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<tr>
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<td><strong>12.00</strong></td>
<td><strong>08.00-09.00</strong></td>
<td><strong>09.00-10.00</strong></td>
<td><strong>08.22-09.02</strong></td>
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<td>ExCom Meeting</td>
<td>Herniated Disc</td>
<td>Biology and degeneration</td>
<td>Analysis of Physio-logy and Psychology</td>
<td>Osteoporotic vertebral compression fracture</td>
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<td><strong>15.00</strong></td>
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<td><strong>10.00-10.30 COFFEE</strong></td>
<td><strong>09.10-10.10</strong></td>
<td><strong>10.00-10.30 COFFEE</strong></td>
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<td>Disc Degeneration</td>
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<td>Invited Lecture #3</td>
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<td><strong>10.30-11.40 COFFEE</strong></td>
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<td><strong>10.10-10.40 COFFEE</strong></td>
<td><strong>11.00-12.00</strong></td>
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<td>Complications</td>
<td>Harry Farfan Presidential Lecture</td>
<td><strong>10.40-11.00</strong></td>
<td>Lumbar Spinal Stenosis</td>
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<tr>
<td></td>
<td>Invited Lecture #1</td>
<td>Harry Farfan Presidential Lecture</td>
<td>The ISSLS Prize Papers</td>
<td>Announcement – Best paper and poster awards</td>
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<td><strong>12.10-13.30 LUNCH</strong></td>
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<td><strong>12.10-13.30 LUNCH</strong></td>
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<td><strong>13.30-14.30</strong></td>
<td><strong>13.00-21.30</strong></td>
<td><strong>13.30-14.30</strong></td>
<td>Closing Remarks</td>
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<td>Outcomes/Cost Effectiveness</td>
<td>Afternoon outing</td>
<td>Surgery</td>
<td>Invited Lecture #2</td>
<td>Meeting adjourned</td>
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<td><strong>14.30-15.30</strong></td>
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<td>Degenerative Changes</td>
<td>Invited Lecture #2</td>
<td>Quality of Life and Infection</td>
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<td><strong>15.30-16.00 COFFEE</strong></td>
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<td><strong>15.30-16.00 COFFEE</strong></td>
<td><strong>15.30-16.00</strong></td>
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<tr>
<td>Disc Degeneration</td>
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<td>Imaging</td>
<td>COFFEE</td>
<td>Imaging</td>
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<td><strong>16.40-17.40</strong></td>
<td><strong>16.00-16.40</strong></td>
<td><strong>16.00-16.40 Imaging</strong></td>
<td><strong>16.40-17.20</strong></td>
<td><strong>16.40-17.20</strong></td>
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<td>Symposium #2</td>
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<tr>
<td>First Business Meeting</td>
<td>Second Business meeting</td>
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<td><strong>18.00</strong></td>
<td><strong>06.30</strong></td>
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<td><strong>Banquet</strong></td>
<td><strong>Banquet</strong></td>
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x Special posters
x General posters
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**Committees**

**Officers 2013-2014**

President  
Jeremy Fairbank  
Immediate Past President  
Kazuhisa Takahashi  
First Vice President  
Robert Gunzburg  
Second Vice President  
James Kang  
Secretary  
Tom Oxland  
Secretary-Elect  
S Tim Yoon  
Treasurer  
Helena Brisby

**Regional Representatives**

Africa  
Peter Hagembe (2013-2016)  
Asia/Pacific  
Ashish Diwan (2012-2015)  
Canada  
Stuart McGill (2013-2016)  
Europe  
Keita Ito (2013-2016)  
United Kingdom  
Patricia Dolan (2011-2014)  
Japan  
Seiji Ohtori (2013-2016)  
Eastern U.S.  
John Lurie (2011-2014)  
Central U.S.  
Frank Phillips (2010-2013)  
Western U.S.  
Robert Hart (2012-2015)

**Chairmen and others**

Fellowship Chairperson  
Michelle Battié  
Program Chairperson  
David Wong  
Membership Chairperson  
Teija Lund  
Instructional Course Chairman  
Margareta Nordin  
Scientific Representatives  
Paul Hodges  
Jaro Karppinen  
Dawn Elliott  
By-Laws Chairman  
Dr Gunnar Andersson

**ISSLS Program Committee 2013-2014**

David Wong  
Peter Robertson  
Sally Roberts

**Secretariat**

ISSLS  
e-mail: katarina.olinder@gu.se  
c/o Katarina Olinder Eriksson  
phone: + 46 31 786 44 36  
Institute of Clinical Sciences  
at the Sahlgrenska Academy  
University of Gothenburg  
PO Box 426  
SE 405 30 Gothenburg Sweden
Dear President Fairbank, ISSLS members, and guests

It is with great pleasure that we welcome you to Seoul, Korea for our 41st Annual Meeting of the International Society for the Study of the Lumbar Spine.

The City of Seoul has 600 years of history. You can find not only historical and cultural heritage but also the most advanced high technologic industry. Here in the City of Seoul, you can experience that the old traditional culture is well balanced with modern art. The climate is comfortable in early June. We hope you enjoy the meeting as well as take the time to feel the real beauty of Seoul.

The program committee has planned a very interesting and informative program. Sessions will cover various subjects regarding the latest research in lumbar spine, along with guest lectures and debates. I am sure that this meeting will be a suitable platform to share ideas and knowledge of the most recent developments about basic and clinical science of the lumbar spine.

Our administrator, Ms. Katarina Olinder Eriksson, together with our Secretary, Dr. Tom Oxland, Program Committee Chairman Dr. David Wong and Korean ISSLS members put in a tremendous amount of effort to make this year’s meeting a great success.

Enjoy the 41st ISSLS Annual Meeting and I welcome everybody once again and congratulate on a successful meeting. Thank you.

Sincerely,

Hwan-Mo Lee, MD
Local Host
ISSLS Wiltse Lifetime Achievement Award sponsored by NuVasive, Speed of Innovation
A yearly award for exceptional achievement in the spinal field. This award will be announced at the Banquet dinner on Thursday, June 5

The ISSLS Prize for Lumbar Spine Research
Sponsored by DePuy Synthes Spine.
The ISSLS Prize winning papers will be presented on Thursday, June 5 at 11.00

The ISSLS Clinical Travelling Fellowship
Sponsored by Globus Medical, to be announced during the Fellowship ceremony, Thursday, June 5 at 10.40

Best Paper and Poster Award sponsored by Ono Pharmaceutical Co., Ltd
The two best paper and poster presentations will be announced during Closing Remarks on Saturday June 7 at 12.30

Welcome to next year’s ISSLS Annual Meeting in San Francisco, June 8-12, 2015
SOCIAL PROGRAMS

(included in registration fee for all)
Additional tickets, if available, can be purchased at the registration desk

Welcome reception
Time: June 3 (Tue) 18:00
Location: Official President’s Residence at the Yonsei University Campus
Dress code: Smart casual
All participants are cordially invited to the Welcome Reception to be held at the Official Presidents Residence. This is a great opportunity to mingle with one another over delicately prepared buffet.

Afternoon outing to Korean Folk Village
Time: June 5 (Thu), 13:00 – 21:00
Dress code: Casual
As a home for wide collections of the Korean cultural artifacts, the Korean Folk Village is a unique place to experience natural atmosphere with over 260 Korean traditional houses, which are a reminiscent of the late Joseon Dynasty. (Brown Bag as a lunch box and Korean food for dinner will be served)

Banquet
Time: June 6 (Fri) 19:00
Venue: Grand Hilton Seoul
Dress code: Business attire
All participants are welcomed to join in this formal dinner to meet professionals and newcomers at the banquet and strengthen professional networks and friendship.
(included in registration fee for accompanying persons)

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

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**Changdeokgung & the Secret Garden**

**Date/Time:** June 4 (Wed), 09:00~13:30

Changdeokgung Palace is one of the historic attractions representing traditional beauty of Korea. It was the second royal palace built followed by the completion of Gyeongbukgung Palace in 1405. Changdeokgung Palace’s rear garden or so-called the “Secret Garden” was constructed during the reign of King Taejong and served as a resting place for royal family members. Changdeokgung was designated as the UNESCO’s World Cultural Heritage in 1997.

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**National Museum of Korea**

**Date/Time:** June 6 (Fri), 09:00~13:30

The National Museum of Korea is ranked as the sixth largest museum in the world. The Museum houses more than 140,000 precious Korean cultural assets including national relics and artifacts from ancient days to the modern era.
Meeting Venue
Yonsei University Health System
Severance Hospital
Eunmyung Auditorium: Main Congress venue at Main Building. 6th Floor
Address: 50-1 Younsei-Ro, Seodaemun-Gu, Seoul 120-752, KOREA
Website: http://www.yuhs.or.kr/en/

Conference Shuttle Bus
Shuttle buses will be operated between Severance Hospital and Grand Hilton Seoul hotel for ISSLS 2014 participants during the Conference. See next page

Internet
Internet is provided at the venue and the log-in is:
SSID: iseverance (5G)
Password: severance

Conference registration desk
The registration desk and conference secretariat is located in the main foyer of the Eunmyung Auditorium. Onsite registration will start on Tuesday, June 3 at 3:00 pm

Opening hours of the registration desk
Tuesday, June 3 15:00-18:00
Wednesday June 4 07:00-18:00
Thursday June 5 07:00-13:00
Friday June 6 07:00-17:00
Saturday June 7 07:00-13:00

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

Disclaimer
ISSLS, its Organizing Committee and Professional Meeting Consultants, and the 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.
### ISSLS 2014 Shuttle Bus Timetable June 3-5

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<thead>
<tr>
<th>Date</th>
<th>Depart from</th>
<th>Arrive to</th>
<th>Departure time</th>
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<tr>
<td>03-jun</td>
<td>Grand Hilton</td>
<td>Severance</td>
<td>07:30 to 17:30</td>
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<td>Hospital</td>
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<td>Severance</td>
<td>Grand Hilton</td>
<td>12:30 to 17:30</td>
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<td>Hospital</td>
<td>President's</td>
<td>17:30 to 17:50</td>
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<td>Residence</td>
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<td>Lotte City</td>
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<td>Mapo</td>
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<td>04-jun</td>
<td>Grand Hilton</td>
<td>Severance</td>
<td>06:45 to 17:00</td>
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<td>Lotte City</td>
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<td>Severance</td>
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<td>Severance</td>
<td>Changdeokgung</td>
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<td>Severance</td>
<td>Korean Folk</td>
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<td>Village</td>
<td>(round trip)</td>
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# ISSLS 2014 Shuttle Bus Timetable June 6-7

