AnyPlus®

3D printing PLIF cage

Smooth Wedge-Shaped Design
- Easy Insertion

Minimized Sharp Edge
- Designed smooth edge for minimizing damage

Bullet-tip Nose
- The nose designed easy to rotational insertion

Interconnected Irregular Porous Structure
- Irregular porous structure provide optimized cellular adhesion and proliferation
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<tr>
<td>Organizing Committee</td>
<td>97</td>
</tr>
</tbody>
</table>
Dear Colleagues and Friends,

We are pleased to invite you to the 2023 Annual Meeting of the International Society for the Advancement of Spine Surgery, Asia-Pacific Section (ISASS AP 2023), hosted by the Korean Society for the Advancement of Spine Surgery (KOSASS), ISASS Korea Chapter, from August 16 to 19, 2023, at Conrad Seoul Hotel in Korea.

Since its foundation in 2004, the KOSASS, a group of orthopedists and neurosurgeons, has been dedicated to the advancement of spine surgery through the continued research and training of surgeons, achieving remarkable academic and technical growth over the past 20 years. As the Korea Chapter of the ISASS, we successfully held APSAS8 (1st Asia Pacific Conference) in 2008 and are now excited to welcome you to our 2nd meeting in Korea.

Though ISASS AP was postponed twice due to the pandemic, we strongly believe this will not only be an excellent opportunity to share invaluable experience and insights to propel the field of spine surgery beyond Asia, but also a timely event for all orthopedic surgeons and neurosurgeons from all over the world to unite and collaborate again after the absence due to the pandemic.

This year’s AP meeting will attract over 500 experts from 20 countries. The over 270 abstracts we have received will make for a rich scientific program comprised of 54 sessions with plenary lectures, symposia and free papers featuring Robotics, Endoscopy, ERAS, Master’s Techniques, Complications, MIS fusion, Deformity, and Outpatient Surgery as topics. We also have prepared an endoscopic cadaver workshop as a pre-meeting course as well as an international observer fellowship program is planning, so young surgeons can learn the A to Z of endoscopic surgery. In addition, over 50 exhibitors from medical device companies will share their latest innovations from the forefront of spine technology.

Our host city, Seoul, is a sensation! With a history stretching back more than two thousand years, Seoul’s downtown area is home to historic 600-year-old city walls, royal palaces, fortress gates, and invaluable historical heritages. One of the largest modern metropolises in the world, Seoul is considered a leading and rising global star as the world’s most wired, ranked first in technology readiness. While you are in Seoul, we hope you enjoy all the culture, food, and entertainment that this marvelous city has to offer.

We wish you have a good time at ISASS AP 2023!

Sincerely yours,

Seok Woo Kim
President of ISASS AP 2023

Keung Nyun Kim
President of ISASS AP 2023
PRESIDENTIAL ADDRESS & KEYNOTE ADDRESS

AUGUST 17 (Thursday), 10:35 - 11:15  ROOM A+B

PRESIDENTIAL ADDRESS
10:35 - 10:50
Seok Woo Kim
President of ISASS AP 2023

PRESIDENTIAL ADDRESS
10:50 - 10:55
Keung Nyun Kim
President of ISASS AP 2023

KEYNOTE ADDRESS
10:55 - 11:05
Michael Y. Wang
President of ISASS

INTRODUCTION OF IJSS
11:05 - 11:15
Charles L. Branch
Editor-in-Chief of IJSS
INVITED SPEAKERS & CHAIRS FROM ISASS

Massimo Balsano
University and Hospital Trust, Italy

Ali Araghi
The Core Institute, USA

Jack Zigler
Texas Back Institute, USA

Huilin Yang
The First Affiliated Hospital of Soochow University, China

Hansen A. Yuan
SUNY Upstate Medical University, USA

Anthony Yeung
Desert Institute for Spine Care, USA

Juan Uribe
Barrow Neurological Institute, USA

Neel Anand
Cedars-Sinai Spine Center, USA

Richard Hynes
The B.A.C.K. Center, USA

Sheeraz Qureshi
Weill Cornell Medical College, Cornell University, USA
INVITED SPEAKERS AND CHAIRS

Han Jo Kim
Hospital for Special Surgery,
USA

Paul Park
University of Tennessee Health Science Center, USA

Scott Blumenthal
Texas Back Institute,
USA

Stephen Ryu
Stanford University Medical Center, USA

Luthfi Gatam
Eka Hospital BSD, Indonesia

Mathan Sakti Yudha
Gadjah Mada University,
Indonesia

Fan Tao
Capital Medical University,
China

Hee Kit Wong
National University of Singapore, Singapore

Naresh Kumar
National University Hospital,
Singapore

Gabriel Liu Ka Po
National University Hospital,
Singapore

Jacob Oh
Tan Tock Seng Hospital,
Singapore

John Yunseo Choi
Spine Ortho Clinic,
Australia

David Edis
Victorian Orthopaedic Spine Service, Australia

Christian Mazel
University Paris Nord Sorbonne, France

Yoshihisa Kotani
Kansai Medical University Medical Center,
Japan

Toshiki Endo
Tohoku Medical and Pharmaceutical University,
Japan

Wataru Narita
Kameoka City Hospital,
Japan

Pham Anh Tuan
Nguyen Tri Phuong Hospital,
Vietnam

Tien Nguyen Le Bao
Viet Duc Hospital,
Vietnam

Shah Alam
Bangladesh Spine and Orthopedic Hospital,
Bangladesh
INVITED SPEAKERS AND CHAIRS

