

40th Annual Meeting

ISSLS 2013

Scottsdale, Arizona • May 13-17



PROGRAM

International Society for the
Study of the Lumbar Spine

www.issls.org

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MEETING AT A GLANCE

MONDAY MAY 13

08.00
Membership Committee Meeting

09.30
Strategy Group Meeting

12.00
ExCom Meeting

15.00
Registration Opens

18.00
Welcome Reception

TUESDAY MAY 14

06.30
Breakfast

07.45
Welcome

08.00-09.30
Low Back Pain

09.30-10.00
COFFEE

10.00-11.30
Disc Degeneration

11.30-13.00
LUNCH

13.00-14.00
Biology

14.00-15.00
Biomechanics

15.00-15.30
COFFEE

15.30-16.00
Invited Lecture #1

16.00-17.00
Fusion

17.00-18.00
First Business Meeting

WEDNESDAY MAY 15

06.30
Breakfast

07.45-08.45
Special Poster Session I

09.00-10.00
Epidemiology/
Statistics

10.00-10.30
COFFEE

10.30-11.00
Invited Lecture #2

11.00-11.40
Harry Farfan Presidential
Lecture

11.40-12.20
Presidential Address

13.00-18.00
Afternoon Outing

THURSDAY MAY 16

06.30
Breakfast

07.30-09.00
Complications

09.00-10.00
General Poster Sessions

10.00-10.30
COFFEE

10.30-11.00
Fellowship Ceremony

11.00-11.50
The ISSLS Prize

11.50-13.10
LUNCH

13.10-14.20
Surgery

14.20-15.20
Psychosocial

15.20-15.50
COFFEE

15.50-17.20
Debate

17.10-18.00
Second Business
Meeting

19.00
Banquet

FRIDAY MAY 17

06.30
Breakfast

07.45-08.45
Special Poster Session II

09.00-10.00
Osteoporotic Vertebral
Compression Fracture

10.00-10.30
COFFEE

10.30-11.00
Invited Lecture #3

11.00-12.00
Lumbar Spinal Stenosis

12.00-12.20
Announcement –
Best Paper and Poster
Awards

Closing Remarks,
Meeting Adjourned



Contents

5	Committees
6	Welcome
7	Fellowships and Awards
8	Social Programs
9	Accompanying Persons Tour
10	General Information
11	Committee Meetings
11	Oral Presentations — May 14
17	Oral Presentations — May 15
18	Oral Presentations — May 16
23	Oral Presentations — May 17
26	Special Posters
34	General Posters
54	Map of Meeting Area

COMMITTEES

Officers 2012-2013

President	Kazuhisa Takahashi
Immediate Past President	S. Rajasekaran
First Vice President	Jeremy Fairbank
Second Vice President	Robert Gunzburg
Secretary	Tom Oxland
Treasurer	James Kang

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Canada	Richard Hu (2010-2013)
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United Kingdom	Patricia Dolan (2011-2014)
Japan	Osamu Shirado (2010-2013)
Eastern U.S.	John Lurie (2011-2014)
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Western U.S.	Robert Hart (2012-2015)

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	Paul Hodges
	Jaro Karppinen
By-Laws Chairman	Dr Gunnar Andersson

ISSLS Program Committee 2012-2013

Kazuhiro Chiba
David Wong
Peter Robertson

Secretariat

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WELCOME



Dear President Takahashi, ISSLS Executives, Members, and Guests ...

It is with great pleasure that we welcome you to Scottsdale, Arizona for our 40th Annual Meeting of the International Society for the Study of the Lumbar Spine. Here in the Sonoran Desert this time of year, the sunny warm days are balanced by cooler evening temperatures. We hope you enjoy the venue and take the time to take in the beauty of our surroundings.

Our program committee has assembled an impressive scientific program showcasing the latest research in lumbar spine, along with thought-provoking plenary, guest lectures and debates that are sure to inspire our delegates. We are grateful to Dr. Kazuhiro Chiba, our program committee chairman, who did a wonderful job in organizing this fine program.

We have a number of opportunities for you to also enjoy each other's company during our ISSLS social events, where friendships are ignited or rekindled, and new collaborations are sparked.

Our administrator, Ms. Katarina Olinder Eriksson, together with our Secretary, Dr. Tom Oxland, Dr. Chiba and the program committee have put in a tremendous amount of effort to make this year's meeting a success, and we owe them a debt of gratitude for their dedication and service. I would also like to thank our conference organizer, Ms. Pat Curl, who has done a stellar job in collaborating to make sure everything goes smoothly.

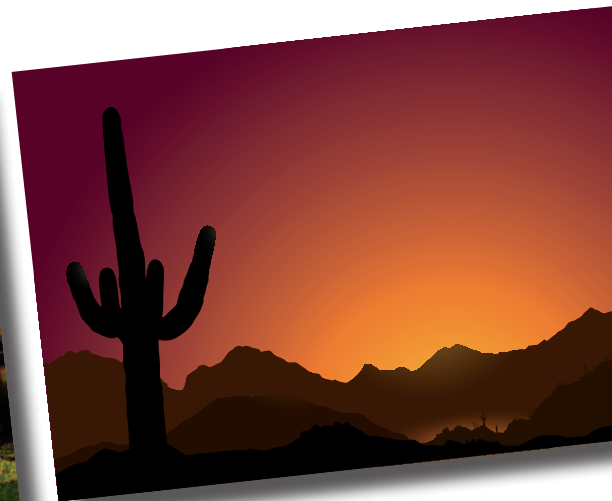
Enjoy the 40th Annual Meeting of ISSLS and welcome to Scottsdale!

Sincerely,

A handwritten signature in black ink that reads "Christopher J. Colloca".

Christopher J. Colloca, D.C.

Local Host



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 May 16

The ISSLS Prize for Lumbar Spine Research

Sponsored by DePuy Synthes Spine

The ISSLS Prize winning papers will be presented on May 16 at 11.00

The ISSLS Clinical Travelling Fellowship

Sponsored by Globus Medical, to be announced during the Fellowship ceremony, May 16 at 10.30

The ISSLS MacNab/LaRocca Research Fellowship Award

Sponsored by Ono Pharmaceutical Co., Ltd to be announced during the Fellowship ceremony, Thursday May 16 at 10.30

The International ISSLS Fellowship

Sponsored by the Eisai Co Ltd of Tokyo, Japan, to be announced during the Fellowship ceremony, Thursday May 16 at 10.30

Best Paper and Poster Award

sponsored by Medtronic

The two best papers and poster presentations will be announced during Closing Remarks on Friday, May 17 at 12.00



41st Annual Meeting
June 3-7, 2014

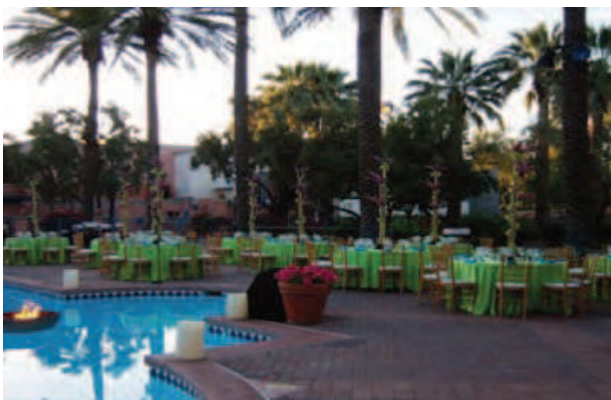


ISSLS 2014 - SEOUL

Welcome to next year's ISSLS annual meeting in South Korea

SOCIAL PROGRAMS

Included in registration fee for all; (meeting badge to be worn for entry)



Welcome Reception

Time: Monday, May 13, 6:00 pm –8:00 pm

Venue: East Pool of the resort

Dress code: Smart casual

Join your colleagues for a Welcome Reception. Drinks and Hors D’oeuvres will be served.



Afternoon Outing to Los Cedros

Time: Wednesday, May 15, 1:00 pm-6:00 pm

Dress code: Casual

Coaches will depart promptly at 1:00 pm from the conference circle drive outside the main entrance to the hotel. Please be sure to be on time and to wear your conference name badge for inclusion.

Los Cedros is an ancient citadel in the high desert of Scottsdale AZ, a premier breeding and training facility for some of the finest horses in America. Lunch will be served upon arrival and you’ll experience the magnificent architecture of the property prior to enjoying a private horse show. Docents are available, and the entire facility is open to us for touring.

Banquet

Time: Thursday, May 16, 7:00 pm -10:00 pm

Venue: Hacienda Plaza and Trellis at the resort

Dress code: Business attire

Join all conference delegates for the 40th Anniversary ISSLS Banquet at the resort’s Hacienda Plaza and Trellis. Drinks will be served at 7:00 pm with dinner and entertainment Alfresco to follow.

ACCOMPANYING PERSONS TOURS



Tuesday, May 14, 2013
Day Trip to Sedona. (\$160, lunch included)

Transportation will leave promptly at 8:00 a.m. from the conference circle drive outside the main entrance to the hotel.

There are few sights as stirring and inspiring as Sedona's spectacular red rock formations. Experience the stunning, high country beauty of Northern Arizona to discover the softer side of our desert state. Climb 3,000 feet from the desert floor to cooler climates, paying a visit to Montezuma Castle, a five story, twenty-room cliff dwelling carved into the side of the mountain by the Sinagua Indians more than 800 years ago.

As you near Sedona, towering, vibrant red rock formations form one of the most captivating horizons you've ever witnessed. The town of Sedona is nestled between these monumental formations, and is the state's second most visited attraction. Awesome natural beauty is paired with small town charm, as visitors stroll walkways in search of art, artifacts and keepsakes of their visit to this inspired place. A gourmet lunch will be relished in one of Sedona's favorite restaurants.

Afterwards, shop and browse amidst the shade trees of the Spanish arts and crafts village called Tlaquepaque (pronounced: ta-LAH-kee-PAH-kee). Just to the north of Sedona, take in the beauty of Oak Creek Canyon, where spirited waters flow at the foot of dense evergreen forests. It's a red rock rendezvous that will leave every guest breathless.

Schedule

8:00am	Depart Resort (drive time)
10:00am	Visit Montezuma's Castle
11:00am	Depart to Sedona (drive time)
11:30am	Arrive and Shop in Tlaquepaque
12:30pm	Lunch at Rene's in Tlaquepaque
1:30pm	Depart for Downtown Sedona
1:45pm	Arrive and Shop
2:00pm	Depart Sedona (drive time)
3:30pm	Stop at Sunset Point for Photograph Opportunity
4:30pm-5pm	Arrive to back at the Scottsdale Princess Resort

NOTE

We recommend comfortable walking shoes and sunglasses for this tour.

GENERAL INFORMATION

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.

Meeting Venue

Fairmont Scottsdale Princess
7575 East Princess Drive
Scottsdale, Arizona, US 85255
TEL + +480 585 4848
FAX + +480 585 0091

Internet

ISSLS has arranged "resort wide" internet access for the entire meeting; the access code will be provided to you upon meeting registration check-in.

Electricity



The United States uses 120V AC 60Hz. They use a Type A electrical plug, or two flat parallel blades are used.

Conference Registration Desk

The registration desk and conference secretariat is located in the main foyer of the ballroom. On-site registration will start on Monday, May 13 at 3:00 pm

Opening Hours of the Registration Desk

Monday, May 13	3:00 pm - 8:00 pm
Tuesday, May 14	6:30 am - 6:00 pm
Wednesday, May 15	6:30 am - 1:00 pm
Thursday, May 16	6:30 am - 5:00 pm
Friday, May 17	6:30 am - 1:00 pm

Tipping

15-20% of the bill in restaurants or of taxi fare is the usual and customary in the USA. Tipping for special services provided by hotel staff is fine, but is not expected and is simply a matter of personal preference.

Tourist Information

For further information about Scottsdale and what the city has to offer, please visit:
<http://www.experiencescottsdale.com/>

Weather

The climate in Scottsdale is one of its greatest assets. In the month of May, the average temperature ranges from 64.4 - 88.1 °F (17.8 - 30.9 °C) with 93% sunshine.

Disclaimer

ISSLS, its Organizing Committee and Professional Meeting Consultants, and the Fairmont Scottsdale Princess 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 MAY 13

- 08:00 Membership Committee Meeting
Location: Sonoran Room
- 09.30 Strategy Group Meeting
Location: Sonoran Room
- 12.00 Executive Committee – Lunch
Location: Sonoran Room
- 15:00 Registration
- 18:00 Opening Ceremony & Welcome Reception
Location: East Pool

TUESDAY MAY 14

- 07.45-07.50 Welcome – Chris Colloca, Local Host
- 07.50-08.00 Program Chairman – Kazuhiro Chiba

SESSION # 1 **TOPIC: LOW BACK PAIN**
Moderators: Kazuhisa Takahashi and Tom Oxland

- 08.00-08.05 1. Intradiscal administration of tumor necrosis factor-alpha inhibitor, etanercept, clinically improves intractable discogenic low back pain: A prospective randomized study
Sainoh T, Orita S, Yamauchi K, Suzuki M, Sakuma Y, Kubota G, Oikawa Y, Inage K, Sato J, Takahashi K, Ohtori S; Chiba Japan
- 08.07-08.12 2. Does underlying spinal pathology affect the outcome of clinical practice guideline-based treatment for acute lower back pain? A subgroup analysis of the chiro study outcomes:
Bishop PB, Quon JA, Arthur B; Vancouver, Canada
- 08.14-08.19 3. Does lumbar paraspinal muscle fatty degeneration correlate with aerobic index and Oswestry disability index?
Prasarn ML, Konstantinos V, Coyne E, MS, Rehtine GR; Texas and Rochester USA
- 08.21-08.30 *Discussion*

TUESDAY MAY 14 (continued)

- 08.30-08.35 4. Enhanced therapeutic alliance modulates pain intensity and muscle pain sensitivity in patients with chronic low back pain: A randomized double-blind controlled trial
Fuentes J, Armijo-Olivo S, Funabashi M, Miciak M, DickB, Warren S, Rashiq S, Magee D, Gross D; Alberta Canada
- 08.37-08.42 5. Indicators predicting successful clinical outcome one year after an intensive pain management program for chronic low back pain
van Hooff ML, Spruit M, O'Dowd JK, Fairbank JCT, van Limbeek J; Nijmegen, The Netherlands, London, UK, Oxford UK, Halsteren, The Netherlands
- 08.44-08.49 6. The importance of context when evaluating patient satisfaction
Spratt KF, Lebanon NH, USA
- 08.51-09.00 *Discussion*
- 09.00-09.05 7. Validation of administrative coding algorithm to identify back-related degenerative diagnoses.
Martin BI, Mirza SK, Lurie JD, Tosteson ANA, Deyo RA; Dartmouth, USA
- 09.07-09.12 8. Lumbar facet joint subchondral bone density is higher in low-back pain patients
Pan CC, Simon P, Espinoza Orías AA, Takatori R, An HS, Andersson GBJ, Inoue N; Chicago, IL. USA
- 09.14-09.19 9. Does cumulative loading of the spine contribute to low back impairment?
Marras WS, Ferguson SA, Splittstoesser R, Lavender SA, Mendel E; Columbus, Ohio, USA
- 09.21-09.30 *Discussion*
- 9.30-10.00 COFFEE
- SESSION #2 TOPIC: DISC DEGENERATION**
Moderators: Steven Garfin and Björn Rydevik
- 10.00-10.05 10. Comparison of lumbar disc degeneration characteristics between patients with low back pain and sciatica results of clinico-radiological analysis of 224 patients
Kanna RM, Shetty AP, Shetty JY, Rajasekaran S; Tamil Nadu, India

