervertebral Disc Degeneration, Disc Herniation and Spinal Stenosis on MRI: An Epidemiological Study of 1,684 Patients
Segar AH, Judge A, Fairbank J, Urban J, McCall I; UK

I. LOW BACK PAIN & DEGENERATIVE DISC DISEASE (DDD)

Moderator: Michele Battié and Rowland Hazard

- SP49 Does lumbar intervertebral disc degeneration affect psoas major muscles?
Kita T, Takayama K, Nakamura H, Kanematsu F, Yasunami T, Ueyama H, Nishino K, Yabu A, Sakanaka H, Yamano Y; Japan
- SP50 Associations of serum biomarkers with improvement in pain scores in subjects with axial low back pain undergoing spinal procedures
Huang W, Perera S, Jayabalan P, Tremont K, Coelho JP, Chamberlin J, Cortazzo M, Weiner D, Vo N, Kang J, Sowa G; USA
- SP51 What does the Pfirrmann classification evaluate on the degenerated intervertebral disc?
Sato J, Oikawa Y, Eguchi Y, Orita S, Yamauchi K, Kubota G, Inage K, Sainoh T, Fujimoto K, Shiga Y, Kouki A, Kanamoto H, Takahashi K, Ohtori S; Japan
- SP52 Core Outcome Measure Index for low back patients: do we miss anxiety and depression?
Cedraschi C, Marty M, Courvoisier DS, Foltz V, Mahieu G, Demoulin C, Gierasimowicz A, Fontana A, Norberg M, de Goumoens P, Rozenberg S, Genevay S; France, Switzerland, Belgium

SPECIAL POSTER SESSION #2 continued

- SP53 Does low back pain in patients with early-stage spondylolysis have specific characteristics? Second report
Sugiura S, Nishikawa S, Toyooka T, Shiga T, Otsuki K, Kitou K, Takata Y, Ishizaki T, Omori Y, Takata A, Kote A, Suzuki T, Mori C, Ogawa A, Aoki Y; Japan
- SP54 The impact of a precise mechanical diagnosis for LBP: a cost comparison with standard community care.
Donelson RG, **Spratt K**, Gray R, Miller M; USA

J. TREATMENT AND PROGNOSIS

Moderators: Andrew Haig and Federico Balagué

- SP55 Novel protamine based polyelectrolyte carrier enhance low dose rhBMP-2 in posterolateral spinal fusion
Hu T, Abbah SA, Wang M, Toh SY, Moon Lam RW, Naidu M, Bhakta G, Cool S, Bhakoo K, Jun Li J, Goh JCH, Wong HK; Singapore
- SP56 Hip-spine syndrome: Cross-sectional study of spinal alignment in patients with coxalgia
Miyagi M, Fukushima K, Inoue G, Nakazawa T, Imura T, Saito W, Takahira N, Takaso M; Japan
- SP57 The clinical course of pain and function in older adults with a new primary care visit for back pain
Rundell SD, Sherman KJ, Heagerty PJ, Mock CN, MD, Jarvik JG; USA
- SP58 Is the pre-operative MRI appearance of lumbar multifidus prognostic for outcomes of lumbar decompression?
Zotti M, Yoon WW, Clifton T, Piche M, F Vilas-Boas F, **Freeman B**; Australia
- SP59 Efficacy of intradiscal injection of antivascular endothelial growth factor (Pegaputanib) for the treatment of discogenic low back pain
Sato J, Orita S, Yamauchi K, Kubota G, Inage K, Sainoh T, Fujimoto K, Shiga Y, Abe K, Kanamoto H, Miyagi M, Takahashi K, Ohtori S; Japan
- SP60 A short-term randomized trial of Limaprost alfadex and Celecoxib in patients with lumbar spinal stenosis
Mamizuka N, Hashimoto K, Mammoto T, Hirano A, Sakane M, Nakajima H, Kameda H, Nakata Y, Fujie K, Tatsumura M, Ochiai N, Yamazaki M; Japan

GENERAL POSTERS

General poster session is on Thursday June 11, 09:10-10:10

GP1	Cortical trajectory screw construct in treatment of unstable long lumbar segment <i>Cheng W, Inceoglu S; CA, USA</i>
GP2	Developing Normative Values for a Quantifiable, Clinically Applicable Method to Evaluate Lumbar Instability <i>Hipp J, Guyer RD, Ohnmeiss DD, Zigler JE, MD; TX, USA</i>
GP3	Intervertebral Implant Design Can Influence Viscoelastic Response of Underlying Bone Under Dynamic Loading <i>Valdevit A, Chung R, Dawoud M, Ullrich PF Jr, Gallagher MB, Schneider JM; WI, USA</i>
GP4	A biomechanical comparison of pedicle screws placed by cortical bone trajectory (CBT) and conventional method-a cadaveric and finite element study <i>Ninomiya K, Shiraishi T, Aoyama R, Nori S, Anazawa U, Hotta H, Ueda S; Japan</i>
GP5	Effect of Load History on Ovine Intervertebral Disc Biomechanics <i>Goodley AS, Ramaswamy M, Hsieh AH; ML, USA</i>
GP6	The effects of uniaxial strain on notochord cells and human chordoma cell lines <i>Luna C, Shagnea E, Resutek L, Hsieh AH; USA</i>
GP7	Differentiation of human induced pluripotent stem cells into neural crest stem cells in vitro <i>Abe R, Orita S, Suzuki M, Inage K, Kubota G, Saino T, Sato J, Fujimoto K, Takahashi K, Kuniyoshi K, Ohtori S; Tokyo, Japan</i>
GP8	Biomechanical Effect of Number and Spacing of Sacroiliac Joint Stabilization Implants: A Finite Element Analysis <i>Lindsey DP, Kiapour A, Yerby SA, Goel V; OH, USA</i>
GP9	Interspinous Process Implant Aperius PerCLID Causes Wear of the Spinous Processes. An experimental Biomechanical Study <i>Hvannberg J, Hagelberg C, Ekström L, Halldin K, Brisby H, Baranto A; Gothenburg, Sweden</i>
GP10	The effect of Standing vs. Variants of the Seated Position on Lumbar Intersegmental Angulation and Spacing: A radiographic study of 20 Asymptomatic Subjects <i>Alamin TF, Agarwal V, Queli A, Shah N; USA</i>
GP11	Analysis of the psoas major muscle activity using fine-wire electromyography during full squat exercise <i>Matsunaga N, Kaneoka K, Okubo Y, Hasebe K, Imai A, Hodges P; Japan and Australia</i>
GP12	Investigating the association between naturally developing spinal disorders and muscle fatty degeneration in a canine model <i>Brown SHM, Harriss AB, Lerer A, Koch TG, Gibson T, Nykamp SG; Canada</i>
GP13	Are kinematic measures of motion of the lower lumbar spine related to pfirrmann grade? <i>Muriuki MG, Havey RM, Voronov LI, Carandang G, Lomasney L, Patwardhan AG; IL, USA</i>
GP14	Osteoporotic pain can be activated via baroreceptor TRPV4 in ovariectomized rats <i>Orita S, Kubota G, Inage K, Sainoh T, Sato J, Fujimoto K, Shiga Y, Kanamoto H, Yamauchi K,</i>

