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# Final Program

## Melbourne Convention and Exhibition Centre



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## AOSPINE

AO Spine is the leading global academic spine community, creating, disseminating, and exchanging knowledge to promote excellence in patient care and outcomes. It is the only truly multinational spine society in the world. AO Spine's global member community consists of 6,000 spine surgeons and researchers in 120 countries.

Every year, AO Spine stages over 200 educational events worldwide for over 12,000 participants. The education activities cover all spine pathologies and the spine surgeon's entire career. AO Spine also invests heavily in long- and short-term fellowship programs and observation opportunities.

AO Spine is the premier knowledge provider in the field of spinal surgery and at the forefront of preclinical and clinical research. It conducts its research independent of the industry. The clinical research is driven by the AO Spine Knowledge Forums. The five key opinion leader driven working groups generate knowledge in the spinal pathologies of tumor, deformity, spinal cord injury (SCI), trauma, and degenerative disease. They aim to spark expertise by way of clinical studies and evidence-based recommendations. The results are published and disseminated in the most influential journals and at conferences all over the world.

AO Spine is committed to developing new and innovative ways to develop spinal care across the globe. In 2020, two new important initiatives will be launched: the AO Spine Global Diploma Exam and the Clinical Expert Forums. AO Spine's official scientific journal, the Global Spine Journal, has been accepted to the Clarivate Analytics Journal Citations Report (JCR) Science Edition and will receive an Impact Factor in June 2020.

The Global Spine Congress (GSC), the official annual congress of AO Spine, is one of the biggest gatherings for spine surgeons from all over the world.



## ASIA PACIFIC SPINE SOCIETY

The Asia Pacific Spine Society (APSS) is the Spine Section of the Asia Pacific Orthopaedic Association (APOA), a regional organisation of spine surgeons mainly from the Asia Pacific region. This society started with the Western Pacific Orthopaedic Association - Spine Section in 1979.

The Society aims to advance spine care in the Asia Pacific region through education, research, and collaboration. The society aims to promote the highest standards of spine care by providing a platform for multidisciplinary professionals, including spine surgeons, neurosurgeons, orthopaedic surgeons, pain management specialists, and rehabilitation professionals, to share their knowledge, expertise, and experience.

APSS organises various educational activities, including conferences, courses, outreach programmes and fellowship programmes, to enhance the skills and knowledge of spine care professionals. The society also supports research through grants, awards, and publications to improve the understanding of spine diseases and their treatment. In addition, APSS collaborates with other spine societies worldwide to promote international exchange and cooperation.

The Society currently has over 500 members from over 20 countries in the Asia Pacific region and beyond. By fostering collaboration and exchange among professionals and promoting high-quality spine care, APSS strives to improve the lives of patients with spine disorders in the Asia Pacific region and beyond.

For more information, visit the APSS website: <https://www.apssonline.org/>

## ASSOCIATION OF SPINE SURGEONS OF INDIA



Association of Spine Surgeons of India (ASSI) was started on 18th December 1985, with an aim to bring all the spine surgeons of the country together under one umbrella. It was envisaged that we would have national, regional, and local meetings, symposia, CMEs, workshops, and conferences to promote uniform scientific spine care, both surgical and non-surgical. At present the association has around 3900 members. With the Motto "If we are doing it, let us do it better", Association promotes any spine related scientific activity, anywhere in India.

ASSI is running a two-year fellowship program in affiliated centers across India and conducts various outreach programs across the country in tier 2/3 cities, a capacity development program, textbooks on spine surgery and monographs as part of its academics. The society has been a strong propagator of research and has its research grant awards, a Spine Registry and a mobile application App based case discussion forum. "Indian Spine Journal (ISJ)" is indexed now and soon will get indexing in the PubMed as well. We plan to come out with <http://assi.elearnspine.org/>, world's largest online information portal, which will have two versions – one for spine experts and the other for general public, with an aim to develop a web-based teaching and be an educational resource. We have come out with ASSI theater book in Spine Surgery, a first of its kind in the world which will be a guide for all Surgeons, Fellows, theater Personnel & industry to get inputs as per their requirements. The ASSI Scoliosis Screening app first kind of online app in India, called "spinescolicheck.com" is already launched.

Website: [www.assi.in](http://www.assi.in)

## BIOSPINE



BioSpine started in Europe, 2002 and had a key role and strong reputation to facilitate active interaction between scientists, physicians, and surgeons for the development of innovative "BioSpine-Products". Aligned with this accomplishment of BioSpine, Prof. Yong Eun Cho and colleagues launched the 1st BioSpine AP in Seoul, 2018 as another step of BioSpine in the Asia Pacific region.

BioSpine AP aims to serve as a strong platform for the development of "BioSpine-Products" in the Asia Pacific region. As Asia Pacific has abundant young, competent researchers with diverse geographical and ethnic properties, biotechnological innovations for spinal treatment are undoubtedly successful in the Asia Pacific region.

Biotechnology is an always leading, creative solution which enables clinicians to overcome current clinical problems. To drive the clinical application of new biotechnologies and biomaterials in spine field, we require open discussion with Asian and Worldwide spine surgeons, researchers, scientists, veterinarians, government officers, and industries. We thus cordially invite you all to attend the BioSpine AP 2023 meeting.

We very much look forward to meeting you at the BioSpine AP 2023 meeting in Spineweek 2023, Melbourne.



## ACA - AUSTRALIAN CHIROPRACTORS ASSOCIATION

With over 3,000 members, the ACA provides a strong, unified voice for all chiropractors.

Whether it's through leadership, advocacy, member service, research, public engagement or governance, the ACA is active on all fronts in supporting chiropractors and enhancing health. ACA continues to grow, evolve and adapt to build a better understanding of the value of chiropractic care and ensure that the profession reaches its full potential.



## CA - CHIROPRACTIC AUSTRALIA

Chiropractic Australia is the leading peak body promoting evidence-based practice representing chiropractors in Australia. Established in 1990, it is a not-for-profit, member-based organisation that works towards advancing the chiropractic profession and improving the health outcomes of Australians through education, advocacy, and research.

Chiropractic Australia aims to promote evidence-based chiropractic care that is safe, effective, and accessible to all Australians. It provides support and resources to its members, including continuing education programs, networking opportunities, and clinical guidelines. The organisation also advocates for the inclusion of chiropractic care in healthcare policies and funding, and collaborates with other healthcare organisations to improve the overall quality of healthcare in Australia.

Chiropractic Australia is committed to upholding the highest standards of professional practice, and requires its members to adhere to a strict code of ethics and conduct. It also works closely with government bodies and other health professionals to ensure that chiropractic care is appropriately regulated and integrated into the broader healthcare system.

Overall, Chiropractic Australia plays an important role in promoting the health and wellbeing of Australians through chiropractic care. Its dedication to evidence-based practice, advocacy, and professional standards make it a trusted and respected organisation in the healthcare community.

## BSS - SOCIEDAD IBERO LATINOAMERICANA DE COLUMNA AUSTRALIA



Founded on October 12, 1994, BSS is a scientific, non-profit organization whose main objective is to disseminate the specialty in an institutional way, developing, encouraging and improving studies and research in the area of Orthopedics and Neurosurgery, with emphasis on Spine, contributing to the technical and scientific growth of the professionals of the area.

Website: [www.coluna.com.br](http://www.coluna.com.br)

## 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 the Asia Pacific region. Not only do we get many manuscript submissions originating from this area, 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 SpineWeek being held in Melbourne. 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 SpineWeek meeting in 2023.



## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

Welcome to ISSLS, the International Society for the Study of the Lumbar Spine, bringing together individuals from across the globe for the purpose of research and clinical study into the lumbar spine. ISSLS serves as a forum for the exchange of information of both an investigative and clinical nature relating to low-back pain and disability. Since its establishment in 1974, ISSLS has actively sought to advance the study of low-back pain and disability. ISSLS members, some 400 surgeons, physiotherapists, chiropractors, engineers, kinesiologists, epidemiologists and molecular and cell biologists from around the world, are at the forefront of developments and advances. Together, the contributions, activities and dedication of these individuals, have led to breakthroughs in many areas of spine research.

ISSLS encourages and supports young researchers and clinicians via its Fellowships and Awards Program. We are grateful for the generous corporate donations that allow young researchers to attend ISSLS Annual Meetings, where they present their papers and posters, meet like-minded clinicians and researchers, and continue their valuable investigation into spine disease and disability. The ISSLS Fellowship Program ensures that important research continues to be undertaken across clinical, bio-engineering and basic sciences.

The Annual Meetings are held in different cities around the world and ISSLS has participated and supported SpineWeek since its inception in Porto, Portugal in 2004.

The highlights of our meetings are the ISSLS Prize presentations, the Presidential address and the Harry Farfan Presidential Guest Speaker's lecture. We invite all registrants from every society to join us for these sessions.



## JSSR - JAPANESE SOCIETY FOR SPINE SURGERY AND RELATED RESEARCH

The purpose of the Japanese Society for Spine Surgery and Related Research is to promote research on spine and spinal cord disorders and to encourage exchanges of information among researchers, and to contribute to the enhancement of human health by disclosing and spreading the results of our researches and knowledge to the general public.

The Society was established in 1974 as the Society for Research on Spine Surgery, and the first general meeting was held in April of the same year under the chairmanship of Prof. Torao Iwahara of Keio University.

The Society subsequently evolved into the Japanese Spine Research Society in 1985, the Japan Spine Research Society in 1990, and the current Japanese Society for Spine Surgery and Related Research in 2001.

## KOREAN SPINAL NEUROSURGERY SOCIETY



The Korean Spinal Neurosurgery Society was founded on December 19, 1987, as the third research society of the Korean Neurosurgical Society, initially named the Korean Spinal Neurosurgery Research Society. The society was established to promote academic communication and social intimacy between its members, as well as to improve clinical and basic research in spinal neurosurgery.

The establishment committee, led by Professor Hwan Yung Chung of Hanyang University, submitted the application for establishment to the Korean Neurosurgical Society, which was approved on October 22, 1987, during a full meeting of the director boards. The inaugural meeting and the first academic meeting were held at the Hanyang University Medical Center on December 19, 1987, where Hwan Yung Chung was elected as the first president. In December 1999, the society was renamed the Korean Spinal Neurosurgery Society, following approval by the Korean Neurosurgical Society. The society currently comprises six research societies, each dedicated to the study of specific topics in spinal neurosurgery.

The society has been active in organizing academic meetings and training seminars, both nationally and internationally, since its establishment. The society also published a comprehensive textbook of the spine, and its official journal, Neurospine, has been an official journal of ASIA SPINE, Neurospinal Society of Japan and Taiwan Neurosurgical Spine Society.

The Korean Spinal Neurosurgery Society has been committed to promoting excellence in the field of spinal neurosurgery, and its activities have contributed to advancing the knowledge and practice of spinal neurosurgery in Korea and beyond.

## KOREAN SOCIETY OF SPINE SURGERY



The Korean Society of Spine Surgery is an organization that provides a forum for the exchange of ideas between health care professionals so as to promote research in spinal surgery.

The society was founded in 1984 and has since become the longest-running organization specializing in the spine in Korea, while the number of registered members and published papers are still growing steadily. It holds an annual meeting twice a year in spring and autumn and provides instructional courses for surgeons and related professionals on a yearly basis.

The organization publishes two journals in two languages, which are The Journal of the Korean Society of Spine Surgery written in Korean and the Asian Spine Journal written in English. The Korean Society of Spine Surgery endeavors to create optimal care for patients with spinal diseases through education for both professionals and patients as well as the support of research by its members in the name of advancing the academic field of spinal surgery.



### NORTH AMERICAN SPINE SOCIETY

NASS is a global multidisciplinary medical organization dedicated to fostering the highest quality, ethical, value-based and evidence-based spine care through education, research and advocacy. Join more than 8,000 spine professionals worldwide by making NASS your professional home for everything spine!

### SIS - SPINE INTERVENTION SOCIETY



The Spine Intervention Society (SIS) is an international physician organization dedicated to the development and promotion of the highest standards for the practice of interventional pain procedures.

Over 3,300 physician members in 50 countries rely on SIS for its renowned advocacy, research, and educational programs designed to advance evidence-based practice and ensure patient access to quality care and appropriate interventional pain treatments. SIS membership is primarily composed of physicians who are board certified in anesthesiology, physical medicine and rehabilitation, radiology, neurology, orthopedic surgery, or neurosurgery.



### SILACO - SOCIEDADE BRASILEIRA DE COLUNA

SILACO as a scientific society, brings together professionals related to all spinal disorders to promote, develop and encourage the study and dissemination of causes, treatments and prevention of spinal disorders. It is also the representation of specialists before other continental or regional organizations to establish scientific relations between these entities.

### SOCIETY FOR MINIMALLY INVASIVE SPINE SURGERY



The Society for Minimally Invasive Spine Surgery (SMISS) is an international community of spine surgeons, orthopaedic surgeons and neurosurgeons who have chosen to specialise in minimally invasive spine surgery.

The SMISS Asia/Pacific section encourages innovation progress and research in the field of minimally invasive spine surgery throughout the Asia-Pacific region.

The society provides educational activities for the safe and efficacious application of minimally invasive spinal technologies and provides unbiased evidence-based information relevant to miss for all healthcare professionals and the public at large.



## SOSORT - INTERNATIONAL SOCIETY ON SCOLIOSIS ORTHOPAEDIC AND REHABILITATION TREATMENT

(SOSORT) is a non-profit organization whose mission is to advance the most appropriate care for individuals with scoliosis and spine structural changes with an emphasis on non-operative management. The organization consists of patients, researchers, and clinicians such as physicians, surgeons, nurse practitioners, physician assistants, orthotists, physiotherapists, occupational therapists, exercise scientists, and rehabilitation professionals.

The first formal meeting of SOSORT was held in Poznan, Poland in April 2006. However, the seeds for this new organization were planted two years prior when a group of almost 100 clinicians gathered in Barcelona, Spain to discuss approaches and standards for non-operative care for scoliosis patients. The number and enthusiasm of the participants demonstrated that an organization dedicated to non-operative care was needed. The official SOSORT journal, Scoliosis and Spinal Disorders was published between 2006 and 2019. The journal was home to a number of consensus papers and several updates to SOSORT guidelines to help clinicians practice high quality evidence-based care.

Membership is now at over 200 individuals and growing. SOSORT is a diverse and international society with a common vision to create a world where multidisciplinary collaboration among individuals living with scoliosis and spine structural changes, their families, healthcare professionals and scientists exist to ensure optimal outcomes. Please consider joining our society and visit us in the spine village and at [www.SOSORT.org](http://www.SOSORT.org) for more information.



## SPINE SOCIETY OF AUSTRALIA

The Spine Society of Australia (SSA) is the peak organisation for medical professionals specialising in spine surgery, care and research in Australia.

Founded in 1990, with Professor Robert Fraser as the inaugural President, the original aims of the SSA included the following:

- o To form an educational organisation dedicated to the exchange of ideas and dissemination of scientific and clinical knowledge concerning spinal disease and disorder.
- o To advance the quality of and encourage research into the management of spinal disease and disorder.
- o To improve the means of communication and support for young men and women involved in the medical and scientific study, investigation and treatment of spinal disease and disorder

Today the SSA facilitates the exchange of ideas, research and communication about spine health.

The current membership consists of about 200 members with clinicians from both orthopaedic and neurosurgical backgrounds and an increasing number of basic scientists and researchers.

The Australian Spine Registry (ASR) is an initiative of the Spine Society of Australia aiming to improve the quality of care provided to individuals undergoing spine surgery in Australia.

Visit the SSA and ASR in the Societies Village to see how you can get involved.

Monday 1 May

	Goldfields Theatre	Sovereign Room (Level 1)	Eureka 1 + 2	Eureka 3	Courtyard Rooms	Hospitality Suite 6
08.00	SSA	ASSI	SOSORT	APSS		
10.00	Break					
10.30	SSA	ASSI	SOSORT	APSS		GENERAL
12.30	Lunch break + Industry workshops					
14.00	SSA	ASSI	SOSORT	APSS	NASS	GENERAL
16.00	Break					
16.30	SSA	ASSI	SOSORT	APSS	NASS	GENERAL

Thursday 4 May

	Goldfields Theatre	Sovereign Room (Level 1)	Eureka 1 + 2	Eureka 3	Courtyard Rooms	Hospitality Suite 6
08.00	ISSLS	ACA/CA	AO		SIS	SMISS AP
10.00	Break					
10.30	ISSLS	ACA/CA	AO		SIS	SMISS AP
12.30	Lunch break + Industry workshops					
14.00		ACA/CA	NASS	BSS SILACO	SIS	SMISS AP
16.00	Break					
16.30		ACA/CA	NASS		SIS	SMISS AP

Tuesday 2 May

	Goldfields Theatre	Sovereign Room (Level 1)	Eureka 1 + 2	Eureka 3	Courtyard Rooms	Hospitality Suite 6
08.00	SSA	ASSI	SOSORT	APSS	KSSS	KSNS
10.00	Break					
10.30	SSA	ASSI	SOSORT	APSS	KSSS	KSNS
12.30	Lunch break + Industry workshops					
14.00	ISSLS	ASSI	SOSORT	APSS	SSA	KSNS
16.00	Break					
16.30	ISSLS	ASSI	SOSORT	APSS	SSA	KSNS

Friday 5 May

	Goldfields Theatre	Sovereign Room (Level 1)	Eureka 1 + 2	Eureka 3	Courtyard Rooms	Hospitality Suite 6
08.00	ISSLS	ACA/CA	AO	BSS SILACO	SIS	SMISS AP
10.00	Break					
10.30	ISSLS	ACA/CA	AO	BSS SILACO	SIS	SMISS AP
12.30	Lunch break + Industry workshops					
14.00	ISSLS	ACA/CA	AO			SMISS AP
16.00	Break					
16.30	ISSLS	ACA/CA	AO			SMISS AP

Wednesday 3 May

	Goldfields Theatre	Sovereign Room (Level 1)	Eureka 1 + 2	Eureka 3	Courtyard Rooms	Hospitality Suite 6
08.00	ISSLS	ASSI	SOSORT	APSS	BIOSPINE	SSA
10.00	Break					
10.30	ISSLS	ASSI	SOSORT	APSS	BIOSPINE	SSA
12.30	Lunch break + Industry workshops					
14.00	ISSLS	ESJ	JSSR	SIS	BIOSPINE	NASS
16.00	Break					
16.30	ISSLS	ESJ	JSSR	SIS	BIOSPINE	NASS







# Monday 1 May Scientific Program

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Posters

	Goldfields Theatre	Sovereign Room (Level 1)	Eureka 1 + 2	Eureka 3	Courtyard Rooms	Hospitality Suite 6
08.00	SSA	ASSI	SOSORT	APSS		
10.00	Break					
10.30	SSA	ASSI	SOSORT	APSS		GENERAL
12.30	Lunch break + Industry workshops					
14.00	SSA	ASSI	SOSORT	APSS	NASS	GENERAL
16.00	Break					
16.30	SSA	ASSI	SOSORT	APSS	NASS	GENERAL

## SPINE SOCIETY OF AUSTRALIA

**Free Paper Session 1A: New technology**

Chairs: Wilke H.J. (DE) &amp; Russo M. (AU)

- 08.00 **Short Welcome and Introduction**  
Costi J. (AU)
- 08.05 O1 **Assessing changes in spine biomechanics for progressive AIS: A method using MRI and artificial intelligence**  
Little P. (AU)
- 08.15 O2 **Refinements of a parametric virtual workflow to design spinal orthoses for adolescent idiopathic scoliosis**  
Chalmers R. (AU)
- 08.25 O3 **Risk factors for errors in pedicle screw placement in minimal invasive computer assisted spine surgery**  
Hubbe U. (DE)
- 08.35 O4 **Machine learning algorithms can accurately distinguish pathological gait patterns in patients with Lumbar spine conditions and Parkinson's disease when compared to normative controls**  
Fernando P.V. (AU)
- 08.45 O5 **Viscoelastic lumbar disc prosthesis and monosegmental ALIF: What is the impact on the centers of rotation of the adjacent segment?**  
Lazennec J.Y. (FR)
- 08.55 **Short break**
- Free Paper Session 1B: Basic science & biomechanics I**  
Chairs: Costi J. (AU), Suresh S. (AU)
- 09.00 O6 **New findings pave the way: Structure-function characterization of the transition zone in the intervertebral disc**  
Tavakoli J. (AU)
- 09.10 O7 **Is graft material still necessary in 3D titanium interbody fusions? A preclinical evaluation in sheep**  
Vizesi F. (US)
- 09.20 O8 **Engineering the perfect mattress: The influence of age and anthropometry on lying biomechanics**  
Rayward L. (AU)
- 09.30 O9 **Intrathecal pressure, spinal cord compression and oedema in a pig model of contusion spinal cord injury**  
Jones C.F. (AU)
- 09.40 O10 **Spinal cerebrospinal fluid flow following traumatic spinal cord injury: An investigation using phase-contrast magnetic resonance imaging in the pig**  
Bessen M. (AU)
- 09.50 O11 **What do surgeons hear and feel when breaching cortical walls? Biomechanical investigation of acoustic and torsional biomarkers for cortical wall perforations**  
Lange T. (AU)
- 10.00 **Coffee Break**

## SPINE SOCIETY OF AUSTRALIA



- 10.30 **Opening Welcome to SSA2023**  
Kuru R. (AU) - SSA President & Costi J. (AU) - SSA Scientific Secretary
- Symposium 1**  
Chair: Scott-Young M. (AU)
- 10.35 **Spine Biomechanics - Current Challenges and What the Future Holds**  
Oxland T. (CA)
- 11.00 **Discussion**
- 11.05 **What drives CSF flow in the spine?**  
Bilston L. (AU)
- 11.30 **Discussion**
- 11.35 **Riluzole in acute spinal cord injury trial: a major international study, results and Australian perspective**  
Stanford R. (AU)
- 12.00 **Discussion**
- 12.05 **Panel Discussion**
- 12.30 **Lunch Break & Industry Workshops**
- Free Paper Session 2: Outcomes I**  
Chairs: Diwan A. (AU) & Davis M. (AU)
- 14.00 O12 **Development of the Paediatric Australian Spine Registry (pASR)**  
Ho S.W.K. (AU)
- 14.10 O13 **Safety and efficacy of continuous epidural analgesia after posterior instrumented fusion for adolescent idiopathic scoliosis**  
Jamali M. (AU)
- 14.20 O14 **The clinical and radiographic degenerative spondylolisthesis classification and its predictive value**  
Baecker H. (NZ)
- 14.30 O15 **Outcomes of the direct lateral and anterolateral approach in spinal surgery: Results from the British Spinal Registry**  
Pun A. (AU)
- 14.40 **Short break**
- Society Session**  
Chair: Lundine K. (AU)
- 14.45 **Future direction and challenges in Australian health care delivery**  
David R. (AU)
- 15.10 **Update on the Australian Spine Registry**  
Johnson M. (AU)
- 15.35 **SSA Medico-legal update**  
Kuru R. (AU)
- 16.00 **Coffee Break**

## SPINE SOCIETY OF AUSTRALIA

**Free Paper Session 3A: Spinal deformity I & tumour**

Chairs: Seex K. (AU) &amp; Duncombe P. (AU)

- 16.30 O16 **Risk factors for distal construct failure in posterior spinal instrumented fusion for adolescent idiopathic scoliosis – A retrospective cohort study**  
Tse C.B. (NZ)
- 16.40 O17 **Two year outcomes of the Nemost growth rod for early onset scoliosis**  
Kimani M.B. (AU)
- 16.50 O18 **Effect of Non-fusion Anterior Scoliosis Correction (NFASC) on thoracic and lumbar sagittal parameters in Adolescent Idiopathic scoliosis (AIS) patients? Is it detrimental**  
Akbari K. (IN)
- 17.00 O19 **Surgical management and denosumab for aneurysmal bone cysts of the spine in an Australian tertiary paediatric centre**  
Tsinas D. (CH)
- 17.10 O20 **A novel approach for thoracic wall reconstruction using a 3D-printed prosthesis with hinged fixation to the vertebral column**  
Tsinas D. (CH)
- 17.20 **Short Break**

## SPINE SOCIETY OF AUSTRALIA

**Free Paper Session 3B: Basic science & biomechanics II**

Chairs: Little P. (AU) &amp; Rayward L. (AU)

- 17.30 O21 **The effect of head-end constraint on cervical spine kinematics, facet mechanics, and failure mode, during axial loading**  
Quarrington R. (AU)
- 17.40 O22 **Estimating canal occlusion with specimen-specific computer models of subaxial cervical spine kinematics**  
Quarrington R. (AU)
- 17.50 O23 **A dynamic experimental model of cervical facet dislocation**  
Thompson-Bagshaw D. (AU)
- 18.00 O24 **Anatomic viability of C2 translaminar screw fixation is variable between ethnicity and sex: An anatomic study of 200 computed tomography scans comparing New Zealand Maori and European anatomy**  
Baker J. (NZ)
- 18.10 O25 **Interbody fusion using controlled release of E-Coli derived rhBMP-2 in skeletally mature ovine model**  
Walsh W. (AU)
- 18.20 O26 **Bone on the back table: Effects of autograft handling on spinal fusion**  
Vizesi F. (US)

**Symposium: Planning surgery for severe (>90°) rigid thoracic curves**

Chairs: Jayaswal A. (IN) &amp; Krishnan A. (IN)

08.00	<b>Risk stratification &amp; preoperative optimization of patients with severe deformity</b> <i>Sudhir G. (IN)</i>
08.07	<b>Discussion</b>
08.10	<b>Preoperative halo-gravity traction - Pearls &amp; pitfalls</b> <i>Basu S. (IN)</i>
08.17	<b>Discussion</b>
	<b>Debate: Surgical approach for severe (&gt;90°) rigid thoracic curves</b>
08.20	<b>Pro: Anterior release + posterior correction</b> <i>Kandwal P. (IN)</i>
08.27	<b>Con: Posterior release + posterior correction</b> <i>Garg B. (IN)</i>
08.34	<b>Discussion</b>
	<b>Debate: Implant density (&gt;90°) in severe rigid thoracic curves</b>
08.40	<b>Pro: I instrument all levels in severe rigid curves</b> <i>Sonawane D. (IN)</i>
08.47	<b>Con: Instrumenting strategic vertebrae gives the same result</b> <i>Dhillon C. (IN)</i>
08.54	<b>Discussion</b>
09.00	<b>Pulmonary considerations in patients with severe spinal deformities</b> <i>Das G. (IN)</i>
09.07	<b>Discussion</b>
09.10	<b>Robots/Navigation in surgery for correction of severe deformity: Gimmick or useful tool??</b> <i>Shetty A. (IN)</i>
09.17	<b>Discussion</b>
09.20	<b>Responding to IONM alerts during surgeries for correction of severe spinal deformity</b> <i>Unnikrishnan R. (IN)</i>
09.27	<b>Discussion</b>
	<b>Free Paper Session I</b> Chairs: Das G. (IN) & Mohapatra B. (IN)
09.30 O27	<b>Do 3D printed templates improve the accuracy and safety of pedicle screw insertion in complex spinal kypho-scoliotic deformities? A comparative cohort study</b> <i>Achar S. (IN)</i>
09.35 O28	<b>Effect of non fusion anterior scoliosis correction surgery on pulmonary function in Lenke type 1 Adolescent Idiopathic Scoliosis patients treated with mini open thoracotomy approach</b> <i>Akbari K. (IN)</i>
09.40 O29	<b>Does truncal balance restoration in idiopathic scoliosis depend on choice of lowest instrumented vertebra and cobb correction?</b> <i>Tahasildar N. (IN)</i>
09.45 O30	<b>Posterior-only two-stage vertebral column resection in severe and rigid scoliosis</b> <i>Sheth S. (IN)</i>
09.50	<b>Q&amp;A Session</b>
10.00	<b>Coffee Break</b>

**Symposium: Approach to Benign primary spine tumors**

Chairs: Unnikrishnan R. (IN) &amp; Sudhir G. (IN)

10.30	<b>Interactive case-based panel discussion</b> <i>Patel D. (IN)</i> Panellists: Venkatesh K. (IN), Walia B. (IN), Pillai S. (IN), Thomas A. (IN)
	<b>Free Paper Session II</b> Chairs: Sharma A. (IN) & Farooque K. (IN)
11.30 O31	<b>Pediatric non-gliar intramedullary spinal cord lesions: Clinicoradiological profile, pathology and surgical outcome</b> <i>Divakar G. (IN)</i>
11.35 O32	<b>Functional results following microsurgical resection of intradural extramedullary spinal tumors</b> <i>Murugan Y. (IN)</i>
11.40 O33	<b>Management of aggressive vertebral haemangioma - A systematic review and a proposed management algorithm</b> <i>Macherla Haribabu S. (IN)</i>
11.45 O34	<b>Locally aggressive chondroblastoma of the dorsal spine mimicking parachordoma</b> <i>Gala R. (IN)</i>
11.50	<b>Q&amp;A Session</b>
12.00 O35	<b>Minimally invasive posterior thoracolumbar corpectomy: Technical note and case series</b> <i>Hari A. (IN)</i>
12.05 O36	<b>Approach to soft tissue reconstruction for complex spinal wounds</b> <i>Chauhan S. (IN)</i>
12.10 O37	<b>Blood conservation in major spine surgeries: Role of high dose TXA. An institutional experience</b> <i>Unnikrishnan R. (IN)</i>
12.15 O38	<b>Complex revision surgeries: How to do it right!</b> <i>Modi J.V. (IN)</i>
12.20	<b>Q&amp;A Session</b>
12.30	<b>Lunch Break &amp; Industry Workshops</b>
	<b>Joint session of ASSI and APSS: Early onset scoliosis</b> Chairs: Acharya S. (IN) & Lui G. (SG)
14.00	<b>Interactive case-based panel discussion</b> <i>Garg B. (IN)</i> Panellists: Jayaswal A. (IN), Chan C.Y.W. (IN), Lau L.L. (IN)
14.25	<b>Treatment strategy for EOS: When and what??</b> <i>Wong Y.W. (HK)</i>
14.40	<b>Discussion</b>
14.45	<b>Tethering for EOS - The Indian experience!!</b> <i>Hegde S. (IN)</i>
14.55	<b>Discussion</b>

ASSI

## ASSOCIATION OF SPINE SURGEONS OF INDIA

## Free Paper Session III

Chairs: Dhillon C. (IN) &amp; Sonawane D. (IN)

- 15.00 O39 **Clinical and radiological outcomes of high-grade developmental spondylolisthesis treated surgically - Does reduction matter?**  
Acharya S. (IN)
- 15.05 O40 **Effect of in-situ fusion in lumbar spondylolisthesis on clinical outcomes and spino-pelvic sagittal balancing - A case series of 138 patients**  
Zawar A. (IN)
- 15.10 O41 **Effects of posterior spinal fusion surgery on gait biomechanics in patients with Adolescent Idiopathic Scoliosis**  
Garg B. (IN)
- 15.15 O42 **Do all adult spinal deformity (ASD) patients need complex deformity correction surgery? A propensity matched prospective comparative analysis of outcomes of operative versus non-operative treatment of adult spinal deformity in an Indian scenario**  
Badikillaya V. (IN)
- 15.20 **Q&A Session**
- 15.30 O43 **Is thoracolumbar interfascial plane block better than local anaesthetic infiltration in lumbar fusion for postoperative pain management? A randomized controlled trial**  
Pramod S. (IN)
- 15.35 O44 **Minimally Invasive Surgery Transpedicular Intrabody Cage (MISTIC technique) for management of Kummell's disease**  
Ifthikar S. (IN)
- 15.40 O45 **Analysis of clinical and radiological outcome of percutaneous kyphoplasty for osteoporotic compression fractures - A single centre prospective study**  
Kondety S.K.R. (IN)
- 15.45 O46 **Assessment of efficacy and safety of nandrolone decanoate and alendronate alone in patients with osteoporosis**  
Dave M. (IN)
- 15.50 **Q&A Session**
- 16.00 **Coffee Break**
- Symposium: Challenging cases/Innovative solutions**  
Chairs: Jhala A. (IN) & Girdhar P. (IN)
- 16.30 **Open wedge osteotomy incongenital scoliosis**  
Rajasekaran S. (IN)
- 16.37 **Discussion**
- 16.40 **A kyphoplasty gone awry!!**  
Gurugaj S. (IN)
- 16.47 **Discussion**
- 16.50 **Sarcopenia: Is it the beginning of the end??**  
Babu N. (IN)
- 16.57 **Discussion**
- 17.00 **Technique for percutaneous biopsy in subaxial cervical spine**  
Aithala J. (IN)
- 17.07 **Discussion**

## ASSOCIATIONS OF SPINE SURGEONS OF INDIA

ASSI

- 17.10 **Video: Percutaneous transforaminal lumbar endoscopic discectomy for migrated lumbar disc herniation Why it scores over other forms of lumbar discectomy?**  
Sharma M. (IN)
- 17.17 **Discussion**
- 17.20 **Video: Endoscopic discectomy for recurrent lumbar disc herniation**  
Kaushal M. (IN)
- 17.27 **Discussion**
- Free Paper Session IV**  
Chairs: Gurugaj S. (IN) & Iyengar R. (IN)
- 17.30 O47 **Necessity of direct decompression for thoracolumbar junction burst fractures with neurological compromise**  
Ankit R. (IN)
- 17.35 O48 **The study of neurological and radiological outcome of short segment fixation without laminectomy for traumatic thoracolumbar spine fractures with neurologic deficit**  
Mutha M.N. (IN)
- 17.40 O49 **Thoracolumbar vertebral burst fractures treated by short segment fixation with index screw and transpedicular intracorporeal bone grafting: A clinico-radiological analysis pre-post interventional study**  
Agarwal P. (IN)
- 17.45 O50 **Comparison of radiological & functional outcome of thoracolumbar burst fractures treated by Short Segment Pedicle screw fixation (SSPF) with monopedicular index screw fixation & bipedicular index screw fixation**  
Gade M.S.R. (IN)
- 17.50 **Q&A Session**
- 18.00 O51 **Dural breach is an indicator to prognosticate neurological recovery in traumatic dorsolumbar spine: Prospective analysis of 48 patients with cauda equina and conus injuries**  
Patel P. (IN)
- 18.05 O52 **Better late than never: Clinical outcomes of delayed fixation in thoracolumbar spinal trauma**  
Rathod T. (IN)
- 18.10 O53 **Outcomes of long segment posterior fusion in patients with ankylosing spondylitis with thoracolumbar fractures**  
Shahi P. (NP)
- 18.15 O54 **A perioperative predictive model of early mortality in acute cervical spine injury: A prospective cohort study**  
Verma A. (IN)
- 18.20 **Q&A Session**
- 18.30 **Adjourn**



SOSORT

08.00

**Introduction**

McAviney J. (AU) &amp; Zaina F. (IT)

**Session 1: Bracing**

Chairs: McAviney J. (AU) &amp; Aulisa A.G. (IT)

- 08.06 O55 **On-site clinician-led bracing algorithm with short clinical feedback loops lead to significant improvements in bracing outcomes**  
Choong J. (GB)
- 08.13 O56 **The effect of night-time bracing on the sagittal profile in adolescent idiopathic scoliosis**  
Heegaard M. (DK)
- 08.20 O57 **Nighttime compared to full-time bracing in adolescent idiopathic scoliosis: Evaluating clinical equipoise and feasibility for a multi-center clinical trial**  
Truong W. (US)
- 08.27 O58 **The short-term outcomes of the Boston brace 3D Program based on SOSORT and SRS study criteria**  
Wynne J. (US)
- 08.34 O59 **It is worth treating adolescent with idiopathic scoliosis when bone maturity passed US Risser 2: Bracing can improve curves and aesthetic**  
Donzelli S. (IT)
- 08.41 **Discussion**
- 08.57 O60 **The effect of Risser stage on the risk of curve progression in patients with adolescent idiopathic scoliosis treated with night-time bracing**  
Heegaard M. (DK)
- 09.04 O61 **Bracing interventions can help adolescents with idiopathic scoliosis with surgical indication: A systematic review**  
Zaina F. (IT)
- 09.11 O62 **Can an immediate increase of standing height, when wearing a corrective scoliosis brace, be predictive of in-brace skeletal correction?**  
Choong J. (GB)
- 09.18 O63 **Non-operative treatment for Adolescent Idiopathic Scoliosis (AIS) by a combination of Cheneau brace and Schroth - Physiotherapeutic Scoliosis Specific Exercises (PSSE), for curves at high risk of progression**  
Karavidas N. (GR)
- 09.25 O64 **Secondary outcomes on spinal deformity, spinal appearance, health related quality of life, treatment adherence and adverse effects in a multicentre randomised controlled trial on CONservative TReatment for moderate-grade Adolescent Idiopathic Scoliosis (CONTRAIS)**  
Abbott A. (SE)
- 09.32 O65 **Assessing the presentation of adolescents seeking bracing treatment in the UK, using SRS bracing guidelines**  
Choong J. (GB)
- 09.39 **Discussion**
- 09.51 **Coffee Break and Poster Session I**

**SOSORT - INTERNATIONAL SOCIETY ON SCOLIOSIS ORTHOPAEDIC  
AND REHABILITATION TREATMENT**


SOSORT

**Session 2: Quality of life**

Chairs: Parent E. (CA) &amp; Abbott A. (SE)