Kai-Uwe Lewandrowski  
Center for Advanced Spine Care of Southern Arizona, USA

Claudius Thomé  
Medical University Innsbruck, Germany

Muhammad Tariq Sohail  
Doctors Hosp. & Medical Ctr., Pakistan

Keng-Chang Liu  
Dalin Tzu Chi General Hospital, Taiwan

Ruey-Mo Lin  
Tainan Municipal An-Nan Hospital, China Medical University, Taiwan

Yen-Mou Lu  
Kaohsiung Medical University Hospital, Taiwan

Yung-Hsiao Chiang  
Taipei Medical University Hospital, Taiwan

Warat Tassanawipas  
Praram 9 Hospital, Thailand

Vit Kotheeranurak  
Chulalongkorn University & King Chulalongkorn Memorial Hospital, Thailand

Worawat Limthongkul  
Chulalongkorn University, Thailand

Weerasak Singhatanadgije  
King Chulalongkorn Memorial Hospital, Thailand

Chan Shik Shim  
Wooridul Spine Centre, Healthpoint Hospital, UAE
SYMPOSIUM SPEAKERS

Byung-Wan Choi
Inje University College of Medicine, Korea

Chang-II Ju
Chosun University College of Medicine, Korea

Cheol Wung Park
Daeyeon Woori Hospital, Korea

Dae-Chul Cho
Kyungpook National University School of Medicine, Korea

Dae-Jung Choi
Himnarea Hospital, Korea

Dong Hwa Heo
Champodonamu Hospital, Korea

Gun Woo Lee
Yeungnam University College of Medicine, Korea

Hyounghin Kim
Seoul National University College of Medicine, Korea

Hyun-Jin Park
Hallym University College of Medicine, Korea

Jae Chul Lee
Soochunhyang University College of Medicine, Korea

Jae Hwan Cho
University of Ulsan College of Medicine, Korea

Jae Taek Hong
The Catholic University of Korea College of Medicine, Korea

Jae-Hyuk Yang
Korea University College of Medicine, Korea

Jae-Young Hong
Korea University College of Medicine, Korea

Jeong-Yoon Park
Yonsei University College of Medicine, Korea

Joo Han Kim
Korea University College of Medicine, Korea

Ju-Eun Kim
Baroseomyeon Hospital, Korea

Junseok Bae
Wooridul Spine Hospital, Korea

Jun-Seok Lee
The Catholic University of Korea College of Medicine, Korea

Keun Su Kim
Yonsei University College of Medicine, Korea
SYMPOSIUM SPEAKERS

Sam Yeol Chang
Seoul National University College of Medicine, Korea

Sang-Bum Kim
Chungnam National University College of Medicine, Korea

Sang-Min Park
Seoul National University College of Medicine, Korea

Seok-Bong Jung
Jinju Bon Hospital, Korea

Seong Yi
Yonsei University College of Medicine, Korea

Seung Won Park
Chung-ang University College of Medicine, Korea

Sun Ho Lee
Sungkyunkwan University School of Medicine, Korea

Sung Bae Park
Seoul National University College of Medicine, Korea

Sung Bum Kim
Kyung Hee University School of Medicine, Korea

Tae-Keun Ahn
CHA University School of Medicine, Korea

Young-Yul Kim
The Catholic University of Korea College of Medicine, Korea

Yung Park
National Health Insurance Service Ilsan Hospital, Korea
# AUGUST 17 (Thursday)

<table>
<thead>
<tr>
<th>Time</th>
<th>Room A</th>
<th>Room B</th>
<th>Room C</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00-07:45</td>
<td>Registration Opens</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[FP 01] Adult Spinal Deformity 1</td>
<td>[FP 02] Endoscopic Technologies &amp; Techniques 1</td>
<td>[FP 03] MIS 1</td>
</tr>
<tr>
<td></td>
<td>[FP 04] Adult Spinal Deformity 2</td>
<td>[FP 05] Endoscopic Technologies &amp; Techniques 2</td>
<td>[FP 06] MIS 2</td>
</tr>
<tr>
<td>09:00-10:15</td>
<td>[SY 01] Adult Sagittal Imbalance</td>
<td>[SY 02] What You Should Know: How to Maximize the Effects of MIS Fusion</td>
<td></td>
</tr>
<tr>
<td>10:15-10:35</td>
<td>Refreshment Break with Exhibits (5F, Lobby)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:35-11:15</td>
<td>Presidential Address &amp; Keynote Address</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:15-12:35</td>
<td>[PL 01] MIS Surgery for ASD (Adult Spinal Deformity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:35-12:50</td>
<td>Group Photo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:05-15:25</td>
<td>Refreshment Break with Exhibits (5F, Lobby)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:55-16:25</td>
<td></td>
<td>[FP 08] Miscellaneous 2</td>
<td></td>
</tr>
<tr>
<td>17:30</td>
<td>Welcome Reception STUDIO 1+2+3 (6F)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## AUGUST 18 (Friday)