GP15	Adjacent segment pathology after thoracolumbar fusion in thoracolumbar fractures ; Risk factor analysis on demographics, radiological factors, and spinopelvic parameters <i>Jeon CH, Chung NS, Lee HD, Youn JS; Korea</i>
GP16	Reliability of Disc Signal, Area and Height Measurements using Semi-automated Lumbar Disc Segmentation on T2-weighted MR Images <i>Abdollah V, Parent EC, Crites Battié M; AB, Canada</i>
GP17	Biomechanical Analysis of a Sliding Pedicle Screw System for Early-Onset Scoliosis <i>Ouyang Z, Tisherman R, Wang W, Sowa G, Bell K, Kang JD; USA and China</i>
GP18	A new method correlating an objective radiographic metric for lumbar spine stability and the fluid sign on MRI <i>Hipp J, Guyer RD, Ohnmeiss DD, Zigler JE; TX, USA</i>
GP19	A 3D non-invasive MRI-based disc strain template and internal validation of a finite element model <i>Showalter BL, DeLucca JF, Cortes DH, Duda JT, Yoder JH, Jacobs NT, Wright AC, Gee JC, Vresilovic EJ, Elliott DM; USA</i>
GP20	Does the application site of spinal manipulation therapy alter spinal tissue loading? <i>Funabashi M, Kawchuk G, Nougrou F, Descarreaux M, Prasad N; QC, Canada</i>
GP21	Role of Muscle Damage on Loading at the Level Adjacent to a Lumbar Spine Fusion – A Biomechanical Analysis <i>Malakoutian M, Street J, Wilke H-J, Stavness I, Dvorak M, Fels S, Oxland T; BC, Canada</i>
GP22	The association between whole body vibration and spine degeneration on imaging – a systematic review <i>Macedo LG, Battié MC, Videman T; Canada</i>
GP23	The association between occupational loading and spine degeneration on imaging – a systematic review <i>Macedo LG, Battié MC, Videman T; Canada</i>
GP24	Slanted center cracks in simulated annulus fibrosus produce greater stress concentrations than edge cracks <i>Peloquin JM, Elliott DM; USA</i>
GP25	Effect of axial compression on intervertebral disc torsional mechanics <i>Bezci SE, O'Connell GD; USA</i>
GP26	Greater lumbar lordosis in women: postural and morphological sex-differences of the lumbosacral spine <i>Bailey JF, Sparrey CJ, Been E, Kramer PA; USA and Canada</i>
GP27	Changes in the human lumbar spine after long duration spaceflight: an MRI study <i>Miller SL, Bailey JF, Coughlin DG, Hargens AR, Lotz JC; USA</i>
GP28	The Effect of Standing and Different Sitting Positions on Lumbar Lordosis : Radiographic Study of 30 Healthy Volunteers <i>Young PS, Suh SW, Hong JY; Korea</i>
GP29	Low back pain: a biomechanical rationale based on \"patterns\" of disc degeneration <i>Forell GA, Stephens TK, Samartzis D, Bowden AE; USA and China</i>
GP30	Analysis of psoas major activity using fine-wire electromyography during sit-up exercises <i>Kiyotaka H, Koji K, Yu O, Naoto M, Tomoaki T, Hodges P; Japan</i>

GP31	Facet fusion with the new BoneWelding technology provides immediately adequate stability to an internal fixator. In vitro and finite element studies. Wilke H-J, Midderhoff S, Schlager B, Weresch P, Lehmann M, Göbel S, Mueller A, Berlemann U, Mayer J; Germany and Switzerland
GP32	Analysis of psoas major activity during active straight leg raise by using fine-wire electromyography Okubo Y, Kaneoka K, Hasebe K, Matsunaga N, Imai A, Hodges P; Japan and Australia
GP33	Porosity and thickness of the vertebral endplate depend on local mechanical loading Zehra U, Robson-Brown K, MA, Dolan P; UK
GP34	A method to determine the pelvic tilt based on anteroposterior radiographs Tsukamoto M, Morimoto T, Yoshihara T, Kitajima M, Sonohota M, Mawatari M; Japan
GP35	Do low back pain participants receiving spinal manipulative therapy differ biomechanically from untreated or asymptomatic controls? Wong A, Dhillon S, Parent E, Prasad N Kawchuck G; Canada
GP36	Biomechanical mechanism of the formation of the intravertebral clefts in osteoporotic vertebral compression fractures: a cadaver study Wang C, Zhao F, Liu J, Li S, Mamut M; China
GP37	Effect of bioactive pedicle screws produced by chemical and heat treatments on biocompatibility and bone-bonding ability: Short- and middle-term results Akeda K, Matsushita T, Yamaguchi S, Kokubo T, Murata K, Takegami N, Yamada J, Matsu- mine A, Uchida A, Sudo A; Japan
GP38	The effect for the neuropathic pain of serotonin noradrenaline reuptake inhibitors (SNRIs) by nucleus pulposus applied on the nerve root in rats Handa J, Sekiguchi M, Konno S; Japan
GP39	Lumbar segmental instability is not necessarily related to disc degeneration alone Hasegawa K, Kitahara K, Shimoda H, Ishii K, Ono M, Homma T; Japan
GP40	The influence of facet joint orientation and facet tropism on the stress at the adjacent segment after lumbar fusion surgery: A biomechanical analysis Park JH, Kim HJ, Kang KT, Son JH, Lee CK, Chang BS, MDc, Jin S. Yeom JS; Korea
GP41	Shift of the pedicle screw in the vertebra accompanied with change in the disc angle following instrumented facet fusion for degenerative lumbar spondylolisthesis Miyashita T, Ataka H, Kato K, Tanno T; Japan
GP42	Sacroiliac Joint Implant Placement and Orientation Affect Initial Joint Stability: An In Vitro Bio- mechanical Study Soriano-Baron H, Lindsey DP, Rodriguez-Martinez N, Reyes P, Newcomb A, Yerby SA, Crawford N; USA
GP43	Sacroiliac Joint Fusion Minimally Affects Lumbar Segment Motion: A Finite Element Analysis Lindsey DP, Kiapour A, Yerby SA, Goel V; USA
GP44	A gait analysis in patients with adult spinal deformity using a treadmill Ishii K, Hasegawa K, Shimoda H, Ono M, Honma T; Japan
GP45	Reversible change of lumbar ligamentum flavum Ohtori S, Orita S, Yamauchi K, Eguchi Y, Aoki Y, Suzuki M, Kubota G, Inage K, Sainoh T, Sato J, Fujimoto K, Shiga Y, Takahashi K; Japan