- 10.30 O66 **Combined Subjective and Objective health related Quality of Life (SO.QOL™) score, and usefulness in a spine population for pre and post intervention assessment**  
Mobbs R.J. (AU)
- 10.37 O67 **Patient and parent expectations to scoliosis treatment**  
Simony A. (DK)
- 10.44 O68 **The psychological impact of children spinal deformities on their parents: How to measure with a Rach consistent unidimensional questionnaire**  
Zaina F. (IT)
- 10.51 **Discussion**
- 11.09 O69 **Investigating the relationship between objective measurements and patient perception in non-treated AIS. Study 1: How much radiologic measurements affect the SRS-22 and the TAPS**  
Aristegui G. (ES)
- 11.16 O70 **Sources of emotional support for scoliosis patients**  
Castille M.G. (US)
- 11.23 O71 **Cross-cultural adaptation and psychometric properties of the traditional Chinese version of the Italian Spine Youth Quality of Life (ISYQOL) questionnaire**  
Wong A.Y.L. (HK)
- 11.30 O72 **What's sore about scoliosis? A prospective cohort study correlating PROM's, radiographic measurements, and surface topography with pain**  
Groisser B. (US)
- 11.37 **Discussion**
- 11.50 O73 **Differences in LBP in adults with and without scoliosis: Results of a systematic review**  
Marchese R. (AU)
- 11.57 O74 **Don't hang up the cleats yet: Predicting physical activity levels in scoliosis patients with surface topography**  
Groisser B. (US)
- 12.04 O75 **Is thoracic hyper-kyphosis deformity relevant to pain, autonomic nervous system function, disability, and cervical sensorimotor control in patients with chronic nonspecific neck pain?**  
Harrison D. (US)
- 12.11 **Discussion**
- 12.30 **Lunch Break & Industry Workshops**

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**SOSORT - INTERNATIONAL SOCIETY ON SCOLIOSIS ORTHOPAEDIC  
AND REHABILITATION TREATMENT**
**Session 3: Exercise**

Chairs: Romano M. (IT) &amp; Aristegui G. (ES)

- 14.00 O76 **Adherence to physiotherapeutic scoliosis specific exercises during adolescence: Voices from patients and their families - A qualitative content analysis**  
*Donzelli S. (IT)*
- 14.07 O77 **The effect of scoliosis-specific exercises on quality of life in adolescents idiopathic scoliosis vary with program duration and baseline curve severity: A meta-regression**  
*Parent E. (CA)*
- 14.14 O78 **The effect of scoliosis-specific exercises on curve severity in adolescents idiopathic scoliosis vary with program duration and baseline curve severity: A meta-regression**  
*Parent E. (CA)*
- 14.21 **Discussion**
- 14.41 O79 **The effects of physiotherapy scoliosis specific exercise on truncal shift in idiopathic scoliosis: A 12-month follow-up**  
*Maude E. (GB)*
- 14.48 O80 **Factors that influence how Schroth therapists world-wide implement Schroth for adolescents with idiopathic scoliosis: A qualitative study**  
*Marchese R. (AU)*
- 14.55 O81 **Trunk shift over correction is related to generalised hypermobility**  
*Betts T. (GB)*
- 15.02 **Discussion**


**SOSORT - INTERNATIONAL SOCIETY ON SCOLIOSIS ORTHOPAEDIC  
AND REHABILITATION TREATMENT**
**Session 4: Miscellaneous**

Chairs: Harding R. (AU) &amp; Maude E. (GB)

- 15.12 O82 **The development of United Kingdom National Guidelines for the post operative treatment of AIS - A consensus-based approach from a new multidisciplinary special interest group**  
*Betts T. (GB)*
- 15.19 O83 **Possible implications of pediatric chest wall surgeries on the risk of development of spinal deformities**  
*White R. (US) & Ginzburg M. (US)*
- 15.26 O84 **Bracing and physiotherapy in the conservative management of adolescent idiopathic scoliosis during growth: A survey of current practices across the UK and Ireland**  
*Dunstan E. (GB)*
- 15.33 O85 **Effect of muscle fatigue of the thoracic erector spinae on neuromuscular control in people with adolescent idiopathic scoliosis**  
*Tsang S.M.H. (HK)*
- 15.40 **Discussion**
- 16.00 **Coffee Break and Poster Session II**
- Invited Lecture**  
*Introduction by Zaina F. (IT)*
- 16.30 **Basic biomechanics of the spine – What have we learned in 25 years?**  
*Oxland T. (CA)*
- 17.00 **Discussion**
- Invited Lecture**  
*Introduction by Zaina F. (IT)*
- 17.10 **Biomechanical considerations in examining spinal stiffness**  
*Colloca C. (US)*
- 17.25 **Discussion**
- Invited Lecture**  
*Introduction by Cohen L. (AU)*
- 17.35 **Riding the curve: My experience with scoliosis and unicycling for a cause**  
*McNab R. (AU)*
- 17.50 **Discussion**
- 18.00 **Adjourn**



## ASIA PACIFIC SPINE SOCIETY

## APSS Opening Ceremony

- 07.30 **Program Introduction**  
*Liu G. (SG)*
- 07.35 **Welcome remarks & APSS history by the President**  
*Rajasekaran S. (IN)*
- 07.50 **Acknowledgement to APSS Central Sponsors**
- 07.53 **Introduction to ASJ**
- Free Paper Session I: Trauma**  
**Chairs: Islam S.S. (BD) & Kundnani V. (IN)**
- 08.00 **Introduction**
- 08.01 O86 **Efficacy, safety and reliability of single posterior approach for unstable thoracolumbar burst fracture treated with anterior reconstruction & posterior instrumentation**  
*Jonayed S.A. (BD)*
- 08.04 O87 **Comparison of three different instrumentation constructs in a prospective cohort of thoracolumbar burst fractures - Does interbody fusion offer any advantage over fractured level instrumentation?**  
*Sarkar B. (IN)*
- 08.07 O88 **Effects of teriparatide alone versus percutaneous vertebroplasty on pain control and radiographic outcomes after osteoporotic vertebral compression fracture: A matched cohort study**  
*Chen P.A. (TW)*
- 08.10 O89 **Non-surgical management of flexion distraction type of spinal column injuries, institutional preview**  
*Bhat S.A. (IN)*
- 08.13 **Q&A Session**
- 08.23 O90 **Epidemiological characteristics and factors of early mortality for traumatic cervical spinal cord injury with radiographic abnormality: A multicenter nationwide cohort study**  
*Kitagawa K. (JP)*
- 08.26 O91 **Treatment of spinal cord injury, is there any hope?**  
*Saleem M.J. (PK)*
- 08.29 O92 **Predictors of neurological outcome of acute traumatic central cord syndrome: Outcome of a treatment algorithm**  
*Verma V. (IN)*
- 08.32 O93 **Assessment of biomechanical advantages in combined anterior-posterior cervical spine surgery by radiologic outcomes: Pedicle screw over lateral mass screw**  
*Kim S.H. (KR)*
- 08.35 **Q&A Session**



## ASIA PACIFIC SPINE SOCIETY

## Plenary Session

Chair: Sivananthan K.S. (MY)

- 09.00 **Introduction**
- 09.01 **Severe rigid spinal deformity management**  
*Hai Y. (JCN)*
- 09.16 **Degenerative cervical myelopathy presenting as subjective lower limbs weakness could be a trap towards misdiagnosis**  
*Niu C.C. (TW)*
- 09.31 **Surgical pearls for spinal cord abnormalities in congenital spinal deformity**  
*Tao H. (CN)*
- 09.46 **Q&A Session**
- 10.00 **Coffee Break**
- Free Paper Session II: Cervical myelopathy**  
**Chairs: Niu C.C. (TW) & Islam A. (BD) & Tangente R. (PH)**
- 10.30 **Introduction**
- 10.31 O94 **Surgical complications and incomplete canal widening of the vertebral body sliding osteotomy to treat cervical myelopathy**  
*Cho S.T. (KR)*
- 10.34 O95 **Retrospective comparative study of anterior cervical decompression and fusion and muscle-preserving selective laminectomy in patients with degenerative cervical myelopathy**  
*Kitamura K. (JP)*
- 10.37 O96 **The surgical results of onstage of laminoplasty and anterior cervical fusion for the patients with multilevel cervical spondylotic myelopathy - Postoperative 8 year-follow-up**  
*Wu W.T. (TW)*
- 10.40 O97 **Predictive factors for the aggravation of cervical alignment after posterior cervical foraminotomy**  
*Cho S.T. (KR)*
- 10.43 O98 **Change in physical and mental well-being between the short-and mid-term periods after cervical surgery for myelopathy: A retrospective cohort study with minimum 5 years follow-up**  
*Tamai K. (JP)*
- 10.46 O99 **Do intra-operative neurophysiological changes predict functional outcome following decompressive surgery for cervical myeloradiculopathy? A prospective study**  
*Akbari K. (IN)*
- 10.49 **Q&A Session**

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## ASIA PACIFIC SPINE SOCIETY

**Symposium 1: Controversies surround thoracolumbar and lumbar spinal fracture**

Chairs: Shetty A.P. (IN) &amp; Islam S.S. (BD) &amp; Dhakal G.R. (NP)

- 11.00 **Introduction**
- 11.01 **Anterior vs. posterior vs. combined surgery**  
Jonayed S.A. (BD)
- 11.09 **When should we consider spinal decompression or fusion?**  
Zamzuri Z. (MY)
- 11.17 **Special technical consideration for osteoporotic fracture fixation and instrumentation**  
Tamai K. (JP)
- 11.25 **Should we correct the spinal deformity in ankylosing spine fracture?**  
Kim Y.C. (KR)
- 11.33 **Is the treatment strategy different in metastatic spine fracture?**  
Chiu C.K. (MY)
- 11.41 **Q&A Session**
- 11.51 **Case Discussion**
- 12.30 **Lunch Break & Industry Workshops**
- Free Paper Session III: Degenerative, infection & spinal metastasis**  
(concurrent: Combined APSS-ASSI Paediatric Deformity Forum)  
Chairs: Islam A. (BD) & Li Y.H. (SG) & Chiu C.K. (MY)
- 14.00 **Introduction**
- 14.01 O100 **Male patients with longer disease duration of axial spondyloarthritis have less severe disc degeneration**  
Cheung J.P.Y. (HK)
- 14.04 O101 **High grade spondylolisthesis: Reduction versus in situ fusion for adult**  
Khan M.M.R. (BD)
- 14.07 O102 **Does platelet rich plasma enhance fusion in transforaminal lumbar interbody fusion? A prospective clinico-radiological comparative study**  
Sudhir G. (IN)
- 14.10 O103 **How paraspinal atrophy affects pain and function in degenerative spinal conditions? An analytical study on degenerative disc disease without instability and in spondylolisthesis**  
Pramod S. (IN)
- 14.13 **Q&A Session**
- 14.23 O104 **Total en-bloc spondylectomy versus stereotactic ablative body radiotherapy in patients with single spinal metastasis**  
Kang D.H. (KR)
- 14.26 O105 **The analysis of treatment failure candidate after preoperative radiotherapy for metastatic spinal tumor**  
Seok S.Y. (KR)
- 14.29 O106 **A comparative factor analysis and new MRI scoring system for differentiating pyogenic versus tuberculous spondylodiscitis**  
Pornsapanakorn P. (TH)



## ASIA PACIFIC SPINE SOCIETY

- 14.32 O107 **Paradoxical worsening on imaging in the early treatment course of tuberculous spondylodiscitis: Should it be a concern?**  
Naresh-Babu J. (IN)
- 14.35 **Q&A Session**
- APSS/ASSI Joint Session**
- Symposium 2: Spinal infection management and its controversies**  
Chairs: Basu S. (IN) & Lanang G. (ID) & Jawad Saleem M. (PK)
- 15.00 **Introduction**
- 15.01 **Surgical principles in managing TB spine in 2023**  
Alam S. (BD)
- 15.11 **Treatment strategy for postoperative pyogenic infection of cervical spine**  
Park J.B. (KR)
- 15.21 **Controversies in the management of pyogenic spinal infections and when can we instrument?**  
Wang S.T. (TW)
- 15.31 **Q&A Session**
- 15.41 **Case Discussion**
- 16.00 **Coffee Break**
- Free paper session IV: MIS**  
Chairs: Lumawig J.M. (PH) & Zheng Z. (CN)
- 16.30 **Introduction**
- 16.31 O108 **Remodelling of facet joint after posterior endoscopic cervical foraminotomy: Computer tomographic facet dimension analysis and clinical evaluation with minimum one year follow-up**  
Wu P.H. (SG)
- 16.34 O109 **Clinical and radiographic outcomes of late-onset cage subsidence after lateral lumbar interbody fusion**  
Ju G.I. (KR)
- 16.37 O110 **Risk factors for conversion to open spinal surgery after percutaneous epidural neuroplasty**  
Jang T.Y. (KR)
- 16.40 O111 **Minimally Invasive Spine Surgery (MISS): Techniques, technologies & indications for thoracolumbar spine fracture**  
Jahan S. (BD)
- 16.43 O112 **What makes them stay? A study on effects of socioeconomic indicators on length of stay and post operative rehabilitation following Minimally Invasive Transforaminal Lumbar Interbody Fusion (MIS-TLIF)**  
Mohan R. (SG)
- 16.46 O113 **Radiographic analysis of early changes in upper adjacent segments after fusion surgery: OLIF vs PLIF**  
Lee J.Y. (KR)
- 16.49 **Q&A Session**



## ASIA PACIFIC SPINE SOCIETY

**Symposium 3: Degenerative lumbar spine: Is MIS the future?**

Kumar D. (SG) &amp; Pun A. (AU) &amp; Tangente R. (PH)

- 17.00 **Introduction**
- A) Prolapsed intervertebral disc or stenosis: Which technique is better?**
- 17.01 **MIS tubular vs. endoscopic decompression**  
Lumawig J.M. (PH)
- 17.09 **Endoscopic interlaminar vs. transforminal approach**  
Sakti Y.M. (ID)
- 17.17 **Endoscopic biportal vs. uniportal approach**  
Wu P.H. (SG)
- B) Grade 1 spondylolisthesis: My favorite go to technique and why**
- 17.25 **MIS TLIF**  
Zheng Z. (CN)
- 17.33 **MIS – LLIF**  
Kwan K. (JP)
- 17.41 **Endo-LIF**  
Park H.J. (KR)
- 17.49 **Do we still need open TLIF?**  
Acharya S. (IN)
- 17.57 **Q&A Session**
- 18.07 **Case Discussion**



## ASIA PACIFIC SPINE SOCIETY

**Free Paper Session V: Lumbar Spine**

Chairs: Zakaria Z. (MY) &amp; Dhakal G.R. (NP)

- 18.30 **Introduction**
- 18.31 O114 **Effect of lumbar spinal stenosis on treatment of osteoporosis: Comparison of three oral bisphosphonate therapies**  
Jung H.Y. (KR)
- 18.34 O115 **A comparison between cortical bone trajectory screws and traditional pedicle screws in patients with single-level lumbar degenerative spondylolisthesis: 5 year results**  
Choi S. (KR)
- 18.37 O116 **Correlations between age, pain intensity, disability, and tactile acuity in patients with chronic low back pain**  
Zheng K. (CN)
- 18.40 O117 **Central sensitization is a significant risk factor for the chronic low back pain**  
Hashizume H. (JP)
- 18.43 O118 **Hip-spine syndrome: Which first and which last longer?**  
Hsiung W. (TW)
- 18.46 **Q&A Session**

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NORTH AMERICAN SPINE SOCIETY



- 14.00 **Welcome**  
*Finkenberg J. (US)*
- Paper Presentations I: Basic science & biologics**  
**Chair: Finkenberg J. (US)**
- 14.05 O119 **Aging intervertebral disc induces nociceptive signaling in mouse sensory system**  
*Dahia C. (US)*
- 14.11 O120 **Biomechanical comparison of lumbar spine instrumented with stand-alone interbody fixation constructs versus interbody with supplemental fixation**  
*Kiapour A. (US)*
- 14.17 O121 **Effect of implant surface roughness and porosity on osteoblastic genes expression in bone marrow mesenchymal stem cells**  
*Hunt J. (US)*
- 14.23 O122 **Results of a biphasic calcium phosphate bone graft with submicron-sized needle-shaped surface topography as standalone alternative to autograft are favorable in a prospective, multi-center, randomized, intra-patient controlled trial**  
*Sage K. (US)*
- 14.29 O123 **Constrained pedicle screws constructs in thoracolumbar fusion and their influence in revision surgery incidence**  
*Noriega D.C. (ES)*
- 14.35 **Questions and Discussion**
- Paper Presentations II: Cervical and thoracolumbar surgery**  
**Chair: Ghogawala Z. (US)**
- 15.00 O124 **What effect does T1 slope have on sagittal balance and the relationship with caudal end of three or more level posterior cervical fusions?**  
*Truumees E. (US)*
- 15.06 O125 **A randomized trial of cervical orthosis versus no orthosis following multilevel posterior cervical fusion**  
*Rodrigues Fernandes R.J. (CA)*
- 15.12 O126 **Comparison of 3D printed custom navigation jogs with freehand pedicle screw insertion for posterior spinal fusion in scoliosis**  
*Lui D. (GB)*
- 15.18 O127 **Prospective, randomized, blinded clinical trial comparing PEEK and allograft spacers in patients undergoing lumbar fusion surgeries**  
*Villavicencio A. (US)*
- 15.24 O128 **Effect of interbody implant design on early clinical and radiographic outcomes in LLIF surgery**  
*Phillips F. (US)*
- 15.30 **Questions and Discussion**
- 16.00 **Coffee break**

NORTH AMERICAN SPINE SOCIETY



- Symposium: Spine controversy updates**  
**Chair: Finkenberg J. (US)**
- 16.30 **Introduction**  
*Finkenberg J. (US)*
- 16.40 **Navigation, robotics and Artificial Intelligence in spine care - Where do we go from here?**  
*Dohring E. (US)*
- 17.00 **Regenerative medicine – Are we ready to recommend utilization**  
*Finkenberg J. (US)*
- 17.20 **Facet mediated pain – Diagnosis and treatment**  
*O'Brien D. Jr. (US)*
- 17.40 **Decompression vs. decompression and fusion for degenerative spondylolisthesis**  
*Ghogawala Z. (US)*
- 18.00 **Adjourn**

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GENERAL SESSION

Session 1

Chair: Zhou Y. (CN)

- 10.30 O130 **Comparative study of outcomes between allograft intervertebral disc transplantation and anterior cervical discectomy and fusion: a retrospective cohort study at least 5 years**  
*Ruan D.K. (CN)*
- 10.40 O131 **Finite element investigation on biomechanical response of novel porous cage based on bone quality analysis**  
*Weng Y. (CN)*
- 10.50 O132 **Targeted fully endoscopic visualized laminar trepanning approach under local anesthesia for resection of highly migrated lumbar disc herniation**  
*Weng Y. (CN)*
- 11.00 O133 **Effects of osteoporosis on biomechanics of various supplemental fixations for oblique lumbar interbody fusion (OLIF): A finite element analysis**  
*Weng Y. (CN)*
- 11.10 O134 **Unilateral biportal endoscopic lumbar interbody fusion assisted by intraoperative O-arm total navigation for lumbar degenerative disease: A retrospective study**  
*Zhou Y. (CN)*

GENERAL SESSION

- 11.40 O136 **Cancellous and endplate bone mineral density of fusion level adjacent segments decreased after minimally invasive lateral fusion: A retrospective study of regional bone mineral density measurement using Phantomless-QCT**  
*Lin J. (CN)*
- 11.50 O137 **Can the full-percutaneous endoscopic lumbar discectomy in day surgery mode achieve better outcomes following enhanced recovery after surgery protocol? A retrospective comparative study**  
*Weng Y. (CN)*
- 12.00 O139 **Radiological and clinical outcomes of OLIF in the correction of spinal sagittal imbalance. A systematic review of literature**  
*Ma C. (CN)*
- 12.10 O140 **A modified endoscopic transforaminal lumbar interbody fusion technique: Preliminary clinical results of 96 cases**  
*Zhou Y. (CN)*
- 12.30 **Lunch Break & Industry Workshops**

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Friday

Posters

## GENERAL SESSION

## Session 2

Chairs: Ouma J. (ZA) &amp; Vincent J.A. (IN)

- 14.00 O141 **Minimally invasive posterior lumbar interbody fusion without operating microscope – How effective is it?**  
Murugan Y. (IN)
- 14.07 O142 **Current physiotherapy assessment and treatment practices for low back pain in Nigeria: A national survey**  
Hahne A. (AU)
- 14.14 O143 **Intraoperative anterior migration of expandable interbody fusion cage into peritoneum during MIS-TLIF**  
Sharma A. (IN)
- 14.21 O144 **Assessment of clinico-radiological outcome of empirical antimicrobial therapy in spinal infections with negative microbiological diagnosis**  
Ghosh S.D. (IN)
- 14.28 O145 **Black African scoliosis: Epidemiological, clinical, and therapeutic aspects about 78 cases observed over 12 years**  
Ibrahima F. (CM)
- 14.35 O146 **Presentation and management of delayed uni and bifacet cervical dislocations**  
Ouma J. (ZA)
- 14.42 O147 **Is anterior surgery necessary for TB Spine? A series of 30 cases of tuberculosis of spine managed by all-posterior approach**  
Thomas A. (IN)
- 14.49 O148 **Use of frailty score in predicting mortality and morbidity in elderly patients undergoing spine surgery for tubercular spondylodiscitis**  
Patel P. (IN)
- 14.56 **Discussion**
- 15.10 O149 **Results of mortality audit of elderly patients with tubercular spondylodiscitis undergoing spine surgery**  
Patel P. (IN)
- 15.17 O150 **Traction radiograph: A dark horse in assessing flexibility in adolescent idiopathic scoliosis patients undergoing non fusion anterior scoliosis correction surgery**  
Akbari K. (IN)
- 15.24 O151 **Clinical outcome of single-stage decompression and posterior stabilization in thoracolumbar spinal tuberculosis**  
Nayak B. (IN)
- 15.31 O152 **Prospective outcome study of lumbar microdiscectomy based on MSU classification: Does MSU classification helps in better patient selection and decrease morbidity?**  
Chahal R.S. (IN)
- 15.38 O153 **Lumbar disc prolapse mimicker – Our experience**  
Murugan Y. (IN)
- 15.45 O154 **Screw-rod malalignment as cause of persistent pain after thoracolumbar fusion**  
Ardura F. (ES)
- 15.52 O155 **Non-surgical management of extruded disc herniations - Clinical and radiological results**  
Ardura F. (ES)
- 16.00 **Coffee Break**

## GENERAL SESSION

## Session 3

Chair: van der Horst A. (NA)

- 16.30 O156 **Brucellosis of the spine – A global public health problem - An analysis of 37 patients from a 'high risk' region**  
Vincent J.A. (IN)
- 16.37 O157 **Morphometric analysis of lumbar pedicles in Saudi Arabian population – A computed tomography-based study on 1500 vertebrae. Are there inter-continental and regional variations?**  
Vincent J.A. (IN)
- 16.44 O158 **Ochronosis spine: Operative results of this very rare spinal manifestation**  
Patel H.R. (IN)
- 16.51 O159 **Progressive dysphagia & dysphonia secondary to DISH-related anterior cervical osteophytes: A case report**  
Shahi P. (NP)
- 16.59 O160 **Does posterior-alone approach suffices for C2 vertebral body lesions?**  
Madhivanan K. (IN)
- 17.06 O161 **Cervical tethered cord - Not so rare entity**  
Muthukumar N. (IN)
- 17.13 O162 **Comparative study between conservative and early kyphoplasty treatment for Osteoporotic Vertebral Compression Fractures (OVCF) in elderly patients**  
Ardura F. (ES)
- 17.20 O163 **Treatment of spinal metastasis in the 21st century: A matched pair analysis**  
Bonk M.N. (DE)
- 17.27 O164 **Clinical outcome in patients >75 years undergoing spine surgery for lumbar degenerative spine disease: Impact of increasing age and modified frailty index on surgical morbidity**  
Akbari K. (IN)
- 17.34 O165 **Managing cervical trauma in a resource constrained environment. What the first world should not forget**  
van der Horst A. (NA)
- 17.41 **Discussion**
- 17.48 O166 **Educational potency of newly-developed high-fidelity spine model in spinal surgery**  
Ueda H. (JP)
- 17.55 O167 **Prospective cohort study with 2 years follow up of clinical results, fusion rate and muscle bulk for uniportal full endoscopic posterolateral transforaminal lumbar interbody fusion**  
Wu P.H. (SG)
- 18.02 O168 **Differential diagnosis in tumoral lesions of the sacrum: Osteoblastoma case report - Treatment update**  
Ardura F. (ES)
- 18.09 O169 **Sacrifice of involved nerve root during surgical resection of foraminal and/or dumbbell spinal neurinomas**  
Barrey C. (CH)
- 18.16 O170 **Transpedicular bone grafting with pedicle screw fixation- an effective treatment for pseudoarthrosis following osteoporotic thoracolumbar fractures – A retrospective study with 2 year follow up**  
Thomas A. (IN)



# Tuesday 2 May Scientific Program

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Posters

	Goldfields Theatre	Sovereign Room (Level 1)	Eureka 1 + 2	Eureka 3	Courtyard Rooms	Hospitality Suite 6
08.00	SSA	ASSI	SOSORT	APSS	KSSS	KSNS
10.00	<i>Break</i>					
10.30	SSA	ASSI	SOSORT	APSS	KSSS	KSNS
12.30	<i>Lunch break + Industry workshops</i>					
14.00	ISSLS	ASSI	SOSORT	APSS	SSA	KSNS
16.00	<i>Break</i>					
16.30	ISSLS	ASSI	SOSORT	APSS	SSA	KSNS

SPINE SOCIETY OF AUSTRALIA



**Free Paper Session 4: Lumbar spine I**

Chairs: Woodland P. (AU) & Marcelo A. (AU)

- 08.00 O171 **Longer wait times between referral and lumbar decompression surgery may contribute to poorer patient reported outcomes**  
*Cunningham G. (AU)*
- 08.10 O172 **The clinical and cost-effectiveness of lumbar fusion surgery compared to best conservative care for patients with persistent, severe low back pain: FusiOn veRsus bEst coNServative Care (the FORENSIC-AUS trial protocol)**  
*Foster N.E. (AU)*
- 08.20 O173 **10-year prediction of adjacent-level degeneration and disease after lumbar total disc replacement and fusion - A post-hoc analysis of 7-year data from a prospective clinical trial**  
*Zigler J. (US)*
- 08.30 O174 **Long-term outcomes following lumbar total disc replacement with M6-L**  
*Faulks C. (AU)*
- 08.40 O175 **Lumbopelvic kinematic findings in patients having ReActiv8 therapy for Chronic low back pain**  
*Lijo C. (AU)*
- 08.50 O176 **Four-year durability of restorative neurostimulation effectiveness in patients with chronic low back pain and impaired neuromuscular control of lumbar spine stability**  
*Phillips F. (US)*
- 09.00 **Short Break**

SPINE SOCIETY OF AUSTRALIA



**President Session**

Chair: Kuru R. (AU)

- 09.05 **Introduction and presentation of SSA life membership**  
*Gunzburg R. (BE)*
- 09.15 **Spinal surgery: A personal journey**  
*Fraser R. (AU)*
- 10.00 **Coffee Break**
- Symposium 2**  
Chair: Oxland T. (CA)
- 10.30 **Against nucleus pulposus replacement - From a biomechanical point of view**  
*Wilke J.H. (DE)*
- 10.55 **Q&A Session**
- 11.10 **Replacement of the damaged and disorganised disc (DDD) nucleus – A clinician's perspective**  
*Diwan A. (AU)*
- 11.35 **Q&A Session**
- 11.50 **Debate: Nucleus pulposus replacement strategies**  
Pro: *Diwan A. (AU)*  
Con: *Wilke J.H. (DE)*
- 12.30 **Lunch Break & Industry Workshops**

Monday

Tuesday

Wednesday

Thursday

Friday

Posters

## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE



- 14.00 **Welcome**  
*Local hosts*
- 14.05 **Report from the Program Chairman**  
*Hodges P. (AU)*
- Session I: Basic Science 1 – Intervertebral disc degeneration**  
**Chairs: Yoon T. (US) & Lotz J. (US)**
- 14.15 O177 **Machine learning based image analysis tool for hybrid visualization of macroscopic-microscopic degenerative changes in intervertebral disc**  
*Lama P. (IN)*
- 14.22 O178 **Molecular characterisation of human IVD degeneration for informed biomedical device development**  
*Joyce K. (IE)*
- 14.29 O179 **Untargeted metabolomics reveals the metabolic alterations and significance of fatty acid metabolism in intervertebral disc degeneration**  
*Rajasekaran S. (IN)*
- 14.36 **Discussion**
- 14.45 O180 **Gender difference on high mTORC1 induced myopathy, IVD degeneration and kyphosis: TSC1mKO model study**  
*Lam W.M.R. (SG)*
- 14.52 O181 **Development of treatment for intervertebral disc degeneration by the selective interference of the mTOR signaling pathway using the CRISPR-Cas9 system**  
*Ryu M. (JP)*
- 14.59 O182 **Biological significance of fragmented SLRP's, aggrecan and fibronectin in overloaded intervertebral disc**  
*Lama P. (IN)*
- 15.06 **Discussion**

## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE



- Session II: Surgery 1 - Complications and safety of surgery**  
**Chairs: Licina P. (AU) & Cheung J. (HK)**
- 15.15 O183 **Safety and efficacy of a proposed dose of intrathecal morphine in single level lumbar spinal fusion surgery**  
*Vlok A.J. (ZA)*
- 15.22 O184 **Comparative analysis of fusion rates between conventional open and minimally invasive scoliosis surgery for adolescent idiopathic scoliosis**  
*Chang D.G. (KR)*
- 15.29 O185 **The incidence of complications in split tubular, endoscopic and robotic-assisted endoscopic TLIFs**  
*Buser Z. (US)*
- 15.36 O186 **Risk factors for poor prognosis in patients with dural tear in surgical treatment of lumbar degenerative diseases: A multicenter database study**  
*Takenaka T. (JP)*
- 15.43 O187 **Lateral lumbar interbody fusion adjacent to pediclesubtraction osteotomy reduces mechanical complications requiring revision surgery**  
*Ahn J. (KR)*
- 15.48 **Discussion**
- 16.00 **Coffee Break**
- 16.30 **Invited Lecture 1**  
*Introduction by Hodges P. (AU)*
- Embedding innovation in clinical trials in back pain and spine research**  
*Foster N. (AU)*
- 17.30 First Business Meeting (members only)



ASSI

## ASSOCIATION OF SPINE SURGEONS OF INDIA

## Free Paper Session V

Chairs: Thomas A. (IN) &amp; Srivastava A. (IN)

- 08.00 O188 **A whole spine MRI based ambispective cohort study of the prevalence and clinico-radiological association of lumbosacral transitional vertebra with degenerative disc disease**  
*Anand S.V. (IN)*
- 08.05 O189 **Clinical and radiological outcomes of minimally invasive transforaminal lumbar interbody fusion: A study of 345 patients**  
*Kulkarni S. (IN)*
- 08.10 O190 **A pilot study on change in range of motion of adjacent segments following single level lumbar interbody fusion using disk angles**  
*Krishnan V. (IN)*
- 08.15 O191 **Alterations in biomechanics by finite element model analysis after lumbar spine fixation surgeries**  
*Faizan M. (IN)*
- 08.20 **Q&A Session**
- 08.30 O192 **O-arm navigated versus free hand pedicle screw placement in lumbar spine: An RCT- advancement or a mirage of an edge over convention?**  
*Garg B. (IN)*
- 08.35 O193 **Comparison of outcomes between robot assisted minimally invasive transforaminal lumbar interbody fusion and open freehand lumbar interbody fusion**  
*Sasidharan M.D. (IN)*
- 08.40 O194 **Is robot assisted TLIF better than traditional TLIF**  
*Reddy H.B. (IN)*
- 08.45 O195 **Novel mini-incision surgical fusion for single level lumbar degenerative spondylolisthesis - A pilot study comparing traditional PLIF**  
*Balaji B. (IN)*
- 08.50 **Q&A Session**
- Invited guest oration**  
Chairs: Acharya S. (IN) & Rajasekaran S. (IN)
- 09.00 **"The Surgeon Scientist"**  
*Diwan A. (IN)*
- ASSI Presidential Oration**  
Chairs: Chahal R. (IN) & Basu S. (IN)
- 09.30 **Osteoporosis management – Experiences gathered over 25 years of spine practice**  
*Acharya S. (IN)*
- 10.00 **Coffee Break**

## ASSOCIATION OF SPINE SURGEONS OF INDIA

ASSI

## ASSI Awards

Chairs: Acharya S. (IN) &amp; Garg B. (IN)

- 10.30 **ASSI Basic Science Award**
- 10.40 **ASSI Clinical Science Award**
- 10.50 **ASSI Young Investigator Award**
- 11.00 **ASSI Publication Award**
- VTI Gold Medal Free Paper Session**  
Chairs: Mullukutla R.D. (IN) & Srivastava S.K. (IN)
- 11.10 O196 **A modification in surgical technique - One of the ways to prevent Proximal junctional kyphosis in adolescent idiopathic scoliosis patients undergoing posterior instrumented correction - A poorly recognized modification**  
*Pillai S. (IN)*
- 11.17 **Q&A Session**
- 11.20 O197 **Comparison between relative efficacy of erector spinae plane block and caudal epidural block for early postoperative analgesia in lumbar spine fusion surgery**  
*Ramachandran K. (IN)*
- 11.27 **Q&A Session**
- 11.30 O198 **The comparative prospective study of the functional outcome of robotic-assisted rehabilitation versus conventional rehabilitation in patients with spinal cord injury**  
*Verma V. (IN)*
- 11.37 **Q&A Session**
- 11.40 O199 **Ossification of the ligamentum flavum- unknown facets of the disease**  
*Muthukumar N. (IN)*
- 11.47 **Q&A Session**
- 11.50 O200 **Degenerative Lumbar Spine Decision Making Score (DLDS): A clinically applicable predictive score in single level lumbar degenerative disc disease for formulating a surgical plan**  
*Macherla Haribabu S. (IN)*
- 11.57 **Q&A Session**
- 12.00 O201 **Simultaneous single stage decompression surgery for triple tandem spinal stenosis - Safety and outcome analysis**  
*Patel P. (IN)*
- 12.07 **Q&A Session**
- 12.10 O202 **An obstetric and gynaecological insight to measure the gender specific issues including menstrual disorders in patients with scoliosis - A genuine step towards empowering women's inclusive health**  
*Garg B. (IN)*
- 12.17 **Q&A Session**
- 12.20 O203 **Disc below the fusion in adolescent idiopathic scoliosis – Long-term MRI follow up with clinical correlation**  
*Vellara J.F. (IN)*
- 12.27 **Q&A Session**
- 12.30 **Lunch Break & Industry Workshops**

Monday

Tuesday

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Thursday

Friday

Posters

ASSI

## ASSOCIATION OF SPINE SURGEONS OF INDIA

**Symposium: Spinal Tuberculosis**

Chairs: Modi J.P. (IN) &amp; Vellara J. (IN)

- 14.00 **Endpoint of AKT: Still a controversy?**  
*Bhat S. (IN)*
- 14.07 **Discussion**
- 14.10 **Current drug options for Multidrug (MDR) and extreme drug resistant (XDR) tuberculosis**  
*Rathod T. (IN)*
- 14.17 **Discussion**
- 14.20 **Assessing instability in spinal tuberculosis**  
*Rajasekaran S. (IN)*
- 14.27 **Discussion**
- 14.30 **Rational decision making in tuberculosis involving the craniocervical junction**  
*Borkar S. (IN)*
- 14.37 **Discussion**
- Debate: Surgery for D1-D2 tuberculosis**
- 14.40 **Anterior approach alone**  
*Krishnan A. (IN)*
- 14.47 **Posterior approach alone**  
*Srivastava S.K. (IN)*
- 14.54 **Discussion**
- Free Paper Session VI**  
Chairs: Shetty A. (IN) & Goyal A. (IN)
- 15.00 O204 **Instrumentation in children aged up to 5 years with spinal tuberculosis**  
*Chaudhary R.K. (NP)*
- 15.05 O205 **Clinical & radiological outcome of minimally invasive decompression and interbody fusion in dorsal spondylodiscitis - 2 year follow-up**  
*Baid P.K. (IN)*
- 15.10 O206 **Functional outcome of the posterior only approach for decompression and fusion with or without interbody cage in thoracolumbar tuberculosis**  
*Bhat S.A. (IN)*
- 15.15 O207 **Outcome of all posterior VCR in healed rigid tubercular kyphosis in 20 patients of less than 10Y age - A single surgeon 5 year follow-up study**  
*Iyengar R. (IN)*
- 15.20 **Q&A Session**
- 15.30 O208 **Percutaneous pedicle screw fixation in caries spine – Does early MIS fixation has advantage over conservative?**  
*Agarwal V.K. (IN)*

## ASSOCIATION OF SPINE SURGEONS OF INDIA

ASSI

- 15.35 O209 **Demystifying occipitocervical tuberculosis - A journey of three decades from the era of Minerva cast to minimal invasive procedures**  
*Marathe N.A. (IN)*
- 15.40 O210 **Concept of pedicle-vertebral angle (PVDA) - A morphometric analysis of the angle between cervical pedicle and vertebral body in subaxial cervical spine for safe insertion of pedicle screws**  
*Dave B. (IN)*
- 15.45 O211 **Clinicoradiological profile in spinal ligament ossification due to flurosis**  
*Aithala J. (IN)*
- 15.50 **Q&A Session**
- 16.00 **Coffee Break**
- ASSI Focus Symposium: Safe spine surgery**  
Chairs: Babu N. (IN) & Bhat S. (IN)
- 16.30 **Risk stratification in elderly patients undergoing spine surgery**  
*Shetty A. (IN)*
- 16.37 **Discussion**
- 16.40 **Potentially modifiable patient factors to minimize complications in spine surgery**  
*Mohapatra B. (IN)*
- 16.47 **Discussion**
- 16.50 **When should you hold off spine fusion because of osteoporosis? Role of bone optimization**  
*Srivastava A. (IN)*
- 16.57 **Discussion**
- 17.00 **Positioning patients with an unstable spine: Tips & tricks**  
*Farooque K. (IN)*
- 17.07 **Discussion**
- 17.10 **Operating room essentials for safe spine surgery**  
*Dave B. (IN)*
- 17.17 **Discussion**
- 17.20 **Navigating the learning curve & overcoming obstacles for spinal endoscopic surgery**  
*Sharma A. (IN)*
- 17.27 **Discussion**
- 17.30 **ASSI General Body Meeting**