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<thead>
<tr>
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<th>Lotte City Mapo</th>
<th>Severance Hospital</th>
<th>National Museum of Korea</th>
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<tr>
<td>06:45</td>
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**06-Jun**

- Grand Hilton to Severance Hospital:
  - 06:45
  - 07:00
  - 07:15
  - 07:30
  - 07:45
  - 08:00
  - 08:30
  - 09:00
  - 10:00
  - 11:00
  - 12:00
- Lotte City Mapo to Severance Hospital:
  - 07:00
  - 08:00
  - 08:30
  - 09:30
  - 10:30
  - 11:30
  - 12:30
  - 13:30
  - 14:30
  - 15:30
  - 16:30
- Severance Hospital to Grand Hilton:
  - 07:30
  - 08:00
  - 08:30
  - 09:30
  - 10:30
  - 11:30
  - 12:30
  - 13:30
  - 14:30
  - 15:00
  - 16:00
  - 16:30
- Lotte City Mapo to Grand Hilton:
  - 07:30
  - 08:30
  - 09:00
  - 10:00
  - 11:00
  - 12:00
  - 18:00

**07-Jun**

- Grand Hilton to Severance Hospital:
  - 06:45
  - 07:00
  - 07:15
  - 07:30
  - 07:45
  - 08:00
  - 09:00
  - 10:00
  - 11:00
  - 12:00
- Lotte City Mapo to Severance Hospital:
  - 07:00
  - 08:00
  - 09:00
  - 10:00
  - 11:00
  - 12:00
- Grand Hilton to National Museum of Korea:
  - 07:30
  - 08:00
  - 08:30
  - 09:30
  - 10:30
  - 11:30
  - 12:00
  - 12:30
  - 13:30
  - 13:15
- Lotte City Mapo to National Museum of Korea:
  - 07:30
  - 08:30
  - 09:30
  - 10:30
  - 11:30
  - 12:30
  - 13:15

Note: Timings may vary and are subject to schedule changes.
TUESDAY JUNE 3

08:00  Membership Committee Meeting  
Location: Grand Hilton Hotel, Executive Room Lounge

09:30  Strategy Group Meeting  
Location: Central administration Building, 6th floor, Professor conference room, Severance Hospital

12:00  Executive Committee – Lunch  
Location: Central administration Building, 6th floor, Professor conference room, Severance Hospital

15:00  Registration

18:00  Opening Ceremony & Welcome Reception  
Location: Official President’s Residence at the Yonsei University

WEDNESDAY JUNE 4

07.45-07.50  Welcome – Program Chairman – David Wong

07.50-08.00  Welcome - Local Host - Hwan Mo Lee

SESSION #1  
TOPIC: HERNIATED DISC  
Moderators: Jeremy Fairbank and Tom Oxland

08.00-08.05  1. Surgical versus Non-Operative Treatment for Lumbar Disc Herniation: Eight-Year Results for the Spine Patient Outcomes Research Trial (SPORT)  
**Lurie JD, Tosteson TD, Tosteson ANA, Zhao W, Morgan TS, Abdu WA, Herkowitz H, Weinstein JN; USA**

08.07-08.12  2. Body Mass Index and its Association with Lumbar Disc Herniation and Sciatica: a Large-Scale, Population-Based Study  
**Samartzis D, Karppinen J, Luk KDK, Cheung KMC; China, Finland**

08.14-08.19  3. Defining disc herniation: is clinical diagnosis enough?  

08.21-08.30  Discussion

08.30-08.35  4. How healthy discs herniate: a biomechanical and microstructural study investigating the combined effects of compression rate and flexion  
**Wade KR, Robertson PA, Thambyah A, Broom ND; New Zealand**
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>08.37</td>
<td>5. The significance of cartilage endplate within a lumbar disc herniation</td>
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<tr>
<td></td>
<td><em>Lama P, Zehra U, Balkovec C, Harding IJ, Dolan P, Adams MA, UK</em></td>
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<tr>
<td>08.44</td>
<td>6. Spontaneous resorption of lumbar disc herniation is less likely when Modic changes are present</td>
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<tr>
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<td><em>Shan Z, Fan S, Xie Q, Suyou L, Liu J, Wang C, Zhao F; Zhejiang, China</em></td>
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<tr>
<td>08.51</td>
<td>Discussion</td>
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<tr>
<td>09.00</td>
<td><strong>SESSION #2</strong> <strong>TOPIC:</strong> DISC DEGENERATION</td>
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<td>Moderators: Kazuhiro Chiba and Hans-Joachim Wilke</td>
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<tr>
<td>09.07</td>
<td>8. Characterization of annulus layer deformations in an intact intervertebral disc under mechanical compression</td>
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<td><em>Han SK, Tang QG, Kim HC, Chen Y, Hsieh AH; USA</em></td>
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<tr>
<td>09.14</td>
<td>9. Early pattern and longitudinal evolution of degenerative changes in individual components of intervertebral discs in stressed and non-stressed segments of lumbar spine: an in-vivo MR imaging study</td>
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<tr>
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<td><em>Sharma A, Lancaster S, Bagade S, Hildebolt C; USA</em></td>
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<tr>
<td>09.21</td>
<td>Discussion</td>
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<tr>
<td>09.30</td>
<td>10. Comparisons of the Effects of Time to Surgery in the Spine Patient Outcomes Research Trials for Lumbar Disc Herniation (IDH), Spinal Stenosis (SpS), and Degenerative Spondylolisthesis (DS)</td>
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<tr>
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<td><em>Tosteson TD, Lurie JD, Zhao W, Blood E, Spratt K, Tosteson ANA, Weinstein JN; USA</em></td>
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<td>09.37</td>
<td>11. Improvement of global sagittal alignment after lumbar decompression without fusion – analysis of 88 cases</td>
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<td>09.44</td>
<td>12. TOEI STUDY - Sagittal Spinal Alignment Versus Health-Related Quality of Life in High Age Volunteers</td>
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<td><em>Togawa D, Yamato Y, Yasuda T, Watanabe Y, Ide K, Yamada T, Kobayashi S, Arima H, Banno T, Hasegawa T, Hoshino H, Matsuyama Y; Japan</em></td>
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SESSION #3  TOPIC: COMPLICATIONS  
Moderators: Moon-Soo Park and Tim Yoon

10.30-10.35  13. Predictable Factors of Deep Vein Thrombosis in Patients Undergoing Spine Surgery  
Ikeda T, Miyamoto H, Hashimoto K, Akagi M; Japan

10.37-10.42  14. Post-surgical rehabilitation patients have similar fear avoidance behaviour levels as those in non-operative care.  
Gregg C, McIntosh G, Hall H, Hoffman C, Carter T; New Zealand, Canada

10.44-10.49  15. The Re-operation Rate in a Single Dataset Varies Significantly Depending on the Definitions Applied  
Ohnmeiss DD, Baker R, Guyer RD, Blumenthal SL, Zigler JE; USA

11.00-11.05  16. Prevalence of neuropathic pain and its surgical outcome in surgically indicated degenerative lumbar spinal disease: Multi-center prospective survey  

11.07-11.12  17. Proximal Junctional Failure in Adult Deformity Patients Results in Higher Rate of Revision but Limited Impact on Clinical Outcome  

11.14-11.19  18. TLIF surgery results in slightly higher risk of neurogenic leg pain 2 years after surgery compared to standard instrumented posterolateral fusion. Results from a randomized clinical trial  
Høy K, Grycel B, Andersen T, Niederman B, Helmig P, Stender Hansen E, Li H, Bürger C; Denmark

11.21-11.26  19. Lumbar fusion surgery for degenerative disc disease is associated with significantly higher rates of failed back surgery syndrome development when compared to fusion for spondylolisthesis in worker’s compensation subjects  
Anderson JT, Duff RJ, Ahn UM, Ahn NU; USA

11.28.11.40  Discussion
11.40-12.00  **INVITED LECTURE #1**  
Moderator: Hwan-Mo Lee  
North Korea through the eyes of medicine  
*Dr. John Linton, Severance Hospital, Korea*

12.00-12.10  **Discussion**

12.10-13.30  **LUNCH**

**SESSION #4**  
**TOPIC: OUTCOMES / COST EFFECTIVENESS**  
Moderators: Howard An and Ho-Joong Kim

*Tosteson ANA, Tosteson TD, Lurie JD, Zhao W, Blood E, Grove MR, Abdu WA, Weinstein JN; USA*

13.37-13.42  21  Transforaminal lumbar interbody fusion vs. posterolateral instrumented fusion - Cost-utility evaluation alongside an RCT with 2-years of follow-up  
*Høy K, Christensen A, Andersen T, Bünger C, Helmig P, Hansen ES, Søgaard R; Denmark*

13.44-13.49  22  Trends in the use of Bone Morphogenetic Protein among patients undergoing fusion for degenerative diagnoses in the United States, 2002-2011  
*Martin BI, Lurie JD, Deyo RA, Tosteson ANA, Farrokhi F, Mirza SK; USA*

13.51-14.00  **Discussion**

14.00-14.05  23  Cost-effectiveness of Specialty Care vs Spine Strengthening for Chronic Spinal Pain  

14.07-14.12  24  Defining clinically-relevant values for developmental spinal stenosis: a large scale MRI study  
*Cheung JPY, Samartzis D, Shigematsu H, Cheung KMC; China, Japan*

14.14-14.19  25  Patient-rated outcome of spinal fusion in geriatric patients (> 80 years of age) with lumbar degenerative spondylolisthesis: Does age matter?  
*Marbacher S, Mannion AF, Burkhardt JK, Schär R, Porchet F, Kleinstück FS, Jeszenszky D, Fekete TF, Haschtmann D; Switzerland*