GP46	Is worsening of back pain at flexion a symptom of discogenic low back pain? Ohtori S, Orita S, Yamauchi K, Eguchi Y, Aoki Y, Suzuki M, Kubota G, Inage K, Sainoh T, Sato J, Fujimoto K, Shiga Y, Takahashi K; Japan
GP47	Surprise loading in flexion increases the risk of disc herniation due to annulus-endplate junction failure: a mechanical and microstructural investigation Wade KR, Robertson PA, Thambyah A, Broom ND; New Zealand
GP48	Developing methods of in vivo mri measurement of spinal cord displacement in the thoracolumbar region of asymptomatic subjects with unilateral and bilateral straight leg raise tests Rade M, Shacklock M, Könönen M, Vanninen R, Marttila J, Kankaanpää M, Airaksinen O; Finland, Croatia, Australia
GP49	Do the spinopelvic parameters affect the adjacent segment pathology after lumbar fusion? Jeon CH, Chung NS, Lee HD, Youn JS; Korea
GP50	Annulus fibrosus tensile properties: biomechanical consequences due to age and the implications for injury Gregory DE, Stewart DM, Monaco LA; Canada
GP51	Regulation of the MAPK/ERK signaling pathways of the oxygen condition in the intervertebral disc cell Kang YM, Kim JH, Yang JH, Kim SY, Suk KS, Kim HS, Lee HM, Moon SH; Korea
GP52	Co-localization of Nucleus Pulposus Cells and Bone Marrow Cells Triggers an Innate Immune Response In Vitro Lu B, Dudli S, Lotz JC; USA
GP53	Elevated Glycohemoglobin HbA1c is Associated With Reduced Spinal Mobility Independent of BMI Real A, Illien-Jünger S, Qureshi SA, Hecht AC, Iatridis JC; USA
GP54	In Vivo Annular Repair using High-Density Collagen Gel Seeded with Fibrochodrocytes. Moriguchi Y, Borde B, Grunert P, Khair T, Hudson K, BS, Bonassar L, Hartl R; USA
GP55	Rapamycin, but not other mTOR modulators, is protective against intervertebral disc cellular apoptosis, senescence, and extracellular matrix degradation Yurube T, Lozito TP, Hartman RA, Pohl PHI, Zhongying Z, Nishida K, Kurosaka M, Vo NV, Sowa GA, Kang JD; USA
GP56	Microstructured Coculture Constructs Enhance IVD Tissue Engineering in Degenerative Environments Ouyang A, Cerchiari A, Tang X, Gartner ZJ, Alliston T, Lotz JC; USA
GP57	Advanced Glycation Endproducts (AGEs) induce Hypertrophic and Osteogenic Differentiation in Nucleus Pulposus (NP) Cells Illien-Jünger S, Real A, Torre OM, Kindschuh W, Qureshi S, Hecht AC, Iatridis JC; USA
GP58	The relationship between the anterior longitudinal ligament and intervertebral disc degeneration in the lumbar spine Bailey JF, Gary K, Liebenberg E, Lotz JC; USA
GP59	Development of a novel inducible system to regulate expression of the therapeutic transgene TIMP1, confirmed by both transfection and infection. Ouyang Z, Han Y, Richman A, Dong Q, Hallbaum M, Wan H, Tang Y, Wang B, Vo N, Sowa G, Kang JD; USA