Monday

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Posters


**SOSORT - INTERNATIONAL SOCIETY ON SCOLIOSIS ORTHOPAEDIC  
AND REHABILITATION TREATMENT**
**Session 5: SOSORT Award and Papers**

Chairs: Cohen L. (AU) &amp; Wynne J. (US)

- 08.00 **Introduction**
- 08.06 O212 **The effect of arm positions used during radiography on frontal and sagittal spinal parameters in adolescent idiopathic scoliosis populations**  
*Fehr B. (CA)*
- 08.15 O213 **Validation of an artificial intelligence based method to automate Cobb angle measurement on spinal radiographs of children with adolescent idiopathic scoliosis**  
*Lou E. (CA)*
- 08.24 O214 **Assessing the mental health landscape and need for counseling in the scoliosis community**  
*Castille M.G. (US)*
- 08.33 O215 **Schroth – PSSE exercises can reduce the risk for progression during the peak of growth in curves below 25: Prospective control study**  
*Karavidas N. (GR)*
- 08.42 O216 **Effectiveness of night-time brace or scoliosis-specific exercise for preventing progression of moderate-grade adolescent idiopathic scoliosis: Primary outcomes of a multicenter randomized controlled trial (CONTRAIS)**  
*Abbott A. (SE)*
- 08.51 **Discussion**
- 09.03 O217 **Developing a new tool for scoliosis screening in a tertiary specialistic setting using artificial intelligence: A retrospective study on 10,813 patients**  
*Zaina F. (IT)*
- 09.12 O218 **Long-term outcome after brace treatment of Scheuermann's Kyphosis**  
*Aulisa A.G. (IT)*
- 09.21 O219 **A systematic review of machine learning models for predicting curve progression in teenagers with idiopathic scoliosis**  
*Chan W.Y. (HK)*
- 09.30 O220 **The impact of pregnancy on women with adolescent idiopathic scoliosis: A scoping review**  
*Theroux J. (AU)*
- 09.39 O221 **A systematic review comparing spinal alignment between standing positions in healthy adolescents or adolescents with idiopathic scoliosis**  
*Fehr B. (CA)*
- 09.48 **Discussion**
- 10.00 **Coffee Break and Poster Session III**
- Invited Lecture**  
*Introduction by Zaina F. (IT)*
- 10.30 **Changes in back muscle structure and function with spinal conditions**  
*Hodges P. (AU)*
- 11.00 **Discussion**


**SOSORT - INTERNATIONAL SOCIETY ON SCOLIOSIS ORTHOPAEDIC  
AND REHABILITATION TREATMENT**
**Session 6: Evaluation**

Chairs: Karavidas N. (GR) &amp; Lou E. (CE)

- 11.15 O222 **The validity of surface topography and plumbline measurement of sagittal balance & lumbar lordosis in adults**  
*Cohen L. (AU)*
- 11.23 O223 **Correlation analysis of Cobb angle and linear spinous process angle in adolescent idiopathic scoliosis**  
*Ying X.M. (CN)*
- 11.31 O224 **Evaluation of apical vertebrae rotation of subjects with adolescent idiopathic scoliosis using 3D ultrasonography**  
*Lee T.T.Y. (HK)*
- 11.39 O225 **Correlation between the Angle of Trunk Rotation (ATR) measured with a scoliometer and the Raimondi Angle in patients with idiopathic scoliosis**  
*Rodrigues Leite Navarro I.J. (BR)*
- 11.47 **Discussion**
- 11.55 O226 **Implementation and validation of automatic coronal Cobb's angle measurement with deep learning**  
*Khaw J.V. (HK)*
- 12.03 O227 **Using vertebrae transverse features from 3D ultrasound to classify adolescent idiopathic scoliosis**  
*Yang D. (HK)*
- 12.11 O228 **Intra- and inter-evaluator reproducibility of Raimondi vertebral rotation angle measured by using the ISICO app in patients with AIS**  
*Rodrigues Leite Navarro I.J. (BR)*
- 12.19 **Discussion**
- 12.30 **Lunch Break & Industry Workshops**


**SOSORT - INTERNATIONAL SOCIETY ON SCOLIOSIS ORTHOPAEDIC  
AND REHABILITATION TREATMENT**
**Session 7: Evaluation**
**Chairs: Simony A. (DK) & Wong A. (HK)**

- 14.00 O229 **Changes in surface topography asymmetry are related to global ratings of change in adolescents with idiopathic scoliosis in the Schroth exercise trial for scoliosis**  
*Parent E. (CA)*
- 14.07 O230 **A novel 3D spinal model reconstruction based on biplanar digitally reconstructed radiographs using deep learning**  
*Khaw J.V. (HK)*
- 14.14 O231 **A prospective external validation study to predict Cobb angle using deep learning algorithm with three-dimensional depth sensor considering the influence of garment in idiopathic scoliosis**  
*Ishikawa Y. (JP)*
- 14.21 **Discussion**
- 14.28 O232 **A novel inclinometer based on a palm-sized 3D ultrasound system for mapping axial trunk rotation**  
*Lee K.S. (HK)*
- 14.35 O233 **Correlation of transverse rotation of the spine using surface topography and 3D reconstructive radiography in children with idiopathic scoliosis**  
*Patel M. (US)*
- 14.42 O234 **Sub-optimal reliability of the DRU risk classification**  
*Dolan L. (US)*
- 14.49 **Discussion**


**SOSORT - INTERNATIONAL SOCIETY ON SCOLIOSIS ORTHOPAEDIC  
AND REHABILITATION TREATMENT**
**Presidential Lecture**
**Invited Lecture by the SRS President**
*Introduction by Donzelli S. (IT)*

- 15.00 **New trends in surgery, new approaches and their limits**  
*Hu S. (US)*
- 15.25 **Discussion**
- 15.30 **SOSORT Presidential Address**  
*Wynne J. (US)*
- 16.00 **Coffee Break**
- 16.30 – 18.00 **SOSORT Business Meeting (closed)**

Monday

Tuesday

Wednesday

Thursday

Friday

Posters



## ASIA PACIFIC SPINE SOCIETY

**Best Paper Presentation: Basic science**

Chairs: Sakai D. (JP) &amp; Choi Y.S. (KR)

- 07.30 **Introduction**
- 07.31 O235 **Dural repair: Efficacy assessment of different techniques: A cadaveric study comparing the naked eye and surgical loupes**  
Chitragan R. (TH)
- 07.35 O236 **The electromyographic discrepancy of paravertebral muscles predicts an early curve progression of untreated adolescent idiopathic scoliosis**  
Cheung J.P.Y. (HK)
- 07.39 O237 **Analysis of the cement distribution pattern and other risk factors that affect the incidence of recompression fractures of vertebral bodies after vertebroplasty or kyphoplasty**  
Kim S.Y. (KR)
- 07.43 O238 **Core planar cell polarity genes VANGL1 and VANGL2 in predisposition to congenital scoliosis**  
Cheung J.P.Y. (HK)
- 07.47 O239 **Molecular interactions between intervertebral disc host proteins and putative pathogenic effector proteins in degenerate discs- a predictive insilico analysis**  
Sri Vijay Anand K.S. (IN)
- 07.51 **Q&A Session**

**Best Paper Presentation: Clinical research I**

Chairs: Chan C.Y.W. (MY) &amp; Cheung J.P.Y. (HK)

- 08.05 **Introduction**
- 08.06 O240 **Long-term outcomes of vertebral body sliding osteotomy for the treatment of cervical myelopathy: A minimum of 5-year follow-up**  
Cho S.T. (KR)
- 08.10 O241 **Computer-assisted diagnosis with artificial neural networks for odontoid fracture detection**  
Liawrungrueang W. (TH)
- 08.14 O242 **Establishing a relationship using CT between facet distraction and clinical outcomes after ACDF**  
Lee J.Y. (KR)
- 08.18 O243 **Conservative treatment of atlantoaxial rotatory fixation**  
Oshita Y. (JP)
- 08.22 O244 **Curve flexibility assessment in Adolescent Idiopathic Scoliosis (AIS) with major main thoracic curve: Comparison and correlation between physician-supervised supine side bending radiographs versus supine Computed Tomography (CT) scan**  
Chandren J.R. (MY)
- 08.26 **Q&A Session**



## ASIA PACIFIC SPINE SOCIETY

**Best Paper Presentation: Clinical research II**

Chairs: Shetty A.P. (IN) &amp; Wong Y.W. (JP)

- 08.40 **Introduction**
- 08.41 O245 **Reducing surgical site infections after spine surgery: The optimal amount of normal saline for intra-wound irrigation**  
Hsiung W. (TW)
- 08.45 O246 **Efficacy of vacuum-assisted closure in postoperative deep spinal infections. A retrospective analysis of 31 patients with spinal instrumentation**  
Ramachandran K. (IN)
- 08.49 O247 **The infection control and spinal balance in patients receiving Percutaneous Endoscopic Debridement and Drainage (PEDD) for infectious discitis: A retrospective case analysis**  
Chen H.W. (TW)
- 08.53 O248 **Is anterior-only approach a reliable surgical strategy in ankylosing spondylitis patients with cervical spine fractures**  
Shetty A.P. (IN)
- 08.57 O249 **Atlas osteosynthesis screw placement using the intersection between lateral mass and inferomedial edge of the atlas posterior arch: Human cadaveric study**  
Bunmaprasert T. (TH)
- 09.01 **Q&A Session**
- Best Paper Presentation: Clinical research III**  
Chairs: Lee D.H. (KR) & Watanabe K. (JP)
- 09.15 **Introduction**
- 09.16 O250 **The 'Disc-Endplate-Bone-Marrow Complex' classification - A paradigm shift in our understanding of the modic vertebral endplate changes**  
Rajasekaran S. (IN)
- 09.20 O251 **Anterior column realignment through open preposterio release-anterior-posterior fusion versus hybrid minimally invasive anterior-posterior fusion for dynamic sagittal imbalance of the spine**  
Ahn J. (KR)
- 09.24 O252 **The criteria of severe dynamic sagittal imbalance in adult spinal deformity and its importance**  
Kim Y.C. (KR)
- 09.28 O253 **Mechanical complications and global alignment and proportion score after limited long-segment fusion for de novo adult spinal deformity: Comparison of lateral lumbar interbody fusion and three-column osteotomies**  
Moridaira H. (JP)
- 09.32 O254 **Subcrestal iliac screw technique as an alternative for spinopelvic fixation technique: A cohort study of 73 patients with a modified low profile, free hand technique for insertion of subcrestal iliac screw**  
Poon G. (SG)
- 09.36 **Q&A Session**
- 10.00 **Coffee Break**



## ASIA PACIFIC SPINE SOCIETY

### Symposium 4: Paediatric Deformity – Current management trend from EOS to AIS

Chairs: Zheng Z. (CN) & Hsu B. (AU)

- 10.30 **Introduction**
- A) Growing Spine**
- 10.31 **Controversies surrounding traditional growing rod and MAGEC**  
Wong Y.W. (JP)
- 10.39 **Is tethering technique the future?**  
Lau L.L. (SG)
- 10.47 **When should we fuse the growing spine?**  
Shetty A.P. (IN)
- B) AIS**
- 10.55 **Shoulder balance matters: How to select the best UIV?**  
Kwan M.K. (MY)
- 11.03 **Can we fuse short and still achieve balance: How to select the best LIV?**  
Watanabe K. (JP)
- 11.11 **Is maintaining thoracic kyphosis important: What corrective manoeuvres should we use?**  
Chan C.Y.W. (MY)
- 11.19 **Q&A Session**
- 11.29 **Case Discussion**
- Honorary Lecture**  
Chair: Rajasekaran S. (IN)
- 12.00 **Introduction**
- 12.05 **Conferment of award to APSS Honorary Member**  
Sivanathan K.S. (MY)
- 12.07 **Durable innovations spinal surgery and future developments**  
Sivanathan K.S. (MY)
- 12.27 **Closing Remarks**
- 12.30 **Lunch Break & Industry Workshops**



## ASIA PACIFIC SPINE SOCIETY

### Free Paper Session VI: Paediatric deformity surgical level selection

Chairs: Lau L.L. (SG) & Sakai D. (JP)

- 14.00 **Introduction**
- 14.01 O255 **Curve overcorrection predicts coronal imbalance in selective thoracic fusion in adolescent idiopathic scoliosis**  
Cheung J.P.Y. (HK)
- 14.04 O256 **Directed versus non-directed standing postures in adolescent idiopathic scoliosis: Its impact on curve magnitude, alignment and clinical decision making**  
Cheung J.P.Y. (HK)
- 14.07 O257 **Fusion block tilt following corrective surgery in Lenke 5 Adolescent Idiopathic Scoliosis (AIS)**  
Chung W.H. (MY)
- 14.10 O258 **Validation of the predictive formula for optimal Upper Instrumented Vertebra (UIV) tilt angle (based on pre-operative erect radiograph) in Adolescent Idiopathic Scoliosis (AIS): A comparison with the calculated optimal UIV tilt angle derived from the Supervised Supine Side Bending Films (SSBF)**  
Chung W.H. (MY)
- 14.13 O259 **A dedicated spine team approach optimised the efficiency of operating theatre utilisation while maintaining a standard patient care in adolescent idiopathic scoliosis surgery**  
Lee S.Y. (MY)
- 14.16 O260 **Comparison of perioperative outcomes among Adolescent Idiopathic Scoliosis (AIS) Patients operated by a dedicated spine team approach: Were there any differences between the first, second and the last case?**  
Lee S.Y. (MY)
- 14.19 **Q&A Session**
- Symposium 5: Surgical Video Techniques**  
Chairs: Rajasekaran S. (IN) & Kwan M.K. (MY)
- 14.30 **Introduction**
- 14.31 **Instability in spinal tuberculosis**  
Kandwal P. (IN)
- 14.41 **AIS Correction techniques**  
Srivastava A. (IN)
- 14.51 **Spinal osteotomy: Management of neglected adult congenital kyphosis using PVCR**  
Khan M.A. (GB)
- 15.01 **Endoscopic decompression for spinal stenosis using biptoral approach transforaminal or interlaminar**  
Park S.Y. (KR)
- 15.11 **Q&A Session**

Monday

Tuesday

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Posters



## ASIA PACIFIC SPINE SOCIETY

**Free Paper Session VII: Cervical alignment & high cervical pathology**

Chairs: Bunmaprasert T. (TH) &amp; Lee D.H. (KR)

- 15.30 Introduction
- 15.31 O261 **The alternation of junctional levels after decompression and alignment correction for cervical kyphotic deformity induced multilevel cervical myelopathy: a retrospective case analysis**  
Chen H.W. (TW)
- 15.34 O262 **Comparison between the bone union rates using auto-iliac bone and bone morphogenetic protein without auto bone in a posterior atlantoaxial fusion procedure: Results from a minimum 1-year follow-up**  
Seok S.Y. (KR)
- 15.37 O263 **Predictive equations for cervical lordosis and T1 slope of young adult population without any neck symptoms - Analysis of 171 radiographs**  
Acharya S. (IN)
- 15.40 O264 **The risk of injury to the internal carotid artery during C1 lateral mass screw fixation**  
Kitagawa R. (JP)
- 15.43 **Q&A Session**
- 16.00 **Coffee Break**
- Free Paper Session VIII: Adult spinal deformity**  
Niu C.C. (TW) & Jonayed S.A. (BD)
- 16.30 Introduction
- 16.31 O265 **Sarcopenia in paraspinal muscle as a risk factor of proximal junctional kyphosis and proximal junctional failure after adult spinal deformity surgery**  
Park J.S., Kim J.S. (KR)
- 16.34 O266 **Comparison of proximal and distal junctional failures after long fusion arthrodesis stopping at L5: Incidences and risk factors**  
Kim H.C. (KR)
- 16.37 O267 **Surgical strategy-oriented classification for the patients with severe dynamic sagittal imbalance**  
Kim Y.C. (KR)
- 16.40 O268 **Comparison of surgical outcomes between 3-column osteotomy and anterior-posterior fusion for osteoporotic vertebral fracture**  
Takahashi S. (JP)
- 16.43 O269 **Difference of postoperative radiologic change on sacro-iliac joint by multi-factors in adolescent idiopathic scoliosis**  
Kim S.H. (KR)
- 16.46 O270 **Erector spinae atrophy/fatty degeneration is a risk factor for the development of adult spinal deformity - Results of a 6-year follow-up of a large cohort of residents**  
Nagata K. (JP)
- 16.49 O271 **The role of SPECT/CT in analysing the radiographic prevalence of asymptomatic degenerative spondylosis in a consecutive cohort of patients presenting with cancer**  
Lui D. (GB)
- 16.52 **Q&A Session**



## ASIA PACIFIC SPINE SOCIETY

**KSSS/APSS Joint Session****Symposium 6: How to avoid complications in adult spinal deformity surgery?**

Wong H.K. (SG) &amp; Matsuyama Y. (JP) &amp; Kim Y.W. (KR)

- 17.00 Introduction
- 17.01 **How to select the LIV: Should we always fuse to the ilium to avoid DJK?**  
Cheung J.P.Y. (HK)
- 17.09 **How to select UIV to avoid PJK?**  
Kato S. (JP)
- 17.17 **So many classifications and so many radiographic lines: Which one to use?**  
Hsu B. (AU)
- 17.25 **How to plan and surgically achieve an ideal lumbar lordosis in ASD?**  
Cho K.Y. (KR)
- 17.33 **Does coronal balance still matters in ASD?**  
Watanabe K. (JP)
- 17.41 **Q&A Session**
- 17.51 **Case Discussion**  
Kim Y.W. (KR)
- Free Paper Session IX: Paediatric deformity curve progression & outcome studies**  
Chairs: Jawad Saleem M. (PK) & Pun A. (AU)
- 18.30 Introduction
- 18.31 O272 **The relationship between compliance of physiotherapeutic scoliosis specific exercises and curve regression with mild to moderate adolescent idiopathic scoliosis**  
Cheung J.P.Y. (HK)
- 18.34 O273 **Randomized controlled trial comparing immediate versus gradual brace weaning for adolescent idiopathic scoliosis**  
Cheung J.P.Y. (HK)
- 18.37 O274 **A risk quantification reference table for progressed adolescent idiopathic scoliosis surgery: An exact case matched outcomes analysis**  
Tan J.H. (SG)
- 18.40 O275 **Multicenter validation of using the Distal Radius and Ulna (DRU) classification to predict scoliosis progression – APSS scoliosis focus group study**  
Arima H. (JP)
- 18.43 O276 **The impact on spinal deformity progression among pediatric patients with SMA treated with nusinersen**  
Kwan K.Y.H. (HK)
- 18.46 O277 **Perception of spinal deformity among patients with adolescent idiopathic scoliosis**  
Lau L.L. (SG)
- 18.49 O278 **Comparison of the assessment of Sanders skeletal maturity using single low radiation dose EOS spine hand radiography and conventional hand radiography**  
Poon G. (SG)
- 18.52 **Q&A Session**

KOREAN SOCIETY OF SPINE SURGERY

KOREAN SOCIETY OF SPINE SURGERY



08.00		<b>Welcome</b> Choi Y.S., President of the KSSS
		<b>Session 1: Surgical technique: Anterior column realignment surgery on lumbar spine</b> Chairs: Kim Y.W. (KR) & Shin D.E. (KR)
08.05	11	<b>Redefining of lumbar interbody fusion</b> Hong C.H. (KR)
08.10	12	<b>Tip and pitfall of using cage for achieving both indirect decompression and segmental angle restoration</b> Kim S.B. (KR)
08.15	13	<b>Technical tip for getting the larger lumbar correction 'with physiologic curve'</b> Kim Y.C. (KR)
08.20	14	<b>Strategies of prevention for surgical complication</b> Cha J.R. (KR)
08.25		<b>Discussion</b>
		<b>Session 2: Degenerative lumbar scoliosis in lumbar spine</b> Chairs: Shin H.K. (KR) & Kim Y.C. (KR)
08.32	15	<b>Does radiographic restoration after surgery promises the better clinical outcome?</b> Park D.H. (KR)
08.38	16	<b>Comparative analysis of lower most fusion level: L5 vs S1 vs Ilium</b> Lee B.H. (KR)
08.44	17	<b>Proximal coronal curve progression after surgery</b> Nam W.D. (KR)
08.50	18	<b>Proximal sagittal curve progression after surgery</b> Kim Y.W. (KR)
08.56		<b>Discussion</b>
		<b>Session 3: Special issue</b> Chairs: Lee H.M. (KR) & Chang B.S. (KR)
		<b>Debate: Lumbar spinal stenosis with sagittal imbalance: When do we operate?</b>
09.04	19	<b>We do not have to operate early</b> Ahn S.J. (KR)
09.08	110	<b>We should operate early, seize the day</b> Kim Y.B. (KR)
09.12		<b>Discussion</b>
		<b>Prevention and management after elderly spine surgery</b>
09.17	111	<b>Perioperative delirium after elderly spine surgery</b> Shin H.K. (KR)
09.22		<b>Discussion</b>
		<b>Session 4: Intraoperative painful experiences</b> Chairs: Yeom J.S. (KR) & Park J.B. (KR)
09.25	112	<b>Vertebral artery injury</b> Kim M.W. (KR)
09.32	113	<b>Esophageal injury</b> Ko S.B. (KR)

09.39	114	<b>Dural tear &amp; neurologic deficit</b> Lee H.D. (KR)
09.46	115	<b>Cervicothoracic junctional approach</b> Baik J.M. (KR)
09.53		<b>Discussion</b>
10.00		<b>Coffee Break</b>
		<b>Session 5: Postoperative painful experiences</b> Chairs: Shim D.M. (KR) & Suk K.S. (KR)
10.30	116	<b>Retropharyngeal hematoma and management</b> Kim Y.Y. (KR)
10.38	117	<b>Dysphagia and dysphonia</b> Min W.K. (KR)
10.46	118	<b>Postoperative surgical site infection</b> Lee G.W. (KR)
10.54	119	<b>Pseudoarthrosis diagnosis and management</b> Yang J.J. (KR)
11.02		<b>Discussion</b>
		<b>Session 6: Endoscopic spinal decompression</b> Chairs: Kim W.J. (KR) & Rhyu K.W. (KR)
11.12	120	<b>Pearls and pitfalls in endoscopic decompression technique</b> Park S.Y. (KR)
11.18	121	<b>Practical surgical technique of biportal endoscopic decompression</b> Park S.M. (KR)
11.24	122	<b>How to do biportal endoscopic cervical foraminotomy and discectomy</b> Jung S.B. (KR)
11.30		<b>Discussion</b>
		<b>Session 7: Update: Minimal invasive interbody fusion</b> Chairs: Park K.H. (KR) & Jun D.S. (KR)
11.38	123	<b>Collaboration of lateral lumbar interbody fusion and biportal endoscopic spinal decompression in degenerative and traumatic lumbar spine</b> Kang M.S. (KR)
11.44	124	<b>Biportal endoscopic TLIF: Posterolateral approach</b> Kim J.E. (KR)
11.50	125	<b>Biportal endoscopic TLIF: Extraforaminal approach</b> Park H.J. (KR)
11.56		<b>Discussion</b>
		<b>Session 8: Tips and techniques: Minimally invasive spine surgery</b> Chairs: Seo H.Y. (KR) & Sun S.D. (KR)
12.04	126	<b>Lateral cage insertion in L5/S1 anterior lumbar interbody fusion</b> Ahn T.K. (KR)
12.10	127	<b>Microscope assisted direct decompression in anterior lumbar interbody fusion</b> Son E.S. (KR)
12.16	128	<b>Anterior column support in severely collapsed osteoporotic vertebrae: Intervertebral cage augmentation</b> Song K.S. (KR)
12.22		<b>Discussion</b>



SPINE SOCIETY OF AUSTRALIA



**The getting of wisdom**

Chair: McCombe P. (AU)

14.00 Carey R. (AU)

14.20 McPhee I. (AU)

14.40 Hall D. (AU)

**Free Paper Session 5: Outcomes II & spinal surgery I**

Chair: Saravanja D. (AU) & Jamali M. (AU)

15.00 O279 **Posterior instrumented spinal surgery outcomes in the elderly: A Comparison of the 5-Item and 11-item modified frailty indices**  
Kweh B. (AU)

15.10 O280 **The concept of recovery kinetics: An observational study of continuous post-operative monitoring in spine surgery**  
Fonseka D. (AU)

15.20 O281 **What is the expected improvement in patient-reported outcome measures in the lumbar hybrid procedure for treating multilevel degenerative disc disease?**  
Scott-Young M. (AU)

15.30 O282 **'Lateral-PLIF', modified PLIF technique for spinal arthrodesis: Concept, technique, results, complications, and outcomes**  
Barrey C. (FR)

15.40 O283 **Does tether breakage predict progression to fusion? A pilot study of 15 AIS patients after VBT surgery**  
Roser M. (AU)

15.50 O284 **Retrospective review of children and adolescents with neuromuscular scoliosis treated with BiPolar spinal fixation at the Sydney Children's Hospital, Randwick**  
Bishop M. (AU)

16.00 **Coffee Break**

SPINE SOCIETY OF AUSTRALIA



**Free Paper Session 6: Cervical spine**

Chair: Jones C. (AU) & Thompson-Bagshaw D. (AU)

16.30 O285 **5-year outcomes for single-level total disc replacement with a novel viscoelastic artificial cervical disc compared to Anterior Cervical Discectomy and Fusion (ACDF)**  
Phillips F. (US)

16.40 O286 **First long-term follow-up results on wear-induced osteolysis following cervical total disc replacement using the M6-C™ Artificial Cervical Disc**  
Häckel S. (CH)

16.50 O287 **Lower bone mineral density in DEXA-identified adolescents with idiopathic scoliosis at age 20**  
Ng P.T.T. (AU)

17.00 – 18.30 **SSA AGM (Members only)**



KOREAN SPINAL NEUROSURGERY SOCIETY

- 07.50 **Opening Remarks**
- 07.55 **Welcome Address**  
Lee J.K., *President of KSNS*
- Free Paper Session I**
- 08.00 O288 **Interplay of radiological parameters and functional outcomes following cervical laminoplasty**  
Borkar S.A. (IN)
- 08.05 O289 **Dysphagia and dysphonia**  
Min W.K. (KR)
- 08.10 O290 **Direct trans-pedicular screw fixation for atypical hangman's fracture: A minimally invasive technique using the tubular retractor system**  
Choi M.K. (KR)
- 08.15 O291 **Cervicothoracic junctional approach**  
Baik J.M. (KR)
- 08.20 O292 **Cervical sagittal parameters in degenerative cervical spondylolisthesis versus degenerative cervical kyphosis with myeloradiculopathy treated by anterior cervical discectomy and fusion**  
Bunmaprasert T. (TH)
- 08.25 O293 **Analysis of risk factors associated with distal junctional failure after long level posterior cervical fusion and instrumentation**  
Hong J.T. (KR)
- 08.30 O294 **Effectiveness of nasotracheal intubation in anterior cervical surgery including C3 lesions**  
Kim J.H. (KR)
- 08.35 O295 **C2 nerve root preservation/sacrifice in patients with atlantoaxial dislocation: Clinical outcomes and the feasibility of its preservation**  
Madhivanan K. (IN)
- 08.40 O296 **How useful is C1-C2 fixation for patients with Chiari malformation without instability?**  
Madhivanan K. (IN)
- 08.45 **Discussion**
- Session 1: Korean Cervical Spine Research Society - Surgical strategy of OPLL and CSM**  
Chairs: Kim K.N. (KR) & Kim S.H. (KR)
- 09.00 **C5 palsy multicenter study of Korean CSRS**  
Oh J.K. (KR)
- 09.15 **Anterior surgical technique**  
Park J.H. (KR)
- 09.30 **Posterior surgical technique**  
Kim S.H. (KR)
- 09.45 **Timing of surgery of CSM and OPLL**  
Jang G. (KR)
- 10.00 **Coffee Break**

KOREAN SPINAL NEUROSURGERY SOCIETY



- Free Paper Session II**
- 10.30 O297 **The expression of mitofusin 1 and mitofusin 2 by oxidative stress in the cells from intervertebral disc**  
Shin J.W. (KR)
- 10.35 O298 **Predictive 3D neural network for progressive collapse after osteoporotic vertebral compression fracture using magnetic resonance images**  
Park S.B. (KR)
- 10.40 O299 **Mesenchymal stem cell transplantation promotes functional recovery through MMP2/STAT3 related astrogliosis after spinal cord injury**  
Kim C. (KR)
- 10.45 O300 **Effectiveness of adipose tissue-derived stromal vascular fraction and bone morphogenic protein-2 in mini-pig spinal fusion model**  
An S.B. (KR)
- 10.50 O301 **Deep learning model for classifying metastatic epidural spinal cord compression on MRI**  
Kumar N. (SG)
- 10.55 O302 **Multi-modulation of immune-inflammatory response using bioactive molecule integrated PLGA composite for spinal fusion**  
Lee C.K. (KR)
- 11.00 O303 **Comparison of perioperative outcomes following conventional open surgery versus minimally invasive surgery for metastatic spinal tumors – A retrospective, propensity score-matched study**  
Ju G.I. (KR)
- 11.05 O304 **The feasibility of unilateral hemilaminectomy for the removal of intramedullary spinal cord tumors**  
Im S.B. (KR)
- 11.10 O305 **Peripheral nerve-derived stem cell spheroids induce functional recovery and repair after spinal cord injury**  
Kim K.N. (KR)
- 11.15 **Discussion**
- Session 2: Korean Spinal Research Society - Bone remodelling and healing current**  
Chairs: Cho D.C. (KR) & Wee N.A. (AU)
- 11.30 **Identifying the cells and signals that increase cortical bone strength**  
Wee N.A. (AU)
- 11.50 **Disorganization (misalignment, disarrangement) may be the key to the enigma of unexplained musculoskeletal diseases and fragility fractures**  
Zebaze R. (AU)
- 12.10 **Role of Runx/Cbfb complex in skeletal tissues**  
Choi J.Y. (KR)
- 12.30 **Lunch Break & Industry Workshops**

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Posters



KOREAN SPINAL NEUROSURGERY SOCIETY

Free Paper Session III

- 14.00 O306 **The usefulness of trabecular CT attenuation measurement at L4 level to predict screw loosening after degenerative lumbar fusion surgery: Consider number of fused levels and postoperative sagittal balance**  
*Lee B.J. (KR)*
- 14.05 O307 **Retrospective observation of combinatory effect with rh-BMP-2 and a systemic RANKL inhibitor for osteoporotic patients who undergo posterior lumbar interbody fusion**  
*Ryu S.J. (KR)*
- 14.10 O308 **Comparison of inflammatory markers changes in patients who used postoperative prophylactic antibiotics within 24 hours after spine surgery and five days after spine surgery**  
*Kim S.B. (KR)*
- 14.15 O309 **Perioperative results and complications after posterior lumbar interbody fusion (PLIF) for spinal stenosis in geriatric patients over than 80 years old**  
*Choi I.J. (KR)*
- 14.20 O310 **Difference in the Cobbs angle between standing and supine position as a prognostic factor after vertebral augmentation in osteoporotic vertebral compression fractures**  
*Bae I.S. (KR)*
- 14.25 O311 **Thoracolumbar slope is useful parameter for evaluating HRQOL and sagittal imbalance aggravation in adult spinal deformity: A prospective observational cohort study**  
*Hong J.H. (KR)*
- 14.30 O312 **The efficacy and safety of E.BMP 2 for lumbar interbody fusion**  
*Shin D.A. (KR)*
- 14.35 O313 **Trauma apportionment score of simple osteoporotic vertebral compression fracture with extrinsic factors**  
*Lee S.G. (KR)*
- 14.40 **Discussion**

**Session 3: Korean Minimally Invasive Spine Surgery Society - Current status of endoscopic spine surgery and future possibility**

**Chairs: Chough C. (KR) & Kim H.S. (KR)**

- 15.00 **Why should we do endoscopic surgery?**  
*Chough C. (KR)*
- 15.10 **What is the best indications in one-portal endoscopic spine surgery?**  
*Kim H.S. (KR)*
- 15.20 **Standard steps and tips for one-portal endoscopic surgery**  
*Ju C.I. (KR)*
- 15.30 **What is the best indication in bi-portal endoscopic spine surgery?**  
*Jang J.W. (KR)*
- 15.40 **Standard steps and tips for bi-portal endoscopic surgery**  
*Park J.Y. (KR)*
- 16.00 **Coffee Break**

KOREAN SPINAL NEUROSURGERY SOCIETY



Free Paper Session IV

- 16.30 O314 **Comparison of postoperative outcomes between conventional and prone single position direct lateral interbody fusion (DLIF): A single center experience**  
*Kim D.H. (KR)*
- 16.35 O315 **The next generation spine surgery robot and the future**  
*Yi S. (KR)*
- 16.40 O316 **Practical experience of the 1st generation Korean spine surgery robot: Learning curve and screw bias analysis**  
*Lee J.S. (KR)*
- 16.45 O317 **Water dynamics in unilateral biportal endoscopic spine surgery and its related factors: An in vivo proportional regression and proficiency-matched study**  
*Hong Y.H. (KR)*
- 16.50 O318 **Biportal endoscopic translaminar approach for the lateral recess stenosis and contralateral extraforaminal disc herniation**  
*Kim D.H. (KR)*
- 16.55 O319 **Psoas weakness following oblique lateral interbody fusion surgery: A prospective observational study with an isokinetic dynamometer**  
*Cho D.C. (KR)*
- 17.00 O320 **Safety and efficacy of intraoperative Doppler sonography-assisted cervical pedicle screw fixation - A retrospective comparison with conventional pedicle screw implantation**  
*Hong J.T. (KR)*
- 17.05 O321 **Improvement in spino-pelvic alignment in patients operated for high grade lumbar spondylolisthesis with MIS TLIF**  
*Kulkarni S. (IN)*
- 17.10 **Discussion**
- 17.30 **Closing Remarks**

Monday

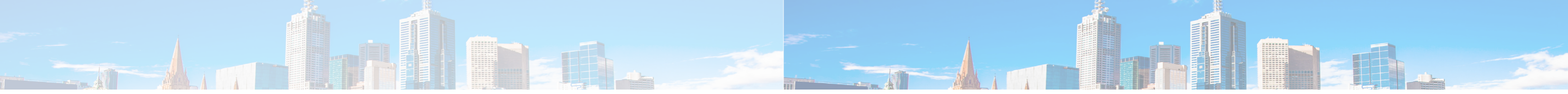
Tuesday

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Posters



# Wednesday 3 May Scientific Program

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- Posters

	Goldfields Theatre	Sovereign Room (Level 1)	Eureka 1 + 2	Eureka 3	Courtyard Rooms	Hospitality Suite 6
08.00	ISSLS	ASSI	SOSORT	APSS	BIOSPINE	SSA
10.00	<i>Break</i>					
10.30	ISSLS	ASSI	SOSORT	APSS	BIOSPINE	SSA
12.30	<i>Lunch break + Industry workshops</i>					
14.00	ISSLS	ESJ	JSSR	SIS	BIOSPINE	NASS
16.00	<i>Break</i>					
16.30	ISSLS	ESJ	JSSR	SIS	BIOSPINE	NASS




**THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE**
**Session III: Special Poster Session 1**

07.30 See list of ISSLS General Posters - This session takes place in the ePoster area.

**Session IV: Best Paper Session 1**

**Chairs: Hodges P. (AU) & Vo N. (US)**

- 08.45 O322 **Synergistic effect of RG-7112 & o-Vanillin combination treatment for intervertebral disc generation**  
*Haglund L. (CA)*
- 08.52 O323 **Electromyogram diagnosed chronic lumbar radiculopathy is highly associated with L4-S1 regional multifidus atrophy on magnetic resonance imaging**  
*Zotti M. (AU)*
- 08.59 O324 **Investigating disease burden, management approaches, and clinical course prediction of low back pain using machine learning based on data from 6,426 patients in Hong Kong**  
*Choy W.C. (HK)*
- 09.06 O325 **Underweight and overweight are both risk factors for vertebral fracture: A nationwide population-based study**  
*Lee H.D. (KR)*
- 09.13 **Discussion**

**Session V: Best Paper Session 2**

**Chairs: Hodges P. (AU) & Vo N. (US)**

- 09.25 O326 **Immunohistochemical analysis of SOD2 expression and oxidative stress markers in human intervertebral discs**  
*Tamagawa S. (JP)*
- 09.32 O327 **Investigation of accuracy in 3D images of lumbosacral nerve roots developed by artificial intelligence technology**  
*Ukeba D. (JP)*
- 09.39 O328 **Nonoperative management of three-column ankylosed spine fractures: Is it possible?**  
*Nassr A. (US)*
- 09.46 O329 **Impact of social determinants of health on preoperative opioid utilization in patients with lumbar degeneration**  
*Wague A. (US)*
- 09.51 **Discussion**
- 10.00 **Coffee Break**


**THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE**
**Session VI: Emerging Technologies**

**Chair: Chang D.G. (KR)**

- 10.30 O330 **Handheld smartphone-based spinal navigation versus CT-based image-guided navigation in the placement of thoracolumbar pedicle screws**  
*Arts M.P. (NL)*
- 10.37 O331 **Proposed objective scoring algorithm for assessment and intervention recovery following surgery for lumbar spinal stenosis based on relevant gait metrics from wearable devices: The Gait Posture index (GPI)**  
*Choy W.J. (AU)*
- 10.44 O332 **SpineTrak: The first randomized control trial using the Apple Watch to objectively track spine surgical patients**  
*Tomkins-Lane C. (US)*
- 10.51 O333 **SpineQ: Unsupervised learning-based pipeline for fully automated quantitative analysis of lumbar MRI with preliminary validation**  
*Zhang T. (CN)*
- 10.58 **Discussion**
- 11.10 **Harry Farfan Presidential lecture**  
*Introduction by Yoon T. (US)*
- The past, present and future of tuberculosis: A story of global health inequity**  
*Marks G.B. (AU)*
- 11.50 **Presidential address**  
*Introduction by Lotz J. (US)*
- Reflections of the past and future**  
*Yoon T. (USA)*
- 12.30 **Lunch Break & Industry Workshops**