14.21-14.30  **Discussion**
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<td>Leptin and the Intervertebral Disc: A Pro-Inflammatory Environment May Potentiate the Biochemical Effects of Obesity</td>
<td>Leptin and the Intervertebral Disc: A Pro-Inflammatory Environment May Potentiate the Biochemical Effects of Obesity</td>
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<td>15.07-15.12</td>
<td>30</td>
<td>Evaluation of cartilage endplate biochemical composition with ultrashort echo time (UTE) MRI</td>
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<td>15.14-15.19</td>
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<td>A Phase III, Multicenter, Double-blind, Randomized, Placebo-controlled, Study of Condoliase for the Treatment of Patients with Lumbar Disc Herniation</td>
<td>A Phase III, Multicenter, Double-blind, Randomized, Placebo-controlled, Study of Condoliase for the Treatment of Patients with Lumbar Disc Herniation</td>
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<td>15.21-15.30</td>
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<td>15.30-16.00</td>
<td>COFFEE</td>
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<td>Physical Limitations to Tissue Engineering of Intervertebral Disc Cells Using Growth Factors. Effect of Bone Morphogenetic Proten (BMP)-7 and Fibroblast Growth Factor (FGF)-2 on Glycosaminoglycan Production and Cell Metabolism</td>
<td>Physical Limitations to Tissue Engineering of Intervertebral Disc Cells Using Growth Factors. Effect of Bone Morphogenetic Proten (BMP)-7 and Fibroblast Growth Factor (FGF)-2 on Glycosaminoglycan Production and Cell Metabolism</td>
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<td>16.07-16.12</td>
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<td>Diffusion properties of Human Annulus Fibrosus</td>
<td>Diffusion properties of Human Annulus Fibrosus</td>
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16.14-16.19  34  The Effect of Capacitively Coupled (CC) Electrical Stimulation on Human Intervertebral Disc Cells and the Relationship between CC and BMP
Wang Z, Hutton WC, Yoon ST; USA

16.21-16.26  35  Lumbar disc degeneration progression in young adults in their 20’s
Makino H, Kawaguchi Y, Nakano M, Yasuda T, Seki S, Kimura T; Japan

16.28-16.40  Discussion

16.40-17.40  SYMPOSIUM 1: Registries or RCTs-Which Approach is "Best" for Answering our Clinical Questions?
Moderator: Peter Robertson

16:40-16:50  Perspective: Registries - Wilco Jacobs, The Netherlands
16:50-17:00  Perspective: RCTs - Peter Fritzell, Sweden
17:00-17:10  Lessons Learned from SPORT - Jon Lurie, USA
17:10-17:20  Role of ICHOM in Outcomes Research – Jeremy Fairbank, UK
17:20-17:30  What does it all mean to the researcher? - Anne Mannion, Switzerland
17:30-17:40  Discussion

17:40-     FIRST BUSINESS MEETING

THURSDAY JUNE 5

SESSION # 7  SPECIAL EMPHASIS POSTER SESSION #1
07.45-08.45

SESSION # 8  TOPIC: BIOLOGY AND DEGENERATION
Moderators: Michele Battìé and Shinichi Kikuchi

09.00-09.05  36  Healing of the bone-bone interface in lumbar intervertebral disc allograft transplantation in a goat model
Huang Y-C, Xiao J, Lu WW, Leung VYL, Luk KDK; China

09.07-09.12  37  Endplate Compressive and Permeability Properties are Altered by Degeneration and Disc Location
DeLucca JF, Cortes DH, Jacobs NT, Duncan RL, Elliott DM; USA

09.14-09.19  38  Vertebral endplate porosity reflects mechanical loading in old and degenerated discs
Zehra U, Robson-Brown K, Adams MA, Dolan P; UK
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<td>09.30-09.35</td>
<td>39 Do macroscopic and microscopic assessments of intervertebral disc degeneration reflect changes in disc function? <strong>Zehra U, Noel-Barker N, Marshall J, Adams MA, Dolan P; UK</strong></td>
</tr>
<tr>
<td>09.37-09.42</td>
<td>40 Lumbar Disc and Facet Joint Degeneration: A longitudinal in vivo study <strong>Nojiri H, MD, Espinoza Orías AA, Fogg L, Andersson GBJ, An HS, Inoue N; USA</strong></td>
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<td>09.44-09.49</td>
<td>41 Effect of anti-bFGF neutralizing antibody on neuropathic pain induced by spinal nerve ligation in rats <strong>Fujimaki H, Inoue G, Uchida K, Sekiguchi H, Ueno M, Saito W, Takahira N, Takaso M; Japan</strong></td>
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<td>09.51-10.00</td>
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<td>10.00-10.30</td>
<td>COFFEE</td>
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<td>SESSION #9</td>
<td><strong>TOPIC: LOW BACK PAIN:</strong> Moderators: Kenneth Cheung and Robert Gunzburg</td>
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<td>10.30-10.35</td>
<td>42 Where Do Smokers Hurt? A Comprehensive Body-Wide Analysis of Pain Reveals Smoking is Most Associated with Back Pain. <strong>Smuck M, Thomkins-Lane C, Kao M-C; USA</strong></td>
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<td>10.44-10.49</td>
<td>44 Limits of high field MRI for the detection of intervertebral disc lesions – a comparison between 11.7 T and 3 T <strong>Berger-Roscher N, Galbusera F, Rasche V, Wilke H-J; Germany, Italy</strong></td>
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<td>11.00-11.40</td>
<td><strong>HARRY FARFAN PRESIDENTIAL LECTURE</strong> Introduction – Jeremy Fairbank</td>
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<td><strong>Guest Speaker</strong> – Irene Tracey, MA (Oxon), D.Phil (PhD), FRCA Nuffield Department of Clinical Neurosciences</td>
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<td><strong>Title:</strong> How Advanced Neuroimaging Studies of Pain and Analgesia in Humans Informs Clinical Practice</td>
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<td>11.40-12.20</td>
<td><strong>PRESIDENTIAL ADDRESS – JEREMY FAIRBANK</strong> Introduction – Tom Oxland</td>
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<td><strong>AFTERNOON OUTING</strong></td>
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| #10       | OUTCOMES                                   | 07.30-07.35| Long-Term Results of Total Lumbar Disc Replacement: A Prospective Analysis with 5-10 Year Follow-Up  
**Siepe CJ, Wiechert K, Heider F, Korge A, Mehren C, Mayer HM; Germany**  
07.37-07.42 | Single level lumbar fusion in worker’s compensation subjects for degenerative disc disease is associated with lower return to work rates compared to fusion for spondylolisthesis  
**Anderson JT, Duff RJ, Ahn UM, Ahn NU; USA**  
07.44-07.49 | Universal No Fault Compensation is associated with Improved Return to Work Rates in Spine Fusion  
**Manson JF, Montgomery AS, Cunningham JE, Landham PR, Don AS, Robertson PA; New Zealand**  
07.51-07.56 | The association between morphological stenosis grade and the outcome of surgery for lumbar spinal stenosis  
**Mannion AF, Fekete T, Luca A, Schizas C; Switzerland**  
07.58-08.03 | Preoperative Pain Pattern Predicts Surgical Outcome more than Type of Surgery in Patients with Central Spinal Stenosis without Concomitant Spondylolisthesis  
**Sigmundsson FG, Jönsson B, Strömqvist B; Sweden**  
08.05-08.20 | Discussion |
| #11       | ANALYSIS OF PHYSIOLOGY AND PSYCHOLOGY       | 08.22-08.27| Use of lumbar discography is associated with significantly lower return to work rates after lumbar fusion in worker’s compensation subjects  
**Anderson JT, Duff RJ, Ahn UM, Ahn NU; USA**  
08.29-08.34 | Prospective Analysis of Risk Factors for Proximal Junctional Failure in Adult Deformity Patients  
08.36-08.41 | Discography and axially loaded MRI in the provocation of discogenic pain - a comparative pilot study  
**Hebelka H, Hansson T; Sweden**  

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| 08.43-08.48  | 53 Analysis              | Analysis of vascular patterns for the posterior elements of the lower lumbar spine
|              | Tezuka F, Sakai T, Nishisho T, Takata Y, Goda Y, Higashino K, Takao S, Harada M, Sairyo K; Japan |
| 08.50-09.02  | Discussion               |                                                                         |
| 09.10-09.40  | SESSION #12              | GENERAL POSTER SESSION, ODD NUMBERS                                      |
| 09.40-10.10  | SESSION #13              | GENERAL POSTER SESSION, EVEN NUMBERS                                     |
| 10.10-10.40  |                          | COFFEE                                                                   |
| 10.40-11.00  | SESSION #14              | FELLOWSHIP AWARD CEREMONY                                               |
|              | Moderator: Tom Oxland    |                                                                         |
| 11.00-11.10  | SESSION #15              | THE ISSLS PRIZE PAPERS                                                   |
|              | Sponsored by DePuy Synthes Spine |                                                     |
| 11.10-11.20  |                          | ISSLS PRIZE – CLINICAL                                                   |
|              | Long-term follow up suggests spinal fusion is associated with increased adjacent segment disc degeneration but without influence on clinical outcome. Results of a combined follow-up from 4 RCTs |
|              | Mannion AF, Leivseth G, Brox J-I, Fritzell P, Hågg O, Fairbank JCT; Switzerland, Norway, Sweden, UK |
11.20-11.30  Discussion

11.30-11.40  55 ISSLS PRIZE – BIOMECHANICS
Mechanical influences in progressive intervertebral disc degeneration
Stefanakis M, Luo J, Pollintine P, Dolan P, Adams MA; UK, Cyprus

11.40-11.50  Discussion

11.50-12.00  56 ISSLS PRIZE – BIOLOGY
Increased Innervation and Sensory Nervous System Plasticity in a Mouse Model of Low Back Pain due to Intervertebral Disc Degeneration
Miyagi M, MD, Millecamps M, Danco AT, Ohtori S, Takahashi K, Stone LS; Canada, Japan

12.00-12.10  Discussion

12.10-13.30  LUNCH

SESSION #16  TOPIC: PHYSIOLOGY
Moderators: Margareta Nordin and Dino Samartzis

13.30-13.35  57 Correlation between biomechanical properties of annulus fibrosus and magnetic resonance findings
Shan Z, Zhao F, Wang C, Liu J, Suyou L, Fan S; China

Russo F, Vadala G, Hartman RA, Bell KM, Sowa GA, Vo N, Denaro V, Kang JD; Italy, USA