TUESDAY MAY 14 (continued)

- 10.07-10.12 11. Skip segment disc degeneration after lumbar fusion
Jung NS, Jeon CH, Chung NS, Park JU, Kim JJ; Suwon, Republic of Korea
- 10.14-10.19 12. Lumbar discs and vertebrae change in concert: A 15-year follow-up study
Videman T, Battié MC, Gibbons L, Gill K; Alberta, Canada; Seattle, WA, USA
- 10.21-10:30 *Discussion*
- 10.30-10.35 13. Pressure increase in adjacent discs during clinical discography; questions the methods validity
Hebelka H, Nilsson A, Hansson T; Gothenburg Sweden
- 10.37-10.42 14. A functional fluorophore for intervertebral disc degeneration imaging
Kim HY, Mcclincy M, Vo NV, Sowa GA, Kang JD, Bai M; Pittsburgh, PA USA
- 10.44-10.49 15. Morphological classification of intervertebral disc rupture -association with degenerative lumbar diseases-
Murata K, Akeda K, Sudo A; Mie, Japan
- 10.51-11.00 *Discussion*
- 11.00-11.05 16. Serum metabolomic biomarkers and lumbar disc degeneration
Samartzis D, Karppinen J, Ala-Korpela M, Soininen P, Kangas AJ, Chan D, Luk KDK, Cheung KMC; Hong Kong, SAR China, Oulu, Finland, Kuopio, Finland
- 11.07-11.12 17. Evaluation of lumbar intervertebral disc degeneration using T1RHO mapping and T2 mapping in a rabbit disc injury model
Ishikawa T, Watanabe A, Hiroto K, Miyagi M, Sakuma Y, Oikawa Y, Ohtori S, Inoue G, Eguchi Y, Orita S, Suzuki M, Ozawa T, Toyone T, Wada Y, Takahashi Ka; Chiba, Japan
- 11.14-11.19 18. An interview study of patients' experience of health after a structured physiotherapy treatment model or surgery due to lumbar disc herniation
Limbäck Svensson G, Kjellby Wendt G, Thomeé R, Danielson E; Gothenburg, Sweden
- 11.21-11.30 *Discussion*
- 11.30-13.00 LUNCH**

TUESDAY MAY 14 (continued)

SESSION #3

TOPIC: BIOLOGY

Moderators: Jaro Karppinen and Jeffrey Lotz

- 13.00-13.05 19. Adamts-5 mediates tobacco smoking-induced disc aggrecanolytic
Wang D, Ngo K, Nasto L, Sowa G, Lee J, Leme A, Shapiro S, Roughley P, Kang J, Vo N; Pittsburgh, USA
- 13.07-13.12 20. Nucleus pulposus progenitor cell exhaustion in disc ageing and degeneration
Sakai D, Nakamura K, Nakai T, Grad S, Alini M, Chan D, Risbud M, Masuda K, Ando K, Mochida J; San Diego CA, USA, Kanagawa Japan
- 13.14-13.19 21. Intradiscal injections of NF κ B decoy into rabbit discs abrogated degenerated disc-induced pain generation in the xenograft radiculopathy rat model
Fujiwara T, Yamaguchi T, Pichika R, Bae WC, Taborek A, He J, Shieh I, Tan K, Lenz ME, Masuda K; San Diego CA, USA, Kanagawa Japan.
- 13.21-13.30 *Discussion*
- 13.30-13.35 22. The relationship between vitamin D status and successful fusion
Metzger M, Kanim L, Zhao L, Robinson S, Delamarter RB; Los Angeles, CA, USA
- 13.37-13.42 23. The effect of human parathyroid hormone (1-34) on spine fusion in an osteoporotic animal model
Nakao S, Kawakami M, Fukui D; Wakayama Japan
- 13.44-13.49 24. Development of a novel antimicrobial-coated biomedical polymer
Ishihama H, Ishii K, Nagai S, Kakinuma H, Sasaki A, Yoshioka K, Kuramoto T, Shiono Y, Aizawa M, Okada Y, Koyasu S, Toyama Y, Matsumoto M; Tokyo, Japan, Kanagawa, Japan
- 13.51-14.00 *Discussion*

SESSION #4

TOPIC: BIOMECHANICS

Moderators: Michael Adams and Hans-Joachim Wilke

- 14.00-14.05 25. The effect of disc degeneration on anterior shear flexibility in the lumbar spine
Melnyk AD, Wen TL, Chak JD, Kelly A, Crompton PA, Fisher CG, Dvorak MF, Oxland TR; Vancouver BC Canada, Beijing China

TUESDAY MAY 14 (continued)

- 14.07-14.12 26 15 days microgravity condition induced disc height loss and bone morphological changes of the mouse lumbar spine
Yamaguchi T, Bae WC, He J, Inoue N, Hargens AR, Lotz J, Sah RL, Asahara H, Masuda K; San Diego, CA USA, Kyoto, Japan. San Francisco, CA, USA., Tokyo, Japan
- 14.14-14.19 27 The pathogenesis of thoracolumbar vertebral wedge fractures
Landham PR, Baker H, Gilbert S, Pollintine P, Robson-Brown K, Adams MA, Dolan P; Bristol, UK
- 14.21-14.30 Discussion
- 14.30-14.35 28 The effect of pedicle screw redirection following lateral wall breach – a biomechanical study using human lumbar vertebrae
Stauff MP, Freedman BA, Kim JH, Hamasaki T, Yoon ST, Hutton WC; Atlanta, GA, USA
- 14.37-14.42 29 The effects of strain and displacement rate on nerve root injury tolerance to stretch
Cavanaugh JM, Chen CY, Virk GS, Yaldo J, Guruprakash DK, Tanimoto K, Kallakuri S; Detroit, MI USA, Sapporo, Japan
- 14.44-14.49 30 Male spine motion during coitus: Implications for the low back pain patient
Sidorkewicz N, Cambridge EDJ, McGill SM; Waterloo, Canada
- 14.51-15.00 *Discussion*
- 15.00-15.30 COFFEE
- SESSION #5 INVITED LECTURE # 1**
Moderators: Kazuhiro Chiba and Hwan Mo Lee
- 15.30-15.55 Title: Pain Genetics
Inna Belfer, MD, PhD
Department of Anesthesiology and Human Genetics
The University of Pittsburgh/UPMCPA, USA
- 15.55-16.00 *Discussion*
- SESSION #6 TOPIC: FUSION**
Moderators: Howard An and Robert Gunzburg
- 16.00-16.05 31 Fusion did not improve outcome in decompressive surgery for lumbar spinal stenosis a 2-year follow-up study of 5390 patients from Swespine
Försth P, Michaëlsson K, Sandén B; Uppsala, Sweden

TUESDAY MAY 14 (continued)

- 16.07-16.12 32 Five-year outcomes following minimally invasive transforaminal lumbar interbody fusion for spondylolisthesis and degenerative lumbar disease
Park Y, Ha JW, Lee YT, Sung NY; Goyang, South Korea
- 16.14-16.19 33 MIS-TLIF reduces an incidence of adjacent disc disease in the patient with degenerative spondylolisthesis – Comparative study with conventional TLIF
Ishii K, Hosogane N, Ishihara S, Kaneko Y, Hikata T, Iwanami A, Watanabe K, Nakamura M, Toyama Y, Matsumoto M; Tokyo, Japan, Kanagawa, Japan
- 16.21-16.30 *Discussion*
- 16.30-16.35 34 Short-segment fixations without fusion for thoracolumbar burst fractures with neurological deficit can preserve thoracolumbar motion without resulting in post-traumatic disc degeneration. A 10-year follow-up study
Toyone T, Ozawa T, Inada K, Shirahata T, Watanabe A, Matsuki K, Kitahara S, Shibo R, Wada Y, Hasue F, Fujiyoshi T, Tanaka T, Ohtori S, Takahashi K; Chiba, Japan
- 16.37-16.42 35 A systematic review of lumbar fusion rates with and without the use of RHBMP-2
Healy AT, Galimberti F, Lubelski D, Wang T, Abdullah KG, Benzel EC, Mroz TE; Cleveland, Ohio, Durham, North Carolina, USA
- 16.44-16.49 36 Early versus late initiation of rehabilitation after lumbar spinal fusion – economic evaluation alongside a RCT
Oestergaard LG, Christensen FB, Nielsen CV, Bünger CE, Fruensgaard S, Sogaard R; Aarhus, Denmark, Silkeborg, Denmark, Odense, Denmark
- 16.51-17.00 *Discussion*
- 17:00 FIRST BUSINESS MEETING**

WEDNESDAY MAY 15

SESSION #7

07.45-08.45

SPECIAL POSTER SESSION #1

SESSION #8

TOPIC: EPIDEMIOLOGY/STATISTICS

Moderators: Federico Balagué and Anne Mannion

- 09.00-09.05 37 Epidemiology of lumbar canal stenosis: a population-based study in Japan
Yabuki S, Fukumori N, Sekiguchi M, Takegami M, Otani K, Wakita T, Kikuchi S, Onishi Y, Fukuhara S, Konno S; Fukushima Japan, Kyoto Japan, Kansai Japan
- 09.07-09.12 38 The prevalence of radiographic lumbar spinal stenosis and its associated clinical symptoms in a population-based cohort: the Wakayama Spine Study
Ishimoto Y, Yoshimura N, Muraki S, Yamada H, Nagata K, Hashizume H, Takiguchi N, Minamide A, Oka H, Akune T, Yoshida M; Wakayama, Japan
- 09.14-09.19 39 Prevalence and distribution of intervertebral disc degeneration in the spine in a population-based cohort :the Wakayama Spine Study
Teraguchi M, Hashizume H, Yamada H, Muraki S, Yoshimura N, Yoshida M; Wakayama, Japan
- 09.21-09.30 *Discussion*
- 09.30-09.35 40 The prevalence of concomitant osteoporosis and lumbar spinal stenosis and its association with low back pain and health-related quality of life
Hashizume H, Yoshimura N, Ishimoto Y, Nagata K, Akune T, Oka H, Muraki S, Takiguchi N, Yamada H, Yoshida M; Wakayama, Japan, Tokyo, Japan
- 09.37-09.42 41 *The fate of prospective spine studies posted on www.clinicaltrials.gov*
Ohnmeiss DD; Texas, Dallas, USA
- 09.44-09.49 42 What score on the Oswestry Disability Index indicates a satisfactory symptom state?
Fairbank JC, Van Hooff ML, Mannion AF; Oxford, UK, Nijmegen, The Netherlands, Zürich, Switzerland
- 09.51-10:00 *Discussion*
- 10.00-10.30 COFFEE**

WEDNESDAY MAY 15 (continued)

SESSION #9

INVITED LECTURE # 2

Moderators: Michelle Battié and Peter Robertson

10.30-10.55 Basic statistics for clinical research
Kevin Spratt, Lebanon NH, USA

10.55-11.00 *Discussion*

11.00-11.40

HARRY FARFAN PRESIDENTIAL LECTURE

Introduction – Kazuhisa Takahashi

Title: Molecular Mechanism of Pain

Guest Speaker: Professor Koichi Noguchi, MD, PhD,
Hyogo College of Medicine, Japan

11.40-12.20

Presidential Address – Kazuhisa Takahashi

Introduction – **Tom Oxland**

13:00

AFTERNOON OUTING

THURSDAY MAY 16

SESSION #10

TOPIC: COMPLICATIONS

Moderators: Richard Deyo and Shin-ichi Kikuchi

07.30-07.35 43 Adverse events in spine surgery: A 9 month prospective analysis
Zhou H, Egge N, Harrigan M, Lari H, Eck J, Connolly P, Dipaola C; Massachusetts, USA

07.37-07.42 44 Analysis of prospective multicenter surveillance data on spine surgery
surgical site infection
Ogihara S, Yamazaki T, Maruyama T, Miyoshi K, Azuma S, Yamada T, Murakami M, Kawamura N), Hara N, Terayama S, Morii J, Kato S, Yamada K; Japan

07.44-07.49 45 Venous thromboembolism after spine surgery
Schairer W, Pedtke A, Hu S; San Francisco, CA, USA

07.51-08.00 *Discussion*

THURSDAY MAY 16 (continued)

- 08.00-08.05 46 Is surgical specialty associated with 90-day re-operations following lumbar spine fusion? Findings from Medicare
Keeney BJ, Martin BI, Mirza SK; Dartmouth, USA
- 08.07-08.12 47 Complications of anterior and posterior lumbar fusion with bone morphogenic proteins
*Fineberg S, Oglesby M, Patel A, Pelton M, Singh K; Chicago, IL, USA
Maywood, IL, USA*
- 08.14-08.19 48 Post-traumatic stress symptoms following elective lumbar arthrodesis are associated with reduced clinical benefit
Hart R, Perry E, Hiratzka Sm Kane M, Dessereth K; Portland, OR, USA
- 08.21-08.30 *Discussion*
- 08.30-08.35 49 Adjacent segment disease after instrumented posterolateral fusion for single level degenerative lumbar spondylolisthesis: Is local sagittal alignment associated with its development?
Ataka H, Tanno T, Miyashita T; Chiba, Japan
- 08.37-08.42 50 A comparison of biofilm formation in various metal materials
Yoshioka K, Ishii K, Nagai S, Kakinuma H, Kuramoto T, Sasaki A, Aizawa M, Okada Y, Koyasu S, Toyama Y, Matsumoto M; Tokyo, Japan, Kanagawa, Japan
- 08.44-08.49 51 Predictors of failure of nonoperative management of spinal epidural abscesses
Harris MB, Kim S; Boston, MA USA
- 08.51-09.00 *Discussion*

SESSION #11 GENERAL POSTER SESSION, ODD NUMBERS

09.00-09.30

SESSION #12 GENERAL POSTER SESSION, EVEN NUMBERS

09.30-10.00

10.00-10.30 **COFFEE**

THURSDAY MAY 16 (continued)

SESSION #13 Fellowship Award Ceremony

10.30-11.00 Moderator : Tom Oxland
Introduction of Fellowships – Tommy Hansson

Announcement MacNab/LaRocca Fellowship for 2013
MacNab LaRocca Fellowship Report 2012 by Pedro Henrique Isoldi Pohl

Announcement of Globus Fellowship for 2013
Globus Fellowship Report 2012 by Taopheeq Rabiou

Introduction of International Fellow for 2013

Presentation of Spine Young Investigators Award by Scott Boden
Title: How Safe is Lateral Lumbar Interbody Fusion for the Surgeon?
A Prospective in-vivo Radiation Exposure Study

Fadi Taher

SESSION #14 THE ISSLS PRIZE PAPERS

Sponsored by DePuy Synthes Spine

11.00-11.10 Introduction and Award Ceremony
Moderator - Dr Gunnar Andersson

11.10-11.20 52 **ISSLS PRIZE – BIOLOGY**
Link Protein Peptide (LPP) stimulates chondrocyte matrix synthesis by human intervertebral disc cells with minimal effect on osteogenic genes
Wang Z, Hutton WC, Yoon ST; Atlanta, GA, USA