GP60	Culture of Nucleus Pulposus Progenitor Cells in Hyperosmosis <i>Chan SCW, Sakai D, Gantenbein B; Switzerland, Japan</i>
GP61	Neuropeptide Y protein expression in the annulus fibrosus in response to chemical and mechanical stress <i>Olsen A, Coelho JP, Vo N, Kang J, Sowa G; USA</i>
GP62	Can direct non-viral gene therapy be applied to whole intervertebral discs? <i>May RD, Frauchiger DA, Gazdhar A, Geiser T, Benneker LM, Gantenbein B; Switzerland</i>
GP63	The relationship between lumbar disc herniation and anaerobic bacterial infection of intervertebral discs <i>Makoto U, Takato A, Kenji H; Japan</i>
GP64	Brachyury is an essential transcription factor for maintaining homeostasis in notochordal cells <i>Fujita N, Watanabe R, Suzuki S, Fujii T, Hikata T, Watanabe K, Ishii K, Miyamoto T, Toyama Y, Matsumoto M; Japan</i>
GP65	Relationship low back pain and lumbar disc degeneration on MRI : a cross sectional study using young nursing students <i>Kobayashi K, Kawaguchi Y, Makino H, Seki S, Yasuda T, Kimura T; Japan</i>
GP66	Inhibitory effect of vitamin E on NO production in nucleus pulposus-derived inflammatory reaction <i>Makiyama K, Nakanishi K, N Hasegawa T; Japan</i>
GP67	PGE2 negatively regulates MMP-1 expression by inducing DUSP-1 in human intervertebral disc cells <i>Yorifuji M, Sawaji Y, Suzuki H, Endo K, Tanaka H, Kosaka T, Yamamoto K; Japan</i>
GP68	PGE2 negatively regulates NGF expression by inducing DUSP-1 in human intervertebral disc cells <i>Sawaji Y, Suzuki H, Endo K, Tanaka H, Kosaka T, Yamamoto K; Japan</i>
GP69	Sterotactically-Delivered, Fluroscopically Guided Needle Puncture Injury Induced Degeneration of the Rat Tail Disc: Cellular and Molecular Phenotyping Tells the \"Tail\" <i>Matta A, Karim MZ, Kim S, Wang X, Singh J, Zhou S, Erwin WM; Canada</i>
GP70	Notochordal Cell-Secreted Factors Rescue Human Nucleus Pulposus Cells from Apoptosis and Extracellular Matrix Degradation: Implications for a Novel Minimally Invasive Therapy for the Degenerative Disc <i>Mehrkens KA, Matta A, Karim MZ, Kim S, Wang X, Erwin WM; Canada</i>
GP71	Comparison of an anti-inflammatory drug delivery system versus MSC therapy to control inflammation in a pro-inflammatory intervertebral disc organ culture system <i>Teixeira GQ, Pereira CL, Mollenhauer J, Wilke H-J, Ignatius A, Barbosa MA, Gonçalves R, Neidlinger-Wilke C; Germany, Portugal</i>
GP72	Association between RANK/RANKL Signaling and Proinflammatory Cytokines in Rat Intervertebral Disc Cells <i>Takegami N, Akeda K, Murata K, Yamada J, Sudo A; Japan</i>
GP73	Osteogenic differentiation of human intervertebral disc cells: the first step towards biological fusion? <i>Turner S, Balain B, Ockendon M, Chitgopkar S, Roberts S; UK</i>

GP74	Reactive oxygen species are therapeutic targets for intervertebral disc degeneration Suzuki S, Fujita N, Hosogane N, Ishii K, Watanabe R, Hikata T, Takubo K, Watanabe K, Horiuchi K, Toyama Y, Miyamoto T, Matsumoto M; Japan
GP75	Comparison of Modic changes in the lumbar and cervical spine, in 3167 patients with and without spinal pain Shengyun L, FengDong Z; China
GP76	BMPs enhance in vitro tissue regeneration by human degenerated nucleus pulposus cells Krouwels A, Iljas JD, Kragten AH, Plomp SGM, Dhert WJA, Oner FC, Creemers LB; Netherlands
GP77	The role of caveolin-1 in intervertebral disc degeneration and regeneration Bach FC, Verdonschot L, Krouwels A, Bedate AM, Creemers LB, Meij BP, Ito K, Tryfonidou MA; Netherlands
GP78	The species-specific regenerative effect of notochordal cell-conditioned medium on degenerated human nucleus pulposus cells Bach FC, de Vries SAH, Krouwels A, Bedate AM, Creemers LB, Meij BP, Ito K, Tryfonidou MA; Netherlands
GP79	Is pregnancy related to disc degeneration and low back pain?? -A prospective cohort study- Makino H, Kawaguchi Y, Seki S, Yasuda T, Suzuki K, Kimura T; Japan
GP80	Three-dimensional micro-computed tomography analysis of the intervertebral disc after lumbar facetectomy in the rat Fukui D, Murata K, Shoji S, Chang K, Yamada K, Sato R, Naiki M, Inoue N, Masuda K, Kawakami M; USA, Japan
GP81	Chemokine receptor antagonists can inhibit macrophage migration induced by annulus fibrosus and nucleus pulposus cells Shi P, DDS, Chee AV, Liu DK, Chen D, Li Z, Oh C, Chen D, Andersson GBJ, An HS; USA, China
GP82	Revascularization of lumbar intervertebral disc allograft after transplantation Huang YC, Xiao J, Lu WW, Leung VYL, Luk KDK; China
GP83	Mitochondrial Membrane Potential, Nuclear Size and Gene Expression Changes During Human Disc Cell Apoptosis: In Vitro and in Vivo Annulus Findings Gruber HE, Hoelscher GL, Bethea S, Hanley Jr EN; USA
GP84	Blocking the function of inflammatory cytokines and mediators by using IL-10 and TGF-beta: A potential biological immunotherapy for intervertebral disc degeneration Li W, Chen C, Jia Z, Bai X, Ruan D; China
GP85	Measures of Participation in Low Back Pain: A Review McKillop AB, Battié MC; Canada
GP86	The Relation of Social Support and Depression in Patients with Chronic Low Back Pain McKillop AB, Carroll LJ, Jones CA, Battié MC; Canada
GP87	An epidemiologic study for paraspinal muscle atrophy of the lumbar spine in the community Otani K, Kikuchi S, Yabuki S, Nikaido T, Watanabe K, Kato K, Shida T, Konno S; Japan
GP88	Evaluation of an automated computer-based measurement of Pfirrmann grade in intervertebral discs from spinal MRI Lootus M, Kadir T, Zisserman A, McCall I, Urban J, Fairbank J; UK
GP89	Athletics and low back pain: results of a cross-sectional study Zaina F, Donzelli S, Scirè S, Lusini M, Minnella S, Negrini S; Italy