13.44-13.49  59 Does daily teriparatide enhance the healing process of osteoporotic vertebral fracture?
Iwata A, Kanayama M, Shigenobu K, Oha F, Onda S, Tanaka M, Hashimoto T, Iwasaki N; Japan

13.51-14.00  Discussion

14.00-14.05  60 Usefulness of “One Stretch”, a simple, daily, standing back extension exercise, for the prevention of onset or aggravation of low back pain in care workers
Suzuki M, Matsudaira K, Sawada T, Sato E, Isomura T; Japan

14.07-14.12  61 Persistent Racial and Economic Disparities in Physical Therapy Referral for Low back Pain Patients in Primary Care
Smuck M, Zheng P, Karayannis N, Kao M-C; USA
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| 14.14-14.19  | 62      | Assessment of Neuroforaminal Area of the Lumbar Spine During Flexion-Extension Motion  
*Havey R, Muriuki M, Carandang G, Voronov L, Patwardhan A; USA* |
| 14.21-14.30  |         | Discussion                                                           |
| **INVITED LECTURE #2**  |         | **Moderator:** Sally Roberts                                        |
| 14.30-14.50  |         | Disc Mechano-Biology                                                 |
|              |         | *Cornelia Neidlinger-Wilke, Germany*                                 |
| 14.50-15.00  |         | Discussion                                                           |
| **SESSION # 17**  |         | **TOPIC:** QUALITY OF LIFE AND INFECTION  
Moderators: Richard Guyer and Kotaro Nishida |
| 15.00-15.05  | 63      | HRQoL Scores and Radiographic Parameters Do Not Drive Patient Satisfaction after Adult Spinal Deformity Surgery  
| 15.07-15.12  | 64      | Surgical Indication in Degenerative Lumbar Spinal Disease Based on Health Related Quality of Life: Multi-Center Prospective Outcome Based Analysis  
| 15.14-15.19  | 65      | Ultrasonic waves remove a bacterial biofilm on implant surface and prevent the implant-associated infection  
| 15.21-15.30  |         | Discussion                                                           |
| **15.30-16.00**  |         | **COFFEE**                                                        |
| **SESSION #18**  |         | **TOPIC:** IMAGING  
Moderators: Matthew Smuck and |
| 16.00-16.05  | 66      | A large-scale study of Modic changes in the lumbar spine: morphology and association with MRI phenotypes  
*Määttä J, Cheung KMC, Karppinen J, Samartzis D; China, Finland* |
| 16.07-16.12  | 67      | Prediction of future first-time low back pain based on baseline MRI findings  
*Samartzis D, Karppinen J, Luk KDK, Cheung KMC; China, Finland* |
16.14-16.19  68  MRI features of the psoas muscles in patients with paraspinal muscle atrophy
Kita T, Takayama K, Nakamura H, Kanematsu F, Yasunami, T Ikeda S, Yamamoto K, Ueyama H, Hori Y, Sakonaka H, Yamano Y; Japan

16.21-16.26  69  Comprehensive Analysis of MRI-phenotypes Provides New Insights into Lumbar Disc Degeneration for Genetic Studies
Li Y, Samartzis D, Campbell D, Cheung KMC, Luk KDK, Karppinen J, Cheah K, Chan D, Sham P; China, Finland

16.28-16.40  Discussion

16.40-17.20  SYMPOSIUM #2: Should we be treating our patients with antibiotics for Modic I changes and chronic low back pain?
Moderator: David Wong

16.40-16.55  Basic Science/MR Imaging of Modic Changes – Yue Wang, China

16.55-17.10  Clinical Perspective: Evidence/Pro’s and Con’s of Modic I Antibiotic Treatment: Jeremy Fairbank, UK

17.10-17.20  Discussion

17.25-  SECOND BUSINESS MEETING

ISSLS BANQUET

FRIDAY JUNE 6 continued

SATURDAY JUNE 7

SESSION # 19  SPECIAL POSTER SESSION #2
07.45-08.45

09.00-09.30  REPORT OF SPECIAL INTEREST GROUP CHAIRS
Moderator: Tom Oxland

SESSION # 20  TOPIC: SURGICAL OPTIONS AND DECISION MAKING
Moderators: Tommy Hansson and Jin-Hwan Kim

09.32-09.37  Surgical interspinous implant versus conventional decompression for lumbar spinal stenosis - a randomized controlled trial
Moojen WA, Arts MP, Jacobs WCH, van Zwet EW, van den Akker-van Marle ME, Koes BW, Vleggeert-Lankamp CLAM, Peul WC; The Netherlands
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<td>09.39-09.44</td>
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<td>Surgical versus Non-Operative Treatment for Lumbar Spinal Stenosis</td>
<td>Lurie JD, Tostenson TD, Tosteson ANA, Zhao W, Morgan TS, Abdu WA, Herkowitz H, Weinstein JN; USA</td>
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<td>09.46-09.51</td>
<td>72</td>
<td>What leads to surgical decision in degenerative lumbar stenosis in the preference-based, shared decision?</td>
<td>Kim H-J, Park J-Y, Kan K-T, Chang B-S, Le C-K, Yeom JS; South Korea</td>
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<td>09.53-09.58</td>
<td>73</td>
<td>Clinical depression: a predictor of poor return to work rates among worker’s compensation subjects following lumbar fusion</td>
<td>Anderson JT, Duff RJ, Ahn UM, Ahn NU; USA</td>
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<td>Moderator: David Wong</td>
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<td>Status of disc arthroplasty - Richard Guyer, USA</td>
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<td>TOPIC: SURGICAL FACTORS</td>
<td>Moderators: Wilco Jacobs and Keith DK Luk</td>
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<td>11.10-11.15</td>
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<td>The assessment of patient-rated outcome in spinal stenosis: could less be more?</td>
<td>Mannion AF, Fekete T, Kleinstück F, Jeszenszky D, Wertli M, Porchet F in collaboration with the Lumbar Stenosis Outcome Study (LSOS) group; Switzerland</td>
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<td>11.31-11.36</td>
<td>77</td>
<td>Age Associated Relative Risk Increase for In-Hospital Mortality and Complications Following Lumbar Spine Surgery</td>
<td>Hassanzadeh H, Nandyala SV, Marquez-Lara A, Singh K; USA</td>
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SESSION # 22

TOPIC: SPONDYLOLISTHESIS AND STENOSIS

Moderators: Kazuhiro Hasegawa and Jon Lurie

11.50-11.55

Lumbar degenerative spondylolisthesis is not always unstable - a clinico-biomechanical evidence

Hasegawa K, Kitahara K, Shimoda H, Ishii K, Homma T; Japan

11.57-12.02

Surgical versus Non-Operative Treatment for Lumbar Degenerative Spondylolisthesis: Eight-Year Results of the Spine Patient Outcomes Research Trial (SPORT)

Lurie JD, Tosteson TD, Tosteson ANA, Zhao W, Morgan TS, Abdu WA, Herkowitz H, Weinstein JN; USA

12.04-12.09

Linking Parity, History of Abdominal Surgery, and Trunk Muscle Function to Degenerative Spondylolisthesis in Older Women

Cholewicki J, Lee A, Popovich Jr. JM, Mysliwiec LW, Winkelpleck MD, Flood JN, Pathak PK, Kaaikala, KH, Reeves NP, Kothe R; USA, Germany

12.11-12.16

Clinical Outcome of Decompressive Surgery for Lumbar Epidural Lipomatosis

Haschtmann D, Ferlic P, Kleinstück FS, Porchet F, Mannion A, Jeszenszky D, Fekete TF; Switzerland

12.30-12.40

ANNOUNCEMENT - BEST PAPER AND POSTER AWARDS

Moderator: David Wong

Closing Remarks – Robert Gunzburg
A. HERNIATED DISC / STENOSIS
Moderators: Chang-Hoon Jeon and Christoph Siepe

SP1  Reoperation Rate After Microdiscectomy for the Treatment of Lumbar Disc Herniation: Long-term Follow-up After an Average of 10.8 Years
Aichmair A, Du JY, Shue J, Evangelisti G, Sama AA, Hughes AP, Lebl DR, Cammisa FP, Girardi FP; USA, Italy

SP2  Analysis of Internet Information on the Controversial X-Stop Device
Anderson JT, Sullivan TB, Ahn UM, Ahn NU; USA

SP3  A Prospective Comparative Study of Two Different Minimally-Invasive Procedures for Lumbar Spinal Canal Stenosis - Unilateral Laminotomy for Bilateral Decompression (ULBD) versus Muscle-preserving Interlaminar Decompression (MILD)

SP4  Epidemiological study of Lumbar Spinal Stenosis: Six-year follow-up in the community

SP5  Night Leg Cramp and Lumbar Spinal Stenosis
Handa J, Otani K, Nikaido T, Kikuchi S, Konno S; Japan

SP6  Evolution of spinal canal dimensions in Switzerland. A narrowing epidemic?
Schizas C, Schmit A, Schizas A, Becce F, Kulik G, Pierzchala K; Switzerland

B. COMPLICATIONS
Moderators: Helena Brisby and Katsuhiko Sato

SP7  The Role of BMI in Matrix Delamination during Intervertebral Disc Degeneration
Meisel H-J, Friedmann A, Schwan S, Heilmann A, Goehre F; Germany

SP8  Cerebral Vascular Accidents following Lumbar Spine Fusion Surgery
Marquez-Lara A, Nandyala SV, Fineberg SJ, Singh K; USA

SP9  De novo post-operative neuropathic pain in lumbar spinal surgery
SP10  Indirect effects of decompression surgery on glycemic homeostasis in patients with type 2 diabetes mellitus and lumbar spinal stenosis: Preliminary results

SP11  Classification of chronic back muscle degeneration after spinal surgery and its relationship to low back pain

SP12  The type of metal, local antibiotics or prophylactic IV antibiotics, what influences Postoperative Spine infections with MRSA the most?
Gupta S, Maitra S, Graca M, Wetpiriyakul P, Gupta K, Durbin-Johnson B, Gupta M; USA

C. NERVE / CELL BIOLOGY I
Moderator: Jaro Karppinen and Ki-Won Kim

SP13  Dose dependent nerve inflammation of rhBMP-2 in a rodent spinal nerve model
Qiang Glen LZ, Moon Lam RW, Hu T, Toh SY, Wong H-K; Singapore