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Posters


**THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE**
**Session VII: Biomechanics, muscle and motor control**
**Chairs: Wong A. (HK) & Zhao F. (CN)**

- 14.00 O334 **Targeted multifidus muscle activation reduces fibrosis of multifidus muscle following intervertebral disc injury**  
*Hodges P. (AU)*
- 14.07 O335 **Texture analysis of ultrasound images to evaluate multifidus muscle composition: A comparison between healthy subjects and patients with low back pain**  
*Hodges P. (AU)*
- 14.14 O336 **The pelvic tilt response to ASD realignment surgery depends on preoperative compensatory ability of the thoracic spine**  
*Takasawa E. (JP)*
- 14.21 **Discussion**
- 14.30 O337 **Do spinal degeneration and lumbar multifidus muscle quality affect clinical outcomes in patients with low back pain?**  
*Jensen T.S. (DK)*
- 14.37 O338 **Does degenerative scoliosis result from loss of mechanical integrity of the annulus fibrosus in degenerated intervertebral discs?**  
*Bader T. (CA)*
- 14.44 O339 **Touched vertebral as an ideal the lowest instrumented vertebra in thoracic adolescent idiopathic scoliosis: A suggestion of modified Suk Classification**  
*Chang D.G. (KR)*
- 14.51 **Discussion**

**Session VIII: Basic Science 2 – Stem cells, regeneration and omics**
**Chairs: Weiner B. (US) & Chiba K. (JP)**

- 15.00 O340 **o-Vanillin modulates cell phenotype and extracellular vesicles of human mesenchymal stem cells and intervertebral disc cells**  
*Haglund L. (CA)*
- 15.07 O341 **Single-cell RNA-seq analysis identifies late-stage nucleus pulposus cell and reveals Serglycin is an essential biomarker of intervertebral disc degeneration**  
*Wang J.R. (CN)*
- 15.14 O342 **IL-6-enriched extracellular vesicles from IL-1 $\beta$ -primed mesenchymal stem cells modulate annulus fibrosus cell metabolism**  
*Neidlinger-Wilke C. (DE)*
- 15.21 **Discussion**

**THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE**


- 15.30 O344 **Roles and mechanisms of curculigoside in alleviating nucleus pulposus cell apoptosis by upregulating BMAL1 expression via the JAK/STAT3 pathway**  
*Wang J.R. (CN)*

- 15.37 O345 **Inhibition of the phosphatase pleckstrin homology domain leucine-rich repeat protein phosphatase (PHLPP) to promote NP cell regeneration**  
*Illien-Junger S. (US)*

15.44 **Discussion**

16.00 **Coffee Break**

**Symposium: Research dissemination and the impact of social media: Tips and tricks**
**Chair: Bailey J. (US)**

16.30 Faculty: *Bailey J. (US), Samartzis D. (US), Berjano P. (IT), Sheldrick K. (AU)*

**Session IX: Basic Science 3 – Immune system and autophagy**
**Chairs: Zheng Z.M. (CN) & Kawaguchi Y. (JP)**

- 17.30 O346 **Transient Receptor Potential Vanilloid 4 (TRPV4) knockdown decreases extracellular matrix synthesis via autophagy suppression in rat intervertebral disc**  
*Matsuo T. (JP)*

- 17.37 O347 **Glial activation in sensory and motor regions of the cortex is related to sensorimotor function in individuals with low back pain maintained by nociplastic mechanisms**  
*Shraim M. (AU)*

- 17.44 O348 **Intervertebral disc divided into three regions according to the origin and polarity of macrophages**  
*Yamamoto Y. (JP)*

17.51 **Discussion**

18.00 **Adjourn**

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ASSI

## ASSOCIATION OF SPINE SURGEONS OF INDIA

**Symposium: Surgical site infections in spine surgery**

Chairs: Kandwal P. (IN) &amp; Pillai S. (IN)

- 08.00 **Case 1: L4/5 infective spondylodiscitis following lumbar discectomy**  
Mulukutla R. (IN)  
Panellists: Jhala A. (IN), Iyengar R. (IN), Venkatesan R. (IN), Girdhar P. (IN), Kundhani V. (IN)
- 08.30 **Case 2: Infection post instrumented lumbar fusion**  
Chahal R. (IN)
- Free Paper Session VII**  
Chairs: Sharma A. (IN) & Rathod T. (IN)
- 09.00 O349 **Prognostic value of conventional MRI and diffusion tensor imaging in surgically treated degenerative cervical myelopathy patients**  
Prabhakar S.V. (IN)
- 09.05 O350 **Anterior cervical hybrid fixation for severe multi-level Ossified Posterior Longitudinal Ligament (OPLL)**  
Venkatesan R. (IN)
- 09.10 O351 **Midterm results of cervical suspension laminoplasty for degenerative cervical myelopathy**  
Dhillon C. (IN)
- 09.15 O352 **Does the use of SONOPET ultrasonic aspirator decrease the complication rate of laminectomy in cervical myelopathy patients?**  
Sharma A. (IN)
- 09.20 **Q&A Session**
- 09.30 O353 **CT Based morphometric study of the sub axial cervical spine pedicles in a sample of Indian population, to assess the safety and feasibility of cervical pedicle screw in the sub axial spine**  
Farooque K. (IN)
- 09.35 O354 **Can quantitative analysis of motion of after cervical total disc replacement be accurately done on flexion extension radiographs?**  
Amin P. (IN)
- 09.40 O355 **The effect of corticosteroids in postoperative dysphagia in anterior cervical spine surgery – a randomised trial**  
Basu A. (IN)
- 09.45 O356 **Is foramen magnum decompression really needed after C1-C2 posterior fixation for congenital atlantoaxial dislocation/ basilar invagination with Chiari malformation?**  
Madhivanan K. (IN)
- 09.50 **Q&A Session**
- 10.00 **Coffee Break**

## ASSOCIATION OF SPINE SURGEONS OF INDIA

ASSI

**Symposium: Multilevel lumbar canal stenosis**

Chairs: Dave B. (IN) &amp; Arockiaraj J. (IN)

- 10.30 **MRI based classifications of LCS- do they co-relate well with clinical symptoms?? How much decompression is adequate??**  
Jhala A. (IN)
- 10.37 **Multilevel laminectomy**  
Patel P. (IN)
- 10.44 **Interlaminar decompression**  
Babu N. (IN)
- 10.51 **Discussion**
- 11.00 **Spinous process splitting**  
Venkatesh K. (IN)
- 11.07 **Over the top decompression**  
Girdhar P. (IN)
- 11.14 **Endoscopic decompression**  
Deshpande K. (IN)
- 11.21 **Discussion**
- Free Paper Session VIII**  
Chairs: Sharma M. (IN) & Hadgaonkar S. (IN)
- 11.30 O357 **Starting endoscopic spine surgery practice in a tier 2 city of India: An initial experience and learning curve**  
Sathe A. (IN)
- 11.35 O358 **Uniportal dual mode dry saline endoscopy for lumbar disc herniation**  
Kaushal M. (IN)
- 11.40 O359 **Interlaminar endoscopic discectomy versus microdiscectomy for L5-S1 lumbar disc herniation - a propensity matched study**  
Ramachandran K. (IN)
- 11.45 O360 **Difficult Cases - Analysis of factors for ease of surgery in interlaminar endoscopic lumbar discectomy**  
Vemula V.R.C. (IN)
- 11.50 **Q&A Session**
- 12.00 O361 **Role of unilateral biportal endoscopy in treatment of cervical radiculopathy, technical note and early results**  
Deshpande K.D. (IN)
- 12.05 O362 **Mini-open transforaminal lumbar interbody fusion: A 2 year outcome study**  
Sharma A. (IN)
- 12.10 O363 **Clinical outcomes following navigation assisted minimally invasive sacroiliac joint fusion through lateral approach**  
Pawar J. (IN)
- 12.15 O364 **A minimum 2-year MRI evaluation of postoperative spinal canal and foramen expansion in OLIF patients**  
Sheth S. (IN)
- 12.20 **Q&A Session**
- 12.30 **Lunch Break & Industry Workshops**

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EUROPEAN SPINE JOURNAL

European  
Spine Journal

Meet the Experts session on lateral approaches: Advanced indications

14.00 **Welcome and Session Presentation**  
*Gunzburg R. (BE) & Szpalski M. (BE)*

**Session 1: Lumbar corpectomy**  
Chair: Berjano P. (IT)

14.05 **Case presentation**  
*Thomas A. (US)*

14.15 **Lecture: Lumbar corpectomy**  
*Lamartina C. (IT)*

14.35 **Case solution**  
*Thomas A. (US)*

14.45 **Discussion**

**Session 2: Anterior column realignment**  
Chair: Berjano P. (IT)

14.55 **Case presentation**  
*Lamartina C. (IT)*

15.05 **Lecture: Anterior column realignment**  
*Menezes C. (BR)*

15.25 **Case solution**  
*Lamartina C. (IT)*

15.35 **Discussion**

16.00 **Coffee Break**

EUROPEAN SPINE JOURNAL

European  
Spine Journal

**Session 3: Thoracolumbar corpectomy**  
Chair: Lamartina C. (IT)

16.30 **Case presentation**  
*Berjano P. (IT)*

16.40 **Lecture: Thoracolumbar corpectomy**  
*Thomas A. (US)*

17.00 **Case solution**  
*Berjano P. (IT)*

17.10 **Discussion**

**Session 4: Giant thoracic disc herniation**  
Chair: Lamartina C. (IT)

17.20 **Case presentation**  
*Menezes C. (BR)*

17.30 **Lecture: Giant thoracic disc herniation**  
*Berjano P. (IT)*

17.50 **Case solution**  
*Menezes C. (BR)*

18.00 **Discussion**

18.10 **Final Remarks**  
*Berjano P. (IT) & Lamartina C. (IT)*

18.30 **End of the meeting**

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## SOSORT - INTERNATIONAL SOCIETY ON SCOLIOSIS ORTHOPAEDIC AND REHABILITATION TREATMENT

### SOSORT Contribution to spinal deformities conservative treatment

Chairs: Betts T. (GB) & Schreiber S. (CA)

- 08.00 **Introduction**
- 08.05 **Bracing for scoliosis: New developments**  
Wynne J. (US)
- 08.25 **Discussion**
- 08.34 **Physiotherapeutic scoliosis specific exercises: From school and tradition to a common evidence based approach**  
Schreiber S. (CA)
- 08.54 **Discussion**
- 09.03 **Outcome measures in scoliosis treatment: Is the Cobb angle enough?**  
Donzelli S. (IT)
- 09.23 **Discussion**
- 09.32 **SOSORT Guidelines for scoliosis conservative treatment: An update**  
Zaina F. (IT)
- 09.52 **Discussion**
- 10.00 **Coffee Break**
- Session 8: Evaluation**  
Chairs: Marchese R. (AU) & Donzelli S. (IT)
- 10.30 O365 **Development, pilot, pathway implementation and evaluation of an advanced practice physiotherapy triage pathway in adolescent idiopathic scoliosis**  
Dunstan E. (GB)
- 10.37 O366 **Using a convolutional neural network with a Huber loss output regression layer to predict the maximum Cobb angle of adolescent idiopathic scoliosis from surface topography torso scans**  
Lou E. (CA)
- 10.44 O367 **Monitoring of spine curvature changes of patients with Adolescent Idiopathic Scoliosis (AIS) using three-dimensional ultrasound**  
Lai K.L. (HK)
- 10.51 O368 **The apex vertebrae of the scoliotic curves - Study of their frequency in 11758 cases**  
Romano M. (IT)
- 10.58 **Discussion**
- 11.10 O369 **Deep learning and 3D surface modelling facilitating radiation free spine alignments measurements with preliminary clinical validation**  
Zhang T. (HK)
- 11.17 O370 **Evaluation of thoracic flexibility in the sagittal plane with the Thoracic Stiffness test: Intra and inter-operator reliability**  
Romano M. (IT)



## SOSORT - INTERNATIONAL SOCIETY ON SCOLIOSIS ORTHOPAEDIC AND REHABILITATION TREATMENT

- 11.24 O371 **Surface topographic measurements of trunk asymmetry distinguishes adolescent idiopathic scoliosis stratified by severity and controls**  
Thakur A. (US)
- 11.31 O372 **Surface topographic measurements of trunk asymmetry distinguishes adolescent idiopathic scoliosis in different regions (thoracic, thoracolumbar, and lumbar) and controls**  
Thakur A. (US)
- 11.38 **Discussion**
- 12.05 **Award Ceremony**  
Cohen L. (AU)
- 12.15 **SOSORT 2024 Boston**  
Wynne J. (US)
- 12.25 **Closing Remarks**  
Zaina F. (IT) & McAviney J. (AU)
- 12.30 **Lunch Break & Industry Workshops**

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**JSSR - JAPANESE SOCIETY FOR SPINE SURGERY  
AND RELATED RESEARCH**
**Symposium 1: Current advances in osteoporotic vertebral fracture in a super-aging society**
**Chairs: Haro H., (JP) & Ito M. (JP)**

- 14.00 O373 **Medication for osteoporotic vertebral fracture: Can imminent fracture risk be reduced?**  
*Takahata M. (JP)*
- 14.10 O374 **Characteristics of a spinal sagittal malalignment in patients with osteoporosis**  
*Miyagi M. (JP)*
- 14.20 O375 **Surgical strategy for osteoporotic vertebral fracture based on multicenter cohort study**  
*Takahashi S. (JP)*
- 14.30 O376 **Analysis of treatment effect with teriparatide on device-related vertebral osteopenia after lumbar spinal interbody fusion using Hounsfield unit values**  
*Miyazaki M. (JP)*
- 14.40 O377 **Screw fixation techniques and augmentation methods in osteoporotic spine**  
*Kanno H. (JP)*

**Symposium 2: An upgrade on OPLL in Japan**
**Chairs: Matsuyama Y. (JP) & Sakai D. (JP)**

- 14.50 O378 **Association between clinical symptoms and distribution of OPLL based on prospective nationwide study**  
*Hirai T. (JP)*
- 15.00 O379 **Long-term outcome of surgery for OPLL**  
*Kawaguchi Y. (JP)*
- 15.10 O380 **Anterior versus posterior approach for ossification of posterior longitudinal ligament**  
*Kato S. (JP)*
- 15.20 O381 **Current interpretation and usage of MEPs**  
*Shigematsu H. (JP)*

**General session 1**
**Chairs: Takahashi S. (JP) & Miyagi M. (JP)**

- 15.30 O382 **Study of sacral lateral tilt in the idiopathic scoliosis patients with Lenke type 5 curve**  
*Takada S. (JP)*
- 15.36 O383 **Non Fusion Anterior Scoliosis Correction (NFASC) for double sided Adolescent Idiopathic Scoliosis (AIS) curves in skeletally mature children: Clinico-radiological outcomes with 2 years follow up**  
*Akbari K. (IN)*
- 15.42 O384 **Effect of enhanced Recovery Pathway (ERP) resulting in reduced Length of Stay (LOS) and opioid consumption after Non-Fusion Anterior Scoliosis Correction (NFASC) surgery for Adolescent Idiopathic Scoliosis (AIS)- a single centre experience**  
*Reddy H. (IN)*
- 15.48 O385 **Selection of the appropriate parameter to measure sacral tilt in Lenke type 5C adolescent idiopathic scoliosis**  
*Kanie Y. (JP)*
- 15.54 O386 **Automated measurement of spinal alignment for scoliosis using deep learning**  
*Nakajima N. (JP)*

 16.00 **Coffee Break**

**JSSR - JAPANESE SOCIETY FOR SPINE SURGERY  
AND RELATED RESEARCH**
**Symposium 3: Emerging technologies in Japan: Innovation to Impact**
**Chairs: Nakamura M. (JP) & Watanabe M. (JP)**

- 16.30 O387 **Intrathecal administration of recombinant human hepatocyte growth factor for acute traumatic cervical spinal cord injury**  
*Kitamura K. (JP)*
- 16.40 O388 **iPSC-derived neural precursor cells: potential for cell transplantation therapy in spinal cord injury**  
*Nagoshi N. (JP)*
- 16.50 O389 **Augmented and mixed reality in spine surgery: utility and limitations**  
*Sakai D. (JP)*
- 17.00 O390 **A deep learning algorithm to identify cervical ossification of posterior longitudinal ligaments on radiography**  
*Tamai K. (JP)*
- 17.10 O391 **Machine learning web application for predicting functional outcomes in patients with traumatic spinal cord injury following inpatient rehabilitation**  
*Maki S. (JP)*

**General session 2**
**Chairs: Kitamura K. (JP) & Kato S. (JP)**

- 17.25 O392 **Comparison of the Cobb angle measurement between manual and digital methods among five military hospitals**  
*Chitragran R. (TH)*
- 17.31 O393 **Which spinopelvic and hip morphological parameter are risk factors for hip joint osteoarthritis in postoperative adult spinal deformity patients?**  
*Inami S. (JP)*
- 17.37 O394 **3D patient-matched template guides let to benefit of increased mean screw diameter and length, improving accuracy of cortical bone trajectory screws: A 5-years international experience**  
*Marengo N. (IT)*
- 17.43 O395 **5-year radiological outcomes post interlaminar device insertion for symptomatic lumbar spinal stenosis**  
*Kumar N. (SG)*
- 17.49 O396 **Comparison of posterior and anteroposterior spinal fusion for 7 points of Load Sharing Classification - thoracolumbar vertebral fracture**  
*Hattori N. (JP)*

**General session 3**
**Chairs: Nagoshi N. (JP) & Tamai K. (JP)**

- 18.00 O397 **Pull-out resistance of facet versus laminar C2 screws: An experimental comparative biomechanical investigation**  
*Meynard A. (FR)*
- 18.06 O398 **Paraspinal muscle morphology in patients with proximal cervical spondylotic amyotrophy**  
*Hirota R. (JP)*
- 18.12 O399 **Cartilage endplate disruption on MRI-T1WI as a novel risk factor for postoperative recurrence of lumbar disc herniation**  
*Inomata K. (JP)*
- 18.18 O400 **The effectiveness of chemonucleolysis with condoliase for treatment of recurrent lumbar disc herniation**  
*Ozaki T. (JP)*
- 18.24 O401 **Outcome of lumbar intradiscal condoliase injection therapy in our hospital**  
*Yanagisawa Y. (JP)*

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## ASIA PACIFIC SPINE SOCIETY

## APSS/JSSR Joint Session

## Symposium 7: Recent advance in management of cervical myelopathy

Chairs: Park J.B. (KR) &amp; Hai Y. (CN) &amp; Takahata M. (JP) &amp; Hirai T. (JP)

07.30	<b>Introduction</b>
	<b>A) How does it affect my approach?</b>
07.31	<b>Lordotic vs. non lordotic spine</b> Kundhani V. (IN)
07.39	<b>Degenerative vs. OPLL</b> Kawaguchi Y. (JP)
07.47	<b>Chin-on-chest deformity: Flexible vs. rigid</b> Suk K.S. (KR)
	<b>B) What techniques to use and how to avoid complications</b>
07.55	<b>Multi level anterior fusion</b> Lee D.H. (KR)
08.03	<b>Laminoplasty vs. laminectomy</b> Wu W.T. (TW)
08.11	<b>Artificial disc replacement in myelopathy</b> Bunmaprasert T. (TH)
08.19	<b>Q&amp;A Session</b>
08.29	<b>Case Discussion</b>
	<b>Oration</b> Chair: Rajasekaran S. (IN)
09.00	<b>Introduction</b>
09.05	<b>Conferment of award to APSS Orator 2023</b> Wong H.K. (SG)
09.07	<b>Anterior surgery for scoliosis - A 30-year journey</b> Wong H.K. (SG)
09.27	<b>Closing Remarks</b>



## ASIA PACIFIC SPINE SOCIETY

## Presidential Lecture

Chair: Kwan M.K. (MY)

09.30	<b>Introduction</b>
09.35	<b>Lessons learnt from 25 years in spine surgery</b> Rajasekaran S. (IN)
09.58	<b>Closing Remarks</b>
10.00	<b>Coffee Break</b>
	<b>Symposium 8: Spinal Technology: The future?</b> Chair: Kwan K. (HK) & Kandwal P. (IN)
10.30	<b>Introduction</b>
10.31	<b>What is the current advantage and limitation of robotic spine surgery?</b> Kumar D. (SG)
10.39	<b>Stemcells therapy in spinal cord injury - What is the current evidence?</b> Sakti Y.M. (ID)
10.47	<b>How Augmented Reality (AR) &amp; Mixed Reality helps with complex spinal surgery?</b> Sakai D. (JP)
10.55	<b>Would future Artificial Intelligence (AI) replace the decision-making by the spine surgeon?</b> Lanang G. (ID)
11.03	<b>Q&amp;A Session</b>
	<b>APSS Annual General Assembly</b> (in conjunction with APSS Annual Scientific Meeting)
11.30 – 12.00	
	<b>APSS Closing Ceremony &amp; Best Paper Prize Presentation</b> Chair: Liu G. (SG)
12.00	<b>Preview of APSS future activities &amp; annual meeting in 2024</b> Cheung J.P.Y. (HK) & Kwan K. (MY)
12.10	<b>APSS Scoliosis Focus Group update</b> Shigematsu H. (JP)
12.20	<b>APSS Anterior column reconstruction Focus Group update</b> Cheung J.P.Y. (HK)
12.25	<b>Best Paper Prize Announcement</b>
12.35	<b>Presidential inauguration 2023/2025 &amp; Presentation of token to past president</b> Rajasekaran S. (IN) & Kwan M.K. (MY)
12.38	<b>Word of thanks by the scientific chairman of APSS @ SpineWeek 2023</b> Liu G. (SG)
12.43	<b>Closing Remark by the President of APSS</b> Rajasekaran S. (IN)
12.30	<b>Lunch Break &amp; Industry Workshops</b>



## SIS - SPINE INTERVENTION SOCIETY

### Session 1: Advanced concept in neuromodulation

Chair: Verrills P. (AU)

- 14.00 **The brain salience network: Why pain becomes overwhelming**  
*De Ridder D. (NZ)*
- 14.20 **Neuromodulation: Objective therapy performance approach to deploying and monitoring therapy – Data and AI**  
*Karantonis D. (AU)*
- 14.40 **Discogenic pain: Fusion vs. Neuromodulation**  
*Awad M. (AU)*
- 15.00 **Neuromodulation for back pain: Virgin and 'failed' surgery syndrome: An evolving algorithm**  
*Bates D. (AU)*
- 15.20 **Breakthrough technologies: The future**  
*Chakravarthy K. (US)*
- 15.40 **Discussion**
- 16.00 **Coffee Break**



## SIS - SPINE INTERVENTION SOCIETY

### Session 2: Sacroiliac Joint Pain: Up-to-date diagnosis and treatment strategies

Chair: MacVicar J. (NZ)

- 16.30 **Update on diagnosis: Imaging and physical exam**  
*Kennedy D.J. (US)*
- 16.50 **The role of therapeutic intra-articular injections**  
*Schwarzer A. (AU)*
- 17.10 **Lateral branch radiofrequency neurotomy: Selection criteria and outcomes**  
*Stout A. (US)*
- 17.30 **Sacroiliac joint fusion: Selection criteria and outcomes**  
*Dohring E.J. (US)*
- 17.50 **Discussion**
- 18.00 **Adjourn**

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BIOSPINE

- 08.00 **Opening Remarks**  
*Sakai D. (JP)*
- Session 1: Intervertebral disc herniation, degeneration, and regeneration**  
**Chairs: Inoue G. (JP) & Miyagi M. (JP)**
- 08.10 O402 **Effective modulation of inflammation to promote intervertebral disc regeneration using a 3D hybrid protein nanoscaffold**  
*Han I. (KR)*
- 08.20 O403 **Adiponectin receptor agonist AdipoRon prevents the progression of intervertebral disc degeneration in a rat tail puncture model**  
*Ohnishi H. (JP)*
- 08.30 O404 **Study of the effect of adipose tissue dysfunction in IVDD**  
*Ruiz-Fernandez C. (JP)*
- 08.40 O405 **Matrix production enhancing effect of laminin in cultured human nucleus pulposus progenitor cells**  
*Soma H. (JP)*
- 08.50 O406 **Combination of ultra-purified stem cells with an alginate sodium reduces discogenic pain**  
*Suzuki H. (JP)*
- Session 2: Osteoporosis, bone fusion and bone regeneration**  
**Chairs: Kaito T. (JP) & Kim Y.Y. (KR)**
- 09.00 O407 **Bioactive glass bone for posterolateral lumbar fusion in rats: A pilot study**  
*Broussolle T. (FR)*
- 09.10 O408 **Bioactive glass (S53P54) and polyethylene-glycol and glicerol water soluble synthetic adhesive as an effective fusion promoter in anterior lumbar interbody fusion surgery**  
*Corluka S. (HR)*
- 09.20 O409 **A novel treatment strategy for nonunion targeting senescence cells**  
*Kitahara T. (JP)*
- 09.30 O410 **Preclinical study of human bone marrow-derived mesenchymal stem cells using a three-dimensional manufacturing setting for enhancing spinal fusion**  
*Shin H.E. (KR)*
- 09.40 O411 **Stem cell-exosome efficacy for osteoclast activity regulation**  
*Lee G.W. (KR)*
- 09.50 O412 **The iPS cell-derived platelet preparation reduces bone morphogenetic proteins requirements and suppresses adverse events in bone formation promoting**  
*Shiga Y. (JP)*
- 10.00 **Coffee Break**

BIOSPINE



- Session 3: Spinal cord and nerve tissue regeneration**  
**Chairs: Han I. (KR) & Khang G. (KR)**
- 10.30 O413 **The role of microglia macrophages activation and TLR4 NF-kB MAPK pathway in distraction spinal cord injury-induced inflammation**  
*Hai Y. (CN)*
- 10.40 O414 **Multimodal therapy strategy based on a bioactive hydrogel for repair of spinal cord injury**  
*Roh E.J. (KR)*
- Session 4: New insights of spine biomechanics**  
**Chairs: Han I. (KR) & Khang G. (KR)**
- 10.50 O415 **Determining the instantaneous center of rotation of the cervical spine via computer-assisted radiographic analysis**  
*Shin J. (KR)*
- 11.00 O416 **Design and biomechanical analysis of stand-alone lumbar cage implant for posterior inter body fusion**  
*Sudhir G. (IN)*
- 11.10 O417 **Comparison in the accuracy of thoraco-lumbo-sacral orthosis designed by a conventional contact casting technique with a plaster bandage versus by a new non-contact 3D digital scanning technique**  
*Ryu M. (JP)*
- 11.20 O418 **Ligamentum flavum hypertrophy significantly contributes to the severity of neurogenic inter mittent claudication in patients with lumbar spinal canal stenosis**  
*Hur J.W. (KR)*



BIOSPINE

**Session 5: Advances in supporting artificial intelligence, virtual reality and augmented reality**

**Chairs: Lee G.W. (KR) & Maki S. (JP)**

- 11.30 O419 **Smart glasses can reduce radiation exposure and improve the accuracy of percutaneous pedicle screw insertion**  
*Hiranaka Y. (JP)*
- 11.40 O420 **Augmented reality navigation technology for spinal cord tumor resection**  
*Tezuka F. (JP)*
- 11.50 O421 **Establishment of an intraoperative assisted endoscopic common iliac vein segmentation model and object detection model for OLIF51 (Oblique Lateral Lumbar Interbody Fusion 51)**  
*Ueda R. (JP)*
- 12.00 O422 **The accuracy comparison of automatic pedicle screw and cortical screw trajectory planning using domain-transform manifold learning**  
*Ryu S.J. (KR)*
- 12.10 O423 **Magnetic resonance image segmentation of the compressed spinal cord in patients with degenerative cervical myelopathy using convolutional neural networks**  
*Maki S. (JP)*
- 12.20 **Discussion**
- 12.30 **Lunch Break & Industry Workshops**

**Session 6: Clinical development of spine technologies**

**Chairs: Kim S.B. (KR) & Yurube T. (JP)**

- 14.00 O424 **3D Printing in spinal surgery: Current and future**  
*Kim S.B. (KR)*
  - 14.10 O425 **The current evidence for 3D printing vs PEEK cage in lumbar interbody fusion**  
*Kim J.S. (KR)*
  - 14.20 O426 **Polymer based bone regeneration research**  
*Kim Y.Y. (KR)*
  - 14.30 O427 **Discoscopic findings in the high-intensity zone of lumbar intervertebral discs**  
*Fujimoto S. (JP)*
  - 14.40 O428 **Temporal MRI analysis of degenerated discs following platelet-rich plasma releasate injection for discogenic low back pain patients**  
*Akeda K. (JP)*
  - 14.50 O429 **Efficacy of PRP administration for intervertebral disc in low back pain patients with Modic type 1 change: Two cases report**  
*Kawabata S. (JP)*
- Chairs: Cho J.E. (KR) & Takeoka Y. (JP)**
- 15.00 O430 **Bone union and strength effect of Romosozumab: An imaging and mechanical study using a rat posterolateral lumbar fusion model**  
*Mukaihata T. (JP)*
  - 15.10 O431 **Effects of a probe with an electrical conductivity-measuring device on pedicle screw insertion in patients with severe syndromic or neuromuscular scoliosis**  
*Yurube T. (JP)*

BIOSPINE



- 15.20 O432 **Posterior spinal fixation for thoracolumbar fractures with diffuse idiopathic skeletal hyperostosis using the penetrating endplate screw technique**  
*Hishiya T. (JP)*
- 15.30 O433 **Comparing MIDLF and PLIF c PS for clinical outcome including sagittal balance: Degenerative lumbar spine disease in geriatric patients over 80 years old - A single-center, one-decade experience**  
*Jang G.W. (KR)*
- 15.40 O434 **History of cortical bone trajectory, a modified version of pedicle screw placement**  
*Choy W.J. (AU)*
- 15.50 **Discussion**
- 16.00 **Coffee Break**
- 16.30 **Cocktail session open for all participants**  
*Park J.B. (KR) & Hai Y. (CN)*
- 17.30 **Closing Remarks**  
*Ohtori S. (JP)*

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Posters

## SPINE SOCIETY OF AUSTRALIA

**Free Paper Session 7: Spinal deformity II**

Chairs: Licina P. (AU) &amp; Chalmers R. (AU)

- 08.30 O435 **Patient satisfaction does not depend on radiographic reduction in adult scoliosis with primary lumbar curves**  
Baecker H. (NZ)
- 08.40 O436 **Effect of non fusion anterior scoliosis correction on shoulder balance in Lenke type 1 adolescent idiopathic scoliosis patients: is it detrimental or beneficial?**  
Achar S. (IN)
- 08.50 O437 **Can muscle size (α)symmetry be quantified using magnetic resonance imaging in adolescent idiopathic scoliosis**  
Duncombe P. (AU)
- 09.00 O438 **Posterior scoliosis correction with thoracoplasty: effect on pulmonary function with a mean follow-up of 4.8 years**  
Altaf F. (AU)
- 09.10 O439 **Are we looking at a paradigm shift in the management of adolescent idiopathic scoliosis - Comprehensive retrospective analysis of 75 patients of Non-Fusion Anterior Scoliosis Correction (NFASC) with 2-5 years follow up - A single centre experience**  
Badikillaya V. (IN)
- 09.20 O440 **Development of a patient-oriented smartphone application (myScoliosis) to improve the healthcare journey of paediatric patients with scoliosis**  
Suhr A.E. (AU)
- 09.30 O441 **Surgical site infection in paediatric spine deformity surgical: A review of 933 procedures in a tertiary children's hospital**  
Davis M. (AU)
- 09.40 O442 **Intraspinal anomalies associated with complex spine deformity: Different approach, different measures to achieve optimum outcome**  
Patel H.R. (IN)
- 09.50 O443 **Patient reported outcomes vs radiographic measurements with a hybrid anterior lumbar reconstruction for the management of symptomatic low-grade L5-S1 isthmic spondylolisthesis**  
Rackham M. (AU)

10.00 **Coffee Break****Free Paper Session 8: Lumbar spine II & spinal surgery II**

Chairs: Stanford R. (AU) &amp; Treden D. (AU)

- 10.30 O444 **TANGO: Development of consumer information leaflets to support TaperiNG of Opioids in older adults with low back pain and hip and knee osteoarthritis**  
Marcelo A.C. (AU)
- 10.40 O445 **Lumbar total disc replacements for degenerative disc disease: A systematic review of outcomes with a minimum of 5 years follow-up**  
Wen D.J. (AU)
- 10.50 O446 **Incidence of temporary intra-operative iliac artery occlusion in anterior spinal surgery**  
Malham G. (AU)

## SPINE SOCIETY OF AUSTRALIA



- 11.00 O447 **Surgical, radiographic and patient-reported outcomes following multilevel lumbosacral fusion utilising a novel minimally invasive multi-incision technique**  
Cunningham G. (AU)
- 11.10 O448 **Lateral single position Anterior-Posterior (AP) lumbar fusion outperforms conventional AP fusion with patient repositioning at 2-year minimum follow-up**  
Buckland A. (AU)
- 11.20 O449 **Reverse pedicle subtraction osteotomy – Rationale and early clinical experience of a novel PSO technique**  
Sears W.R. (AU)

**Top 10 Posters & Award Ceremony**

Chairs: Stovell M. (AU) &amp; Ho S. (AU)

- 11.30 O450 **Surgical and patient-reported outcomes support Anterior Lumbar Interbody Fusion for the treatment of low back pain**  
Celenza A. (AU)
- 11.35 O451 **A hybrid atlantoaxial fusion technique utilising a transarticular and C1 lateral mass screw technique: Investigation of surgical and patient-reported outcomes, and finite element analyses of the biomechanical properties**  
Cunningham G. (AU)
- 11.40 O452 **Retrieval analysis of interbody cages**  
Kim S.J. (AU)
- 11.45 O453 **Characteristics of baseline frequency data in spinal RCTs do not suggest widespread fraud**  
Levayer M.M.S. (AU)
- 11.50 O454 **Cooled radiofrequency ablation of the sacroiliac joint a retrospective case series**  
Maalouly J. (AU)
- 11.55 O455 **Use of cannulated pedicle screws for posterior spinal fixation in fractures are correlated with higher blood loss in some groups**  
Rajabifard P. (AU)
- 12.00 O456 **The effect of progressive herniation on lumbar intervertebral disc six degree of freedom mechanics**  
Russo M. (AU)
- 12.05 O457 **Development and validation of a virtual digital scoliometer**  
Suresh S. (AU)
- 12.10 O458 **Spinal cord stimulation for treatment of neuropathic pain in failed back surgery syndrome: A fifteen years experience using percutaneous leads insertion**  
Morelli D. (BE)
- 12.15 O459 **3D-printed patient specific interbody implants in anterior lumbar interbody fusion: A case series and review of early clinical and radiological results**  
Tredan D. (AU)
- 12.20 **Award Ceremony**
- 12.30 **Lunch Break & Industry Workshops**

NORTH AMERICAN SPINE SOCIETY



- 14.00 **Welcome**  
Finkenberg J. (US)
- Paper Presentations III: Diagnostics and interventions**  
Chair: Finkenberg J. (US)
- 14.05 O460 **Improved productivity using deep learning augmented reporting for MRI lumbar spine**  
Kumar N. (SG)
- 14.11 O461 **Bimodal Artificial Intelligence differentiating spinal tumors based on integrated Magnetic Resonance Imaging and patient information**  
Kita K. (JP)
- 14.17 O462 **A diagnostic machine learning model for primary bone tumors and tumor-like lesions**  
Nye L. (US)
- 14.23 O463 **Comparison of CTA and MRI for C1 instrumentation presurgical planning**  
Arzani A. (US)
- 14.29 O464 **Correlation between MRI canal dimensions and clinical severity in lumbar canal stenosis – A cross-sectional study**  
Aithala J. (IN)
- 14.35 **Questions and Discussion**
- Paper Presentations IV: Spinal deformity**  
Chair: Reitman C. (US)
- 15.00 O465 **The clinical application of individualized digital surgical planning and precise execution and 3D printing guidance templates in the treatment of severe adult rigid deformity**  
Hai Y. (CN)
- 15.06 O466 **Beware of positive SPECT/CT findings when investigation pain generators in patients with scoliosis: Hospital cohort of cancer patients shows high prevalence of high uptake degenerative changes**  
Lui D. (GB)
- 15.12 O467 **Role of high sensitive C-reactive protein as a prognostic marker in determining functional outcome after interlaminar epidural steroid injection in cervical radiculopathy**  
Goni V. (IN)
- 15.18 O468 **Re-revision rate of revision surgery for rod fracture after surgical correction with pedicle subtraction osteotomy in adult spinal deformity - Comparison of rod change only, lateral lumbar interbody fusion around pedicle subtraction osteotomy site, and accessory rod constructs**  
Lee J.H. (KR)
- 15.24 **Questions and Discussion**
- 16.00 **Coffee Break**

NORTH AMERICAN SPINE SOCIETY



- Symposium: Cervical myelopathy**  
Chair: Ghogawala Z. (US)
- 16.30 **Introduction**  
Ghogawala Z. (US)
- 16.40 **Neuromonitoring pro and cons**  
Vogel R. (US)
- 17.00 **Surgery – anterior**  
Reitman C. (US)
- 17.20 **Surgery – laminoplasty**  
Ghogawala Z. (US)
- 17.40 **Surgery – laminectomy and fusion**  
Finkenberg J. (US)
- 18.00 **Adjourn**