GP90	Automated computer-based ranking of herniated/bulged discs in spinal MR images Lootus M, Kadir T, Zisserman A, Urban J, Fairbank J, McCall I; UK
GP91	A framework for the automated radiological measurement of spines from MRIs Lootus M, Kadir T, Zisserman A, McCall I, Urban J, Fairbank J; UK
GP92	Can postural cuing selectively increase local extensor activation during lumbar rehabilitation exercises in persons with chronic or recurrent low back pain? An EMG assessment using fine wire electrodes Beneck G, Keri P, Weberg D; USA
GP93	Could Dural Sac Cross-sectional Area (DCSA) on MRI predict LSS Symptom for six-year follow-up? Otani K, Kikuchi S, Yabuki S, Nikaido T, Watanabe K, Kato K, Shida T, Konno S; Japan
GP94	Does physical therapy affect the physical function and radiographic parameters in patient with sagittal imbalance? Yuasa A, Kanayama M, Hashimoto T, Oha F, Iwata A, Onda S, Tashiro K; Japan
GP95	MRI features of disc degeneration and vertebral fracture in patients with degenerative lumbar paraspinal muscles. Takayama K, Kita T, Yabu A, Nishino K, Sakanaka H, Yamano Y, Nakamura H; Japan
GP96	Development of screening tool “Spine PainDETECT” for the neuropathic pain due to lumbosacral spine disease: a multicenter cross sectional study Nikaido T, Sumitani M, Sekiguchi M, Yabuki S, Konno S; Japan
GP97	How to differentiate radiculopathy from mononeuropathy multiplex: Churg-Strauss syndrome initially diagnosed as lumbar disc hernia or lumbar spinal canal stenosis Nagata K; Japan
GP98	Optimal condition of heparin-conjugated fibrin with bone morphogenetic protein-2 for spinal fusion in a rabbit model Hong JY, Kang SW, Kim JW, Suh SW, Ko YJ, Park JH; Korea
GP99	Unilateral lumbar spondylolysis most likely proceed to bilateral spondylolysis Hatakeyama K, Aihara T, Urushibara M; Japan
GP100	Detection of Stress at the Sacrum Using Bone Single-Photon Emission Computed Tomography/ Computed Tomography after Instrumented Lumbar Fusion Kim YH, Ha KY; Korea
GP101	Low back pain in juvenile basketball player Watanabe K, Otoshi K, Sekiguchi M, Tsuda K, Kikuchi S, Konno S; Japan
GP102	Spino-pelvic alignment in patients with completely dislocated hips Yoshihara T, Morimoto T, Tsukamoto M, Sonohata M, Mawatari M; Japan
GP103	The Effects of Extension Exercise on Disc Morphological and Signal Characteristics Abdollah V, Parent EC, Battié MC; Canada
GP104	Do the height and the sex affect the location of conus medullaris? : 455 MRI analysis of Asian young adult population Jeon CH, Chung NS, Lee HD, Youn JS, Jeon CH, Chung NS, Lee HD, Youn JS; Korea
GP105	Neuropathic pain components in patients with lumbar spinal stenosis Park SY, An HS, Moon SH, Lee HM, Suh SW, Hong JY, Kim MJ; USA, Korea

GP106	Anti-NGF therapy for pain originating from muscle injury in rats. Suzuki M, Ohtori S, Sakuma Y, Orita S, Yamauchi K, Kubota G, Oikawa Y, Inage K, Sainoh T, Sato J, Fujimoto K, Shiga Y, Abe K, Kanamoto H Takahashi K; Japan
GP107	Can fitness and movement quality predict back injury in elite task force police officers? A 5-year longitudinal study McGill S, Frost D, Lam T, Finlay T, Darby K, Cannon J; Canada
GP108	Efficacy of caudal epidural block for postoperative spinal epidural hematoma after surgery of lumbar canal stenosis Fujita N, Hikata T, Iwanami A, Watanabe K, Ishii K, Toyama Y, Nakamura M, Matsumoto M; Japan
GP109	Role of bFGF released from microglia on neuropathic pain Fujimaki H, Inoue G, Uchida K, Miyagi M, Sekiguchi H, Aikawa J, Saito W, Takaso M; Japan
GP110	Impact of cross-legged sitting (ankle on knee) posture on trunk muscle activities : As compared with chair sitting posture Ezure T, Aihara T Japan
GP111	Efficacy of anti-NaV1.7 antibody on the sensory nervous system in a rat model of lumbar intervertebral disc injury Nojima D, Ohtori S, Sakuma Y, Orita S, Yamauchi K, Kubota G, Oikawa Y, Sainoh T, Inage K, Sato J, Fujimoto K, Shiga Y, Abe K, Kanamoto H, Takahashi K; Japan
GP112	Correlation between blood pressure and blood loss during lumbar spinal fusion surgery Sato J, Orita S, Miyagi M, Yamauchi K, Kubota G, Inage K, Sainoh T, Fujimoto K, Shiga Y, Abe K, Kanamoto H, Takahashi K, Yogo H, Ohtori S; Japan
GP113	Lack of prognostic model validation in low back pain prediction studies. McIntosh G, Steenstra I, Hall H, Carter T; Canada
GP114	Severe low back pain in patients with rheumatoid arthritis is associated with disease activity score but not with radiological findings Yamada K, Suzuki A, Takahashi S, Yasuda H, Koike T Nakamura H; Japan
GP115	Ethnic variation in correlation between sagittal parameters and HRQOL (Comparison between Japanese and North American population) Hosogane N, Ames C, Lafage V, Matsuyama Y, Taneichi H, Yamato Y, Takeuchi D, Watanabe K, Toyama Y, Matsumoto M; USA, Japan
GP116	Intervertebral disc and cartilage endplate injury patterns of osteoporotic vertebral fractures Fujiwara T, Akeda K, Takegami N, Yamada J, Kondo T, Sudo A; Japan
GP117	Development of diagnostic criteria for osteoporotic thoracolumbar vertebral fracture Suzuki M, Ishikawa T, Aramomi M; Japan
GP118	The treatment of nocturnal leg cramps by medial branch blockade of the deep peroneal nerve following lumbar surgery. Imura T, Inoue G, Nakazawa T, Saito W, Miyagi M, Uchida K, Namba T, Takaso M; Japan
GP119	Preoperative zinc deficiency is a risk factor for surgical-site infection in lumbar decompression surgery: a prospective cohort study Kato K, Yabuki S, Otani K, Nikaido T, Watanabe K, Kikuchi S, Konno S; Japan
GP120	Lumbar spine facet joint osteoarthritis in professional baseball players: comparison with age- and sex-matched controls Kato K, Yabuki S, Otani K, Nikaido T, Otoshi K, Watanabe K, Kikuchi S, Konno S; Japan

