Welcome by the Participating Societies

Program at a Glance

Scientific Program

Monday, May 16
Tuesday, May 17
Wednesday, May 18
Thursday, May 19
Friday, May 20

Posters

ISSLS Special ePosters
ISSLS General Posters
Africa Spine ePosters
AOSpine ePosters
APSS ePosters
ASSI ePosters
CAOS ePosters
ISASS ePosters
KSSS ePosters
NASS ePosters
PASS ePosters
SMISS ePosters

Meetings, Satellite Symposia & Workshops

Monday, May 16
Tuesday, May 17
Wednesday, May 18
Thursday, May 19
Friday, May 20

Exhibition

Floor plan Exhibition Hall
List of Exhibitors (Alphabetical)
List of Exhibitors (Stand number)

Company Profiles

General Information

Notes

This program book belongs to ........................................................................

Email .............................................................................................................

If found, please return to the registration desk on Level 3.
Meetings

www.spineweek.org

It is our great pleasure to invite you to the SpineWeek 2016 and to the ASSI Sessions. The ASSI is the premier body of spine surgeons in India and has more than 600 life members, both orthopaedic and neurosurgeons spread across the country. The Association has two meetings every year - the Annual meeting and an Instructional course which is usually conducted in association with other major spine societies around the world. In addition, ASSI members form a prominent faculty in instructional courses and symposia all around the country in many regional and state meetings.

At the Annual Meeting, the Association grants three national awards: one each in Clinical Science, Basic Science and for the Best Publication.

The SpineWeek offers great opportunities for delegates from many countries and all spine societies to showcase their regional talent and share their high quality academics and research with members of other societies. Apart from the great educational opportunity, there will also be ample opportunities for fellowship, making new friends and strengthening old relationships.

We look forward to seeing you in Singapore.

Dr. Ram Chaddha                           Dr. H.S. Chhabra                 Dr. S. Rajasekaran
President                                          Secretary                             SpineWeek Co-ordinator

AfricaSpine was founded on June 2014 by African spine leaders from 12 countries, meeting successfully in Agadir, Morocco. The aim was to create a specialised association for sharing knowledge and experience on Spinal pathologies, which cause big handicaps in the Continent.

This African Spine Society creation appeared as an urgent necessity due to the numerous spine issues, diseases, deformities and infections, etc. In addition, another motivation was the frequent spine traumas mainly resulting from the high rate of Road Traffic injuries and the lack of important spine care centres.

It is our honor and privilege to be part of SpineWeek 2016, the most important global spinal meeting, and we are proud to actively contribute to the high quality spine care and research worldwide. Our programme will include Instructional Lectures, Oral and Poster Presentations. We are seeking at participating with very interesting topics on Spine deformities, infections, trauma, tumours and degenerative lesions.

All African Spine Surgeons and SpineWeek attendees are most welcome to join us and support our young and very promising Association.

Thami Benzakour, MD
AfricaSpine President

We are very pleased to participate in SpineWeek 2016 in Singapore. As a leading global academic spine society, AOSpine is honored to partner with other major spine societies in this prestigious event. Thanks to its truly global membership, AOSpine will present a program that highlights the most significant advances in clinical spine research, along with findings from our multi-center research groups throughout the world.

The AOSpine Knowledge Forums, comprising of global spine leaders, are gathering prospective data on some of the most interesting and challenging spinal problems, and publishing meaningful clinical research that will advance patient care worldwide. At SpineWeek 2016, AOSpine will present clinical research findings and the most contemporary patient management protocols in the areas of spinal trauma, spinal cord injury, spinal tumors, spinal deformity, and degenerative spinal conditions and biologics.

This AOSpine abstract review process of over 190 submitted abstracts to AOSpine, was completed by 104 reviewers from across the globe.

On behalf of AOSpine, I would like to thank each single reviewer for his time and efforts in going through this review process.

K. Daniel Riew
Chair of the International Board

Welcome by APSS - Asia Pacific Spine Society

Dear Friends and Colleagues,

The Asia Pacific Spine Society is very grateful to be able to participate and join the other prestigious spine societies in this event for the first time. This meeting will bring the latest update on spine care education, research and innovation. It will also provide us with the opportunity to exchange ideas with various expert faculties from different parts of the world. The Spine Week 2016 will offer a platform for all Asia Pacific spine surgeons to contribute to the advancement of the global spine care by sharing their experience and research especially with regard to the spine problems which are distinctive to this region.

A meeting together with other major societies will encourage social and formal networking with spine surgeons from all over the world.

On behalf of APSS, I would like to thank you for participating in Spine Week 2016.

Kuniyoshi Abumi
Chairman of APSS

Welcome by Africa Spine

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Thami Benzakour, MD
AfricaSpine President
The FIFA Medical Assessment and Research Centre (F-MARC) will support and actively participate at the 4th Spine week, by contributing to the interdisciplinary approach in the management of spinal disorders and problems from a football/sports medical perspective. As a central organ of the musculoskeletal system, the spine has been neglected for a long time by football players including their medical staff.

F-MARC has acknowledged these deficiencies based upon large epidemiological studies performed in the mid-nineties and taking the results into consideration, developed and performed the “FIFA 11+” preventative program. The objective of the “FIFA 11+” program is to reduce non-contact injuries but also musculoskeletal symptoms and signs including the spine. An integrated part of the complete warm-up programme are several exercises which are well perceived by the spinal community.

Large prospective randomized studies have presented results justifying the global implementation amongst the football community. Personally for me, it is not only a challenge but a great honour to share my experience of F-MARC, based upon research over the past 20 years in conjunction with leading spinal societies to which I have contributed prior to my “football career”. No doubt, the partnership of both, the spine and the sporting/football medical group will benefit from each other at such a joint and major event to the advantage of those athletes in our care. The main objective is to promote sport as a health enhancing leisure activity.

Prof. Jiří Dvořák, MD
(Chairman F-MARC / Founding member and former President of the European Spine Society / Member of the International ISSLS / Deputy Editor of Spine / Senior Editor of BJSM)

Welcome by CAOS - Chinese Association of Orthopedic Surgeons

Dear Members and Friends,

On behalf of Chinese Association of Orthopedic Surgeons (CAOS), we are honored to welcome you to Spine Week 2016 in Singapore.

As the official body of Chinese orthopedics, CAOS provides a whole set of services to Chinese orthopaedic surgeons including specialty entry exam, residency training and CME, sociability of members, events & conferences, humanitarian caring & young leadership program.

We are so grateful to join and work with other prestigious spine societies, we believe this meeting will provide us a valuable opportunity to learn the newest outcomes, exchange the up-to-date concepts on spine care education from all Asia Pacific surgeons and over the world.

We are looking forward to seeing you in the beautiful city, Singapore!

Prof. Yan Wang
President of Chinese Association of Orthopedic Surgeons

Welcome by ESJ - European Spine Journal

The European Spine Journal, one of the leading spine journals internationally, has always been much more than just a European publication.

The journal has a strong presence all over the world, especially in Asia. Not only do we get many manuscript submissions originating from Asia, but we also are proud to have a large number of reviewers in that part of the globe. That is why the European Spine Journal is glad to see Spine Week being held in Singapore. The European Spine Journal will be organising workshops on how to write a paper to maximise the chances of being accepted and also on how to do reviews for a scientific journal.

The Editors of the European Spine Journal look forward to meeting all their authors, reviewers and readers during the Spine Week meeting in 2016.

Robert Gunzburg, MD, PhD
Editor-in-Chief, European Spine Journal

Welcome by ICSG - International Consortium for Scoliosis Genetics

Welcome to the 5th meeting of the International Consortium for Scoliosis Genetics.

The International Consortium for Scoliosis Genetics (ICSG) is very pleased to be able to participate in Spine Week 2016.

The cause of scoliosis continues to be an enigma. ICSG is a unique multidisciplinary group focused on understanding the genetic causes of scoliosis. Our goal is to work together by sharing resources, ideas, and expertise to make new discoveries that would not be achievable through individual efforts. In this way, we will provide answers about the causes of scoliosis and possibilities for new treatments that will benefit patients and their families worldwide. We welcome participation by anybody interested to help unravel this great mystery.

During Spine Week, ICSG experts will conduct a multidisciplinary instructional course to enhance the understanding of spine care professionals on the aetiology of scoliosis, as well as a scientific symposium on the latest cutting edge research.

Kenneth M.C. Cheung, MD
Co-Chair, International Consortium for Scoliosis Genetics

Carol Wise, PhD
Co-Chair, International Consortium for Scoliosis Genetics
It is a great honor for the Korean Society of Spine Surgery (KSSS) to participate in the upcoming 2016 SpineWeek along with other prestigious societies.

The SpineWeek is known to be one of the biggest spine meetings in the world. As a major spine society in Korea, the KSSS is pleased to be able to provide a 1-day comprehensive program.

Singapore is a great venue for Asian and international conferences.

Kyu-Yeol Lee, MD
President 2015-2016

Dear Spine Care Professionals,

The North American Spine Society (NASS) welcomes you to participate in SpineWeek 2016 where NASS will present the latest developments in multidisciplinary spine care education, research, and innovation. During this meeting, you will have an opportunity to exchange ideas with expert faculty and attend sessions on timely updates and significant outcomes in the world of spine care.

Over the years, NASS has strategically developed and offered pertinent educational programs in partnership with regional spine societies worldwide. These collaborative efforts have allowed NASS to foster superior spine care globally.

NASS is driven by a mission to help spine care providers and patients by fostering the highest quality, evidence-based and ethical spine care. To achieve that mission, NASS is committed to providing the educational programs and professional resources needed to improve spine care practice across various regions of the world.

On behalf of NASS, I invite you to contribute to the advancement of the global spine care community through your participation in SpineWeek 2016.

Christopher M. Bono, MD
President 2016

The International Society for the Advancement of Spine Surgery (ISASS) extends an invitation to join the Society at SpineWeek 2016.

In Singapore, our members will be part of a global event, congruent with our mission to be a global network of professionals advancing the field of spine surgery by means of education and policy relating to the newest techniques and technologies in spine surgery.

With two of the ISASS Board members, Hee Kit Wong, MD, PhD and Marek Szpalski on the steering committee, we look forward to the excellent level of programming.

We look forward to learning from you, teaching you, and fostering further knowledge exchange by our colleagues across the globe.

Together, we can build a better world for spine patients and spine practitioners alike.

Gunnar Andersson, MD PhD
President ISASS

Dear ISSLS members and guests,

As a rule our annual meeting rotates around the world between North America, Europe, and Asia. We were in Singapore before, and it is a pleasure to come back to Singapore after all these years. ISSLS is a truly multidisciplinary society, welcoming all those involved in the study of the lumbar spine.

This goes from diagnostics over conservative treatment -including manipulation- to surgery, from biomechanics and psychology, basic science and epidemiology to outcome and health care analyses. Our membership reflects the truly international character of the society with many members being Asian. Of course, we hope to attract many clinicians and scientists at our sessions. The highlights of our meeting are the ISSLS Prize Paper presentations and the Presidential and presidential Guest speakers’ addresses. We invite all registrants from all societies to join us for these sessions.

The ISSLS annual meetings are more than scientific gatherings, but are also famous for their social program where delegates mingle with accompanying persons and we hope that many will choose to register to SpineWeek via the ISSLS channel, so profiting from this particular aspect of ISSLS.

It is my pleasure to invite you all to the ISSLS meeting at SpineWeek 2016 in Singapore.

James D. Kang
ISSLS President 2015-2016

Welcome by ISASS - The International Society for the Advancement of Spine Surgery

Welcome by KSSS - Korean Society of Spine Surgery

Welcome by ISSLS - The International Society for the Study of the Lumbar Spine

Welcome by NASS - North American Spine Society

www.spineweek.org
Dear SBC Associates,

The Brazilian Spine Society is honored by the invitation to join SpineWeek 2016 in Singapore. We would like to welcome all spine surgeons colleagues and invite them to attend the event. This is a great opportunity to show the Brazilian experience in the treatment of diseases affecting the spine along with other representative Societies around the world. In the event we can share and openly discuss clinical cases with surgeons of great experience and common sense, perfecting and consolidating knowledge in patient care.

There will be space for the presentation of free themes.

We welcome you at SpineWeek 2016.

Dr. Mauro dos Santos Volpi
Presidente SBC

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Dear Colleagues,

The Ibero-Latin American Spine Society (SILACO) is pleased to extend an invitation to join us in SpineWeek 2016 which takes place in the city of Singapore. As in previous occasions, SILACO is participating in the World Congress with the most prestigious World Spine Societies.

As you well know, SILACO is composed by all Latin Americans’ Spine Societies and the Iberian Peninsula (Spain and Portugal), joined by their sociocultural roots and with two official languages, Spanish and Portuguese.

In the last SpineWeek - celebrated in Amsterdam - we presented 49 communications and 23 posters, which were being very well attended, even breaking records over previous SpineWeek participations. I hope that this edition will follow the same trend. You are cordially invited to participate in the Singapore SpineWeek 2016.

Dr. Helton Defino
Presidente de SILACO en 2016

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Welcome by NSpine - Innovative Spine Education

NSpine provides independent multidisciplinary spine healthcare education on the entire range of spinal conditions including topics not covered in depth by the traditional academic societies. The focus in NSpine events is on technical aspects and translation of knowledge into real world clinical applications presented by masters in their field.

NSpine is delighted to be participating at SpineWeek and is proud to host: Sex and the Spine

all you ever wanted to know about sex and the spine but were afraid to ask –

The symposium is multidisciplinary in nature and will provide ample time for discussions. The content is of an adult nature - please consider this prior to attending as discussions will be encouraged to be very open.

Learning objectives: Through the “Sex and the Spine” symposium delegates will gain knowledge of:
- the physiology of male and female sexuality
- the impact on sexual health by spinal conditions and sexual history
- current treatment concepts in sexual therapy relevant to spinal disorders

Broniek Boszczyk
Spinal Surgeon & Director NSpine

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Welcome by PASS - Pan Arab Spine Society

The PASS is pleased to participate in the upcoming 2016 International SpineWeek along with other prestigious spine societies from all over the world in it’s 1st time.

PASS was founded in the year 1999, bringing together all the Arab spine societies and institutes in Spine field. It is a great honor and opportunity to share our knowledge and experience with such great international societies.

The purpose of international Spine week 2016 is to synchronize the annual meetings of leading spine societies in one location. This intense collaboration will certainly guarantee a pleasant and successful meeting of extreme quality.

The various topics of the meeting organized by PASS will be in the area of trauma degenerative spine problems, infection, tumor, deformity, osteoporosis and rehabilitation of spine. The main topics will be covered by a number of eminent guest speakers, free papers section and poster presentations.

It is our great honor to welcome you in the fabulous, extremely beautiful Singapore.

Abdelfettah Abushaala
PASS Secretary General

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Welcome by SILACO - La Sociedad Ibero Latinoamericana de Columna

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Dr. Helton Defino
Presidente de SILACO en 2016
Welcome by SMISS - Society for Minimally Invasive Spine Surgery

The Society for Minimally Invasive Spine Surgery (SMISS) is honored to have the opportunity to participate in SpineWeek 2016 in Singapore. We welcome you to join us in our first Global Forum outside of the United States.

SMISS (not to be confused with ISMISS) is a relatively new academic society founded by true minimally invasive spine surgery thought leaders. SMISS is the only society dedicated solely to Minimally Invasive Spine Surgery. The society provides a forum for the exchange of ideas, expertise, and goodwill, where all MIS surgeons will feel welcome and benefit from connecting and engaging.

In Singapore, you will participate in an exciting program that highlights the latest advances in education, research and technology specifically related to minimally invasive spine surgery treatments while actively engaging with the global community of MIS experts from around the world.

We are eager to share our vision and engage surgeons interested in getting involved in our global SMISS initiatives: Continuous Professional Development, Patient-driven Research, Communities of Practice, and Centers of Excellence. SpineWeek 2016 will be an excellent opportunity for you to meet your peers, colleagues as well as SMISS.

We invite you to get involved in improving the health of patients with spinal disorders by advancing the highest quality of minimally invasive spinal care.

Greg Anderson, MD
Chairperson SMISS International

Welcome by SOLAS - Society of Lateral Access Surgery

Dear members and friends of SOLAS,

We are honored that the Society of Lateral Access Surgery is included in the list of societies participating in the 2016 Spine Week. With a meeting every four years and a global focus, Spine Week is the “World Cup” of Spine Surgery.

2016 is a significant year for SOLAS as we celebrate 10 years as a society contributing to the advancement of patient care and safer spine surgery. Since 2006, we have over 300 active members across the globe from over 30 countries. It is also our first year as an independent non-profit organization in the Netherlands. Our mission continues to be advancing minimally disruptive lateral access spine surgery techniques through clinical research, peer-to-peer education, and membership initiatives.

The SOLAS meeting at Spine Week is scheduled for the afternoon of Thursday May 19. We understand there is interest from our global membership and we look forward to welcoming any SOLAS members who are planning to attend this “world class” global spine event!

Frank M. Phillips, MD
President, SOLAS
### Program at a glance

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### Abstracts of invited lectures and oral presentations

The abstracts of invited lectures and oral presentations can be consulted via the mobile App or on the SpineWeek website. Registered participants have received a password to access these abstracts.
Download SpineWeek on your mobile phone

and have the most relevant and up-to-date conference information at hand:

Program
General and practical information
Bookmark your favorite sessions
Abstracts of invited talks & oral presentations
Info on speakers & exhibitors
Floor plan
Twitter feed
Survey
...

The SpineWeek 2016 App will be available in the App Store & Google Play.

Monday, May 16
Scientific Program

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<td>I1 The thoracolumbar AOSpine injury score</td>
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<td>I2 Role of MISS in thoracolumbar fractures – Is there any advantage?</td>
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<td>I3 Burst fracture without neurodeficit – Is there role of surgery at all?</td>
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<td>Kekre P. (IN)</td>
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<td>I4 Neglected cervical facetal dislocations – How to go about it</td>
<td>Mulukutla R. (IN)</td>
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<td>Session 2: Lumbar degenerative</td>
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<td>Chairs: Dalvie S. (IN) &amp; Kekre P. (IN)</td>
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<td>I5 Lateral approach for lumbar interbody arthrodesis – Indications, techniques and adverse events</td>
<td>Bains R. (US)</td>
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<td>I6 Choice of fusion levels in complex lumbar canal stenosis – The importance of sagittal parameters</td>
<td>Wong C.C. (MY)</td>
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<td>I7 Current classification systems for spondylolisthesis and treatment recommendations</td>
<td>Chadda R. (IN)</td>
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<td>I8 Sacropelvic Instrumentations – What has changed in the recent years?</td>
<td>Lamartina C. (IT)</td>
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<td>I9 Case Discussions - Sangondimath G., Ray A., Chahal (IN)</td>
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<td>Free papers I:</td>
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<tr>
<td>Lumbar degenerative/minimally invasive spine surgery</td>
<td>Chairs: Dalvie S. (IN) &amp; Ingalhalikar V.T. (IN)</td>
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<td>O1 Comparative study of various minimally invasive lumbar discectomy procedures and open discectomy based on clinical outcome, muscle injury markers and postoperative imaging changes</td>
<td>Venkata Ramesh C.V., Chandramowliswara P.B., Ravi K., Lakshmi A.Y., Venkataramana B. (IN)</td>
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<th>Session 3: Tumor/Research</th>
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<td>I9 Management algorithm for the metatstatic spine – When should surgery be avoided</td>
<td>Kumar N. (SG)</td>
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<td>I10 Spinal tumors in children – Presentation, evaluation and treatment</td>
<td>Chatterjee S. (IN)</td>
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<td>I11 Vertebral hemangiomatous lesions – Evaluation and guidelines of management</td>
<td>Kanna R. (IN)</td>
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<td>I12 Case Discussions - Sangondimath G., Ray A., Chahal (IN)</td>
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<td>I13 Most cited papers from India</td>
<td>Garg B. (IN)</td>
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<td>I14 International Research Awards won by Indians</td>
<td>Upendra B.N. (IN)</td>
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<td>I15 How to build up a database for spinal research</td>
<td>Agarwal D. (IN)</td>
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<td>Discussion</td>
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**Monday**

**Meetings**

**Room 1**

**Assocation of Spine Surgeons of India**

**Free papers II: Miscellaneous**

15.00 O6 Are we ready for transfusing intraoperative salvaged blood in metastatic spine tumour surgery

15.04 O7 Cageplasty: A novel technique for the trans-pedicular reconstruction of central body lesions
Shethna S.P., Agnivesh T., Dalvie S.S., Saini P., Shah Y. (IN)

15.08 O8 Do thoracolumbar fractures warrant more than fixation
Kumar A., Satish K., Sachin K., Selvamari M. (IN)

15.12 O9 Vacuum Assisted Closure (V.A.C.) in postoperative infections after instrumented spine surgery
Padalkar P. (IN)

15.16 O10 Challenges in comprehensive management of SCI in India & Asia: Findings of a survey of experts, patients and consumers
Verma S., Chhabra H.S. (IN)

15.20 Discussion

**Free papers III: Complications in spine surgery**

15.30 O11 A case report of rod migration into cerebellum through foramen magnum after lateral mass fixation of cervical spine
Sharma A., Beisare K. (IN)

15.34 O12 Complications of transforminal lumber interbody fusion (TLIF)
Kundnani V., Patil S.N., Gujarathi G., Ruparel S. (IN)

15.38 O13 Perforations and angulations of 324 cervical medial cortical pedicle screws: A possible guide to avoid lateral perforations with use of pedicle screws in lower cervical spine
Upendra B., Bijawara M., Sekharappa V., Kumar A.G.C. (IN)

15.42 O14 Comparison of incidence of adjacent segment pathology between single level posterolateral & interbody fusion group of patients

15.46 O15 Lumbar fusion in elderly with comorbidities, is it safe?
Upendra B.N., Sekharappa V., Bijawara M., Kumar A. (IN)

15.50 Discussion

16.00 Break

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**Session 4: Cervical spine**

**Chairs:** Voleti S.P. (IN) & Acharya S. (IN)

16.30 I15 Congenital AAI and basilar invagination – Related embryology, evaluation and current treatment protocols
Sivastava S. (IN)

16.38 I16 C5 palsies after cervical decompressions – Incidence, pathogenesis, prognosis and tips of prevention
Acharya S. (IN)

16.46 I17 Access related complications of anterior cervical surgery
Babu N. (IN)

16.54 I18 Choice of surgery in OPML – How to deal with the surgical complications?
Kawaguchi Y. (JP)

17.06 Discussion

**Debate**

Free hand pedicle screws in the cervical spine is absolutely safe – For and against
Bijawara M. (IN) & Kumar V. (IN)

**Free papers IV: Cervical spine**

17.30 O16 Predictors/ Risk factors of poor outcome following an anterior cervical disectomy and fusion - A study of 498 patients
Seethi G., McLaughlin S.I., Raja V., Naveed Y., Saeed M., Irfan S. (IN & UK)

17.34 O17 Identification and validation of self-screening tests for endemic cervical myelopathy
Naresh-Babu J., Neelima G., Priyadarshini A., Shabnam A., Anil-Babu P. (IN)

17.38 O18 Tranforaminal approach in the cervical spine along with use of cervical pedicle screws – Is it safe?
Upendra B., Bijawara M., Sekharappa V., Kumar A.G.C. (IN)

17.42 O19 Is lordosis mandatory for planning a posterior decompressive laminectomy in multisegmental cervical spondylotic myelopathy? Evaluation of results with respect to cord shift, postoperative kyphosis and neurological recovery – Minimum 5 yr follow-up
Kashikar A.K., Patel P.M., Bhojraj S.Y., Nagad P., Kumar N., Akbayy K., Prasad G., Hrushikesh M., Jain A. (IN)

17.46 O20 Evaluation of spinal cord compression on T2-weighted sequences in patients with cervical spondylotic myelopathy using flexion-extension MRI
Phadke K., Moolya S., Chhabra H.S. (IN)

17.50 Discussion
**Association of Spine Surgeons of India**

**Free papers V: Cervical spine**

**18.00 O21** Fusion subsidence and alignment in cervical stand alone cage up to 3 levels
Shethna S., Dalvie S., Kothari M.K., Tikoo A., Saini P., Shah Y. (IN)

**18.04 O22** Accuracy of a dynamic surgical guidance probe for screw insertion in the cervical spine: A cadaveric study
Weismann K., Dixon D., Darden B., Casamitjana J., Powell D., Baluch D. (USA & CL)

**18.08 O23** Transarticular fixation in paediatric population (< 8 yrs) – A new challenge!!
Kundnani V., Patil S.N., Gujrathi G., Ruparel S. (IN)

**18.12 O24** Socio-economic impact of cervical spinal cord injury operated in patients with lower income group
Goel S.A., Modi H., Dave B., Patel P. (IN)

**18.16 O25** Algorithms for the effective management of various sub-axial cervical fracture types: Experts clinical consensus
Yelamarthy P.K.K., Chhabra H.S., Raghavendra V. (IN)

**18.20 Discussion**

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**FIFA Medical and Research Centre**

**Symposium: Spine & Football**
Chairs: Dvorak J. (CH) & Mayer M. (DE)

**08.00 I19** Medicine & science within football / FIFA
Dvorak J. (CH)

**08.10 I20** Epidemiology of head, neck and trunk injuries in FIFA competitions
Junge A. (DE)

**08.25 I21** On pitch management of head and neck injuries (Incl. concussion)
Feddermann N. (DE), Dvorak J. (CH)

**08.40 I22** Epidemiology of back pain in youth soccer players and risk assessment for back pain in soccer
Schneider Ch., Mayer M., Dvorak J. (DE & CH)

**08.55 I23** The prevalence of back pain in retired professional footballers compared with the general UK male population
Fernandes G.S., Parekh S.M., Fuller C.W., Batt M.E., Zhang W., Doherty M. (UK)

**09.10 I24** Disc herniations in professional football players
Mayer M. (DE)

**09.20 I25** Spondylolysis – The hidden pathology in youth football players
Mayer M. (DE)

**09.30 I26** Concept and background of FIFA 11+ prevention programme, RCT’s on male, female and children population
Bizzini M. (CH), Dvorak J. (CH)

**09.45 I27** Evaluation of the effect of the “FIFA 11+” training programme on isometric force and functional balance of the trunk
Schneider Ch., Mayer M. (DE)

**10.00 Break**
**Symposium: Sex and the spine**
All you ever wanted to know about sex and the spine but were afraid to ask