Monday

Tuesday

Wednesday

Thursday

Friday

Posters





# Thursday 4 May Scientific Program

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Posters

	Goldfields Theatre	Sovereign Room (Level 1)	Eureka 1 + 2	Eureka 3	Courtyard Rooms	Hospitality Suite 6
08.00	ISSLS	ACA/CA	AO		SIS	SMISS AP
10.00	Break					
10.30	ISSLS	ACA/CA	AO		SIS	SMISS AP
12.30	Lunch break + Industry workshops					
14.00		ACA/CA	NASS	BSS SILACO	SIS	SMISS AP
16.00	Break					
16.30		ACA/CA	NASS		SIS	SMISS AP


**THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE**
**Session X: Non-Surgery**

Chairs: Wilke H.J. (DE) &amp; Otani K. (JP)

- 07.30 O469 **Effects of sustained locomotion training rehabilitation on the spine–pelvis–lower extremity alignment in outpatients with locomotive syndrome: A prospective >2-year cohort study**  
*Yurube T. (JP)*
- 07.37 O470 **Clinical characteristics of early-stage lumbar spondylolysis detected by magnetic resonance imaging in male adolescent baseball player**  
*Kato K. (JP)*
- 07.44 O471 **Causes of residual low back pain in patients with osteoporotic vertebral fractures without poor prognostic factors on MRI**  
*Iwamae M. (JP)*
- 07.51 **Discussion**
- 08.00 O472 **Association between opioid utilization and patient reported outcome measures following lumbar spine surgery**  
*Wague A. (US)*
- 08.07 O473 **Changes of the posterior paraspinal and psoas muscle in patients with low back pain – A 3-year longitudinal study**  
*Arzani A. (US)*
- 08.14 O474 **Widespread degeneration on MRI after the pubertal growth spurt predicts low back pain in adulthood**  
*Lund T. (FI)*
- 08.21 **Discussion**
- 08.30 O475 **Objective quantification of physical activity and sleep quality among patients with chronic low back pain**  
*Smuck M. (US)*
- 08.37 O476 **Physiotherapy aided by a clinical decision support system versus standard physiotherapy for treating persistent low back pain: Results of a pilot randomised controlled trial**  
*Hahne A. (AU)*
- 08.44 O477 **Impact of COVID-19 on bone mass, muscle, and low back pain scores in patients with osteoporosis in Japan**  
*Yokozeaki Y. (JP)*
- 08.51 **Discussion**

**Session XI: General Poster Session**

- 09.00 See list of ISSLS General Posters - This session takes place in the ePoster area.
- 10.00 **Coffee Break**


**THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE**
**Session XII: Surgery 2 – Outcomes from surgery**

Chairs: Garg B. (IN) &amp; Hashizume H. (JP)

- 10.30 O478 **A prospective study comparing lumbar facet arthroplasty to transforaminal interbody fusion in the treatment of degenerative spondylolisthesis with stenosis: 2-year outcomes from the total posterior spine system (TOPS) IDE study**  
*Nassr A. (US)*
- 10.37 O479 **Decompression and dynamic sagittal tether stabilization vs TLIF for degenerative spondylolisthesis - 24-month follow-up from an FDA IDE trial**  
*Alamin T.F. (US)*
- 10.44 O480 **Prospects of returning to work after lumbar spine surgery for patients considering disability pension: A nationwide study based on data from the Norwegian Registry for Spine Surgery**  
*Hammer L. (NO)*
- 10.51 **Discussion**
- 11.00 O481 **Multi-centre randomised trial comparing the clinical outcome of trans-foraminal epidural steroid injection to surgical microdiscectomy for the treatment of radicular pain secondary to prolapsed intervertebral disc: NERVE Root Block Versus Surgery (NERVES)**  
*Wilby M.J. (GB)*
- 11.07 O482 **Minimally invasive versus open surgery in the treatment of lumbar spondylolisthesis: One-year results of a randomized, controlled trial**  
*Arts M. (NL)*
- 11.14 O483 **Impact of diffuse idiopathic skeletal hyperostosis on surgical outcomes of posterior lumbar interbody fusion for lumbar spinal stenosis with spondylolisthesis**  
*Ozaki M. (JP)*
- 11.21 **Discussion**
- Session XIII: Basic Science 4 – General Biology**  
Chairs: Dudli S. (CH) & Kawakami M. (JP)
- 11.30 O484 **Transient Receptor Potential Vanilloid 4 (TRPV4) activation promotes autophagy and increases extracellular matrix synthesis through AMPK pathway in rat intervertebral disc cells**  
*Kuroshima K. (JP)*
- 11.37 O485 **Activation of Nrf2 signaling by 4-octyl itaconate attenuates the cartilaginous endplate degeneration by inhibiting E3 ubiquitin ligase ZNF598**  
*Zhao F. (CN)*
- 11.44 O486 **Comparative metagenomics of intervertebral disc nucleus pulposus and endplate provide insights into the genesis of the disc microbiome**  
*Rajasekaran S. (IN)*
- 11.51 **Discussion**
- 12.00 Second Business Meeting (Members only)

**ACA/CA - AUSTRALIAN CHIROPRACTORS ASSOCIATION  
AND CHIROPRACTIC AUSTRALIA**
**Session 1**

Chair: President ACA

- 08.00 **Opening Remarks**
- 08.10 O487 **Is there an association between patient and practitioner characteristics and the selection of therapeutic interventions in a chiropractic clinical encounter? Secondary analysis of the COAST and O-COAST study data**  
*Jenkins H. (AU)*
- 08.20 O488 **Satisfaction and expectations of chiropractic care in patients with lumbar radiculopathy - A mixed methods study**  
*Jensen R.K. (DK)*
- 08.30 O489 **Predictors of disability in older adults with LBP: Findings from the BACE:C - A study**  
*de Luca K. (AU)*
- 08.40 **Question time**
- 08.50 **Lecture**  
*Buchbinder R. (AU)*
- 09.20 **Lecture: What is the role of non-pharmacological interventions in the evidence-based management of low back pain?**  
*Maher C. (AU)*
- 09.50 **Discussion**
- 10.00 **Coffee Break**
- Session 2**  
Chair: French S. (AU)
- 10.30 O490 **The use of diagnostic imaging in the management of older adults presenting for chiropractic care for low back pain in Australia - Analysis of data from the BACE:C-A cohort study**  
*Jenkins H. (AU)*
- 10.40 O491 **The association between stressful life events and low back pain in older men: The Osteoporotic Fractures in Men Study**  
*McNaughton D.T. (AU)*
- 10.50 O492 **Trends of low back pain research in older and working-age adults from 1970 to 2022: A bibliometric analysis**  
*Zheng K. (CN)*
- 11.00 O493 **Pain trajectories in patients with lumbar spinal stenosis**  
*Jensen R.K. (DK)*
- 11.10 **Question time**
- 11.20 **Lecture: A critical appraisal of interventions for spinal stenosis**  
*Ferreira M. (AU)*
- 11.50 **Lecture: Three critical concepts for treating older adults with low back pain**  
*de Luca K. (AU)*
- 12.20 **Discussion**
- 12.30 **Lunch Break & Industry Workshops**

**ACA/CA - AUSTRALIAN CHIROPRACTORS ASSOCIATION  
AND CHIROPRACTIC AUSTRALIA**
**Session 3**

Chair: de Luca K. (AU)

- 14.00 **Opening Remarks**
- 14.10 O494 **A comparison of two forward head posture corrective approaches in elderly with chronic non-specific neck pain: A randomized controlled study**  
*Harrison D. (US)*
- 14.20 O495 **Is there an association between diabetes and neck and back pain? An updated systematic review with meta-analyses**  
*Dale H. (AU)*
- 14.30 O496 **The effect of clinical guidelines on the utilisation of radiographs in chiropractic clinics in Denmark - An interrupted time series analysis**  
*Jensen T.S. (DK)*
- 14.40 **Question time**
- 14.50 **Discussion Panel: Challenges and opportunities for improving the care of patients with low back pain**  
*Jenkins H. (AU) & Hancock M. (AU)*
- 15.50 **Discussion**
- 16.00 **Coffee Break**
- Session 4**  
Chair: Swain M. (AU)
- 16.30 **Lecture: How will the new Low Back Pain Clinical Care Standard influence chiropractic care in Australia?**  
*French S. (AU)*
- 17.00 **Discussion**
- 17.10 O497 **A systematic review of the effectiveness of superficial heat and cold for decreasing pain and improving disability in adults with low back pain**  
*de Luca K. (AU)*
- 17.20 O498 **Prognosis of a new episode of low-back pain in a community inception cohort**  
*Hancock M. (AU)*
- 17.30 O499 **MAINTAIN tool implementation for new spinal pain patients at chiropractic teaching clinics: Cross-sectional findings and impact on treatment plans**  
*Pohlman K. (US)*
- 17.40 **Question time**
- 18.00 **Adjourn**

**Symposium: Lumbar Degeneration: Should the SIJ be considered as the most digital mobile spine segment?**

by AO Spine Knowledge Forum

Chairs: Diwan A. (AU) & Ćorluka S. (HR)

Rapporteur: Chopra N. (AU)

- 08.00 **Introduction**  
Diwan A. (AU) & Ćorluka S. (HR)
- 08.05 **Biomechanics on the SIJ from a spine surgeon prospective**  
Ćorluka S. (HR)
- 08.13 **Should SIJ degeneration be considered as a cause or a result of failed degenerative spine surgeries**  
Rao P. (AU)
- 08.21 **When to fuse the SIJ during a degenerative spine surgery - A comprehensive list**  
Hamouda W. (EG)
- 08.29 **Available techniques in SIJ fusion, pros and cons**  
Selby M. (AU)
- 08.37 **Discussion**
- Free Paper Session I: Lumbar degeneration**  
Chair: Diwan A. (AU)  
Rapporteur: Sheldrick K. (AU)
- 08.40 O500 **Slippage reduction and patient-reported outcomes following surgical fusion of lumbar degenerative spondylolisthesis: Is less really more?**  
Rogalski M. (US)
- 08.48 O501 **Lumbar fusion surgery in the era of an aging society: Analysis of a nationwide population cohort with minimum 8-year follow up**  
Kwon W.K. (KR)
- 08.56 O502 **The safety of multi-level kyphoplasty of 4 or more vertebral levels in myeloma patients**  
Lui D. (GB)
- 09.04 O503 **Onset, progression and risk factors of lumbar disc degeneration: 10-year longitudinal study of a population cohort**  
Chan D. (HK)
- 09.12 **CUTE (Catch-Up-TimE)**
- 09.20 O504 **Analysing gait patterns in degenerative lumbar spine disease using inertial wearable sensors - An observational study**  
Natarajan P. (AU)
- 09.28 O505 **A deep learning algorithm for early detection of lumbar degenerative spondylolisthesis on conventional radiograph**  
Nye L. (US)
- 09.36 O506 **New axially expandable oblique cage for Anterior to psoas (ATP) stand alone approach - Clinical-radiological outcomes in a series of patients with symptomatic Degenerative Disc Disease (DDD)**  
Miscusi M. (IT)
- 09.44 O507 **Endoscopic transforaminal lumbar interbody fusion through bi-portal technique: Clinical experience with 2-year outcomes**  
Quillo-Olvera J. (MX)
- 09.54 O508 **Biomechanical assessment of pedicle screw fixation strength in non-osteoporotic and osteoporotic pedicles: Comparison of straight dual-lead versus single- to dual-lead threadforms**  
Permeswaran V. (US)

10.00 **Coffee Break**

**Symposium: Tuberculosis Spine**

Chair: Diwan A. (AU)

Rapporteur: Sima S. (AU)

- 10.30 **Introduction and launch of AO SAP electronic book**
- 10.35 **Epidemiology, emerging science, eradication of TB**  
Marks G. (AU)
- 10.45 **When not operating makes sense**  
Kundnani V. (IN)
- 10.55 **When operating makes sense**  
Mohapatra B. (IN)
- 11.05 **Discussion**
- Free Paper Session II: Adult Deformity**  
Chair: Hai Y. (CN) & Liu G. (SG)  
Rapporteur: Zhang T. (HK)
- 11.10 O509 **Curve progression and Health Related Quality of Life (HRQoL) in idiopathic scoliosis – 40-year follow-up from diagnosis**  
Ragborg L.C. (DK)
- 11.18 O510 **Minimally invasive surgery vs standard posterior approach in the treatment of idiopathic scoliosis: A two years follow-up retrospective study**  
Martikos K. (IT)
- 11.26 O511 **The recent 10-year trends in cervical laminoplasty and 30-day complications, 2008-2017**  
Takasawa E. (JP)
- 11.34 O512 **Decision making for bracing in >40-degree curves**  
Cheung J.P.Y. (HK)
- 11.42 **CUTE (Catch-Up-TimE)**
- 11.50 O513 **Factors influencing complications after 3-columns spinal osteotomies for fixed sagittal imbalance from multiple etiologies: A multicentric cohort study about 286 cases in 273 patients**  
Barrey C. (FR)
- 11.58 O514 **EMG activity shows surgeons risk overuse injury with manual pedicle screw technique, while power-assisted techniques are protective**  
Permeswaran V. (US)
- 12.06 O515 **Unilateral convex pedicle subtraction osteotomy for correction of lumbar curves in idiopathic adult scoliosis**  
Martikos K. (IT)
- 12.14 O516 **Posterior Lumbar Interbody Fusion (PLIF) as a supplement to posterior spinal fusion in patients with adult spinal deformity – A 2 year follow-up on revision rates and sagittal alignment**  
Ragborg L.C. (DK)
- 12.22 **CUTE (Catch-Up-TimE)**
- 12.30 **Lunch Break & Industry Workshops**

## NORTH AMERICAN SPINE SOCIETY



- 14.00 **Welcome**  
*Reitman C. (US)*
- Paper Presentations V: Cervical and spinal deformity**  
**Chair: Reitman C. (US)**
- 14.05 O517 **The efficiency of preoperative Halo-gravity traction in the treatment of severe spinal deformity**  
*Hai Y. (CN)*
- 14.11 O518 **Distal foundation augmentation enhances the 'bridge' role of single traditional growing rod in the treatment of severe early-onset scoliosis**  
*Hai Y. (CN)*
- 14.17 O519 **Pedicle subtraction osteotomy in the surgical treatment of severe Scheuermann's kyphosis**  
*Martikos K. (IT)*
- 14.23 O520 **Intervertebral disc transplantation in the treatment of cervical degenerative disease: An average of 10 years follow-up**  
*Ruan D. (CN)*
- 14.29 O521 **Bridging the cervicothoracic junction during multi-level posterior cervical decompression and fusion – A systematic review and meta-analysis**  
*Truumees E. (US)*
- 14.35 O522 **Accuracy and safety in cervical pedicle screw fixation using 3D-printed navigation guides**  
*Marengo N. (IT)*
- 14.41 **Questions and Discussion**
- Paper Presentations VI: Biomechanics, motion and psychosocial aspects of care**  
**Chair: O'Brien D. Jr. (US)**
- 15.00 O523 **How does overstuffing affect ROM in cTDA? A biomechanics study**  
*Permeswaran V.N. (US)*
- 15.06 O524 **Revisions and removals of cervical total disc replacement devices in a consecutive series of 1,473 patients beginning with the first case experience in 2003**  
*Blumenthal S.L. (US)*
- 15.12 O525 **Long-term clinical outcomes after one-level lumbar total disc arthroplasty: 7-21 years follow-up of 772 patients, comparing never operated versus operated and with versus without disc herniation**  
*Marnay T. (FR)*
- 15.18 O526 **Mobility parameters in two-level lumbar TDR vs hybrid construct: Clinical results in 235 patients**  
*Marnay T. (FR)*

## NORTH AMERICAN SPINE SOCIETY



- 15.24 O527 **What perioperative factors are associated with high-risk daily morphine milligram equivalent totals in spinal decompressions?**  
*Truumees E. (US)*
- 15.30 O528 **Women in spine surgery**  
*Jurenovich K. (US)*
- 15.36 **Questions and Discussion**
- 16.00 **Coffee Break**
- Symposium: Procedural management of low back pain**  
**Chairs: Reitman C. (US)**
- 16.30 **Introduction**  
*Reitman C. (US)*
- 16.35 **Diagnostic evaluation**  
*O'Brien D. Jr. (US)*
- 16.55 **Basivertebral nerve ablation**  
*Truumees E. (US)*
- 17.15 **Lumbar disc arthroplasty**  
*Guyer R. (US)*
- 17.35 **Lumbar fusion**  
*Blumenthal S. (US)*

Monday

Tuesday

Wednesday

Thursday

Friday

Posters


**BSS/SILACO - SOCIEDAD IBERO LATINOAMERICANA DE COLUMNA AUSTRALIA  
AND SOCIEDADE BRASILEIRA DE COLUNA**
**Free Paper Session I**
**Chairs: Alves J. (PT) & Fogaça Cristante A. (BR)**

- 14.00 O529 **External leverage technique for lordosis restauration in minimally invasive Transforaminal Lumbar Interbody Fusion (TLIF) - Surgical technique and intraoperative radiological results**  
*Weissmann K.A. (CL)*
- 14.05 O530 **Identification of risk factors associated with 30-day readmission of patients undergoing cervical spine surgery by the anterior and posterior routes: A meta-analysis**  
*Mistro Neto S. (BR)*
- 14.10 O531 **Surgical blood loss in spinal fusion is related to the brand of tranexamic acid used in the surgery**  
*Weissmann K.A. (CL)*
- 14.15 O532 **The use of o-arm and radioscope in spine surgery: A comparative study**  
*Mistro Neto S. (BR)*
- 14.20 O533 **The utility of electrophysiological examination measuring F-waves and compound action potentials of upper extremities for prognosis of the symptom of cervical radiculopathy**  
*Sumiyoshi N. (JP)*
- 14.25 **Q&A Session**
- 14.33 O534 **Analysis of cervical sagittal parameters in patients with rheumatoid arthritis**  
*Mistro Neto S. (BR)*
- 14.38 O535 **Transforaminal endoscopic lumbar discectomy: Learning curve and survival rate of a case series**  
*Fleiderman Valenzuela J. (CL)*
- 14.43 O536 **Comparison of two safety methods in the installation of pedicle screws used in minimally invasive spine surgery**  
*Zárate A. (CL)*
- 14.48 O537 **Comparison of preoperative quality of life questionnaires in a population with lombar stenosis**  
*Mistro Neto S. (BR)*
- 14.53 **Q&A Session**


**BSS/SILACO - SOCIEDAD IBERO LATINOAMERICANA DE COLUMNA AUSTRALIA  
AND SOCIEDADE BRASILEIRA DE COLUNA**
**Free Paper Session II**
**Chairs: Menezes C.M. (BR) & Soriano J.A. (MX)**

- 15.00 O538 **Comparative study of the correction of adolescent idiopathic echoliosis using three different techniques**  
*Garcia E. (BR)*
- 15.05 O539 **The L-TLIF: A less invasive and blood-sparing technique as an alternative for the TLIF**  
*Weissmann K. (CL)*
- 15.10 O540 **Adolescent idiopathic scoliosis: Progression of untreated cases**  
*Mistro Neto S. (BR)*
- 15.15 O541 **Surgical outcomes in Adolescent Idiopathic Scoliosis (AIS) versus Young Adult Idiopathic Scoliosis (YAIS)**  
*Weissman K.A. (CL)*
- 15.20 O542 **Epidemiological portrait of patients with pediatric scoliosis in a tertiary hospital in the region of Campinas – SP**  
*Mistro Neto S. (BR)*
- 15.25 **Q&A Session**
- 15.33 O543 **Comparison between two methods of measuring pelvic obliquity in cerebral palsy and myelomeningocele**  
*Mistro Neto S. (BR)*
- 15.43 O544 **Lateral versus posterior approaches to degenerative pathologies: Systematic review and meta-analysis of recent literature**  
*Pimenta L. (BR)*
- 15.48 O545 **Use of leverage force in the surgical correction of the sagittal plan of the spine**  
*Garcia E. (BR)*
- 15.53 **Q&A Session**
- 16.00 **Coffee Break**



SIS - SPINE INTERVENTION SOCIETY

**Session 3: Non-surgical interventions for lumbar zygapophysial joint pain**

Chair: Stout A. (US)

- 08.00 **History of diagnosis and treatment**  
*Bogduk N. (AU)*
- 08.30 **Treatment outcomes of other techniques**  
*Sibell D.M. (US)*
- 08.55 **Treatment outcomes of SIS technique**  
*Schwarzer A. (AU)*
- 09.20 **Influence of diagnosis protocols on outcomes**  
*MacVicar J. (NZ)*
- 09.45 **Discussion**
- 10.00 **Coffee Break**
- Session 4: Masqueraders of spine disease**  
Chair: Vivian D.G. (AU)
- 10.30 **Shoulders vs. neck**  
*Sibell D.M. (US)*
- 10.50 **Hip vs. spine**  
*MacVicar J. (NZ)*
- 11.10 **Vascular**  
*Smuck M. (US)*
- 11.50 **Peripheral nerve**  
*Stout A. (US)*
- 12.05 **Neurologic and systemic disease**  
*Schwarzer A. (AU)*
- 12.20 **Discussion**
- 12.30 **Lunch Break & Industry Workshops**



SIS - SPINE INTERVENTION SOCIETY

**Session 5: Do epidural injections influence spine surgery outcomes?**

Chair: Shah V. (US)

- 14.00 **Epidural steroid injections: Predictors of success**  
*MacVicar J. (NZ)*
- 14.15 **Diagnostic spinal nerve block: Indications and utility**  
*Kennedy D.J. (US)*
- 14.30 **Surgical planning: The role of epidural injections and diagnostic spinal nerve blocks**  
*Alamin T. (US)*
- 15.00 **Surgical and health risks after epidural injections**  
*Stout A. (US)*
- 15.20 **Discussion**
- Session 6: Case review from the radiologist perspective**
- 15.30 **My perspective**  
*Shah V. (US)*
- 16.00 **Coffee Break**
- Session 7: Lumbar Spinal Stenosis (LSS): Percutaneous and minimally invasive treatments**  
Chair: Smuck M. (US)
- 16.30 **Mechanisms of symptoms of LSS**  
*Smuck M. (US)*
- 16.46 **Evidence regarding lumbar epidural steroid injections and LSS**  
*Sibell D.M. (US)*
- 17.02 **Non-injection, interventional treatments for LSS**  
*Chakravarty K. (US)*
- 17.20 **Spondylolisthesis with LSS: Surgical approaches**  
*Alamin T. (US)*
- 17.45 **Discussion**
- 18.00 **Adjourn**

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Posters



SOCIETY FOR MINIMALLY INVASIVE SPINE SURGERY

**Session 1: Spine Endoscopy #1**

**Chairs: Oh J. (SG), Selby M. (AU)**

- 08.00 **Welcome Message**  
*Choi J. (AU) & Philips F. (US)*
- 08.05 **President Speech – SMISS AP**  
*Kotani Y. (JP)*
- 08.10 **Promotion of SMISS AP**  
*Kim J.S. (KR)*
- 08.15 O546 **Case-matched radiological and clinical outcome evaluation of interlaminar endoscopic versus microsurgical decompression of lumbar spinal stenosis**  
*Hassel F. (DE)*
- 08.25 O547 **The anatomical relationship between the cervical nerve roots, intervertebral discs and bony cervical landmark for posterior endoscopic cervical foraminotomy and discectomy: A cadaveric study**  
*Keorochana G. (TH)*
- 08.35 **How endoscopy can influence the spinal disease pathway: Roles of spine endoscopy of ASD**  
*Kim J.S. (KR)*
- 08.50 **How I manage the extreme lumbar stenosis with biportal endoscopic spine surgery**  
*Park C.W. (KR)*
- 09.05 **Biportal endoscopic posterior cervical foraminotomy - skin incision to wound closure**  
*Heo D.H. (KR)*
- 09.20 O548 **Applications of biportal endoscopic techniques in revision spine surgery**  
*Pao J.L. (TW)*
- 09.30 O549 **Clinical & radiological outcomes of transforaminal lumbar interbody fusion using biportal endoscopic technique & double cages**  
*Pao J.L. (TW)*
- 09.40 O550 **Comparative study in operative time between posterior endoscopic cervical foraminotomy and microendoscopic cervical foraminotomy**  
*Iwai H. (JP)*
- 09.50 **Housekeeping - Gala Dinner Invite - Golf Results**  
*Choi J. (AU)*
- 10.00 **Coffee Break**

SOCIETY FOR MINIMALLY INVASIVE SPINE SURGERY



**Session 2: Robotics / VR / AI / Nav**

**Chairs: Choi J. (AU), Soh R. (SG)**

- 10.30 **The Indian experience of robotic assisted spine surgery**  
*Hegde S. (IN)*
- 10.45 **MIS applications and future directions of robotic-spine surgery in the USA**  
*Kazemi N. (US)*
- 11.00 O551 **Minimally invasive C1-2 robot-assisted posterior instrumented fusion – Technical aspects and case series**  
*Choi H. (US)*
- 11.10 O552 **The application of robotic navigation in single position lateral spine surgery - Technical note and surgical experience**  
*Gatam A.R. (ID)*
- 11.20 **The next generation robotic spine surgery in Korea**  
*Yi S. (KR)*
- 11.35 **What are current challenges with robotic spine surgery?**  
*Gallizzi M. (US)*
- 11.50 O553 **Intraoperative computed tomography-guided navigation versus fluoroscopy techniques for single-position surgery after lateral lumbar interbody fusion**  
*Hiyama A. (JP)*
- 12.00 **VR / MR and ER in spine surgery**  
*Limthongkul W. (TH)*
- 12.15 O554 **Influence of multilevel robotic minimal invasive trans foraminal lumbar interbody fusion on spino-pelvic parameters and clinical outcome in lumbar degenerative disc diseases**  
*Achar S. (IN)*
- 12.30 **Lunch Break & Industry Workshops**
- Session 3: ATP / Anterior / Lateral lumbar surgery**  
**Chairs: Kwon T. (US), Kotani Y. (JP)**
- 14.00 **Lateral single position surgery**  
*Kwon B. (US)*
- 14.15 **Prone transpoas surgery - The evolution of lateral surgery**  
*Pimenta L. (BR)*
- 14.30 O555 **Vascular and visceral complications following prone transpoas lateral lumbar interbody fusion: A comparative study to a historical survey study on standard lateral lumbar interbody fusion**  
*McMains C. (US)*
- 14.40 O556 **Clinical and radiographic outcomes following 110 Prone Transpoas (PTP) surgeries at a single center**  
*Howell K. (US)*
- 14.50 O557 **Feasibility of the Prone Transpoas (PTP) approach in the obese and morbidly obese**  
*McMains C. (US)*

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Posters





SOCIETY FOR MINIMALLY INVASIVE SPINE SURGERY

- 15.00 **How has lateral evolved in deformity surgery?**  
*Anand N. (US)*
- 15.15 **OLIF in single position surgery... enables simultaneous manipulation**  
*Hynes R. (US)*
- 15.30 O558 **Single position minimally invasive corpectomy with robotic assisted instrumentation: Technique review and early lessons learnt**  
*Chan J.Z. (SG)*
- 15.40 O559 **Retrospective case series of porous printed titanium cages in anterior to psoas oblique lumbar interbody fusion surgery assessing subsidence and functional outcomes**  
*Maalouly J. (AU)*
- 15.50 O560 **Comparing anterior to psoas lumbar interbody fusion with stand alone implant and posterior lumbar interbody fusion for the treatment of adjacent segment lumbar disease**  
*Sasipraha P. (TH)*
- 16.00 **Coffee Break**

SOCIETY FOR MINIMALLY INVASIVE SPINE SURGERY



- Session 4: Innovation in MIS surgery**  
**Chairs: Kim L. (SG), Ryu S. (US)**
- 16.30 **Expendables: Are they clinically valuable or an expensive marketing play?**  
*Phillips F. (US)*
- 16.45 **3D spinal devices - Design, production and cost considerations**  
*Edis D. (AU)*
- 17.00 O561 **Efficacy of restorative neurostimulation for non-surgical chronic low back pain according to underlying aetiology and radiographic severity**  
*Bailey J. (US)*
- 17.12 O562 **A novel repositioning system for use in lateral and prone surgeries for single position surgeon procedures**  
*Hynes R. (US)*
- 17.24 **Sustainable spine surgery – Single use instrumentation**  
*Corluka S. (HR)*
- 17.40 **Neuromuscular dysfunction in low back pain**  
*Yau Y.H. (AU)*
- 17.55 O563 **Risk factors for post-arthroplasty subsidence - Retrospective analysis of Bryan disc arthroplasty**  
*Lee C.Y. (TW)*
- 18.10 **Role of BMP in ALIF**  
*Blumenthal S. (US)*
- 18.25 **Reminder of Gala Diner at Eureka 89**  
*Henkel N. (US)*
- 18.30 **Adjourn**

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# Friday 5 May Scientific Program

- Monday
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	Goldfields Theatre	Sovereign Room (Level 1)	Eureka 1 + 2	Eureka 3	Courtyard Rooms	Hospitality Suite 6
08.00	ISSLS	ACA/CA	AO	BSS SILACO	SIS	SMISS AP
10.00	Break					
10.30	ISSLS	ACA/CA	AO	BSS SILACO	SIS	SMISS AP
12.30	Lunch break + Industry workshops					
14.00	ISSLS	ACA/CA	AO			SMISS AP
16.00	Break					
16.30	ISSLS	ACA/CA	AO			SMISS AP



## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

### Session XIV: Special Poster Session II

07.30 List of special posters and location will be made available.

### Session XV: ISSLS Prize Papers

Chair: Brisby H. (SE)

08.45 **Introduction and Award Ceremony**  
Brisby H. (SE)

#### ISSLS Basic Science Prize

08.55 O564 **Lactate in lumbar discs – Metabolic waste or energy biofuel? Insights from in-vivo MRS and T2r analysis following exercise and nimodipine in healthy volunteers**  
Rajasekaran S. (IN)

09.05 **Discussion**

#### ISSLS Clinical Prize

09.15 O565 **Comparison of degenerative MRI features of the intervertebral disc between those with and without chronic low back pain. An exploratory study of 2 large female populations using automated annotation**  
Fairbank J. (GB)

09.25 **Discussion**

#### ISSLS Bioengineering Prize

09.35 O566 **Age- and sex-related differences in lumbar intervertebral disc degeneration between patients with chronic low back pain and asymptomatic controls**  
Fields A. (US)

09.45 **Discussion**

09.55 **Focus Groups Reports**  
Lotz J. (US)

10.00 **Coffee Break**

### Session XVI: Fellowship Award Ceremony

Chair: Lotz J. (US)

10.30 Introduction of Fellowships  
Announcement ISSLS Wiltse Lifetime Awards

## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE



### Session XVII: Epidemiology

Chairs: Kato K. (JP) & Zaina F. (IT)

10.45 O567 **Lumbar spinal stenosis is a risk factor for the development of dementia: Locomotive syndrome and health outcomes in the Aizu cohort study (LOHAS)**  
Kobayashi H. (JP)

10.52 O568 **The role of remote working in patients affected by low back pain: A cross-sectional study**  
Ambrosio L. (IT)

10.59 **Discussion**

11.15 O569 **Prevalence of lumbar spondylolisthesis and its association with low back pain, physical activity, and sarcopenia in the general population: The 2nd survey of the ROAD study**  
Arita S. (JP)

11.22 O570 **Muscle strength and trunk muscle mass rather than appendicular skeletal muscle mass might affect spinal sagittal alignment, low back pain, and health-related quality of life**  
Tanaka Y. (JP)

11.29 O571 **Backing down? Lumbar disc herniation surgery for the sad and nervous**  
Beck P.J.M. (SE)

11.36 **Discussion**

### Session XVIII: Imaging

Chairs: Rade M. (FI) & Iwabuchi M. (JP)

11.45 O572 **A study on the usefulness of MRI new imaging method "FRACTURE" in the diagnosis of lumbar spondylolysis**  
Hatakeyama K. (JP)

11.52 O573 **How does diffuse idiopathic skeletal hyperostosis affect the sagittal spinopelvic alignment in lumbar spinal stenosis patients?**  
Sun X. (CN)

11.59 O574 **Automatic classification of the endplate lesions in MRI images by deep learning model**  
Bassani T. (IT)

12.06 O575 **A machine learning algorithm for automated detection of lumbar disc degeneration on MRI**  
Nye L. (US)

12.13 O576 **Learning a model of lumbar disc degeneration progression from a cross-sectional population cohort**  
McSweeney T. (FI)

12.18 **Discussion**

12.30 **Lunch Break & Industry Workshops**



## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

### Symposium: Potential candidates for intervertebral disc repair: Cell-based or cell-free regeneration?

Chair: Ambrosio L. (IT)

14.00 Faculty: Ambrosio L. (IT), Schol J. (JP), Vadalà G. (IT), Neidlinger-Wilke C. (DE)

### Session XIX: Surgery 3 – Predicting outcomes from surgery

Chairs: Hai Y. (CN) & Lund T. (FI)

- 14.40 O577 **Effect of central sensitization on the surgical outcome of lumbar spinal canal stenosis patients: A multicenter prospective study**  
Akedo K. (JP)
- 14.47 O578 **Effects of the severity of stenosis on clinical outcomes of indirect decompression using oblique lumbar interbody fusion**  
Kang D.H. (KR)
- 14.54 O579 **Is there a correlation between degree of facet degeneration and increase in spinal canal volume after a minimally invasive pre-psoas interbody fusion? A minimum 2 year follow-up study**  
Anand N. (US)
- 15.01 **Discussion**
- 15.10 O580 **Does preoperative sagittal imbalance affect the clinical outcomes in short-segment lumbar interbody fusion?**  
Shimamura Y. (JP)
- 15.17 O581 **The influence of bone health on the risk of mechanical complications after lumbar spinal fusion for degenerative disease: a systematic review**  
Filley A. (US)
- 15.24 O582 **Assessing the importance of radiographic and clinical parameters when choosing decompression without fusion for LDS: Results from the CSORN prospective LDS study**  
Rodrigues Fernandes R.J. (CA)
- 15.31 **Discussion**

## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE



### Session XX: Surgery 4 – Scoliosis surgery

Chairs: Kanayama M. (JP) & Diwan A. (AU)

- 15.40 O583 **Patients treated by magnetic growing rods for early onset scoliosis reach the expected average growth**  
Oggiano L. (IT)
- 15.47 O584 **Nerve root retraction time during lumbar endoscopic discectomy surgery: Association with post-operative radiculitis**  
Buser Z. (US)
- 15.54 O585 **Adding sacral anchors through an S1 alar screw and multi-rod construct as a strategy for lumbosacral junction augmentation: An in vitro comparison to S1 pedicle screws alone with sacroiliac fixation**  
Hai Y. (CN)
- 16.01 **Discussion**
- 16.15 **Closing Remarks**  
Chiba K. (JP)

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Posters

**ACA/CA - AUSTRALIAN CHIROPRACTORS ASSOCIATION  
AND CHIROPRACTIC AUSTRALIA**
**Session 1**

Chair: President CA

- 08.10 **Opening Remarks**
- 08.20 O586 **Reassurance for low back pain in primary care: A scoping review**  
*Young A. (AU)*
- 08.30 O587 **What are medical attitudes and inclinations towards chiropractic? A universal review of the literature**  
*Taylor B. (AU)*
- 08.40 **Question time**
- 08.50 **Lecture: SPINE and SPORT - Spine Health over time**  
*Dvořák J. (CH)*
- 09.20 **Lecture: Physical activity promotion in chiropractic**  
*Fernandez M. (AU)*
- 09.50 **Discussion**
- 10.00 **Coffee Break**
- Session 2**  
Chair: Fernandez M. (AU)
- 10.30 O588 **Does sedentary behaviour cause spinal pain in children and adolescents? A systematic review with meta-analysis**  
*Montgomery M. (AU)*
- 10.40 O589 **Reassurance for low back pain in primary care: A qualitative study**  
*Young A. (AU)*
- 10.50 O590 **Investigation of the factors influencing spinal manipulative therapy force transmission through the thorax: A cadaveric study**  
*Funabashi M. (CA)*
- 11.00 O591 **Young patients and chiropractors' observation and analysis study (Young-COAST): A feasibility study**  
*Beynon A. (AU)*
- 11.10 **Question time**
- 11.20 **Lecture: Trajectories of back pain in young populations**  
*Beynon A. (AU)*
- 11.50 **Lecture: Neuromechanical mechanisms of spinal dysfunction and the silver bullet: A search for the holy grail**  
*Colloca C. (US)*
- 12.20 **Discussion**
- 12.30 **Lunch Break & Industry Workshops**

**ACA/CA - AUSTRALIAN CHIROPRACTORS ASSOCIATION  
AND CHIROPRACTIC AUSTRALIA**
**Session 3**

Chair: Swain M. (AU)

- 14.00 **Opening Remarks**
- 14.10 O592 **Physical activity promotion among Australian chiropractors: What are we doing or not doing? Results from a cross-sectional survey**  
*Fernandez M. (AU)*
- 14.20 O593 **Reliability of the biomechanical assessment of the sagittal lumbar spine and pelvis on radiographs used in clinical practice: Design of a systematic review of the literature**  
*Betz J. (US)*
- 14.30 O594 **Evaluating test-retest reliability of the flexion-relaxation ratio within and between days**  
*Howarth S. (CA)*
- 14.40 **Question time**
- 14.50 **Lecture: Are the forces in SMT safe?**  
*Funabashi M. (CA)*
- 15.20 **Lecture**  
*Wong A. (HK)*
- 15.50 **Discussion**
- 16.00 **Coffee Break**
- Session 4**  
Chair: President ACA/CA
- 16.30 **Opening Remarks**
- 16.40 **Lecture: Conservative interventions for Adolescent Idiopathic Scoliosis**  
*Brown B. (AU)*
- 17.10 **Lecture: Spinal pain in adolescents**  
*Swain M. (AU)*
- 17.40 **Awards/Announcements and Closing Remarks**
- 18.00 **Adjourn**