<table>
<thead>
<tr>
<th>Time</th>
<th>Room A</th>
<th>Room B</th>
<th>Room C</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00-08:00</td>
<td>Registration Opens</td>
<td>Registration Opens</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Continental Breakfast with Exhibits (5F, Lobby)</td>
<td>Continental Breakfast with Exhibits (5F, Lobby)</td>
<td></td>
</tr>
<tr>
<td>08:00-08:30</td>
<td>[FP 15] Trauma, Tumor &amp; Infection 3</td>
<td>[FP 16] Endoscopic Technologies &amp; Techniques 3</td>
<td>[FP 17] MIS 3</td>
</tr>
<tr>
<td>08:30-09:00</td>
<td>[FP 18] Emerging Technologies &amp; Techniques 1</td>
<td>[FP 19] Endoscopic Technologies &amp; Techniques 4</td>
<td>[FP 20] MIS 4</td>
</tr>
<tr>
<td>09:00-10:15</td>
<td>[SY 05] Long Term Follow Up of ADR (Artificial Disc Replacement)</td>
<td>[SY 06] Endoscopic Decompression for Complex Spinal Pathologies: Current State of the Art</td>
<td></td>
</tr>
<tr>
<td>10:15-10:35</td>
<td>Refreshment Break with Exhibits (5F, Lobby)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:55-12:10</td>
<td>Group Photo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:10-13:10</td>
<td>[LS 04] Luncheon 4</td>
<td>[LS 05] Luncheon 5</td>
<td>[LS 06] Luncheon 6</td>
</tr>
<tr>
<td>14:40-14:45</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[FP 21] Miscellaneous 5</td>
<td>[FP 22] Cervical Degenerative 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[FP 23] Cervical Degenerative 2</td>
<td>[FP 24] Lumbar Degenerative 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[FP 25] Lumbar Degenerative 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td>Cocktail Reception Lobby (3F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td>Gala Dinner Room A+B (3F)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## AUGUST 19 (Saturday)

<table>
<thead>
<tr>
<th>Time</th>
<th>Room A</th>
<th>Room B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grand Ballroom 3 (3F)</td>
<td>Grand Ballroom 2 (3F)</td>
</tr>
<tr>
<td>07:00-08:00</td>
<td>Registration Opens</td>
<td>Continental Breakfast with Exhibits (3F, Lobby)</td>
</tr>
<tr>
<td>08:00-08:30</td>
<td>[FP 26] Cervical Degenerative 3</td>
<td>[FP 27] Emerging Technologies &amp; Techniques 2</td>
</tr>
<tr>
<td>08:30-09:00</td>
<td>[FP 28] Cervical Degenerative 4</td>
<td>[FP 29] Emerging Technologies &amp; Techniques 3</td>
</tr>
<tr>
<td>09:00-09:30</td>
<td>Refreshment Break with Exhibits</td>
<td></td>
</tr>
<tr>
<td>11:15-11:45</td>
<td>[FP 32] Lumbar Degenerative 4</td>
<td>[FP 33] MIS 5</td>
</tr>
<tr>
<td>11:45-12:00</td>
<td>Adjourn</td>
<td></td>
</tr>
</tbody>
</table>
VENUE INFORMATION

CONRAD SEOUL HOTEL

Address | 10 Gukjegeumyung-ro Yeouido Yeongdeungpo-gu, Seoul, 07326, South Korea
Contact | Tel. +82-2-6137-7000
Email | Conrad_Seoul@conradhotels.com

HOW TO GET TO THE VENUE FROM AIRPORT

Taxi

<table>
<thead>
<tr>
<th>Type</th>
<th>Estimated Fare</th>
<th>Board</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Taxi</td>
<td>KRW 60,000-80,000</td>
<td>5C / 6C / 6D</td>
<td>5C Estimated Travel Time: 50 ~ 60min.</td>
</tr>
<tr>
<td>First Class / Oversized Taxi (Up to 9)</td>
<td>KRW 80,000-100,000</td>
<td>7C / 8C</td>
<td>5D</td>
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</table>

Bus

<table>
<thead>
<tr>
<th>Bus No.</th>
<th>Fare</th>
<th>Board</th>
<th>Interval</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>6007</td>
<td>KRW 17,000</td>
<td>6B-1 (1st Floor) / 27 (Floor B1)</td>
<td>50 ~ 70 min.</td>
<td>Conrad Seoul Hotel</td>
</tr>
</tbody>
</table>

[Map of venue locations including Incheon Int'l Airport Terminal 2, Times Square (Courtyard Hotel), National Assembly (Glad Hotel), Kensington Hotel, Yeouinnaru Stn., Fairmont Ambassador Seoul, Conrad Seoul Hotel, Yeongdeungpo Market Stn., and Fairmont Park by Marriott Hotel]
**VENUE INFORMATION**

**AREX (Airport Railroad Express)**

<table>
<thead>
<tr>
<th>Steps</th>
<th>Line</th>
<th>Fare</th>
<th>Dpt. Station</th>
<th>Arv. Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1.</td>
<td>Board</td>
<td>Term. 1</td>
<td>Term. 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Airport Railroad</td>
<td>Ticket:</td>
<td>Incheon</td>
<td>Gongdeok</td>
</tr>
<tr>
<td></td>
<td>(Blue-green)</td>
<td>KRW 4,150</td>
<td>Intl. Airport Term. 1</td>
<td></td>
</tr>
<tr>
<td>Step 2.</td>
<td>Transfer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subway Line 5</td>
<td>Ticket:</td>
<td>Incheon</td>
<td>Yeouido</td>
</tr>
<tr>
<td></td>
<td>(Purple)</td>
<td>KRW 4,750</td>
<td>Intl. Airport Term. 2</td>
<td></td>
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</table>