GP121	Impact of spinal deformity due to osteoporotic vertebral fracture on sagittal alignment of the whole spine <i>Ikeda T, Miyamoto H, Hashimoto K, Akagi M; Japan</i>
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GP124	Evaluation of the levels of curve, endplate and facet joint erosion in degenerative lumbar scoliosis patients with rheumatoid arthritis - matched cohort study <i>Yasuda H, Suzuki A, Yamada K, Takahashi S, Terai H, Hoshino M, Toyoda H, Dohzono S, Tamai K, Nakamura H; Japan</i>
GP125	Effect of Prevalent Vertebral Fractures on Incidental Vertebral Fractures and Low Back Pain During Treatment for Osteoporosis <i>Kasukawa Y, Miyakoshi N, Ebina T, Hongo M, Nozaka K, Ishikawa Y, Kudo D, Shimada Y; Japan</i>
GP126	Risk factors for middle column injury following osteoporotic vertebral fractures <i>Hoshino M, Tsujio T, Terai H, Namikawa T, Kato M, Matsumura A, Suzuki A, Toyoda H, Takayama K, Takaoka K, Nakamura H; Japan</i>
GP127	Effect of Spinopelvic Alignment on the Union of Thoracolumbar Osteoporotic Vertebral Compression Fracture <i>Iwata A, Kanayama M, Oha F, Onda S, Tashiro K, Hashimoto T, Iwasaki N; Japan</i>
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GP131	Surgical risk assessment of the vascular injury on bi- or tri-cortical penetrating with S1 pedicle screw <i>Tezuka F, Sakai T, Takata Y, Higashino K, Sairyu K; Japan</i>
GP132	Does the morphology of the facet joint affect unilateral and bilateral spondylolysis? <i>Ishitani H, Ishigaki N, Ezure T, Aihara T; Japan</i>
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GP134	Intervertebral disc vacuum phenomenon is associated with Modic changes in the adjacent endplate: implications for discogenic back pain. <i>Liu J, Zhao F; China</i>
GP135	Characteristics of lumbar vertebral deformity in a population-based cohort study of vertebral fracture <i>Akeda K, Kato T, Takegami N, Yamada J, Kato K, Sudo A; Japan</i>

GP136	Comparison of the effectiveness of loxoprofen sodium and celecoxib for postoperative pain in patients after the spinal surgery: Randomized controlled study. Sekiguchi H , Inoue G, Nakazawa T, Imura T, Saito W, Uchida K, Miyagi M, Takahira N, Takaso M; Japan
GP137	Pathological Mechanisms of Lumbar Spinal Stenosis Using painDETECT Takahashi N , Shirado O, Kobayashi K, Mashiko R, Konno S; Japan
GP138	The radiographic evaluation of lumbar instability for degenerative spondylolisthesis case - Differences between gravity loading and non-loading position Shigematsu H, Kashiro T, Iwata E , Okuda A, Morimoto Y, Tanaka Y; Japan
GP139	Validation of anthropometric tools for screening of undiagnosed vertebral fractures in elderly females Morimoto T , Tsukamoto M, Yoshihara T, Sonohata M, Mawatari M; Japan
GP140	Prognostic factors associated with the indication for surgery for lumbar spinal stenosis Fukushima M , Matsudaira K, Oka H, Hara N, Ohya J, Oshima Y, Chikuda H; Japan
GP141	Effect of Systemic Administration of the Anti-interleukin-6 Receptor Antibody Tocilizumab in Patients with Refractory Low Back and Leg Pain Sainoh T , Orita S, Yamauchi K, Kubota G, Inage K, Sato J, Fujimoto K, Shiga Y, Abe K, Kanamoto H, Takahashi Ka, Ohtori S; Japan
GP142	The relationship between previous history of low back pain and the findings on magnetic resonance imaging Tonosu J , Oka H, Matsudaira K, Higashikawa A; Japan
GP143	Intervertebral Bridging Ossifications Increase the Risk of Intravertebral Cleft Formation Following a Vertebral Compression Fracture Kimura A , Endo T, Inoue H, Takeshita K; Japan
GP144	Relationship between age-related changes in the paravertebral and psoas muscles of the lumbar spine and low back pain: The Wakayama Spine Study Hashizume H , Yoshimura N, Yamada H, Oka H, Iwahashi H, Sasaki T, Ishimoto Y, Nagata K, Teraguchi M, Kagotani R, Muraki S, Minamide A, Nakagawa Y, Yoshida M; Japan
GP145	The effect of SERM (selective estrogen receptor modulator) on osteoporotic spinal arthrodesis using rat model. Park SB , Chung CK, Kim CH; Korea
GP146	The time-dependent effect of ibandronate on bone graft remodeling in an ovariectomized rat spinal arthrodesis model Park SB , Chung CK, Kim CH; Korea
GP147	A Predictive Model for Spondylolisthesis Progression Based on Radiographic Parameters Slikker III W, Espinoza Orías AA , Lee JYB, Fogg L, Siemionow K, Inoue N, An HS; USA
GP148	Epidemiological Study of Lumbar Spinal Stenosis: 10-year Community Follow-up Igari T , Otani K, Sekiguchi M, Oi N, Kikuchi S, Konno S; Japan
GP149	Do Spondylolysis And Isthmic Spondylolisthesis Cause Low Back Pain In Adults? Systematic Review Of Observational Studies Bartanusz V , Ashton CM, Wray NP, Andrade NS; USA
GP150	Characteristics of Lumbar Spondylolysis in Elementary School Age Children Sakai T , Goda Y, Tezuka F, Takata Y, Higashino K, Sato M, Mase Y, Sairyō K; Japan