**Symposium: AOGO: AOSpine Guideline for using osteobiologics in spinal degenerative cases (AO-GO)**

An AO Spine Knowledge Forum Degenerative Project

Chairs: Sakai D. (JP) & Levayer M. (AU)

- 08.00 **AOGO the focus and vision**  
Meisel H.J. (DE)
- 08.05 **Use of autograft and allograft in ACDF**  
Vadala G. (IT)
- 08.15 **Cage alone new frontiers**  
Diwan A. (AU)
- 08.25 **What evidence do we lack**  
Buser Z. (US)
- 08.35 **Discussion**
- Free Paper Session III: Cervical**  
Chairs: Sakai D. (JP) & Mohapatra B. (IN) & Stewart S. (AU)
- 08.40 O595 **Prospective randomized control trial to compare the role of injection Cerebrolysin for 10 days duration against placebo in operated cases of degenerative cervical myelopathy**  
Sharma A. (IN)
- 08.48 O596 **The risk of getting worse after surgery for cervical myelopathy - A population-based study of 1097 patients**  
Danielsen E. (NO)
- 08.56 O597 **Managing risk in degenerative cervical myelopathy: A service review in response to Covid-19 delays**  
Dunstan E. (NO)
- 09.04 O598 **Prognostic factors for cervical spinal cord injury without major bone injury in elderly patients: Multicenter study in Japan**  
Nakajima H. (JP)
- 09.12 **CUTE (Catch-Up-TimE)**
- 09.28 O599 **Clinico-radiological risk factors associated with inability to achieve minimum clinically important difference in operated cases of cervical spondylotic myelopathy**  
Acharya S. (IN)
- 09.36 O600 **A prospective randomized controlled multicentre study of ProDisc-C vs anterior cervical discectomy and fusion for treatment of symptomatic cervical disc disease in Asian population: A 4-year outcome**  
Kumar N. (SG)
- 09.44 O601 **Long term clinical and radiological outcomes of cervical disc arthroplasty at a tertiary level spine center: A retrospective cohort analysis with minimum 2 years of follow up**  
Dave B. (IN)
- 09.52 O602 **Treatment strategy for lateral atlantoaxial osteoarthritis**  
Son H.J. (KR)
- 10.00 **Coffee Break**

**Symposium: AO SAUNZ Research**

Chair: Sheldrick K. (AU)

Rapporteur: Chopra N. (AU)

Introduction

- 10.30
- 10.35 **Myelopathy natural history a registry - The MYNAH Study**  
Najib N. (AU)
- 10.41 **Disc on a chip**  
Tavakoli J. (AU)
- 10.47 **Decay variance is a clinical marker for disc degeneration**  
Sheldrick K. (AU)
- 10.53 **Microbiome and surgical outcomes**  
Chopra N. (AU)
- 10.59 **Dental pulp stem cells following acute spinal cord injury**  
O'Hare Doig R. (AU)
- Free Paper Session IV: Trauma & Tumors**  
Chairs: Kundnani V. (IN) & Sheldrick K. (AU)  
Rapporteur: Koremans F. (AU)
- 11.10 O603 **The AO Spine thoracolumbar injury classification system and treatment algorithm in decision making for thoracolumbar burst fractures without neurologic deficit**  
Kweh B. (AU)
- 11.18 O604 **Percutaneous pedicle screw fixation without arthrodesis of 368 thoracolumbar fractures: Long-term clinical and radiological outcomes in a single institution**  
Raco A. (IT)
- 11.26 O605 **Genesis and evolution of the AO spine sacral and pelvis classification system: A systematic review**  
Kweh B. (AU)
- 11.34 O606 **Long-term follow-up after vertebroplasty – A prospective 10-years control study**  
Berlemann U. (CH)
- 11.42 O607 **Increased incidence of traumatic spine injury in elderly patients in the Netherlands**  
Rutges J. (NL)
- 11.50 **CUTE (Catch-Up-TimE)**
- 11.58 O608 **Complications and risk factors in en bloc resection of spinal tumors: A retrospective analysis on 298 patients treated in a single institution**  
Martikos K. (IT)
- 12.06 O610 **Surgical treatment of spinal meningiomas in the elderly (75 years): Which factors affect the neurological outcome? An international multicentric study of 72 cases**  
Barrey C. (FR)
- 12.14 O611 **Deep learning model for grading metastatic epidural spinal cord compression on staging CT**  
Kumar N. (SG)
- 12.30 **Lunch Break & Industry Workshops**

**Initiatives - A Workshop for Asia Pacific  
Workshop on Developing Degepro Clinical Research Platform for Asia**  
Chair: Diwan A. (AU)

- 14.00 **Introduction**  
Diwan A. (AU), Workshop Coordinator
- 14.05 **Panel discussion for existing, future and desiring surgeons to be part of Degen Pro Prospective trails**
- Free Paper session V: Tech**  
Chairs: Diwan A. (AU) & Malham G. (AU)
- 14.40 O612 **Can the baseline clinical status and surgical strategy influence early good to excellent results in spinal lumbar fusion? A machine learning approach**  
Berjano P. (IT)
- 14.48 O613 **Can the addition of robotic terminal cleaning via pulsed-xenon ultraviolet light reduce bioburden in the operating room compared to traditional manual methods alone?**  
Nassr A. (US)
- 14.56 O614 **Integrating 2D radiographs and 1D clinical data in the AI prediction of adolescent idiopathic scoliosis progression**  
Cheung J.P.Y (HK)
- 15.04 O615 **Application of modest hypothermia in patients with acute traumatic cervical spine injury: A pilot study**  
Ankit R. (IN)
- 15.12 **CUTE (Catch-Up-TimE)**
- 15.20 O617 **Power-assisted pedicle screw placement decreases pedicle screw wobble**  
Permeswaran V. (US)
- 15.28 O618 **Proposed objective scoring algorithm for clinical evaluation of walking asymmetry in lumbar disc herniation, based on relevant gait metrics from wearable devices: The Gait Symmetry Index (GSiTM) – Observational study**  
Natarajan P. (AU)
- 15.36 O619 **Evaluation of an Artificial Intelligence (AI) based scoliosis measurement program**  
Wang M. (DK)
- 15.44 O620 **Safe exposure of the lumbosacral plexus via the pararectal approach: A technical note on this novel technique**  
Häckel S. (CH)
- 16.00 **Coffee Break**  
**Free Paper Session VI**  
Chair: Hsu B. (AU)  
Rapporteur: Bohra H. (AU)
- 16.30 **Introduction**
- 16.35 O621 **Clinical experience with occipital-cervical fixation in hypermobile patients**  
Timothy J. (GB)

- 16.43 O622 **Risk factors of global spinal mal-alignment after osteoporotic vertebral fracture**  
Iwata A. (JP)
- 16.51 O623 **Scoliosis among children in Qinghai-Tibetan Plateau of China - A cross-sectional epidemiological study**  
Hai Y. (CN)
- 16.59 **CUTE (Catch-Up-TimE)**
- 17.07 O624 **Developing a spine surgery training curriculum using entrustable professional activities**  
Ashman B. (AU)
- 17.15 O625 **Power-assisted versus manual pedicle screw tract preparation: Safe use and proprioception**  
Permeswaran V.N. (US)
- 17.23 O626 **A summary of development, methods used and results from NORspine – The Norwegian national quality registry for spine surgery**  
Mikkelsen E. (NO)
- 17.31 **CUTE (Catch-Up-TimE)**
- 17.39 O627 **Complications in spinal surgery: An unsolved problem... possible solutions**  
Martikos K. (IT)
- 17.47 O628 **'Holding them back': Is Posterior C2-3 fusion, a more rational way to realign unstable Hangman's fracture?**  
Mahdivanan K. (IN)
- 17.55 O630 **Is BESS (biportal endoscopic spinal surgery) an efficient method for cervical disc herniation treatment?**  
Kim C.K. (KR)
- 18.03 **CUTE (Catch-Up-TimE)**
- 18.19 **Adjourn**

**BSS/SILACO - SOCIEDAD IBERO LATINOAMERICANA DE COLUMNA AUSTRALIA  
AND SOCIEDADE BRASILEIRA DE COLUNA**



**Session 1: Cervical spine spondilotic myelopathy**

**Chairs: Alves J. (PT) & Menezes C.M. (BR)**

- 08.00 **Welcome**  
*Alves J. (PT)*
- 08.02 **Speakers presentation**  
*Menezes C.M. (BR)*
- 08.04 **Surgical anterior approach**  
*Malzac A. (BR)*
- 08.16 **Surgical posterior approach**  
*Yurac R. (CL)*
- 08.28 **Complications in cervical spondilotic myelopathy surgery**  
*Moyano J. (EC)*
- 08.40 **Q&A Session**

**Session 2: Cervical spine spondilotic myelopathy – Case presentation**

**Chairs: Menezes C.M. (BR) & Yurac R. (CL)**

- 09.00 **Welcome**  
*Menezes C.M. (BR)*
- 09.03 **Speakers presentation**  
*Yurac R. (CL)*
- 09.06 **Case 1: Rheumatic cervical spine**  
*Alves J. (PT)*
- 09.24 **Case 2: Posterior approach**  
*Malzac A. (BR)*
- 09.42 **Case 3: Spondylitis – T2 PSO**  
*Fogaça Cristante A. (BR)*
- 10.00 **Coffee Break**

**BSS/SILACO - SOCIEDAD IBERO LATINOAMERICANA DE COLUMNA AUSTRALIA  
AND SOCIEDADE BRASILEIRA DE COLUNA**



**Session 3: Lumbar spine degenerative**

**Chairs: Fogaça Cristante A. (BR) & Moyano J. (EC)**

- 10.30 **Welcome**  
*Fogaça Cristante A. (BR)*
- 10.32 **Speakers presentation**  
*Moyano J. (EC)*
- 10.34 **Lateral approach**  
*Menezes C.M. (BR)*
- 10.46 **Posterior approach**  
*Fogaça Cristante A. (BR)*
- 10.58 **Adjacent segment diseases**  
*Alves J. (PT)*
- 11.10 **Q&A Session**

**Session 4: Adult scoliosis**

**Chairs: Yurac R. (CL), Fogaça Cristante A.F. (BR)**

- 11.30 **Welcome**  
*Yurac R. (CL)*
- 11.32 **Speakers presentation**  
*Fogaça Cristante A. (BR)*
- 11.34 **Diagnosis and surgical considerations**  
*Moyano J. (EC)*
- 11.46 **PJK**  
*Risso M. (BR)*
- 11.58 **Fragility patients evaluation and complication's prevention**  
*Alves J. (PT)*
- 12.10 **Q&A Session**
- 12.30 **Lunch Break & Industry Workshops**

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Posters





SIS - SPINE INTERVENTION SOCIETY

**Session 8: Cervicogenic headache: The role of injections and surgery**

**Chair: Sibell D.M. (US)**

- 08.30 **Diagnosis of cervicogenic headache**  
*Bogduk N. (AU)*
- 08.45 **Third occipital nerve radiofrequency neurotomy**  
*MacVicar J. (NZ)*
- 09.00 **Suboccipital joints injection**  
*Wright R.E. (AU)*
- 09.15 **A spine surgeon's role in treating cervicogenic headache**  
*Alamin T. (US)*
- 09.30 **Neuromodulation for headache**  
*Verrills P. (AU)*
- 09.45 **Discussion**
- 10.00 **Coffee Break**



SIS - SPINE INTERVENTION SOCIETY

**Session 9: Emerging minimally invasive spine interventions**

**Chair: Kennedy D.J. (US)**

- 10.30 **Intradiscal platelet-rich plasma**  
*Wright R.E. (AU)*
- 10.50 **Stem cells**  
*Bates D. (AU)*
- 11.10 **Ultrasound guidance**  
*Stout A. (US)*
- 11.30 **Basivertebral nerve ablation**  
*Smuck M. (US)*
- 11.50 **High frequency focused ultrasound**  
*Shah V. (US)*
- 12.10 **Discussion**
- 12.30 **Adjourn**

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## SOCIETY FOR MINIMALLY INVASIVE SPINE SURGERY

### Session 5: Spine Endoscopy #2

Chairs: Hegde S. (IN) & Cheung P. (HK)

- 08.00 O631 **Performance of artificial intelligence-based algorithms to predict prolonged length of stay after lumbar decompression surgery**  
Hassel F. (DE)
- 08.12 O632 **Endoscopic revision surgery after sacroiliac joint fusion**  
Wagner R. (DE)
- 08.24 **The caveats of endoscopic lumbar interbody fusions**  
Kim L. (US)
- 08.39 O633 **Biportal endoscopic decompression of ossification flavum ligament - Is it enough to improve the clinical outcome?**  
Gatam A.R. (ID)
- 08.51 **Transforaminal endoscopic approach to the thoracic spine - Complex indication beyond soft disc herniation**  
Bae J.S. (KR)
- 09.06 O634 **Full-Endoscopic Lumbar Discectomy (FELD) reaches non-inferior clinical improvement as standard surgery for lumbar disc herniations measured by Minimal Important Change (MIC) and Patient Acceptable Symptom State (PASS) in Leg pain (NRS) and Oswestry Disability Index (ODI)**  
Beck P.J.M. (SE)
- 09.18 O635 **Comparative analysis of full endoscopic anterior and posterior cervical approaches in the management of cervical intervertebral disc herniation - A retrospective evaluation of clinical and radiological outcomes**  
Choi Y.S. (KR)
- 09.30 O636 **Usefulness of percutaneous correction with LIF and ALL PPS for severe adult spinal deformity**  
Harada T. (JP)
- 09.42 **Prognosis of iatrogenic neural injury of endoscopic surgery of the lumbar spine**  
Hai Y. (CN)
- 09.57 O637 **Innovative percutaneous endoscopic transforaminal lumbar interbody fusion of lumbar spinal stenosis with degenerative instability: A non-randomized clinical trial**  
Yin P. (CN)

10.10 **Coffee Break**

### Session 6: MIS Deformity

Chair: Yip R. (HK) & Hynes R. (US)

- 10.30 **Ace of the base or unnecessary internal decoration**  
Selby M. (AU)
- 10.45 O638 **Position of the major vessels – Prone versus Lateral**  
Pimenta L. (BR)
- 10.55 O639 **Comparison of clinical outcome and radiologic parameters between OLIF51 and L5/S1 TLIF in adult spinal deformity correction surgery**  
Kotani Y. (JP)
- 11.05 O640 **Does the use of porous printed titanium cages in lateral lumbar interbody fusion surgery lead to less cage subsidence? A retrospective age-, gender- and levels-of-surgery-matched case control analysis**  
Lee B.H. (SG)

## SOCIETY FOR MINIMALLY INVASIVE SPINE SURGERY



- 11.15 O641 **Residual exposed endplate effect on heterotopic ossification after cervical baguera C disc arthroplasty**  
Chung K.C. (TW)

### Mini-debate (Case presentations)

- 11.25 **Case 1: ATP**  
Liang H. (CN)
- 11.35 **Case 2: PTP**  
Oh J. (SG)
- 11.45 **Case 3: Lat ALIF**  
Sarisrapha P. (TH)

12.00 **Lunch Break & Industry Workshops**

### Session 7: Complications management

Chairs: Kwon B. (US) & Tanaka M. (JP)

- 14.00 **Analysis of surgical complication in OLIF51 and MIS deformity surgery**  
Kotani Y. (JP)
- 14.15 O642 **Does UIV level influence the development of PJK/PJF in patients undergoing Circumferential Minimally Invasive Surgery (CMIS) for Adult Spinal Deformity (ASD)? - A 13-year analysis with minimum 2-year follow-up**  
Anand N. (US)
- 14.25 O643 **Autologous Platelet Rich Fibrin (aPRF) as a novel multilayer sealant for persistent cerebrospinal fluid leaks in spinal surgery**  
Hubbe U. (DE)
- 14.35 O644 **Management of incidental durotomies in an integrated orthopedic and neurosurgical spinal unit**  
Rodríguez-Rubio D. (ES)
- 14.45 **Dural tear management in MIS surgery**  
Ryu S. (US)
- 15.00 **Haemostasis in spine surgery**  
Soh R. (SG)
- 15.15 O645 **Does the severity of facet arthropathy limit the sagittal re-alignment in circumferential minimally invasive surgical correction of adult spinal deformity?**  
Anand N. (US)
- 15.25 O646 **A prospective multicentric study of controlled thermal energy and rotational capsular tissue shaving system in patients with facet joint syndrome**  
Attar M. (GB) & Kapoor V. (GB)
- 15.35 O647 **Endoscopic approach in spondylodiscitis**  
Sharma A. (IN)
- 15.45 **Discussion**
- 16.00 **Coffee Break**

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SOCIETY FOR MINIMALLY INVASIVE SPINE SURGERY



Session 8: Future of spine

Chairs: Phillips F. (US) & Hai Y. (CN)

- 16.30 O648 **Enhanced recovery after an innovative percutaneous endoscopic transforaminal lumbar interbody fusion for the treatment of lumbar spinal stenosis: A prospective observational study**  
Yin P. (CN)
- 16.40 O649 **The application of artificial intelligence and custom algorithms with inertial wearable devices for gait analysis and detection of gait-altering pathologies in adults: A scoping review of literature**  
Pannu M. (AU)
- 16.50 O650 **Ligamentum flavum sparing Unilateral Laminotomy for Bilateral Recess Decompression (ULBRD): Surgical technique and clinical results**  
Kwon W.K. (KR)
- 17.00 **Discussion**
- 17.10 **Neurodiagnostics in laterally based lumbar surgery**  
Kwon T. (GB)
- 17.25 O651 **Endoscopic-assisted anterior cervical disc replacement**  
Hu J. (DE)
- 17.35 O652 **Outpatient minimally invasive transforaminal lumbar interbody fusion surgery: Assessing safety, efficacy, feasibility, and learning curve**  
Garg S. (US)
- 17.45 **Fibrin-Parathyroid Hormone: In pursuit of the first drug-biologic combination for spinal fusion**  
Sage K. (US)
- 18.00 O653 **Selective thoracolumbar fusion in adult spinal deformity double curves with Circumferential Minimally Invasive Surgery (CMIS)**  
Anand N. (US)
- 18.10 **Extended indications for lumbar TDR**  
Yip R. (HK)
- 18.25 **Closing Remarks and 2024 SMISS AP Promotion**  
Choi J. (AU) & Yip R. (HK)

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## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

### Special Poster Session I – Wednesday, 3 May 07.30 – 08.30 hrs

These sessions take place in the ePoster area.

- 1A **Intervertebral disc biology**  
Chairs: Haglund L. (CA) & Alini M. (CH)
- SP1 **Tie2 rejuvenation of isolated nucleus pulposus progenitor cells from young and aged donor tissue sources shows that age still matters**  
Schol J. (JP)
- SP2 **Association of Expression of Cytoplasmic Activation/Proliferation-Associated Protein-1 (Caprin-1) with human intervertebral disc degeneration**  
Yamada J. (JP)
- SP3 **Reparative effect of platelet-rich plasma releasate in the rabbit degenerated disc induced by Condoliase**  
Hasegawa T. (JP)
- SP4 **Alarmins S100A8/A9 promote intervertebral disc degeneration and inflammation-related pain in a rat model through toll-like receptor-4 and activation of the NF-kB signaling pathway**  
Liu H. (CN)
- SP5 **Cellular characteristics in inner and outer bovine annulus fibrosus cells with spinal loading model**  
Taiji R. (US)
- SP6 **Wharton's Jelly mesenchymal stem cell-derived extracellular vesicles as cell-free therapeutic approach for intervertebral disc degeneration**  
Vadalà G. (IT)
- 1B **Biomechanics, muscle, and motor control**  
Chair: Leinonen V. (FI)
- SP7 **Lumbar muscle structure and electrophysical properties in people with and without non-specific low back pain**  
Dierckx S. (BE)
- SP8 **The association of low back pain with lumbar spine movement control impairment syndromes – A cohort study**  
Takatalo J.M. (FI)
- SP9 **Biomechanical comparison and three-dimensional analysis of cement distribution patterns for different pedicle screw designs**  
Sung S. (KR)
- SP10 **Linking paraspinal muscle quality and biomechanical function during dynamic tasks in chronic low back pain patients**  
Bailey J. (US)
- SP11 **Characteristics of erector spinae muscle activity in the patients with adult spinal deformity: An electromyographic study using flexion-relaxation ratio during trunk forward bending performance**  
Endo T. (JP)
- SP12 **Using integrated MRI signatures of muscle degeneration and spinal pathology as predictors of response to treatment for chronic low back pain**  
Bailey J.F. (US)

## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

- 1C **Emerging Technologies**  
Chairs: Kumar N. (SG) & Sharma A. (US)
- SP13 **Biomarker discovery by SomaScan in patients with severe low back pain**  
Zhang Y. (US)
- SP14 **An inexpensive spring tensiometer correlates well with a clinical dynamometer for measuring motor strength**  
Murata S. (JP)
- SP15 **Design and 3D printing of novel titanium spine rods with lower flexural modulus & stiffness profile with optimised imaging compatibility**  
Kumar N. (SG)
- SP16 **Establishment of an intraoperative assisted endoscopic common iliac vein segmentation model and object detection model for intraoperative support of OLIF51 (Oblique Lateral Lumbar Interbody Fusion 51)**  
Ueda R. (JP)
- SP17 **Per-voxel classification of Modic changes in conventional magnetic resonance images**  
Brisby H. (SE)
- SP18 **Use of customized 3D printed template guides to place S2-Alar-iliac screws safely and accurately**  
Pramod S. (IN)
- 1D **Epidemiology**  
Chair: Cunningham J. (AU)
- SP19 **Surgical trends and regional variation in Danish patients diagnosed with lumbar spinal stenosis between 2002 and 2018: A retrospective registry-based study of 83,783 patients**  
Jensen R.K. (DK)
- SP20 **Association between Modic change and PI minus LL mismatch in a large cohort: The Wakayama Spine Study**  
Teraguchi M. (JP)
- SP21 **Association among PI-LL, sarcopenia and low back pain in the general population - The Wakayama Spine Study**  
Hashizume H. (JP)
- SP22 **Prevalence and related factors of low back pain in the general elderly population: A Japanese cross-sectional study randomly sampled from a basic resident registry**  
Uehara M. (JP)
- SP23 **A retrospective study of cauda equina syndrome: Improving diagnostic accuracy and efficiency**  
Choudhury F. (US)
- SP51 **Leg length discrepancy is associated with lumbar disc disease: A study of 350 postmortem specimens**  
Ahn B.T. (US)

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## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

- 1E **Surgery General**  
Chairs: Guyer R. (US) & Blumenthal S. (US)
- SP24 **Can cement augmented screws prevent implant failure without adjacent segment degeneration in multi-level lumbar interbody fusions? Analysis using finite element model**  
Jo M.Y. (KR)
- SP25 **Lumbar total disc replacement for the treatment of adjacent segment degeneration after lumbar fusion**  
Guyer R.D. (US)
- SP26 **Survey of lumbar spine surgery post-operative practices among spinal surgeons and rehabilitation professionals in Canada**  
Bakaa N.B. (CA)
- SP27 **Is the use of intra-operative neuromonitoring justified during lumbar anterior approach surgery?**  
Guyer R. (US)
- SP28 **International variability in the surgical strategy on adolescent idiopathic scoliosis**  
Wilke H.J. (DE)
- SP29 **Outcome of 2-level lumbar total disc replacement: Results of a long-term follow-up study**  
Blumenthal S.L. (US)

### Special Poster Session II - Friday, 5 May 07.30 – 08.45 hrs

These sessions take place in the ePoster area.

- 2F **General Biology**  
Chairs: Illien-Junger S. (US) & Akeda K. (JP)
- SP30 **The impact of the oxidized LDL/LOX-1 system on ligamentum flavum hypertrophy**  
Kawabata S. (JP)
- SP31 **Effects of chondroitin sulfate-associated high osmotic pressure on metabolism in bovine and human nucleus pulposus explants**  
Kanda Y. (US)
- SP32 **Association between brain response and facial color in patients with chronic low back pain**  
Tanishima S. (JP)
- SP33 **Cellular and extracellular matrix modulation of ligamentum flavum hypertrophy induced by spinal destabilization**  
Lam R. (SG)
- SP34 **Evaluation of a novel method for rapid pathogen identification in spinal infections**  
Ikeda S. (JP)
- SP35 **Anatomical considerations of the L5 nerve root for safe sacral screw placement in spinal fusion: A cadaveric study**  
Tamagawa S. (JP)

## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

- 2G **Imaging**
- SP36 **Uncovering brain mechanisms of impaired working memory in older adults with chronic low back pain**  
Wong A.Y.L. (HK)
- SP37 **Disc mechanical function with diurnal and postural loading between young and older populations evaluated with in Vivo MRI**  
Vresilovic E.J. (US)
- SP38 **Dural sac compression after lumbar interbody fusion predisposes to surgical site infection - A case reference study of 35 infection cases**  
Hasegawa Y. (JP)
- SP39 **Differentiating magnetic resonance images of pyogenic spondylitis and spinal Modic change using a convolutional neural network**  
Mukaihata T. (JP)
- SP40 **Differences in spatial distribution patterns of paraspinal muscle composition between clinical and water-fat sequences may provide a novel approach for quantifying inter-muscular fibrosis in chronic low back pain patients**  
Bailey J. (US)
- SP41 **Quantitative evaluation of the lumbar yellow ligament using MRI T2-mapping: Efficacy of its clinical application in patients with lumbar spinal stenosis**  
Takaoka H. (JP)
- 2H **Non-Surgery**  
Chair: Van Meirhaeghe J. (BE)
- SP42 **Content and quality appraising of clinical practice guidelines for the non-pharmacological management of spine pain: A systematic review**  
Al Zoubi F.M. (HK)
- SP43 **Comparison of healing rates between rigid and semi-rigid bracing in adolescent lumbar pars bone stress injuries**  
Licina P. (AU)
- SP44 **Efficacy and safety of add-on mirogabalin to NSAIDs in lumbar spinal stenosis with peripheral neuropathic pain: A randomized, open-label study**  
Nikaido T. (JP)
- SP45 **The association of personality traits with psychological factors in patients with musculoskeletal pain**  
Fujiwara A. (JP)
- SP46 **Short- and medium-term effects of exercise therapy for patients with adult spinal deformity**  
Kitamura T. (JP)
- SP47 **Life expectancy is poor in patients with diffuse idiopathic skeletal hyperostosis-related pyogenic vertebral osteomyelitis**  
Yamada K. (JP)

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## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

- 2I **Complications and Safety**  
Chairs: Aithala J. (IN) & Robertson P. (NZ)
- SP48 **Cerebrovascular accident as a complication of spinal surgery - A retrospective cohort study of 3,449 surgical cases in a single institute**  
Sakuma Y. (JP)
- SP49 **How can we reduce mechanical complications after fusion extension surgery for lumbar adjacent segment disease?**  
Ha W.J. (KR)
- SP50 **10-year longitudinal MRI study of intervertebral disc degeneration in patients with lumbar spinal canal stenosis after posterior lumbar decompression surgery**  
Fujii T. (JP)
- SP52 **Postoperative spinal epidural hematoma following lumbar decompression surgery: One-year patient-reported outcome in 113 patients**  
Nerelius F. (SE)
- 2J **Predicting Outcomes**  
Chairs: Bae J. (KR) & Sakai D. (JP)
- SP53 **Absence of bone marrow edema predicts early bone fusion after lumbar interbody fusion**  
Hasegawa Y. (JP)
- SP54 **Prognostic factors and optimal surgical management for lumbar spinal canal stenosis in patients with diffuse idiopathic skeletal hyperostosis**  
Nakajima H. (JP)
- SP55 **Prevalence of and risk factors for residual neuropathic pain after lumbar spinal surgery**  
Mimura Y. (JP)
- SP56 **Gut microbiome may predict spine surgery outcome: A pilot study**  
Sima S. (AU)
- SP57 **Risk factors for postoperative unexpected ambulatory status after spinal surgery for metastatic spinal tumor**  
Yamada K. (JP)
- SP58 **Patient-rated outcome for lumbar decompression surgery using the Far-Lateral Approach is associated with the involved level and coronal segmental angulation**  
Jacob A. (CH)

## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

### General Posters – Thursday 4 May 09.00 – 10.00 hrs

This session takes place in the ePoster area.

#### Basic Science

- P1 **Genome-wide association studies identify novel loci associated with chronic low back pain with and without comorbid depression**  
Martinsen A.E. (NO)
- P2 **Quantitative analysis of osteophyte distribution in diffuse idiopathic skeletal hyperostosis: Relationship with the position of the aorta**  
Sun X. (CN)
- P3 **Impact of autophagy depletion on intervertebral disc cell function, cell viability and matrix degeneration**  
Vo N. (US)
- P4 **Facet joint degeneration is associated with axial rotation in Adolescent Idiopathic Scoliosis**  
Haglund L. (CA)
- P5 **Can baseline lumbar multifidus morphometry predict pain and disability in the ensuing two years among people with chronic low back pain?**  
Pinto S.M. (HK)
- P6 **ADAM8 inactivation retards intervertebral disc degeneration in mice**  
Zhang Y. (US)
- P7 **Activated neutrophils degrade human cartilage endplates**  
Heggli I. (CH)
- P8 **Roles of TNFAIP8 family in intervertebral disc degeneration**  
Zhang Y. (US)
- P9 **Identification of the molecular mechanism of degenerative disc disease using high-resolution mass spectrometry**  
Aithala J. (IN)
- P10 **Effect of estrogen and vibration on intervertebral disc organ cultures**  
Neidlinger-Wilke C. (DE)
- P11 **Does type II diabetes induce early senescence and degeneration in human intervertebral discs? A tissue biomarker evaluation**  
Sudhir G. (IN)
- P12 **Stromal cells in Modic type 1 change bone marrow promote neurite outgrowth**  
Mengis T. (CH)
- P13 **Morphological difference of the ala of the ilium between male and female in lateral view of 3D CT**  
Kashima M. (JP)
- P14 **Flexed ovine lumbar motion segments are more likely to fail via endplate fracture than by herniation under impact loading**  
Van Heeswijk V.M. (NZ)

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## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

- P15 **Preventive effects on intervertebral disc degeneration of Adiponectin receptor agonist AdipoRon in a rat tail puncture model**  
*Ohnishi H. (JP)*
- P16 **Fundamental study on dynamic analysis of lumbar dural canal using ultrasound**  
*Kasai R. (JP)*
- P17 **Selective interference of Raptor/mTORC1 protects against the progression of intervertebral disc degeneration through autophagy induction in a rat tail temporary static compression model**  
*Kumagai N. (JP)*
- P18 **Distinct proteolytic activity creates a unique 'Modic disc' degradome**  
*Mengis T. (CH)*
- P19 **Evaluation of cartilaginous endplate thickness distribution with UTE MRI and histology**  
*Samartzis D. (US)*
- P20 **Kartogenin enhances the antioxidant functions and promotes differentiation of nucleus pulposus mesenchymal stem cells to nucleus pulposus-like cells**  
*Ruan D. (CN)*
- P21 **Comparing transforaminal lumbar interbody fusion versus posterolateral fusion in patient-reported outcomes, complications, readmissions, and revisions**  
*Pennings J. (US)*
- P22 **Two injected hydrogels stay within the disc after realistic dynamic testing. An in vitro study with bovine tail discs**  
*Wilke H.J. (DE)*
- P23 **Novel 3D Printable PEEK-HA-Mg2O4Si composite material for spine implants: Biocompatibility & imaging compatibility assessments**  
*Kumar N. (SG)*
- P24 **Addition of platelet-rich plasma and bone marrow to demineralized bone matrix promotes bone fusion**  
*Takuma O. (JP)*
- P25 **Expression of Caspase recruitment domain-containing protein 14 (CARD14) in human nucleus pulposus**  
*Kawaguchi K. (JP)*
- P26 **M2 macrophage infiltration and modulation in hypertrophied ligamentum flavum**  
*Lam R. (SG)*
- P27 **Functionalized self-assembling peptide RADKPS hydrogel promotes regenerative repair of degenerated intervertebral discs**  
*Ruan D. (CN)*
- P28 **CD-9 as a novel marker of healthy adult nucleus pulposus cells**  
*Smith L.J. (US)*
- P29 **Intradiscal Cutibacterium acnes decide on innate and adaptive immune pathways in Modic type 1 changes**  
*Heggli I. (CH)*



## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

- P30 **Modic type 2 changes are fibroinflammatory changes with complement system involvement adjacent to degenerated vertebral endplates**  
*Heggli I. (CH)*
- P31 **The relationship between gastro esophageal reflux disease and spinal sagittal alignment in elderly patients with osteoporosis**  
*Ikeda S. (JP)*
- P32 **Growth differentiation factor 5 inhibits lipopolysaccharide-mediated pyroptosis of nucleus pulposus mesenchymal stem cells via the RhoA signaling pathway**  
*Ruan D.K. (CN)*
- P33 **A prospective randomized study assessing the impact of standardized educational curriculum on resident rod bending proficiency**  
*Nassr A. (US)*
- P34 **The fusion of interspinous process and articular process affects the establishment of lumbar instability disc degeneration model: A study from New Zealand rabbits**  
*Zhang X.Y. (CN)*
- P35 **The effect of prolonged rhBMP-2 treatment on telomerase activity, replicative capacity and senescence of human nucleus pulposus cells**  
*Cho W.J. (KR)*
- P36 **Physiological measurement of nucleus pulposus oxygen, glucose and lactate in a goat model of disc degeneration: Preliminary findings**  
*Smith L.J. (US)*
- P37 **Effects of organ culture and mesenchymal stem cell injection on nucleus pulposus extracellular matrix expression and cell cycle progression**  
*Smith L.J. (US)*
- P38 **Content validation of the CoPaQ for patients with low back pain: A qualitative study**  
*Bakaa N. (CA)*
- P39 **Elucidating the potential therapeutic mechanisms underlying distraction spinal cord injury**  
*Hai Y. (CN)*
- P40 **Age-related decline in lumbar disc height impacts pain and sensitivity associated behaviors in mice**  
*Dahia C. (US)*
- P41 **The efficacy of single stage correction by posterior approach for neglected congenital scoliosis in adulthood**  
*Chang D.G. (KR)*
- P42 **Enhanced intervertebral disc repair and regeneration using a nano-hybrid peptide hydrogel**  
*Han I. (KR)*
- P43 **Inflammatory priming of MSCs fades rapidly but can be partially preserved with 3D priming and a continuous pro-inflammatory stimulation**  
*Dudli S. (CH)*

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## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

Biomechanics, muscle, and motor control

- P44 **Comparison of the susceptibility to implant failure in the lateral, posterior, and transforaminal lumbar interbody fusion: A finite element analysis**  
Oikawa R. (JP)
- P45 **Lumbar multifidus structure and proprioceptive postural control in people with and without non-specific low back pain**  
Dierckx S. (BE)
- P46 **Comparison of multifidus fatty infiltration in various lumbar disorders**  
Naresh-Babu J. (IN)
- P47 **Comparison of surgical correction rates between Titanium and Cobalt-Chrome-Alloy as rod materials in adolescent idiopathic scoliosis**  
Chang D.G. (KR)
- P48 **Bone bridge effect for the treatment of acute osteoporosis vertebral compression fractures: Multistrategic approach using anabolic versus anti-resorptive agents**  
Yoon. J.Y. (KR)
- P49 **Biomechanical metrics to predict muscle loading patterns in chronic low-back pain patients using a 3D model**  
Bailey J. (US)
- P50 **Development of a simplified computationally time efficient clinical finite element model**  
Ghosh N. (NZ)
- Epidemiology
- P52 **Association between scoliosis and gastrointestinal disorders: A large-database study**  
Lee S.B. (KR)
- P53 **Unsupervised machine learning for data-driven discovery of chronic low back pain phenotypes based on patient reported outcomes**  
Keller A. (US)
- P54 **Systematic literature review and meta analysis on the clinical outcomes of spine surgeries in Asian patients with concurrent osteoporosis**  
Nishida K. (JP)
- P55 **Frailty is a potential prognostic factor for patients with symptoms of metastatic spinal tumor as initial manifestation of malignancy**  
Kitamura K. (JP)
- P56 **Low back pain in Australian CrossFit participants: A national survey**  
Lustig B. (AU)
- P57 **Epidemiology of pediatric major trauma patient with spinal injury**  
Jeon J.M. (KR)
- P58 **Effect of spinal injury on mortality of children with major trauma: A Korean level 1 trauma center study**  
Jeon J.M. (KR)

## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

- P59 **CAPER: Patient preferences to inform non-surgical treatment of chronic low back pain**  
Wilson L. (US)
- P60 **How long does it take for C-reactive protein to return to normal in culture-positive pyogenic vertebral osteomyelitis?**  
Katuka A. (JP)
- P61 **A conceptual model for spine surgery recovery: A qualitative study of patient expectations, experiences, and satisfaction**  
Archer K. (US)
- P62 **Does daily exercise prevent future care needs related to spinal sagittal imbalance? Locomotive syndrome and health outcomes in the Aizu Cohort Study (LOHAS)**  
Watanabe K. (JP)
- P63 **Incidence and risk factors for progression of lumbar facet joint degeneration in a Japanese community: 11-year follow-up**  
Kobayashi K. (JP)
- P64 **Proximal junctional kyphosis in adolescent idiopathic scoliosis following pedicle screw instrumentation: More than 5-year follow-up data**  
Chang D.G. (KR)
- P65 **Did COVID-19 affect lumbar trauma? A 2-year experience at a single center, Wakayama, Japan**  
Ishimoto Y. (JP)
- Imaging
- P66 **Lumbar vacuum disc presence and size are related to spinopelvic balance**  
Hu S. (US)
- P67 **Quantification of the molecular content of the disc during normal breathing with magnetic resonance spectroscopy**  
Brisby H. (SE)
- P68 **Three-column fractures in the ankylosed spine: A systematic approach to imaging and assessment**  
Nassr A. (US)
- P69 **Lumbar cartilaginous endplate thickening observed with advancing disc degeneration and UTE MRI**  
Samartzis D. (US)
- P70 **Clinical features of bone marrow edema lesions of the posterior elements in the lumbar spine among symptomatic adults**  
Sugiura K. (JP)
- P71 **Investigation of factors affecting bilateral Achilles tendon reflex loss**  
Otani K. (JP)
- P72 **Paraspinal muscle morphology and composition in lumbar spinal stenosis vs. chronic low back pain**  
Minetama M. (CA)