**FLOOR INFORMATION**

<table>
<thead>
<tr>
<th>Floor</th>
<th>Function</th>
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</thead>
<tbody>
<tr>
<td>37F</td>
<td>37 Grill &amp; Bar</td>
</tr>
<tr>
<td>37F</td>
<td>Presidential Banquet</td>
</tr>
<tr>
<td>11F - 36F</td>
<td>Guest Rooms</td>
</tr>
<tr>
<td>8F - 9F</td>
<td>Facilities</td>
</tr>
<tr>
<td>6F</td>
<td>Studio</td>
</tr>
<tr>
<td>6F</td>
<td>Welcome Reception (Studio 1+2+3)</td>
</tr>
<tr>
<td>5F</td>
<td>Park Ballroom</td>
</tr>
<tr>
<td>5F</td>
<td>Room C, Meeting Room</td>
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<tr>
<td>5F</td>
<td>Exhibition (Bronze-Exhibitor)</td>
</tr>
<tr>
<td>5F</td>
<td>Coffee Break (Aug. 17 - 18)</td>
</tr>
<tr>
<td>3F</td>
<td>Grand Ballroom</td>
</tr>
<tr>
<td>3F</td>
<td>Room A/B, E-Poster, Registration, Preview</td>
</tr>
<tr>
<td>3F</td>
<td>Exhibition (Diamond-Bronze)</td>
</tr>
<tr>
<td>3F</td>
<td>Gala Dinner (Room A+B)</td>
</tr>
<tr>
<td>3F</td>
<td>Coffee Break (Aug. 19)</td>
</tr>
<tr>
<td>2F</td>
<td>Restaurant</td>
</tr>
<tr>
<td>GL</td>
<td>Lobby</td>
</tr>
<tr>
<td>L1</td>
<td>IFC Mall</td>
</tr>
<tr>
<td>L1</td>
<td>Passageway from subway to hotel</td>
</tr>
<tr>
<td>P7 - P5</td>
<td>Parking</td>
</tr>
<tr>
<td>P7 - P5</td>
<td>Free parking available</td>
</tr>
</tbody>
</table>
VENUE INFORMATION

3F

- Opening Ceremony
- Presidential & Keynote Address
- Plenary Lecture
- Symposium
- Luncheon
- Best Paper
- Free Paper
- Gala Dinner
- Adjourn

5F

- Presidential & Keynote Address
- Plenary Lecture
- Symposium
- Luncheon
- Best Paper
- Free Paper
- Gala Dinner

Meeting Room (ISASS AP Board Meeting)

- Free Paper
- Luncheon
VENUE INFORMATION

6F

STUDIO 1+2+3
Welcome Reception
ATTENDEE INFORMATION

REGISTRATION
All participants are required to check in at the registration desk to pick up their name badge.

Location | 3F, Lobby (By the elevator)
Operation Hours | August 17 (Thu) – August 18 (Fri) 07:00 – 18:00
                | August 19 (Sat) 07:00 – 12:00

On-site Registration Fees

<table>
<thead>
<tr>
<th>Category</th>
<th>Korean</th>
<th>Overseas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeon</td>
<td>KRW 300,000</td>
<td>USD 300</td>
</tr>
<tr>
<td>Allied Health (PA, NP, etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resident/ Fellow/ Student</td>
<td>KRW 150,000</td>
<td>USD 150</td>
</tr>
<tr>
<td>Spouse/ Family Member</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgeon – Emerging Country</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Registration Fees include: Participation in all scientific sessions, exhibitions, lunch box during luncheon symposium, coffee breaks, conference kit, welcome reception and gala dinner (for pre-registered participants only).
- Conference Kit will be distributed with your name badge at the registration desk. The kit includes a bag, program book and exhibition flyer.

LUNCH AND COFFEE BREAK

Luncheon Symposium
Lunch boxes will be served in the luncheon symposium session rooms. Please present your lunch coupon to receive a lunch box.

<table>
<thead>
<tr>
<th>Luncheon</th>
<th>LS 01</th>
<th>LS 02</th>
<th>LS 03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date/ Time</td>
<td>August 17 (Thu), 12:50-13:50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place</td>
<td>3F Room A</td>
<td>3F Room B</td>
<td>5F Room C</td>
</tr>
</tbody>
</table>

Sponsored by

![VIATRIS](image) ![CGBIO](image) ![SpanoTech Co. Ltd.](image)
ATTENDEE INFORMATION

<table>
<thead>
<tr>
<th>Luncheon</th>
<th>LS 04</th>
<th>LS 05</th>
<th>LS 06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date/ Time</td>
<td>August 18 (Fri), 12:10-13:10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place</td>
<td>3F Room A</td>
<td>3F Room B</td>
<td>5F Room C</td>
</tr>
<tr>
<td>Sponsored by</td>
<td>G5 Medical</td>
<td>Medtronic</td>
<td>Dong-A ST</td>
</tr>
</tbody>
</table>

Coffee Breaks
Coffee will be served during refreshment break times on the 5F, August 17 (Thu) – August 18 (Fri) and 3F, August 19 (Sat).

CERTIFICATE OF ATTENDANCE OR PRESENTATION
The certificate of attendance can be downloaded from the ISASS AP 2023 website after the conference. The certificate of presentation can be issued after the conference by email. Please send a request to the secretariat (info@isassap.org) with your name, affiliation and presentation code.

CME CREDIT INFORMATION (Korean Only)
대한의사회학회 평점
등록대에서 수령한 명찰에 인쇄된 바코드를 리더기에 태그해 주시기 바랍니다. (대회장 입장 시 1회, 퇴장 시 1회 (1일 총 2회 이상) 태그 필수)

일자별 최대 취득가능 평점 안내
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<th>8월 19일(토)</th>
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부분 평점 인정 기준 안내

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<td>4시간 이상 ~ 5시간 미만</td>
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<td>5시간 이상 ~ 6시간 미만</td>
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<tr>
<td>6시간 이상</td>
<td>6평점</td>
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PARKING
Free parking is available by providing your parking information at the registration desk.
ATTENDEE INFORMATION

What to Do & What to See in Seoul!

NEAR THE VENUE

Yeouido Hangang Park
Situated in Seoul’s center of politics, finance, and media, Yeouido Hangang Park is one of the most popular spots for relaxation among Seoul residents.

63 Building Observatory (63 Art)
The 60th floor of the 63 Building has long been loved as a place where you can see the outstanding scenery of Seoul around the Han River.