GP151	Diffusion tensor imaging parameters of radiculopathy in patients with lumbar disc herniation Eguchi Y, Oikawa Y, Suzuki M, Takahashi K, Ohtori S; Japan
GP152	Useful index of laboratory analysis for early surgical site infection following posterior instrumented lumbar fusion for degenerative spine disease Iwata E, Shigematsu H, Okuda A, Morimoto Y, Masuda K, Koizumi M, Nakajima H, Tanaka Y; Japan
GP153	Elevated Levels of Phosphorylated Neurofilament Heavy Subunit in the Cerebrospinal Fluid of Patients with Lumbar Spinal Stenosis Ohya J, Chikuda H, Ogata T, Hayakawa K, Oshima Y, Taniguchi Y, Matsubayashi Y, Kumano Y, Fukushima M, Oichi T, Tanaka S; Japan
GP154	Comparison of Spinopelvic Alignment in the Treatment of Degenerative Sagittal Imbalance of the Lumbar Spine Chang DG, MD, Ha KY, MD, Kim YH, Kim J, Kim JH; Korea
GP155	Surgical Outcomes following Posterior Hemivertebra Resection and Short Segment Fusion with Pedicle Screw Fixation for Congenital Scoliosis in Children under Age 10 Years Chang DG, Kim JH, Lim DJ, Jang JS, Ha KY, Suk SI; Korea
GP156	Results of a Complex Case Peer Review Program in a Private Practice Spine Specialty Clinic Guyer RD, Shivers J, Ohnmeiss DD, Zigler JE, Blumenthal SL; USA
GP157	Comparison of TLIF (transforamial Lumbar Interbody Fusion) versus LLIF (lateral interbody fusion) in the ability to restore foraminal height Shenoy R, Lee R, Popa R, Wilson L; UK
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GP160	Predictors of residual low back pain after microendoscopic laminotomy on lumbar canal stenosis. Toyoda H, Dohzono S, Matsumoto T, Terai H, Suzuki S, Hayashi K, Tamai K, Nakamura H; Japan
GP161	Prospective Clinical and Radiological Investigation of Fusion at the Lumbosacral Junction with an Anterior Stand-Alone Device Siepe CJ, Stosch-Wiechert K, Heider F, Amnajtrakul P, Krenauer A, Szeimies U, Stähler A, Mehren C, Korge A, Mayer M; German, Thailand
GP162	Incidence of complications and adverse events after video assisted thoracic surgeries (VATS) at the spinal column: Results of a systematic retrospective analysis of 282 cases Sauer D, Heider F, d'Agostini R, Haubitz I, Korge A, Mehren C, Mayer HM, Siepe C; Germany
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GP165	The predictive factors for early diagnosis of pulmonary embolism after lumbar spine surgery Inoue H, Watanabe H, Shiraishi Y, Kimura A, Endo T, Takeshita K; Japan
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GP167	A randomized study of epidural catheter vs. IV PCA for postoperative pain control after one- and two- level lumbar fusions. Alamin T, Ith A, Cheng I, Hu S; USA
GP168	A clinical study on preserving spinous process at decompression surgery for lumbar spinal stenosis ~follow-up study~ Hatakeyama K, Aihara T, Urushibara M; Japan
GP169	Clinical outcome of microendoscopic laminotomy for degenerative lumbar spondylolisthesis – In comparison with the cases without spondylolisthesis Suzuki A, Toyoda H, Terai H, Hoshino M, Hayashi K, Tamai K, Nakamura H; Japan
GP170	Closure of the intervertebral disc annulus fibrosus using a novel suture application device – in vivo porcine and ex-vivo biomechanical evaluation Bateman A, Balkovec C, Akens M, Yee A, McGill S; Canada
GP171	Percutaneous versus mini-open pedicle screw insertion: comparison of surgical outcomes Hori Y, Hoshino M, Tsujio T, Tanaka H, Seki M, Ando Y, Iwakiri K, Mandai K, Kobayashi A, Nakamura H; Japan
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GP174	Bone Changes following Experimental Paediatric Spinal Cord Injury in a Rat Model Zarrinkalam MR, Freeman BJC, Mulaibrahimovic A, Nguyen A, Llewellyn-Smith IJ, Clark JM; Australia
GP175	Clinical Outcomes of Spinal Fractures in Patients with Ankylosing Spinal Disorders Masaru T, Akira I, Atsuhiko M, Jun T, Osamu O; Japan
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GP181	Necessity Of Discectomy For Decompression In Lumbar Canal Stenosis <i>Nakamura H, Yamazaki T, Terayama S; Japan</i>
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GP184	Medical risk factors for opioid-related adverse events after lumbar laminectomy and fusion <i>Kurd M, Ong K, Lovald S, Lau E, Polly Jr D, Radcliff K; USA</i>
GP185	Opioid-related adverse events with lumbar spine surgery: is the risk real? <i>Kurd M, Ong K, Lovald S, Lau E, Polly Jr D, Radcliff K; USA</i>
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GP188	Pre-Surgical Physician Utilization in Elective Thoracolumbar Spine Surgery Candidates. <i>Abraham E, Green A, McIntosh G, Manson N, Hall H; Canada</i>
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GP195	Extreme Lateral Interbody Fusion For Unilateral Symptomatic Vertical Foraminal Stenosis Moriguchi Y, Hofstetter CP, Alimi M, Tsiouris AJ, Elowitz E, Härtl R; USA
GP196	Long term survival analysis of a fixed interspinous spacer: maintenance of effectiveness? Nicholson JA, Duckworth AD, Scott CEH, Burke JG, Gibson JNA; UK, Ireland
GP197	Stenotic Ratio is the most useful parameter to identify patients with lumbar foraminal stenosis needing surgery or not -MRI study using 3D T1 SPACE sequence Yamada K, Abe Y, Yanagibashi Y, Hyakumachi T, Satoh S; Japan
GP198	Surgical outcomes of vertebroplasty with posterior instrumented fusion surgery for osteoporotic vertebral collapse Kishima K, Maruo K, Moriyama T, Tachibana T, Inoue S, Arizumi H, Yoshiya S; Japan
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GP200	Effect of rhBMP-2 on Lung Cancer Spine Metastasis in Rodents Mendoza M, Sonn KAM, Bellary SS, Yun C, Hashmi SZ, Kannan AS, Nelson JT, Ashtekar A, Ghosh A, Shawen N, Nickoli MS, Ghodasra JH, Okoli M, Stock S, Hsu EL, Hsu WK; USA
GP201	Radiological risk factors for instrumentation failures after minimally invasive transforaminal lumbar interbody fusion Kim MC, Chung HT, Kim WC, Lee HS, Jung DW; Korea
GP202	Pedicle Screw Malposition in Revision Spinal Surgery: Efficacy of Intra-operative CT based Navigation Wu H, Pennington A, Batke J, Yang K, Fisher CG, Dvorak MFS, Street J; Canada
GP203	Accelerometer-derived physical activity and lower extremity functional changes following lumbar spinal stenosis decompression Smuck M, Buman MP, Martinez A, Tomkins-Lane C; USA
GP204	Intra-operative Cone Beam CT (O-Arm®) and Stereotactic Navigation (StealthStation®) System in Complex Adult Spine Surgery – Early Experience and Learning Curve Contreras A, Batke J, Dea N, Dvorak MFS, Fisher CG, Street J; Canada
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GP208	Platelet-rich plasma combined with hydroxyapatite/collagen for posterolateral lumbar fusion promoted bone formation in rats Rakuman S, Kubota G, Yamauchi K, Orita S, Inage K, Takeshi S, Sato J, Fujimoto K, Shiga Y, Takahashi K, Ohtori S; Japan
GP209	Influence of paraspinal muscle degeneration on clinical outcomes and global sagittal alignment in patients with lumbar spinal stenosis. – Focusing on gender difference- Dohzono S, Hoshino M, Suzuki A, Toyoda H, Terai H, Nakamura H; Japan