**Session 1**
Chair: Boszczyk B. (UK)

10.00 Welcome and introduction to sexual health
Boszczyk B. (UK) & Lee M. (SG)

10.20 I28 History taking using validated sexual health assessment forms in clinical practice
Dunstan E. (UK)

10.40 I29 Cultural barriers to sexual history taking
Ismael M. (IT)

11.00 I30 Sexual health in adolescents with idiopathic scoliosis
Soh R. (SG)

11.20 I31 Body image and sexual health
Lee M. (SG)

11.40 I32 Surgical scars matter – The impact on body image and sexual health in women
Hernandez-Sanchez I. (UK) & Czyz M. (UK)

12.00 Panel discussion

12.30 Lunch break + Industry workshops

**Session 2**
Chair: Dunstan E. (UK)

14.00 I33 Sexual dysfunction and low back pain – An underdiagnosed problem?
Dunstan E. (UK)

14.20 I34 Spinal biomechanics of sex
Ismael M. (IT)

14.40 I35 Returning to sexual activity following spinal surgery
Dunstan E. (UK)

15.00 I36 Positional aids and techniques to minimise spinal impact during sexual activity
Lee M. (SG)

15.20 Panel discussion

15.40 Break
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<td>Session 1: Degenerative lumbar</td>
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<td>Free papers</td>
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<td>10.30</td>
<td>Session 2: Tumors</td>
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<td>11.10</td>
<td>Debate: Thoracolumbar metastases: Corpectomy?</td>
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<td>Rarely needed - Salah H. (EG)</td>
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<td>Session 3: Spinal infections</td>
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<td>Lunch break + Industry workshops</td>
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<td>14.00</td>
<td>Session 4: Complications</td>
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<td>Debate: Local vancomycin for infection prevention</td>
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<td>Wrap up &amp; Adjourn</td>
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**Monday**

**Friday**

*www.spineweek.org*
**Chinese Association of Orthopedic Surgeons**

**Session 1**
Chairs: Rong L. (CN) & Zhao J. (CN)

08.00 Welcoming address & introduction of CAOS
Liang Y. (CN)

**08.10 I46** The fate of L5/S1 disc after long fusion to L5 in degenerative scoliosis
Hai Y. (CN)

**08.22 I47** Minimally invasive correction of degenerative deformity: Preliminary EOS study
Liang Y. (CN)

**08.34 I48** Selective thoracic fusion for scoliosis with Chiari malformation and syringomyelia: 2-11 Years follow-up
Yu K. (CN)

**08.46 I49** Adult scoliosis patients with pre-operative frontal imbalance: Options for surgical management
Liu Z. (CN)

**08.58 I50** Posterior unilateral pedicle subtraction osteotomy of hemivertebra and short segment fusion for correction of the adolescent/adult congenital spinal surgery
Li X. (CN)

09.10 Discussion

09.20 Break

**Session 2**
Chairs: Hai Y. (CN) & Wang H. (CN)

09.30 I51 The anatomical studies of bony structures atlas and options for the internal fixation
Wang H. (CN)

09.42 I52 Measurement of lumbar intervertebral space height in normal adults and definition of high lumbar intervertebral space
Zhao J. (CN)

09.54 I53 Postoperative contralateral radiculopathy following MIS-TLIF
Rong L. (CN)

10.06 I54 Disc herniation resorption after cervical laminoplasty
Wu W. (CN)

10.18 I55 Percutaneous anterior odontoid screw fixation: Technique and long-term results in 122 patients
Wang X.Y., Chi Y.L., Xu H.Z., Lin Y. (CN)

10.30 Discussion

10.40 O32 Unilateral posterior vertebral column resection for severe thoracolumbar kyphotic deformity caused by old compressive vertebrae fracture
Wang H., Ding W.Y. (CN)

10.52 O33 Unplanned reoperation of lumbar spinal surgery during the primary admission: A multicenter study based on a large patient population

11.04 O34 Biomechanical study of using translaminar facet screw coupled with unilateral pedicle screw in transforaminal lumbar interbody fusion
Zhang W., Ma J.Q., Luo Z.P. (CN)

11.16 O35 The therapeutic strategy for degenerative deformity: Is correction necessary?
Liu B., Han W., Wang L., Cui W., Xang W. (CN)

11.28 Discussion

11.45 Closing remarks
Liang Y. (CN)

12.30 Lunch break + Industry workshops
### Africa Spine

**Monday**

**Session 1: Trauma**

- **Introductions of the AfricaSpine sessions**
  Benzakour T. (MA), Otsyeno F. (KE), Moumouni A.E.K. (TG), N’Dri Oka D. (CI), Hamidani M. (DZ)

- **Welcome presentation**
  Benzakour T. (MA)

#### Chairs: Benzakour T. (MA), Moumouni A.E.K. (TG) & Elnoamany H. (EG)

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<tr>
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<td>08.30</td>
<td>Introduction of the AfricaSpine sessions</td>
<td>Benzakour T. (MA), Otsyeno F. (KE), Moumouni A.E.K. (TG), N’Dri Oka D. (CI), Hamidani M. (DZ)</td>
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<td>Welcome presentation</td>
<td>Benzakour T. (MA)</td>
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<td>08.45</td>
<td>Treatment of odontoid fractures by anterior odontoid screw fixation</td>
<td>Salah H., Elhawary Y. (EG)</td>
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<td>09.00</td>
<td>Thoracolumbar fractures, posterior fixation</td>
<td>Benzakour T., Benzakour A. (MA)</td>
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<td>09.15</td>
<td>Percutaneous stabilization of thoracic and lumbar spine fractures</td>
<td>Salah H., Elhawary Y. (EG)</td>
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**Session 2: Degenerative & deformity**

- **Management of early aggressive scoliosis**
  Alzoubi Z.M. (JO)

- **Study of functional outcome of anterior cervical decompression and fusion using iliac bone graft for degenerative cervical spondylotic myelopathy with modified Japanese orthopedic association score**
  Sharma A., Singh V. (IN)

- **Interspinous vs new interlaminar device in the lumbar DDD**
  Guizzardi G. (IT)

**Session 3: Spinal tumors**

- **Solitary plasmacytoma of the spine: Piecemeal excision followed by radiotherapy**
  Abdel-Wanis M.E. (EG)

- **En-block sacrectomy by combined anterior and posterior approach for sacral chordoma**
  Bihani M., Naresh-Babu J., Anil-Babu P. (IN)

- **Panel discussion**

**Session 4: Keynote invited speaker lecture**

- **Spinal tuberculosis in Africa, the third killer**
  Salah H. (EG)

**Session 5: Spinal infections**

- **Implant infections: Comparison between the use of stainless steel and titanium spinal implants**
  Otsyeno F., Mwangi P. (KE)

- **Single stage posterior only approach in surgical treatment of spinal tuberculosis**
  Vishnu Prasath C.S. (IN)

- **Combined anterior and posterior versus all posterior approach for surgical treatment of thoracolumbar tuberculosis: An analysis of our outcomes**
  Otsyeno F., Mwangi P. (KE)

**Session 6: Combined anterior and posterior versus all posterior approach for surgical treatment of thoracolumbar tuberculosis: An analysis of our outcomes**

**Session 7: Combined anterior and posterior versus all posterior approach for surgical treatment of thoracolumbar tuberculosis: An analysis of our outcomes**

**Session 8: Combined anterior and posterior versus all posterior approach for surgical treatment of thoracolumbar tuberculosis: An analysis of our outcomes**

**Session 9: Combined anterior and posterior versus all posterior approach for surgical treatment of thoracolumbar tuberculosis: An analysis of our outcomes**

**Session 10: Combined anterior and posterior versus all posterior approach for surgical treatment of thoracolumbar tuberculosis: An analysis of our outcomes**

**Session 11: Combined anterior and posterior versus all posterior approach for surgical treatment of thoracolumbar tuberculosis: An analysis of our outcomes**

**Session 12: Combined anterior and posterior versus all posterior approach for surgical treatment of thoracolumbar tuberculosis: An analysis of our outcomes**
Session 6: Symposium on “spinal metastases”: Diagnosis & treatment
Chairs: Hamidani M. (DZ), Abdel-Wanis M.E. (EG) & Alzoubi Z.M. (JO)

15.30 Introduction and fundamental issues
Benzakour T. (MA)

15.35 I57 Clinical diagnosis and imaging
Otsyeno F. (KE)

15.50 I58 Treatment of spinal metastases: Chemotherapy and radiotherapy / Posterior and anterior surgical approaches
Abdel-Wanis M.E. (EG)

16.10 I59 Surgical cementoplasty on metastasis management / Vertebroplasty kyphoplasty
N’dri Oka D. (CI)

16.20 O47 Percutaneous selective vertebroplasty: State-of-the-art management in well confined metastatic vertebral lesions
Elnoamany H. (EG)

16.35 O48 Results of treatment / Prognosis and indications
Hamidani M. (DZ)

16.55 Conclusions
Benzakour T. (MA)

17.00 Panel discussion

17.15 Adjourn of the AfricaSpine sessions
Benzakour T. (MA), Otsyeno F. (KE), N’dri Oka D. (CI), Mounouni A.E.K. (TG), Hamidani M. (DZ)
Association of Spine Surgeons of India

Session 1: ASSI Award presentations
Chairs: Chaddha R. (IN) & Chhabra H.S. (IN)

08.00 160 ASSI - Publication Award - Best Paper: Genetic susceptibility of lumbar degenerative disc disease in young Indian adults
Rajasekaran S. (IN)

08.10 161 ASSI - Clinical Research Award: Validation of simplified sub axial cervical and thoraco lumbar spine fracture classification systems
Chhabra H.S. (IN)

08.20 162 ASSI - Basic Science Research Award: Role of human umbilical cord blood stem cells and neural stem cells in neuronal regeneration and functional restoration: A comparative study in male adult rats with acute spinal cord injuries
Sinha S. (IN)

08.30 163 ASSI - Young Investigators Award: Analysis of spinopelvic parameters with LS is the new sacrum after fusion in high grade spondylolisthesis - An explanation of satisfactory results with in-situ fusion
Aiyer S.N. (IN)

08.40 164 IASA/ASSI - Research Award: Correlation of Diffusion Tensor Imaging (DTI) tractography with neurological status in patients with dorsal spine tuberculosis with neurodeficit and its role in predicting postoperative neurological recovery
Kumar K. (IN)

08.50 ASSI Presidential Oration: Introduction
Chadda R. (IN)

08.55 165 ASSI Presidential Oration: Spine surgery in the next decade - Challenges and solutions
Rajasekaran S. (IN)

VTI Gold Medal Papers

09.10 O49 How does the sagittal profile change with lumbar surgical decompression without fusion? A preliminary report of an ongoing prospective study
Pithwa Y.K. (IN)

09.18 O50 Analysis of sagittal alignment of spinal column at the apex during VCR in rigid post tubercular kyphosis
Sivastava S.K., Aggarwal R.A. (IN)

09.26 O51 Single stage reduction and stabilization of subaxial cervical facet dislocations by posterior only approach using pedicle screws
Upendra B.N., Sekharappa V., Bijowara M., Upendra B., Kumar A. (IN)

09.34 O52 Prediction of posterior ligamentous complex injury in thoraco-lumbar fractures using non-MRI imaging techniques
Aiyer S.N., Maheswaran A., Kanna R.M., Shetty A.P., Rajasekaran S. (IN)

09.42 O53 Computed tomography based study on feasibility of C1 posterior arch screw fixation
Gurudaj G., Chhabra H.S. (IN)

09.50 O54 Is healing on MRI mandatory for discontinuing ATT in tuberculosis of spine?
Murugan Y., Krithanam V., Amrithanand R. (IN)

10.00 Break
**Session 3: Adult deformity**

**Chairs:** Jayaswal A. (IN) & Ahmed A. (IN)

**14.00 I72**  
MIS options in adult spinal deformity - Magic or gimmic  
Mehta J. (IN)

**14.12 I73**  
Chin on chest deformity revisited  
Abumi K. (JP)

**14.24 I74**  
Sagittal and sacropelvic parameters in adult spinal deformity - Do they have any clinical relevance?  
Lamartina C. (IT)

**14.36 I75**  
Osteotomies in the spine, classification, usage, techniques and complications  
Begnone P. (IT)

**15.00**  
Case Discussion - Nanda A., Suri T., Srinivasan P. (IN)

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**Free papers VII: Spinal deformity**

**15.30 O60**  
Comparison of thoracoscopic assisted anterior instrumentation with posterior all hooks / hybrid and all pedicle screw instrumentation for treatment of adolescent idiopathic scoliosis: Surgical & radiological outcome with minimum 5-year follow-up  

**15.34 O61**  
Outcome of selective lumbar fusion and anterior instrumentation in lumbar scoliosis  
Kandwal P., Vijayaraghavan G., Ankur Goswami A., Jayaswal A. (IN)

**15.38 O62**  
Correlation of scoliosis curve correction with implant density in 36 cases of adolescent idiopathic scoliosis  
Jhala A.C., Mistry M., Patel D.K. (IN)

**15.42 O63**  
Use of three column osteotomies in severe, rigid kyphotic spinal deformities  
Garg B. (IN)

**15.46 O64**  
Prevention of PJK and PJF – Biomechanics research  
Bazanikh I.V., Takhmazyan K.K., Afanov A.A., Shapovalov V.K., Malakhov S.B., Pankina O.N. (RU)

**15.50**  
Discussion

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**Session 4: Pediatric deformity**

**Chairs:** Kailash K. (IN) & Jhala A. (IN)

**16.30 I76**  
Physiology of growth of the spine and thorax - Its correlation of the management of paediatric deformities  
Batu S. (IN)

**16.40 I77**  
Lenke 5 C curves - Ant vs post surgery  
Wong H.K. (SG)

**16.52 I78**  
How does the Lenke Classification provide a template for selective thoracic / lumbar fusion  
Luk K. (HK)

**17.04 I79**  
Complications of growing rods - Has the Magic Rod overcome all of it?  
Cheung K. (HK)

**17.16**  
Discussion

**17.40**  
G8 meeting
Monday
Meetings

08.42 O76 Efficacy of ankle brachial index in determining peripheral arterial occlusive disease in patients with lumbar spinal stenosis
Park S.Y., Suh S.W., Hong J.Y., Lee H.M. (KR)

08.46 O77 Hand grip strength correlates with surgical outcome in female patients with lumbar spinal stenosis

08.50 Discussion

Free paper session 4: Lumbar spine II

09.00 O78 Analysis of risk factors for early adjacent segment disease underwent revision surgery within 5 years after lumbar spinal fusion
Suh J., Kim H., Lee J.C., Shin B.J. (KR)

09.04 O79 Relation between adjacent superior segmental disease and facet joint violations after lumbar fusion
Kim M.W., Lee K.Y. (KR)

09.08 O80 Comparison of posterior lumbar interbody fusion and posterolateral lumbar fusion in monosegmental vacuum phenomenon within an intervertebral disc

09.12 O81 Infection following percutaneous vertebral augmentation with polymethylmethacrylate

09.16 Discussion

Free paper session 5: Pediatric spinal deformity

09.30 O82 Comparative analysis of shoulder balance by different surgical methods in the treatment of double thoracic AIS

09.34 O83 Is it enough to stop distal fusion at L3 in adolescent idiopathic scoliosis with major thoracic/lumbar/lumbar curves?

09.38 O84 Clinical and radiological changes observed during long-term follow-up of pediatric scoliosis patients treated with growing rod technique

09.42 O85 Indigenous growing rod technique for early onset scoliosis: Radiological outcome and technical considerations
Naresh-Babu J., Cheekatla S., Anil-Babu P., Bihani M. (IN)

09.46 O86 Adolescent idiopathic scoliosis surgery using minimal invasive surgery technique: A case series study
Suh S.W., Yang J.H., Chang D.G., Kim S.H., Ham C.H. (KR)

09.50 Discussion

10.00 Break

Free paper session 6: Adult spinal deformity

10.30 O87 Jack-knife posture after correction surgery for degenerative sagittal imbalance - Is it always caused by spinopelvic malalignment?

10.34 O88 Different risk factors of proximal junctional kyphosis (PJK) and proximal junctional failure (PJF) following long instrumented fusion to the sacrum for degenerative adult spinal deformity: Survivorship analysis of 160 patients

10.38 O89 Validation of current spinopelvic parameters using inter-observer and CT-radiography based variability

10.42 O90 Anterior & posterior fusion versus posterior fusion only for adult degenerative lumbar scoliosis

10.46 O91 Effect of the contractured flexed osteoarthritic knee on the sagittal alignment of spine and pelvis

10.50 Discussion

Symposium I: Endoscopic spinal surgery

11.00 I80 Can posterior full endoscopic surgery replace open surgery for cervical disc herniation?
Shin K.H. (KR)

11.08 I81 Selection of lumbar endoscopic approach according to the various type of disc herniation
Kwon Y.S. (KR)

11.16 Discussion
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>11:20</td>
<td>IB2</td>
<td>Posterior surgical options after minimally invasive multi-level anterolateral interbody fusion for adult spinal deformity - Open versus percutaneous pedicle screw instrumentation</td>
<td>Park S.J. (KR)</td>
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<td>11:36</td>
<td>IB4</td>
<td>L5-S1 fusion options after multi-level minimally invasive lateral interbody fusion: Open PLIF, MIS TLIF, or OUF</td>
<td>Lee J.C. (KR)</td>
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<td>11:44</td>
<td>IB5</td>
<td>Best case scenario for cortical screw fixation in the treatment of various lumbar diseases</td>
<td>Kim S.W. (KR)</td>
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<td>11:52</td>
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<td>Discussion</td>
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<td>12:00</td>
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<td>Adjourn</td>
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<td>12:30</td>
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<td>Lunch break + Industry workshops</td>
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<td><strong>Monday</strong></td>
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<tr>
<td>14:00</td>
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<td>Welcome</td>
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<td>14:05</td>
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<td>Report from program chairman</td>
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<td><strong>Session 1: Disc herniation</strong></td>
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<tr>
<td>14:15</td>
<td>O92</td>
<td>Different loading combinations are associated with different injury risk of the intervertebral disc</td>
<td>Wilke H.J., Berger-Roscher N., Casaroli G., Rasche V., Galibusara F. (DE)</td>
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<td>14:29</td>
<td>O94</td>
<td>Diffusion tensor imaging of lumbar spinal nerves in patients with lumbar disc herniation</td>
<td>Chiou S.Y., Hellyer P., Sharp D., Newbould R., Strutton P. (UK)</td>
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<td>14:36</td>
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<td>Discussion</td>
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<td>14:45</td>
<td>O95</td>
<td>Short (2 weeks) vs. long (6 weeks) postoperative restrictions following lumbar discectomy: A prospective randomized control study</td>
<td>Bono C.M., Leonard D.A., Schoenfeld A.J., Cho T.D., McGuire K.J., Harris M.B. (US)</td>
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<td>14:52</td>
<td>O96</td>
<td>Introduction of the Barricaid annular closure device - Caution with new technology</td>
<td>Licina P., Johnston E. (AU)</td>
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<td>15:06</td>
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<td>Discussion</td>
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<td>15:15</td>
<td>O98</td>
<td>Simulating the unique, nonlinear dynamics of the human lumbar intervertebral disc during vibration</td>
<td>Ferguson S., Marin G., Huber G., Püschel K. (CH)</td>
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<td>15:22</td>
<td>O99</td>
<td>Compression-torsion mechanical properties of the human intervertebral disc joint</td>
<td>O’Connell G., Bezzi S. (US)</td>
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<td>Discussion</td>
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**Room 2**

**The International Society for the Study of the Lumbar Spine**

**Session 3: Osteoporosis**
Chairs: Blumenthal S. (US) & Orita S. (JP)

16.15 O101 Lateral measurement of lumbar bone mineral density can potentially improve the estimation of fracture risk in early postmenopausal women and patients with severe osteoporosis - A study of 2281 cases
Ishikawa T., Aramomi M. (JP)

16.22 O102 Osteoporosis-related radiating pain following ovariectomy in mice is attenuated by pregabalin and bisphosphonates
Suzuki M., Millecamps M., Ohtori S., Mori C., Stone L.S. (JP)

16.29 O103 Characteristics and natural course of MR findings in osteoporotic vertebral fracture - A multicenter prospective cohort study between 2012 and 2015

16.36 O104 Changes in the incidence of vertebral fractures in a population-based cohort study of the elderly

16.43 O105 The effect of teriparatide on fracture healing of vertebral compression fracture in postmenopausal women

16.45 Invited lecture 1
Chair: Hu S. (US)

17.00 IB6 Reversing ageing is inevitable
Tucker S. (SG)

17.30 First business meeting (members only)

**Room 3**

**Pan Arab Spine Society**

**Session 5: Early onset scoliosis**
Chairs: Kharrat K. (LB) & Ventura N. (ES)

08.00 I87 Lecture: Casting for early onset scoliosis – A role to play
Ventura N. (ES)

08.15 O106 The results of Shilla technique growing rod in juvenile scoliosis
Kharrat K., Ghostine B., Sebaaly A., Kreicha G. (LB)

08.23 Discussion

08.30 Debate: Selection of instrumentation for early onset scoliosis
Growing rods - Elsebae H. (EG)

08.40 Trolley (Shilla) - Kharrat K. (LB)

08.50 VEPR - Ventura N. (ES)

09.00 The 3 hook construct - Azmy A. (PS)

09.10 Case scenarios
Azmy A. (PS)

09.40 Break

**Session 6: AIS**
Chairs: Benzakour T. (MA) & Salah H. (EG)

10.30 I88 Lecture: Surgical strategies in AIS
Ventura N. (ES)

10.45 O107 The choice of lower instrumented vertebra in AIS – Comparison of Lenke, Suk and Dubousset criteria
Kharrat K., Rizkallah M., Sebaaly A., Kreicha G. (LB)

10.53 O108 Surgical management of difficult and rigid scoliosis with 100 patients in the Arab world
Alzoubi Z. (JO)

11.01 Discussion

11.10 Debate: Instrumentation for AIS – How dense does it need to be?

11.20 Less density gives equal results
Elsebae H. (EG)
**Pan Arab Spine Society**

- **Case scenarios**
  - Kharrat K. (LB)
  - Abushaala A. (LY)

**Monday**

- **11.30** Presentation of 2 cases

**Tuesday**

- **Meetings**
  - Chairs: Elsebae H. (EG) & Alves O. (PT)
  - **14.00** I89 Lecture: Pelvic parameters & sagittal balance
    - Emran I. (EG)
  - **14.15** O109 Free paper
    - Surgical management of adult presenting congenital spine deformities
    - Salah H. (EG)
  - **14.25** Discussion
  - **14.45** Presentation of 2 cases

**Wednesday**

- **Session 7: Adult deformity**
  - Chairs: Elsebae H. (EG) & Alves O. (PT)
  - **14.00** I90 Lecture: Pelvic parameters & sagittal balance
    - Emran I. (EG)
  - **14.25** Discussion
  - **14.45** Presentation of 2 cases

**Thursday**

- **Session 8: Spinal osteotomies**
  - Chairs: Batterjee K. (SA) & Elzoubi Z. (JO)
  - **16.30** I91 Lecture: PSO – Tips and tricks
    - Salah H. (EG)
  - **17.00** Discussion
  - **17.10** Presentation of 2 cases
  - **17.40** Wrap up & adjourn

**Friday**

- **Posters**
- **11.30** Presentation of 2 cases

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**European Spine Journal**

**Spine science forum: Meet the experts**

- **Osteotomies and alternative techniques in the correction of adult deformity**
  - Chairs: Lamarina C. (IT) & Berjano P. (IT)

**Monday**

- **08.00** I92 Opening lecture: Cervical alignment – What parameters should we consider?
  - Le Huec J.C. (FR)
  - **08.20** Discussion
  - **08.30** Case-based topic discussions
  - **09.20** Topic 2 - Osteotomies in the upper thoracic spine
    - Le Huec J.C. (FR)
  - **10.10** Break

**Tuesday**

- **Session 2: Thoracolumbar deformity**
  - **10.30** I93 Opening lecture: Open standing MRI for the evaluation adult and adolescent deformity
    - Zerbi A. (IT)
  - **10.45** Discussion
  - **10.55** Case-based topic discussions
  - **11.45** Topic 4 - PSO avoidance with anterior release techniques in revision cases with sagittal imbalance
    - Lamarina C. (IT)
  - **12.35** Closing remarks
  - **12.45** Lunch break + Industry workshops
**Room 4**

**La Sociedad Ibero Latinoamericana de Columna**

**Sociedade Brasileira de Coluna**

**Session 1**

Chair: Fogaça A. (BR)

14.00 O110 Distraction lengthening plus dynamic self-growing instrumentation for early onset scoliosis (EOS) in neuromuscular patients
Segal E.D., Couto J.C. (AR)

14.08 O111 Triggered EMG threshold from axillary chest wall electrodes for upper thoracic pedicle screws: Preliminary data

14.16 O112 Underfunding of spinal deformities treatment and its consequences
Defino H., Nunes A.A., Bressan Neto M. (BR)

14.24 O113 Primary spinal tumors in children and young adults – Twenty eight patients with a minimum of one year of follow-up

14.32 O114 Isolated fracture of transverse process of lumbar vertebra in professional soccer player: Case report and literature review
Vaz de Lima M. (BR)

**Session 2**

Chair: Volpi M. (BR)

14.40 O115 Three-dimensional anatomical study of Ligamentum Flavum in cervical spine

14.48 O116 Effect of hypovolemia on traumatic spinal cord injury
Defino H., Sampaio O.C., Guimarães EADB (BR)

14.56 O117 The relationship between central motor conduction time and spinal cord compression in patients with cervical spondylotic myelopathy

15.04 O118 Invertebrate atlanto-axial subluxation treated conservatively: Experience in 3 cases and review of the literature
Weissmann K.A., Huaiquilaf C., Costa M., Descaseaux F. (CL)

15.12 O119 The use of teriparatide in delayed case of type odontoid fractures - A case report

**Session 3**

Chair: Defino H. (BR)

15.20 O120 Prospective analysis of cages self-blocker stand alone for use in cervical degenerative diseases
Santana Carvalho F., Goncalves de Oliveira S., Franco T.R., Viana Simoes M., Cantisani Neto J. (BR)

15.28 O121 Treatment of symptomatic lumbar stenosis with endoscopy
Ramírez J.F., Prada N., Ramírez C., Rugeles J.G., Alonso G.O. (CO)

15.36 O122 Cervical endoscopy for degenerative disc disease
Ramírez J.F., Prada N., Ramírez C., Rugeles J.G., Alonso G.O. (CO)

15.44 O123 Non-endoscopic anterior percutaneous thermodiscoplasty for cervical discogenic pain – Description of the modified technique and results after six year follow-up
Ramírez J.F., Prada N., Ramírez C., Rugeles J.G., Alonso G.O. (CO)

15.52 O124 Complications from non-endoscopic percutaneous thermodiscoplasty for the treatment of discogenic LBP - Comparison of laser vs radiofrequency in 21 years of experience
Ramírez J.F., Prada N., Ramírez C., Rugeles J.G., Alonso G.O. (CO)

16.00 Break

**Session 4**

Chair: Ramírez J.F. (CO)

16.30 O125 Modic type 1 signal change on the posterior elements of the lumbar spine

16.38 O126 Treatment of low back pain secondary to facet osteoarthritis - 8 Years of experience of 360° facet rhizotomy assisted by radiofrequency
Ramírez J.F., Prada N., Ramírez C., Rugeles J.G., Alonso G.O. (CO)

16.46 O127 Sagittal plane spinal alignment association with lumbar disc degeneration in young asymptomatic adults
Defino H., Menezes-Reis R., Bonugli G.P., Daltro V., Hernero C.F.D.S., Nogueira-Barbosa M.H. (BR)

16.54 O128 Lumbar disc herniation in adolescents: Cases series and literature review

17.02 O129 Lateral lumbar interbody fusion for symptomatic adjacent disc disease
Santana Carvalho F., Franco T.R., Motta Filho R., Batista Filho G. (BR)
Session 5
Chair: Mohdi H. (ES)

17.10 O130 Comparative study of TLIF techniques and MINI OPEN for degenerative diseases of the lumbar spine
Santana Carvalho F., Anacleto V.R., Santos Araújo A.B., Bicalho Maluf F., Goncalves de Oliveira S. (BR)

17.18 O131 Spine surgery at an ambulatory surgery center (ASC). Is it feasible, safe and cost effective? A prospective evaluation of 2942 consecutive cases
Vaz de Lima M., Pettine K., Techy F. (BR)

17.26 O132 Does the use of dynamic surgical guidance assist with accurate pedicle screw placement in patients with osteoporosis or osteopenia?