SP14  Nutrient deprivation modulates cell fate—autophagy, apoptosis, and senescence—and extracellular matrix homeostasis in intervertebral disc cells
Yurube T, Buchser WJ, Hartman RA, Pohl PPI, Lotze MT, Vo NV, Sowa GA, Kang JD; Japan and USA

SP15  Molecular Effects of Bone Morphogenetic Protein 13 on Intervertebral Disc Cells
Gulati T, Wei A, Chung S, Diwan AD; Australia

SP16  The Effect of Nervous System Activation by Pain Stimulus of Capcisin Injection to Intervertebral Disc

SP17  Up-regulation of NaV1.7 in dorsal root ganglia after intervertebral disc injury in rats

SP18  Abnormal cell metabolism in degenerated intervertebral discs: a response to focal damage and swelling?
Lama P, Le Maitre C, Dolan P, Tarlton J, Harding IJ, Adams MA; UK
D. DEFORMITY

Moderators: Serena Hu and Kazuhisa Takahashi

SP19 Stiffness after Fusion for Adult Spinal Deformity Does Not Significantly Impact Patients’ Functional Status or Satisfaction

SP20 Risk factors for floating segment degeneration in adults after long segment fusion unto the lumbar spine.
_Cho W, Pawar A, Lee A, Faloon M, Cunningham M, Rawlins B, Boachie-Adjei O; USA_

SP21 Sagittal spinal alignment of diffuse idiopathic skeletal hyperostosis in lumbar spinal stenosis
_Yamada K, Toyoda H, Terai H, Takahashi S, Nakamura H; Japan_

SP22 Relationship between spinal loads and physiological variations of the lumbar sagittal alignment: a numerical study
_Galbusera F, Brayda-Bruno M, Wilke H-J; Italy, Germany_

SP23 Progressive pattern of vertebral deformity in a population-based cohort study of vertebral fracture
_Kato T, Akeda K, Murata K, Takegami N, Nishimura A, Kato K, Sudo A; Japan_

SP24 Clinical outcome after lumbar decompression surgery was not associated with preoperative sagittal alignment

E. LOW BACK PAIN I

Moderators: Chris Colloca and Dawn Elliott

SP25 Shear modulus of the human nucleus pulposus measured using MR Elastography correlates with directly measured mechanical properties
_Cortes DH, DeLucca JF, Magland JF, Wright AA, Elliott DM; USA_

SP26 Biomechanical analysis of the influence of intervertebral disc degeneration on the lumbar spine
_Park WM, Choi DK, Kim K, Kim YH; Korea_

SP27 Escape-Avoidance coping strategy for psychosocial stress is associated with chronic low back pain in college students: a prospective cohort study
_Kato K, Sekiguchi M, Nikaido T, Otoshi K, Matsuo Y, Kikuchi S, Konno S; Japan_
SP28  Does the change of weather condition influence pain level of symptoms in the patients with lumbar spine diseases?  

SP29  The significance of pain catastrophizing in the clinical manifestations of patients with lumbar spinal stenosis: Mediation analysis with bootstrapping  
Kim H-J, Cho C-H, Kang K-T, Chang B-S, Lee C-K, Yeom JS; South Korea

SP30  Clinical Effectiveness of Two-Level Transforaminal Epidural Steroid Injections: A Sub-Group Analysis  
Christolias GC, Singh JR; USA
F. CELL BIOLOGY II
Moderators: Scott Blumenthal and Seong-Hwan Mooon

SP31 Evaluation of the correlation among the expression of inflammatory cytokines, degeneration of the intervertebral disc, and prominent symptoms in degenerative human lumbar intervertebral discs

SP32 Tissue Engineered intervertebral disc (IVD) with either poly e-caprolactone (PCL) or poly(e-caprolactone-co-lactide (PLCL) nanofiber
Chuah YJ, Kang YJ, Tak HH; Singapore

SP33 High Glucose-induced Oxidative Stress Accelerates the Premature Stress-induced Senescence of Rat Notochordal Cells through Mitochondrial Damage
Park JB, Park E-Y; Korea

SP34 Transcriptional changes in nucleus pulposus intervertebral disc cells due to high osmolality, as revealed by cDNA microarray analysis
Mavrogonatou E, Papadopoulos V, Urban J, Kletsas D; Greece, Canada, UK

SP35 Quantitative detection of proteoglycan in intervertebral disc by iTIP gagCEST

SP36 How long should teriparatide be used to accelerate lumbar posterolateral fusion in women with postmenopausal osteoporosis?

G. LOW BACK PAIN II
Moderators: Yoshiharu Kawaguchi and Koji Otani

SP37 Biomechanical effect of the progression of lower lumbar disc degeneration on adjacent discs.
Natarajan RN, Andersson GBJ; USA

SP38 Efficacy of Transforaminal Epidural Steroid Injection according to Nerve Roots Enhancement
Tak HJ, Cho HK, Cho YW, Ahn SH; Korea

SP39 Influence of educational attainment and catastrophizing on pain intensity and disability in patients with lumbar spinal stenosis – mediation analysis with bootstrapping
SP40 The influence of asymptomatic stenosis on five-year results of selective decompression of only symptomatic levels for lumbar spinal stenosis

*Watanabe K, Otani K, Nikaido T, Kato K, Yabuki S, Kikuchi S, Konno S; Japan*

SP41 The Impact of Diabetes Mellitus in Surgical Outcomes after Lumbar Spine Surgery

*Martinez-Lara A, Nandyala SV, Fineberg SJ, Singh K; USA*

SP42 Comparison of Peri-operative Outcomes for Lumbar Decompression: Orthopaedic Surgery Versus Neurosurgery

*Martinez-Lara A, Nandyala SV, Fineberg SJ, Singh K; USA*

H. FUSION

Moderators: Kee-Yong Ha and Jeff Lotz

SP43 Effect of Physiologic Loads on Cortical and Traditional Pedicle Screw Fixation

*Baluch D, Patel A, Lullo B, Havey RM, BS Vorono Li, Nguyen N-L, Carandang G, Ghanayem AJ, Patwardhan AG; USA*

SP44 The Role of BMP-2 on Postoperative Fusion and Subsidence Rates after Lateral Lumbar Interbody Fusion: A Cohort Controlled Study

*Aichmair A, Lykissas MG, Kiely PD, Hughes AP, Sama AA, Lebl DR, Cammisa FP, Girardi FP; USA*

SP45 The pullout strength of pedicle screws following re-direction after lateral wall breach or end-plate breach

*Goda Y, Higashino K, Toki S, Suzuki D, Kobayashi T, Matsuura T, Fujimiya M, Yasui N, Hutton WC, Sairoyo K; Japan and USA*

SP46 Can bone mineral density affect intra-operative estimated blood loss of mini-invasive

*Zhao F, He Y, Chen H, Shan Z, Suyou L, Fan S; China*

SP47 Preoperative Facet Effusion Correlates with Cranial Adjacent Segment Instability

*Ushiku C, Soshi S, Inoue T, Kida Y, Shinohara A, Hashimoto K, Ishizuka R, Marumo K; Japan*

SP48 A randomized controlled trial of lumbar posterolateral fusion in combination with platelet-rich plasma (PRP)


I. DEGENERATIVE DISC DISEASE (DDD) / BIOMECHANICS

Moderator: Bong-Soon Chang and Gen Inoue

SP49 Change in the position of the spinal nerve relative to the spine with diffusion tensor tractography


SP50 Mechanobiology of complex loading in functional spinal units: Flexion/extension with combined torsion

*Hartman RA, Ngo K, Yurube T, Schneider MJ, Debski RE, Kang JD, Sowa GA; Pittsburgh, PA, USA*
Bioactive pedicle screws produced by chemical and heat treatments have improved biocompatibility and bone-bonding ability

Akeda K, Murata K, Takegami N, Matsushita T, Yamaguchi S, Kokubo T, Goto M, Matsumine A, Uchida A, Sudo A; Japan

The distribution of bone mass in the lumbar vertebrae: Are we measuring the right target?

Wang Y, Videman T, Boyd SK, Battié MC; China, Canada

Reproducible disc degeneration scale in a large animal model


A Prospective study of Correlation between clinical disability and radiological features in degenerative lumbar canal stenosis (LCS)

Rajasekaran S, Kannippan N, Kanna RM, Shetty AP; India

J. IMAGING

Moderators: Josef Assheuer and Jun-Seok Lee

Do unilateral Modic type III changes on coronal MRI indicate the symptomatic level of the foramen in patients with lumbar foraminal stenosis?

Fujiwara Y, Kotaka S, Izumi B, Manabe H; Japan

Pathognomonic radiological indicators for diagnosis of lumbosacral foraminal stenosis

Shinozaki Y, Ishii K, Takahashi Y, Nishida M, Nakashima D, Toyama Y, Matsumoto M, Ogawa J; Japan

Radiographic evaluation of the facet joint preservation and postoperative bone regrowth in microscopic bilateral decompression via a unilateral approach for degenerative lumbar disease. – Minimum five-year follow-up

Dohzono S, Toyoda H, Terai H, Suzuki A, Yasuda H, Shinohara Y, Tamai K, Nakamura H; Japan

Endoscopic lumbar foraminotomy: Postoperative changes of foraminal parameters on magnetic resonance image

Ahn Y, Oh H-K, Lee, S-H, Kim H; Korea

CT Exposure and Energy Effects on Bone Mineral Density Estimation from Calibration Phantoms