GP210	Preoperative predictors for good postoperative satisfaction and functional outcome in lumbar spinal stenosis surgery with a five and ten year follow-up <i>Tuomainen I, Aalto T, Vanhanen S, Leinonen V, Herno A, Kröger H, Airaksinen O; Finland</i>
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GP212	Reversibility of Nerve Root Sedimentation Sign in lumbar spinal stenosis patients after decompression surgery <i>Barz C, Melloh M, Staub LP, Lord SJ, Merk HR, Barz T; Germany, Switzerland, Australia</i>
GP213	The surgical treatment of pyogenic spondylitis using posterior instrumentation without anterior debridement as a primary surgery <i>Ishikawa T, Aramomi M; Japan</i>
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GP222	Frequency of first and second revision surgery because of adjacent or remote segmental disease after posterior lumbar interbody fusion <i>Fujimoto K, Yamagata M, Ikeda Y, Nakajima F, Hashimoto M, Yamauchi K, Orita S, Kubota G, Inage K, Saino T, Sato J, Shiga Y, Abe K, Kanamoto H, Takahashi K, Ohtori S; Japan</i>
GP223	Monitoring the quality of robot-assisted pedicle screw fixation in the lumbar spine by using a cumulative summation test (CUSUM) <i>Kim HJ, Lee SH, Chang BS, Lee CK, Lim TO, Hoo LP, Yi JM, Yeom JS; Korea</i>

GP224	Can dynamic radiography and CT determine the flexibility of the lumbar spine in elderly patients with kyphoscoliosis? Shiga Y, Yamauchi K, Orita S, Kubota G, Inage K, Sainou T, Sato J, Fujimoto K, Takahashi K, Ohtori S; Japan
GP225	Influence of catastrophizing on treatment outcomes after lumbar spine surgery in patients with lumbar spinal stenosis Kim HJ, Park JW, Kang KT, Chang BS, Lee CK, Yeom JS; Korea
GP226	Single-level minimally invasive posterior lumbar interbody fusion in patients with spondylolisthesis: minimum 5-year follow-up with clinical and radiological outcomes Tsutsumimoto T, Yui M, Ohba H, Kamanaka T, Misawa H; Japan
GP227	Preoperative psychological factors affect postoperative low back pain, but not patient's satisfaction in patients with lumbar spinal stenosis Ishimoto Y, Kawakami M, Nagata K, Kitagawa T, Morishita S, Matsuoka T; Japan
GP228	Good clinical outcomes and fusion rate of less invasive facet fusion with a percutaneous pedicle screw system for degenerative lumbar spondylolisthesis Miyashita T, Ataka H, Kato K, Tanno T; Japan
GP229	Influence of pelvic incidence-lumbar lordosis mismatch on surgical outcomes of short-segment lumbar intervertebral fusion. Aoki Y, Nakajima A, Takahashi H, Watanabe A, Nakajima T, Takazawa M, Takahashi K, Ohtori S, Nakagawa K; Japan
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GP231	Multi-level lumbar fusion for degenerative disc disease is a risk factor for higher rates of post-operative failed back syndrome in a workers' compensation setting Anderson JT, Duff RJ, Ahn UM, Ahn NU USA
GP232	Validation of the Japanese Orthopedic Association scoring system based on patient-reported improvement after posterior lumbar interbody fusion Fujimori T, Okuda S, Yamasaki R, Maeno T, Yamashita T, Matsumoto T, Iwasaki M, Wada E, Oda T; Japan
GP233	Establishing the Injury Severity of Thoracolumbar Trauma: Confirmation of the Hierarchical Structure of the AOSpine Thoracolumbar Spine Injury Classification System Schroeder GD, Vaccaro AR, Kepler CK, Koerner JD, Hilibrand A, Oner C, Dvorak M, Vialle L, Aarabi B, Bellabarba C, Fehlings MG, Schnake KJ, Reinhold M, Chapman J, Rajasekaran S, Kandziora K; USA, Netherlands, Canada, Brazil, Germany, Austria, India
GP234	Is publicly available internet information on rhBMP-2 and the INFUSE reliable? Duff RJ, Anderson JT, Ahn UM, Ahn NU; USA
GP235	Preoperative lumbar discography is associated with higher rates of failed back syndrome following lumbar fusion in a workers' compensation setting Anderson JT, Duff RJ, Ahn UM, Ahn NU; USA
GP236	The Lateral Interbody Disability Index: A Novel Approach to Assess Transient Thigh Pain Post Lateral Lumbar Interbody Fusion O'Brien JR, Haines CM, Fox B, Moberg E, Joshua G; USA

GP237	Reliability Analysis of the AOSpine thoracolumbar Spine Injury Classification System by a Worldwide Group of Naïve Spinal Surgeons <i>Kepler CK, Vaccaro AR, Koerner J, Hilibrand A, Dvorak M, Kandziora F, Rajasekaran S, Aarabi B, Vialle L, Fehlings MG; USA, Canada, India</i>
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GP239	Analysis of Internet Information on a Controversial Procedure: Kyphoplasty <i>Anderson JT, Duff RJ, Sullivan TB, Ahn UM, Ahn NU USA</i>
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GP248	Preoperative MR imaging in patients with intermittent neurogenic claudication: relevance for diagnosis and prognosis Moojen WA, Schenck CD, Lycklama a Nijeholt GJ, Jacobs WCH, Van der Kallen BF, Arts MP,