17.34 O133 The electromyography threshold for accurate placement of cannulated pedicle screws

17.42 O134 Advantages of navigation in posterior cervical fusion

Session 6
Chair: Weissmann K. (CL)

17.48 O135 Autogenous bone marrow concentrate (BMC) Injection to treat 1 and 2 level symptomatic degenerated lumbar discs - A prospective controlled study, with a minimum 24 month follow up
Vaz de Lima M., Pettine K., Techy F. (BR)

17.56 O136 Anterior lumbar interbody fusion for the treatment of surgical infection on posterior instrumented spinal approach for degenerative diseases
Santana Carvalho F., Siqueira A., Franca F.K., Simões M.V., Batista G. (BR)

18.02 O137 Evaluation of individuals with and without chronic low back pain during bridge exercise

18.10 O138 Tethered cord syndrome caused by spinal dysraphism: Long term outcome of tethered cord release

18.18 Discussion
18.30 Adjourn
Society for Minimally Invasive Spine Surgery

Session 1: MISS - Spinal degenerative disease
Chairs: Tan S.B. (SG) & Singh K. (US)

14.00 Welcome
Tan S.B. (SG) & Singh K. (US)

14.10 I94 Special lecture: MISS in Asia: Past, present, and the challenges that lay ahead
Tan S.B. (SG)

14.20 I95 Update on bone and fusion biologics in spinal surgery
Yue W.M. (SG)

14.30 I96 Update on intradiscal biologic therapy
Härtl R. (US)

14.40 Q&A

14.50 Case: Grade 1 spondylolisthesis with stenosis L4-L5: Yue W.M. (SG)

14.54 MIS TLIF: Kwon B. (US)

14.58 Lateral / ALIF: Pennings F. (US)

15.02 Interspinous process: Nene A. (IN)

15.06 How case was treated: Yue W.M. (SG)

15.10 Discussion

15.15 Case: High grade L5-S1 isthmic spondylolisthesis: Khoo L. (US)

15.19 Open TLIF: Nene A. (IN)

15.23 MIS TLIF: Wu J.C. (TW)

15.27 Anterior - posterior: Pennings F. (US)

15.31 How case was treated: Khoo L. (US)

15.35 Discussion

15.40 Case: Multi level degenerative spine, with multi-level stenosis and recurrent HNP: Taylor W. (US)

15.44 Decompression without fusion: Yue W.M. (SG)

15.48 Multi-level TLIF: Khoo L. (US)

15.52 Lateral: Pennings F. (US)

15.56 How case was treated: Taylor W. (US)

16.00 Discussion

16.05 Break

Session 2: MISS - Lateral techniques
Chairs: Taylor W. (US) & Ishii K. (JP)

16.30 Welcome
Taylor W. (US) & Ishii K. (JP)

16.35 I97 Contemporary neuromonitoring for transpsoas surgical procedures
Taylor W. (US)

16.50 I98 Complications avoidance in lateral transpsoas surgery
Pimenta L. (BR)

17.05 I99 Complications avoidance in MIS oblique lumbar interbody fusion
Kim J.S. (KR)

17.20 Discussion

17.30 Case: Grade 1 or 2 spondylolisthesis with stenosis L4-L5: Kim J.S. (KR)

17.34 Stand alone: Pimenta L. (BR)

17.38 Direct versus indirect decompression: Guo C.M. (SG)

17.42 Anterior - posterior: Singh K. (US)

17.46 How case was treated: Kim J.S. (KR)

17.50 Discussion

17.55 Case: Thoracic HNP with cord compression: Singh K. (US)

17.59 MIS/Tubular: Wu J.C. (TW)

18.03 Open: Guo C.M. (SG)

18.07 How case was treated: Singh K. (US)

18.11 Discussion

18.30 Adjourn
Download SpineWeek on your mobile phone
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Program
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Abstracts of invited talks & oral presentations
Info on speakers & exhibitors
Floor plan
Twitter feed
Survey
...

The SpineWeek 2016 App will be available
in the App Store & Google Play.

Wednesday, May 18
Scientific Program

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<th>Room 1 Heliconia</th>
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<th>Room 5 Jasmine</th>
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<td>12.30</td>
<td>ASSI &amp; APSS</td>
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<td>Lunch break + Industry workshops</td>
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<td>16.00</td>
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Room 1

Asia Pacific Spine Society

APSS Opening Ceremony
Chair: Liu G. (SG)
08.30
Program Introduction
Liu G. (SG)
08.35
Presidential welcome address by APSS chairman
Abumi K. (JP)
08.40
APSS: Past and present
Shanthinatham K.S. (MY)

Spinal tumour
Chair: Kwan M.K. (MY)
08.50 1100
Multilevel spinal metastasis: Conservative or surgery?
Wong Y.W. (HK)
09.05 1101
Spinal tumour reconstruction: Anterior or posterior or both?
Chung J.Y. (KR)
09.20 1102
Bisphosphomaye & denusalab in Treatment of GCT of spine
Jayaswal A. (IN)
09.35 1103
Recycling intraoperative spinal tumour blood: A myth or a fact?
Kumar N. (SG)
09.50
Q&A session
10.00
Break

ASSI/APSS Joint Session 1: Nontubercular infection
Chairs: Rajasekaran S. (IN) & Thaung M. (MM)
10.30 1104
Surgical site infections - Current viewpoints of pathogenesis and prevention
Dahi B. (DK)
10.45 1105
Controversies in the surgical management of SSI
Ignacio J.M.F. (PH)
11.00 1106
Spinal epidural abscess - Presentation, diagnosis and management
Khan M.A. (PK)
11.15
Discussion
Debate
11.30
Postoperative infections in spine - Whether to retain or remove implants?
Ahmed A. (IN) & Krishnan A. (IN)
Case discussion
11.50
Case 1: Pyogenic infection of spine - Thaung M. (MM)
12.10
Case 2: Postoperative discitis - Rajasekaran S. (IN)

Asia Pacific Spine Society
Association of Spine Surgeons of India

ASSI/APSS Joint Session 2: Tubercular infection
Chairs: Chaddha R. (IN) & Liu G. (SG)
14.00 1107
Clinical and MRI features of various stages of healing of TB spine
Alam Md.S. (BD)
14.10 1108
MDR TB in the spine - Incidence, evaluation and treatment protocols
Nene A. (IN)
14.20 1109
Craniocephalic and lumbosacral tuberculosis - How is it different?
Sohail M.T. (PK)
14.30 1110
The role of MIS in surgery for TB spine
Jayaswal A. (IN)
14.40
Discussion
Debate
14.55
Anterior surgery has no role for the surgical management of Dorsal/Dorsolumbar TB - For and against
Jhala A. & Krishnan A. (IN)
15.10
Case discussion
Verma R., Mohite S., Kujekar K. (IN)

ASSI/APSS Joint Session 3: Tubercular infection
Chairs: Chaddha R. (IN) & Liu G. (SG)
15.30 O139
Diagnostic protocol in management of tuberculosis of spine based on retrospective analysis of 262 cases
Sharma A., Chhabra H.S., Mahajan R. (IN)
15.34 O140
Surgical algorithm in pediatric tubercular spondylitis with myelopathy
15.38 O141
Multi drug resistant tubercular spondylodiscitis - A social challenge in developing countries
Amritanand R., Arockiaraj J., Karthik R., Krishnan V., David K.S. (IN)
15.42 O142
Posterior approach in thoracolumbar tuberculosis: A clinical and radiological review of 67 operated cases
Prabhoo T.R., Nene A.M. (IN)
15.46 O143
Transpedicular decompression / debridement and posterior spinal fusion with instrumentation for single level thoracic spinal tuberculosis with myelopathy - Is anterior column reconstruction necessary?
15.50
Discussion
16.00
Break
Asia Pacific Spine Society

Free papers: Spinal tumour & Infections

Session 1: Trauma & Tumour
Chairs: Tiksnadi B. (ID) & Alam Md.S. (BD)

16.30 O144 Metastatic spine tumour surgery: A comparative study of minimally invasive approach using percutaneous pedicle screws fixation versus open approach
Kumar N., Maharajan K., Zaw A.S., Mathotra R., Kumar A. (SG)

16.34 O145 Dumbbell score: A new scoring system for the differential diagnosis of malignant and benign spinal dumbbell tumours

16.38 O146 Total en bloc spondylectomy for spinal metastasis of lung cancer

16.42 O147 Flowcytometric evaluation of intraoperative salvaged blood filtered with leucocyte depletion filter in metastatic spine tumour surgery
Kumar N., Zaw A.S., Lam R., Kumar A. (SG)

16.46 O148 Serum interleukin-12 as a prognostic factor for spinal metastases

16.50 O149 To treat the metastatic spinal tumor following the classification in use, is it the best standard?
Ishi K., Sasaki K., Watanabe M. (JP)

16.54 O150 Thromboembolism following lumbar fusion surgery in patients using tranexamic acid

16.58 O151 Is intrawound application of vancomycin effective for the prophylaxis of surgical site infection? A multi-center cohort study using propensity score matching
Har C., Azuma S., Oka H., Okazaki K., Okamoto N., Yamazaki T. (JP)

17.02 Q&A

Session 2: MIS spine surgery
Chairs: Khan M.A. (PK) & Yang S.H. (TW)

17.12 O152 Two-year clinical outcomes of multilevel extreme lateral lumbar interbody fusion (XLIF®) with or without minimally invasive transforaminal lumbar interbody fusion (MIS-TLIF) versus isolated open transforaminal lumbar interbody fusion (TLIF) for degenerative scoliosis and spondylolisthesis: A matched comparison study

17.16 O153 Fluoroscopic guided percutaneous thoracic and lumbosacral pedicle screws, is it safe for Asians?
Chai C.Y.W., Chiu C.K., Kwan M.K. (MY)

17.20 O154 Mechanism of radiculopathy contralateral to the side of disc herniation - Microendoscopic investigations

17.24 O155 Intraoperative radiation exposure to surgeons in single- and multi-level minimally invasive transforaminal lumbar interbody fusion

17.28 O156 New minimum invasive technique for lateral lumbar interbody fusion
Sasaki K., Ishii K., Watanabe M. (JP)

17.32 O157 Safety entry point, size and direction for placement of thoracic pedicle screw - A cadaveric study
Bunnaprasert T., Roossoong A., Pongmanee S., Khunsree S., Laowatthanaphong S. (TH)

17.36 Q&A

Session 3: Spine fracture, vertebroplasty & Basic science
Chairs: Kwan K.Y.H. (HK), Kandwal P. (IN) & Pradhan R. (NP)

17.46 O158 A prospective multicentric observational study on the use of intravertebral implants for traumatic vertebral compression fracture treatment: 12 Months follow-up results

17.50 O159 Percutaneous vertebroplasty for osteoporotic vertebral fracture with intravertebral cleft: Analysis of poor clinical outcomes

17.54 O160 Surgical outcome of balloon kyphoplasty for painful osteoporotic vertebral fracture

17.58 O161 Using the regional eggshell technique during Kyphoplasty to prevent cement leakage in various vertebral walls injuries
Io H., Chen H.M. (TW)

18.02 O162 The association between lumbosacral transitional vertebral and lumbosacral nerve root asymmetry
Ohno T., Tarukado K., Tono O., Dai T. (JP)

18.06 O163 Vertebral compression fractures treatment - 4 Years retrospective study
Noriega D.C., Aruda F., Hernandez R. (ES)

18.10 O164 Identification of life style factors affecting onset of adolescent idiopathic scoliosis
Watanabe K., Michikawa T., Yonezawa T., Takaso M., Minami S., Soshi S., Okada E., Asakura K., Nishiwaki Y., Matsumoto M. (JP)

18.14 O165 Aging change of the paravertebral muscles and psoas muscles of the lumbar spine and relation to the low back pain in a general population - The Wakayama Spine Study

18.18 O166 The contribution of the ribcage to thoracolumbar spine biomechanics in a sheep model: The significance of the intercostal connections
Grant C., Newell N., Brooker B., Peiracy M.J., Little J.P. (AU)

18.22 Q&A

Asia Pacific Spine Society

Friday

Room 1

17.28 O156 New minimum invasive technique for lateral lumbar interbody fusion
Sasaki K., Ishii K., Watanabe M. (JP)

17.32 O157 Safety entry point, size and direction for placement of thoracic pedicle screw - A cadaveric study
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18.22 Q&A

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07.30 | Session 4: Special emphasis poster session 1 (eSpine area)

08.45 O167 | Notochordal cell-rich nucleus pulposus matrix as a potential agent for nucleus pulposus regeneration
De Vries S., Van Doeselaar M., Meij B., Tryfonidou M., Ito K. (NL)

08.52 O168 | Mechanistic determination of notochord cell-induced anti-apoptotic signaling in human nucleus pulposus cells
Mehrkens A., Kanim M.Z., Matta A., Kim S., Fehlings M.G., Schaeren S., Erwin W.M. (CH)

08.59 O169 | Protective role of Prostaglandin E1 for disc degeneration by reciprocally regulating collagenases and their endogenous inhibitor TIMP-3 in human intervertebral disc cells

09.06 | Discussion

09.15 O170 | Selective interference of mTOR signaling is protective against human disc cellular apoptosis, senescence, and extracellular matrix degradation with autophagy induction

09.22 O171 | JAK/STAT inhibitor has potential to inhibit intervertebral disc degeneration
Suzuki S., Fujita N., Watanabe K., Tsuji T., Ishii K., Horii K., Miyamoto T., Nakamura M., Matsumoto M. (JP)

09.29 O172 | Expression, regulation and relevance of hyaluronidases in the intervertebral disc
Wuertz-Kozak K., Greutert H., Krupkova O., Grantenbein B., Boos N., Ferguson S.J. (CH)

09.36 | Discussion

09.45 | Break

Session 6: Disc degeneration
Chairs: Berlemann U. (CH) & Mannion A. (CH)

10.15 O173 | Natural history of lumbar disc degeneration and other spinal phenotypes on MRI: A prospective, comparative five-year longitudinal study
Samartzis D., Karppinen J., Cheung K., Bow C., Luk K., Cheung K. (HK)

10.22 O174 | Measuring lumbar disc degeneration and pathology
Battié M., Videman T., Gibbons L., Gill K. (CA)

10.29 O175 | Diabetes mellitus is a significant risk factor for lumbar disc degeneration in a longitudinal population-based cohort: The Wakayama Spine Study

10.36 | Discussion
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<tr>
<td>15.00</td>
<td><strong>Fusion</strong></td>
<td>Lateral interbody fusion as a tool in adult spinal deformity surgery: Correction and complications with hybrid versus posterior-only approach</td>
<td>Tanaka N. (JP) &amp; Yabuki S. (JP)</td>
<td>Deviren V., Strom R., Boe J., Mizutani J., Valone F., Arnes C. (US)</td>
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<tr>
<td>15.21</td>
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<td>15.30</td>
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<td>16.00</td>
<td><strong>Muscle</strong></td>
<td>Symposium I: Muscle</td>
<td>Hodges P. (AU)</td>
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<td></td>
<td>I113</td>
<td>Changes in back muscles as a result of pain/injury</td>
<td>Danneels L. (BE)</td>
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<td></td>
<td>I114</td>
<td>Relationship between muscle changes on imaging and pathology</td>
<td>Battié M. (CA)</td>
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<tr>
<td></td>
<td>I115</td>
<td>Contribution of muscle control to pain/injury</td>
<td>Hodges P. (AU)</td>
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<td></td>
<td>I116</td>
<td>Muscle as a source of pain: Physiology of muscle nociceptors</td>
<td>Cairns B. (CA)</td>
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<td></td>
<td><strong>Deformity</strong></td>
<td>Session 9: Deformity</td>
<td>Deviren V. (US) &amp; Togawa D. (JP)</td>
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<td>17.00</td>
<td><strong>Deformity</strong></td>
<td>Characterization of the gait pattern and the disability in adult spinal deformity patients - Factors affecting the gait abnormality</td>
<td>Deviren V. (US) &amp; Togawa D. (JP)</td>
<td>Yagi M., Kaneko S., Yata Y., Machida M., Asazuma T. (JP)</td>
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<tr>
<td>17.21</td>
<td>Discussion</td>
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Pan Arab Spine Society

Session 9: Degenerative cervical
Chairs: Alves O. (PT) & Salah H. (EG)

08.00 1117 Lecture: CSM – Anterior, posterior or combined approach
Alves O. (PT)

08.15 Discussion

Debate: Posterior surgery for CSM – Is instrumented fusion always needed?

08.30 Yes- Alves O. (PT)

08.40 Occasionally needed - Emran I. (EG)

Case scenarios
Salah H. (EG)

08.50 Presentation of 2 cases

09.20 Break

Session 10: Complications in deformity surgery
Chairs: Ventura N. (ES) & Elsebae H. (EG)

10.30 1118 Lecture: Strategies in prevention of neurological complications in AIS Surgery
Salah H. (EG)

10.45 1119 Lecture: Neuro signals are fading away – What do I do?
Ventura N. (ES)

11.00 1120 Lecture: Complications with growing rods – Prevention & management
Elsebae H. (EG)

11.15 1121 Lecture: Complications with VEPTR like devices
Azmy A. (PS)

11.30 Discussion

My worst deformity complication
Salah H. (EG)

11.40 Presentation of 2 cases

12.10 Adjourn

12.30 Lunch break + Industry workshops

International Consortium for Scoliosis Genetics

Session 1

14.00 1122 Invited lecture: Why study scoliosis genetics? A surgeon’s perspective
Cheung K. (HK)

14.10 1123 Invited lecture: Why study scoliosis genetics? A geneticist’s perspective
Ikegawa S. (JP)

14.20 Discussion

14.25 O194 Linkage analysis and exome sequencing suggest a variant in CELSR2 as a cause of
idopathic scoliosis in an extended Swedish pedigree
Grauers A., Einarsdottir E., Kere M., Gerdhem P. (SE & FI)

14.40 O195 Genome-wide association study for AIS in Japan
Watanabe K., Takada K., Ogura T., Takahashi Y., Kono K., Kawakami N., Uno K., Ito M.,
Minami S., Yanagida H., Tanouchi H., Yonezawa I., Tsuji T., Suzuki T., Suda H., Katani T.,
Toyama Y., Matsumoto M., Ikegawa S. (JP)

14.55 O196 Regulation and function of the Lbx1 gene in spinal development using the mouse
model: Implications for adolescent idiopathic scoliosis

15.10 1124 Invited lecture: Are congenital scoliosis and AIS etiologically related?
Wise C. (US)

15.20 1125 Invited lecture: The disc in scoliosis – current knowledge
Chan D. (HK)

15.30 Discussion

15.45 Break

Session 2

16.15 1126 Invited lecture: Studies in the ALSPAC cohort
Fairbank J. (UK)

16.35 O197 mRNA expression of LBX1 in paravertebral muscles and vertebra of patients with
adolescent idiopathic scoliosis

16.50 O198 SPINE-GEL: A global expression library for the developing nucleus pulposus
Au T., Cheah K., Niu B., Chan D., Zhang M.Q. (CN & US)

17.05 O199 Spine surgery in achondroplasts: One center’s experience
Raggio C.L., Mannino J., Carter E., Farmer J. (US)

17.20 1127 Invited lecture: Scoliscore – Is it useful?
Raggio C. (US)

17.40 Discussion
Monday
Meetings

07.30  O200  Welcome

07.35  O200  Total disc replacement in cervical spondylotic myelopathy, an obstacle to clinical improvement?
Dufour Th., Loret J.E., Challier V., Lafage R., Lafage V. (FR & US)

07.41  O201  Clinical assessment using MRI/18F-FDG PET fusion imaging for patients with cervical compressive myelopathy

07.47  O202  The analysis of dysfunctions of lower extremities using knee joint position sense and kinesthesia in cervical myelopathy patients

07.53  O203  Efficacy of Riluzole in the treatment of early cervical spondylotic myelopathy using diffusion tensor imaging - A double blinded, placebo-controlled randomised controlled trial
Rajasekaran S., Alaví S.N., Kanna R., Shetty A.P. (IN)

07.59  O204  Cord signal changes after anterior cervical discectomy and fusion and its association with neurological recovery – A prospective single centre study over 10 years
Chatterjee S., Kondety S.K.C. (IN)

08.05  O205  Course of change in patient-rated outcome up to 5 years after surgery for cervical myelopathy: An analysis of prospectively collected data in a large, consecutive group of patients
Mannion A.F., Porchet F., Tok S., Becker H.J., Jeszenszky D., Fekete T.F., Kleinstück F.S. (CH)

08.11  O206  Patient satisfaction with posterior decompression surgery for cervical ossification of the posterior longitudinal ligament: Prognostic radiographic factors and patient-reported outcomes for the effectiveness of surgical treatment
Ohya Y., Oshima Y., Oka H., Saki F., Taniguchi Y., Matsubayashi Y., Tanaka S., Chikuda H., Takeshita K. (JP)

08.15  Discussion

Paper presentations: Axial pain disorders
Chairs: Heggeness M. (US) & Thng P. (SG)

08.30  O207  Results of a prospective, multicenter, observational study of total lumbar disc replacement with 2 year follow up: Impact on return to work

08.36  O208  Quantifying the spatial distribution of fat content in lumbar paravertebral muscles on T1-weighted MRI: A novel method and reliability analysis

08.42  O209  Which clinical tests can better discern differences in lumbar multifidus activity between people with and without low back pain?
Wong A.Y.L., Chan S.N.S., Chung M.T.K., Li R.K.W., Lo J., Ng T.K.Y., Nougareau F. (CN & CA)

08.48  O210  Do high levels of neck pain influence the outcome of cervical arthroplasty?
Tak S., Mannion A.F., Mutter U., Becker H.-J., Porchet F. (CH)

08.54  O211  Psychological distress in cervical arthroplasty
Hammett T.C., Solanki S., Adhikary R.D. (UK)

09.00  Discussion

09.30  Break

Paper presentations: Basic science

10.00  O212  Evaluating the osseointegration of a deeply porous titanium scaffold through comparison with PEEK implants and allograft: Biomechanical assessment using a porcine skull model
Guyer R.D., Alibitoli J.J., Ohnmeiss D.D., Yoo C. (US)

10.06  O213  Diffusion characteristics of human annulus fibrosus - A study documenting the dependence of annulus fibrosus on endplate for diffusion
Naresh-Babu J., Neelima G., Reshma-Bekum S.K. (IN)

10.12  O214  FK506, independent of calcineurin inhibition, induces TGF-β1/smad3 pathway for preventing intervertebral disc degeneration
Zou J., Wu C., Yang H. (CN)

10.18  O215  Does disc injury lead to progression of cervical disc degeneration? Histological analysis in an ovine model

10.24  O216  Hyperbaric oxygen intervention reduces secondary spinal cord injury in rats via regulation of HMGB1/TLR4/NF-κB signaling pathway
Kang N., Hai Y., Yang J., Liang F., Gao C.J. (CN)

10.30  O217  Treatment of degenerative disc disease with mesenchymal stem cells. Results from clinical trials with autologous and allogeneic cells

10.36  Discussion

Low back pain diagnosis and treatment: What is the future? Chair: Wetzel F.T. (US)

11.00  Introduction
Wetzel F.T. (US)

11.05  O218  Objective measurement: Success key to nonspecific low back pain
Dresing T. (xx)
**North American Spine Society**

**Room 4**

- **Monday**
  - 11:15-11:29: First line diagnostics: When to order what and why
    - Kawaguchi Y. (JP)
  - 11:25-11:30: Mechanism of BMP2 action on peripheral nerves
    - Heggeness M.H. (US)
  - 11:35: Panel discussion
  - 11:45-11:55: Rare intervention 1 - Motion Preservation
    - Darwano B. (IN)
  - 11:55-12:05: Rare intervention 2 - Motion Preservation
    - Wetzel F.T. (US)
  - 12:05: Panel discussion
  - 12:15-12:25: Intraosseus nerve
    - Heggeness M.H. (US)
  - 12:25: Panel discussion and conclusion
  - 12:30: Lunch break + Industry workshops

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**AOSpine**

**Room 4**

**Session 1: Deformity**

**Chair:** Lamartina C. (IT)

- **14:00**
  - Key opening lecture: Adult deformity
    - Lamartina C. (IT)

- **14:30**
  - Upright, prone and supine spinal morphology in adolescent idiopathic scoliosis
    - Brink R.C., Schlösser T.P.C., Colo D., Vincken K.L., Van Straalen M., Hui S.C.N.,
    - Chu W.C.W., Cheng J.C.Y., Castelain R.M. (NL & CN)