11.20-11.30 *Discussion*

11.30-11.40 53 **ISSLS PRIZE – CLINICAL/BIOMECHANICS**
The anatomy of failure in lumbar disc herniation - an in-vivo, multi-modal, prospective study of 181 subjects
Rajasekaran R, Bajaj N, Tubaki V, Kanna R, Shetty AP; Tamil Nadu, India

11.40-11.50 *Discussion*

11.50-13.10 **LUNCH**

THURSDAY MAY 16 (continued)

SESSION #15

TOPIC: SURGERY

Moderators: James Kang and S Rajasekaran

- 13.10-13.15 54 A comparison of spinal fusion and non-operative treatment in patients with chronic low back pain: an average 11-year follow-up of three randomized controlled trials
Mannion AF, Brox JI, Fairbank JC; Zürich, Switzerland, Oslo, Norway, Oxford, UK
- 13.17-13.22 55 Nutritional status in patients undergoing elective spine procedures
Zhou H, Eck J, Lapinsky A, Connolly P, DiPaola C; Massachusetts, USA
- 13.24-13.29 56 Long-term evaluation of re-operation rates for lumbar total disc replacement and fusion: analysis of 1,237 patients
Blumenthal SL, Guyer RD, Ohnmeiss DD, Zigler JE; Dallas, Texas USA
- 13.31-13.36 57 The impact of different health dimensions on overall quality of life related to kyphoplasty and non-surgical management
Borgstrom F, Strom O, Boonen S, Wardlaw D, Miltenburger C; Stockholm, Sweden, Leuven, Belgium, Aberdeen, UK, Switzerland
- 13.38-13.50 *Discussion*
- 13.50-13.55 58 The appropriateness of surgery for lumbar degenerative spondylolisthesis
Porchet F, Pittet V, Becker H-J, Steiger F, Vader J-P, Mannion AF and the Zurich Appropriateness of Spine Surgery (ZASS) Group; Zürich, Switzerland, Lausanne, Switzerland
- 13.57-14.02 59 Five-year follow-up of a prospective, randomized FDA IDE trial comparing two lumbar total disc replacements: clinical outcome and serum ION level analysis for a metal-on-metal device
Guyer RD, Blumenthal SL, Pettine K, Dimmig T, Coric D, Cappuccino A, Roh J; Plano, TX, Loveland, CO; Durham, NC, Charlotte, NC, Lockport, NY, Seattle, WA
- 14.04-14.09 60 7-10 year follow-up of 2-level Prodisc-L vs. fusion at one institution
Balderston RA, McIntosh TC; Philadelphia, PA, USA
- 14.11-14.20 *Discussion*

THURSDAY MAY 16 (continued)

SESSION #16

TOPIC: PSYCHOSOCIAL

Moderators: Margareta Nordin and Gwendolyn Sowa

- 14.20-14.25 61 Potential risk factors of persistent low back pain developing from mild low back pain in Japanese workers
Matsudaira K, Kikuchi N, Inuzuka K, Arisaka M, Miyoshi K, Konishi H; Japan
- 14.27-14.32 62 Relationship between depression and acute low back pain at first medical consultation, three, and six weeks of primary care
Melloh M, Käser A, Elfering A; Netherlands, Australia, Berne, Switzerland
- 14.34-14.39 63 The relationship of workers compensation status, psychological profiles, and clinical outcome: Results of a prospective, multicenter study
Block AR, Ben-Porath Y, Marek R, Ohnmeiss DD, Guyer RD; Plano, TX, Kent, OH, USA
- 14.41-14.50 Discussion
- 14.50-14.55 64 Psychosocial stress is associated with onset of low back pain with disability in college students: a longitudinal study before and after the disaster in Fukushima
Kato K, Sekiguchi M, Nikaido T, Otoshi K, Matsuo Y, Kikuchi S, Konno S; Fukushima, Japan
- 14.57-15.02 65 Effect of preoperative fear avoidance beliefs (FABQ) on two-year postoperative outcome in lumbar spinal stenosis (LSS).
Vanhanen S, Sinikallio S, Aalto T, Pakarinen M, Lehto S, Viinamäki H, Airaksinen O; Kuopio, Finland
- 15.04-15.09 66 Depression as a prognostic factor of lumbar spinal stenosis: A systematic review
McKillop AB, Battié MC, Carroll LJ; Edmonton, AB, Canada;
- 15.11-15.20 Discussion
- 15.20-15.50 **COFFEE**

THURSDAY MAY 16 (continued)

SESSION #17

DEBATE

Moderators: Scott Boden and Jeremy Fairbank

Title: Physical Rehabilitation for Low Back Pain disorders has FAILED to deliver on its promise of improved outcomes for these patients.

15.50-16.05

Proposer: Tommy Hansson

16.05-16.20

Opposer: Hamilton Hall

16.20-16.30

Discussion

Title: BMP is the new gold standard for spine fusion

16.30-16.45

Second Proposer: Harry Herkowitz

16.45-17.00

Second Opposer: Brian Freeman

17.00-17.10

Discussion

17.10

**SECOND BUSINESS MEETING
ISSLS BANQUET**

FRIDAY MAY 17

SESSION #18

SPECIAL POSTER SESSION # 2

07.45-08.45

SESSION #19

TOPIC: OSTEOPOROTIC VERTEBRAL COMPRESSION FRACTURE

Moderators: Helena Brisby and Serena Hu

09.00-09.05 67

Mortality and morbidity for operated and non-operated vertebral compression fracture patients (osteoporotic and non-osteoporotic) in the U.S. medicare population

Ong KL, Edidin AA, Lau E, Kurtz SM; Philadelphia, PA; Sunnyvale, CA; Menlo Park, CA USA

09.07-09.12 68

Survival and cost comparison of balloon kyphoplasty (BKP) and vertebroplasty (PVP) using German claims data

Lange A, Alvares L, Sauermann S, Kasperk C, Braun S; Hannover, Germany; Switzerland; Heidelberg, Germany; Hannover, Germany

FRIDAY MAY 17 (continued)

- 09.14-09.19 69 Differences between cases with bone union and cases with intravertebral cleft following osteoporotic vertebral fractures
Yasuda H, Hoshino M, Tsujio T, Terai H, Toyoda H, Suzuki A, Dohzono S, Matsumoto T, Nakamura H; Osaka, Japan
- 09.21-09.30 *Discussion*
- 09.30-09.35 70 Comparison of pedicle screw loosening in lumbar spinal fusion surgery in postmenopausal women with osteoporosis among treatment of teriparatide, bisphosphonate and control. aspect form bone quality
Inage K, Orita S, Yamauchi K, Suzuki M, Sakuma Y, Kubota G, Oikawa Y, Sainoh T, Sato J, Toyone T, Ozawa T, Takahashi K, Ohtori S; Chiba, Japan
- 09.37-09.42 71 Role of weekly administered teriparatide in bony union enhancement after posterior lumbar interbody fusion for osteoporosis-associated lumbar degenerative disorders:
A prospective, randomized multicenter study
Haro H, Ebata S, Takahashi J, Hasegawa T, Hirabayashi H, Matsuyama Y; Japan
- 09.44-09.49 72 Effect of RH-PTH 1-34 versus bisphosphonate on the union rate of osteoporotic vertebral fractures
Iwata A, Kanayama M, Hashimoto T, Shigenobu K, Oha F, Onishi T, Tanaka M; Japan
- 09.51-10:00 *Discussion*
- 10.00-10.30 **COFFEE**
- SESSION #20 INVITED LECTURE #3**
Moderators: Tommy Hansson and David Wong
- 10.30-10:55 General overview of treatments for osteoporotic VCF with the reviews of the literature
Douglas Wardlaw
- 10:55-11:00 *Discussion*

FRIDAY MAY 17 (continued)

SESSION #21

TOPIC: LUMBAR SPINAL STENOSIS

Moderators: Mohammed Mossaad and Tim Yoon

- 11.00-11.05 73 The impact of pain on function and Health Related Quality of Life in Spinal Stenosis Syndromes. A Register Study of 14.821 patients.
Sigmundsson FG, Jönsson B, Strömqvist B; Malmö, Sweden
- 11.07-11.12 74 Is the sedimentation sign associated with spinal stenosis surgical treatment effect in sport?
Moses RA, Zhao W, Staub L, Melloh M, Barz T, Lurie JD; Lebanon, NH; Camperdown NSW, Australia; Nedlands, Australia; Schwedt, Germany
- 11.14-11.19 75 Defining the clinical syndrome of lumbar spinal stenosis: a recursive specialist survey
Sandella DE, Haig AJ, Yamakawa KSJ, Tomkins-Lane CC; Michigan, USA Mount Royal, Canada
- 11.21-11.30 *Discussion*
- 11.30-11.35 76 Exposure of the paravertebral muscles affects clinical outcomes in patients with multi-levels lumbar spinal stenosis
Kawakami M, Nakao S, Fukui D, Miyamoto E, Kinoshita Y, Matsuoka T; Wakayama, Japan
- 11.37-11.42 77 Interspinous spacers compared to decompression or fusion for lumbar stenosis: Complications and repeat operations in the medicare population
Deyo RA, Martin BI, Ching A, Tosteson ANA, Jarvik JG, Kreuter W, Mirza SK; Washington and Dartmouth, USA
- 11.44-11.49 78 X-stop versus decompressive surgery for lumbar neurogenic claudication - a randomized controlled trial with two-years follow-up
Strömqvist B, Berg S, Gerdhem P, Johnsson R, Möller A, Sahlstrand T, Soliman A, Tullberg T; Lund Sweden
- 11.51-12.00 *Discussion*
- 12.00-12.20 **Announcement – Best Paper and Poster Awards**
Moderator: Kazuhiro Chiba

Closing Remarks – Jeremy Fairbank

SPECIAL POSTER SESSION #1

WEDNESDAY, MAY 15, 2013 AT 07:45 - 08:45

A. LOW BACK PAIN

Moderators: Finn Bjarke Christensen and Shin-ichi Konno

- SP1. Outcomes: Just ask the right question to hear what you want to hear!
Mannion AF, Fairbank JC; Zürich, Switzerland, Oxford UK
- SP2. Dynamic surface electromyography topography: A new assessment tool for low back pain rehabilitation
Hu Y, Kwok JWL, Tse JYH, Luk KDK; Hong Kong
- SP3. Change in pain rating between post-operative and non-operative patients seeking rehabilitation
McIntosh G, Hall H, Carter T; Toronto, Canada
- SP4. Correlation between low back pain intensity in lumbar spinal stenosis measured using the Japanese Orthopedic Association score and the Visual Analogue Scale
Hashizume H, Yamada H, Minamide A, Nakagawa Y, Nishi H, Iwasaki H, Tsutsui S, Endo T, Enyo Y, Yoshida M; Wakayama Japan
- SP5. Biomechanical impact of a positioning intervention: carousel platform for palletizing
Ramsey T, Davis K, Kotowski S, Marras W; Cincinnati OH, USA
- SP6. Incidence of disc degeneration of the thoracic spine and its effect on the spinal canal and the motion unit in symptomatic patients
Suzuki A, Daubs MD, Hayashi T, Aghdasi B, Montgomery SR, Phan K, Scott TP, Nakamura H, Wang JC; Los Angeles, CA

B. BIOMECHANICS

Moderators: Keith Luk and Jill Urban

- SP7. Intervertebral disc decompression following endplate damage: Implications for disc degeneration depend on spinal level and age
Dolan P, Luo J, Pollintine P, Landham PR, Stefanakis M, Adams MA; Bristol UK, Roehampton UK, Cyprus
- SP8. A new numerical method based on contrast-enhanced MRI to investigate the transport properties of healthy and degenerated vertebral endplates
Galbusera F, Tibiletti M, Brayda-Bruno M, Neidlinger-Wilke, Wilke H-J; Ulm Germany, Milan Italy

- SP9. A characterization of sub-endplate damage during intervertebral disc herniation
Balkovec C, Carstensen M, Leung A, McGill S; Waterloo, ON, London, On, USA
- SP10. Segmental lumbar facet joint motion
Simon P, Espinoza Orías AA, Andersson GBJ, An HS, Inoue N; Chicago, IL, USA
- SP11. Kyphoplasty corrects severe vertebral wedge deformities better than vertebroplasty
Landham PR, Baker H, Gilbert S, Pollintine P, Annesley-Williams DJ, Adams MA, Dolan P; Bristol, UK, Nottingham, UK
- SP12. Role of facet orientation and soft tissue integrity in unstable degenerative spondylolisthesis: a laboratory model
Sinclair MK, Ghanayem AJ, Wojewnik B, Havey RM, Lee A, Voronov LI, Carandang G, Patwardhan AG; Maywood, IL, Hines, IL USA

C. DISC DEGENERATION

Moderators: Seiji Ohtori and Nam Vo

- SP13. Assessment of the neurocentral synchondrosis in pediatric spines and the “developmental” etiology of Schmorl’s nodes
Luk K, Law T, Khong PL, Portia-Anthony M, Samartzis D; Hong Kong, SAR China
- SP14. How far into a degenerated annulus can blood vessels and nerves penetrate?
Lama P, Stefanakis M, Sychev I, Summers B, Harding IJ, Dolan P, Adams MA; Bristol UK
- SP15. COX-2 inhibitor inhibit axonal growth of rat sensory neurons cocultured with injured intervertebral disc in vitro
Orita S, Yamauchi K, Suzuki M, Sakuma Y, Kubota G, Oikawa Y, Inage K, Sainoh T, Sato J, Nakata Y, Takahashi Ka, Ohtori S; Chiba, Japan
- SP16. The role of diabetes type I in intervertebral disc degeneration
Russo F, Ngo K, Yurube T, Vadalà G, Dong Q, Fan Y, Massimo T, Sowa G, Kang J, Vo N; Rome Italy, Pittsburgh USA
- SP17. Loss of notochordal cells triggers extracellular matrix degradation in a rat tail temporary static compression-induced disc degeneration model
Hirata H, Yurube T, Kakutani K, Maeno K, Takada T, Yamamoto J, Kurakawa T, Miyazaki S, Kurosaka M, Nishida K; Kobe, Japan
- SP18. Tissue-engineered allograft intervertebral disc transplantation for the treatment of degenerative disc disease: experimental study in a beagle model
Ruan DK, Xin HK, Zhang C, Wang D, Shi Z, Gu T, Wang CF, Wu J, Zhang Y, He Q; Beijing, P R. China

D. PAIN MECHANICS

Moderators: Mamoru Kawakami and Dino Samartzis

- SP19. Local placement of clonidine pellet reduced neuropathic pain in a rat facet joint arthritis model
Yamaguchi T, Fujiwara T, Lenz ME, Marx J, Wilsey JT, McKay WF, Masuda K; San Diego, CA, USA, Kyoto, Japan
- SP20. Mechanistic assessment of allodynia and gait disturbance in a nicotine-induced intervertebral disc degenerative rat model; An approach using various pharmacological agents
Okada T, Shoji S, Abe K, , Numazawa T, Masuda K, Naiki M; Hyogo, Japan, San Diego, La Jolla, USA
- SP21. Activation of astrocytes and microglia in the C3–T4 dorsal horn by lower trunk avulsion in a rat model of neuropathic pain
Iwasaki R, Matsuura Y, Ohtori S, Suzuki T, Kuniyoshi K, Takahashi K; Chiba, Japan
- SP22. Therapeutic efficacy of pregabalin in patients with leg symptoms due to lumbar spinal stenosis second report: One-year follow-up
Takahashi N, Arai I, Kayama S, Ichiji K, Fukuda H, Handa J, Munakata Y, Konno S; Koriyama City, Japan, Fukushima City, Japan
- SP23. Gender difference of symptom severity in lumbar spinal stenosis: role of pain sensitivity
Kim HJ, Chang BS, Lee CK, Yeom JS; Seoul, Korea
- SP24. Attempting to understand the temporal relationship between lumbar muscle inflammation and perceived low back pain
Kotowski S, Davis K, Lemen L; Cincinnati USA