National Assembly Building
The National Assembly Building houses Korea’s legislative branch of government and is located in Yeouido.

Shopping Malls
IFC Mall | Connected to the Conrad Seoul Hotel, the IFC Mall is a spacious indoor shopping center. Shoppers can browse from a diverse range of stores that sell apparel, cosmetics, international designer brands, and more.
The Hyundai Seoul | The Hyundai Seoul, the largest shopping mall in Seoul, offers visitors a relaxing shopping experience with 49% of its entire property dedicated to recreational areas.

EXPERIENCING SEOUL

Gyeongbokgung Palace
Gyeongbokgung Palace was the first royal palace built by the Joseon Dynasty, three years after the Joseon Dynasty was founded.

Dongdaemun Design Plaza (DDP)
DDP was selected as one of the "Top 52 Places to Visit in 2015" by the New York Times and was the most Instagram tagged location in Korea in the year 2015.
ATTENDEE INFORMATION

Insa-dong
Insa-dong, located in the heart of the city, is an important place where old but precious, traditional goods are on sale.

Cheonggyecheon Stream
Cheonggyecheon is a 10.9-kilometre-long (6.8 mi), public, recreation space in downtown Seoul. The massive urban renewal project is on the site of a stream that flowed before the rapid post-war economic development caused it to be covered by transportation infrastructure.

Useful Travel Website
- Seoul City Tourism: http://www.visitseoul.net
- Korean Tourism Organization: http://kto.visitkorea.or.kr/eng.kto
- Seoul Metropolitan Government: http://english.seoul.go.kr
SPEAKERS AND CHAIRS GUIDELINES

PREVIEW ROOM
Please submit your presentation file to the Preview Room at least 1 hour prior to your scheduled session to ensure the files function correctly in the given environment.

Location | 3F, Lobby
Operation Hours | August 17 (Thu) – August 18 (Fri) 07:00 – 17:00
| August 19 (Sat) 07:00 – 11:00

- The staff will help you submit the presentation file. Please notify the staff in the Preview Room if the slides contain any video or audio.
- Preview Room is only available for submitting and checking files (No personal or other internet use).
- It is not recommended that you connect your personal laptop directly to the podium because it may cause errors. (Please also note that connecting a pad or mobile to the screen directly is not possible).
- If you need to connect your personal laptop due to unavoidable circumstances, please let the staff in the preview room know in advance. (For MacBooks, you must have a USB-C type adapter.)

SPEAKER GUIDELINES
- Speakers should be present in the session room 10 minutes prior to the session time.
- To avoid time delays, speakers should keep the time allocated to them.
- When your presentation ends, please be seated on the panel seat on the stage for the next presentation.

CHAIR GUIDELINES
- Chairs are kindly requested to be in the room at least 10 minutes before the session.
- Please run the session as scheduled for smooth progress. (It may be helpful for chairs to notify the presentation time (including Q&A) to speakers once again before they begin. Please also help the speaker to finish the presentation on time.)
- During the Discussion, we request you encourage participants to ask brief questions, voluntarily.
- If a speaker is absent or late, the staff in the session room will notify the chairs in advance.
SOCIAL EVENTS

OPENING CEREMONY
· August 17 (Thu), 07:45 – 08:00
· 3F, Room A
  We warmly welcome all our participants from all around the world.

WELCOME RECEPTION
· August 17 (Thu), 17:30 -
· 6f, STUDIO 1+2+3
  This will be a perfect opportunity for all participants to meet and greet each other and celebrate the first day of ISASS AP 2023.
  * Attire: Business casual

PRESIDENTIAL BANQUET (Invited Only)
· August 17 (Thu), 18:30 -
· 37F, 37 Grill & Bar
  Respected spine doctors from around the world will gather to celebrate the inauguration of ISASS AP 2023 and share visions for our future development.
  * Attire: Business casual

GALA DINNER
· August 18 (Fri), 18:00 -
· 3F, Room A+B
  Come and take part in the highlights of ISASS AP 2023 and enjoy a fabulous evening with world leading faculty. During the Cocktail Reception (17:00-18:00), we are hosting a Photo Zone event. Preserve your memories at ISASS AP 2023 with a snapshot.
  * Attire: Business casual

ADJOURN
· August 19 (Sat), 11:45 - 12:00
· 3F, Room A
  We will wrap up the ISASS AP 2023. Also, the two best podium presentations (One from each best paper session) will be announced and awarded at the Adjournment.
BOOTH LAYOUT

Operation Hours | August 17 (Thu) – August 18 (Fri) 07:00 – 18:00  
August 19 (Sat) 07:00 – 12:00

1. ZEISS KOREA
2. CUREXO
3. Baxter Healthcare
4. HK inno.N Corporation
5. Amgen Korea
6. Dalimmedical
8. Janssen Korea
9. Viatris Korea
10. CGbio
11. GS Medical
12. SAMIL PHARMACEUTICAL CO., LTD
13. Dong-A ST
14. Medtronic Korea
15. SpinoTech Co., Ltd.
16. DAEWON PHARM

Room A
Room B

Conrad Seoul Hotel, Seoul, Korea | August 16(Wed) - 19(Sat), 2023 | ISASS AP 2023
**BOOTH LAYOUT**