- **14:34**
  - Instrumentation following decompression for spinal metastases - Is there a need for fusion in addition to internal fixation?
    - Fenton E., Mercier P., Bains I., Jacobs W.B. (CA & US)

- **14:38**
  - Concomitant isthmic spondylolisthesis does not influence the curve pattern of scoliosis in young patients
    - Schlenzka D., Ylikoski M., Yrjönen T., Lund T., Österman H., Poussa M. (FI)

- **14:42**
  - Oblique lateral interbody fusion combined with posterior spinal fixation using transfascial pedicle screws in adult spinal deformity
    - Chazono M., Takaaki T., Shun Y., Keishi M. (JP)

- **14:46**
  - Comparison of autograft versus allograft in patients undergoing posterior instrumentation and fusion for adolescent idiopathic scoliosis
    - Schlenzka D., Pulito V., Yrjönen T., Österman H., Lund T., Laine T. (FI)

- **14:50**
  - Group discussion

- **15:00**
  - Near pre-operative shoulder and trunk range of motion during gait after surgical correction of adolescent idiopathic scoliosis
    - Holewijn R.M., Kingma I., De Kleuver M., Schimmel J., Keijzers N. (NL)

- **15:04**
  - Prospective investigation of perioperative complications after correction surgery for spinal deformity
    - Takahashi Y., Suzuki S., Nishida M., Fujiu N., Yagi M., Kaneko S., Hosogane N.,
    - Ishitikawa M., Kono H., Fukuda K., Oikada E., Hikata T., Nakamura M., Matsumoto M.,
    - Watanabe K. (JP)

- **15:08**
  - Does spinopelvic alignment affect residual low back pain after lumbar spinal fusion?
    - Tashiro K., Kanayama M., Oka F., Shimamura Y., Kuriki K., Hisada Y., Suzuki Y.,
    - Hashimoto T., Kaneko K. (JP)

- **15:12**
  - Health related quality of life in 1252 adults with idiopathic scoliosis - A comparison of untreated, brace treated and surgically treated patients
    - Diarbakerli E., Grauers A., Danielsson A., Geradhem P. (SE)

- **15:16**
  - Results of the modern Luque Trolley in the 21st century - A self-growing, guided rod system

- **15:20**
  - Group discussion

- **15:30**
  - The choice of upper instrumented vertebra in AIS and shoulder balance
Monday
Meetings

15.34 O229 Risk factors and role of bone cement augmentation for adjacent vertebrae fracture after multilevel adult deformity fusion with low bone mass

15.38 O230 Which is the best indicator to evaluate cranio-cervical balance?
CCG, C1SVA or C2SVA

15.42 O231 The use of rhBMP-7 in surgical treatment of paediatric patients affected by symptomatic grade I isthmic spondylolisthesis: A 7-years follow-up study
Oggiano L., La Rosa G. (IT)

15.46 Group discussion

16.00
Break

Session 2: Degenerative lumbar
Chair: Berjano P. (IT)

16.30 I135 Key opening lecture: Continuum from adult degeneration to deformity
Berjano P. (IT)

17.00 O232 Autologous disc chondrocyte transplantation in lumbar spine disc degeneration disease – A prospective, controlled, randomized study
Hohaus C., Didrigkeit F., Meisel H.J. (DE)

17.05 O233 When does compensation for lumbar stenosis become a deformity?

17.10 O234 Spinal surgery without laboratory investigations – A preliminary report
Czyz M., Parks R.M., Behrbalk E., Nowicki R., Chrystal M., Boszczyk B.M. (UK)

17.15 Group discussion

17.30 O235 Relationship between in vivo screw insertion torque and postoperative screw loosening in posterior instrumented fixation for lumbar degenerative diseases - Comparison study between cortical bone trajectory screw and traditional pedicle screw
Takahashi T., Hanakita J., Kawaoka T., Ohtake Y. (JP)

17.35 O236 The natural polyphenol epigallocatechin gallate protects intervertebral disc cells from oxidative stress

17.40 O237 Genetics is the main determinant of disc space height one and two levels cranial to the adjacent segment

17.45 Group discussion

18.00 O238 Concomitant back pain as a predictor of outcome after single level lumbar micro-de compressive surgery – A study of 995 patients

18.05 O239 Do spinal tumors affect to management of spinal degenerative stenosis?
Ptashnikov D.A., Smekalenkov O.A., Mihaylov D.A., Zaborovski N.S. (RU)

18.10 O240 Lumbar paravertebral muscle fat content versus other spinal degenerative change in asymptomatic populations according to age and yearly decline
Crawford R.J., Volken T., Valentin S., Elliott J.M., Melelo M. (CH, AU, AT & UK)

18.15 Group discussion
### Session 1

**Chairs:** Anand N. (US) & Kumar N. (SG)

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<td>08.10</td>
<td>O241</td>
<td>Impact of race and insurance status on surgical approach for cervical spondylotic myelopathy in the United States: A population-based analysis</td>
<td>McClelland III S., Marascalchi B.J., Passiu P.G., Protopsaltis T.S., Frempong-Boadu A.K., Enrico T.J. (US)</td>
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<tr>
<td>08.16</td>
<td>O242</td>
<td>The incidence of Proximal Junctional Kyphosis (PJX) in patients undergoing circumferential minimally invasive surgery (cMIS) for Adult Spinal Deformity (ASD) - A 7 year experience</td>
<td>Anand N., Cohen J., Cohen R., Khandehroo I B., Baron E., Kahwaty S. (US)</td>
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<td>08.27</td>
<td>O244</td>
<td>Intra operative force and distraction measurement in growing rod for early onset scoliosis and the factors affecting them</td>
<td>Kandwal P., Vijayaraghavan G., Goswami A., Bidre U., Jayaswal A. (IN)</td>
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<tr>
<td>08.33</td>
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<td>Discussion</td>
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<td>08.53</td>
<td>O245</td>
<td>Cervical disc replacement vs. ACDF in the injured worker population</td>
<td>Kube R.A., Morrow D.M. (US)</td>
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<tr>
<td>09.05</td>
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<td>Discussion</td>
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<tr>
<td>09.31</td>
<td>O247</td>
<td>Stand-alone LLIF procedure: In which patient it can be used without cage subsidence?</td>
<td>Pimenta L., Amaral R., Marchi L., Forlì F., Oliveira L., Coutinho E., Jensen R. (BR &amp; US)</td>
</tr>
<tr>
<td>09.37</td>
<td>O248</td>
<td>Efficacy of demineralized bone sponges and concentrated bone marrow in posterolateral lumbar fusion</td>
<td>Yoon B.V., Schroeder J., Abjornson C., Girardi F.P., Sama A.A. (IL &amp; US)</td>
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<tr>
<td>09.43</td>
<td></td>
<td>Discussion</td>
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<td>10.00</td>
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<td>Break</td>
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<tr>
<td>10.36</td>
<td>O250</td>
<td>Comparison of radiographic measures of interbody fusion between PEEK and nanostructured porous titanium coated PEEK cages in a sheep model</td>
<td>Freeman B.J.C., Jones C.F., Colloca C.J., Callery S., Hall D.J., Mukaabrahimovic A., Kuliwaba J.S., Szpalski M., Gunzburg R. (BE &amp; AU)</td>
</tr>
</tbody>
</table>
Session 1: MISS - Free papers: Part 1
Chairs: Kwon B. (US) & Lim H.H. (MY)

14.00 Welcome
Kwon B. (US) & Lim H.H. (MY)

14.04 O261 Does greater body mass index increase the risk for revision procedures following a single-level minimally invasive lumbar discectomy?

14.08 O262 Spine surgeon selection criteria: Factors influencing patient choice

14.12 O263 Correlation of determinant factors for indirect neural decompression after extreme lateral interbody fusion

14.16 O264 Lumbosacral canal through extreme lateral interbody fusion (XLIF) procedure is gradually increasing over time: Effect of indirect decompression

14.20 Discussion

14.30 O265 Five-year clinical outcome comparing 2 level open TLIF versus MIS TLIF: A matched pair analysis

14.34 O266 A new method to assess indirect decompression after extreme lateral interbody fusion using a new generation of intraoperative computerized-tomography scanner (Volumetric Study)

14.38 O267 Lateral access anterior lumbar interbody fusion is safe even in the cases with prior abdominoplasty
Okudaira T., Baba H., Komishii H., Yamaguchi T., Yokota K., Yamada S., Hirata H. (JP)

14.42 O268 How to strategically predict lumbar lordosis correction with oblique lateral interbody fusion (OLIF) surgery for degenerative lumbar kyphoscoliosis

14.46 Discussion

14.56 O269 Robotic-guided sacro-pelvic fixation using S2 Alar-Iliac screws: Feasibility and accuracy
Liebeman I., Hu X. (US)

15.00 O270 Advantages of navigation in minimal invasive TLIF

Session 2: MISS - Free papers: Part 2
Chair: Taylor W. (US) & Wu J.C. (TW)

16.30 Welcome
Taylor W. (US) & Wu J.C. (TW)

15.04 O271 A prospective study of intraoperative radiation exposure to surgeons in minimally invasive transforaminal lumbar interbody fusion – Does the patient's body mass index impact on surgeon's radiation dose?

15.08 O272 Can MCID be achieved in elderly patients undergoing MIS deformity surgery?

15.12 Discussion

15.22 O273 Autogenous stem cell injection into the intervertebral disc to treat low back pain - Is it effective and safe? Can we treat more than one degenerated level? A prospective controlled study
Vaz de Lima M., Petelin K., Techy F. (BR)

15.26 O274 Autogenous Bone Marrow Concentrate (BMC) injection into the intervertebral disc to treat discogenic low back pain – A safe and effective method – Does the concentration (cells/m) of stem cells in the BMC matter?
Vaz de Lima M., Petelin K., Techy F. (BR)

15.30 O275 Anatomic considerations of extraforaminal lumbar interbody fusion: A cadaveric study
Kumar A., Qureshi S., Merrill R. (US)

15.34 O276 Trans Articular Surface Screw (TASS) for minimally invasive PLIF

15.38 Discussion

15.48 Concluding comments

16.00 Break

16.30 Session 2: MISS - Free papers: Part 2
Chair: Taylor W. (US) & Wu J.C. (TW)

16.30 Welcome
Taylor W. (US) & Wu J.C. (TW)

16.34 O277 Clinical and radiographic parameters associated with best vs. worst clinical outcomes in minimally invasive deformity surgery
Vogel T., Than K., Park P., Ming Fu K., Nguyen S., Wang M., Shaffrey C., Beiss S., Akbarnia B., Deviren V., Uribe J., Okonkwo D., Mundis G., Mummaneni P.V. (US)

16.38 O278 Acute and hyper-acute carepathy for traumatic burst fractures using a mini-open lateral approach
Smith W., Christine G. (US)

16.42 O279 Accuracy of fluoroscopically-assisted percutaneous pedicle screws placed in patients in the lateral decubitus position
Kwon B., Khall A. (US)
Prevention of neurological complications using a neural monitoring system with a finger electrode in extreme lateral interbody fusion

Discussion

A prospective, multi-center comparison of clinical outcomes between TLIF and XLIF for the treatment of degenerative spondylolisthesis at L4-5 at two-year follow up
Smith W., Phillips F., Khajavi K., Kanter A., Peterson M. (US)

Clinical results of combined multiple QUIF and posterior instrumentation for adult spinal deformities: Emphasis on hybrid posterior MIS technique for improvement of sagittal plane correction

Clinical and radiological results following lateral (LLIF) versus transforaminal lumbar interbody fusion (MI-TLIF)
Lee R., Sedra F., Wilson L., Afsharpad A., Dala-All B. (UK)

The impact of minimally invasive spinal deformity surgery on ICU and hospital stay

Discussion

Two-year clinical outcomes of multilevel extreme lateral lumbar interbody fusion (XLIF®) versus minimally invasive surgery – Transforaminal lumbar interbody fusion (MIS-TLIF) for degenerative scoliosis/spondylolisthesis: A matched comparison study
Jiang L., Ng Y.H., Yue W.M., Guo C.M., Tan S.B., Siddiqui M.A. (SG)

MIS-TLIF reduces an incidence of adjacent segment disease in the patient with degenerative spondylolisthesis – Comparative study with conventional TLIF

Incomplete pars interarticularis fractures treated by percutaneous screw fixation
Wilson L., Philippa T., Altaraf F., Sedra F., Lee R. (UK)

Manufacturing and implantation of an individualized 3D printed titanium cage for cervical fusion
Spetzger U., Frasca M., Eisen G. (US & DE)

Discussion

Concluding comments

Adjourn
Asia Pacific Spine Society

Session 1: Presidential lecture
Chair: Shanmugam K.S. (MY)

08.00 Citation of Professor Kuniyoshi Abumi
Shanmugam K.S. (MY)

08.10 Presidential lecture: In my 40 years’ practice of spine surgery: What have I learnt?
Abumi K. (JP)

08.35 Q&A

Session 2: Cervical spine
Chair: Liu G. (SG) & Chaddha R. (IN)

08.45 Why do Asian have less symptomatic adjacent level cervical disease?
Chung J.Y. (KR)

09.00 A decade old argument for the best approach for multilevel cervical myelopathy: Is there a verdict?
Shimizu K. (JP)

09.15 Is there a solution to C5 palsy?
Pokharel R. (NP)

09.30 Is whiplash treatable?
Osti O.L. (AU)

09.45 Q&A

10.00 Break

Society for Minimally Invasive Spine Surgery

Asia Pacific Spine Society

APSS / SMISS Joint session
Session 3: Joint meeting APSS + SMISS
Chairs: Pennings F. (US) & Liu G. (SG)
Panel: Mummaneni P. (US) & Wang M. (US)

10.30 Welcome
Pennings F. (US) & Liu G. (SG)

10.35 APSS Presentations
Nucleoplasty: Indication techniques and results - Kumar N. (SG)

11.00 Tips and tricks for MED decompression technique - Yoshida M. (JP)

11.25 Tips and tricks for thoracoscopic surgery technique - Wong H.K. (SG)

11.50 SMISS Presentations
Robotics in spine surgery: Update - Wang M. (US)

12.10 Navigation in spine surgery: Update - Mummaneni P. (US)

12.30 Lunch break + Industry workshops

Asia Pacific Spine Society

Free papers: Cervical
Chairs: Shimizu K. (JP) & Yue W.M. (SG)

14.00 O289 A MRI study of the dorsal cervical cord migration behaviour in hybrid open-door laminoplasty

14.04 O290 Feasibility and trajectory study of anterior transarticular crossing screw placement for atlantoaxial joint instability: A cadaveric study and description of a novel technique
Ji W., Chen J., Zhu Q. (CN)

14.08 O291 Recommendation of outpatient clinic for numbness (Shibire-clinic in Japanese)
Nol M. (JP)

14.12 O292 Revision surgeries following artificial disc replacement of cervical spine

14.16 O293 Artificial disc replacement versus fusion for multi-level cervical spondylotic radiculopathy
Ramos M.R., Laput A.P.V., Ver M.R. (PH)

14.20 Q&A

Free papers: Cervical

14.30 O294 Is there an increase in intraoperative bleeding during emergency hybrid open-door laminoplasty for post-traumatic cervical cord injured patient?

14.34 O295 In continuous type ossification of posterior longitudinal ligament, which one is treatment of choice - Laminectomy or laminoplasty?

14.38 O296 Clinical results and complications of surgical treatment for thoracic myelopathy caused by ossification of the posterior longitudinal ligament: A multicenter retrospective study

14.42 O297 A clivus plate fixation for reconstruction of ventral defect of the craniovertebral junction: A novel fixation device for craniovertebral instability
Ji W., Chen J., Zhu Q. (CN)

14.46 O298 Clinical features and direct medical cost for patients with acute spinal cord injury

14.50 Q&A
Session 4: Operative video sessions: Surgical techniques in cervical spine
Chair: Rajasekaran S. (IN)

15.00  11:46
Cervical pedicle screw insertion and management of VA injury
Abumi K. (JP)

15.15  11:47
Posterior cervical decompression technique
Yoshida M. (JP)

15.30  11:48
Anterior cervical decompression technique
Shimizu K. (JP)

15.45
Q&A

16.00
Break

Session 5: Adult spinal deformity
Chairs: Akbarnia B. (US) & Wong Y.W. (HK)

16.30  11:49
Should we stop at T10 as UIV?
Ignacio J.M.F. (PH)

16.45  11:50
Must we perform LS S1 Fusion in all adult spinal deformity cases?
Wong Y.W. (HK)

17.00  11:51
Biologics in deformity
Berven S. (US)

17.15  11:52
MIS adult spinal deformity surgery: Is it better?
Anand N. (US)

17.30
Q&A

Case discussion

17.45
Case 1: The adequacy of distal fixation in adult scoliosis surgery
Wong Y.W. (HK)

18.00
Case 2: Neglected adult idiopathic scoliosis
Case 3: Severe kyphosis after surgical correction for achondroplasia
Ha K.Y. (KR)

18.15
Case 4: Application of ACR in sagittal deformity correction
Akbarnia B. (US)
The International Society for the Study of the Lumbar Spine

10.44 O307 Influence of previous surgery on patient-rated outcome after surgery for degenerative disorders of the lumbar spine
Zehnder P., Aghayev E., Fekeete T.F., Haschtmann D., Pigott T., Mannion A. (CH)

10.51 Discussion

11.00 O308 Preoperative psychological factors affect surgical satisfaction in elderly patients with lumbar spinal stenosis

11.07 O309 What health-related outcome measure best predicts future healthcare costs after spine surgery for degenerative spinal disorders?
Mannion A., O’Riordan D., von Büren M. (CH)

11.14 O310 Assessing the utility of a clinical prediction score regarding 30-day morbidity and mortality following metastatic spinal surgery: The New England Spinal Metastasis Score (NESMS)
Bono C.M., Schoenfeld A.J., Leonard D.A., Harris M.B. (US)

11.21 Discussion

Session 12: Pain
Chairs: Barz T. (DE) & Kawakami M. (JP)

11.30 O311 Proinflammatory cytokine upregulates the expression of glial cell line-derived neurotrophic factor by human intervertebral disc cells

11.37 O312 Changes of pain-related behavior and µ-opioid receptor expression in a rat lumbar disc herniation model

11.44 O313 Effectiveness and cost-effectiveness of radiofrequency denervation for chronic low back pain originating from the facet joints

11.51 Discussion

12.00 Second business meeting (members only)

12.30 Lunch break + Industry workshops

Society of Lateral Access Surgery

14.00 Welcome to the SOLAS meeting at Spineweek 2016
Program chairs

Session 1: Hot topics in lateral access surgery
Chairs: Berjano P. (IT), Smith W. (US) & Pimenta L. (BR)

14.10 I154 Overview of lateral lumbar interbody fusion
Pimenta L. (BR)

14.20 I155 Strategies for successful implementation of lateral lumbar surgery
Smith W. (US)

14.30 I156 The value of lateral approach in degenerative lumbar conditions
Taylor W. (US)

14.40 I157 Lateral surgery for degenerative scoliosis
Berjano P. (IT)

14.50 I158 Anterior alternatives to PSO
Akbarnia B. (US)

15.05 Panel discussion with audience questions

Session 2: Case-based discussion – 3 Cases per topic discussed by expert panel with audience participation
The educational goal of this session is to provide interactive case-based discussion exposing the participants to strategies that can benefit their practice. For those who are new to lateral surgery looking for a better understanding of indications to surgeons with lateral surgery experience looking for pearls to augment their practice, this engaging session will have learning opportunities for all participants.

15.10 Case-Based Session # 1: Utility of lateral surgery in revision degenerative lumbar cases
Chair: Berjano P. (IT)

Presentation of cases & discussion
Menezes C. (BR), Kanemura T. (JA), Quante M. (DE)

15.55 Break

16.25 Case-Based Session # 2: Safe & effective lateral surgery at L4-L5
Chair: Smith W. (US)

Presentation of cases & discussion
Taylor W. (US), Changming G. (SI), Quante M. (DE), Cleaver N. (AU)

17.20 Case-Based Session # 3: Lateral surgery for deformity and alignment correction
Chair: Berjano P. (IT)

Presentation of cases & discussion
Devireen V. (US), Diwan A. (AU), Akbarnia B. (US)

18.10 SOLAS meeting adjourns
Program chairs
International Consortium for Scoliosis Genetics

ICSG Business meeting

07.45
Minutes

07.55
Round table discussion: Ethical considerations across continents

08.35
Invited lecture: Biobank for early onset scoliosis
Garcia M. (AU)

08.45
Building collaborative biobanks

09.25
Update on phenotyping consensus
Phenotyping subcommittee

09.40
Update on genome-wide meta-analysis
Genetics subcommittee

09.55
Proposed ICSG meeting 2017
Wise C. (US)

10.10
Other business

10.20
Break

10.50
Invited lecture: Scoliosis animal models - Strategies and challenges
Chan D., Cheah K. (CN)

11.10
Compound inheritance of null mutations and the hypomorphic risk haplotype in Tbx6 also causes congenital scoliosis in Japanese

11.25
Roentgenographic evaluation of the spine in patients with osteogenesis imperfecta
Vaz de Lima M. (BR)

11.40
Limited consensus regarding choice of phenotypes in idiopathic scoliosis - Results from an international research consortium including basic and clinical researchers

11.55
Invited lecture: Defining scoliosis phenotypes – Lessons from consensus survey
Dahl B. (DK)

12.05
Invited lecture: 3D Phenotyping
Cheung J. (HK)

12.15
Discussion

12.30
Lunch break + Industry workshops

The International Society for the Advancement of Spine Surgery
Society for Minimally Invasive Spine Surgery

Case Discussion: L4-5 Grade 1 degenerative spondylolisthesis with stenosis
Back (50%) and leg pain (50%)
Chairs: Anand N. (US) & Kumar N. (SG)

14.00
Introduction

14.06
Lumbar decompression
Kumar N. (SG)

14.35
Endoscopic decompression
Yue J. (US)

15.04
Decompression with Coflex
Yue J. (US)

15.30
MIS TLIF
Anand N. (US)

16.00
Break

16.30
MIS LLIF with PSF
Wang M. (US)

17.00
ALIF with PSF
Foley K. (US)

17.30
PSF only
Kumar N. (SG)

18.00
ADR
Pimenta L. (BR)
7:30  Welcome

Paper presentations: Spinal tumor and traumatic injuries
Chairs: Bono C.M. (US) & Kawaguchi Y. (JP)
7:35  O317 Effectiveness of pre-operative selective arterial embolization to reduce intra-operative blood loss in patients with primary tumors of the mobile spine
Xu N., Wei F., Li Z., Liu X., Jiang L., Liu J. (CN)
7:41  O318 Quality of life after different surgical procedures for spinal metastases – A prospective cohort study
de Ruiter G.C.W., Nogarede C., Wolfs J.F.C., Arts M.P. (NL)
7:47  O319 Pre-operative magnetic resonance and intra-operative computed tomography fusion for real-time neuronavigation in intramedullary lesion surgery
Costa F. (IT)
7:53  O320 Revision surgery for spinal metastatic disease – Indications and outcomes
Choudhury M.I., Ball N.S., Chan S.L., Stirling A.J., Grainger M.F. (UK)
7:59  O321 Are cervical collars required for immobilisation in the emergency trauma setting?
Gee C., Davies D., Karmani S., Elsayed S., Cassell J. (UK)
8:05  O322 Early decompression and stabilization following cervical spinal cord injury: Examining the process of care from accident scene to surgery
8:11  O323 Assessment of whole spine MRI for multilevel non-contiguous spinal fractures: Incidence, patterns & missed injuries
Kanna R., Gaike C., Maheswaran A., Shetty A.P., Rajasekaran S. (IN)
8:15  Discussion

Paper presentations: Predictive factors after surgery
Chairs: Wetzel F.T. (US) & Thng P. (SG)
8:30  O324 Effect of a comprehensive pre-surgical education program on the anxiety levels of patients with spinal disorders: A prospective study
8:36  O325 The effect of obesity and being overweight on disability and pain after lumbar fusion: An analysis of 805 patients
Neva M.H., Saimach Y., Vihtonen K., Kyrölä K., Iizuka H., Takagiishi K., Häkkinen A. (FI & JP)
8:42  O326 Comparison of intraarticular diamorphine with conventional methods of analgesia following lumbar spine surgery
Lee R.S., Krishnan R., Kennedy J., Sedra F. (UK)
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Room 4</th>
<th>North American Spine Society</th>
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</table>
| 11.00 | Introduction | Dohring E.J. (US) | Endoscopically-assisted spine surgery: Current state and future directions
Chair: Dohring E.J. (US) |
| 11.10 | Transforaminal endoscopic discectomy | Wong C.C. (MY) | 
| 11.25 | Endoscopic rhizotomy | Yue J. (US) | 
| 11.40 | Percutaneous endoscopic cervical discectomy | Lee S.H. (KR) | 
| 12.10 | Key opening lecture | Liu G. (SG) | 
| 12.30 | Lunch break + Industry workshops | | 

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<th>Time</th>
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<th>Room 4</th>
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<tr>
<td>14.00</td>
<td>Key opening lecture</td>
<td>Liu G. (SG)</td>
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<tr>
<td>14.30</td>
<td>The benefit of operative management of post-tumor spinal deformity</td>
<td>Plastinov D., Zaborovski N., Mikhailov D., Smekalenkov O., Masevin S., Lapoeta O. (RU)</td>
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<td>14.34</td>
<td>Cervical alignment after surgical correction of Scheuermann’s Kyphosis</td>
<td>Hammel T.C., Romano A.B.P., Nasto L., Mehdian H. (UK)</td>
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<td>14.50</td>
<td>Group discussion</td>
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<td>15.00</td>
<td>De-novo degenerative lumbar scoliosis: A systematic review of prognostic factors for curve progression</td>
<td>Faraj S., Holleijn R., van Hooff M., de Kleuver M., Haanstra T. (NL)</td>
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<td>15.16</td>
<td>The development of a core outcome set for adolescent deformity surgery for the Nordic spine registries: An AOSpine deformity knowledge forum project</td>
<td>Faraj S., van Hooff M., Haanstra T., Holleijn R., Germanscheid N., de Kleuver M. (NL &amp; CH)</td>
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<td>15.20</td>
<td>Group discussion</td>
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www.spineweek.org
Monday
Meetings

15.30  O344
Adults with idiopathic scoliosis have similar physical activity level as controls
Diarbakeri E., Grauers A., Danielsson A., Gerdhem P. (SE)