E. DIAGNOSIS/IMAGING

Moderators: Josef Assheuer and Marek Szpalski

- SP25. Predictors of dynamic instability in degenerative spondylolisthesis
Lee JYB, Slikker III W, Siemionow K, Espinoza Orías AA, An HS; Chicago, Illinois USA
- SP26. Hip-spine syndrome (complex, misdiagnosed): underdiagnosed hip osteoarthritis
Morimoto T, Tsukamoto M, Shiraki M, Yoshihara T, Sonohata M, Mawatari M; Saga Japan
- SP27. Improved diagnostic accuracy of lumbar foraminal stenosis by use of three dimensional MR imaging : Comparison with conventional MR imaging
Yamada H, Terada M, Iwasaki H, Endo T, Nakao S, Hashizume H, Minamide A, Nakagawa Y, Nishi H, Tsutsui S, Yoshida M; Wakayama Japan
- SP28. In vivo MRI measurement of spinal cord displacement in the thoracolumbar region: Part 1 - Straight Leg Raise Test
Rade M, Könönen M, Vanninen R, Shacklock M, Kankaanpää; Kuopio, Finland, Adelaide, Australia, Tampere, Finland

- SP29. Improved diagnostic accuracy of lumbar foraminal stenosis by use of three dimensional MR imaging: Comparison with conventional MR imaging
Yamada H, Terada M, Iwasaki H, Endo T, Nakao S, Hashizume H, Minamide A, Nakagawa Y, Nishi H, Tsutsui S, Yoshida M; Wakayama Japan
- SP30. In vivo MRI measurement of spinal cord displacement in the thoracolumbar region:
Part 1 - Straight Leg Raise Test
Rade M, Könönen M, Vanninen R, Shacklock M, Kankaanpää; Kuopio, Finland, Adelaide, Australia, Tampere, Finland

SPECIAL POSTER SESSION #2

FRIDAY, MAY 17, 2013 AT 07:45 - 08:45

F. FUSION

Moderators: Osamu Shirado and Douglas Wardlaw

- SP31. Should the presence of back pain be considered when making surgical decisions for lumbar spinal fusion?
Aoki Y, Nakagawa K, Nakajima A, Shibata Y, Sonobe M, Takahashi H, Taniguchi S, Furufu T, Ohtori S, Takahashi K; Chiba, Japan
- SP32. Indication of fusion using the intraoperative segmental motion measurement system for lumbar canal stenosis ~ a prospective study ~
Hasegawa K, Shimoda H, Ishii K, Homma T; Niigata Japan
- SP33. Acceleration of lumbar posterolateral fusion using a collagen-binding domain fused with BFGF and allografting in a rat model
Inoue G, Uchida K, Ueno M, Saito W, Nakazawa T, Imura T, Yogoro M, Fujimaki H, Takahira N, Matsushita O, Takaso M; Kanagawa, Japan, Okayama, Japan
- SP34. Radiological assessment of lumbar spinal fusion: Radio-stereometric assessment versus computed tomography in a large animal model
Humadi AH, Freeman BJC, Callary S, Moore R, Haldin K, Hall DJ, Fraser RD; Adelaide, Australia
- SP35. The effect of platelet-rich plasma (PRP) on posterolateral fusion (PLF) in a rat model
Kamoda H, Ohtori S, Ishikawa T, Miyagi M, Suzuki M, Sakuma Y, Oikawa Y, Kubota G, Inage K, Saino T, Orita S, Yamauchi K, Inoue G, Takahashi K; Chiba Japan
- SP36. Surgical management of degenerative lumbar spondylolisthesis: A comparative study of 5-year outcomes following decompression with fusion and microendoscopic decompression
Aihara T, Hatakeyama K, Urushibara M, Ouchi J; Funabashi-city, Japan

G. RISK FACTORS

Moderators: Cody Büngrer and Koichi Sairyo

- SP37. Risk factors for severity of symptoms in patients with lumbar spinal stenosis
Takehita K, Takebayashi T, Kimiaki SK, Hara N, Fujii T, Yamashita T, Nagata K, Takahashi K

- SP38. Scoliosis is a risk factor for gastroesophageal reflux disease in adult spinal deformity
Hosogane N, Iwanami A, Watanabe K, Yagi M, Kaneko S, Tsuji T, Ishii K, Kono H, Nakamura M, Shiota M, Machida M, Saito M, Toyama Y, Chiba K, Matsumoto M; Tokyo, Japan
- SP39. Decompressive surgery reduced risk of falling more significantly in patients with lumbar spinal stenosis compared with conservative treatment
Lee BH, Lee SH, Lee HM, Kim HS, Moon SH
- SP40. Depressive burden is associated with a poorer 5- year surgical outcome in lumbar spinal stenosis
Pakarinen M, Vanhanen S, Sinikallio S, Aalto T, Lehto S, Viinamäki H, Airaksinen O; Kuopio, Finland
- SP41. Suboptimal vitamin D increases risk for infection after spine surgery
Metzger MF, Kanim LA, Zhao L, Robinson ST, Delamarter RB; Los Angeles, CA, USA
- SP42. Propionibacterium acnes causes delayed surgical site infection only in the presence of implant
Shiono Y, Ishii K, Nagai S, Kuramoto T, Yoshioka K, Ishihama H, Funao H, Kakinuma H, Sasaki A, Aizawa M, Okada Y, Koyasu S, Toyama Y, Matsumoto M; Tokyo, Japan, Kanagawa, Japan

H. SURGERY

Moderators: Hiroaki Nakamura and Jong-Beom Park

- SP43. Implementation and impact of pre-operative peer case review in a spine practice
Guyer RD, Shivers J, Ohnmeiss DD, Zigler JE; Plano, TX, USA
- SP44. Outcomes following transforaminal endoscopic surgery – two year RCT results
Arthur C and Gibson JNA; Edinburgh, Scotland
- SP45. Clinical and radiographic long-term results of peek-non-fusion spine implants
Melloh M, Barz T, Staub LP, Buller C, Lord SJ, Merk HR; Nedlands, Australia, Schwedt/ Oder, Germany, Sydney, Australia, Greifswald, Germany
- SP46. Outcomes of anterior, posterior, and circumferential lumbar fusions
Fineberg S, Oglesby M, Patel A, Pelton M, Singh K; Chicago, IL, Maywood, IL, USA

- SP47. Curve progression after decompression surgery in patients with mild degenerative lumbar scoliosis
Hosogane N, Watanabe K, Kono H, Saito M, Toyama Y, Matsumoto M; Tokyo, Japan, Gunma, Japan
- SP48. Prospective, randomized, multicenter study comparing the clinical outcomes of two minimally invasive interspinous devices for the treatment of lumbar spinal stenosis
Bradley W, Whang PG; Denton, TX, New Haven, CT, USA

I. OSTEOPOROSIS/AGING SPINE

Moderators: David Hall and Yoshiharu Kawaguchi

- SP49. Foraminal stenosis caused by osteoporotic vertebral compression fracture of the lumbar spine
Toki S, Nagamachi A, Takahashi Y; Mitoyo, Japan
- SP50. Effect of prevalent vertebral fractures on the occurrence pattern of new vertebral fractures - A population-based cohort study-
Akeda A, Kato T, Nishimura A, Murata K, Sudo A; Mie, Japan
- SP51. Teriparatide accelerates lumbar posterolateral fusion in women with postmenopausal osteoporosis: Prospective study
Ohtori S, Inoue G, Orita S, Yamauchi K, Eguchi Y, Aoki Y, Ishikawa T, Miyagi M, Kamoda H, Suzuki M, Sakuma Y, Kubota G, Oikawa Y, Inage K, Sainoh T, Sato J, Toyone T, Takahashi K; Chiba, Japan
- SP52. Acute vertebral fracture at the fused segment after lumbar fusion surgery in elderly patients with osteoporosis
Sainoh T, Nobukiyo M, Aoki M, Orita S, Ohtori S, Takahashi K, Kawaguchi Y; Chiba, Japan
- SP53. Incidence rate and primary diagnostic accuracy of occult vertebral fracture in aged women complaining of acute low back pain
Terakado A, Orita S, Kubota G, Kanzaki T, Mori H, Shinohara Y, Ohtori S, Takahashi K; Chiba, Japan
- SP54. Aging-associated changes in paraspinal muscles and psoas muscles
Kita T, Takayama K, Kanematsu F, Yasunami T, Ikeda S, Kyo Y, Skanaka H, Yamano Y; Osaka, Japan

J. LUMBAR SPINAL STENOSIS

Moderators: Yong Hai and Björn Strömqvist

- SP55. Fall and lumbar spinal stenosis in the community
Otani K, Kikuchi S, Yabuki S, Nikaido T, Watanabe K, Kato K, Konno S; Fukushima City, Japan
- SP56. Visually assessed severity of lumbar spinal canal stenosis is paradoxically associated with leg pain and objective walking ability
Kuittinen P, Sipola P, Saari T, Aalto TJ, Sinikallio S, Savolainen S, Kröger H, Turunen V, Leinonen V, Airaksinen O; Kuopio, Finland
- SP57. Prevalence of vitamin D deficiency in patients with lumbar spinal stenosis and its relationship with pain
Kim TH, Lee SH, Lee BH, Park JO, Kim HS, Lee HM, Moon SH; Korea
- SP58. Conservative and surgical treatment improves pain and ankle-brachial index in patients with lumbar spinal stenosis
Yamashita M, Ohtori S, Murata Y, Eguchi Y, Aoki Y, Ataka H, Hirayama J, Ozawa T, Morinaga T, Arai H, Mimura M, Kamoda H, Orita S, Miyagi M, Miyashita T, Okamoto Y, Ishikawa T, Sameda H, Kinoshita T, Hanaoka E, Suzuki M, Suzuki M, Aihara T, Ito T, Inoue G, Yamagata M, Toyone T, Kubota G, Sakuma Y, Oikawa Y, Inage K, Sainoh T, Yamauchi K, Takahashi Ka; Chiba, Japan
- SP59. Surgical decompression of lumbar spinal stenosis normalizes impairment in objective measures of physical activity: a case-control study
Smuck M, Matthew P, Buman MP, Martinez A, Haskell WL, Kao MCJ; Redwood City CA, Phoenix AZ, Palo Alto CA, Redwood City CA, USA
- SP60. The effect of decompression surgery on low back pain with lumbar spinal stenosis: Analysis from the symptom caused by gait-loading test
Nikaido T, Kikuchi S, Yabuki S, Otani K, Watanabe K, Kato K, Konno S; Fukushima, Japan

GENERAL POSTERS

- GP1 Suitability evaluation of restoring the intervertebral disc mechanics in treating osteoporotic vertebral fracture using kyphoplasty with pmma or Calcium-P based cement
Lo HJ, Chen HM; Taipei City, Taiwan
- GP2 Assessment of pain behavior in a rat model of intervertebral disk injury using the catwalk gait analysis system
Miyagi M, Ishikawa T, Kamoda H, Suzuki M, Sakuma Y, Orita S, Oikawa Y, Aoki Y, Toyone T, Takahashi K, Inoue G, Ohtori S; Chiba Japan, QC Kanada, Sakura Japan
- GP3 Hypertrophy of the ligament flavum in degenerative lumbar stenosis associated with the increased expression of fractalkine (CX3CL1)/CX3CR1 chemokine
Oh IS, Sur DW, Ha KY; Seoul, Korea
- GP4 Comparative study of lumbar intervertebral disc biomechanical characteristics with or without hydrogel injection after nucleus discectomy
Manman G, Zhiyu Z, Wenbin D, Xuejun D, Xuenong Z; Sun Yat-sen, China
- GP5 Spino-pelvic-rhythm in normal subjects and high-class athletes who overcame chronic low back pain
Hasebe K, Sairyō K, Hada Y, Dezawa A, Okubo Y, Kaneoka K, Nakamura Y; Kawasaki Japan, Waseda Japan, Kawasaki Japan, Saitama Japan
- GP6 Novel two-component interbody fusion device improves bone-implant interface without compromising stability: a cadaver study
Wilke H-J, Volkheimer D, Robie B, Christensen FB; Ulm Germany, Risskov Denmark, Aarhus Denmark
- GP7 Biomechanical characterization of a novel low-stiffness posterior spinal implant under anterior shear loading in a degenerative spinal model
Melnyk AD, Chak JD, Singh V, Kelly A, Crompton PA, Fisher CG, Dvorak MF, Oxland TR; Vancouver BC Canada, Memphis TN USA
- GP8 Effects of sequential unilateral facetectomy on cervical spinal stability
Mageswaran P, Tolhurst S, Colbrunn R, Bonner T, Techy F, McLain R; Cleveland OH USA, Chicago, IL, USA
- GP9 Does head weight affect cervical spine stability? An in vitro robotic biomechanical study
Mageswaran P, Tolhurst S, Colbrunn R, Bonner T, Techy F, McLain R; Cleveland, OH, USA, Chicago, IL, USA
- GP10 Do pedicle screws that have breached the pedicle wall provide stronger purchase as compared to smaller pedicle screws placed intra cortex?
Higashino K, Goda Y, Daisuke S, Kobayash T, Matsuura T, Fujimiya M, Hutton WC, Yasui N; Tokushima, Japan, Sapporo, Japan, Hokkaido, Japan, Atlanta, Georgia, USA