**5F**

*Operation Hours* | August 17 (Thu) – August 18 (Fri) 07:00 – 18:00

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17  Seolim Inc.  
18  OSTEONIC  
19  L&K Biomed Co. Ltd.  
20  DAIICHI SANKYO KOREA CO., LTD  
21  HANSBIOMED  
22  Corentec  
23  CELLUMED  
24  HONECARE  
25  Samjinpharm  
26  WSI  
27  SIMENS Healthineers Ltd.  
28  Hanmi Science  
29  Innosys Co., Ltd.  
30  B-care  
31  ILYANG PHARM  
32  ENDOVISION. Co. Ltd  
33  DAEWOONG  
34  ALLOGEN  
35  Chong Kun Dang  
36  SK Chemicals  
37  Medyssey  
38  LG Chem  
39  Leica Microsystems Ltd. Korea  
40  KnP  
41  ALVOGEN KOREA  
42  JW Pharmaceutical  
43  Stryker Korea  
44  Myungmoon Pharm. Co., Ltd.  
45  Johnson and Johnson MedTech Korea  
46  GENOSS Co., Ltd.  
47  GE Healthcare Korea  
48  SOLCO BIOMEDICAL CO., LTD
SCIENTIFIC PROGRAM
AUGUST 17 (Thursday)

07:45-08:00 Opening Ceremony 3F, Room A

08:00-08:30 [FP01] Free Paper 1
Adult Spinal Deformity 1 3F, Room A

Chairs
- Shah Alam (Bangladesh Spine and Orthopedic Hospital, Bangladesh)
- Kyu Jung Cho (Inha University College of Medicine, Korea)
- Seong Yi (Yonsei University College of Medicine, Korea)

08:00-08:05 [FP01-1]
Surgery Using an Iliac Screw in Patients with Non-Ambulatory Neuromuscular Scoliosis Worsens Hip Subluxation by Reducing the Pelvic Tilting Angle. (Relationship between Pelvic Parameters and Hip Subluxation in Surgery Using a Mono-Iliac Screw)
Sang-Ho Kim (College of Medicine, Yonsei University, Korea)

08:05-08:10 [FP01-2]
Influence of Negative Sagittal Imbalance and Upper Cervical Malalignment on Clinical Outcomes in Patients with Craniovertebral Junction Kyphosis
Jae Tae Hong (Eunpyung St. Mary’s Hospital, The Catholic University of Korea, Korea)

08:10-08:15 [FP01-3]
Is There an Association between Psychiatric Disorders and Adolescent Idiopathic Scoliosis? A Large-Database Study
Soo-Bin Lee (Catholic Kwandong University International St.Mary’s Hospital, Korea)

08:15-08:20 [FP01-4]
Can Intraoperative C2 Slope Predict Postoperative Standing Sagittal Alignment Following Cervical Deformity Correction?
Namhoo Kim (Yonsei University College of Medicine, Korea)

08:20-08:30 Discussion
AUGUST 17 (Thursday)

08:00-08:30  [FP02] Free Paper 2
Endoscopic Technologies & Techniques 1

Chairs
Yung-Hsiao Chiang (Taipei Medical University Hospital, Taiwan)
Chang-Nam Kang (Hanyang University College of Medicine, Korea)
Sung Bum Kim (Kyung Hee University School of Medicine, Korea)

08:00-08:05  [FP02-1]
Biportal Endoscopic Paraspinal Decompressive Foraminotomy for Lumbar Foraminal Stenosis: Clinical Outcomes and Factors Influencing Unsatisfactory Outcomes
Ki-Han You (Hallym University College of Medicine, Kangnam Sacred Heart Hospital, Korea)

08:05-08:10  [FP02-2]
Minimally Invasive Transforaminal Lumbar Interbody Fusion Using the Biportal Endoscopic Techniques Versus Microscopic Tubular Technique
Hyun-Jin Park (Hallym university Kangnam Sacred Heart Hospital, Korea)

08:10-08:15  [FP02-3]
Learning Curve and Clinical Outcome of Biportal Endoscopic-Assisted Lumbar Interbody Fusion
Ju Eun Kim (Baroseomyeon Hospital, Korea)

08:15-08:20  [FP02-4]
Anterior Cervical Discectomy and Fusion Versus Cervical Biportal Endoscopic Spine Surgery: A Retrospective Comparison with a Five-Year Experiences
Seok Bong Jung (Jinju Bon Hospital, Korea)

08:20-08:30  Discussion
## AUGUST 17 (Thursday)

### 08:00-08:30  [FP03] Free Paper 3

**MIS 1**

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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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</thead>
<tbody>
<tr>
<td>08:00-08:05</td>
<td>FP03-1</td>
<td>Learning Curve for Biportal Endoscopic Posterior Cervical Foraminotomy Determined Using the Cumulative Summation Test</td>
<td>Jin-Tak Hyun (Kangnam Sacred Heart Hospital, Hallym University College of Medicine, Korea)</td>
</tr>
<tr>
<td>08:05-08:10</td>
<td>FP03-2</td>
<td>Ten-Year Outcomes of Minimally Invasive Versus Open Transforaminal Lumbar Interbody Fusion in Patients with Single-Level Lumbar Spondylolisthesis</td>
<td>Young-Hyun Yoon (Yonsei University College of Medicine, Korea)</td>
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<tr>
<td>08:10-08:15</td>
<td>FP03-3</td>
<td>Fusion Success in Patients with Degenerative Lumbar Disease without Spondylolisthesis: A Global Study Comparing Anterolateral Versus Posterior MIS Approaches at 2-Years Follow-Up</td>
<td>Jiwon Park (Korea University Ansan Hospital, Korea)</td>
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<tr>
<td>08:15-08:20</td>
<td>FP03-4</td>
<td>Mini Open Retropelureal Approach Based on Microneuropin spinal Surgical Anatomy Focusing on Membranes and Layers</td>
<td>Takashi Moriwaki (Osaka Gyoumeikan Hospital, Japan)</td>
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### Discussion
AUGUST 17 (Thursday)