15.35  O345
Three dimensional morphometry of lumbar spine to design pedicle screw: First Indonesian population based study
Sakhi Y.M., Dewo P., Suwardi T., Lanodiyyu Z., Magetsai R. (ID)

15.40  O346
Operative strategy of thoracolumbar kyphosis secondary to old osteoporotic vertebral compression fracture

15.45  O347
Modified four-rod instrumentation technique to support long posterior fixations at high risk of failure
Morassi G.L., Shafafy R., Quraishi N., Grevitt M., Boszczyk B.M., Shafafy M. (UK)

15.50  Group discussion

16.00  Break

Session 2: Degenerative lumbar
Chair: Thng P. (SG)

16.30  I168
Key opening lecture
Thng P. (SG)

17.00  O348
Unlocking TPA’s clinical and sagittal significance by analyzing its relation to pelvic tilt

17.04  O349
Histological analysis of bone regeneration with different doses of rhBMP-2 in an ovine lumbar interbody fusion model
Hohaus C., Siegrist K., Seeger J., Meisel H.J. (DE)

17.08  O350
Lumbar paravertebral muscle fatty infiltration: Spatial distribution and association with disc degeneration in an Asian population

17.12  O351
Calcified giant thoracic disc herniations in adults: A series of 10 patients with at least 2 years of follow up
Xu N., Wei F., Liu X., Jiang L., Liu Z. (CN)

17.16  Group discussion

17.30  O352
Day case discectomy - Retrospective analysis of 70 case series

17.34  O353
Synovial cysts of lumbar spine: State of the art – Outcome analysis on a series of two hundred ninety-four consecutive microsurgically resected cysts with long follow-up
Ciarpaglini R., Ebeling U., Steinsiepe K.F. (CH)

17.38  O354
Long time follow up after posterior lumbar interbody fusion with bone morphogenetic protein-2
Hohaus C., Meisel H.J. (DE)

17.42  O355
Cement augmentation to reduce spinal interbody implant subsidence

17.46  Group discussion

18.00  O356
Success criteria for core outcome measures in surgery for ischiatric spondylolisthesis
Rossvoll I., Sletten Ø., Nygaard Ø.P., Solberg T. (NG)

18.04  O357
The role of lumbar facet and nerve root block in low back pain and sciatic pain
Marin-Sanabria E.A., Silvero J.R. (PY)

18.08  O358
Early results of a minimally invasive fusion technique with mediolateral pedicle screws
Orpen N. (UK)

18.12  O359
Early unplanned readmissions in spine surgery: The current incidence and preventive aspects in Indian scenario
Kanna R., Rajoli S.R., Shetty A.P., Rajasekaran S. (IN)

18.16  O360
Treatment of symptomatic spinal stenosis with the transforaminal endoscopic approach
Yeung A. (US)

18.20  Group discussion

18.30  Group discussion
Monday

Meetings

Room 5

Society for Minimally Invasive Spine Surgery

Session 1: MISS - Trauma and tumor

Chairs: Härtl R. (US) & Wong C.C. (MY)

08.00 Welcome
Härtl R. (US) & Wong C.C. (MY)

08.05 11:49 Contemporary surgical management of metastatic spine disease
Tanaka M. (JP)

08.17 11:70 Thoracolumbar trauma classifications for the practicing spine surgeon
Nene A. (IN)

08.29 Q&A

08.35 Case: Single thoracic metastatic lesion - Kwan M.K. (MY)

08.39 En bloc resection - Nene A. (IN)

08.43 Posterior open - Tanaka M. (JP)

08.47 MIS - Khoo L. (US)

08.51 How case was treated - Kwan M.K. (MY)

08.55 Discussion

09.00 Case: Traumatic TL burst fracture - Nakanishi K. (JP)

09.04 MIS Anterior-posterior - Pimenta L. (BR)

09.08 Percutaneous posterior instrumentation without fusion - Yue W.M. (SG)

09.12 Short versus long segment fixation - Nene A. (IN)

09.16 How case was treated - Nakanishi K. (JP)

09.20 Discussion

09.30 Case: A traumatic TL burst fracture in patient with osteoporosis - Khoo L. (US)

09.34 Open posterior laminectomy with instrumentation - Nene A. (IN)

09.38 Short segment vs long segment - Kwan M.K. (MY)

09.42 Cement augmentation - Nakanishi K. (JP)

09.46 How case was treated - Khoo L. (US)

09.50 Discussion

10.00 Break

Room 5

The International Society for the Advancement of Spine Surgery
Society for Minimally Invasive Spine Surgery

SMISS / ISASS Joint session

Session 3: MISS - Spinal deformity

Chairs: Wong H.K. (SG) & Mummaneni P. (US)

14.00 Welcome
Wong H.K. (SG) & Mummaneni P. (US)

14.05 11:71 Overview of cervical deformity: Intrinsic or compensatory?
Ishii, K. (JP)

14.15 Discussion

14.20 Case: Iatrogenic flatback with pseudarthrosis - Mummaneni P. (US)

14.24 ACR / Lateral MIS - Wang M. (US)

14.28 Open Posterior only - Härtl R. (US)

14.32 Open anterior-posterior - Li Wen Wong E. (MY)

14.36 How case was treated - Mummaneni P. (US)

14.40 Discussion

14.45 11:72 Overview of radiographic TL sagittal balance parameters
Pimenta L. (BR)

14.55 Discussion

15.00 Case: Mild idiopathic mid lumbar scoliosis - Wong H.K. (SG)

15.04 Open - Wang M. (US)

15.08 MIS - Kwon B. (US)

15.12 Hybrid - Ishii K. (JP)

15.16 How case was treated - Wong H.K. (SG)

15.20 Discussion

15.30 Case: Thoracic PJK - Mummaneni P. (US)

15.34 Open - Ishii K. (JP)

15.38 MIS - Härtl R. (US)

15.42 Hybrid - Kwon B. (US)

15.46 How case was treated - Mummaneni P. (US)

15.50 Discussion

16.00 Break
The International Society for the Advancement of Spine Surgery
Society for Minimally Invasive Spine Surgery

Session 4: MISS - Free papers: Part 3
Chair: Wang M. (US)

16.30 Welcome

16.34 O361 Early outcomes in the use of minimally invasive lateral cages in primary adult degenerative scoliosis correction surgery – Minimum 6 month to 2 year follow-up
Lee R. (UK)

16.38 O362 Minimally invasive lateral interbody fusion with segmental lateral fixation for treatment of scoliotic deformity with significant spinopelvic malalignment
Smith W., Bergmann L. (US)

16.42 O363 Surgical outcome of corrective fusion with lateral lumbar interbody fusion for adult spinal deformity with severe imbalance

16.46 Discussion

16.53 O364 Can MIS-TLIF be performed with conventional instrumentation? Prospective randomized clinico-radiological study of para-medial inter-transverse MIS-TLIF vs classical TLIF
Bihani M., Naresh-Babu J., Anil-Babu P. (IN)

16.57 O365 Minimally invasive transforminal lumbar interbody fusion [MI-TLIF] – An attractive option for select failed backs
Bangalore Kantharajanna S., Kulkami A.G., Dhruv A., Annu A. (SG & IN)

17.01 O366 The effectiveness of transforminal endoscopic facet cyst resection
Gibson J.N.A., Oelofse L., Iprenburg M. (UK, ZA & NL)

17.05 Discussion

17.12 O367 Posterior percutaneous screw-rod instrumentation is a safeand effective alternative approach to a thoracolumbosacral orthosis rigid bracing for single level pyogenic spondylodiscitis
Colangelo D., Formica V.M., Autore G., Pambianco V., Tamburrelli F.C., Nasto L.A., Pola E. (IT)

17.16 O368 A new groove-entry technique for inserting thoracic percutaneous pedicle screws

17.20 O369 Anatomical consideration of iliac crest on percutaneous endoscopic discectomy using transforminal approach

17.24 Discussion

17.31 O370 Reducing pedicle drilling radiation by using dynamic surgical guidance with a Jamshidi Needle while maintaining screw placement accuracy
Williams J., Khoo L., Gaughan J., Betz R. (US)

17.35 O371 Does microendoscopic technique reduce mortality and major complications in patients undergoing lumbar discectomy? A propensity score-matched analysis using a nationwide administrative database
Ohya J., Oshima Y., Chikuda H., Oichi T., Tanaka S., Yasunaga H. (JP)

17.39 O372 Percutaneous lumbar intradiscal injection of autologous bone marrow concentrated cells significantly reduces discogenic pain through 24 months
Vaz de Lima M. (BR)

17.43 Discussion

17.52 Concluding comments

18.00 Adjourn
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Friday, May 20
Scientific Program

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Asia Pacific Spine Society

Session 1: Early onset of scoliosis: EOS Spine
Chairs: Jayaswal A. (IN) & Rajasekaran S. (IN)

08.00 1173
Luque instrumentation for fusionless surgery?
Wong Y.W. (HK)

08.15 1174
When to use Vertical Expandable Prosthetic Titanium Rib (VEPTR)?
Wong Y.W. (MY)

08.30 1175
Growing rods: What works, what doesn’t?
Akbarnia B. (US)

08.45 Q&A
Case discussion
Case discussants: Shanmugam K.S. (MY), Wong Y.W. (HK) & Akbarnia B. (US)

09.00
09.20
09.40
10.00
Break

Session 2: Adolescent Idiopathic Scoliosis: AIS spine

10.30 1176
Can you avoid neck and shoulder imbalance in Lenke 1 and 2 scoliosis correction?
Kwan M.K. (MY)

10.45 1177
Lenke IC: Selective vs non selective fusion?
Rajasekaran S. (IN)

11.00 1178
Direct Vertebral Rotation (DVR): Does it work?
Wong C.C. (MY)

11.15 Q&A
Case discussion
Case discussants: Kwan M.K. (MY), Rajasekaran S. (IN) & Wong C.C. (MY)

11.30 Case 1: Selection of fusion level in Lenke 5 curves
Chan C.Y.W. (MY)

11.50 Case 2: Selection thoracic fusion
Luk K.D.K. (HK)

12.10 Case 3: Severe scoliosis - A safe management strategy
Lim L.L. (SG)

12.30 Lunch break + Industry workshops

Asia Pacific Spine Society

Session 3: Operative video sessions: Surgical techniques in thoracolumbar spine
Chairs: Wong H.K. (SG), Luk K.D.K. (HK) & Rajasekaran S. (IN)

14.00 1179
AIS: Scoliosis reduction techniques
Chan C.Y.W. (MY)

14.15 1180
Video-assisted thoracoscopic instrumentation surgery for AIS: VATI
Wong H.K. (SG)

14.30 1181
Pedicle Subtraction Osteotomy (PSO) techniques
Jayaswal A. (IN)

14.45 Q&A

15.00 1182
Posterior Vertebral Column Resection (PVCR)
Wong C.C. (MY)

15.15 1183
MIDLIF: Cortical bone trajectory screw
Shanmugam K.S. (MY)

15.30 1184
Lateral lumbar interbody fusion: XLIF
Akbarnia B. (US)

15.45 Q&A

16.00 Break

Free papers: Spinal deformity
Chairs: Aydogan M. (TR) & Thanh V.V. (VN)

16.30 O373
Sequential assessment of spinal cord location in adolescent idiopathic scoliosis patients

16.34 O374
Characterization and predictive value of “segmental curve flexibility” in adolescent idiopathic scoliosis patients
Cheung J.P.Y., Yao G., Shigematsu H., Cheung K.M.C., Luk K.D.K., Samartzis D. (CN)

16.38 O375
Predictability of peak growth spurt and growth cessation using the distal radius and ulna classification
Cheung J.P.Y., Cheung P.W.H., Samartzis D., Cheung K.M.C., Luk K.D.K. (HK)

16.42 O376
Are magnetically controlled growing rods useful as an internal splint in idiopathic scoliosis?
Yadav S., Cheung J.P.Y., Samartzis D., Cora B., Kenny K.Y.H., Cheung K.M.C. (CN)

16.46 O377
Effect of an imbalanced fusion block with residual shift on drift adding-on segments after adolescent idiopathic scoliosis surgical correction

16.50 Q&A
Asia Pacific Spine Society

Free papers: Spinal deformity
Ignacio J.M.F. (PH) & Tobing D. (ID)

**17.00 O378** Patient and radiographer assessment of the slump sitting flexion compared to the conventional forward bending flexion

**17.04 O379** Posterior thoraco-pelvic corrective fusion for severe spinal deformity in patients with Parkinson’s disease
Yamato Y., Hasegawa T., Kobayashi S., Tagawa D., Yasuda T., Oe S., Matsuyama Y. (JP)

**17.08 O380** A prospective monocentric randomized pilot study to compare the safety and effectiveness of two vertebral compression fracture reduction techniques: 1 Year results
Noriega D.C., Ardura F., Hernandez Ramajo R. (ES)

**17.12 O381** 3D mapping to assess anatomical restoration in vertebral compression fractures
Noriega D.C., Maestrelli G., Dufort P., Krüger A., Ardura F. (ES, CH, CA & DE)

**17.16 O382** Two-level prophylactic balloon kyphoplasty decreases the risk of proximal junctional kyphosis in adult spinal deformity surgery

**17.20 Q&A**

**17.30** Session 4: Closing
Chair: Abumi K. (JP)

**17.35 I185** What is the future of spine surgery in the next 10 years?
Luk K.D.K., (HK)

**18.00 Q&A**

**18.10 Prize giving ceremony**
Liu G. (SG)

**18.20 Prize giving ceremony: Best Papers (Oral and Poster)**
Jayaswal A. (IN), Shanmugam K.S. (MY) & Abumi K. (JP)

**18.20 Closing remarks**
Abumi K. (JP)

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The International Society for the Study of the Lumbar Spine

**07.45 Session 13: Special poster session 2 (eSpine area)**

**10.00 Break**

**10.30 Report of special interest group chairs**
Chair: Yoon T. (US)

**11.00 Session 16: Sagittal alignment**
Chairs: Bono C. (US) & Sairyo K. (JP)

**11.07 O386** Impact of fatigue on maintenance of upright posture: Dynamic assessment of sagittal spinal deformity parameter after 10 minutes of walking

**11.07 O385** Paravertebral muscle degeneration is the most significant factor associated with sagittal imbalance: The Wakayama spine study

**11.14 O387** The difference of total spinal sagittal alignment between up right and stepped position

**11.21 Discussion**
**The International Society for the Study of the Lumbar Spine**

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11.30 O388  
Spino-pelvic mismatch is the most significant indicator on low back symptom measured by ODI score  
Hasegawa K., Okamoto M., Hatsushikano S., Shimoda H., Ono M. (JP)

11.37 O389  
Effects of pre-existing adjacent-level pathologies and spino-pelvic alignment on the prevalence of adjacent segment disease after single-level lumbar fusion  

11.44 O390  
Does sarcopenia impact on sagittal malalignment or not?  

11.51 Discussion

**Session 17: Disc degeneration**

Chairs: Yoon T. (US) & Kotaru N. (JP)

12.00 O391  
Intervertebral disc repair with autologous nucleus pulposus cell transplantation: A two-year clinical study  

12.07 O392  
Disc regeneration using MSC transplanted via the endplate route  

12.14 O393  
Functional self-assembled peptide nanofibers for BMSCs encapsulation in nucleus pulposus regeneration  
Wu Y., Ruan D., Ji Z. (CN)

12.21 Discussion

12.30 Lunch break + Industry workshops

14.00 Symposium II

**I186**  
Diagnosis and non-surgical treatment of SI joint pain  
Smuck M. (US)

**I187**  
SI Joint Fusion - Clinical update  
Garfin S.R. (US)

**Session 18: Imaging**

Chairs: Smuck M. (US) & Ishii K. (JP)

14.40 O394  
Axial loading during MRI combined with T2 mapping provide new insights into disc degeneration and biomechanics in LBP patients  
Hebeika H., Lagerstrand K., Brisby H., Nilsson M. (SE)

14.47 O395  
The influence of sub-diagnosis on radiographic and clinical outcomes after lumbar fusion for degenerative disc disorders: A 15-year meta-analysis  
Bhalla A., Schoenfeld A., George J., Bono C. (US)

14.54 O396  
Can Propionibacterium acne really cause Modic changes? Evidence from a rabbit model  
Zhao F., Shan Z., Li S., Zhang X., Yu T. (CN)

15.01 Discussion

15.10 O397  
Psychometric alterations and brain images in chronic low back pain  
Yabuki S., Fukui S., Kikuchi S., Konno S. (JP)

15.17 O398  
Observation of bone volume change in osteoporotic vertebral body after vertebral fracture by CT color mapping technique  
Hamasaki T., Sadaoka D. (JP)

15.24 O399  
The diagnosis of double-crush lesion in the L5 lumbar nerve using diffusion tensor imaging  

15.31 Discussion

**Session 19: Spinal stenosis**

Chairs: Jacobs W. (NL) & Takahashi K. (JP)

15.40 O400  
The change of dural sac cross-sectional area (DSCSA) with symptomatic lumbar spinal stenosis: 10-Year community follow-up  

15.47 O401  
Prognosis and prognostic factors after successfully treated by non-surgical procedures in patients with lumbar spinal canal stenosis  

15.54 O402  
Determinants of patient satisfaction after surgery for central spinal stenosis without concomitant spondylothesis - A register study of 5100 patients  
Shimqvist B., Sigmundsson F. G., Jönsson B. (SE)

16.01 Discussion

16.10 Announcement - Best Paper and Poster Awards  
Chair: Roberts S. (UK)

Closing remarks: Luk K. (HK)
Monday

**Session 1: Degenerative cervical**  
Chair: Vialle L. (BR)

08.00  I188  
**Key opening lecture: Cervical Sagittal Alignment**  
Vialle L. (BR)

08.30  O403  
**Cervical - Foot print anthropometry in Indian population: Implications on design of artificial disc replacement devices**  
Kulkarni A., Patil Y., BK S., Saral A. (IN)

08.35  O404  
**More than 20 years of follow-up after en bloc cervical laminoplasty**  

08.40  O405  
**Incidence and functional outcomes of reintubation after anterior cervical spine surgery: Results from AOSpine North America multicenter study on 8,887 patients**  

08.45  
**Group discussion**

09.00  O406  
**Impact of cranio-cervical balance on surgical outcomes of laminoplasty**  

09.05  O407  
**Results of anterior surgery for spondylotic cervical myelopathy-role of the posterior longitudinal ligament in outcome**  
Chatterjee S., Dutta D. (IN)

09.10  O408  
**Sequence of segmental contributions in the lower cervical spine during active extension and flexion: Healthy controls vs. cervical degenerative disc disease patients**  
Boselie T.F.M., van Santbrink H., de Bie R.A., van Mameren H. (NL)

09.15  
**Group discussion**

09.30  O409  
**3-Year radiological evolution in a cohort of 384 patients treated with cervical arthroplasty**  

09.34  O410  
**Are spacer fixations necessary for every opened lamina in expansive open-door laminoplasty? Matched case-control study**  

09.38  O411  
**Adjacent level cervical disc degeneration: Incidence and cause – Prospective study for 10 years**  
Chatterjee S. (IN)

09.42  O412  
**Accuracy of retrospective evaluation of pre-operative neurological function following decompressive surgery among patients with cervical spondylotic myelopathy (CSM)**  

09.46  
**Group discussion**

10.00  
**Break**

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Session 2

Chairs: Anand N. (US) & Kumar N. (SG)

14.10 O427 Analysis of actual segmental lordosis obtained with lordotic and hyperlordotic lateral cages - Is degenerative scoliosis a risk factor for adult thoracolumbar spinal fractures? A 7000 multi-racial asian patients review. Analysis of 218 levels
Anand N., Khandehroo B., Cohen J., Cohen R., Baron E., Kahway S. (US)

14.16 O428 How is the spine different in standing and in sitting? Important considerations in spinal deformity correction

14.22 O429 A morphology and prevalence study of degenerative lumbar scoliosis in over 7000 multi-racial asian adults

14.28 O430 Is degenerative scoliosis a risk factor for adult thoracolumbar spinal fractures? A 7000 multi-racial asian patients review

14.34 Discussion

14.54 O431 Minimally invasive lateral interbody fusion with segmental lateral fixation for adult degenerative scoliosis: Mid-term clinical and radiographic results
Smith W.D., Bergmann L. (US)

15.00 O432 Clinical and radiographic results of indirect decompression and posterior cervical fusion for single level cervical radiculopathy using an expandable implant with 2-year follow-up
Siemionow K., Janusz P., Philips F., McCormack B. (US & PL)

15.06 O433 Multi-level fusion versus hybrid surgery in three-level cervical disc disease: Retrospective matched analysis of clinical and radiologic results in minimum 2-year follow-up

15.12 Discussion

16.00 Break

16.30 O434 A MRI characterization of the dorsal cervical cord migration behaviour in hybrid open-door laminoplasty

16.36 O435 Impact of age on patient outcomes after cervical disc arthroplasty or anterior cervical discectomy and fusion: Comparison at 5-year follow-up
Hisey M., Zigler J., Guyer R., Ohrnmeiss D. (US)

16.42 O436 Comparison of one- and two-level treatment with cervical disc arthroplasty or anterior cervical discectomy and fusion
Hisey M., Bae H., Ohrnmeiss D. (US)

16.48 O437 Comparison of 1 & 2 level versus 3 & 4 level cervical disc arthroplasty: An outcome analysis – Results from a single centre

16.54 Discussion
The International Society for the Advancement of Spine Surgery

17.14 O438 Rib cage measurement reproducibility using biplanar stereographic 3D reconstructions in severe adolescent idiopathic scoliosis Pietton R., Bouluessa H., Vergari C., Skalli W., Vialle R. (FR)


17.32 O441 The convex manipulation: An alternative technique in surgical treatment of adolescent idiopathic scoliosis Oggiano L., La Rosa G. (IT)

17.38 Discussion


18.04 O443 MIS TLIF improves functional ability in injured workers as compared to open TLIF Kube R., Morrow D. (US)

18.10 Discussion

18.20 Adjourn

North American Spine Society

07.30 Welcome

07.35 O444 Debridement and indwelling irrigation with diluted gentamicin solution for postoperative spinal infection Su Q.J., Wei Y., Hai Y. (CN)

07.41 O445 Anterior hyperlordotic cages: Early experience and radiographic results Kadam A., Savile P.A., Smith H.E., Ariel V. (US)

07.47 O446 Comparing radiation exposure using conventional fluoroscopy versus intra-operative cone-beam computed tomography (O-arm) to perform minimally invasive transforminal lumbar interbody fusion, a single surgeon series Lee R.S., Sedra F., Kumano Y., Edwards J. (UK)


07.59 O448 To evaluate the results of a single staged simultaneous decompression surgery for tandem spinal stenosis - A review of 149 patients Patel P.M., Bhokraj S.T., Nagad P., Kashkar A.K., Kumar N., Akbari K., Prasad G., Hushekesh M. (IN)

08.05 O449 Porous silicon nitride spacers versus PEEK cages with autograft – 24 Month outcomes data from the CASCADE noninferiority trial Arts M.P., Wolls J., Corbin T.P. (NL & US)

08.11 Discussion

07.30 O450 Previous surgery significantly increases the risk of both surgical and general complications during surgery for degenerative disorders of the lumbar spine Mannion A.F., Zehnder P., Porcher F., Jeszenszky D., Kleinstück F.S., Pittot T., Aghayev E. (CH & UK)

08.36 O451 Factors associated with the reto-odontoid soft tissue enlargement after middle and lower cervical spine surgery in non-rheumatoid arthritis patients Dohzono S., Toyoda H., Takahashi S., Suzuki A., Terai H., Nakamura H. (JP)


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Paper presentations: Spinal deformity
Chairs: Dohring E.J. (US) & Yeung A.T. (US)

10.00 O456 Prevalence and factors affecting cervical deformity in adolescent idiopathic scoliosis patients
Hu X., Lieberman I.H. (US)

10.06 O457 Biplanar stereography predicts pulmonary function tests in adolescent idiopathic scoliosis

10.12 O458 Sagittal spinal and pelvic parameters in patients with Scheuermann’s disease: A preliminary study

10.18 O459 An uniquely shaped rod improves curve correction in surgical treatment of adolescent idiopathic scoliosis
Gehrchen M., Ohrn-Nissen S., Hallager D.W., Dahl B. (DK)

10.24 O460 Accuracy of pre-operative surgical planning software in predicting postoperative alignment in patients undergoing minimally invasive multi-level anterior column reconstruction for positive sagittal balance deformity
Lee R.S. (UK)

10.30 O461 Intra- and periopeative complications with the OLIF approach in 812 patients
Korge A., Mehran C., Sauer D., Siepe C., Mayer H.M. (DE & AT)

10.36 O462 3D-Navigation reduces radiation exposure and operative time in lumbopelvic fixations
Hoffmann M.F., Schildhauer T.A. (DE)

10.42 Discussion

North American Spine Society

Rheumatoid arthritis is a risk factor for adjacent segment disease after PLIF irrespective of disease activity
Fujiwara H., Makino T., Yonenobu K., Honda H., Matsuo Y., Kaito T. (JP)

Perioperative prevalence and risk factors for deep vein thrombosis in elective spine surgery
Nakamoto H., Murakami M., Shiono H., Yamamoto S. (JP)

Discussion

Break

Controversies in spine surgery
Chair: Bono C.M. (US)

11.00 Introduction
Bono C.M. (US)

11.10 I190 Geriatric odontoid fractures: Operative or nonoperative treatment?
Bono C.M. (US)

11.25 I191 Recurrent lumbar disc herniations: Revision discectomy alone or with fusion?
Luk K.D. (HK)

11.40 I192 Spinal epidural abscess: Is it always an operative indication?
Rajaskaran S. (IN)

11.55 I193 Interspinous process devices: Are these implants just looking for indications?
Dohring E.J. (US)

12.10 Discussion, Questions

12.30 Lunch break + Industry workshops

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on display on the poster boards

ePosters
on display on the computer screens

eSpine Area

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A. Low back pain
Chairs: Leinenen V. (FI) & Vadala G. (IT)

SP1 Effectiveness and cost-effectiveness of radiofrequency denervation for chronic low back pain originating from the sacroiliac joints

SP2 Does breast size predict back pain?
Lees D., Bowey A., Serrano-Pedraza I., Sanderson P.L. (UK & ES)

SP3 Simulation of multifactorial causes of low back pain
Cholewicki J., Pattahk P.K., Reeves N.P., Popovich J.M. Jr. (US)

SP4 Novel classification and risk factors of high intensity zones of the lumbar spine: The Wakayama spine study

SP5 Prevalence and genetic associations of modic endplate changes in the lumbar spine

SP6 Psychological stress results in mechanical allodynia, but not in low back pain in the rat
Fukui D., Kawakami M., Matsumoto T., Naiki M. (JP)

B. Spinal alignment & tumours
Chairs: Hall D. (AU) & Koboyashi S. (JP)

SP7 Defining the role of lower limbs in compensating for sagittal malalignment

SP8 Peak scoliosis brace can reduce pain in adults with painful scoliosis: Results from a prospective cohort study
Zaina F., Poggio M., Donzelli M., Lusini M., Minella S., Negrini S (IT)

SP9 Progressve pattern of vertebral deformity throughout four years in a population-based cohort study of vertebral fracture

SP10 Less invasiveness in minimally invasive spine stabilization (mis) for metastatic spinal tumor

SP11 Efficacy of zoledronate against metastatic spinal tumors: Evaluation of bone strength using finite element analysis

SP12 Evaluation of the safety of using intraoperative salvaged blood in metastatic spine tumour surgery: Using microwell technique
Kumar N., Zaw A.S., Khoo B.L., Kumar A., Thiery J.P. (SG)
SP25 Lifestyle related disease increases thickness of spinal epidural fat in the patients with lumbar spinal stenosis

SP26 Thickness of spinal epidural fat influences surgical outcomes in the patients with lumbar spinal stenosis

SP27 Early effects of medicare’s bundle payment program for lumbar fusion on episode costs, volume and safety

SP28 Objective measurement of free-living physical activity (performance) in lumbar spinal stenosis: Are physical activity guidelines being met?