- GP11 Biomechanical effect of the progression of disc degeneration at L5/S1 on adjacent discs in a lumbar spine
Natarajan RN, Andersson GBJ; Chicago, IL, USA
- GP12 Investigation of equivalent stress of adjacent vertebrae after balloon kyphoplasty by a CT-based finite element method
Iwakura N, Matsuura M, Shiba M, Wada K, Murata Y, Kato Y; Tokyo, Japan, Chiba, Japan
- GP13 Histomorphometric and radiographic changes after wallis implantation in rats
Melloh M, Barz T, Lange J, Staub LP, Merk HR, Klötting I, Follak N; Nedlands, Australia, Schwedt/Oder, Germany, Greifswald, Germany, Sydney, Australia, Magdeburg, Germany
- GP14 Biomechanical analysis of the thoracic spine following decompressive procedures
Healy AT, Lubelski D, Mageswaran P, Mroz T; Cleveland, OH, USA;
- GP15 3D-CT simulation study of the iliac screw for the firm fixation
Otsuki B, Fujibayashi S, Takemoto M, Izeki M, Matsuda S; Kyoto, Japan
- GP16 Is there an association between abdominal muscles and degenerative spondylolisthesis?
Tcherveniakov P, Fraser R, Freeman BJC, Jones CF; Adelaide, Australia
- GP17 Muscle injury in rats induces up-regulation of inflammatory cytokines in muscle and pain-related neuropeptides in dorsal root ganglia innervating muscle. -the pathological-mechanism of continuous muscle pain-
Sakuma Y, Miyagi M, Ohtori S, Inoue G, Yamauchi K, Orita S, Kamoda H, Ishikawa T, Arai G, Suzuki M, Oikawa Y, Kubota G, Inage K, Sainoh T, Sato J, Nakata Y, Takahashi K; Chiba Japan, Kitasato Japan
- GP18 Carbon nanotube-reinforced calcium phosphate cement for drug delivery in multiple myeloma bone disease treatment
Lin B, Zhou H, Bhaduri S, Leaman D, Goel V, Agarwal A; Toledo, OH, USA
- GP19 Biomechanical contribution of transverse connectors in the setting of a thoracic pedicle subtraction osteotomy
Tracey RW, Paik H, Lehman Jr. RA, Kang DG, Cody JP, Cardoso MJ, Dmitriev AE; Bethesda, MD USA
- GP20 The biomechanical consequences of rod reduction following thoracic Ponte osteotomy and lumbar facetectomy
Tracey RW, Kang DG, Bevevino AJ, Lehman Jr RA, Cody JP, Gaume RE, Happel JP, Helgeson MD, Dmitriev AE; Bethesda, MD USA
- GP21 Tapping insertional torque predicts better pedicle screw fixation and optimal screw size selection
Tracey RW, Helgeson MD, Kang DG, Lehman Jr RA., Cody JP, Dmitriev AE; Bethesda, MD USA
- GP22 A novel load sharing lumbar interbody fusion device (Interplate®) provides better stability compared to the pedicle screw system
Palepu V, Kodigudla M, Aakash A, Dhanvin D, Goel VK, Moran J; Toledo, OH Cleveland, OH, USA
- GP23 Initial results of a five-year in vivo longitudinal study on lumbar segmental axial motion and low back pain
Oshita Y, Espinoza Orías AA, Andersson GBJ, An HS, Inoue N.; Chicago, IL. USA

- GP24 Failure under cyclic loading in a lumbar disc shifts from inner annulus layers to peripheral annulus with increasing disc degeneration
Qasim M, Natarajan RN, An H, Andersson GBJ; Chicago, IL, USA
- GP25 In vivo characterization of the 3D lumbar foramen geometry
Senoo I, Espinoza Orías AA, Park DK, Andersson GBJ, An HS, Inoue N; Chicago, IL, USA
- GP26 Changes in nucleus pulposus MRI signal inhomogeneity show disc degeneration progress
Yang S-H, Espinoza Orías AA, Pan C-C, Senoo I, Andersson GBJ, An HS, Inoue N; Chicago, IL, USA
- GP27 The effect of difference in hamstrings flexibility on lumbo-pelvic rhythm
Matsunaga N, Okubo Y, Kaneoka K; Waseda, Japan Saitama, Japan
- GP28 Effect of mental stress on low back load while lifting an object
Katsuhira J, Matsudaira K, Iwakiri K, Maruyama H; Otawara Japan, Kanagawa Japan
- GP29 Biomechanical analysis of fusion segment rigidity upon stress at both the fusion and adjacent segments - a comparison between unilateral and bilateral pedicle screw fixation
Kim HJ, Kang KT, MSb, Park JH, Yeom JS, Chang BS, Lee CK; Seoul, Korea
- GP30 In vivo response to a paraspinous tension band device with titanium coil. An ovine implantation study
Ehrhart EJ, Fielding L, Santoni AL, Santoni BG, Puttlitz CM, Ruehlman DR, Seim III HB, Turner AS; Fort Collins, CO, San Carlos, CA, Tampa, FL
- GP31 Instability of posterior vertebral wall causes canal encroachment in the elderly with vertebral pseudoarthrosis
Hayashi T, Maeda T, Mori E, Ueta T, Yague I, Kawano O, Takao T, Sakai H, Masuda M, Morishita Y, Shiba K; Fukuoka, Japan
- GP32 Development of a novel percutaneous guide wire (S-Wire™) for percutaneous pedicle screw insertion –its efficacy and safety–
Ishii K, Ishihara S, Kaneko Y, Iwanami A, Hikata T, Hosogane N, Watanabe K, Nakamura M, Toyama Y, Matsumoto M; Tokyo, Japan, Kanagawa, Japan
- GP33 Finite element analysis for comparison of supraspinous osteotomies technique with conventional laminectomy
Kim HJ, Kang KT, Lee CK, Chang BS, Yeom JS; Seoul Korea
- GP34 Correlation between intradiscal pressure and disc height: effect of follower load and rotation
Bell KM, Yan Y, Dugan T, Kang JD; Pittsburgh, USA
- GP35 In vivo MRI measurement of spinal cord displacement in the thoracolumbar region: Part 2 - comparison between unilateral and bilateral straight leg raise tests
Rade M, Könönen M, Vanninen R, Shacklock M, Kankaanpää M, Airaksinen O; Kuopio, Finland, Adelaide, Australia, Tampere, Finland
- GP36 Three dimensional assessment of lumbar facet joint tropism in asymptomatic and low back pain subjects
Huh J-S, Espinoza Orías AA, Otsuka Y, Simon P, An HS, Andersson GBJ, Inoue N; Chicago, IL, USA

- GP37 Modic changes follow bone remodeling principles
Agarwal A, Kaul V, Goel VK, Agarwal AK; Toledo, OH, USA
- GP38 Changes in endplate thickness after disc herniation – a biomechanical perspective
Agarwal A, Goel VK, Agarwal AK; Toledo, OH, USA
- GP39 Effect of an interspinous implant on in vivo dynamic lumbar spine stiffness and biplanar intersegmental motion
Szpalski M, Fabeck LG, Gunzburg R, Colloca CJ, McAviney J, Afifi M, Moore RJ, Freeman BJ; Brussels, Belgium; Tempe, Arizona, USA; Sydney, Australia; Calgary, Alberta, Canada; Adelaide, Australia
- GP40 T2 values of human lumbar discs: template-based segmentation and variations with age, sex and level
Bae WC, Yamaguchi T, Pichika R, Lenz ME, Fujiwara T, Bydder GM, Mausda K; San Diego, CA, USA; Kyoto, Japan
- GP41 Shear stiffness of baboon intervertebral disc assessed by MR elastography
Ben-Abraham EI, Chen J, Ehman RL; Rochester, Minnesota USA
- GP42 Ex-vivo response of spinal cartilaginous tissues to flexion-extension of rabbit functional spinal unit
Hartman RA, Bell KM, Yurube T, Vo NV, Kang JD, Sowa GA; Pittsburgh, PA, USA
- GP43 Empty
- GP44 Static and dynamic compressive characterization of lumbar intervertebral discs of the adult New Zealand white rabbit following in vivo degeneration or ex vivo annular puncture
Taborek AP, Chen AC, Yamaguchi T, Nguyen QT, Inoue N, Sah RL, Masuda K; La Jolla, CA, USA, Kyoto, Japan
- GP45 In vivo three-dimensional lumbar kinematics: differences between static and dynamic measurements
Anderst W, Aiyangar A, Zheng L, Kang J, Zhang X; Pittsburgh USA
- GP46 Optical coherence tomographic elastography measures inhomogeneous strain in annulus fibrosus loaded in shear
Kuy Han SK, Chen CW, Chou CC, Chen Y, Hsieh A; College Park, MD, Baltimore, MD, USA
- GP47 Directed vertebroplastic cement injection at lytic metastatic lesion restores strength with minimum cement volume
Truumees E, Kiapour AM, Goel VK, Demetropoulos CK; Austin, TX Toledo, OH, USA
- GP48 Genome-wide pain-, nerve- and neurotrophin-related gene expression in the degenerating human annulus
Gruber HE, Hoelscher GL, Ingram JA, Hanley EN; Charlotte, NC USA
- GP49 Matrix metalloproteinase-12, macrophage metalloelastase, is constitutively expressed and produced in the human intervertebral disc in vivo
Gruber HE, Hoelscher GL, Ingram JA, Zinchenko N, Bethea S, Hanley EN; Charlotte, NC USA

- GP50 Feasibility of NP cell activity upregulation by HTERT gene transfection
Ruan DK, Xin HK, Zhang C, Wang D, Shi Z, Gu T, Wang CF, Wu J, Zhang Y, He Q; Beijing, P R. China
- GP51 Injection of Bupivacaine into disc space to detect painful nonunion after ALIF surgery in patients with discogenic low back pain
Kimura S, Ohtori S, Inoue G, Orita S, Yamauchi K, Eguchi Y, Aoki Y, Ishikawa T, Miyagi M, Kamoda H, Suzuki M, Sakuma Y, Kubota G, Oikawa Y, Inage K, Sainoh T, Sato J, Toyone T, Takahashi K.; Chiba, Japan
- GP52 Molecular interactions between human cartilaginous endplates and nucleus pulposus cells: a preliminary investigation
Neidlinger-Wilke C, Mietsch A, Galbusera F, Carstens C, Brochhausen C, Lazary A, Brayda-Bruno M, Ignatius A, Wilke HJ; Ulm, Germany, Stuttgart, Germany, Mainz, Germany, Budapest, Hungary, Milano, Italy
- GP53 Senescent disc cells exhibit severely perturbed matrix homeostasis
Ngo K, Nasto L, Sowa G, Kang J, Vo N; Pittsburgh, USA
- GP54 Prolyl Hydroxylase 3 (PHD3) modulates catabolic effects of tumor necrosis factor alpha on cells of the nucleus pulposus through co-activation of nuclear factor kappa B/P65 signaling
Fujita N, Gogate S, Chiba K, Matsumoto M, Toyama Y, Shapiro I, Risbud M; Philadelphia, USA, Tochigi, Japan, Tokyo, Japan
- GP55 Vertebral cartilage endplate lesions: a morphological study to evaluate the effects of osteoporosis and disc degeneration in rats
Ding Y, Jiang J, Zhou J, Wu X, Huang Z, Chen J, Zhu Q; Guangzhou, China
- GP56 Expression of the tissue renin-angiotensin system in rat and bovine intervertebral discs
Akeda K, Morimoto R, Iida R, Murata K, Sudo A; Mie, Japan
- GP57 Signature mirna expression profile of spinal fusion using equine bone protein extract, RHBMP-2 and autograft during the process of anterior lumbar interbody fusion
Zhiyu Z, Chen D, Xuejun D, Gao M, Xuenong Z; Sun Yat-sen China
- GP58 Canine notochordal cell-secreted factors protect murine and human nucleus pulposus cells from apoptosis by inhibition of activated caspases -9, and -3/7
Mehrkens A, Hilario R, Kim S, Karim MZ, Fehlings M, Erwin MW; Toronto, Canada, Basel, Switzerland
- GP59 Ability of T2 mapping and T1 RHO mapping to evaluate lumbar intervertebral disc degeneration and glycosaminoglycan content of the nucleus pulposus
Oikawa Y, Watanabe A, Kamoda H, Ishikawa T, Miyagi M, Sakuma Y, Inoue G, Yamauchi K, Orita S, Suzuki M, Kubota G, Inage K, Sainoh T, Sato J, Ohzone H; Chiba Japan.
- GP60 The mechanism of the inflammatory responses in the intervertebral disc herniation explored by co-culture model in vitro
Yamamoto J, Maeno K, Takada T, Kakutani K, Yurube T, Zhang Z, Hirata H, Kurakawa T, Shingo M, Sakai D, Mochida J, Doita M, Kurosaka M, Nishida K; Kobe, Japan, Kanagawa, Japan, Takatsuki, Japan

- GP61 Catabolic effects of endothelial cell-derived microparticles on intervertebral disc cells
Pohl PH, Moon HJ, Lozito T, Cuperman T, Ngo K, Yurube T, Sowa G, Tuan R, ang JD, Vo N; Pittsburgh PA, USA
- GP62 The notochordal cell viability affected by dynamic mechanical loading via alpha5/beta1 integrins in rat IVDS
Kurakawa T, Kakutani K, Morita Y, Takada T, Maeno K, Yurube T, Yamamoto J, Hirata H, Miyazaki S, Doita M, Kurosaka M, Nishida K; Kobe, Japan, Kyoto, Japan, Osaka, Japan.
- GP63 A quantitative proteomic analysis of the non-chondrodystrophic and chondrodystrophic canine nucleus pulposus
DeSouza L, Karim MZ, Masui O, Maedler M, Mehrkens A, Kim S, Hilario R, Erwin WM; Toronto, Canada
- GP64 Lumbar intervertebral disc injury in rats induces upregulation of TRPV1 expression in the sensory nerve innervating the discs
Shibata Y, Suzuki M, Sakuma Y, Oikawa Y, Miyagi M, Ishikawa T, Inage K, Kubota G, Sainoh T, Sato J, Orita S, Yamauchi K, Kamoda H, Ohtori S, Inoue G, Takahashi Ka; Chiba Japan
- GP65 Cervical intervertebral disc injury produces up-regulation of TRPV1 and neuropeptides in sensory disc-innervating nerves in rats
Arai T, Suzuki M, Sakuma Y, Oikawa Y, Ishikawa T, Miyagi M, Kamoda H, Inage K, Kubota G, Sainoh T, Sato J, Ohtori S, Inoue G, Yamauchi K, Orita S, Takahashi Ka; Chiba Japan
- GP66 Early loading after thoracolumbar burst fracture aggravates disc degeneration in-vitro
Dudli S, Haschtmann D, Ferguson SJ; Zürich, Switzerland
- GP67 Discogenic differentiation of human bone marrow mesenchymal stem cell using adenoviral-hypoxia inducible factor-1A
Kang YM, Kim HJ, Lee BH, Park JO, Lee HM, MOON SH; Seoul, Korea
- GP68 A novel pharmacological action of prostaglandin E1 for intervertebral disc degeneration and innervation
Sawaji Y, Alimasi W, Endo K, Suzuki H, Tanaka H, Yamamoto K; Tokyo Japan
- GP69 Elevated levels of inflammatory markers following exposure to repetitive lifting and mental load by subjects with different personality traits
Splittstoesser RE, Marras WS, Best TM; Columbus, OH, USA
- GP70 TNF-alpha induced WNT signal in intervertebral disc cells
Yokoyama K, Hiyama A, Arai F, Nukaga T, Sakai D, Mochida J; Tokai, Japan
- GP71 The effects of notochordal cells and chondrocyte-like cells on the morphology of spinal nerve tissue: an experimental study in rats
Larsson K, Örndal C, Nordborg C, Sasaki N, Runesson E, Brisby H, Rydevik B; Gothenburg, Sweden, Fukushima, Japan
- GP72 Similar patterns of cells migrating from niches in the intervertebral disc region and in the knee joint region detected by in situ labelling an experimental study in the New Zealand white rabbit
Henriksson HB, Lindahl A, Skioldebrand E, Tängemo C, Mattsson J, Brisby H; Gothenburg, Sweden