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## THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE LUMBAR SPINE

- P73 **A new magnetic resonance imaging technique to reduce medical radiation exposure during the treatment of lumbar spondylolysis: A preliminary study**  
*Okuyama K. (JP)*
- P74 **Lumbar osteoporotic fractures develop in segments with less degenerated discs which then become more degenerated**  
*Sharma A. (US)*
- P75 **Association between paraspinal muscles and degenerative spine conditions in patients with lumbar spinal stenosis**  
*Minetama M. (JP)*
- P76 **Associations between high intensity zones and intervertebral disk degeneration and low back pain in patients with degenerative disk disease: a retrospective case-control study**  
*Sima S. (AU)*
- P77 **The use and applicability of magnetic resonance elastography on the musculoskeletal system of adults: A scoping review**  
*Jensen T.S. (DK)*
- P78 **Relationship between lumbar disc degeneration, endplate defects and Modic changes: A longitudinal study**  
*Murto N. (FI)*
- P79 **Modic Changes of different types often coexist with erosive endplate lesions and vertebral sclerosis**  
*Brisby H. (SE)*
- P80 **Long-term influence of paraspinal muscle quantity in adolescent idiopathic scoliosis following deformity correction by posterior approach**  
*Chang D.G. (KR)*
- P81 **Body composition in non-older patients with degenerative lumbar spine disease - Comparison with healthy volunteers**  
*Tanaka M. (JP)*
- P82 **Indirect assessment of T10 vertebra Hounsfield unit values using lumbar vertebral body measurements**  
*Yoon S. (US)*
- P83 **Cervical spinal cord and cervical nerve root T2 values in healthy volunteers in MRI T2-mapping novel imaging methods: MIXTURE and SHINKEI-Quant**  
*Takeshi S. (JP)*
- P84 **Usefulness of DXA and BIA for trunk muscle mass measurement - Focus on trunk muscle volume by using 3D image processing workstation**  
*Fujimoto K. (JP)*
- P85 **Efficacy of the VBQ Score in predicting the incidence of new vertebral fractures in perimenopausal women - A longitudinal study using 11-year lumbar MRI follow-up data from the Minami-Aizu Study**  
*Yokota T. (JP)*



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- P307 An analysis of 49 cases with pedicle fractures of the c2 axis: Is surgery necessary?**  
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- P312 Predictors of cerebrospinal fluid leak following dural repair in spinal intradural surgery: Surgical indications and dural repair techniques**  
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- P329 Safety and feasibility of growth rod distraction procedure as 'day care surgery' in early onset scoliosis: A retrospective observational study of 653 procedures**  
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- P332 Percutaneous EndoLIF under local anaesthesia in an awake and aware patient**  
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- P336 3D navigation in spine surgery for accurate placement of pedicle screws**  
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- P341 Scoliosis caused by rib fusions following thoracotomy in infancy - A rare cause of early onset scoliosis: A case series**  
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Garg B. (IN)
- P345 Predictive factors for post-operative intensive care admission in paediatric scoliosis surgery: A multifactorial analysis study involving 117 patients**  
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- P346 Incidence of intraspinal anomalies in congenital and idiopathic subtypes of scoliosis: A radiological insight from 350 paediatric deformity spine**  
Garg B. (IN)
- P347 An obstetrical and gynaecological insight to measure the gender specific issues including menstrual disorders in patients with scoliosis - A genuine step towards empowering women's inclusive health**

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Garg B. (IN)

- P349 Surgical correction of severe cervical kyphosis in patient with neurofibromatosis type 1: Case report**

Agrawal P. (IN)

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- P351 Intraspinal rib dislocation in NF-1: A case report and review of literature**

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Farooque K. (IN)

- P355 Partial corpectomy using posterolateral decompression and anterior reconstruction with interbody fusion for burst fractures of TL spine: How effective is the strategy**

Farooque K. (IN)

- P356 Management strategies for post traumatic kyphotic deformity correction at thoraco lumbar junction: A case series from JPN apex trauma centre, a level one trauma centre, AIIMS, New Delhi**

Farooque K. (IN)

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Farooque K. (IN)

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- P358 **Comparison of stand alone cage and zero profile anchored spacer in anterior cervical decompression and fixation**  
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- P359 **Efficacy of combined use of sublaminar wiring tape and spinous process tethering tape to prevent PJK/PJF in adult spinal deformity surgery**  
Sekiya T. (JP)
- P360 **Validation of the Global Alignment and Proportion (GAP) score in relation to the frequency of Mechanical Complications after adult spinal deformity surgery**  
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- P362 **Evaluation of percutaneous pedicle screw fixation in patients with pyogenic spondylitis of the thoracolumbar spine**  
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- P363 **Over ten-year follow-up results of MIS-TLIF for patients with degenerative spondylolisthesis of the lumbar spine**  
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- P364 **Risk factors for wound dehiscence after spinal metastasis surgery and a new preventative approach - Curved skin incision**  
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- P365 **Association of dyslipidemia with the development of symptomatic ossification of the posterior longitudinal ligament**  
Fukada S. (JP)
- P366 **Prevalence, clinical and radiological assessment of Japanese patients with ossification of posterior longitudinal ligament in lumbar spine**  
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AND RELATED RESEARCH**

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- P367 **Two cases of atypical vertebral pedicle fractures in patients on long-term bisphosphonate therapy**  
Tahata S. (JP)
- P368 **Treatment of thoracolumbar fracture by short-segment percutaneous transpedicular screw instrumentation with applied moment cantilever beam constructs and parallel distraction using polyaxial locking mechanism (Correction Key)**  
Okudaira T. (JP)
- P369 **Spinal pseudoarthrosis following osteoporotic vertebral fracture: Prevalence, risk factors, and influence on patients' activities of daily living**  
Wakao N. (JP)
- P370 **Changes in the incidence and injury mechanism of spinal trauma before and after the new coronavirus (COVID-19) pandemic**  
Akabane T. (JP)
- P371 **Investigating risk factors involved in life outcome after osteoporotic vertebral fractures in a super-aging society (Follow-up cases for more than five years)**  
Tominaga H. (JP)

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Oh B.K. (KR)
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Kim J.Y. (KR)
- P379 Efficacy and safety of decompression with Interspinous Fixation (ISF) of low grade lumbar spondylolisthesis: Comparison with PLIF**  
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- P383 Unilateral approach with two cage insertion for full endoscopic transforaminal lumbar interbody fusion: Technical report**  
Lee D.C. (KR)
- P384 A novel technique of the full endoscopic interlaminar contralateral approach for symptomatic extraforaminal juxtafacet cysts**  
Lee D.C. (KR)
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- P386 **Hierarchical surface roughness using a 3D printed interbody implant promotes optimal bone formation and integration on fluorescence image cytometry**  
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- P387 **Mechanobiology at work: Physiologic load induced strain of 3D printed truss element amplifies osteogenic response of human mesenchymal stem cells compared to static surface feature influence**  
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- P388 **The Artificial Intelligence Motion study (AIM): Artificial Intelligence-assisted analysis of cervical spine motion**  
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- P389 **Mobile core cTDA replicates healthy ROM: A biomechanics study**  
Permeswaran V.N. (US)
- P390 **Cervical total disc replacement can restore intact range of motion and 3D kinematics**  
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- P391 **Factors associated with increased surgical drain output after spinal deformity correction in adults**  
Truumees E. (US)

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- P392 **Is there a benefit of adding CT- like sequences to the MRI protocol in patients with cervical neural foraminal stenosis?**  
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- P393 **Spontaneous primary pyogenic spondylodiscitis in post-covid-19 patients**  
Naresh-Babu J. (IN)

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- P394 **Frailty stratification using the modified 5-item frailty index: Significant variation within frailty patients in spine surgery**  
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- P395 **Should physical therapy be incorporated in patient care post 1-2 level lumbar fusions for degenerative lumbar instability? - A comparative outcome analysis**  
Truumees E. (US)
- P396 **Do pain catastrophizing and kinesiophobia mediate the pathway of Pilates exercise to improved pain intensity and physical function outcomes? A secondary mediation analysis of a randomised controlled trial**  
Wood L. (GB)

- P397 **App-based rehabilitation in back pain: A systematic review**  
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- P398 **Determining what markers increase the odds of successful non-operative treatment of lumbar disc herniation**  
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- P399 **A physiotherapist-led Same Day Emergency Care (SDEC) unit for atraumatic spinal pain appears to be a cost-effective and efficacious pathway**  
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- P400 **Proposed classification system of radiographic bony changes after cervical disc replacement**  
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- P402 **Preoperative psychosocial risk using the STarT Back Screening Tool is not associated with postoperative spine surgery outcomes**  
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- P403 **Net promoter score in spine surgeries**  
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Truumees E. (US)
- P405 **Comparison of Adolescent Idiopathic Scoliosis (AIS) correction-open vs. minimally invasive cohorts: A 2 years radiographic and surgical outcome study**  
Truumees E. (US)
- P406 **Feasibility and outcomes of mini open correction and fusion for Adolescent Idiopathic Scoliosis (AIS): 2-5 Years follow-up**  
Truumees E. (US)
- P407 **Clinical and radiographic outcomes in the treatment of patients with Scheuermann kyphosis using posterior instrumented fusion**  
Truumees E. (US)
- P408 **Intrathecal nusinersen injection for spinal muscular atrophy post spinal deformity correction surgery – A technical note**  
Pramod S. (IN)

NORTH AMERICAN SPINE SOCIETY

- P409 **Complication rates for robotic-assisted placement of over 1,500 pedicle screws in pediatric posterior spinal fusion**  
Heyer J. (US)
- P410 **Ultrasonographic assessment of magnetic growing rods overestimates the growth of the spine compared to X-ray**  
Oggiano L. (IT)
- P411 **Clinico-radiological outcomes of posterior vertebral column resection for severe kyphotic spinal deformity: A single institutional study**  
Vemula V.R.C. (IN)
- P412 **Vertebral body tethering for the treatment of idiopathic scoliosis**  
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- P413 **Reliability and diagnostic accuracy of standard dermatomes and myotomes for determining the pathologic level in surgically verified patients with cervical radiculopathy**  
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- P414 **Impact of occupational characteristics on return to work for employed patients after elective cervical spine surgery**  
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- P415 **Impact of unplanned readmissions of 12-month patient reported outcomes after cervical spine surgery**  
Pennings J.S. (US)
- P416 **Fusion rate of anterior-only versus anteroposterior approach for three-level cervical interbody fusion**  
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- P417 **The effect of intraoperative intrathecal opioid administration on the length of stay and postoperative pain control for patients undergoing lumbar interbody fusion**  
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- P418 **Complication rates of thoracic spine fusion in patients with Parkinson's disease**  
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- P419 **Impact of unplanned readmissions of 12-month patient reported outcomes after lumbar spine surgery**  
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- P420 **The influence of sarcopenia and paraspinal muscle composition on patient-reported outcomes: A prospective investigation of lumbar spinal fusion patients with 12-month follow-up**  
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- P421 **The impact of frailty on patient-reported outcomes 1 year after posterior lumbar fusion surgery**  
Arzani A. (US)
- P422 **3D printed custom navigation jigs in posterior spinal fusion: A retrospective case series**  
Lui D. (GB)

NORTH AMERICAN SPINE SOCIETY

- P423 **Application of autologous bone matrix enriched with growth factors (Sticky Bone) during minimally invasive Transforaminal Lumbar Interbody Fusion (TLIF): An orthobiologic translation from maxillofacial to spinal surgery**  
Hubbe U. (DE)

Trauma

- P424 **Outcomes in patients with vertebral injury after blunt cervical spine trauma**  
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*Weissmann K.A. (CL)*
- P427 **Radiological parameters of spino-pelvic sagittal balance: Comparison of measurements obtained by radiologists through the traditional method versus orthopedic surgeons with semi-automated software (SURGIMAP)**  
*Fleiderman J. (CL)*
- P428 **Transforaminal intersomatic implants in one or two levels of the lumbar region - Are we really recovering lordosis?**  
*Fleiderman Valenzuela J. (CL)*

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- P429 **Prevalence and discordance of the "startle response" with true discogenic pain according to spine intervention society guidelines for provocation discography: A cohort study**  
*DeFrancesch F. (US)*
- P430 **Expectancy-related generation of placebo does not predict success or failure of high-quality diagnosis and thermal neurotomy of zygapophysial or sacroiliac joints**  
*Speldewinde G. (AU)*
- P431 **Does fibromyalgia affect the outcomes of spinal cord stimulation: An 11-year, multicenter, retrospective matched cohort study**  
*Schappell J. (US)*
- P432 **Patient satisfaction with spinal cord stimulation and dorsal root ganglion stimulation for chronic intractable pain: A systematic review and meta-analysis**  
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*Ardura F. (ES)*
- P434 **Selective nerve root block versus transforaminal and interlaminar epidural injections – which should we be doing**  
*Wilk V. (AU)*
- P435 **Comparison of platelet-rich plasma versus radiofrequency ablation for treatment of cervicogenic headache-3 year results**  
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- P436 **Varying degrees of disc height after anterior or posterior percutaneous endoscopic cervical discectomy for disc herniation on radiographs and magnetic resonance imaging**  
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- P437 **Disability outcome differences between patients who had minimally invasive transforaminal lumbar interbody fusion as their first surgery and patients that had the surgery following any lumbar surgery for lumbar degenerative conditions**  
Koremans F. (AU)

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- P438 **Retrospective case series of porous printed titanium cages in anterior to psoas oblique lumbar interbody fusion surgery assessing fusion rates and functional outcomes with Magnetos bone graft**  
Maalouly J. (AU)

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- P439 **Postoperative Herpes zoster mimicking recurrent radiculopathy after full endoscopic transforaminal lumbar discectomy**  
Heo Y. (KR)

Deformity

- P440 **Retrospective matched comparison study on non fusion anterior scoliosis correction (NFASC) versus posterior spinal fusion (PSF) for Lenke 5 adolescent idiopathic scoliosis (AIS) curves in skeletally mature children: Clinico-radiological outcomes with 2 years follow up**  
Badikillaya V. (IN)

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- P441 **Endoscopic 4 MHz radiofrequency treatment of the facet joint syndrome**  
Woiciechowsky C. (DE)
- P442 **End plate spur: The forgotten pathology in lumbar foraminal stenosis and how we handle it using BESS (biportal endoscopic spine surgery)**  
Huang Y. (SG)
- P443 **Full endoscopic decompression for L5/S1 extraforaminal stenosis (Far-out syndrome) with L5 radiculopathy: Case series and early clinical outcome**  
Kwon W.K. (KR)
- P444 **A beginner's perspective on biportal endoscopic spine surgery in single-level lumbar decompression: A comparative study with a microscopic surgery**  
Song K.S. (KR)
- P445 **Short-term outcomes of full-endoscopic disc cleaning surgery against intractable low back pain due to Modic type 1 change**  
Sugira K. (JP)

- P446 **Perioperative glucose response in diabetic and non-diabetic patients with lumbar spinal stenosis treated with bi-portal endoscopic decompression**  
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- P447 **Challenges encountered with a decade long experience of spectrum of spine services from conventional surgeries to MISS under constrained resources in a country like Nepal**  
Shahi P. (NP)
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Gibson J.N.A. (GB)

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Pimenta L. (BR)
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Pollina J. (US)
- P452 **Comparison of prone transpsoas and standard lateral lumbar interbody fusion surgery for degenerative lumbar spine disease: A retrospective radiographic propensity score-matched analysis**  
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Sheth S. (IN)
- P454 **Prospective multi-center comparative study of the perioperative outcomes associated with the early 'prone lateral' experience versus 'PTP' proceduralization**  
Howell K. (US)
- P455 **Restoration of segmental lordosis and lumbar lordosis after oblique lumbar interbody fusion**  
Jhala A. (IN)
- P456 **Classification of the OLIF corridor and its utility in predicting the ease of surgery**  
Vemula V.R. (IN)
- P457 **The correlation of Iliac crest morphology and safe working zone for lateral lumbar interbody fusion: Radiographic and MRI study**  
Keorochana G. (TH)
- MISS
- P458 **The presence of firm epidural ligamentous tissue, a risk factor for intraoperative dural tear, can be frequently identified intraoperative microendoscopic laminectomy**  
Inokuchi A. (JP)

## SOCIETY FOR MINIMALLY INVASIVE SPINE SURGERY

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- P459 **Lumbar arthroplasty for treatment of primary or recurrent lumbar disc herniation**  
Maalouly J. (AU)
- P460 **One year clinical and radiographic outcomes of cervical arthroplasty with synergy disc**  
Maalouly J. (AU)

### Navigation, robotics and artificial intelligence

- P461 **Technical errors in pedicle screw placement in minimal invasive computer assisted spine surgery**  
Hubbe U. (DE)

### Posterior techniques

- P462 **Three-dimensional analysis of the ideal entry point for sacral alar iliac screws**  
Tanaka M. (JP)
- P463 **Does minimally access transforaminal lumbar interbody fusion (TLIF) achieve desired contralateral decompression using only ipsilateral approach by a tubular retractor system in patients undergoing fusion surgery for spondylolisthesis with bilateral leg/ buttocks symptoms**  
Baid P.K. (IN)
- P464 **Improved quality of life without serious complications following minimally invasive transforaminal lumbar interbody fusion for adult degenerative lumbar spine conditions - Analysis of 127 patients**  
Koremans F. (AU)

### SIJ

- P465 **Endoscopic 4 MHz radiofrequency treatment of the sacroiliac joint syndrome**  
Woiciechowsky C. (DE)

Scoliosis and spinal deformities: Biomechanics and conservative treatment

- P466 A pilot study using a new rigid brace "ScoliBrace" in the treatment of Adolescent Idiopathic Scoliosis (AIS) in Singapore**  
Lee N. (SG)
- P467 Successful treatment of degenerative adult scoliosis using a unique 3D over-corrective brace - A case report with 4 year follow up**  
McAviney J. (AU)
- P468 Compliance strategies in the use of ScoliBrace for adolescent idiopathic scoliosis**  
Marchese R. (AU)
- P469 Reduction of Cobb angle in Gensingen brace after failure in Providence brace**  
Elliott L. (DK)
- P470 Reduction of Cobb angle in Gensingen brace in big curves**  
Elliott L. (DK)
- P471 Impact of 3D printing process on mechanical properties of brace in children with idiopathic scoliosis**  
Liu X.C. (CN)
- P472 Anterior sagittal balance and Scheuermann's kyphosis of 97 degrees treated with Rigo concept physiotherapy and 2 hours brace wear/day – Case study 60-year-old adult male**  
Harding R.J. (AU)
- P473 Investigating the relationship between objective measurements and patient perception in non-treated AIS. Study 2: How much surface topography measurements affect the SRS-22 and the TAPS**  
Aristegui G. (ES)
- P474 Investigating the relationship between objective measurements and patient perception in non-treated AIS. Study 3: How much the angle of Trunk Inclination affects the SRS-22 and the TAPS**  
Aristegui G. (ES)
- P475 Investigating the relationship between objective measurements and patient perception in non-treated AIS. Study 4: How much the two instruments used in this study to assess patient perception - SRS-22 and TAPS- correlate?**  
Aristegui G. (ES)
- P476 Investigating the relationship between objective measurements and patient perception in non-treated AIS. Study 5: How much radiologic and surface topography measurements correlate?**  
Aristegui G. (ES)
- P477 Defining treatment success of adolescent idiopathic scoliosis from the patient perspective: Thinking beyond the Cobb angle**  
Taniguchi S. (CA)
- P478 Cervical Thoracic Orthosis (CTO) for treatment of antecollis and Pisa syndrome in Parkinson disease: A case report**  
Batasook N. (TH)

- P479 Standing height varies in response to different verbal instructions, in children with idiopathic scoliosis**  
Harding R.J. (AU)
- P480 A telehealth assessment protocol for idiopathic scoliosis by means of photogrammetry: Development and measurement accuracy of the DIPA© capture App**  
Navarro I.J. (BR)
- P481 SEAS approach for the pre-surgical treatment of severe scoliosis in a patient with tetra-amelia syndrome: A case report**  
Navarro I.J. (BR)
- P482 A single case study for the side shift method: Demonstrating measurements of spinal motion and muscle activity during a treatment session**  
Betts T. (GB)

TOP 10 Posters

- P483 Surgical and patient-reported outcomes support anterior lumbar interbody fusion for the treatment of low back pain**  
Celenza A. (AU)
- P484 A hybrid atlantoaxial fusion technique utilising a transarticular and C1 lateral mass screw technique: Investigation of surgical and patient-reported outcomes, and finite element analyses of the biomechanical properties**  
Cunningham G. (AU)
- P485 Retrieval analysis of interbody cages**  
Kim S.J. (AU)
- P486 Characteristics of baseline frequency data in spinal RCTs do not suggest widespread fraud**  
Levayer M.M.S. (AU)
- P487 Cooled radiofrequency ablation of the sacroiliac joint a retrospective case series**  
Maalouly J. (AU)
- P488 Use of cannulated pedicle screws for posterior spinal fixation in fractures are correlated with higher blood loss in some groups**  
Rajabifard P. (AU)
- P489 The effect of progressive herniation on lumbar intervertebral disc six degree of freedom mechanics**  
Russo M. (AU)
- P490 Development and validation of a virtual digital scoliometer**  
Suresh S. (AU)
- P491 Spinal cord stimulation for treatment of neuropathic pain in failed back surgery syndrome: A fifteen years experience using percutaneous leads insertion**  
Morelli D. (BE)
- P492 3D-printed patient specific interbody implants in anterior lumbar interbody fusion: A case series and review of early clinical and radiological results**  
Tredan D. (AU)
- Basic science
- P493 The safety and efficacy of carbon-fibre-reinforced pedicle screws for degenerative and oncological spine fixation: A narrative review**  
Kim S.J. (AU)
- P494 A finite element model that predicts clinical bone remodelling in spinal fusion**  
Hill J. (AU)
- P495 Osteoinductive potential of conduit shaped calcium phosphate granules**  
Walsh W. (AU)
- P496 The influence of a threaded implant design and manufacturing on osseointegration in a large preclinical animal model**  
Walsh W. (AU)

Biomechanics

- P497 Development of Adjacent Segment Degeneration (ASD) in thoracolumbar fusion after inappropriate rod fixation**  
Noriega D.C. (ES)
- P498 Digital image correlation for spinal implant kinematics: A methodological study**  
Kim S.J. (AU)

Cervical spine

- P499 Bilateral cervical plexus block for anterior cervical spine surgery: A protocol and update on a randomised placebo-controlled trial**  
Mulcahy M. (AU)
- P500 Bone defects post Caspar pin distraction during anterior cervical surgery: A case series**  
Kim S.J. (AU)
- P501 Cervical spine anomalies in a Mayan skeleton from the late classic period (ca. 600-900 a.d.) site of Comalcalco, Tabasco, Mexico**  
McCarthy S. (AU)
- P502 Clinical outcomes following cervical disc arthroplasty with Synergy prosthesis**  
Malham G. (AU)
- P503 Radiological and clinical outcome after single level anterior cervical discectomy and fusion (ACDF) using Tritanium-C® cage**  
Stovell M.G. (GB)

Intervention

- P504 Exploring the feasibility and efficacy of a 12-week running program in individuals with chronic low back pain: A randomised controlled trial protocol**  
Neason C. (AU)
- P505 Ultrasound-guided autologous platelet-rich fibrin injections to reduce recurrent sacroiliac joint pain**  
Hubbe U. (DE)

Lumbar spine

- P506 Intrathecal morphine injection in anterior lumbar and lateral lumbar spine surgery**  
Al Khawaja D. (AU)
- P507 Isolated lumbar extension strength: A conservative management option for 33 patients not yet ready for surgery or hoping to delay an operation**  
Dettmann T. (AU)
- P508 Final long-term reporting from a randomized controlled investigational device exemption trial for lumbar artificial discs in single-level degenerative disc disease: 7-year results**  
Zigler J. (US)
- P509 A prospective clinical study comparing the PainDETECT and S-LANSS questionnaires in documenting neuropathic pain in patients with chronic low back pain and who have not had prior spinal surgery**  
Whittle I. (AU)

New technology

- P510 **'SMART' implantable devices for spinal implants: A review on current and future trends**  
Kim S.J. (AU)
- P511 **Endoscopic lumbar discectomy early results and complications an Australian perspective**  
Maalouly J. (AU)
- P512 **Intertransverse fusion implant in an ovine posterolateral fusion model**  
Pelletier M. (AU)
- P513 **Outcomes of restorative neurostimulation using Reactiv8 therapy in patients with chronic low back pain: Preliminary results from an independent interdisciplinary spinal centre**  
Lijo C.E. (AU)
- P514 **Combined intra-operative real-time colour doppler and fluorescein assisted video-angiography guided surgical management of spinal dural arteriovenous fistulas - A case report**  
Kelly R.S. (MY)
- P515 **Resection of intradural extramedullary meningioma using a minimally invasive double tubular access**  
Hubbe U. (DE)

Spinal deformity

- P516 **Causation of kyphosis above a thoracolumbar construct using patient specific rods**  
Faulks C. (AU)

Spinal surgery

- P517 **Return to sports following discectomy: Does a consensus exist?**  
Baecker H. (AU)
- P518 **Vertebral body tethering functions as an internal brace for skeletally immature adolescent idiopathic scoliosis patients with moderate-to-severe coronal plane deformity**  
Roser M. (AU)
- P519 **Simultaneous posterior instrumentation and anterior exposure using computer assisted navigation improves operative efficiency and maintains safety in lateral decubitus single-position anterior posterior fusion**  
Buckland A.J. (AU)
- P520 **Clinical outcomes after a far lateral microdiscectomy**  
Malham G. (AU)
- P521 **Single-position prone lateral lumbar interbody fusion increases operative efficiency and maintains safety in revision lumbar spinal fusion**  
Buckland A.J. (AU)
- P522 **Intradural, calcified, soft spinal meningioma dictates the necessity of measuring Hounsfield Units on pre-operative CT**  
Brooks M.R.D. (AU)

- P523 **Fusion rates in stand-alone lumbar hybrid reconstructions procedures is unaffected by cage design: A case cohort analysis**  
Scott-Young M. (AU)
  - P524 **The effect of varying levels of uncinectomy in cervical total disc replacement on range of motion at mid-term follow-up**  
Celenza A. (AU)
  - P525 **Vascular injury in anterior lumbar fusion surgeries**  
Seex K. (AU)
- Other
- P526 **Systematic review of the top 10 ranked spine articles in the last 10 years (2011~2021)**  
Kim S.J. (AU)

## POSTER LIST GENERAL

- P527 **Spinal epidural abscess in melioidosis**  
Das G. (IN)
- P528 **Improvement of pulmonary function and reconstructed 3D lung volume after deformity correction for thoracic spinal post-tubercular kyphosis: A multicenter study**  
Cao K. (CN)
- P529 **Rhabdomyolysis in lumbar spine surgery in Chinese: A case report**  
Lam K.H.E. (HK)
- P530 **Rare complication associated with halo pin application: A case report**  
Lam K.H.E. (HK)
- P531 **Unilateral versus Bilateral pedicle screw fixation in lateral lumbar interbody fusion: Analysis of radiographic and clinical outcomes**  
Weng Y. (CN)
- P532 **Effects of the cage height and positioning on clinical and radiographic outcome of lateral lumbar interbody fusion**  
Weng Y. (CN)
- P533 **Comparative radiological outcomes and complications of sacral-2-alar iliac screw versus iliac screw for sacropelvic fixation**  
Weng Y. (CN)
- P534 **GelMA hydrogel loaded umbilical cord mesenchymal stem cell derived exosomes for the treatment of intervertebral disc degeneration via the miR-320/SMAD3 pathway**  
Weng Y. (CN)
- P535 **Biomechanical effects of new cement anchor combined with bone cement strengthening on the vertebrae: A finite element analysis**  
Weng Y. (CN)
- P536 **Biomechanical study of oblique lumbar interbody fusion (OLIF) augmented by different instrumentations: A finite element analysis**  
Weng Y. (CN)
- P537 **Biomechanical effects of osteoporosis on the adjacent vertebral body and endplate after lateral lumbar interbody fusion - A finite element analysis**  
Weng y. (CN)

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Posters



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Posters

**Meetings,  
Satellite Symposia  
& Workshops**

**Monday 1 May**



## Additional Meetings



Room: Pan Pacific Hotel - Woodside 1 & 2

14.00 - 16.30 **Focus Group Meeting: ISSLS Phenotypes / Precision Spine Focus Group - Comprehensive deep phenotyping to benefit the Low Back Pain research community**  
*Hodges P. (AU), Cholewicki J. (US), Popovic J. (US), Lotz J. (US), Bailey J. (US), Sowa G. (US), Foster N. (AU), Samartzis D. (US)*

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Posters



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Posters

**Meetings,  
Satellite Symposia  
& Workshops**

**Tuesday 2 May**

## Additional Meetings



Room: Pan Pacific Hotel - Woodside 1 & 2

09.00 - 12.30 **Focus Group Meeting: International taskforce on diagnosis and management of Lumbar Spine Stenosis**  
Tomkins-Lane C. (CA), Wong A. (HK), Melloh M. (NZ)

## Sponsored Satellite Symposium



Room: VIP Suite 2

12.30 - 14.00 **Where's the pain?**  
Nociscan, the 21<sup>st</sup> Century solution & Low Back Pain

Programme:

- Company overview
- Foundational Science
- Evidence & Value
- Future

## Sponsored Satellite Symposium



Room: VIP Suite 1

12.30 - 14.00

- **New surgical possibilities using Loop-X mobile robotic imaging**  
Licina P. (AU)
- **How I maximize the utility of spine navigation for multiple indications and approaches**  
Buckland A. (US)

## Sponsored Satellite Symposium



Room: Red Desert Dreaming - Pan Pacific

12.30 - 14.00 **New treatment options for stable vertebral body fractures with an evidence based functional Orthoses**  
Yokosuka K. (JP)

## Sponsored Satellite Symposium



Room: Press Room

12.30 - 14.00 **The Future is now: Robotics and spine surgery**  
Faculty: Anand N. (US), Awad M. (US), Edis D. (AU), Oh J. (SG)

Please join Medtronic and our esteemed faculty to learn more about Mazor X Stealth™ Edition, the latest addition to our Enabling Technologies Ecosystem for spine surgery. Led by experienced spine surgeons who have integrated the Mazor X Stealth™ Edition into their practices, the focus will be on understanding the concepts of robotic spine surgery, robotic surgical planning and the integration of the Mazor X Stealth™ Edition into your practice.

## Sponsored Satellite Symposium



Room: Hospitality Suite 7

12.30 - 14.00 **Long-term evidence, radiograph classification, and clinical management of cervical disc arthroplasty**  
Faculty: Phillips F. (US), Erturan J. (UK), Jacobs J. (US), Hansen M. (UK), Khachatryan A. (US)

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Posters



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Posters

**Meetings,  
Satellite Symposia  
& Workshops**

**Wednesday 3 May**

Sponsored Satellite Symposium



Room: VIP Suite 1

12.30 - 14.00

**PTP: The evolution of the lateral approach**  
Deviren V. (US), McMains C. (US)

Sponsored Satellite Symposium



Room: Press Room

12.30 - 14.00

**Navigation in spine surgery - Standard of care?**  
Faculty: Tee J. (AU), Limthongkul W. (TH), Peshattiwat V. (IN)

Please join Medtronic and our esteemed faculty to learn more about the S8 Surgical Navigation System, part of Medtronic's Enabling Technologies Ecosystem for spine surgery. Led by experienced spine surgeons who will share their knowledge and experience, focusing on understanding the concepts of navigated spinal surgery, planning and integrating the S8 Navigation system into your practice.

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- Friday**
- Posters

**Meetings,  
Satellite Symposia  
& Workshops**

**Friday 5 May**

Sponsored Satellite Symposium



Room: Press Room

12.30 - 14.00

**Robotic Navigation: A panel discussion on advanced technology for complex procedures**

This panel will review and address current trends in the deformity and single position lateral spaces. The speakers will discuss their clinical experience with ExcelsiusGPS® robotic navigation as well as the associated advantages and benefits for these procedures. The discussion will include how this technology may have a potentially positive impact on patients. The workshop will conclude with a review of deformity and lateral cases, discussion and a live Q&A.

**KOLS:**

*Choi J. (AU) & Kazemi N.J. (US)*

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**Company Profiles**

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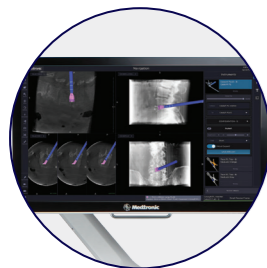
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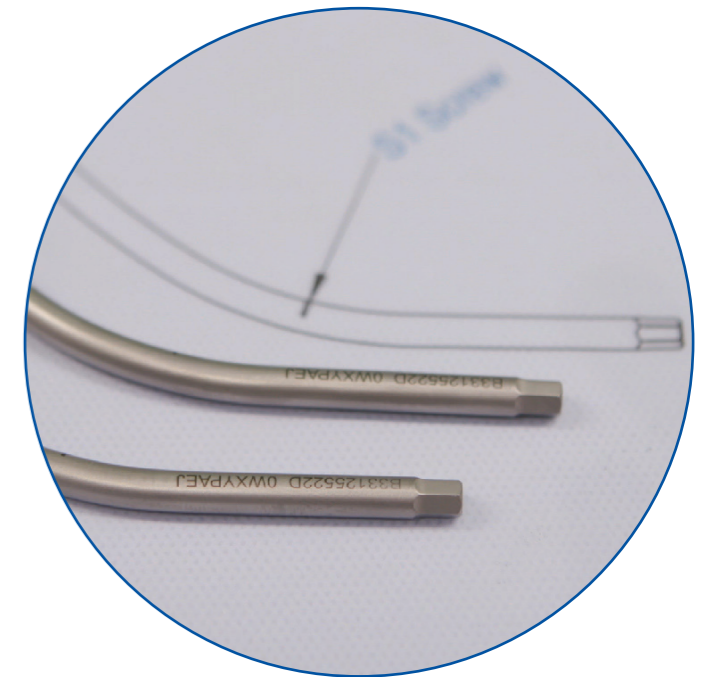
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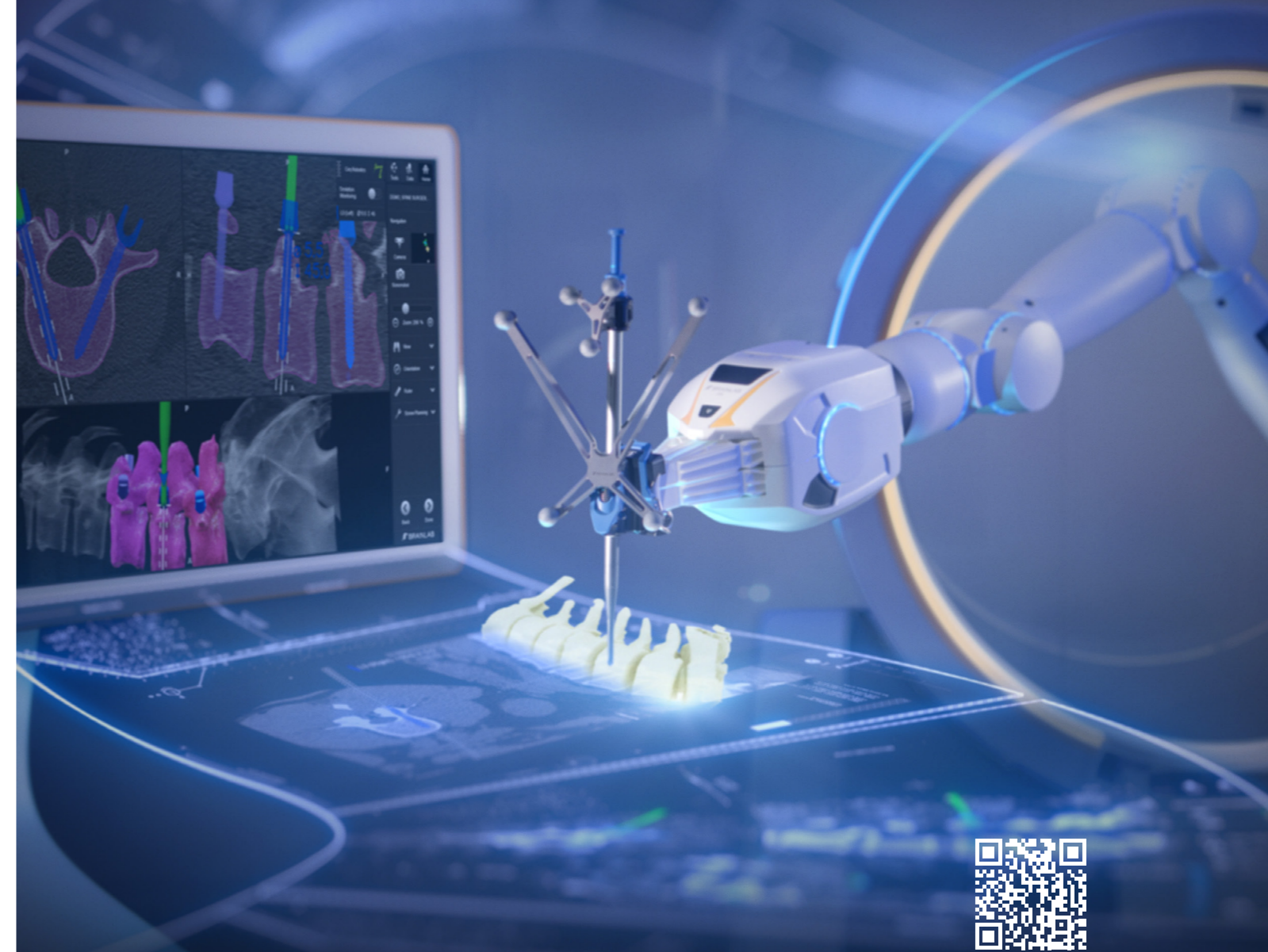
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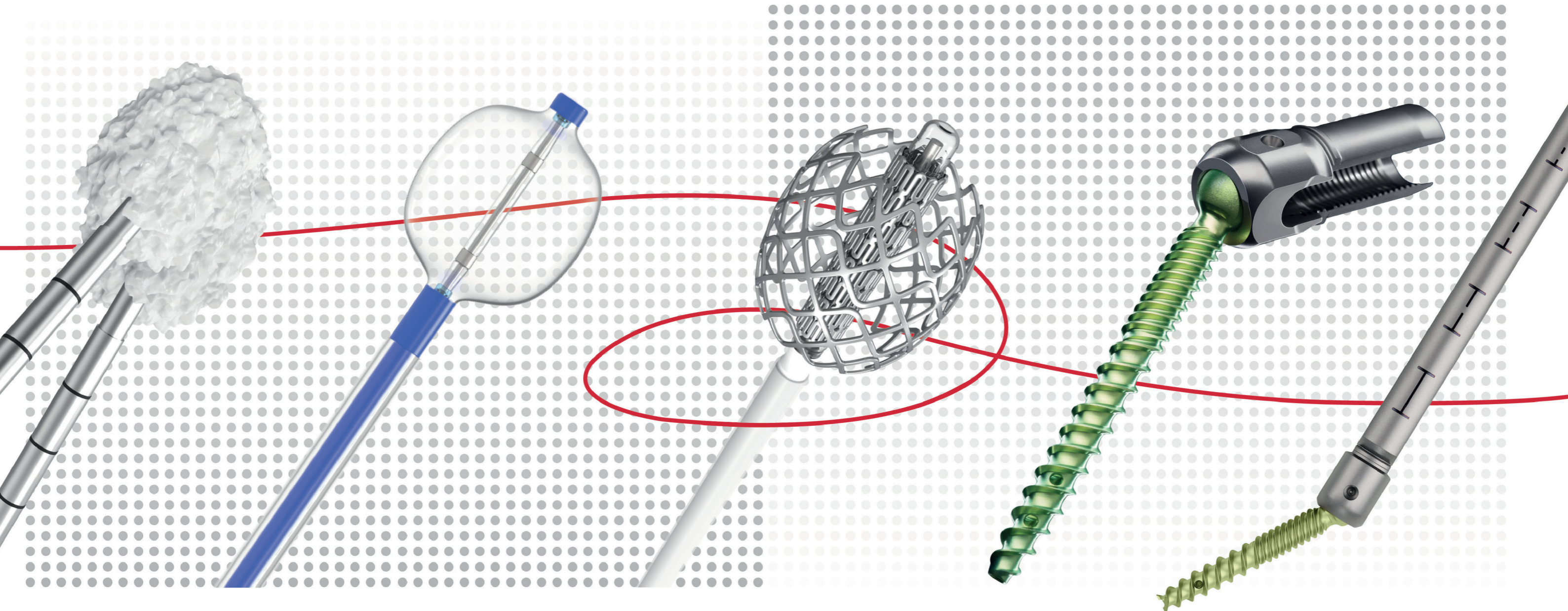


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## EXPEDIUM VERSE® FENESTRATED SCREW

Enhanced fixation and control in your hands with added option of intra-operative flexibility.