SP29 Use of the L5 spinal nerve angle on oblique coronal double echo steady state magnetic resonance imaging and the range of L5/S motion for foraminal stenosis diagnosis

SP30 Natural history study of ossification of the yellow ligament: Five-year longitudinal MRI follow-up

F. Disc herniation & Bone
Chairs: Wilke H.J. (DE) & Patwardhan A. (US)

SP31 Mechanism of developing sciatica experienced in lumbar disc herniation: Change in intradacrical oxygen saturation by intraoperative SLR test
Kobayashi S., Yonezawa T., Hashishin Y., Matsuoka H. (JP)

SP32 Gender differences in the surgical treatment of lumbar disc herniation in elderly
Strömquist B., Strömquist F., Jonsson B., Karlsson M. (SE)

SP33 Nucleocytoplasmic alters internal brain stem plasticity in the human lumbar intervertebral disc
Vrelovic E.J., Claeson A.A., Showalter B.L., Wright A.C., Gee J.C., Malhotra N.R., Elliott D.M. (US)

SP34 Quantifying intervertebral disc inter-lamellar and inter-bundle mechanics
Vergari C., Mansfield J., Meakin J.R., Winlove C.P. (UK)

SP35 Tubular discectomy vs conventional microdiscectomy for the treatment of lumbar disc herniation – Long-term results of randomized controlled trial

SP36 Bone healing activation effect of freeze-dried platelet-rich plasma preserved for 8 weeks

G. Spinal stenosis II
Chairs: Weiner B. (US) & Zhwojing L. (CN)

SP37 Discrimination between lumbar intraspinal stenosis and foraminal stenosis using diffusion tensor imaging parameters

SP38 One year results of a prospective randomized controlled trial comparing minimally invasive interspinous process device (IPD) with standalone decompressive surgery: Neurogenic Intermittent Claudication Evaluation (NICE) study
Le Huec J.C., Meyer B. (FR & DE)

SP39 Morphology and clinical importance of epidural membrane and periradicular fibrous tissue in lumbo-sacral spinal stenosis

SP40 The branches of the lumbar artery running vertically on the intervertebral disc of the lower lumbar spine: An anatomical study

SP41 Novel use of accelerometry data to develop phenotypes of free-living physical activity (performance) and differentiate between lumbar spinal stenosis, knee osteoarthritis, and matched healthy populations

SP42 Comprehensive non-surgical treatments decrease the need for spine surgery in patients with degenerative spondylolisthesis
Demir-Deviren S., Cil H., Ozcan-Eksi E.E., Tay B., Burch S., Berven S. (US)

H. Fusion
Chairs: Lund T. (FI) & Hasegawa T. (JP)

SP43 Decompression with or without concomitant fusion for patients suffering from stenosis in combination with degenerative spondylolisthesis

SP44 The impact of flat back on patients with persistent low back pain after spinal fusion (short seg. vs long seg.)

SP45 CT graft bone densitometry as a predictor of fusion status in posterior lumber interbody fusion and its clinical significance
Sawakami K., Ito T., Takahashi I., Ishikawa S. (JP)

SP46 Anatomical analysis of the lumbar segmental artery in the oblique lateral interbody fusion approach

SP47 Effect of spinopelvic alignment on adjacent segment disease after multi-level lumbar fusion: Risk factor analysis

SP48 Degenerative Spondylolisthesis (DS) – An opportunity to implement value based spine care
Kulkami A., Dutta S. (IN)
The International Society for the Study of the Lumbar Spine

I. Disc degeneration
Chairs: Samartzis D. (HK) & Park M.S. (KR)

SP49
Lumbar disc degeneration was not related to bone mineral density in Chinese populations: Facet joint degeneration confounds the association
Pan J.J., Tong K., Wang Y. (CN)

SP50
Technical differences in microsurgical, endoscopic and endoscopically-assisted lumbar discectomies result in different complications but do not affect long-term GQL
Belykh E.G., Morgan B.G., Theodore N., Preul M.C., Byvatov V.A. (RU & US)

SP51
How reliable are the reported genetic associations in disc degeneration? The influence of phenotypes, age, population size and inclusion sequence in 809 patients

SP52
The preventive effect of dynamic stabilization against adjacent segment degeneration after posterior interbody fusion

SP53
Do degenerated human lumbar spine segments exhibit biphasic viscoelastic properties?

SP54
The anti-angiogenic capacity of rabbit notochordal cells in the proliferation of human endothelial cells under hypoxia

J. Outcome measurements & complications
Chairs: Zaina F. (IT) & Chiba K. (JP)

SP55
What do patients consider to be an acceptable level of symptoms to live with after surgery for adult spinal deformity?

SP56
Stiffness after pan-lumbar arthrodesis for adult spinal deformity does not significantly impact patient functional status or satisfaction

SP57
The Dartmouth/consumer reports treatment outcomes calculator for surgical and nonsurgical treatment of disc herniation, spinal stenosis and degenerative spondylolisthesis

SP58
Fullfilment of expectations two years after lumbar spine surgery

SP59
Analysis of hospital length of stay following lumbar anterior/posterior combined fusion: Is there a disadvantage associated with shorter stays?
Guyer R.D., Pulney E., Ohnmeiss D.D., Zigler J.E., Blumenthal S.L. (US)

SP60
The occurrence of adjacent segment pathology and of adjacent disc degeneration in one-level lumbar fusion after 5 years follow-up, in comparison with the decompression surgery group

The International Society for the Study of the Lumbar Spine

ISSLS General posters (On display on the poster boards)

P1
Factors affecting anterior trunk bending during level walking in patients with lumbar spinal stenosis

P2
The use of TLF procedure in management of degenerative spine deformities - A retrospective clinical study to evaluate the efficiency of this technique
Mossaad M. (EG)

P3
Quantitative computed tomography protocols affect QCT/FEA predicted stiffness
Giambini H., Dragoni-Deaescu D., Nasr A., Yazemaki M.J., Zhao C. (US)

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P42 Slump sitting X-rays of the lumbar spine is better than conventional flexion view
Lau E.T.C., Hey D., Choong D., Tan C.S., Wong H.K. (SG)

P43 Recurrent or retained lumbar disc herniations treated with full endoscopic lumbar intraforaminall discectomy
Russo G. (US)

P44 Radiographic analysis of indirect neural decompression for central canal stenosis following lateral lumbar interbody fusion (LIF) estimation of cutoff value for additional decompression
P45 Lumbar root diagnostic radiofrequency sensory stimulation in order to find the symptomatic lumbar root in multiple lumbar stenosis
Kang S.H. (KR)

P46 A biomechanical evaluation of a versatile and novel anterior cervical fusion device possessing modular and integrated fixation capabilities
Panchal R., Wanebo J., Gandhi A., Ferry C., Farmer S, Das K. (US)

P47 An in-vitro biomechanical evaluation of a novel lateral lumbar interbody fusion cage with integrated modular plate fixation
DenHaese R., Gandhi A., Ferry C., Farmer S, Porter R. (US)

P48 Continuous distraction induced delayed spinal cord injury on motor evoked potentials and histological changes of spinal cord in a porcine model
Hong J.Y., Suh S.W., Yang J.H. (KR)

P49 Computer tomography assessment of pedicle screw placement in obesity people: Comparison between free-hand and C-arm based intraoperative three-dimension navigation techniques
Liu Y., Tian W., An Y., Jin P. (CN)

P50 Correlation between implant motion and patient reported outcome measures following single level cervical disc replacement surgery

P51 Perioperative experience with a novel lateral interbody fusion cage possessing integrated modular plate fixation
DenHaese R., Hill C., Strenge B., Kranenburg A., Ferry C., Moore C., Bejin B., Martineck S., Martin K. (US)

P52 Long term follow up of multi-level (three & four levels) cervical disc arthroplasty - Results from a single center
Friesem S., Khan S., Rajesh M., Berg A., Reddy G., Bhatia C. (UK)

P53 Interspinous process fixation versus pedicle screw fixation in circumferential arthrodhesis: 1-Year outcomes from a prospective randomized multi-center trial

P54 Comparison of hybrid versus 3 and 4 levels cervical disc arthroplasty - Results from a single centre
Khan S., Rajesh M., Friesem S., Bhatia C., Reddy G., Aneiba K. (UK)

P55 Anterior versus lateral circumferential lumbar fusion: 1-Year outcomes from a prospective multi-center study

P56 Long term results of multi-level (three and four levels) cervical disc arthroplasty: Age-weighted linear regression analysis - Results from a single centre
Rajesh M., Khan S., Friesem S., Bhatia C., Reddy G. (UK)

P57 Biomechanical evaluation of interbody fixation with secondary augmentation: Direct lateral versus posterior and transformamal interbody fusion
Kelly B., Reis M., Perez-Ontboa L., Reyes P., Godzik J., Kaib S., Martinez del-Campo E., Singh V., Newcomb A., Crawford N., Chang S. (US)

P59 Unilateral neurophysiological alerts - Is this clinically significant?

P60 Finite element-based adjacent level analysis after lumbar fusion for scoliosis
Haddas R., Xu M., Lieberman L., Yang J. (US)

P61 Experience with a novel, automated, external cerebrospinal fluid drainage control device
Eckermann J., Lieberson R., Meyer W., Leitch K., Trang T. (US)

P62 Comparison of 1 & 2 levels Discocerv vs 1 & 2 levels Nunec cervical disc arthroplasty: An outcome analysis - Results from a single centre
Khan S., Lagaras A., Rajesh M., Hernandez M., Bhatia C., Friesem S. (UK)

P63 Novel ALIF cage with self-adapting lordosis performs well in initial clinical usage

P64 In vitro fatigue behavior of the cervical spine with no-profile or traditional plates
Konz R., Freeman A., Dawson J., Davis R. (US)

P65 Incidence and behavior of SIJ disease in private spine practice
Kube R. (US)

P66 Cervical disc replacement vs. ACDF in the injured worker population
Kube R. (US)

P67 Clinical usefulness and safety of selective lumbar nerve root blocks
Rudal G., Richardson D., Kass A., Jensen C. (UK)

P68 Hyperbaric oxygen intervention reduces secondary spinal cord injury in rats via regulation of HMGBl/TLR4/NF-κb signaling pathway
Kang N., Ha Y. (CN)

P69 Long-term prospective randomized outcomes following lumbar total disc replacement: A single site experience with 6 years follow-up
Yue J. (US)

P70 New classification of the lumbar modic sign and of its surgical strategy impact
Gastambide D., Jacquot F., Gardeur D. (FR)

P71 Clinical experience of anterior cervical discotomy and fusion with self-locking cages for multisegmental cervical myelopathy
Jin D., Li Q., Yan H. (CN)

P72 Effects of volitional spine stabilization on asymmetric lifting task in individuals with recurrent low back pain
Haddas R., Lieberman L. (US)
Clinical and radiological outcomes of a new modular stand-alone PLIF in patients with lumbar disc herniation
Alves O.L., Santos P., Costa B., Reinas R. (PT)

Percutaneous kyphoplasty for Kummell’s disease with severe spinal canal stenosis
Chen G.D., Yang H.L., Luo Z.P. (CN)

Adolescent idiopathic scoliosis treated by a less invasive lateral approach
Shin K.H. (KR)

Minimally invasive iliac screw fixation in treating metastatic lumbosacral deformity

The feasibility of an intradiscal hydrogel implant for nucleus augmentation in discogenic pain
Hong J.Y., Suh S.W., Yang J.H., Park S.Y. (KR)

Percutaneous full endoscopic posterior cervical disc surgery
Tian W., Liu Y., Fan M., Lang Z. (CN)

Posterior closing-shortening osteotomy for vertebral collapse after osteoporotic vertebral compression fractures in eleven patients with a minimum 3-year follow-up
Alam M.S., Karim M.R., Jonayed S.A., Munir H.K., Chakraborty S., Alam T. (BD & AU)

Complications associated with the anterior approach to the lumbar spine: Analysis of 2,881 consecutive cases during a 6-year period
Zigler J., Shiv S., Guyer R., Ohrnmeiss D. (US)

Clinical outcomes and radiological results after posterior surgical correction of severe thoracic osteoporotic kyphosis in eleven patients with a minimal 3-year follow-up
Doria C., Balsano M., Mantio T., Milia F. (IT)

Robot-assisted posterior C1-C2 transarticular screw fixation for atlantoaxial instability
Tian W., Liu Y., Fan M., Lang Z. (CN)

Revisional PELD for recurred lumbar HNP
Kwon Y.S. (KR)

Comparison of complications and clinical and radiographic outcomes between non-obese and obese patients with adult spinal deformity undergoing minimally invasive surgery

Sclerotic vertebral metastases, study with sequences dedicated in gradient echo in and out of phase and DWI - Preliminary experience
Costantino S., Mosele G.R., Balsano M., Conti M., Doria C. (IT)

Posterior closing-shortening osteotomy for vertebral collapse after osteoporotic compression fractures in lower lumbar spine

Dose-dependent nerve inflammatory response to rhBMP-2 in a novel rodent spinal model

Robot-assisted percutaneous pedicle screw placement using 3D fluoroscopy: Animal and clinical experiments
Tian W., Liu Y., Fan M., Lang Z. (SG)

Utility of fusion surgery in patients with degenerative lumbar spondylolisthesis & their outcome
Alam M.S., Karim M.R., Jonayed S.A., Munir H.K., Chakraborty S., Alam T. (BD)

Three column fixation - A dynamic method in scoliosis surgery
Alam M.S., Karim M.R., Jonayed S.A., Munir H.K., Chakraborty S., Alam T. (BD)

Surgery for spinal tuberculosis: A multi-center experience of 882 cases
Alam M.S., Karim M.R., Jonayed S.A., Munir H.K., Sarkar D., Chakraborty S., Alam T. (BD & AU)

Anterior cervical decompression, fusion & stabilization by cervical plate & screws for traumatic lower cervical spinal injury - A series of 62 patients

Results of posterior surgery in thoraco-lumbar spine injury

Biomechanical analysis of anterior cervical discectomy and fusion supplemented with posterior cervical cages

Quality of life analysis in symptomatic spine osteoarthritis - Nationwide health survey analysis of elderly population with EQ-SD
Hong J.Y., Suh S.W., Ynag J.H. (KR)

What is the role of epidural steroid injections in lumbar spinal disease with moderate disability? Comparative study in patients with or without surgery up to 1 year
Hong J.Y., Suh S.W., Yang J.H., Park S.Y. (KR)

Factors for early pull-out of pedicle screws after posterior pedicle screw fixation for thoracolumbar burst fractures

Radiological evaluation of the rate of interbody fusion using posterior/transforaminal interbody fusion with a missed screw technique
Khan S., Mansha M., Hernandez M., Batra A., Bhatia C., Krishna M. (UK)

Selective thoracic fusion for adolescent idiopathic scoliosis: Anterior vs posterior surgery in different Lenke 1 subtypes

Is cervical plate necessary for anterior cervical fusion? Radiological analysis of fusion rate for anterior cervical disc excision and fusion without plating
Mansha M., Khan S., Hernandez M., Batra A., Bhatia C., Krishna M. (UK)
**The International Society for the Advancement of Spine Surgery**

**ePosters**

**P101** 'Awake' MIS TLIF without general anesthesia: Initial clinical and radiographic results with one-year follow-up
Wang M., Grossman J. (US)

**P102** Safety evaluation of extreme lateral interbody fusion for the treatment of lumbar degenerative diseases
Rong L. (CN)

**P103** Uncommon intradural-extramedullary tumors removed by uniportal minimally invasive technique: Clinical and radiological results - A study with 12 months of follow up
Arias Pesántez C. (EC)

**P104** New sintered titanium cages for minimally invasive transforaminal lumbar interbody fusion (MIS TLIF): Postoperative imaging, subsidence and fusion rate
Hubbe U., Sircar R., Kringler J.H., Krueger M.T., Scholz C., Rölz R. (DE)

**P105** Novel suction-integrated retractor reduces operating time in spinal surgeries
Eckermann J., Lieberson R., Leitch K. (US)

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**Korean Society of Spine Surgery**

**ePosters**

**P1** Adjacent segment disease after anterior cervical interbody fusion using conventional plate versus zero-profile implant - A preliminary report

**P2** Suction drain tip culture after spine surgery: Is it worth to predict a surgical site infection?

**P3** The outcomes of short and long segment posterior instrumentation of thoracolumbar burst fractures with a load sharing score of 7 or more
Lee K.Y., Kim M. (KR)

**P4** Serial changes of interspinous motion on dynamic cervical radiographs after anterior cervical arthrodesis in postoperative 1 year: Anterior cervical plating vs. grafts alone
Song K., Ahn Y.J., Shin J. (KR)

**P5** The location of instant center of rotation in the cervical spine during in vivo dynamic flexion-extension
Song K. (KR)

**P6** A study of sacral anthropometry to determine S1 screw placement for spinal lumbosacral fixation in the Korean population

**P7** Prevalence of fibromyalgia and its characteristics in lumbar spinal stenosis

**P8** Can C3 laminectomy reduce interlaminar bony fusion and preserve cervical range of motion after cervical laminoplasty?

**P9** Surgical treatment of primary spinal sarcoma

**P10** A novel comprehensive MRI classification system for cervical foraminal stenosis

**P11** Quality of life analysis in people with symptomatic spine osteoarthritis (OA) using the results of a cross-sectional, nationwide survey
Hong J., Suh S., Yang J., Park S. (KR)

**P12** Relationship between hormone therapy and symptomatic spine osteoarthritis
Hong J., Suh S., Yang J., Park S. (KR)

**P13** CT scan: Always necessary for the preoperative planning in the cervical spine surgery?

**P14** Accuracy of pedicle screwing using free hand technique in revisional scoliosis surgery

**P15** Effect of posterior multilevel vertebral osteotomies on coronal and sagittal balance in fused scoliosis deformity caused by previous surgery: Preliminary results
Yang J.H., Chang D., Suh S.W., Lee T.J. (KR)

**P16** Spinal sagittal balance status affects both functional outcomes reflecting risk of falling and quality of life after decompression and fusion surgery in patients with lumbar spinal stenosis
Lee B.H., Lee H., Yang J., Kim H., Suk K., Moon S. (KR)
Lateral recess stenosis is a common and missed cause of failed back surgery syndrome resolved with transfornaminal endoscopic decompression
Yeung A. (US)

Hyper-coagulability and postoperative epidural hematoma - Why cannot suction drains prevent postoperative spinal epidural hematoma?

Anterolateral versus posterior-only approach for the correction of degenerative adult spinal deformity: A matched cohort analysis

Efficacy and safety of anterior lumbar epidural adhesiolysis in the treatment of lumbar disc and spinal stenosis

Long term radiologic effect of posterior hemivertebra resection and short segment fusion with pedicle screw fixation in congenital scoliosis in children under age ten years

Anterior pullout of lower side of plate and screws after two level anterior cervical fusion with semi constrained plate system (Zephir)
Seo J.Y., Roh J., Ha K.Y. (KR)

Prognosis of implant-related complications after anterior cervical discectomy and fusion with cage and plate constructs
Kwon T., Ko J., Song K. (KR)

Quality of life of patients with osteoporotic vertebral compression fractures

The efficacy and accuracy of ultrasonography-guided sacral nerve block

Cervical alignment, range of motion and segmental instability after cervical laminoplasty: A single-center experience
Lee J.S., Son D.W., Song G.S., Sung S.K. (KR)

Video-assisted thoracoscopic direct lateral interbody fusion of T11-T12 level
Shim J., Kang C. (KR)

Risk factors and postoperative prognostic factors of the spontaneous spinal epidural hematoma

Association between whole body sagittal balance and risk of falls among elderly patients with back pain
North American Spine Society

P15 Sarcopenia, osteoporosis, and adult spinal deformity: ASAP study

P16 Comparison of the CTM brace against nighttime braces in adolescent idiopathic scoliosis using biplanar stereography and 3C spinal reconstructions
Bouloussa H., Vergari C., Pietton R., Skalli W., Vialle R. (FR)

P17 Is there a correlation between the apical vertebral rotation and the pelvic incidence in adolescent idiopathic scoliosis?

P18 Demographics of tuberculosis of spine and factors affecting neurological improvement in patients suffering from tuberculosis of spine - A retrospective analysis of 312 cases
Sharma A., Chhabra H.S., Chabra T. (IN)

P19 Clinical relevance of the sagittal balance of the spine in degenerative lumbar disorders: A systematic review of the literature

P20 Role of intervertebral discs in the sagittal plane correction of thoraco-lumbar angular kyphosis after spinal osteotomy
Naresh-Babu J., Cheekatta S., Neelima G. (IN)

P21 An in vivo biomechanical analysis of the effects of nanoscale porous titanium cage coating in lumbar vertebral interbody fusion

P22 A comparative analysis of thoracic and thoracolumbar kyphosis between young and old men

P23 Coronal multiplane reconstructed CT image determining lateral notch-referred pedicle screw entrance localization in subaxial cervical spine
Pan Z., Wu C., Duan P., Zhou S., Cao K. (CN)

P24 CT-based image-guided system (IGS) in spinal surgery – State-of-the-art through 10 years of experience
Costa F. (IT)

P25 Better height restoration and kyphosis correction of osteoporotic vertebral compression fractures when using intravertebral reduction devices (SpineJack): 1 Year follow-up results from a clinical study

P26 Clinical and radiographic outcomes of thoracolumbar fractures treated by corpectomy and fusion through a mini-open lateral approach
Smith W.D., U.K., Bergmann L. (US & CN)

P27 Incidence of facet violation of the cervical lateral mass screws using Roy-Camille technique
Abe M., Sakai T., Yamashita K., Takata Y., Higashino K., Saiyo K. (JP)

P28 Preoperative factors affecting postoperative axial neck pain following cervical laminoplasty
Oshima Y., Chikuda H., Taniguchi Y., Matsubayashi Y., Takeshita K., Tanaka S. (JP)

Pan Arab Spine Society

P1 Anatomical location of common iliac veins at the level of sacrum – Perforation risk is related to the trajectory angle of screw

P2 CD34 and CD133 stem cells in treatment of complete spinal cord injuries
Alzoubi Z.M. (JO)
P1 Minimal invasive surgery for adult spinal deformity  
Masato T., Yoshihisa S., Shinya A., Tomoyuki T. (JP)

P2 Elderly patients can achieve comparable clinical and radiological outcomes as younger patients after minimally invasive transforaminal lumbar interbody fusion: A 2-year matched-cohorts study  
Joshi N., Lim J., Yeo W., Yue W.M. (SG)

P3 An in-vitro biomechanical evaluation of a next generation interspinous fixation device with in-situ shortening/extension capabilities  
Wagener C., DenHaese R., Ghadiri A., Ferry C., Farmer S. (US)

P4 Lateral lumbar interbody fusion with modular plate fixation: Initial experience with a novel technology - Intra-op and 1-year outcomes  
DenHaese R., Hill C., Strenge B., Ferry C., Moore C., Bejin B., Martineck S., Martin K. (US)

P5 In-vivo endoscopic visualization of pain generators in the lumbar spine  
Yeung A. (US)

P6 Efficacy of posterior segmental decompression surgery for pincer mechanism in cervical spondylotic myelopathy: A retrospective case–control study using propensity score matching  

P7 Application of minimally invasive posterior spinal fusion assisted with vertebroplasty in the treatment of osteoporotic vertebral collapse  
Nakano M., Kawaguchi Y., Yasuda T., Nagani S., Seki S., Hachinota J. (JP)

P8 Transpedicular vertebroplasty after intravertebral cavity formation for osteoporotic burst fractures  
Nakano M., Kawaguchi Y., Hirano N., Kimura T. (JP)

P9 Treatment of grade II isthmic spondylolisthesis: Comparison of minimally invasive transforaminal and anterior lumbar interbody fusion  

P10 Clinical results of microendoscopic discectomy for lumbar disc herniation - Minimally 5-year follow up  
Yoshimoto M., Takebayashi T., Yamashita T. (JP)

P11 Percutaneous endoscopic lumbar discectomy as an alternative to open lumbar microdiscectomy for large lumbar disc herniations  

P12 Long-term follow up results of MIS-TLIF for patients with degenerative disease of the lumbar spine - MIS procedure reduces adjacent segment degeneration  

P13 Clinical comparison of two spinal reconstruction techniques for osteoporotic vertebral collapse: Conventional pedicle screw vs modified CB1 screw  

P14 Differences in clinical outcomes between isthmic and degenerative spondylolisthesis following a minimally invasive transforaminal lumbar interbody fusion  
Meetings, Satellite Symposia & Workshops

Monday, May 16
Monday Meetings

Sponsored Satellite Symposium

Room: Jasmine 12

**Posterior Percutaneous Stabilization & Miniopen Medial/Lateral techniques in Spine Surgery**  
Pennings F.A. (US)

12.30  Welcome & opening

12.35  Posterior percutaneous stabilization  
  - Indications  
  - Techniques for short & long term deformities  
  - Cases

12.50  Sawbone workshop PHOENIX & CDX

13.05  Miniopen approach with a new screw placement technology  
  - Indications  
  - Technique  
  - Cases

13.20  Sawbone workshop JANUS Screw

13.40  Podium discussion / closing remarks

Additional Meetings

Room: Jasmine 2

13.30 -16.30  **ISSLS Focus Group Meeting #1: Degenerative Spinal Phenotypes**  
  Barthé M. (CA), Lane C. (CA), Melloh M. (CH) & Samartzis D. (HK)

The International Taskforce on Diagnosis and Management of Lumbar Spinal Stenosis and the Disc Degeneration Focus Group will be having a combined, back-to-back focus group session in Singapore under the umbrella topic of Degenerative Spinal Phenotypes.