- GP73 Do intervertebral discs degenerate before or after herniation?
Lama P, LeMaitre C, Spooner L, St Joseph JB, Dolan P, Harding IJ, Adams MA; Bristol UK, Sheffield, UK
- GP74 In vivo retention and bioactivity of IL-1RA microspheres in the rat caudal intervertebral disc
Gorth DJ, Martin JT, Elliott DM, Dodge GR, Malhotra NR, Mauck RL, Smith LJ; Pennsylvania, USA
- GP75 M1 macrophage exists in the non-herniated degenerative disc
Takada T, Maeno K, Kakutani K, Yurube T, Yamamoto J, Hirata H, Kurakawa T, Miyazaki S, Kurosaka M, Nishida K; Pennsylvania, USA
- GP76 Pathogenesis of ossification of ligamentum flavum
Naresh-Babu J, Neelima G; Hyderabad, India
- GP77 A novel nucleotomy model with intact anulus fibrosus to test intervertebral disc regeneration strategies
Vadalà G, Russo F, Patappa G, Peroglio M, Grad S, Stadelmann V, Alini M, Denaro V; Davos, Switzerland
- GP78 The transpedicular approach as new route for intervertebral disc regeneration
Vadalà G, Russo F, Patappa G, Schiuma D, Peroglio M, Grad S, Benneker L, Alini M, Denaro V; Rome, Italy, Bern, Switzerland
- GP79 The role of advanced glycation end-products in the degeneration of the intervertebral disc
Tang SY, Morse LJ, Chen L, Sharan AD; St Louis MO, San Francisco, CA, Bronx, NY, USA
- GP80 Effect of the non-protein bioactive compound, Neurotropin® on interleukin-1B-induced expression levels of cytokines, matrix enzymes and pain markers in human intervertebral disc explant cultures
Pichika R, Yamaguchi T, Fujiwara T, Bae WC, Lenz ME, Naiki M, Masuda K; San Diego, CA, Kyoto, Japan, Osaka, Japan
- GP81 Clonidine, an Alpha-2 adrenergic agonist decreases cytokine, matrix degradation and associated pain marker expression in human intervertebral disc explant cultures
Pichika R, Yamaguchi T, Fujiwara T, Lenz ME, Bae WC, Penta K, Binette F, McKay WF, Masuda K; San Diego, CA, Kyoto, Japan, La Jolla, CA, USA
- GP82 Endplate roughness in human lumbar spines: variations with age, level and region
Bae WC, He J, Shieh I, Yamaguchi T, Inoue N, Masuda K; San Diego, CA, USA, Kyoto, Japan
- GP83 Intervertebral disc repair using neonatal human dermal fibroblasts in the rabbit model
Chee A, Shi P, Peng C, Cha T, Kao TH, Yang SH, Zhang Y, An HS; Chicago, IL, USA Boston, MA, USA, Taiwan, Republic of China
- GP84 Intervertebral disc cells produce interleukin-8 (il-8) in response to inflammatory stimuli
Zhang Y, Chee A, Shi P, Markova D, Anderson G, Cs-Szabo G, Adams SL, PhD, An HS; Chicago, IL, Philadelphia, PA, USA
- GP85 Biglycan down-regulates TNF-alpha-induced protease and cytokine gene expression in human intervertebral disc cells
Buchanan S, Gerard D, Zhang Y, Chee A, An HS, Andersson G, Cs-Szabo G; Chicago, IL, USA

- GP86 The safety and efficacy of mesenchymal stem cells for prevention or regeneration of intervertebral disc degeneration: a systematic review
Yim RL, Lee J, Vavken P, Samartzis D; Hong Kong, SAR, China, Boston, USA
- GP87 Effects of IL-1Beta on axonal outgrowth from adult rat lumbar dorsal root ganglia using a novel 3D culture system
Kim H, Shah SB, Hsieh AH; College Park, USA San Diego, Baltimore, USA
- GP88 Novel insights into the hallmarks of human nucleus pulposus cells with particular reference to cell viability, phagocytic potential and long process formation
Chen YF, Zhang YZ, Wang HQ, Liu ZH, Zhang WL, Wan ZY, Sun Z, Zhu S, Samartzis D, Wang CM, Luo ZJ; Xi'an, China; Hong Kong, SAR China
- GP89 Evaluation of non-specific low back pain using a detailed visual analogue scale for patients in motion, standing and sitting: characterizing non-specific low back pain in elderly patients
Aoki Y, Sugiura S, Nakagawa K, Nakajima A, Takahashi H, Ohtori S, Takahashi Ka, Nishikawa S; Chiba, Japan
- GP90 Lumbar scoliosis in rheumatoid arthritis -epidemiologic research with a DXA cohort-
Makino T, Kaito T, Fujiwara H, Ishii T, Yonenobu K; Osaka, Japan
- GP91 Comparison of image quality and radiation exposure from C-arm fluoroscopes when used for imaging the spine
Prasarn ML, Coyne E, Schreck M, Rechtine GR; Texas and Rochester USA
- GP92 Stir MRI and spect bone scan in the evaluation of painful osteoporotic vertebral fractures
Lee LH, Beckingsale TB, Manoj-Thomas A, Sanderson PL; Newcastle, UK
- GP93 Development of a computer-based clinical decision support tool for selecting appropriate rehabilitation interventions for injured workers
Gross DP, Zhang J, Steenstra I, Barnsley S, Haws C, Amel T, McIntosh G, Cooper J, Zaiane O; Alberta, Canada, Edmonton, Canada, Toronto, Canada, Calgary, Canada, Manitoba, Canada
- GP94 Does performance-based functional capacity evaluation enhance return to work assessment?
Gross DP, Asante AK, Miciak M, Battié MC, Carroll LJ, Sun A, Welch J, Mikalsky M, Huellstrung R, Niemeläinen R; Calgary, Canada, Edmonton, Canada
- GP95 Prescription opioids for back pain and use of medications for erectile dysfunction
Deyo RA, Smith DHM, Johnson ES, Tillotson CJ, Donovan M, Yang X, Petrik A, Morasco BJ, Dobscha SK; Portland, OR, USA
- GP96 Nocturnal pain and/or pain in recumbency of cauda equina tumor
Watanabe M, Sakai D, Nagai T, Hiyama A, Sato M, Mochida J; Tokai, Japan
- GP97 Prevalence and characteristics of disk leaks
O'Neill C; San Francisco, CA, USA
- GP98 Interspinous ligament lidocaine and steroid injections for the management of bastrup's disease
Norimoto M, Ohtori S, Inoue G, Orita S, Yamauchi K, Eguchi Y, Aoki Y, Ishikawa T, Miyagi M, Kamoda H, Suzuki M, Sakuma Y, Kubota G, Oikawa Y, Inage K, Sainoh T, Sato J, Toyone T, Takahashi K.; Chiba, Japan

- GP99 Painvision apparatus is effective for assessing low back pain
Ohtori S, Kawaguchi H, Takebayashi T, Inoue G, Orita S, Yamauchi K, Eguchi Y, Aoki Y, Ishikawa T, Miyagi M, Kamoda H, Suzuki M, Sakuma Y, Kubota G, Oikawa Y, Inage K, Sainoh T, Sato J, Toyone T, Takahashi K, Konno S; Chiba, Japan, Tokyo, Japan, Sapporo, Japan, Fukushima, Japan.
- GP100 The efficacy of spinal nerve root infiltration for lumbar spinal canal stenosis with unilateral radicular symptoms
Tanno T, Ataka H, Miyashita T; Chiba, Japan
- GP101 The treatment of nocturnal leg cramps by medial branch blockade of the deep peroneal nerve following lumbar surgery
Imura T, Inoue G, Nakazawa T, Ueno M, Saito W, Adachi K, Uchida K, Takahira N, Takaso M; Kitasato, Japan
- GP102 Asymmetric Modic Type 1 change and its intradiscal treatment among high-class athletes with low back pain
Kitagawa Y, Sairyō K, Dezawa A; Kawasaki, Japan
- GP103 Multi-detector CT-based analysis of pelvic incidence of patients with lumbar spondylolysis
Takata Y, Sakai T, Higashino K, Kato S, Sairyō K; Tokushima, Japan
- GP104 Multimodal assessments of efficacy of physical therapy for patients with neurogenic claudication due to lumbar spinal stenosis
Minetama M, Miyake T, Moriki T, Sakon N, Kinoshita Y, Kadosaka Y, Matsuoka T, Nakao S, Fukui D, Kawakami M; Wakayama Japan
- GP105 Neuroprotective effect of hypothermia following spinal cord injury in rats- comparative study between epidural and systemic hypothermia-
Ha KY, Kim YH; Seoul, Korea
- GP106 Risk factors affecting progressive collapse of acute osteoporotic spinal fracture
Ha KY, Kim YH; Seoul, Korea
- GP107 Classification for foraminal stenosis on a sagittal MRI
Murata Y, Kanaya K, Wada H, Wada K, Shiba M, Hatta S, Kato K, Kato Y; Tokyo, Japan
- GP108 Impact of muscular tightness on lumbar spondylolysis in adolescent athletes
Ishigaki N, Aihara T; Funabashi-city, Japan
- GP109 A study on pathogenesis of lumbar spondylolysis using MRI findings
Sakai T, Goda Y, Takata, Higashino K, Katoh S, Sairyō K; Tokushima, Japan, Kawasaki, Japan
- GP110 Painvision apparatus is effective for assessing leg pain and numbness originated from lumbar disease
Furusawa S, Hashikawa T, Terakado A, Orita S, Takahashi K, Ohtori S; Chiba, Japan.
- GP111 Lack of value in screening for fear of movement via the tampa scale for kinesiophobia
McIntosh G, Gregg C, Hall H, Hoffman C, Carter T; Wellington, New Zealand
- GP112 Efficacy of diffusion-weighted imaging (DWI) based on MRI to evaluate hematological malignancies in lumbar spine
Yamashita M, Kikuchi K, Abe K, Yamashita K, Yamaoka A, Ohtori S, Takahashi K; Chiba, Japan

- GP113 Pharmacological anxiolysis with promethazine as an adjunctive therapy for acute low back pain in the adult emergency department
Behrbalk E, Uri O, Boszczyk BM, Parks RM, Halpern P; UK
- GP114 A validation study of a symptom scale for lumbar spinal stenosis
Sekiguchi M, Wakita T, Otani K, Onishi Y, Fukuhara S, Kikuchi S, Konno S; Fukushima Japan, Kansai Japan, Kyoto Japan
- GP115 Efficacy of zoledronic acid for chronic low back pain associated with modic changes in MRI: a randomized controlled trial
Koivisto K, Kyllönen E, Haapea M, Niinimäki J, Sundqvist K, Pehkonen T, Seitsalo S, Paldanius P, Tervonen O, Karppinen J; Oulu, Finland
- GP116 Minimal clinical important improvement (MCII) and patient acceptable symptom state (PAAS) values of the dallas pain questionnaire (DPQ) in patients with low back pain
Marty M, Genevay S, Courvoisier DS, Foltz V, Mahieu G, Desmoulin C, Gierasimowicz Fontana A; Norberg M, de Goumoëns P, Cedraschi C, Rozenberg S; Créteil France, Genève, Suisse, Paris, France, Dinant, Belgique, Liège, Belgique, Bruxelles, Belgique, Lausanne, Suisse
- GP117 Quantitative evaluation of injured nerve with diffusion tensor imaging
Oikawa Y, Eguchi Y, Ohtori S, Inoue G, Yamauchi K, Orita S, Kamoda H, Ishikawa T, Miyagi M, Suzuki M, Sakuma Y, Kubota G, Inage K, Sainoh T, Sato JWatanabe, Atsuya2; Takahashi, Kazuhisa1; Chiba, Japan
- GP118 Degenerative changes of facet joints in adults with lumbar spondylolysis
Goda Y, Sakai T, Harada T, Takao S, Harada M, Takata Y, Higashino K, Katoh, Yasui N, Sairyō K; Tokushima, Japan, Kawasaki, Japan
- GP119 Proteomic analysis of ligamentum flavum from lumbar spinal canal stenosis
Goda Y, Sato N, Taniguchi T, Takata Y, Kosaka H, Sakai T, Higashino K, Sairyō K, Katoh S, Taniguchi H, Yasui N; Tokushima, Japan, Wasaki, Japan
- GP120 Spino-pelvic sagittal alignment in elderly patients with isthmic spondylolisthesis
Suzuki H, Endo K, Nishimura H, Tanaka H, Sakai S, Yamamoto K; Tokyo Japan
- GP121 The differential imaging findings between fresh and old osteoporotic vertebral fractures
Yamada K, Nakamura H, Takahashi S, Terai H, Toyoda H, Dohzono S, Matsumoto T, Hoshino M, Tsujio T; Osaka City Japan, Shiraniwa Japan
- GP122 Establishment of a new paraspinal infection mouse model evaluated noninvasively and quantitatively using bio-imaging
Yoshioka K, Ishii K, Kuramoto T, Funao H, Nagai S, Ishihama H, Sasaki A, Okada Y, Chiba K, Koyasu S, Toyama Y, Matsumoto M; Tokyo, Japan
- GP123 Facet orientation in patients with lumbar degenerative spondylolisthesis
Miyamoto H, Suzuki H, Endo K, Alimasi W, Nishimura H, Tanaka H, Sakai S, Yamamoto K; Tokyo Japan
- GP124 Empiric antibiotic therapy for pyrogenic spondylitis
Terayama S, Yamazaki T, Hayakawa K, Nakamura H; Musashino Japan
- GP125 Thoracolumbar vertebral endplate lesions in young gymnasts
Urushibara M, Aihara T, Hatakeyama K; Funabashi Japan

- GP126 Diagnosis of infective endocarditis with pyogenic spondylitis
Tukamoto M, Morimoto T, Yoshihara T, Kugisaki H, Furuichi I, Sonohata M, Mawatari M; Saga, Japan
- GP127 Agonistic swimming in adolescence: risk factor for scoliosis and low back pain? Results of a cross-sectional study
Zaina F, Bonzanini B, Colli B, Negrini S; Milan, Italy
- GP128 Is spino pelvic alignment associated with osteonecrosis after thoracolumbar vertebral compression fracture?
Onishi T, Kanayama M, Hashimoto T, Shigenobu K, Oha F, Iwata A, Tanaka M; Hakodate, Japan
- GP129 Evaluation on the degeneration of facet joint in lumbar spine using T2 mapping
Yamabe D, Hideki M, Satoshi Y, Kikuchi T, Yamazaki K, Shimamura T; Iwate, Japan
- GP130 Characteristics of low back pain in adolescent patients with early-stage spondylolysis evaluated by a detailed visual analog scale
Sugiura S, Nishikawa S, Shiga T, Toyooka T, Otsuki K, Aikawa E, Kitou K, Takata Y, Ishizaki T, Aoki Y; Sakura Japan
- GP131 Does the response to physical therapy for chronic non-specific low back pain vary according to age?
Sugiura S, Nishikawa S, Otsuki K, Toyooka T, Nakamura K, Obara H, Shiga T, Oyama T, Sakaida C, Aoki Y; Sakura Japan
- GP132 T2 mapping evaluation of lumbar facet joints before and after spinal motions
Kikuchi T, Murakami H, Yoshida S, Yamabe D, Yamazaki K, Simamura T; Iwate, Japan
- GP133 Coronal alignment of the lumbar spine and pelvis in patients with an ankylosed hip
Yoshihara T, Morimoto T, Kugisaki H, Tsukamoto M, Shiraki M, Kitajima M, Sonohata M, Mawatari M; Saga city, Japan
- GP134 Early stage MRI fat suppression image predict the prognosis of acute osteoporotic vertebral compression fracture treated by hard-corset treatment
Suzuki N, Fukuoka M, Mizutani J, Otsuka S, Otsuka T; Nagoya Japan
- GP135 Epidemiology of lumbar spinal stenosis -multicenter cohort study-
Hara N, Takeshita K, Takebayashi T, Ida K, Yamashita T, Sato K, Nagata K; Tokyo, Japan, Sapporo, Japan, Kurume, Japan
- GP136 The spinal stenosis pedometer and nutrition lifestyle intervention (SSPANLI) pilot
Tomkins-Lane CC, Lafave LZ, Parnell J, Rempel J, Rogerson M, Wilson P, Hu R, Moriarty S; Mount Royal, Canada
- GP137 Staphylococcus decolonization in elective spine surgery is effective
Chen AF, Farber NJ, Zammerilla LL, Nowicki AL, Kang JD, Lee JY, Donaldson WF; Pittsburgh USA
- GP138 A new predictive index for back muscle degeneration and sagittal alignment associated with aging
Takayama K, Kita T, Kanematsu F, Yasunami T, Ikeda S, Kyo Y, Sakanaka H, Yamano Y; Osaka, Japan