08:30-09:00  [FP04] Free Paper 4

**Adult Spinal Deformity 2**

**Chairs**
- Fan Tao (Capital Medical University, China)
- Chang Ju Hwang (University of Ulsan College of Medicine, Korea)
- Joo Han Kim (Korea University College of Medicine, Korea)

08:30-08:35  [FP04-1]

**Decision of Pedicle Subtraction Osteotomy Vertebra in Surgical Correction for Ankylosing Spondylitis with Thoracolumbar Kyphosis**

Xiongjie Li (Kyung Hee University Hospital at Gangdong, Kyung Hee University, China)

08:35-08:40  [FP04-2]

**Use of Iliac Screw Associated with More Correction of Lumbar Lordosis than S2-Alar-Iliac Screw for Adult Spinal Deformity**

JunBum Park (Kyung Hee University Hospital at Gangdong, Kyung Hee University, Korea)

08:40-08:45  [FP04-3]

**Distal Junctional Failure after Long Fusion Surgery Stopping at L5 in Patients with Adult Spinal Deformity**

Ho Yong Choi (Kyung Hee University Hospital at Gangdong, Korea)

08:45-08:50  [FP04-4]

**Custom Interbody Cage Design and Manufacturing for Correction of Lumbar Spine Deformity**

David Edis (Monash University, Australia)

08:50-09:00  Discussion
AUGUST 17 (Thursday)

08:30-09:00 [FP05] Free Paper 5
Endoscopic Technologies & Techniques 2

Chairs
Luthfi Gatam (Eka Hospital BSD, Indonesia)
Hyun-Jin Park (Hallym University College of Medicine, Korea)
Junseok Bae (Wooridul Spine Hospital, Korea)

08:30-08:35 [FP05-1]
Clinical Analysis of Biportal Endoscope and Tubular Microscope for Single-Level Lumbar Discectomy in Obese Patients: A Multicenter, Retrospective Analysis
Sang-Min Park (Seoul National University Bundang Hospital, Korea)

08:35-08:40 [FP05-2]
Single-Level Endoscopic TLIF Achieves Similar 1-Year Clinical and Radiological Outcomes Compared to Conventional MIS-TLIF with Reduced Surgery Duration, Blood Loss and Length of Hospital Stay
David Shaoen Sim (Singapore General Hospital, Singapore)

08:40-08:45 [FP05-3]
Comparison of Primary Versus Revision Lumbar Discectomy Using a Biportal Endoscopic Technique
Jae Yeu Hwang (Kangnam Sacred Heart Hospital, Hallym University School of Medicine, Korea)

08:45-08:50 [FP05-4]
Effectiveness of the Two-Way BESS Decompression in Central to Extraforaminal Stenosis Patients with Facet Joint Preservation: Minimum 1 Year Short-Term Follow Up
Young-Hyun Yoon (Yonsei University College of Medicine, Korea)

08:50-09:00 Discussion
AUGUST 17 (Thursday)

08:30-09:00  [FP06] Free Paper 6
MIS 2

08:30-08:35  [FP06-1]
Slip Reduction in Oblique Lateral Interbody Fusion for Degenerative Spondylolisthesis
Hee-Woong Chung (Ajou University Hospital, Korea)

08:35-08:40  [FP06-2]
Decompression without Fusion in Degenerative Lumbar Spondylolisthesis: Biportal Endoscopic Spinal Surgery
Ho-Jin Lee (Chungnam National University College of Medicine, Korea)

08:40-08:45  [FP06-3]
A Morphological Assessment Method for Percutaneous Augmentation in Elderly Osteoporotic Bursting Fracture
Yu-Ching Hsiao (National Cheng Kung University, Taiwan)

08:45-08:50  [FP06-4]
Cost-Utility Analysis of Endoscopic Lumbar Discectomy Following a Uniform Clinical Pathway in the Korean National Health Insurance System
Chi Heon Kim (Seoul National University Hospital, Korea)

08:50-09:00  Discussion
### AUGUST 17 (Thursday)

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<tr>
<td>09:00-10:15</td>
<td><strong>[SY01] Symposium 1</strong>&lt;br&gt;Adult Sagittal Imbalance</td>
<td>3F, Room A</td>
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<td></td>
<td>Chairs&lt;br&gt;Yoshihisa Kotani (Kansai Medical University Medical Center, Japan)&lt;br&gt;Chong-Suh Lee (Bumin Hospital, Korea)&lt;br&gt;Jung-Kil Lee (Chonnam National University Medical School, Korea)</td>
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<td>09:00-09:12</td>
<td><strong>[SY01-1]</strong>&lt;br&gt;Deformity Surgery in the Elderly</td>
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<td></td>
<td>Paul Park (University of Tennessee Health Science Center, USA)</td>
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<td>09:12-09:24</td>
<td><strong>[SY01-2]</strong>&lt;br&gt;Selecting Osteotomy Location in Revision Surgery for Adult Sagittal Imbalance</td>
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<td>Han Jo Kim (Hospital for Special Surgery, USA)</td>
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<td>09:24-09:36</td>
<td><strong>[SY01-3]</strong>&lt;br&gt;Patient-Specific Implants to Accurately Attain Desired Spinal Alignment</td>
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<td>Jae-Hyuk Yang (Korea University College of Medicine, Korea)</td>
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<td>09:36-09:48</td>
<td><strong>[SY01-4]</strong>&lt;br&gt;Cervical Spondylotic Kyphosis with Stenosis: C7/T1 Sparing Anterior Only Multi-Level Correction</td>
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<td>Keun Su Kim (Yonsei University College of Medicine, Korea)</td>
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<td>09:48-10:00</td>
<td><strong>[SY01-5]</strong>&lt;br&gt;How to Prevent PJK with MIS Techniques for ASD</td>
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<td>Neel Anand (Cedars-Sinai Medical Center, USA)</td>
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<td>10:00-10:15</td>
<td>Discussion</td>
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### AUGUST 17 (Thursday)