16.30 -18.00  **Women of ISSLS Networking Group**  
  O’Connell G. & Sowa G. (US)

The purpose of this focus group is to establish and strengthen the interactions between the women in ISSLS, both scientifically and professionally. To date the proportion of women attending ISSLS is low. By increasing the network of women and collaborations between them, we hope to have a positive influence on the scientific contributions and on the role of women within ISSLS and also to find ways to recruit more women into the society and into lumbar spine research.
Your Expert in Endoscopic Minimally Invasive Spine Surgery

Meetings, Satellite Symposia & Workshops

Tuesday, May 17
Meetings

Sponsored Satellite Symposia

**Invibio**

Room: Jasmine 3

12:30 - 14.00  **PEEK-OPTIMA® HA Enhanced: Pre-clinical studies and clinical adoption**
Brady M. (UK)

**joimax**

Room: Jasmine 10

Chair: Gibson A. (UK) & Iprenburg M. (NL)

12:30 - 14.00  **Endoscopic spine surgery: Experience and evolution over years**
Gibson A. (UK), Iprenburg M. (NL) & Wagner R. (DE)

Room: Jasmine 12

12:30 - 14.00  **Importance of pre-op planning and intra-op assessment for degenerative disorders**
Berjano P. (IT), Lamartina C. (IT), Quante M. (DE)

Additional Meeting

Room 5: Jasmine

09.00 - 12.00  **ISSLS Focus Group Meeting #2: Best practices for conducting and reporting spine research involving registry-enhanced administrative data**
Martin B.I. (US)

This Focus Group will identify best practices for conducting, reporting and reviewing research involving the analysis of administrative data. The group will sample existing literature to identify best practices and common obstacles involving the analysis of administrative data. It will summarize the validity and reliability of administrative algorithms based on codes from the International Classification of Disease and the AMA’s Current Procedural Terminology, including classifying spine-related ICD-10 codes. Finally, the group will seek to develop consensus-based recommendations for conducting, reporting and reviewing spine research that involves administrative data.
SPINEWEEK LUNCH WORKSHOPS:

Tuesday, May 17, 12:00 – 14:00, Jasmine 12
Importance of Preoperative Planning and Intraoperative Assessment for Degenerative Disorders
Dr. Pedro Berjano, M.D., Ph.D., Prof. Claudio Lamartina, M.D., Prof. Dr. Markus Quante

Wednesday, May 18, 12:00 – 14:00, Jasmine 12
Anterior Column Realignment (ACR®): Anterior Techniques to Restore Spinal Alignment
Dr. Pedro Berjano, M.D., Ph.D., Prof. Claudio Lamartina, M.D., Prof. Dr. Markus Quante

VISIT US AT BOOTH F01 AT SPINEWEEK

Integrated Global Alignment (iGA®) is a platform comprised of procedurally based technologies, designed to enhance clinical and economic outcomes by increasing the predictability of achieving global alignment in all spinal procedures. Integration across the surgical workflow allows the surgeon to confidently and reproducibly:

- **Calculate** alignment parameters with preoperative planning tools.
- **Correct** the anterior and posterior column with comprehensive procedural solutions from NuVasive® with the industry’s only real-time intraoperative assessment.
- **Confirm** the restoration and preservation of global alignment postoperatively.

VISIT US AT BOOTH F01 AT SPINEWEEK
Meetings, Satellite Symposia & Workshops

Wednesday, May 18
Wednesday Meetings

**Sponsored Satellite Symposia**

**BRAINLAB**

Chair: G. Liu (SG)

12.45 - 13.45  *Expanding the frontiers of navigated spine surgery - The AIRO system*
Rajasekaran S. (IN)

**Medtronic**

12.30 - 14.00  *Spinal Deformity: An Evidence-based Approach To Surgical Techniques*
Berven S. (US)

**NUVasive**

12.30 - 14.00  *Anterior Column Realignment (ACR®): Anterior techniques to restore spinal alignment*
Berjano P. (IT), Lamartina C. (IT) & Quante M. (DE)

**Additional Meeting**

**European Spine Journal**

12.30 - 14.00  *European Spine Journal Workshop: How to be a good reviewer*
Schizas C. (CH), Aebi M. (CH), Mannion A. (CH) & Edwards K. (UK)

**ISSLS Special ePoster Session**

07.30 - 08.45  *Special emphasis poster session 1*
Thursday Meetings

Sponsored Satellite Symposia

**Room: 1**

**Recent advancements in MIS surgery for spinal metastasis and spinal deformity**
Chair: Kwan M.K. (MY)
- 12.45 - 13.15 Recent advancement in MIS spinal metastasis surgery
  Kwan M.K. (MY)
- 13.15 - 13.45 Recent advancement in MIS adult spinal deformity surgery
  Lee R. (UK)

**Medtronic**

**Room: Jasmine 10**

12.30 - 14.00 Biologics in spine surgery: Matching bone graft materials with clinical needs
  Berven S. (US)

Additional Meeting

**European Spine Journal**

**Room: Jasmine 10**

Chairs: Lamartina C. & Berjano P. (IT)
12.30 - 14.00 European Spine Journal Workshop: How to get your paper published
- How to embark on a study - Ismael Aguirre M.F. (IT)
- How to design a study: From idea to question, from question to objective
  Berjano P. (IT)
- How to analyse results - Edwards K. (UK)
- How to write and present a paper - Lamartina C. (IT)

**ISSLS General Poster Session**

08.30 - 09.30 General poster session
**Meetings, Satellite Symposia & Workshops**

**Friday, May 20**
Meetings

Monday

Tuesday

Wednesday

Thursday

Friday

POSTERS

Sponsored Satellite Symposium

Room: 1

Recent advancements in treatment of EOS spine: Anterior vs. posterior
Chair: Liu G. (SG)

12.45 - 13.15 Posterior approach: Magnetic growing rods system
Akbarnia B. (US)

13.15 - 13.45 Anterior Approach: Scoli Tether System
Wong H.K. (SG)

ISSLS Special ePoster Session

eSpine Area

07.45 - 09.00 Special poster session 2

NUVASIVE SPINEWEEK IN-BOOTH PRESENTATIONS

Tuesday, May 17
10:00 | XLIF Expanded Applications | Dr. Ashish Diwan, M.D., William D. Smith, M.D.
16:00 | Methods of Preoperative Planning and Intraoperative Assessment | Prof. Dr. Markus Quante

Wednesday, May 18
10:00 | XLIF Expanded Applications | Dr. Neil Cleaver, M.D., Dr. Luiz Pimenta, M.D., Ph.D.,
Dr. William D. Smith, M.D.
16:00 | Methods of Preoperative Planning and Intraoperative Assessment | Prof. Dr. Markus Quante,
Dr. Pedro Berjano, M.D., Ph.D.

Thursday, May 19
10:00 | MAGEC® – A Revolutionary Treatment for Early Onset Scoliosis | Dr. Behrooz Akbarnia, M.D.

VISIT US AT BOOTH F01 AT SPINEWEEK

Pseudarthrosis | Deformity | Spondylolisthesis | Degenerative Disc Disease | Adjacent Segment Disease

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List of Exhibitors (Alphabetical order)

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Allen Medical Systems

100 Discovery Way
01720 Acton
United States
Tel.: +1 978-266-4286
andres.urrea@hill-rom.com
www.alenmedical.com

Allen Medical, part of Hill-Rom, is an innovator in patient positioning and surgical site access. The Allen Spine portfolio offers innovative solutions to help with all of your patient positioning challenges in spine surgery. Whether you are looking for a stand-alone, dedicated spine table for complex spine surgical procedures or positioning systems for simple spine procedures, Allen provides many options.

Amedica

1885 West 2100 South
84119 Salt Lake City
United States
Tel.: +1 8018393539
jsmith@amedica.com
www.amedica.com

Amedica is the only manufacturer of medical grade silicon nitride. Aside from being a biomaterial supplier to medical device OEM and private label partners, Amedica markets its own proprietary spinal fusion products. Amedica’s products are manufactured in its ISO 13485 certified manufacturing facility and its spine products are FDA-cleared, CE-marked.

Australian Biotechnologies

5/25 Frenchs Forest Road
2086 Frenchs Forest
Australia
Tel.: +61 438 603 048
lynette.newby@ausbiotech.com.au
www.ausbiotech.com.au

Australian Biotechnologies is Australia’s largest distributor of allograft products, and has supplied over 25,000 allografts to date. As a market leader in spinal and orthopaedic allograft solutions, Australian Biotechnologies’ pioneering research program has resulted in the expansion of their allograft range, and the opportunity to make their soft tissue, structural, and super-critical fluid treated bone allograft products available to healthcare professionals across Asia. For more information visit www.ausbiotech.com.au, or contact Lynette Newby, Business Development Manager, at lynette.newby@ausbiotech.com.au.

AXS Medical - DMS Group

393 rue Charles Lindbergh
34130 Mauguio
France
Tel.: +33 467504900
imarin@dms.com
www.biomod.fr

In July 2015, the DMS Group acquired AXS Medical, a start-up specialized in developing diagnostic tools used for spinal pathologies. The technologies developed by AXS allow DMS-Apelem to reinforce its position in the domain of diagnostic imaging by being able to offer stereo-radiographic imaging and 3D modelization tools particularly dedicated to orthopedic applications. The technology BIO-MOD™3S combines optic information about back morphology with a radiographic image of the spine (stitching) to yield a 3D model of the vertebral column. The 3D model gives the practitioner a complete view of the spine for a thorough and accurate evaluation of spine deformities.

B. Braun Aesculap

Am Aesculap Platz
76532 Tuttingen
Germany
Tel.: +49 7461 95 0
elena.metzger@aesculap.de
www.aesculap.com

Aesculap Spine, a division of the B.Braun Group, has been developing competitive spinal treatment concepts since the early 80’s. In close collaboration with clinical authors, implants and handling orientated instruments are designed. Aesculap combines its core competence in surgical instrument manufacturing with unique ideas and innovative engineering to create high quality spine systems. Dedicated to patients’ and surgeons’ needs we develop innovative implant and instrument systems for the stabilization of the cervical and thoracolumbar spine and the preservation of the mobility of the spinal column. Aesculap Spine products are designed for safe surgical procedures and good clinical results.

Bauerfeind AG

Triebeser Strasse 16
07937 Zeulenroda - Triebes
Germany
Tel.: +49 36628-661000
Isabell.Rietsch@bauerfeind.com
www.bauerfeind.com

Bauerfeind AG manufactures medical aids, such as supports, orthoses, compression stockings and foot orthoses. Its high quality products make an important contribution towards maintaining and restoring health and are available from specialty medical retailers. The family business, founded in 1929 in Zeulenroda (Thuringia, Germany) is one of the market leaders in its industry. Bauerfeind employs a staff of around 2,000 worldwide. However, the products are exclusively “Made in Germany” and are partly hand-made. Awards for design and materials affirm the high product quality.
Meetings
www.spineweek.org

Exhibitors

Biomatlante
5 rue Edouard Belin
2A Les Quatre Nations
44360 Vigneux-de-Bretagne
France

Tel.: +33 228020009
claireedaculsi@biomatlante.com
www.biomatlante.com

Over the last 20 years, we have established ourselves as specialists in biomaterials for bone regeneration. Our philosophy has been to develop best-in-class solutions for regenerative surgeries. Backed by extensive clinical research, our products offer wide ranging solutions to the treatment of even the most challenging cases. All the Spine surgery line is made of MBCP™ Technology, a unique HA/TCP 3D interconnected scaffold, with over 30 years of background and more than 650 scientific and clinical literatures. EZ Cure Strip™: Mineralized Sponge MBCP™: Micro/Macroporous bone graft (inserts, sticks) In’Oss™: Synthetic Bone Graft MBCP™ Gel and MBCP™ Syringe Distributors wanted.

Carl Zeiss Meditec AG
Goeschwitzer Strasse 51-52
07745 Jena
Germany

Tel.: +49 3641 - 220 0
janine.mcdonald@zeiss.com
www.zeiss.com/med

The main activities of the Carl Zeiss Meditec AG, parent company of the Carl Zeiss Meditec Group, are located in the field of ophthalmology and microsurgery. Carl Zeiss Meditec AG supplies and provides • innovative technologies and application-oriented solutions designed to help doctors improve their patients’ quality of life • complete packages of solutions for the diagnosis and treatment of ophthalmic diseases, including implants and consumables • innovative visualization solutions in the field of microsurgery • promising, future-oriented technologies such as intraoperative radiotherapy. The company’s spine surgery portfolio includes a comprehensive line of surgical microscopes and loupes for spine surgery.

Baui Biotech Co., Ltd.
6F., No.6, Sec.1,
Zhongxiao Road, Wugu Dist.
24872 New Taipei City
Taiwan

Tel.: +886289765938
angel@baui.com.tw
www.baui.com.tw

BAUI Biotech Co., Ltd. is found in 2009 by a group of elite engineers with experiences of producing Spinal and External Fixation Systems since 1988. BAUI is the No.1 spinal implants manufacture and best seller in Taiwan. Our mission is to provide users the best experience with using BAUI systems; our vision is to provide patients the best quality of life after surgery. With a full line up of the spinal system and the upcoming innovated products in the future, BAUI Biotech Co., Ltd. is your one stop solution for Spine Industry.

Berkeley Advanced Biomaterials, Inc.
901 Grayson Street
CA 94710 Berkeley
United States

Tel.: +1 510 883-0500
pluo@ostetic.com
www.berkeleyadvancedbiomaterials.com

Berkeley Advanced Biomaterials, Inc. (BAB) was founded in 1996 to develop biomaterials and devices for skeletal repair. In the past 18 years, BAB has grown to include many FDA registered products and become an ISO Certified and American Association of Tissue Banks (AATB) accredited tissue bank. We are actively developing new applications for biomaterials with a focus on orthopedic, spine, dental, and sport patients. Our focus is providing the highest quality products to ensure our patients have healthy bones and healthy lives.

Cerapedics Inc.
11025 Dover Street,
Suite 1600
80021 Westminster
United States

Tel.: +1 303 974 6275
sjefferson@cerapedics.com
www.cerapedics.com

Cerapedics is an orthobiologics company focused on developing and commercializing novel bone grafts that enhance and accelerate bone growth in a variety of orthopedic procedures. i-FACTOR(TM) Peptide Enhanced Bone Graft, the Company’s lead product, is the only biologic bone graft that incorporates a unique anorganic bone mineral (ABM) and a synthetic, small peptide (P-15) - a combination that is differentiated, predictable, and validated. The novel i-FACTOR Bone Graft “Attract, Attach, Activate” mechanism of action enhances the body’s natural bone healing process, resulting in bone formation that is predictably bound to the surface of the bone graft.

Clarus Medical, LLC
13355 10th Avenue North
55441 Minneapolis, MN
United States

Tel.: +1 763-525-8400
Admin@Clarus-Medical.com
www.Clarus-Medical.com

Clarus Medical, LLC is a leading manufacturer of devices for less invasive medicine. Clarus produces small diameter instrument systems used in the spine for nucleotomy. Clarus is well known for developing devices utilizing small diameter, endoscopic and Laser Fibers. Clarus also partners with other leading medical companies as an OEM manufacturer.
Cousin Biotech

8, rue de l’Abbé Bonpain
59117 Wervicq-Sud
France

Tel.: +33 320144107
v.callemeyn@cousin-biotech.com
www.cousin-biotech.com

Cousin Biotech, based in France, is specialist of textile-based surgical implants and offers a wide range of handmade innovative products, developed to make surgical technique easier and ensure better quality of life for patients. Thanks to its innovative dynamic interlaminar device (IntraSPINE), allowing real motion preservation, Cousin Biotech was able to develop a strong worldwide distribution network (more than 30 countries) and establish a new standard in non-fusion treatment for DDD. New products will now enhance Cousin’s spinal offer. For more information, please visit our booth n°G16 or have a look at www.cousin-biotech.com.

Elliquence LLC

2455 Grand Avenue
11510 Baldwin
United States

Tel.: +1 516 277 9000
streuelson@elliquence.com
www.elliquence.com

Elliquence, LLC manufactures patented Radiowave technology with innovative devices for orthopedic, neurosurgery, and pain management applications. Surgi-Max® Plus permits precision tissue preservation, non-adherent bipolar effects and surgical versatility. Cobbra™ Energized Cobb Elevator, and Disc-FX™ Discectomy System are examples of the full line of surgical accessories offered for use with the Surgi-Max Plus energy source. Elliquence focuses on sparing healthy tissue while precisely treating pathology.

EOS Imaging

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75011 Paris
France

Tel.: +33 155256127
aachache@eos-imaging.com
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The EOS imaging system is a low and micro dose orthopedic imaging solution developed by a team of engineers, orthopedic surgeons and radiologists. An EOS exam captures full-body, weight bearing images at a significant dose reduction. The sterEOS workstation does not only offer a global assessment of balance and posture, it also provides 3D measurement tools. The patient’s 3D data is used by orthopedic surgeons for diagnosis, surgical planning, control and follow-up. Radiologists can create 3D models in-house using sterEOS or through EOS3Dservices.com.

Esaote SpA

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Over 30 years of innovation in the field of dedicated musculoskeletal MRI results in cost-effective systems that provide clinicians with outstanding image quality, flexibility, ease of use, and patient comfort. We were the first to develop dedicated MR systems for knee, shoulder and extremity imaging. Recently, we created G-scan Brio, a cutting-edge weight-bearing MRI system focused on MSK and spine imaging procedures. With more than 2,400 Esaote MRI systems installed around the world, from large hospitals to private clinics, orthopedic/sports medicine centers, rheumatology practices, podiatric offices and trauma departments, we’re the leading designer, manufacturer and marketer of dedicated MRI systems.

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Eurocoating, Surface Dynamics and Anteco, members of the Unitedcoatings Group, are serving over 120 OEMs globally. They have plants in Italy and in US, and a new plant in China is under construction. World leaders in plasma spray coatings for orthopedic, dental, spine, and trauma applications; they produce and provide CE marked CaP bone substitutes able to enhance bone regeneration. They offer creativity and flexibility in surface treatments; Titanium and Hydroxyapatite coatings on metal, ceramics and PEEK; and metal 3D printing. Brands like Osprovit® and Ti-Growth® represent golden standards in reliability, tradition and innovation.

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Our backbone is based on the pillars of innovation. The heart of our commitment beats louder through the experience garnered since 1998. Our spirit is marked by the concern of a single minutia and a rare simplicity in the design of spinal implants . We constantly bring new solutions to sort out the evils of the spine, alleviate fears of the patient and strengthen the expertise of the surgeon. Eurospine shares his vision worldwide to address patient discomfort.
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Fehling Instruments is a traditional family owned and family run company with more than thirty years of experience in the medical business. Fehling Instruments develops, manufactures, and distributes surgical instruments, implants and single use products for use mainly in the OR and provides all corresponding repair service. Fehling Instruments is constantly striving for excellence in function and economy of products. This objective is achieved by continuous innovation in materials, mechanics and design.

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FzioMed develops and commercializes absorbable surgical biomaterials based on its patented polymer science, for use in many surgical applications including spine, orthopedics, tendon, peripheral nerve, gynecology and general surgery. • Oxiplex® Spine Gel helps reduce adhesion formation and related symptoms such as pain. CE marked and approved in over 70 countries. • Dynavisc® Adhesion Barrier Gel for tendon and peripheral nerve surgeries is CE marked and available throughout the EU, MEA and Australia. • Oxiplex®/AP, an effective adhesion barrier for peritoneal surgery, helps reduce the incidence, extent, and severity of postoperative adhesions. CE marked and available in Europe.
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Our implants are manufactured from Titanium or PEEK:
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GS Medical is an innovative medical device company focused on developing premium, quality surgical implants and instruments for the use in spine surgery. Since establishment, our products have been used in thousands of spine surgeries throughout the USA, and hundreds of thousands globally. Our mission is to improve the treatment of patients with back, neck, or leg pain by creating simple and intuitive products and procedures. GS Medical which has stuck to only one area for 20 years will be the world’s tip-topmost company by practicing global leadership through constant research and development and practice of satisfying consumers.

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Manufacturers and exporters of high quality surgical instruments for over 5 decades.

Imedicom Co., Ltd.

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Imedicom Co., Ltd. is one of fast growing orthopaedic company that manufactures Balloon kyphoplasty system, Epidural catheter and Surgical power tools with Saw blades. All products of Imedicom are in compliance with CE, FDA regulations and ISO9001, ISO13485.

In'Tech Medical

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Founded in France in 2000, In’Tech Medical is a global leader in orthopedic contract-manufacturing. With the company’s recent acquisition of Turner Medical, Inc., In’Tech is now the world’s largest provider of surgical instruments to the Spine Industry. Powered by a diverse product portfolio, an ability to find solutions to complex engineering challenges, and with close to 500 employees globally, In’Tech Medical is ideally positioned for sustainable growth and personalized customer care.

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Invibio® Biomaterial Solutions continues to revolutionize spinal device design by introducing the implantable polymer PEEK-OPTIMA® HA Enhanced. As a proven medical device partner we have continued to pioneer spinal industry innovation driven by clinical need and our customers’ desire to continually improve patient outcomes. Our polymers, unsurpassed manufacturing and regulatory support, together with deep device knowledge have enabled device companies around the world to bring innovative products to market for over 15 years.

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Jayon Implants Pvt Ltd that has been in the business as the Manufacturers of Spinal Orthopaedic Implants & Instruments for the past 13 years. We have been established under the brand name JAYON, a popular company situated in Kerala with an excellent track record for the best customer satisfaction. We have never compromised on the quality and the services provided to the customer. Also providing them with the products at very competent price.
Meetings

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Exhibitors

**KASIOS**

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kasios.com

Kasios specialises in the development, manufacture and sales of synthetic bone substitutes for use in orthopaedics and dental surgery. The company’s expertise in biomaterials comes from its scientific team of calcium phosphate specialists, recognized for their success and experience in developing novel products tailored to the fast growing market. They work within the standards of quality and under a controlled environment that satisfies the unified regulatory requirements of all their clients and their target markets.

**K2M Inc.**

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K2M Group Holdings, Inc. is a global medical device company focused on designing, developing and commercialising innovative complex spine and minimally invasive spine technologies and techniques used by spine surgeons to treat some of the most difficult and challenging spinal pathologies. K2M has leveraged these core competencies to bring to market an increasing number of products for patients suffering from degenerative spinal conditions. These technologies and techniques, in combination with a robust product pipeline, enables the company to favorably compete in the global spinal surgery market.

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The Hoogland Spine Products GmbH company is built upon over 35 years of experience in the field of arthroscopy, endoscopic, spine surgery and instrument engineering. The Company has a strong management team who play a vital role in the operation, business and product development as well as customer support. Our global exclusive distribution network shares in our passion and commitment to build the maxmore spine® brand, support our customers, and facilitate better patient outcomes.

**Joimax**

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Founded in Karlsruhe, Germany in 2001, joimax® is one of the leading medical device companies in minimally invasive spinal surgery (“joined minimal access”). The company is primarily focused on the development, production and marketing of technologies and methods for minimally invasive endoscopic spinal surgery. joimax® is active in 40 countries around the globe and its methods have been successfully employed in approximately 130,000 surgeries. With a special focus on education, the company provides surgeons with specialized technique training through the three-step joimax® CM3 programme. This programme includes visitations, cadaver workshops and live-surgery support.

**KLS Martin Group**

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KLS Martin – Surgical Innovation is our Passion
The KLS Martin Group is a global, medium-sized, family-owned medical equipment company based in Tuttlingen. Abiding by the corporate philosophy “Surgical Innovation is our Passion,” KLS Martin develops comprehensive medical technology solutions that are highly practice-oriented. With over 1,000 employees throughout the world the Group accounts for about 75 percent of sales by value in foreign markets. KLS Martin has its own subsidiaries and partner companies in the USA, Brazil, Great Britain, France, Italy, the Netherlands, Australia, Malaysia, and Japan. Its products are distributed in over 140 countries worldwide.

**L&K Biomed Co., Ltd.**

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L&K Biomed is a physician centric company dedicated to bringing innovation to the spinal medical market place with a focus on exceptional customer service. L&K Biomed offers a wide range of solutions for surgical indications over the entire spinal column. We are where the inspiration for spine innovation is delivered. The goal of L&K Biomed is to be a leading force for innovative technology. It will do this by reaching out and working with the worldwide spinal physician community by engaging their ideas and needs to create compelling solutions.
LDR Asia Pacific

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LDR, with a passion of innovation, is dedicated to the development of innovative technology for spinal procedures. We design and manufacture novel implantable spine devices and instrumentation to support the clinical goals of surgery and to improve patient outcomes. With headquarter locations in Troyes, France and Austin, USA, LDR has experienced rapid growth through product portfolio expansion and an increasingly global presence. LDR is present in nearly thirty countries worldwide and maintains offices on four continents. We are committed to providing the highest quality products and finest service to the global spine surgeon community.

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Mahe Medical is a German manufacturer of high-quality Spine Instruments and implants, incl. PERFECT SPINE Pedicle Screws, Cervical Plates and Cages. Long-term cooperations with national and international partners ensure that mahe medical has the ability to develop innovative systems in regard to the above product portfolio. Mahe Medical has successfully combined organic growth, acquisitions and long-term partner cooperations to develop into a modern international medical enterprise that focuses on meeting its customers’ current and future requirements.

Medi GmbH & Co. KG

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Founded in Germany in 1951, medi GmbH & Co. KG has become one of the world’s leading manufacturers of medical aids. Thanks to the dedication of our international distribution partners and 1700 employees, the company exports to over 90 countries worldwide. Our orthopaedics assortment consists of supports and braces for the treatment of joint conditions and injuries for all parts of the human body such as back, shoulder/spine, hip, knee, ankle, wrist, elbow or foot. Our full range of premium-quality products are the first choice of many renowned healthcare professionals all across the globe.