- GP139 Effect of worksite exercise on back and core muscular endurance in firefighters
Mayer JM, Quillen WS, Dagenais S; Florida, USA
- GP140 Relationships between low back pain-related cerebral substrates and surrounding neural networks, and psychophysical characterization in chronic low back pain patients. - A functional magnetic resonance imaging study -
Matsuo Y, Kurata J, Yoshida K, Sekiguchi M, Nikaido T, Kikuchi S, Konno S; Fukushima Japan, Tokyo Japan
- GP141 Relation between the low back pain and rotation range of motion of the hip joint in the female professional golfer
Ezure T, Aihara T; Funabashi-city, Japan
- GP142 The association of benign joint hypermobility with spinal instability and its clinical implication in active young man
Kim HJ, Yeom JS, Lee DB, Park JH, Kang KT, Chang BS, Lee CK; Seoul, Korea
- GP143 The influence of pain sensitivity on the symptom severity in patients with lumbar spinal stenosis
Kim HJ, Suh BG, Lee DB, Lee GW, Kim DW, Kang KT, Chang BS, Lee CK, Park JH, Yeom JS; Seoul, Korea
- GP144 Variations in clinical outcome in the clinical practice guideline-based treatment of patients with acute lower back pain: an intention to treat analysis of the chiropractic hospital-based interventions research outcomes (chiro) study
Bishop PB, Quon JA, Arthur B; Vancouver, Canada
- GP145 Facet joint tropism and degenerative spondylolisthesis – a study from The AOSAP research collaboration
Samartzis D, Rajasekaran S, Kawaguchi Y, Acharya S, Kawakami M, Satoh S, Chen S, Park CK, Lee CS, Foocharoen T, Nagashima H, Kuh S, Zheng Z, Condor R, Ito M, Iwasaki M, Jeong JH, Luk KDK, Prijambodo B, Rege A, Jahng TA, Luo Z, Tassanawipas W, Acharya N, Pokharel R, Shen Y, Ito T, Zhang Z, Aithala J, Kumar GV, Jabir RA, Basu S, Li B, Moudgil V, Sham P, Williams R Tassanawipas WA, Acharya N; Hong Kong
- GP146 Hip flexion contracture and outcome of corrective surgery for adult spinal deformity with sagittal imbalance
Yuasa A, Kanayama M, Hashimoto T, Shigenobu K, Oha F, Iwata A, Onishi T, Tanaka M; Hakodate, Japan
- GP147 Intraobserver and interobserver reliabilities in ultrasonographic measurement of the lateral abdominal muscle thickness with use of the bone index in the image
Mikami H, Ishigaki N, Aihara T; Funabashi-city, Japan
- GP148 The efficacy of LP-Ildope as a near-infrared probe in the management of pain caused by spinal metastasis
Yamauchi K, Inage K, Suzuki M, Sakuma Y, Oikawa Y, Tetsuhiro Ishikawa T, Miyagi M, Kamoda H, Kubota G, Saino T, Sato J, Orita S, Takahishi K, Tamura Y, Ohtori S; Chiba, Japan

- GP149 Health, social and economic consequences of neck injuries: a controlled national study evaluating societal effects on patients and their partners
Bendix T, Jennum P, Kjellberg J, Ibsen R; Copenhagen, Denmark, Aarhus, Denmark.
- GP150 CT classification of vacuum phenomenon for the lumbar intervertebral disc
Nishida K, Maeno K, Kakutani K, Takada T, Yamamoto J, Hirata H, Kurakawa T, Miyazaki S, Yurube T, Iguchi T, Kurosaka M; Kobe, Japan
- GP151 True positive conduction tests occur rarely in clinical practice
McIntosh G, Hall H, Carter T; Toronto, Canada
- GP152 Analysis of the S1 sacral foraminal location using a three-dimensional ct rendering technique
Sato Y, Toshiaki K, Nemoto T, Akazawa T, Sakuma T, Kitamura M, Takahashi K, Minami S; Chiba, Japan
- GP153 Clinical evaluation of pregabalin for lumbar canal stenosis patients with peripheral neuropathic pain
Orita S, Inoue G, Yamauchi K, Kamoda H, Miyagi M, Ishikawa T, Suzuki M, Sakuma Y, Kubota G, Oikawa Y, Inage K, Sainoh T, Sato J, Nakata Y, Takahashi K, Ohtori S; Chiba Japan
- GP154 Epidemiology, determinants, and functional status of sciatica: a large-scale population-based study in Chinese
Samartzis D, Karppinen J, Luk KDK, Cheung KMC; Hong Kong, SAR China, Oulu, Finland
- GP155 Changes in objectively measured walking capacity over a 2 year period in individuals with lumbar spinal stenosis
Tomkins-Lane CC, Battie MC; Calgary, Canada, Edmonton, Canada
- GP156 Opioid sensitivity affects postoperative outcome in lumbar spine surgery
Inage K, Orita S, Yamauchi K, Suzuki M, Sakuma Y, Kubota G, Oikawa Y, Sainoh T, Sato J, Takahashi K, Ohtori S; Chiba, Japan
- GP157 Characteristics of pain-related sensory innervation on osteoporotic lumbar vertebrae with ovariectomized rats
Suzuki M, Orita S, Inoue G, Miyagi M, Ishikawa T, Kamoda H, Eguchi Y, Arai G, Yamauchi K, Sakuma Y, Kubota G, Oikawa Y, Inage K, Sainoh T, Takahashi K, Ohtori S; Chiba, Japan
- GP158 Severe scoliosis during adulthood: is surgery the only possible treatment?
Zaina F, Negrini A, Parzini S, Romano M, Atanasio S, Negrini S; Milan, Italy
- GP159 A study on diffusion weighted imaging for lumbar diseases ~ its usefulness and limit ~
Hatakeyama K, Ato S, Aihara T, Urusibara M; Funabashi, Japan
- GP160 Low back pain in young athletes and their examination findings
Hatakeyama K, Ouchi J, Aihara Takato, Urusibara M; Funabashi Japan
- GP161 Factors associated with paraspinal muscle asymmetry in a general population sample of men
Fortin M, Battie MC; Edmonton, AB, Canada
- GP162 The USA fungal meningitis outbreak after epidural steroid injections: thoughts on epidemiology and future patient safety
Wong DA; USA

- GP163 Reduction of surgical revision rates and economic analysis of using an intraoperative CT-based navigation system for pedicle screw placement
Hodges SD, Eck JC, Newton D, Center for Sports Medicine and Orthopaedics, Chattanooga, TN
- GP164 Rod breakage after long construct fusion in spinal deformity: clinical and radiographic risk factors
Akazawa T, Kotani T, Sakuma T, Nemoto T, Sato Y, Kitamura M, Minami S, Ohtori S, Takahashi K; Sakura, Japan, Chiba, Japan.
- GP165 Good fusion rate and clinical results of less invasive facet fusion with sextant pedicle screw system for degenerative lumbar spondylolisthesis
Miyashita T, Ataka H, Tanno T; Matsudo, Japan
- GP166 Interobserver reliability of CT scans to assess radiographic fusion criteria with a novel titanium interbody device
Slosar PJ, Kaiser J, Marrero L, Sacco D; SpineCare Medical Group/ San Francisco Spine Institute
- GP167 Microendoscopic discectomy for lumbar disc herniation: does the instability affect the low back pain?
Aihara T, Hatakeyama K, Urushibara M, Ouchi J; Funabashi-city, Japan
- GP168 Infection rate and complications following associated with epidural steroid paste used in posterior lumbar surgery - a case-controlled review
Asomugha EU, McLain RF; Cleveland OH, USA
- GP169 Epidemiological trends in the use of bone morphogenic protein in spinal fusions from 2002-2009
Fineberg S, Oglesby M, Patel A, Pelton M, Singh K; Chicago, IL, Maywood, IL, USA
- GP170 Epidemiological trends in kyphoplasty procedures between 2004-2009
Fineberg S, Pelton M, Patel A, Oglesby M, Singh K; Chicago, IL, Maywood, IL, USA
- GP171 Trends in complications after lumbar spine surgery FROM 2002-2009
Pelton M, Fineberg S, Patel A, Oglesby M, Singh K; Chicago, IL, Maywood, IL, USA
- GP172 Incidence and mortality of thromboembolic events after lumbar spine surgery
Fineberg S, Oglesby M, Patel A, Pelton M, Singh K; Chicago, IL, Maywood, IL, USA
- GP173 Epidemiological trends in lumbar spine surgery between 2002-2009
Fineberg S, Oglesby M, Patel A, Pelton M, Singh K; Chicago, IL, Maywood, IL, USA
- GP174 Risk factors for hematomas and neurologic complications after lumbar spine surgery
Oglesby M, Pelton M, Patel A, Fineberg S, Singh K; Chicago, IL, Maywood, IL, USA
- GP175 Incidence and mortality of surgical site infections after lumbar spine surgery
Oglesby M, Pelton M, Patel A, Fineberg S, Singh K; Chicago, IL, Maywood, IL, USA
- GP176 Outcomes of lumbar total disc arthroplasty revisions and anterior lumbar interbody fusion revisions from 2002-2009
Oglesby M, Fineberg S, Patel A, Pelton M, Singh K; Chicago, IL, Maywood, IL, USA

- GP177 Outcomes of lumbar total disc replacement and anterior lumbar interbody fusion from 2002-2009
Oglesby M, Fineberg S, Patel A, Pelton M, Singh K; Maywood, IL, USA
- GP178 Outcomes of lumbar spine surgery in teaching and non-teaching hospitals
Pelton M, Fineberg S, Patel A, Oglesby M, Singh K; Chicago, IL, Maywood, IL, USA
- GP179 Risk factors for urinary complications after lumbar spine surgery
Fineberg S, Oglesby M, Patel A, Pelton M, Singh K; Chicago, IL, Maywood, IL, USA
- GP180 Effectiveness of decompression alone with proper management of epidural membrane and periradicular sheath for lumbar spinal stenosis and its limitation
Miyauchi A, Sumida T, Manabe H, Kobayashi K, Mikami Y; Hiroshima, Japan
- GP181 Surgical results of painless foot drop caused by degenerative lumbar diseases
Aono H, Nagamoto Y, Tobimatsu H, Iwasaki M; Osaka, Japan
- GP182 2-year prospective cohort study for the change of bone mineral density following lumbar spine surgery
Kawaguchi Y, Nakano M, Yasuda T, Seki S, Hori T, Suzuki K, Kimura T; Toyama, Japan
- GP183 Analysis of life prognostic factors in hemodialysis patients after lumbar spine surgery
Hanaoka E; Chiba, Japan
- GP184 Comparison of cortical bone trajectory method t1if and wiltse approach t1if aiming at less invasiveness
Yuzawa Y, Morito T; Tokyo Japan
- GP185 Minimally invasive percutaneous endoscopic lumbar discectomy for athletes
Yamada A, Sairyō K, Dezawa A; Japan
- GP186 Comparison of posterior fixation with or without vertebral reduction for thoracolumbar burst fracture
Nagai T, Watanabe M, Sakai D, Hiyama A, Sato M, Mochida J; Tokai, Japan
- GP187 Clinical outcomes and complications of minimally invasive posterior lumbar interbody fusion: comparison of minimally invasive and traditional open surgery
Yamane K, Tanaka M, Nakanishi K, Sugimoto Y, Misawa H, Takigawa T, Shiozaki Y, Mazaki T, Osaki S; Okayama, Japan
- GP188 Selective decompression and long segmental fusion of degenerative lumbar scoliosis
Meng X, Hai Y; Beijing, China
- GP189 Correlation of pelvic parameters with patient reported clinical outcomes—a follow-up study of the MRC spine stabilisation trial
McGillion S, Yu J, Mannion A, Fairbank J; Oxford, UK
- GP190 Treatment of neuropathic pain by sensory nerve stimulation of the lumbar exiting nerve drg using a percutaneous transforaminal approach
Yeung A, Tyler Perryman L; Scottsdale, Arizona, USA

- GP191 The minimally invasive transforaminal endoscopic approach is effective for the treatment of FBSS due to recurrent HNP and lateral stenosis
Yeung AT; Phoenix, Arizona, USA
- GP192 A comparative outcome evaluation of lumbar transforaminal endoscopic discectomy versus micro-lumbar discectomy for lumbar disc herniation
Yeung A, Yeung C, Field J; Phoenix, Arizona
- GP193 Endoscopically guided dorsal rhizotomy is more effective than pulsed radiofrequency lesioning for non-discogenic axial back pain
Yeung AT, Zheng Y; Phoenix, Arizona, USA
- GP194 Clinical and radiological outcomes of mini-TLIF via paraspinal approach using cage filled with morselized local excised bone as autograft and additional allograft: minimum 2-year follow-up
Noh W, Kim DY, Chung SK, Hong JK, Kim SY, Rhee DJ, Lee SW, Lim YW, Jeong HS, Cho HC; Gyeonggi, Korea, Seoul, Korea
- GP195 The compression fracture with the vacuum cleft show more intravertebral instability and severe symptoms compared with the simple osteopenic compression fracture
Kim YC, Noh W, Cho HC, Lim YW, Jeong HS, Rhee DJ, Kim SY, Hong JK, Chung SK, Kim DY; Uijeongbu and Seoul, Korea
- GP196 A prospective study of a unique titanium interbody fusion implant; clinical and radiographic outcomes at 1 and 2 year follow up
Slosar PJ, Cabalo A, Reynolds JB; San Francisco, CA, USA
- GP197 Uni- and bi-lateral instrumented posterolateral fusion of the lumbar spine with local bone grafting: a prospective study with a 2-year follow-up
Ohtori S, Koshi T, Suzuki M, Inoue G, Orita S, Yamauchi K, Eguchi Y, Aoki Y, Ishikawa T, Miyagi M, Kamoda H, Suzuki M, Sakuma Y, Kubota G, Oikawa Y, Inage K, Sainoh T, Sato J, Toyone T, Yamagata M, Takahashi K.; Chiba, Japan
- GP198 Reducing blood loss using a bipolar sealer in lumbar posterolateral fusion: a randomized controlled trial
Fukui D, Kawakami M, Nakao S, Ando M, Sasaki S, Morishita S, Matsuoka T; Wakayama, Japan
- GP199 Midterm results of the yellow ligament floating method for lumbar spinal canal stenosis
Yamazaki T, Terayama S, Hayakawa J, Nakamura H; Musashino, Japan
- GP200 Vertebral endplate cyst as a predictor of nonunion after lumbar interbody fusion: titanium alloy cage vs peek cage
Fujibayashi S, Takemoto M, Izeki M, Otsuki B, Matsuda S; Kyoto Japan
- GP201 Discography followed by discoblock ensures successful surgery for discogenic low back pain
Ozawa T, Toyone T, Ohtori S, Inada K, Shibo R, Takahashi K; Chiba, Japan
- GP202 Retroperitoneal oblique window to the L2-S1 intervertebral discs in the lateral position: an anatomic study
Davis TT, Hynes RA, Spann SW, MacMillan M, Kwon B, Liu J, Acosta F, Drochner TE, Fung DA; Santa Monica, CA, Melbourne, FL, Austin, TX, Gainesville, FL, Boston, MA, Los Angeles, CA, Memphis, TN, USA