## VIPER PRIME™ CORTICAL FIX FENESTRATED SCREW

Allows the surgeon to perform pedicle targeting, pathway preparation, and screw delivery, using a single instrument.

**Together,  
We Combat Osteoporosis**

## Fusetec



Fusetec's mission is to improve healthcare outcomes by advance manufacturing safe, affordable and effective surgical training models to upskill residents and continually advance surgeons' training. Fusetec models are fully operable, soft tissue and anatomically accurate. All models are validated by KOL and Universities prior to commercialisation. In 2021, Fusetec constructed the world's first, non-cadaveric Advanced Surgical Training Clinic, in Australia. This 25-bed surgical training clinic, offering the perfect environment to safely teach skills, while demonstrating new tools and techniques. Contact fusetec to discuss your training needs.

 [www.fusetec.com.au](http://www.fusetec.com.au)

## FzioMed



FzioMed develops and commercializes absorbable surgical biomaterials based on its patented polymer science, for use in 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.
- Oxiplex/AP® is designed for peritoneal surgery applications.
- Oxiplex/IU® serves to separate surgically traumatized opposing tissue surfaces in the erine cavity.
- Dynavisc® is an adhesion barrier gel for tendon and peripheral nerve surgeries.

 [www.fziomed.com](http://www.fziomed.com)

## Globus Medical



Globus Medical, a leading musculoskeletal solutions company, is driving significant technological advancements across a complete suite of products ranging from spinal, trauma, and joint reconstruction therapies to imaging, navigation, and robotics. Founded in 2003, Globus' single-minded focus on advancing spinal surgery has made it the fastest growing company in the history of orthopedics. Globus is driven to utilize high-level engineering and technology to achieve pain-free, active lives for all patients with musculoskeletal disorders.

 [www.globusmedical.com](http://www.globusmedical.com)  
 [www.facebook.com/GlobusMedical](https://www.facebook.com/GlobusMedical)

## HicRen



Ningbo HicRen Biotechnology Co., Ltd. was established in 2011, located in Hangzhou Bay New Area, with operating branches in Shanghai and Tianjin. It is the first manufacturer in China, approved by CFDA and CE for percutaneous curved vertebroplasty and kyphoplasty products (PCVP and PCVP). As the global leader in PCVP and PCKP technology, HicRen also has innovative products in the fields of interbody fusion and non-fusion, bone repair material series, sports medicine series, spinal implants, endoscopic series, and AI series, etc. We take the innovation of minimally invasive orthopedic technology as our mission, provide patients and doctors with more excellent solutions of minimally invasive surgery, and strive to become the most innovative company of minimally invasive orthopedics in the field of consumables and equipment.

 [www.hicren.com](http://www.hicren.com)

## Integrity Implants



Integrity Implants is dedicated to accelerating minimally invasive spine surgery through its enabling technology with broad accessibility to previously underserved markets. Founded in 2016 and headquartered in Palm Beach Gardens, FL, USA, Integrity Implants is dedicated to delivering innovative spine products and solutions to surgeons and their patients around the globe. The company's flagship FlareHawk Interbody Fusion system, powered by its proprietary Adaptive Geometry™ technology, fundamentally respects a patient's neural, vascular, bony, and soft tissue anatomy, both during and after implantation.

 [www.eu.accelusinc.com](http://www.eu.accelusinc.com)  
 [www.facebook.com/IntegrityImplants](https://www.facebook.com/IntegrityImplants)

## Jayon Implants Private Limited



Established in 1999, Jayon Implants represents the next-generation orthopedic and spinal implants manufacturing company, delivering innovative technologies in the field of orthopedic and spine surgery. Jayon implants is well-positioned to become a leader in the rapidly evolving medical implant field. We are committed and dedicated to a continuous research & development process, to build and maintain robust product pipeline. We aim to help people lead a more active, productive and pain-free life by restoring mobility through highly differentiated surgical products.

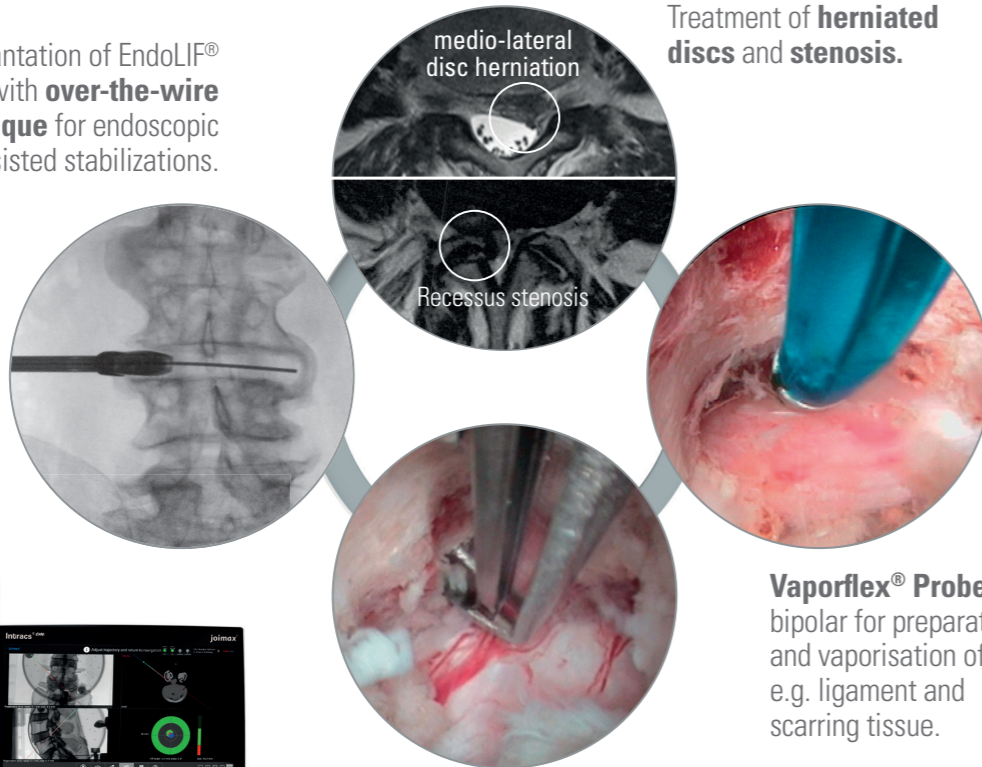
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## Joimax

joimax® is the global leader in design, development, and delivery of minimally invasive endoscopic solutions for spinal pathologies, empowering spinal surgeons worldwide. Made in Germany, our comprehensive, end-to-end solutions include endoscopic surgery devices and instrumentation, digital navigation systems, and consumables. Our innovative, high performance product portfolio addresses a broad range of surgical procedures such as spinal decompression, stabilization, and pain therapy. Leading brands include TESSYS®, iLESSYS®, CESSYS®, MultiZYTE®, intENTS®, Percusys®, EndoLIF® and NAVENTO®.

- [www.joimax.com](http://www.joimax.com)
- [www.facebook.com/joimaxinternational](https://www.facebook.com/joimaxinternational)

## Journal of Spine Surgery



The Journal of Spine Surgery is an open access, peer-reviewed, quarterly journal, dedicated to the field of spine surgery, science and clinical outcomes. The primary objective of JSS is to provide critical analysis and a comprehensive overview of contemporary topics within the field of spine surgery. Each issue will welcome relevant spine topics through the categorized sections: Original Article, Review Article, Case Reports, Editorial Commentary, Guidelines, and Evidence Update. The second objective of the JSS is to facilitate and stimulate the discussion and sharing of pertinent clinical information amongst surgeons and physicians concerned with the surgical treatment of spinal disorders. Articles will be published both in print and online, which will be featured with surgical videos. The aim of the Journal is to provide a forum for the dissemination of progresses in all areas related to spinal disorders and surgical techniques worldwide.

[www.jss.amegroups.com](http://www.jss.amegroups.com)

## KiMedix



As KiMedix we are offering turnkey solutions for manufacturing custom scoliosis braces. Our solutions include Ai supported C.A.D and C.A.M software, 3D brace library, proprietary 3D printer, material and training to enable our partners to build world class braces which are affordable and locally manufactured.

[www.kimedix.de](http://www.kimedix.de)

Monday

Tuesday

Wednesday

Thursday

Friday

Posters

## Korthotics & DMO



Korthotics specialises in custom-made orthoses to suit both adult and paediatric patients presenting with many different conditions since 2004. Korthotics is the Australian distributor of the Dynamic Movement Orthotics (DMO) and Boston Brace Spinal System.

DM Orthotics is a world leading provider of medical rehabilitation and sports performance products. We provide elastomeric fabric, dynamic movement orthoses to over 25 countries helping to improve the lives of people who face a range of physical challenges.

- [www.korthotics.com.au](http://www.korthotics.com.au)
- [www.dmorthotics.com](http://www.dmorthotics.com)
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## Leica Microsystems



Leica Microsystems develops and manufactures microscopes and scientific instruments for the analysis of microstructures and nanostructures.

Widely recognized for optical precision and innovative technology, the company is one of the market leaders in compound and stereo microscopy, digital microscopy, confocal laser scanning and super-resolution microscopy with related imaging systems, electron microscopy sample preparation, and surgical microscopy.

In medical applications, Leica support you with premium optics that deliver crisp, bright, and consistent visualization. To further augment your view, our premium neurosurgery and ophthalmology microscopes are also designed as upgradeable imaging platforms. Easily integrate supplementary digital imaging and recording technologies at any time and ensure you have the visualization you need today, and tomorrow.

- [www.leica-microsystems.com](http://www.leica-microsystems.com)

## Matrix Medical Innovations



Matrix Medical Innovations (Matrix) is an Australian medical device company committed to delivering high quality products and clinical support to the spine market. Our portfolio includes spinal implants, spinal endoscopy, biologics, a wide range of consumable products, and remote monitoring wearable devices.

Our mission is to provide simple solutions for complex problems in health care. We aim to do this by helping develop and source new medical technologies and bringing them to the Australian market. Working alongside surgeons and delivering these technologies, the overall goal is to provide high quality products and clinical support to help improve patient outcomes.

- [www.matrixmi.com.au](http://www.matrixmi.com.au)

## Mectron



Our vision is to improve patients' lives through technological innovation.

Mectron was founded in 1979, and is headquartered in Carasco, Italy.

With over 40 years of research and continuous innovation, Mectron's patented PIEZOSURGERY® technology has revolutionized the way bone surgery is performed.

Today, Mectron's PIEZOSURGERY® plus and line of inserts provide surgeons with cutting-edge technology and surgical solutions aimed at improving patient outcomes. The expansive postoperative benefits of PIEZOSURGERY® have been experienced by distinguished surgeons in over 80 countries across our globe.

In the neuro and spine surgical fields, PIEZOSURGERY® allows for superior surgical control, unmatched precision and maximum safety. Piezosurgery is proven to preserve the surrounding dura, nerves and vessels promoting preservation and sustained integrity of the spinal column.

- [www.mectron.com](http://www.mectron.com)

## Medacta International



Medacta is specialized in the design, production, and distribution of innovative orthopedic products, as well as in the development of accompanying surgical techniques. Established in 1999 in Switzerland, Medacta is active in joint replacement, spine surgery, and sports medicine.

Medacta is committed to improving the care and well-being of patients and maintains a strong focus on healthcare sustainability. Medacta's innovation, forged by close collaboration with expert surgeon globally, began with minimally invasive surgical techniques and has evolved into personalized solutions for every patient.

Through the M.O.R.E. Institute, Medacta supports surgeons with a comprehensive and tailored educational program.

- [www.medacta.com](http://www.medacta.com)

## Medtronic

# Medtronic

We lead global healthcare technology. Our Mission — to alleviate pain, restore health, and extend life — unites a global team of 90,000+ people. Transforming the lives of two people every second, every hour, every day. Medtronic. Engineering the extraordinary.

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The **ProAxis® Spinal Surgery Table** and **Levó® Modular Head Positioning System** are designed to provide surgeons with the access, visibility and precise control needed for a variety of spinal surgery procedures. Find out more at [mizuhosi.com](http://mizuhosi.com)

[mizuhosi.com](http://mizuhosi.com)



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medi, based in Bayreuth, Germany, is one of the world's leading manufacturers of medical aids. Following the motto "medi. I feel better", around 3,000 employees worldwide.

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## Mercian Surgical Limited






Mercian are a UK Medical Device company established since 1968 with over 50 years of experience in innovative and specialized High-Quality Spinal Instrumentation.

We are delighted to present at Spineweek a comprehensive range of Spinal Instrumentation for applications in the areas of Lumbar, Cervical & Anterior Spinal Surgery.

During the Meeting we are delighted to present our specialist programme of Spinal Instruments and Retractor Systems for Cervical & Lumbar Spinal Surgery including the popular McCulloch Micro Discectomy Retractor and Black Belt ACD Cervical Retractor.

We have a specialist Lumbar and Cervical Spine Instrument sets featured on our stand with a comprehensive 'tool kit' of all the Instruments a Surgeon requires for Lumbar and Cervical Spine Surgery.

 [www.merciansurgical.com](http://www.merciansurgical.com)  
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## Mizuho OSI






Mizuho OSI® improves the surgical experience through advanced patient positioning. With products like the ProAxis® Spinal Surgery Table and the Levó® Head Positioning System, surgeons are able to precisely adjust and align the patient's spine throughout surgery as needed.

ProAxis uses a unique hinge technology to support controlled flexion and extension of the lumbar spine. With features that include a fixed-position surgical site during hinge articulation, two memory settings to store the table's position, and radiolucent hinge, the ProAxis Table enhances surgical workflow and efficiency.

Our newest product, Levó, provides fluid yet controlled motion for safe, fast, and easy head positioning. The Trios® Surgical Table System is a modular platform featuring a two-column base with three interchangeable table tops that creates the flexibility needed to support a variety of spine, imaging, and orthopedic procedures.



Since introducing the first dedicated Spinal Table System in 1992, Mizuho OSI® has revolutionized the industry by providing surgeons with greater surgical access, unobstructed imaging, and enhanced safety.

 [www.mizuhosi.com](http://www.mizuhosi.com)  
 [www.facebook.com/TheMizuhoOSI](https://www.facebook.com/TheMizuhoOSI)  
 [www.twitter.com/MizuhoOSI](https://www.twitter.com/MizuhoOSI)

## Morpheus AG



Morpheus AG's goal is to become a leading manufacturer of highly innovative state-of-the-art surgical instruments. To achieve this, we permanently challenge the status quo by redefining the standards for such devices. Together with surgeons all over the world, we design and develop these next generation instruments for maximum safety, efficiency and effectiveness in the operating theatre. At SpineWeek 2023, we are pleased to launch our New Gen 2 REBELLION - The Ultimate Bone Removal System.

 [www.morpheus.com.ag](http://www.morpheus.com.ag)  
 [www.mectron.com](http://www.mectron.com)

## NATON MEDICAL AUS PTY LTD



We are NATON MEDICAL AUS PTY LTD, located in Melbourne. Naton Medical Group is a multinational company engaged in research and development, production, OEM and sales of orthopedic medical devices. We have 20 factories in China, Germany and Finland that produce raw materials and products. The company's brands include INION, BRICON, PINA, IRENE etc.

 [www.english.naton.cn](http://www.english.naton.cn)  
 [www.linkedin.com/company/naton-medical-aus-pty-ltd](https://www.linkedin.com/company/naton-medical-aus-pty-ltd)

## NBCE



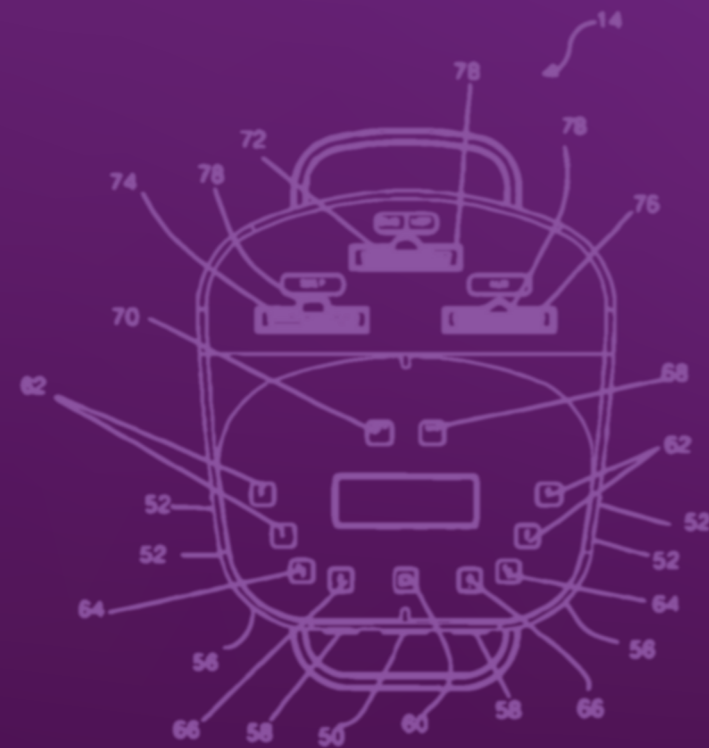
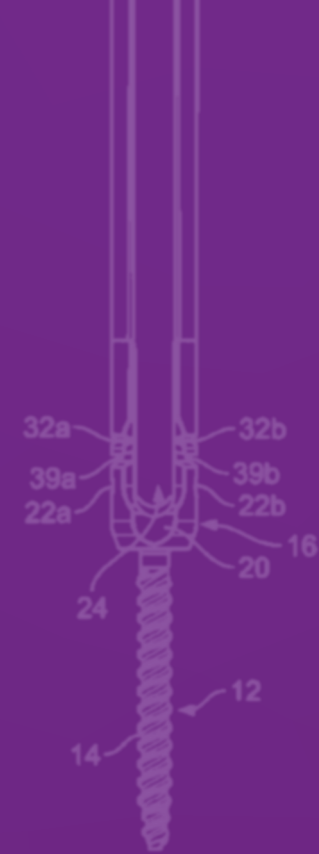
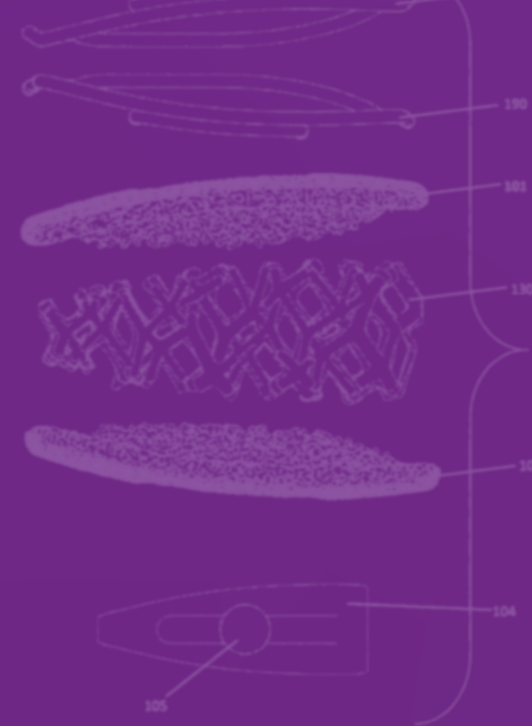
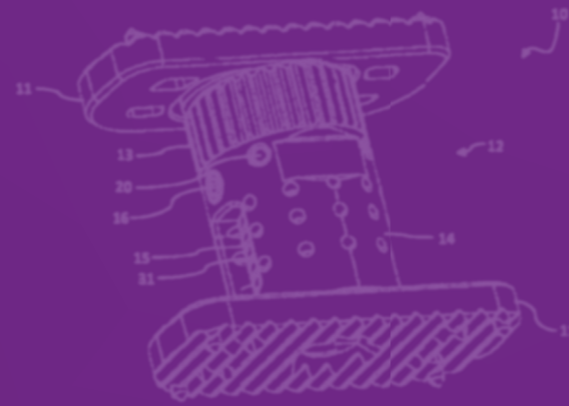
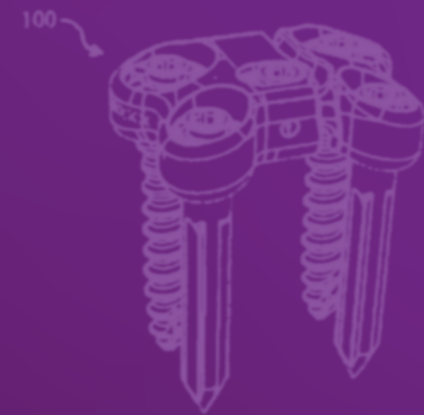
The National Board of Chiropractic Examiners (NBCE), including the International Board of Chiropractic Examiners (IBCE), is the international testing agency for the chiropractic profession. The NBCE develops, administers and scores standardized exams that assess knowledge, higher-level cognitive abilities and problem-solving in various basic science and clinical science subjects.

[www.nbce.org](http://www.nbce.org)



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procedural innovation  
surgeon partnership  
clinical validation  
best-in-class education  
changing lives



20 years ago, NuVasive set out to make less-invasive spine surgery more reproducible and improve patient care. Today, with ~300,000 procedures performed, 200+ dedicated educational courses hosted, 500+ peer-reviewed publications and 60+ products launched, we believe we created the best procedure in spine—XLIF.

Learn more at the NuVasive booth.



For important product safety information, visit [nuvasive.com/eIFU](https://www.nuvasive.com/eIFU)  
Contact us at [nuvasive.com/Contact](https://www.nuvasive.com/Contact)

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[nuvasive.com/XLIF](https://www.nuvasive.com/XLIF)



## Neurophysiology Services Australia



We are a Sydney based neurophysiology company specialising in intra-operative neuro monitoring (IONM) for complex spine, vascular & brain surgeries across Australia and New Zealand.


 [www.neurophys.com.au](http://www.neurophys.com.au)

## NuVasive



NuVasive, Inc. is the leader in spine technology innovation, with a mission to transform surgery, advance care, and change lives. The Company's less-invasive, procedurally integrated surgical solutions are designed to deliver reproducible and clinically proven outcomes. The Company's comprehensive procedural portfolio includes surgical access instruments, spinal implants, fixation systems, biologics, software for surgical planning, navigation and imaging solutions, magnetically adjustable implant systems for spine and orthopedics, and intraoperative neuromonitoring technology and service offerings. With more than \$1 billion in net sales, NuVasive operates in more than 50 countries serving surgeons, hospitals, and patients. For more information, please visit [www.nuvasive.com](http://www.nuvasive.com).

 [www.nuvasive.com](http://www.nuvasive.com)

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## Origin Biologics



Origin Biologics is a regenerative medicine company that develops and delivers innovative allograft solutions designed to support and maximize the body's regenerative and healing potential.

 [www.originbio.com](http://www.originbio.com)

 [www.linkedin.com/company/18853558](https://www.linkedin.com/company/18853558)

## Orthofix



Orthofix Medical Inc. is a global medical device company with a spine and orthopedics focus. The Company's mission is to deliver innovative, quality-driven solutions as we partner with health care professionals to improve patient mobility. Headquartered in Lewisville, Texas, Orthofix's spine and orthopedics products are distributed in more than 60 countries via the Company's sales representatives and distributors.

 [www.orthofix.com](http://www.orthofix.com)

## Perth Scoliosis Clinic



Our company is dedicated and passionate – we are committed to managing children, teenagers and adults with scoliosis through individualised Physiotherapeutic Scoliosis Specific Exercise (PSSE) programs, bracing and other evidence-based conservative management.

 [www.perthscoliosisclinic.com](http://www.perthscoliosisclinic.com)

 [www.facebook.com/Perthscoliosisclinic](https://www.facebook.com/Perthscoliosisclinic)

## PNG Angels



PNG Angels is an Australian registered charity, founded in 2019 by Dr Marc Coughlan. Our organisation is driven by a deep commitment to health equity, and a belief in the powerful impact of neurosurgery to allow people to live full and meaningful lives.

Currently only a handful of neurosurgeons are serving over 9 million people in Papua New Guinea (PNG), and the people of this developing naAon face enormous barriers to access. Our goal is to change that.

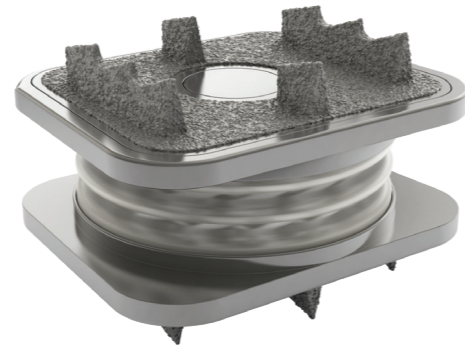
Our team of volunteer neurosurgeons, anaesthetists, and nurses conduct spine and cranial surgeries on philanthropic missions to Port Moresby General Hospital. Often these surgeries involve resecting life-threatening tumours. Without these surgeries, many patients would not survive. We also provide intensive training to equip local teams with the skills needed to perform surgeries independently.

 [www.pngangels.org.au](http://www.pngangels.org.au)

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To learn more about the M6 disc, visit [M6Disc.com](http://M6Disc.com)



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## Prism Surgical



At Prism Surgical we are a team of innovative thinkers who work to bring to market Australian-born innovation and invention. Our vision is to create solutions that are embraced by those passionate about the field of spine surgery, and we work tirelessly in pursuit of turning that vision into reality. We are proud to be a qualified and certified manufacturing of spinal devices, which allows us to provide our customers with the very best products and services.

[www.prismsurgical.com.au](http://www.prismsurgical.com.au)

## Realists



Realists Training Technologies GmbH is a leading provider and manufacturer of technologies and services in the field of spinal surgery.

[www.realists.de](http://www.realists.de)

[www.facebook.com/Realists-GmbH-325169924627100](https://www.facebook.com/Realists-GmbH-325169924627100)

## RIWOspine GmbH



RIWOspine has been pioneering endoscopic spine surgery over the last 20 years which makes the company one of the most experienced partners and a global leader for full-endoscopic spine surgery and interventional percutaneous pain therapy.

RIWOspine's standardized techniques are based on clinical validation and in-house development of all innovative products and instruments to make surgical procedures safe and successful.

Our new generation of medical devices are designed to fulfil the highest requirements in the OR and to make each full-endoscopic spine surgery more convenient.

RIWOspine GmbH.

[www.riwospine.com](http://www.riwospine.com)

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## ScoliCare



ScoliCare is dedicated to pioneering and delivering the world's best scoliosis treatment through innovation, education and patient-centered care.

With five Clinics in Australia, and Providers in Australia and around the world, our focus is on early detection and non-surgical treatment options to get patients the right treatment at the right time. ScoliCare leads research and develops new technologies such as proprietary 3D scanning technology (BraceScan), scoliosis rehabilitation orthotic (ScoliRoll), and a unique custom 3D scoliosis bracing system (ScoliBrace®).

We also offer a free confidential X-Ray review service, as well as welcome co-managing of patients with health professionals.

[www.scolicare.com](http://www.scolicare.com)

[www.facebook.com/scolicare](https://www.facebook.com/scolicare)

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## SeaSpine



SeaSpine® is a global medical technology company focused on the design, development and commercialization of surgical solutions for the treatment of patients suffering from spinal disorders. SeaSpine has a comprehensive portfolio of orthobiologics, spinal implants, and surgical navigation system solutions. Please visit [www.seaspine.com](http://www.seaspine.com) for more information.

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[www.facebook.com/seaspine](https://www.facebook.com/seaspine)

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## Shanghai Bojin Electric Instrument & Device Co., Ltd.



Bojin, dedicated in orthopedic products, has independently developed and produced a series of products such as medical electric saw and drill, external fixator, portable X-ray fluoroscopy instrument and fracture treatment instrument. Adhering to the enterprise philosophy of quality first, customer first, excellence and innovation, we will continue to deepen the medical device industry, accumulate advanced technology and management experience at home and abroad, and devote ourselves to improving product quality and providing users with better services.

[www.cn.bojin-medical.com](http://www.cn.bojin-medical.com)

[www.linkedin.com/company/shanghai-bojin-medical-instrument-co-ltd](https://www.linkedin.com/company/shanghai-bojin-medical-instrument-co-ltd)

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of experience



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over 50 countries



14 patent families  
in France and abroad



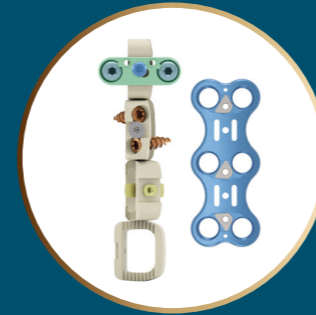
Medical devices certified  
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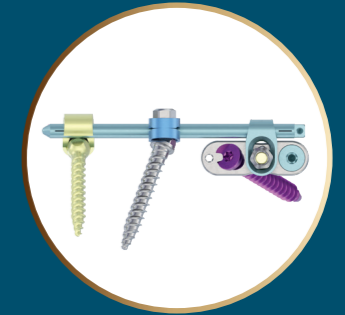
Spineway headquarters  
 International distribution network

The acquisitions of Distimp in 2021 and Spine Innovations in 2022 represent an incredible opportunity for Spineway to widen further its product offer and address additional pathologies, bundling portfolios and territories.

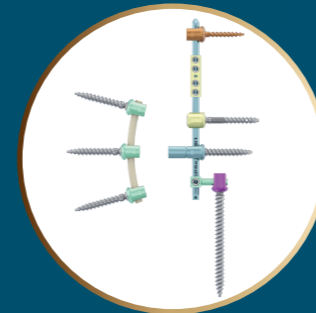
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osteosynthesis system



**ESP** ELASTIC SPINE PAD<sup>®</sup>  
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Lumbar interbody fusion  
cages

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## Shanghai Kinetic Medical Co.,Ltd



Kinetic are the top company in Kyphoplasty in China and we also want to be famous in the world.

 [www.kineticmedinc.com.cn](http://www.kineticmedinc.com.cn)

## SIGNUS Australia



Getting new standards in spinal surgery. That is our great passion. SIGNUS Medizintechnik supports physicians and medical specialist personnel with innovative and safe solutions for the treatment of spinal disorders – for optimal patient mobility in everyday situations. Commitment builds confidence: 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.

As an independent family-run company we have been pursuing this goal since 1994.

 [www.signus.com](http://www.signus.com)

## Solco



Orthopedic and Healthcare solutions by Solco Biomedical as 1st medical device manufacture in Korea.

[www.solco.co.kr](http://www.solco.co.kr)  
 [www.facebook.com/SOLCOBIO](https://www.facebook.com/SOLCOBIO)  


## Spineway Group







Independent French company created in Lyon in 2005, Spineway designs, develops and markets implants and instruments for spinal surgery worldwide.

Spineway has developed product families towards treatment of degenerative or trauma pathologies in open or minimal invasive approach, treatment of spinal deformity of adults and young children.

The acquisitions of Distimp in 2021 and Spine Innovations in July 2022 represent an incredible opportunity for Spineway to expand its product offer and address new pathologies, bundling portfolios and territories.

The recent acquisitions show the new direction of Spineway group towards innovation, premium product line up and penetration of high demanding markets.

 [www.spineway.com](http://www.spineway.com)  
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Surgalign is the future in Spine. While we may have a new look today as Surgalign (formerly RTI Surgical), we remain a global leader with our innovative spine solutions. Our comprehensive line of spine products and differentiated specialty products are backed by clinical research and are reshaping the standard of care in spine. We are deeply committed to new product innovation and delivering spine solutions designed in partnership with surgeons and experts to meet the diverse needs of spine patients globally.

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Symmetry Surgical, an Aspen Surgical Company, are a global surgical instrumentation company that manufactures and supplies high quality and innovative surgical instruments across all surgical specialties. Symmetry Surgical APAC division sources these surgical instruments directly from factories in USA & Germany, streamlining supply, which has enabled distribution of these trusted heritage branded instruments (Greenberg, Kerrisons, Olsen, Karlin) at reasonable pricing to Australian customers.

 [www.symmetrysurgical.com](http://www.symmetrysurgical.com)



## TeDan Surgical Innovations, Inc.



TeDan Surgical Innovations (TSI) designs and manufactures specialty surgical products for use in orthopedic, neuro, thoracic 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.

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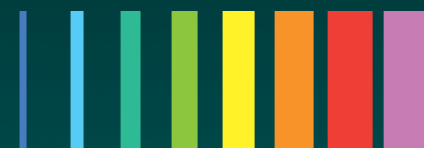
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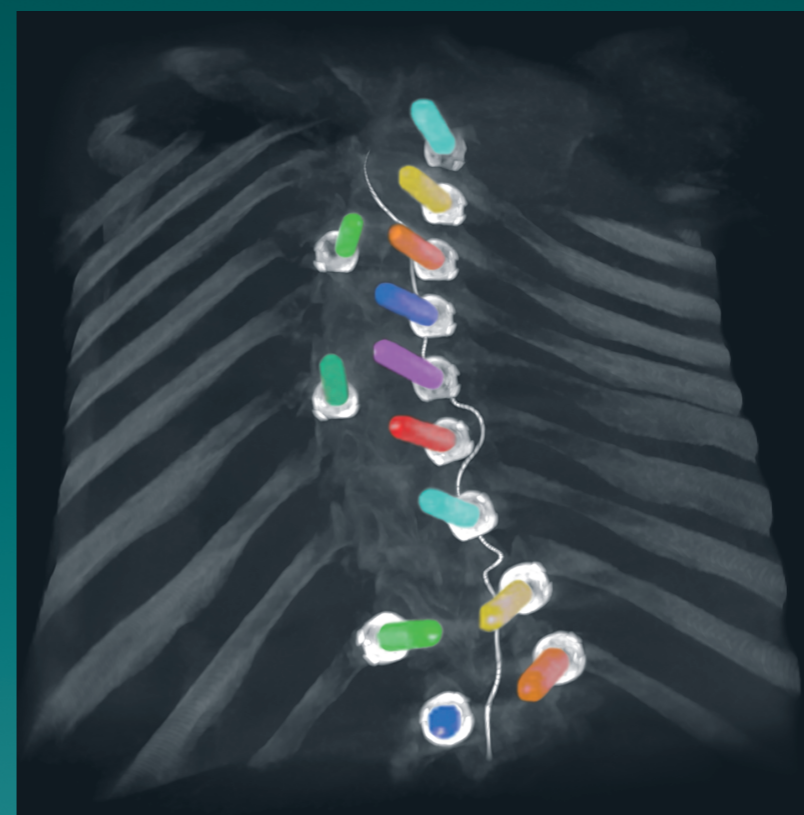
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