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Company that specializes in the development of innovative surgical technologies for the treatment of complex spinal pathologies.

Meditech Implant

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Meditech Implant is a fastly growing manufacturer Company of Spinal surgery Implants. Meditech Implant is very competitive in global market with it’s high standarted quality, low prices and patented specialized products. We hope to meet you in Spineweek.
Meetings

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Exhibitors

Medtronic

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As a global leader in medical technology, services and solutions, Medtronic improves the lives and health of millions of people each year. We use our deep clinical, therapeutic, and economic expertise to address the complex challenges faced by healthcare systems today. Let’s take healthcare further. Together. Visit booth #D01 to learn more about how our innovative solutions are being used to treat spine surgery patients worldwide. Learn more at Medtronic.com.

Medyssey

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Medyssey designs, develops, manufactures and markets products for the surgical treatment of spine disorders through novel instrumentation and advanced orthobiologic solutions designed to improve spinal fusion rates, preservation of mobility and clinical outcomes. In the Company’s quest to become a market leader, Medyssey is committed to generating, developing, and commercializing intellectual property that improve the quality of patients’ lives while designed under the mantra of simple and reproducible.

Misonix

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Located in Farmingdale, New York, Misonix, Inc. specializes in the development and commercialization of ultrasonic surgical devices for neurosurgical, spinal, advanced wound care, and general surgery procedures. Our portfolio of products are all based upon the unique properties of ultrasound and its ability to differentiate hard and soft tissue for different clinical requirements. A fast growing global business, Misonix, Inc. operates in over 45 countries and is a recognized leader in advanced surgical tools offering unprecedented safety, speed, and precision.

Mizuho Medical Co., Ltd.

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Mizuho Group started the operation in 1919 in Japan and offers General & Specialty surgical tables. Mizuho OSI, a subsidiary of Mizuho in US offers the most comprehensive line of spine tables. proAXIS enables intraoperative flex of spine with it’s advanced computerized radiolucent hinged technology. STS is designed for broad range of spinal procedures, proving functionality and reliability for over 25 years. Trilos, a new edition of STS accommodates 650lbs patients with a focus on enhanced safety and precision. MOT-5701 is a universally versatile surgical table providing excellent imaging flexibility, clinical versatility. Which table is best for you?

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Naton Medical was established in 1996, since when we have been dedicating ourselves to orthopaedic business. Guided by our abiding faith of “being the career partner of orthopaedic surgeons, and helping patients regain health at minimum cost”, Naton has developed from a pure selling company to a Group of Companies that set foot into every part of the value chain of orthopaedic industry, including R&D, legal manufacturing, contract manufacturing, sales and distribution, medical services, medical media services, and continuous medical education.

NuVasive

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NuVasive is an innovative global medical device company that is transforming spine surgery with minimally disruptive surgical products and procedurally-integrated solutions for the spine. NuVasive has emerged from a small startup to become the #3 player in the $9 billion global spine market and remains focused on market share-taking strategies as the Company continues on its path to become the industry’s leading spine company. NuVasive offers a comprehensive spine portfolio of more than 90 unique products developed to improve spine surgery and patient outcomes. The Company’s principal procedural solution is its Maximum Access Surgery, or MAS® platform for lateral spine fusion.
The OOT is a video platform for spine surgeons, where advanced surgical procedures are performed by internationally known spine surgeons. These surgical films are produced in a standardized format, are indexed and published in partnership with the European Spine Journal. EccBeaming is an online platform for the European Postgraduate Education Program for Spine Surgery Specialists and related disciplines and equally presented in partnership with the European Spine Journal. The European Spine Journal of Springer Publisher is one of the three leading peer reviewed spine specialist journals worldwide, covering clinical, outcome and basic spine sciences.

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Orthobion is a privately funded start-up, founded in 2009, located in the Southwest of Germany, in the city of Konstanz. Our expertise lies in spinal treatment options, particularly spinal fusion devices. We are an innovative pioneer in the field of coated biomaterials and various surface treatment options for spinal fusion implants, working towards the most optimal Biomimetic devices possible and resulting in Award Winning Technology.

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Orthofix International N.V. is a diversified, global medical device company focused on improving patients’ lives by providing superior reconstructive and regenerative orthopedic and spine solutions to physicians worldwide. Headquartered in Lewisville TX, the company has four strategic business units that are widely distributed via the company’s sales representatives, distributors and its subsidiaries. For more information, please visit www.orthofix.com.

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OSD is a French private company created in 2003 specialized in the design, development and the distribution of implants for spine and extremities. OSD is committed to develop innovative range of implants with leading surgeons in France. OSD is now distributed in 27 countries with long term partnership to complete the distribution of its products in France in direct. All products are made in France and fully ISO 13485 & CE marked. OSD is now looking to expand its distribution in Asia. We organize training courses in France and overseas, with our network of spinal surgeons experts.

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Orthopediatrics is improving the lives of children with orthopedic conditions as the only global medical device company focused exclusively on pediatric orthopedics. With innovative surgical systems for Trauma, Limb Deformity, Spine, and Sports Medicine, Orthopediatrics is dedicated to delivering quality products and superior professional education initiatives globally.

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Paradigm Spine, LLC was founded in 2005 to be a leader in the field of non-fusion spinal implant technology. The company has offices in New York and Germany, and sells its six core medical device products in more than 45 countries worldwide. Paradigm Spine, LLC has successfully received FDA PMA approval of the coflex® interlaminar stabilization device in the United States in October of 2012. The coflex® technology has been implanted in more than 100,000 patients, and is selling in over 45 countries. The core market for coflex® is lumbar spinal stenosis patients.
PHACON GmbH

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PHACON real trained - virtual assisted PHACON is specialised in surgical simulation systems and 3D printed anatomical models. Worldwide, PHACON systems with their included artificial specimen are in service as an economic extension or alternative to human specimen. In surgical training courses, congresses or fairs, the systems are immediately ready for use without complex handling or special storing, which makes them to uncomplicated training units for hands-on courses and effective marketing tools for producers of medical devices.

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The TOPS™ System from Premia Spine is an alternative to lumbar decompression and fixation for spondylolisthesis and spinal stenosis. The TOPS™ System is designed to stabilize the diseased vertebral level following decompression surgery to alleviate pain stemming from spinal stenosis and/ or spondylolisthesis. It allows for the physiologic motion in flexion, extension, lateral bending and axial rotation. The TOPS™ System effectively replaces the anatomical structures that are removed from the vertebrae during the decompression treatment. The TOPS System is anchored to the spine with four standard polyaxial pedicle screws via a traditional posterior surgical approach.

RTI Surgical

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RTI Surgical is a leading global surgical implant company providing surgeons with biologic, metal and synthetic implants. Committed to advancing science, safety and innovation, RTI’s implants are used in sports medicine, general surgery, spine, orthopedic, trauma and cardiothoracic procedures.

S14 Implants

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S14 IMPLANTS is specialized in the design, manufacture and distribution of spinal implants. We design medical devices intended to treat degenerative diseases and congenital deformities of the spine. As experts in dynamic stabilization, specializing in spine biomechanics and polymer materials science, we develop successfully, concepts that combine flexible and rigid components.

ResearchBooks Asia

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Safe Orthopaedics

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Safe Orthopaedics is a medical device company focused on the development and commercialisation of innovative products for spinal surgery. The company breaks the path in offering the first model of single use, sterile, and fully traceable instrumentation systems for spine surgery. Associated to a full range of implants, instrument kits are delivered ready to use, enhancing the safety and efficiency for patients and practitioners.
Sawbones Worldwide

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Sawbones is the market leader and is the largest manufacturer and provider of orthopaedic and anatomical models for medical education, new product demonstration, sales training and patient awareness in the world. Capabilities – Sawbones develops over 300 customer-requested products each year with full onsite engineering and design capabilities; including CAD, 4-axis milling, 3-D printing and rapid prototyping. Sawbones maintains outstanding customer service and a satisfaction guarantee* on all products and services.

Shanghai Kinetic Medical Co., Ltd.

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Shanghai Kinetic Medical Co., Ltd. (KMC) a listed company in Shenzhen Stock market. (Stock #300326, SZ) Currently, KMC is the leading developer, manufacturer and distributor of orthopedic and spinal devices in China. The company’s mission is to provide top quality products and the best value to the needs of the doctors and patients.

SeaSpine

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At SeaSpine, we believe spine surgery patients should easily benefit from the most advanced scientific knowledge and technology available. That’s why our expert team collaborates closely with leading spine surgeons, global distributors and other partners on the cutting edge of spinal solutions. From research and development, to product design and engineering, to commercialization and distribution – SeaSpine's product portfolio is dedicated to restoring mobility and quality of life to patients.

Showa Ika Kohgyo Co., Ltd.

8-7 Haneinishimachi
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Showa Ika is Japan’s leading spinal device producer; creating innovative, safe, easy-to-use instruments and implants for use in spine surgery. Our products are globally recognized by leading physicians for their outstanding quality and clinical efficacy.

Shanghai Bojin Electric Instrument & Device Co., Ltd

Room606, No.3388
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Bojin is specialized in manufacturing orthopedic power tools for more than 20 years and has been granted with CE, ISO13485, ISO9001, FDA etc.

Siemens Healthcare GmbH

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Siemens Healthcare is one of the world’s largest suppliers of technology to the healthcare industry and a leader in medical imaging, laboratory diagnostics and healthcare IT. All supported by a comprehensive portfolio of clinical consulting, training, and services available across the globe and tailored to customers’ needs. In fiscal 2014, Siemens Healthcare had around 43,000 employees worldwide and posted a revenue worth 11.7 billion euros, and profits of more than 2 billion euros. Further information is available on the Internet at http://www.healthcare.siemens.com/
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SIGNUS Medizintechnik GmbH has been developing products and services for the treatment of spinal disorders since 1994 - for optimal patient mobility in everyday situations. Due to our many years of experience and extensive expertise, we fully understand the needs of medical experts and patients and can turn new requirements into reliable products quickly and to the highest standards of quality. Our goal is to offer a full range of products for the spine that support neurosurgeons and orthopedic specialists when performing spinal surgery.

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SpineGuard provides tools equipped with Dynamic Surgical Guidance (DSG) technology to enhance spinal surgery. Devices built with DSG technology give real-time audio and visual feedback to improve the accuracy of pedicle screw placement, without the need for ancillary equipment. The PediGuard probes are the only devices with built-in DSG capability. These devices have assisted spine surgeons in accurately placing pedicle screws in over 42,000 spinal procedures around the world. Please visit www.spineguard.com for more information.

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Tel.: +49 4106 610209
lars.hoeppner@soeering.com
www.soeering.com

Söring, one of the pioneers in ultrasonic technology, has been providing the international market with innovative products for ultrasonic and high-frequency surgery for 30 years. Customized solutions for neurosurgery and spine surgery include ultrasonic surgical devices for highly selective tumor dissection and precise bone instruments for microscopic as well as endoscopic techniques. Globally recognized quality and high reliability of our products hinge on the close cooperation with surgeons combined with an uncompromising quality assurance concept. You share our vision of taking medical technology yet another step further? Then get in touch with us!

Surgaid Medical (Xiamen) Co., LTD
No. 218 Houxiang Road,
Haicang Dist., Xiamen 361022,
China
Tel.: +86 15960395124
louis@double-engine.com
www.double-medical.com

Surgaid Medical is part of Double Medical Company Families. Double Medical is a class leading company who is dedicated to developing and marketing Spine, Trauma, Ex-fix, Neuro/CMF, Trocar, etc.
Tecres Spa
via A. Doria 6
37066 Sommacampagna (VR)
Italy
Tel.: +39 0459217311
alessandra.pirottoni@tecres.it
www.tecres.it

Tecres has got over thirty years of experience in orthopaedics and is also active in minimal invasive surgery. Mendec Spine HV System, the unique all in one closed mixing device specifically developed for the preparation of high density acrylic resin to be used for vertebroplasty. Mendec Spine is our acrylic resin specifically developed for the filling of vertebral cavities, that goes with a complete kit for the vertebroplasty procedures with Mendec Spine Kit.

TeDan Surgical Innovations
12615 W. Airport Blvd.
Ste. 200, 77478 Sugar Land
United States
Tel.: +1 7137260886
msteffen@tedansurgical.com
www.tedansurgical.com

TeDan Surgical Innovations (TSI) designs and manufactures specialty surgical products for use in orthopaedic, neuro, cardiothoracic and spine surgeries. TSI offers cervical and lumbar retractor systems for ACDF and minimally invasive lumbar fusion procedures. All of our retractor systems have patented ergonomically designed blade locking mechanism which simplifies their use in surgery.

TeDan Surgical Innovations

Thompson Surgical Instruments, Inc.
10170 East Cherry Bend Road
49684 Traverse City
United States
Tel.: +1 2319220177
Chelsea.Dennis@thompsonsurgical.com
www.thompsonsurgical.com

Thompson Surgical Instruments delivers uncompromised exposure to a variety of surgical specialties with the Thompson Retractor. In use for over fifty years, the Thompson Retractor is the only mechanical retractor to offer one frame for all exposure needs, multi-planed retraction, and unlimited customization. The key to designing retractor systems is surgeon input. In spine, Thompson collaborates with worldwide opinion-leaders to design access systems for a range of approaches and leads the way in providing the visibility surgeons need to not only be successful but to give the confidence to try new, improved procedures.

Tsunami
XXV Aprile 22
41037 Mirandola
Italy
Tel.: +39 3289835231
greg.moczko@tsunamimed.com
www.tsunamimedical.it

Tsunami Medical is Italy based Company focusing on highly innovated products in medical industry. Manufacturer of spinal implants with advanced BoneInGrow Technology. BoneInGrow Technology gives surgeons complete solution and best possible biomechanical conditions to achieve spinal fusion. Tsunami offers spinal systems in Minimal Invasive and Open approaches.

TEKNIMED
11 rue apollo
31240 L’Union
India
Tel.: +(33)534251060
s.thomas@teknimed.com
www.teknimed.com

TEKNIMED is recognized as the reference in BIOMATERIALS devices for Orthopaedics and Spine. TEKNIMED designs, develops and manufactures more than 100 items, including: Resorbable synthetic Bone Substitutes, Orthopaedic & Cranioplasty cements, Vertebroplasty & Kyphoplasty cements, Biodegradable polymers and textile. TEKNIMED’s innovative and patented medical devices have provided numerous, scientifically proven, surgical solutions for Orthopaedics, Spinal, Dental, Trauma and CMF. As a leading designer and manufacturer of biomaterials, TEKNIMED has a worldwide network of more than 120 distributors generating over 85% of its revenue as export sales.

Vertebral Technologies, Inc.
5909 Baker Road, Suite 550
55345 Minnetonka
United States
Tel.: +1 -952-979-1809
bwasscher@vti-spine.com
www.vti-spine.com

VTI’s proprietary InterFuse intra-operative (modular) assembly technology was designed to enable spine surgeons to achieve a large, customized and anatomical implant while utilizing a familiar, less-invasive posterior implant approach. This device can benefit all patients, but is particularly helpful in the higher risk patient categories. Large footprint ensures less chance of subsidence and reduces risk of migration. The stability provided also reduces risk of hardware loosening.
**Vexim SA**

8, Rue de Vidailhan  
Hills Plaza - Bât. 8 - 1er étage  
31300 BALMA  
France

Tel.: +33 664747340  
e.bello@vexim.com  
www.vexim.com

Vexim is a French company dedicated to providing clinically and scientifically proven solutions for minimally invasive procedures for patients suffering from Vertebral Compression Fractures.

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**Waston Medical Appliance**

9 Xihu Road  
21300 Chang Zhou  
China

Tel.: +86 18661214778  
waston.jason@gmail.com  
www.wastonmedical.com

A Leading manufacturer in China for Orthopedic, Spine and instruments. Focus on new products’ development, education and after-sale service.

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**Xtant Medical**

452 Alexandersville Road  
45342 Miamisburg  
United States

Tel.: +1 9378478400  
adunham@x-spine.com  
www.x-spine.com

Xtant Medical, formed by the combination of Bacterin International, Inc., and X-spine Systems, Inc., is a comprehensive supplier of orthobiologics and spine surgery products. This union creates an extensive portfolio of highly complementary products that serve the needs of orthopedic surgeons, neurosurgeons and their patients. Xtant’s goal is to provide the highest quality products and service for successful outcomes for surgeons’ patients.

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**Ziehm Imaging GmbH**

Donaustrasse 31  
90451 Nuremburg  
Germany

Tel.: +49 (0) 911 2172 0  
hui-min.eng@ziehm-eu.com  
www.ziehm.com

Founded in 1972, Ziehm Imaging has stood for the development, manufacturing and worldwide marketing of mobile X-ray-based imaging solutions for more than 40 years. The company is the recognized innovation leader in the mobile C-arm industry and a market-leader in Germany and Europe. The Nuremburg-based manufacturer received the prestigious IF Design Award 2016 for Ziehm Vision RFD 3D in the category medicine/healthcare. Ziehm Vision RFD 3D is the world’s only mobile 3D C-arm with flat-panel technology that provides a 16 cm edge length per scan volume, combining 2D and 3D functionality and maximum ease-of-use. For more information, please visit: www.ziehm.com

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**Zimmer Biomet**

310 Interlocken Pkwy #120  
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United States

Tel.: +1 3035018477  
savanah.sporer.external@zimmerbiomet.com  
www.zimmerbiomet.com

Zimmer Biomet was created to redefine musculoskeletal healthcare, and to help improve the lives of those we serve. Our singular goal is to help achieve exceptional outcomes for patients, healthcare professionals, investors, our Team Members, and the communities in which we work. By focusing the strengths of two great companies, Zimmer Biomet is uniquely positioned to accelerate the pace of innovation and to drive growth. This simple but powerful philosophy is summarized by our tagline, “Your progress. Our promise.” It reminds us that, together, we can achieve more when we work together in pursuit of our shared goals.
Download SpineWeek on your mobile phone

and have the most relevant and up-to-date conference information at hand:

- Program
- General and practical information
- Bookmark your favorite sessions
- Abstracts of invited talks & oral presentations
- Info on speakers & exhibitors
- Floor plan
- Twitter feed
- Survey
- ...

The SpineWeek 2016 App will be available in the App Store & Google Play.
Registration Desk
The registration desk of SpineWeek 2016 is located on Level 3 of the Marina Bay Sands Convention Centre.

Onsite Registration Opening Times
- Sunday, May 15: 16.00 - 19.00
- Monday May 16 - Friday May 20: 07.00 - 18.30

Registration Fees
- On-site registration: Full period**
  - Member *: € 800.00
  - Non-Member: € 950.00
  - Student/Trainee/Nurse & other Allied Health Professionals ***: € 500.00
  - Visitor Exhibition Only: € 350.00

Social Events
- Welcome Reception for partners, Monday, May 16: € 50.00
- All Societies Get-Together, Wednesday, May 18: € 100.00
- Society Dinner: € 100.00
(See Social Program for more details)

ISSLS Social Program
(Not included in registration fee)
- Partner Program: € 500.00
- ISSLS Outing, Thursday, May 19: € 150.00
- ISSLS Dinner, Thursday, May 19: € 100.00

** Day Registration is not possible
*** Certificate or proof of status will be asked during the registration process.

Badges
Participants are obliged to wear the official SpineWeek 2016 badges on all occasions. There will be rigorous badge controls.

Lost Badges
Participants who lost their badge will have to register and pay anew.

Language
The official language of SpineWeek will be English.

Abstracts of invited lectures and oral presentations
The abstracts of invited lectures and oral presentations can be consulted via the mobile App or on the SpineWeek website. Registered participants have received a password to access these abstracts.

ePosters
ePosters (electronic posters) are on display in the eSpine Area on Level 3 for the duration of SpineWeek 2016. An easy to use search engine allows you to search by author, university, topic, keywords, etc....

Special ePosters
5 ePoster corners are installed in the eSpine Area on Level 3 for the special ePoster sessions. These special ePosters will be on display on large touch screens allowing discussion in front of a small audience. Comfortable chairs will be installed in front of the screens.

Speaker Room
Speakers with oral presentations are requested to upload their PowerPoints onto the central server system at least 2 hours prior to their scheduled presentations. The Speaker Room is located in the eSpine Area on Level 3. Professional technicians will assist you in uploading your presentations onto the system.

Industry Workshops and Satellite Symposia
Presentations for Industry Workshops and Satellite Symposia are to be uploaded in the Workshop rooms.

Venue
Marina Bay Sands Convention Centre
10 Bayfront Avenue
Singapore 018956
www.marinabaysands.com

Coffee and Lunch
Coffee will be served in the exhibition area on Level 1 during the breaks between sessions. Lunch is included in the registration fee and a number of Lunch Workshops will be organized by the industry. Moreover, there are several restaurants and cafes on the premises of the Marina Bay Sands Convention Centre where participants can buy food and drinks.

Accreditation
SpineWeek 2016 has been granted 30 European CME credits (ECMEC) by the European Accreditation Council for Continuing Medical Education (EACCME). Participants will receive a certificate of attendance with accreditation details via email after SpineWeek 2016.

Disabled Persons
Participants with disabilities are kindly requested to contact the congress organizers for assistance when entering the Marina Bay Sands Convention Centre.

Cloakroom
A guarded pay cloakroom is available on Level 3. Luggage can also be stored here.
Liability
In registering for SpineWeek, participants agree that neither the SpineWeek Committee nor the Organizing Secretariat assume any liability whatsoever. Participants should therefore organize their own health, travel and personal insurances.

Hotel Accommodation & Tours
East West Planners will have a desk on Level 3. Their collaborators can assist you to book city trips and answer questions regarding your hotel booking.

Introduction to Singapore
Singapore is a bustling cosmopolitan city populated with high-rise buildings and landscape gardens. Brimming with a harmonious blend of culture, cuisine, arts and architecture, Singapore is a dynamic city that is rich in contrast and colour. In fact, you can even say that Singapore embodies the finest of both East and West.

Located in Southeast Asia, Singapore has a land area of about 710 square kilometres, making her one of the smallest countries in the world and the smallest in the region – hence the moniker “The Little Red Dot”. Although small in size, Singapore commands an enormous presence in the world today with its free trade economy and highly efficient workforce. Also, her strategic location in the region has enabled her to become a central sea port along major shipping routes.

Singapore’s Population, Language and Culture
At present, Singapore’s population stands at about five million people, with English as the main language of instruction, and a mother tongue for each major ethnicity. One of the distinctly Singaporean things you’ll notice on our island is a ubiquitous collage of cultures. Coming together as a society and living in harmony, there are four major races – namely the Chinese (majority), Malays, Indians and Eurasians. Each community offers a different perspective of life in Singapore in terms of culture, religion, food and language.

Climate
Singapore is warm and humid all year round. The daily temperature averages around 28 degrees Celsius. Abundant rainfall can be expected during the monsoon seasons from December to March and from June to September.

Tipping
Tipping is not widely practiced in Singapore as most hotels and restaurants apply a default 10% service charge.

Smoking
Smoking is prohibited in all air-conditioned areas (e.g. shopping centres, restaurants, cinemas, public buses, MRT, taxis, lifts), common corridors, void decks, and staircases within residential buildings, outdoor hospital compounds, as well as a 5-metre radius from any entrance/exit and bus shelter.

Taxis
All Singapore taxis operate under a meter system with starting fees ranging from S$3.00 to S$3.90. City and peak hour surcharges apply. Pre-booking of taxis can be done via the official taxi hotline: +65 6-DIAL-CAB (63425222). Alternatively, you can SMS “Book<space>six-digit postal code” to 71222 or use a mobile phone app like Comfort DelGro Taxi Booking App, SMRT Book a Taxi or GrabTaxi. Charges are higher for advance bookings.

GST Refunds
To enjoy a refund on the 7% Goods and Services Tax (GST) paid on your purchases, you need to make at least S$100 worth of purchases from participating outlets which display a “Tax Refund” logo or a Global Blue “Tax Free Shopping” logo. Request for a refund voucher upon purchase, which you should present with your purchases, receipts and passport at the Tax Refund Counter of the airport before you fly off. More information can be found at the Tourist Refund Scheme page on the Singapore Customs website at www.customs.gov.sg.

Singapore Visitors Centre
For queries, you’re welcome to drop by any of the Singapore Visitors Centres at these locations:

Next to orchardgateway@emerald 9.30am – 10.30pm daily

Chinatown Visitor Centre @ Kreta Ayer Square 9am – 9pm (weekdays)

For any queries related to your stay, do call the toll-free Touristline at 1800-736-2000. The hotline is open from Monday to Friday 9am – 6pm (excluding public holidays).

Useful Phone Numbers
Emergency (police, ambulance, rej): 112
Police (theft and other queries): 0900-8844 Touristdoctor (medical attention): (0031)-(0)-20-4275011

Official Carrier
The airlines of Emirates, official carrier for SpineWeek 2016, offer attractive airfares for participants. To benefit from 10% discount on your flights, link up with www.emirates.com and use the promotion code EVE6MSW.

SpineWeek on your mobile phone!
Follow the conference on your smartphone! The SpineWeek 2016 App will be available in the App Store & Google Play.

Sponsored by Medtronic

Accompanying Persons
The partners of all SpineWeek participants can go to the desk of East West Planners on Level 3 to pick up their Pre-paid Mastercard to the value of 50.00 SGD, offered by the Singapore Tourism Board.

Official Organizer
MediCongress
Noorwegenstraat 49
9940 Evergem, Belgium
www.medicongress.com
info@medicongress.com

Social Media
Follow us on Social Media and share your information using the official hashtag #SpineWeek.
Controversies in the Treatment of Spinal Disorders

Controversies in diagnosis, management and costs

November 18 & 19
Brussels, Belgium

www.spinesymposium.com

Confirmed Faculty:

J.J. Abitbol (San Diego)
M. Aebi (Bern)
R. Assaker (Lille)
M. Benoist (Paris)
P. Berjano (Milano)
S. Blumenthal (Dallas)
C. Bolger (Dublin)
B. Boszczyk (Nottingham)
H. Brisky (Göteborg)
R. Ceccinato (Milano)
C. Coloca (Phoenix)
R. Dunn (Plumstead)
R. Guyer (Dallas)
M.F. Ismael Aguirre (Milano)
N. Knoller (Tel Aviv)
C. Lamartina (Milano)
J.C. Le Huec (Bordeaux)
C. Lamartina (Milano)
M. Mayer (Munich)
E. Muehlbauer (Chicago)
M. Nordin (New York)
L. Pimenta (Sao Paulo)
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A. Vaccaro (Philadelphia)
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