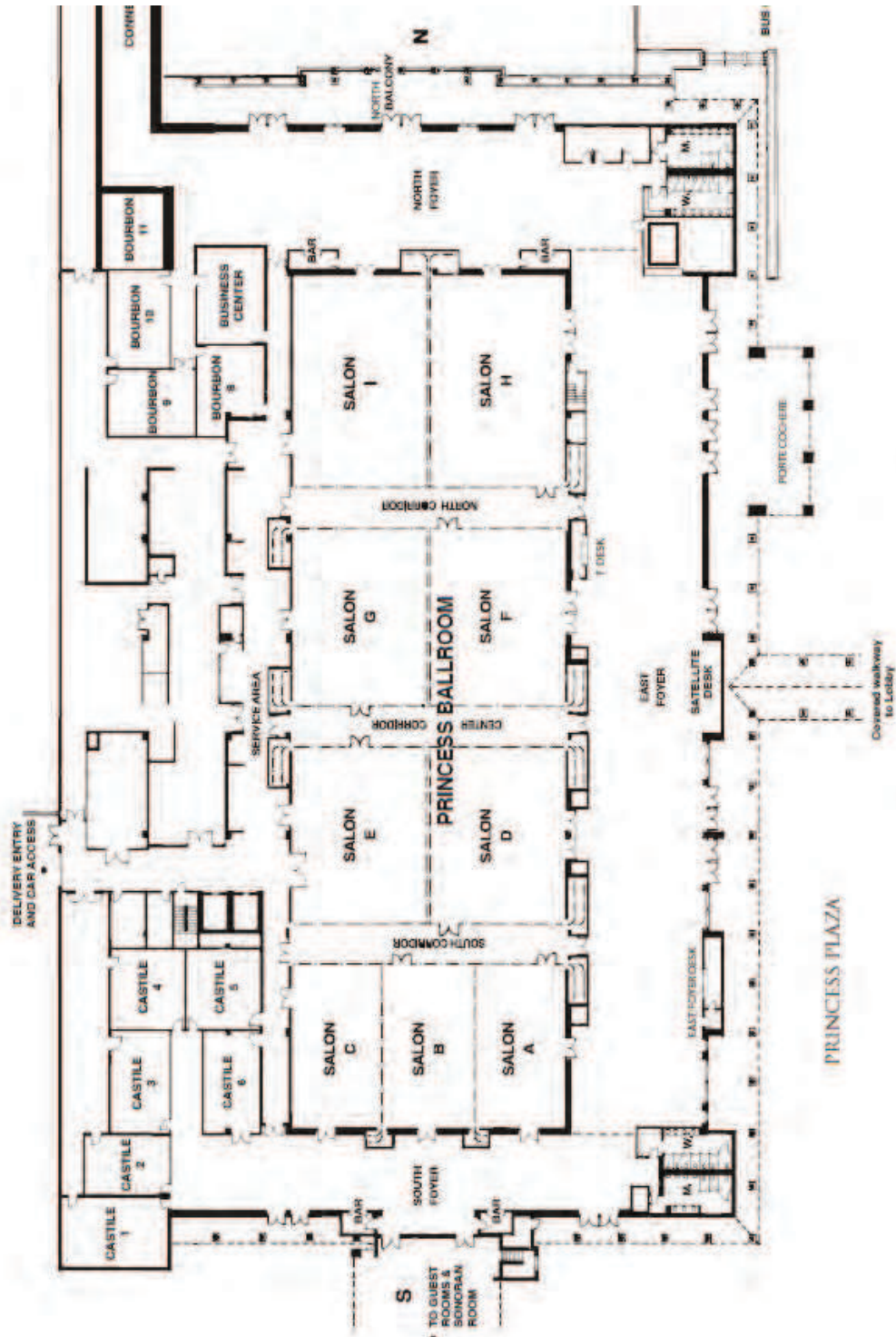
- GP203 Psychiatric disorders and major spine surgery: epidemiology and perioperative outcomes
Menendez ME, Neuhaus V, Bot AGJ, Ring D, Cha TD; Boston MA, USA
- GP204 Clinical outcomes of spinous process-splitting laminectomy for lumbar spinal canal stenosis
Komatsubara S, Arima N, Shibuya S, Oka S, Yamamoto T; Kagawa, Japan
- GP205 Effectiveness of MIS-TLIF as revision surgery
Kaneko Y, Ishii K, Ishihara S, Hikata T, Iwanami A, Hosogane N, Watanabe K, Nakamura M, Koyanagi T, Toyama Y, Matsumoto M; Kanagawa, Japan, Tokyo, Japan
- GP206 Empty
- GP207 Correlations between self-report, laboratory, and accelerometry measures 6-months following decompression surgery for lumbar spinal stenosis
Smuck M, Buman MP, Martinez A, Haskell WL, Kao MCJ; Redwood City CA, Phoenix AZ, Palo Alto CA, Redwood City CA, USA
- GP208 Risk factors for adjacent segment disease after posterior lumbar interbody fusion and efficacy of simultaneous decompression surgery for symptomatic adjacent segment disease
Hikata T, Iwanami A, Hosogane N, Watanabe K, Ishii K, Nakamura M, Kamata M, Toyama Y, Matsumoto M; Keio, Japan
- GP209 A prospective randomized controlled study comparing supine position and lateral position for postoperative positioning; which position is comfortable after surgery for lumbar degenerative disease?
Suzuki M, Hayakawa M, Nakagawa K, Nakajima A, Sonobe M, Shibata Y, Takahashi H, Taniguchi S, Yamada M, Aoki Y; Sakura, Japan, Chiba, Japan.
- GP210 The effect of platelet-rich plasma on invasive paraspinal muscles during spinal surgery
Kamoda H, Ohtori S, Ishikawa T, Miyagi M, Suzuki M, Sakuma Y, Oikawa Y, Kubota G, Inage K, Saino T, Orita S, Yamauchi K, Inoue G, Takahashi K.; Chiba, Japan
- GP211 Anatomical evaluation of the lumbar spinal nerve roots with diffusion tensor tractography: presurgical imaging for direct lateral interbody fusion
Oikawa Y, Eguchi Y, Ohtori S, Inoue G, Yamauchi K, Orita S, Kamoda H, Ishikawa T, Miyagi M, Suzuki M, Sakuma Y, Kubota G, Inage K, Sainoh T, Nakata Y, Sato J, Watanabe A, Takahashi K; Chiba, Japan
- GP212 Is the positive nerve root sedimentation sign in patients with lumbar spinal stenosis reversible after decompression surgery?
Melloh M, Barz T, Staub LP, Buller C, Lord SJ, Merk HR; Nedlands, Australia, Schwedt/ Oder, Germany, Sydney, Australia Greifswald, Germany
- GP213 Inverted y approach to lumbosacral region- analysis of 525 cases over 10 years.
Kumar K, Nair R, Renjithkumar J; Kerala, India
- GP214 Adjacent segment pathology after thoracolumbar fusion in thoracolumbar fracture: an age and sex matched-cohort study with lower lumbar fusion
Jung NS, Jeon CH, Chung NS, Park JU, Kim JJ; Suwon, Republic of Korea

- GP215 Do risk factors matter in prophylactic antibiotics reduction after spinal surgery?: A prospective comparative study
Jung NS, Jeon CH, Chung NS, Park JU, Kim JJ; Suwon, Republic of Korea
- GP216 The lumbo-pelvic sagittal alignment and early adjacent segment disorder after plif in patients with lumbar degenerative spondylolisthesis
Nishimura H, Endo K, Suzuki H, Tanaka H, Yorifuji M, Yamamoto K; Tokyo, Japan
- GP217 Vertebroplasty for vertebral pseudoarthrosis in patients with secondary osteoporosis: comparative study with primary and secondary osteoporosis
Shinohara Y, Toyoda H, Terai H, Suzuki A, Dohzono S, Matsumoto T, Yamada K, Takahashi S, Tsukiyama K, Nakamura H; Osaka, Japan
- GP218 Surgical decompression of the thoracic spinal canal in achondroplasia; indication and outcome
Vleggeert-Lankamp CL, Peul WC; Leiden, the Netherlands
- GP219 Dorsal ventral dorsal three stage correction surgery for lumbar kypho-scoliosis deformity
Otani K, Nakai O, Shindo S, Mizuno K; Tokyo, Japan
- GP220 Association between vertebral endplate signal changes and low back pain in patients with current or previous symptoms of sciatica
el Barzouhi A, Vleggeert-Lankamp CL, Van der Kallen BF, Lycklama à Nijeholt GJ, van den Hout WB, Koes BW, Peul WC; Leiden, the Hague, the Netherlands
- GP221 Prediction of surgery for sciatica with MRI
el Barzouhi A, Vleggeert-Lankamp CL, Van der Kallen BF, Lycklama à Nijeholt GJ, van den Hout WB, Koes BW, Peul WC; Leiden, Rotterdam, Hague, the Netherlands
- GP222 Surgical outcome of drop foot caused by degenerative lumbar disorders; focused on the recovery of motor deficits and the improvement of low back and lower extremity symptoms
Takahashi H, Aoki Y, Nakajima A, Sonobe M, Shibata Y, Taniguchi S, Yamada M, Furufu T, Nakagawa K, Takahashi K; Sakura, Japan
- GP223 Vertebroplasty for patients with neurological deficits caused by insufficient union following osteoporotic vertebral fracture
Hoshino M, Tujio T, Kato M, Suzuki A, Matsumoto T, Toyoda H, Matsumura A, Terai H, Konishi S, Seki M, Nakamura H; Nara, Japan, Osaka, Japan
- GP224 Instrumentation and equipment related inefficiency in spine surgery: potential for cost savings
Zhou H, Egge N, Lari H, Lapinsky A, Eck J, Connolly P, DiPaola C; Massachusetts, USA
- GP225 Risk factors for recollapse of the treated vertebrae in patients with vertebral pseudarthrosis after vertebroplasty
Toyoda H, Terai H, Takahashi S, Suzuki A, Dozono S, Matsumoto T, Yamada K, Tsukiyama K, Shinohara Y, Nakamura H; Osaka, Japan
- GP226 Comparison of pulmonary function in adults younger and older than age 60 undergoing spinal deformity surgery
Tracey RW, Lehman RA, Kang DG, Cody JP, Lenke LG, Stallbaumer JJ, Sides BA; Bethesda, MD; Saint Louis, MO, USA

- GP227 Return to sports after surgery to correct adolescent idiopathic scoliosis
Tracey RW, Lehman RA, Kang DG, Cody JP, Lenke LG; Bethesda, MD, Saint Louis, MO, USA
- GP228 The reliability of the thoracolumbar injury classification and severity score among orthopedic surgeons at different levels of training
Tracey RW, Bevevino AJ, Lehman RA, Kang DG, Cody JP; Bethesda, MD, USA
- GP229 Clinical outcome of unilateral decompression without fusion for unilateral radiculopathy due to lumbar spinal stenosis
Otani K, Kikuchi S, Yabuki S, Nikaido T, Watanabe K, Kato K, Konno S; Fukushima City, Japan
- GP230 Complications following anterior lumbar spinal fusion in patients with a history of prior intra-abdominal surgery
Kim SD, DeBlasi GJ, McGuire KJ, Berger D, Mansfield FL, Wood KB; Boston, MA, USA
- GP231 Lumbar stabilization with a paraspinous tension band device in patients with degenerative spondylolisthesis and spinal
Gibson JNA, Beadle C, Fielding L, Wachna M, Alamin TF; Edinburgh, Scotland; San Carlos, CA, USA, Stanford, CA, USA
- GP232 Technique related complications of circumferential minimally invasive spinal surgery (MISS) for correction of spinal deformity - a 5 year experience
Anand N, Khandehroo B, Baron EM, Kahwaty S; Los Angeles, CA, USA
- GP233 Does minimally invasive surgical (MIS) treatment of adult spinal deformities affect the incidence of proximal junctional kyphosis (PJK)?
Anand N, MD, Khandehroo B, Baron EM, Kahwaty S; Los Angeles, CA, USA
- GP234 The selection of the distal instrumentation level in lenke type 1A curves using segmental screw fixation: The Nottingham Experience
Mehdian H, Arealis G, Elsayed S; Nottingham, UK
- GP235 Spino-pelvic sagittal alignment in patients with postoperative persistent low back pain
Yorifuji M, Endo K, Nishimura H, Suzuki H, Tanaka H, Yamamoto K; Tokyo, Japan
- GP236 Posterior lumbar interbody fusion outcomes in 17 patients with rheumatoid arthritis
Murase S, Ogihara S, Mori T; Sagamihara, Japan
- GP237 Prospective cohort study of the performance status and activity of daily living in patients with metastatic spine tumors
Kakutani K, Sakai Y, Maeno K, Yurube T, Yamamoto J, Hirata H, Kurakawa T, Miyazaki S, Takada T, Doita M, Kurosaka M, Nishida K.; Kobe, Japan, Osaka, Japan
- GP238 Perceptions of scoliosis surgery from radiographs
Kotani T, Akazawa T, Sakuma T, Nemoto T, Sato Y, Kitamura M, Takahashi K, Minami S; Chiba, Japan
- GP239 Less invasive surgical intervention can prevent the long-term development of lumbar degenerative scoliosis. 10-year-followup study of concave PLIF at the wedged disc below the caudal end vertebra for degenerative lumbar scoliosis
Toyone T, Ozawa T, Inada K, Shirahata T, Watanabe A, Matsuki K, Kitahara S, Shioi R, Wada Y, Hasue F, Fujiyoshi T, Tanaka T, Ohtori S, Takahashi K.; Chiba, Japan.

- GP240 Degenerative disc disease: a case of mistaken identity
Battié MC; Alberta, Canada
- GP241 Role of intervertebral discs in the sagittal plane correction of thoraco-lumbar angular kyphosis after spinal osteotomy
Naresh-Babu J, Suresh Ch, Neelima Govada, Narayana-Rao VV; Hyderabad, India.
- GP242 Freedom disc vs. Prodisc-I for treatment of 1-level lumbar disc disease: results from one investigative site of the usa fda randomized clinical trial
Bedi H, Kropf M, Kanim LEA, Kim J, Bae H, Rasouli A, Delamarter RB; Los Angeles, CA, USA
- GP243 Single-level instrumented posterolateral fusion versus posterior lumbar interbody fusion for unstable lumbar spondylolisthesis
Kuraishi S, Takahashi J, Hirabayashi H, Mukaiyama K, Shimizu M, Masatoshi F, Kato H, Kinoshita H, Tateiwa Y; Japan

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