Giambini H, Nassr A, Huddleston PM, Dragomir-Daescu D, An K-N; USA

Association between endplate signal change and Schmorl’s nodes with disc degeneration in the lumbar region and low back pain in a population-based cohort in Japan: The Wakayama Spine Study

| GP1 | Biomechanical evaluation of kinematic behavior and load sharing of a pedicle-based sliding rod fixation  
Zhu Q, Lin Z, Huang Z, Chen J; China |
| GP2 | Stabilization of the Lumbar Spine in various 3-D Postures by Spinal Muscle Contraction Pattern creating Compressive Follower Load  
Wang T, Lim T-H; USA |
| GP3 | The correlation between cage subsidence, bone mineral density, and clinical results in posterior lumbar interbody fusion  
Oh KW, Lee J Hyep, Lee J Ho, Lee DY, Lee YS, Lee CK, Chang BS; Korea |
| GP4 | Development and validation of a three dimensional subject specific model of lumbar vertebral fracture propagation  
Giambini H, Qin X, Thoreson A, Dragomir-Daescu D, Nassr A, An K-N; USA |
| GP5 | Kissing spine is not pathological change  
Ishii K, Hasegawa K, Shimoda H, Honma T; Japan |
| GP6 | Suppressive effect of low-density lipoprotein receptor-related protein-1 (LRP1) on Schwann cell apoptosis after sciatic nerve injury in mice  
Orita S, Mantuano E, Yamauchi K, Ohtori S, Arai S, Takahashi K, Gonias S, Campana W; Japan |
| GP7 | Shift of the pedicle screw in the vertebra accompanied with change in the disc angle following instrumented facet fusion for degenerative lumbar spondylolisthesis  
Miyashita T, Ataka H, Kato K, Tanno T; Japan |
| GP8 | Anatomical background of “pseudosciatica” in cluneal neuralgia  
Konno T, Aota Y, Kuniya H, Saito T, Kyoku N, Hayashi S, Kawada S, Itoh M, Japan |
| GP9 | Stenosis in the lumbar spine is associated with increased hindfoot degeneration and ankle osteoarthritis: a study of 720 cadaveric specimens  
Anderson JT, Boiwka AV, Bajwa N, Ahn NU; USA |
| GP10 | Stress analysis in osteoporotic lumbar vertebra with micro-scaled beam-shell trabecular-cortical structure: A finite element analysis  
Kim YH, Wu M, Kim K; South Korea |
| GP11 | Biomechanical analysis of combined motion exercise in the lumbar spine  
Park WM, Choi DK, Kim K, Kim YH, Yang JL; South Korea |
| GP12 | Increase in trunk muscle loading with sagittal plane deformity: A finite element analysis  
Kim YH, Kim K, Choi DK, Kim YJ; Korea and USA |
Effect of ligature pretension in interspinous process surgery

Choi DK, Park WM, Kim YH, Kim K; South Korea

The relationship of the frontal plane trunk and pelvic motion during gait and the radiographic spinopelvic measurements of patients with a unilateral completely dislocated hip

Tsukamoto M, Morimoto T, Yoshihara T, Ueno M, Eto S, Kawano S, Kitajima M, Sonohata M, Mawatari M; Japan

Transforming Growth Factor-β block the contribution of ADAMTS-1 to intervertebral disc degeneration through the SMAD/MAPK Pathway: A possible degeneration Reparative way?

Zheng Z Wang H, Wang J, Liu H; China

PLIF Expandable Cages Effectively Stabilize the Spine Better than TLIF Cage

Kodigudla M, Desai D, Agarwal A, Momeni N, Goel VK, Agarwal AK, Schultz C; USA and Germany

PEEK Translaminar Facet Screws Provide Long Term Stability of the Lumbar Spine after Microdiscectomy

Kodigudla M, Desai D, Agarwal A, Goel VK, Agarwal AK, Wanderley JGPV; USA and Brazil

Postural activity of the psoas major and quadratus lumborum muscles is less precisely controlled in people with recurring back pain

Park RJ, Tsao H, Cresswell AG, Hodges PW; Australia

The effects of neuromuscular electrical stimulation (NMES) on change in thickness of deep trunk muscles in patients with low back pain.

Baek SO, Cho HK, Jung GS, Son SM, Cho YW, Ahn SH; Korea


Lee, AY, Kim EH, Baek SO, Cho YW, Ahn SH; Korea

The relation between experimental pain and spinal stiffness - a pilot study

Wong A, Kawchuk G, Huang C; Canada

The importance of posterior osteoligamentous structure to lumbar spine stability: an in-vitro biomechanical investigation

Chamoli U, Korkusuz MH, Sabnis AB, Manolescu AR, Diwan AD; Australia

Infrared thermography in spatial evaluation of back muscle activity

Lasanen R, Airaksinen O, Karhu J, Töyräs J, Julkunen P; Finland

Estrogen Receptor on the Ligamentum Flavum in Degenerative Lumbar Stenosis

Oh IS, Ha K-Y; Korea

In-vitro biomechanical implications of a bilateral pars interarticularis defect: Do we need a different spinal implant?

Chen AS, Chamoli U, Diwan AD; Australia

Apoptosis and autophagy after spinal cord injury in rat

Seo JY, Kim YH, Kim JW, Ha KY; Korea
GP27 Can in vitro biomechanics explain the degeneration of adjacent segments? - A systematic analysis-
Volkheimer D, Malakoutian M, Oxlund TR, Wilke H-J; Germany and Canada

GP28 Osteoclasts induce sensory nerve upregulation of a nociceptive neurotransmitter peptide in vitro

GP29 Single level lumbar laminectomy alters segmental biomechanical behavior without affecting adjacent segments

GP30 Preclinical evaluation of posterior spinal fixators
La Barbera L, Galbusera F, Villa T, Costa F, Kienle A, Graf N, Wilke H-J; Italy and Germany

GP31 Injectable Hydrogel Treatment Stabilizes Human Disc Range of Motion Under Physiologic Cyclic Loading
Showalter BL, Elliott DM, Malhotra NR; USA

GP32 Stress concentration depends on defect orientation in biaxial tension of fiber-reinforced tissue
Peloquin JM, Elliott DM; USA

GP33 Spine function before and after two weeks of soft lumbar bracing
Kawchuk G, Edgecombe T, Wong A, Funabashi M, Cojocaru A, Prasad N; Canada

GP34 Biomechanical Rationale for Variations in the Prevalence of Low Back Pain and Schmorl's Nodes Found in Different Patterns of Multi-Level Disc Degeneration
Von Forell GA, Stephens TK, Nelson TG, Samartzis D, Bowden AE; USA and China

GP35 Do in vivo kinematic studies provide insight into the degeneration of segment adjacent to a spinal fusion? – a systematic analysis
Malakoutian M, Volkheimer D, Street J, Dvorak MFS, Wilke H-J, Oxlund TR; Canada and Germany

GP36 The Catabolic Effects of Endothelial Cell-Derived Microparticles on Intervertebral Disc Cells
Pohl PHI, Lozito T, Cuperman T, Yurube T, Ngo K, Moon HJ, Sowa G, Tuan R, Kang JD, Vo N; USA

GP37 Quantification of Wall Plank and Roll Test
Yoon C, Kim KW, Kim HC, Chung SG; Korea

GP38 Lumbar multifidus muscle preservation following lumbar interspinous implantation
Szpalinski M, Fabec LG, Gunzburg R, Colloca CJ, McAviney J, Afifi M, Freeman BJ; Belgium, USA, Canada and Australia

GP39 Up-regulation of pain behavior and glial activity in the spinal cord after sciatic nerve compression and application of nucleus pulposus in rats
GP40 Notochordal cell-secreted factors stimulate matrix production by canine nucleus pulposus cells and bone marrow derived stromal cells
De Vries SAH, Potier E, van Doeselaar M, Mei BP, Tryfonidou MA, Ito K; Netherlands

GP41 Increased levels of nerve growth factor and brain-derived neurotrophic factor in human herniated intervertebral discs

GP42 Evaluation of pain behavior and CGRP immunoreactive sensory nerve fibers in the spinal dorsal horn after sciatic nerve compression and application of nucleus pulposus in rats.

GP43 Expression of the RANK/RANKL/OPG system in the rat intervertebral disc
Takegami N, Akeda K, Murata K, Sudo A; Japan

GP44 Association between vertebral fracture and degenerative changes in adjacent intervertebral discs
Takegami N, Akeda K, Murata K, Sudo A; Japan

GP45 Immunohistochemical analysis of hypoxia- and glucose metabolism-related factors in a rabbit lumbar artery ligation model
Murata K, Akeda K, Takegami N, Imanishi T, Sudo A; Japan

GP46 Alendronate chondroprotective effects on disc cells and articular chondrocytes in vitro: Dose-response studies
Kobayashi S, Miyazaki T; Japan

GP47 Disc herniation decreases expression of serotonin receptors in the dorsal root ganglion in a TNF-dependent manner – a gene expression analysis in a rat model of disc herniation.
Jonsson D, Finskas O, Fujioka Y, Ståhlberg A, Olmarker K; Japan and Sweden

GP48 Biological evaluation of human degenerated nucleus pulposus cells in functionalized self-assembling peptide nanofiber hydrogel scaffold
Tao H, Zhang Y, Wang C, Wang D, Zhang C, He Q, Ruan D; China

GP49 Immunohistochemical analysis of the renin-angiotensin system in the human intervertebral disc
Fujiwara T, Akeda K, Kondo T, Murata K, Takegami N, Kurata T, Sudo A; Japan

GP50 Pro-inflammatory cytokines production induced by macrophage-like THP-1 cells in intervertebral disc cells depends on the activation of mitogen-activated protein kinases
Kim JH, Park JH, Moon HJ, Kwon TH, Park YK; South Korea

GP51 Does the High-intensity zone (HIZ) of Lumbar Intervertebral Disc really Mean Annular Tear?
Zhao F, Chen H, Shan Z, Suyou L, Fan S; China

GP52 Exogenous SIRT1 inhibition of apoptosis via autophagy under low nutritional condition in human nucleus pulposus cells
Miyazaki S, Kakutani K, Maeno K, Takada T, Zhang Z, Yurube T, Hirata H, Kurakawa T, Terashima Y, Kurosaka M, Nishida K; Japan
GP53  Down-regulated miR-382 contributes to human intervertebral disc degeneration by targeting MMP-16

GP54  Simulation of degenerative and pro-inflammatory conditions for testing of cell therapy approaches in a disc organ culture system
  Teixeira GQ, Goncalves R, Boldt A, Jahn C, Mollenhauer JA, Wilke H-J, Barbosa MA, Ignatius A, Neidlinger-Wilke C; Germany, Portugal and Germany

GP55  Bone Marrow Mesenchymal Stem Cells Protects Nucleus Pulposus Cells from Degeneration by Suppressing NF-.B Signaling via TGF-B1
  Zhou J, Cao C, Wu C, Yuan C, Shi Q, Yang H; China

GP56  In vitro assessment of the proliferative and chemotactic potential of BMP-13 on a chondrocyte cell line
  Zhou F, Wei A, Diwan A; Australia

GP57  Integrin alpha5/beta1 mechanotransduction is involved with notochordal-cell disappearance in early intervertebral disc degeneration.

GP58  Elevated VEGF in degenerative intervertebral discs in rats with injured intervertebral discs of the caudal vertebrae

GP59  Is there any osteoarthritic change of facet joint at the adjacent level after lumbar fusion? With comparison of adjacent disc degeneration (using minimum 5-YR follow-up MRI)
  Jeon C-H, Chung N-S, Lee H-D, Seo H-S; Korea

GP60  Does the lumbar fusion generate the adjacent end plate pathology? A comparative study with disc degeneration using minimum 5-YR follow-up MRI
  Jeon C-H, Chung N-S, Seo H-S, Lee H-D; Korea

GP61  Expression of sclerostin and role of Non-canonical (PKC) signaling in the intervertebral disc cells

GP62  Differentiation of human mesenchymal stem cells into discogenic phenotype using three dimensional culture

GP63  Diffusion tensor imaging for quantitative evaluation of lumbar intervertebral disc degeneration

GP64  In vitro Lifespan of Nucleus Pulposus Chondrocytes in Different Aged Human Intervertebral Discs
GP65 Telomere length and telomerase activity of nucleus pulposus chondrocytes in different aged human intervertebral discs during long-term passage

GP66 Dichotomizing sensory nerve fibers innervating both the lumbar vertebral body and the area surrounding the iliac crest: a possible mechanism of referred lateral back pain from lumbar vertebral body

GP67 M1 macrophage exists in the degenerative disc
Takada T, Maeno K, Kakutani K, Yurube T, Hirata H, Kurakawa T, Miyazaki S, Terashima Y, Doita M, Kurosaka M, Nishida K; Japan

GP68 Molecular characterization of chordoma cell line U-CH1-N: Applications for intervertebral disc research
Fujita N, Hosogane N, Ishii K, Hitaka T, Watanabe K, Toyama Y, Miyamoto T, Matsumoto M; Japan

GP69 Intracellular Calcium Signaling in Fibrous Tissues is Both Strain- and Microenvironment-Dependent
Han WM, Heo S-J, Duncan RL, Mauck RL Elliott DM; USA

GP70 Chemokine expression by annulus fibrosus and nucleus pulposus cells
Chee AV, Liu DK, , Shi P, Chen D, Li Z, Chen D, An HS; USA and China

GP71 Axonal growth potential induced by interactions between IVD and DRG in response to IL-1β Kim HC, Caspar TW, Shah SB, Hsieh AH; USA

GP72 Chloroquine increases cellular apoptosis, senescence, and extracellular matrix degradation in intervertebral disc cells: possible adverse effects of autophagy inhibition
Yurube T, Buchser WJ, Lotze MT, Vo NV, Sowa GA, Kang JD; Japan and USA

GP73 The role of diabetes Type I in intervertebral disc degeneration
Russo F, Pohl P, Ngo K, Yurube T, Dong Q, Fan Y, Massimo T, Sowa G, Kang J, Vo N; USA

GP74 Removal of Adams-5 prevents tobacco smoking-induced disc aggrecan breakdown and matrix proteoglycan loss

GP75 Effects of the anti-aging agent rapamycin on disc matrix homeostasis
Vo N, Ngo K, Yurube T, Pohl P, Dong Q, Miller R, Roughley P, Sowa G, Kang J; USA

GP76 Neuronal Nitric Oxide Synthase inhibition attenuates intervertebral disc degeneration
Defino HLA, Issy AC, Victor Castania V, Bell E; Brazil

GP77 PT modifier of SRS-Schwab adult spinal deformity classification and mode of pelvic compensation
Kobayashi T, Aono K, Jimbo S, Senoo I, Atsuta Y, Ito H; Japan

GP78 Prolonged Expansion of Human Nucleus Pulposus Cells Expressing Human Telomerase Reverse Transcriptase Mediated by Lentiviral Vector
Wong D, Wu JH, Ruan D, He Q, Zhang Y, Chaofeng Wang C, Xin H; Beijing, China
GP79  Efficacy of antibiotics sprayed into surgical site for prevention of the contamination in the spinal surgery
Suh B-K, Moon S-H, Lee H-M, Kim SW, Kim T-H, Kwon YS, Park MS; Korea

GP80  The Prevalence of Idiopathic Scoliosis in Eleven year-old Korean adolescents: a 3 year Epidemiological Study
Park MS, Moon S-H, Kim HJ, Suh B-K, Nam JH, Lee H-M; Korea

GP81  Enhanced bone regeneration efficiency of BMP-2 with concurrent reduction of heterotopic ossification: Evaluation of a new BMP-2 carrier in a large animal model of lumbar interbody fusion
Wang M, Akogwu Abbah S, Tao H, Toh SY, Moon Lam RW, Goh J, Wong H-K; Singapore and Ireland

GP82  Therapeutic efficacy of pregabalin for low back and leg pain associated with lumbar disease

GP83  Effectiveness of outpatient myelography for patients with lumbar disease

GP84  Study of the factors affecting the lumbosacral flexibility
Imuta M, Ishigaki N, Aihara T; Japan

GP85  The total care including a prone exercise and diet therapy in low back school was effective for the improvement of the physical and the psychosocial problems in the elderly patients with chronic low back pain.
Sato K, Sekiguchi Y; Japan

GP86  Can be ABI in the Lumbar Spinal Stenosis Diagnosis Support Tool substituted by palpation of posterior tibial artery?- A multicenter cross-sectional study (DISTO-project)

GP87  The Prevalence and Related Factors of Lumbar Lesion in Rheumatoid Arthritis Patients
Suzuki A, Yasuda H, Yamada K, Takahashi S, Terai H, Toyoda H, Nakamura H; Japan

GP88  Comparison of the efficacy of spinal nerve root infiltration for lumbar foraminal stenosis and lumbar canal stenosis
Tanno T, Ataka H, Miyashita T, Kato K; Japan

GP89  Survival prognosis of symptomatic and asymptomatic spinal metastases by use of Tokuhashi and Tomita Scores: A retrospective analysis of 266 patients.
Takuya K, Yoichi A, Takayuki Y, Motonori K, Takanori N, Mroz TE, Lieberman IH, Tomoyuki S; Japan and USA

GP90  Impact of the gluteal muscles stretch on lumbar region
Mochizuki R, Ishigaki N, Aihara T; Japan

GP91  Does the morphology of the facet joint affect unilateral spondylolysis?
Ishitani H, Ishigaki N, Mochizuki R, Aihara T; Japan
GP92 Validation of a diagnostic support tool for lumbar spinal canal stenosis for osteoarthritis of the hip
Morimoto T, Tsukamoto M, Yoshihara T, Sonohata M, Mawatari M; Japan

GP93 Initial diagnosis of ruptured abdominal aortic aneurysm and ruptured infected abdominal aortic aneurysm with lumbar
Morimoto T, Tsukamoto M, Yoshihara T, Sonohata M, Mawatari M; Japan

GP94 Total disc replacement in the treatment of recurrent lumbar disc herniation
Nan Kang, Yong Hai, Shibao Lu Qingyi Wang Chao Kong; Chin

GP95 Survival prognosis in symptomatic and asymptomatic patients with spinal metastases by use of the revised Tokuhashi score
Takuya K, Yoichi A, Takayuki Y, Motonori K, Takanori N, Mroz TE, Lieberman IH, Tomoyuki S; Japan and USA

GP96 Transverse Process and Needles of Medial Branch Block to Facet Joint as Landmarks for Ultrasound-Guided Selective Nerve Root Block
Choi YS, Kim DH; Korea

GP97 Application of electric nerve stimulator for lumbar transforaminal epidural block
Choi YS, Lim CH, Kim DH; Korea

GP98 Are high-heeled shoes associated with disc degeneration?

GP99 Prospective study of Superior Cluneal Nerve disorder as a possible cause of low back and leg pain
Kuniya H, Aota Y, Kawai T, Kaneko K, Konno T, Saito T; Japan

GP100 Does low back pain in patients with early-stage spondylolysis have specific characteristics?

GP101 The features of degenerative lumbar scoliosis in rheumatoid arthritis patients - matched cohort study

GP102 Do We Need High Field MR-Scanner For Routine Imaging Of The Lumbar Spine
Assheuer J, Forutan F, Golfman C, Trümmler KH, Castro W; Germany

GP103 Feasibility of the Nijmegen Decision Tool to support spine surgeons in the triage of Chronic Low Back Pain patients
van Hooff ML, van Loon J, de Kleuver M; The Netherlands

GP104 The effects of dynamic stretch for tight- hamstrings on spino-pelvic rhythm
Hasebe K, Okubo Y, Hada Y, Takada K, Suzuki D, Dezawa A, Kaneoka K, Sairyo K; Japan

GP105 Intradiscal administration of the interleukin-6 receptor antibody tocilizumab improves intractable discogenic low back pain
Utility of the knee-lifting test for selecting the appropriate diagnosing lumbar facet syndrome **Aoki K, Uehara T, Yamada S, Oishi J, Atsushi Inada A**; Japan

Early rehabilitation is effective in reducing the risk of disuse syndrome in patients with vertebral fractures as a result of osteoporosis **Norimoto M, Yamashita M, Abe K, Yamashita K, Yamaoka A, Takahashi K, Ohtori S**; Japan

The relation between early stage MRI fat suppression image and prognosis of acute osteoporotic vertebral compression fracture **Suzuki N, Fukuoka M, Mizutani J, Otsuka S, Otsuka T**; Japan

Vacuum phenomenon of sacroiliac joint: correlation with lumbo pelvic alignment **Takata Y, Sakai T, Higashino K, Goda Y, Sairyo K**; Japan


The relationship between rotation and tilting of vertebral body in cases with degenerative lumbar scoliosis **Izumi B, Fujiwara Y, Miyauchi A, Kotaka S, Manabe H**; Japan

Sagittal Spino-pelvic Alignment in Patients with Osteoarthritis of the Hip **Yoshihara T, Morimoto T, Tsukamoto M, Sonohata M, Mawatari M**; Japan

Coronal Spino-pelvic Alignment In Crowe Type IV **Hirata H, Morimoto T, Yoshihara T, Tsukamoto M, Kawano S, Kitajima M, Sonohata M, Mawatari M**; Japan

Effect of the rocker exercise on the flexibility of the leg and trunk, and on the static balance at standing **Ishigaki N, Aihara T**; Japan

Clinicopathologic features of lumbar disc herniation in the elderly **Kawaguchi K, Tsuchiya K, Kato G**; Japan

Can Brief Scale for Psychiatric Problems in Orthopaedic Patients (BS-POP) predict functional MRI findings in patients with chronic low back pain. **Kaneko H, Sekiguchi M, Konno S**; Japan

Trunk muscle activities at cross-legged sitting posture in comparison with at chair sitting posture **Ezure T, Aihara T**; Japan

CT classification and clinical significance of vacuum phenomenon for the lumbar intervertebral disc **Nishida K, Maeno K, Kakutani K, Takada T, Hirata H, Kurakawa T, Miyazaki S, Yurube T, Nakanishi Y, Yano T, Yamamoto J, Iguchi T, Kurosaka M**; Japan
GP120 Anti-bFGF neutralizing antibody reduces grial cell activation in dorsal horn in rats CFA-induced discitis.


GP121 Low back pain causes different level of depressive tendencies in various lumbar diseases


GP122 Clinical Course of Motor Deficits from Lumbar Radiculopathy Due to Disc Herniation: Analysis of 6 Month Outcomes

Akuthota V, Boimbo S, Santo K, Schumacher A, Weitzenkamp D; USA

GP123 Adolescent agonistic tennis and spinal diseases, what's the connection? Results from a cross-sectional study

Zaina F, Vantellino E, Donzelli S, Lusini M, Minnella S, Negrini S; Italy

GP124 Quality of life and low back in pain in Adolescent Idiopathic Scoliosis: a cross-sectional study of 1354 patients

Zaina F, Negrini F, Rainoldi L, Negrini S; Italy

GP125 Lumbar facet joint orientation in degenerative spondylolisthesis: the role of ethnic variation in Asia Pacific


GP126 Thoracolumbar vertebral endplate lesions in gymnasts: A comparison of male and female gymnasts

Urushibara M, Aihara T, Hatakeyama K; Japan

GP127 Lumbar spine magnetic resonance (MR) imaging in China: appropriateness and associated factors

Wang Y, Yu D, Wang X, Lin X; China

GP128 Long-term prognosis of osteoporotic vertebral fracture - analysis of factors affecting mortality, ADL, residual back pain


GP129 Comparison of Spinous Process-Splitting Laminectomy versus Conventional Laminectomy for Lumbar Spinal Stenosis

Clinical Outcome after Lumbar Spine Surgery in Patients with Rheumatoid Arthritis
Hirabayashi H, Nawata M, Morioka S, Matsuki H, Yamazaki H, Takanashi T, Nakatsuchi Y; Japan

Correlation of lateral stenosis in MRI with symptoms, walking capacity and EMG findings in patients with surgically confirmed lateral lumbar spinal canal stenosis

Is It Real Adjacent Segment Pathology by Stress Concentration after Limited Fusion in Degenerative Lumbar Scoliosis?
Ha K-Y, Kim Y-H, Ahn J-H; Korea

Bone-cement augmentation procedures for spinal pathologic fracture by multiple myeloma.

Long-term outcomes of in situ fusion for dysplastic spondylolisthesis

Prospective study of risk factors related to reoperation after microsurgical bilateral decompression via a unilateral approach (MBDU) for treatment of degenerative lumbar disease.
Kato M, Matsumura A, Namikawa T, Hayashi K, Nakamura H; Japan

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Biomechanical Functional Evaluation of a Novel Artificial Nucleus System for Disc Nucleus Replacement
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GP143  Vertebral collapse after lumbar segmental fusion
Sasaki K, Nagano J, Nosaka U, Mizuno T, Hasegawa K; Japan

GP144  Low Back Pain Intensity in Lumbar Spinal Stenosis Measured by Using the Japanese Orthopaedic Association Score and the Visual Analogue Scale -Distribution, Responsiveness to the Surgery and Correlation Between the Two Measurements Hashizume H, Yamada H, Oka H, Minamide A, Nakagawa Y, Nishi H, Iwasaki H, Tsutsui S, Yoshida M; Japan

GP145  The influence of pain sensitivity on the treatment outcome of transforaminal epidural steroid injection in patients with lumbar spinal stenosis
Kim H-J, Yeom JS, Lee JW, Chang B-S, Lee C-K; Korea

GP146  Evaluation of behavior and expression of RANKL in dorsal root ganglia after sciatic nerve compression and application of nucleus pulposus in rats.

GP147  Nucleoplasty with NuCore® Injectable Nucleus Replacement for Herniated Lumbar Disc: a Multicenter Study with a Minimum Five-Year Follow-up
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GP148  DETECTION OF SPINAL IMPLANT MATERIALS IN SCOLIOSIS PATIENTS WITH LONG-TERM FOLLOW UP: A QUESTIONNAIRE STUDY
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GP149  Risk factors for bone non-union after lumbar interbody fusion
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GP150  Ablation of the basivertebral nerve: Pilot study results, continuous experience and long – term results of an innovative treatment of back pain
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GP151  Prognostic factors of surgical outcome after spinous process-splitting laminectomy for lumbar spinal stenosis
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GP152  Effects of lordotic angle of a cage on sagittal alignment and clinical outcome in one level posterior lumbar interbody fusion with pedicle screw fixation

GP153  Is disectomy with lumbar disc herniation effective in degenerative lumbar spondylolisthesis?
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GP154  Risk factor analysis of adjacent segment degeneration after single-level lumbar fusion
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GP155  Immunohistochemical analysis of the radiolucent zone around pedicle screws after spinal fusion surgery
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GP156 Evaluation of the effect of parathyroid hormone treatment on changes in pedicle screw fixity by computed tomography-based finite element analysis


GP157 Two-year follow-up outcomes of Dynamization-PLIF for Destructive spondyloarthropathy “Is Dynamization PLIF for DSA useful method to reduce the risk of instrumentation failure?”

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GP158 Clinical outcomes of endoscope-assisted spinal decompression surgery for degenerative lumbar spondylolisthesis with spinal instability


GP159 Incidental durotomy in posterior lumbar surgery and its prevention using the yellow ligament floating method Yamazaki T, Hara N, Terayama S, Hayakawa K; Japan

GP160 Effect of Cervical Laminoplasty on Lower Back Pain

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GP161 Patient Characteristics Affecting Discharge Disposition After Lumbar Fusion

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GP162 Effect of Hypertension in Surgical Outcomes after Lumbar Spine Surgery

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GP163 Clinical depression is associated with higher overall medical costs in worker’s compensation subjects at 3 years after single level lumbar fusion surgery

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GP164 Two-year results of X-STOP interspinous implants in the Japanese populations with lumbar spinal stenosis


GP165 Crowned dens syndrome after Lumbar spinal surgery


GP166 Adjacent Segment Pathology After Single Level Minimally Invasive Transforaminal Lumbar Interbody Fusion with Percutaneous Screw Instrumentation A minimum three Years Follow-up

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| GP169 | Fusion performance of bone marrow-derived mesenchymal stem cell and low dose recombinant human bone morphogenetic protein 2 delivered by polyelectrolyte complex microbeads in a porcine anterior lumbar interbody fusion model  
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| GP170 | Comparison of radiological and clinical results of balloon kyphoplasty according to anterior height loss in the osteoporotic vertebral fracture  
| GP171 | MRI evaluation of dural sac enlargement by interspinous spacers (X-STOP): Does limiting the spinal extension change the global sagittal alignment?  
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| GP175 | Impact of Resident Involvement on Complications Following Lumbar Decompression Surgery  
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| GP176 | Incidence, Predictors and Outcomes of Pneumonia after Lumbar Spine Surgery  
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| GP177 | Incidence, Predictors and Outcomes of Pulmonary Embolism after Lumbar Spine Surgery  
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| GP178 | Outcomes after Lumbar Decompression or Fusion in patients with an Elevated White Blood Cell Count (>10K)  
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| GP179 | Outcomes after Lumbar Spine Surgery in Patients with an Elevated Creatinine  
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| GP180 | Outcomes after Lumbar Spine Surgery in Patients with Preoperative Anemia  
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| GP181 | Outcomes after Single-Level Lumbar Decompression or Fusion in Patients with Hypertension  
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| GP182 | Risk Factors Associated with Surgical Site Infections Following Lumbar Spine Surgery for Degenerative Pathologies  
*Marquez-Lara A, Nandyala SV, Fineberg SJ, Singh K; USA* |
GP183 Sentinel Events in Lumbar Spine Surgery
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GP200  Prospective Multicenter Surveillance and Risk Factor Analysis of Deep Surgical Site Infection after Posterior Thoracic and/or Lumbar Spinal Surgery in Adults
   

GP201  Lower urinary tract symptom in patients with lumbar canal stenosis who have undergone decompression surgery
   

GP202  Comparison of Comorbidity and Surgical Outcomes in Lumbar Fusion Surgery
   
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GP203  Comparison of Comorbidity and the Relative Risk Increase for In-Hospital Mortality and Complications Following Lumbar Spine Surgery
   
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GP204  Comparison of Patient Demographics and Surgical Characteristics between Age Groups in Lumbar Fusion Surgery
   
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GP209  Does the Type of Surgery Influence the Surgical Results for Metastatic Spine Disease?
   
GP210  Lumbar spinal canal stenosis associated with compression fracture of lower lumbar spine

GP211  Assessment of risk factor of rod fracture after posterior spinal fusion for adult spinal deformity
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GP219  Posterior lumbar interbody fusion using single cage and unilateral posterolateral fusion with local bone.-Average 5 years follow up results-

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GP236  Pathomechanisms of Sciatica Induced by Disc Herniation: Ultrastructural Changes of Vascular Component in the Periradicular Adhesive Tissue. Kobayashi S, Takeno K; Japan
GP237 Impact of Resident Involvement on Complications Following Lumbar Fusion Surgery
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GP239 Perioperative Outcomes of Multi-level versus Single Level Lumbar Spine Surgery
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