<table>
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<tr>
<th>Time</th>
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| 09:00-10:15 | [SY02] Symposium 2  
*What You Should Know: How to Maximize the Effects of MIS Fusion*  
3F, Room B |
|          | Chairs: Vit Kotheeranurak (Chulalongkorn University & King Chulalongkorn Memorial Hospital, Thailand)  
Jae Chul Lee (Soonchunhyang University College of Medicine, Korea)  
Seung Won Park (Chung-ang University College of Medicine, Korea) |
| 09:00-09:12 | [SY02-1]  
*Single Position Posterior Instrumentation after Minimally Invasive Lateral Fusion*  
Worawat Limthongkul (Chulalongkorn University, Thailand) |
| 09:12-09:24 | [SY02-2]  
*Minimizing Radiation Exposure for MIS Spinal Fusion: Enhancing Safety and Surgical Precision with Technology*  
Stephen Ryu (Stanford University Medical Center, USA) |
| 09:24-09:36 | [SY02-3]  
*Improving Lordosis in MIS Fusions - What Strategies Are Available?*  
Jacob Oh (Tan Tock Seng Hospital, Singapore) |
| 09:36-09:48 | [SY02-4]  
*Expandable Lumbar Interbody Fusion Cages in the Treatment of Spinal Deformity*  
Charles L. Branch (Wake Forest University School of Medicine, USA) |
| 09:48-10:00 | [SY02-5]  
*Use of Various Bone Substitutes for MIS Fusion; Pros and Cons of Each Substitutes*  
Sang-Bum Kim (Chungnam National University College of Medicine, Korea) |
| 10:00-10:15 | Discussion |
| 10:15-10:35 | Refreshment Break with Exhibits |
AUGUST 17 (Thursday)

10:35-11:15  Presidential Address & Keynote Address  
  3F, Room A+B

10:35-10:50  Presidential Address  
  Seok Woo Kim (President of ISASS AP 2023)

10:50-10:55  Presidential Address  
  Keung Nyun Kim (President of ISASS AP 2023)

10:55-11:05  Keynote Address  
  Michael Y. Wang (President of ISASS)

11:05-11:15  Introduction of IJSS  
  Charles L. Branch (Editor-in-Chief of IJSS)

11:15-12:35  [PL01] Plenary Lecture 1  
  MIS Surgery for ASD (Adult Spinal Deformity)  
  3F, Room A+B

  Chairs  Jacob Oh (Tan Tock Seng Hospital, Singapore)  
  Michael Y. Wang (University of Miami Hospital, USA)  
  Jung-Hee Lee (Kyung Hee University School of Medicine, Korea)  
  Keung Nyun Kim (Yonsei University College of Medicine, Korea)

11:15-11:20  [PL01-1]  
  Introduction: What’s Happening Now?  
  Jacob Oh (Tan Tock Seng Hospital, Singapore)

11:20-11:32  [PL01-2]  
  Tailored Modification of Lateral Access Surgery for Minor and Major Spinal Deformities  
  Jae Chul Lee (Soonchunhyang University College of Medicine, Korea)

11:32-11:44  [PL01-3]  
  Multilevel MIS Lateral Fusion for Adult Spinal Deformity  
  Neel Anand (Cedars-Sinai Medical Center, USA)
AUGUST 17 (Thursday)

11:44-11:56  [PL01-4]
Anterior Column Realignment for Adult Spinal Deformity
Juan Uribe (Barrow Neurological Institute, USA)

11:56-12:08  [PL01-5]
Comparative Analysis of Clinical and Radiologic Outcome after MIS Correction vs Classic Technique
Jae-Young Hong (Korea University College of Medicine, Korea)

12:08-12:20  [PL01-6]
Utilization of Neuromonitoring and Its Clinical Significance in MIS Deformity Surgery
Jae Taek Hong (The Catholic University of Korea College of Medicine, Korea)

12:20-12:35  Discussion

12:35-12:50  Group Photo

12:50-13:50  [LS01] Luncheon Symposium 1
Viatris Korea

Chair  Sun Ho Lee (Sungkyunkwan University School of Medicine, Korea)

12:50-13:50  [LS01]
Neuropathic Pain in Low Back Pain: Prevalence, Risk Factor and Real Practice
Ji-Won Kwon (Yonsei University College of Medicine, Korea)
AUGUST 17 (Thursday)

12:50-13:50  [LS02] Luncheon Symposium 2
CGbio

Chair  Chang-Nam Kang (Hanyang University College of Medicine, Korea)

12:50-13:20  [LS02-1]
Efficacy and Safety of Novosis Putty
Jae Hwan Cho (University of Ulsan College of Medicine, Korea)

Chair  Keung Nyun Kim (Yonsei University College of Medicine, Korea)

13:20-13:50  [LS02-2]
Advanced Expandable Cage in MIS-TLIF: EXCENDER
Jeong-Yoon Park (Yonsei University College of Medicine, Korea)

12:50-13:50  [LS03] Luncheon Symposium 3
SpinoTech Co., Ltd.

Chair  Jae Taek Hong (The Catholic University of Korea College of Medicine, Korea)

12:50-13:20  [LS03-1]
Kinematics/ Mechanical Properties Review Surrounding the Cervical Arthroplasty; Prompting the Proper Implementation of the Devices
Junho Lee (Kyung Hee University School of Medicine, Korea)

ROTAIO Cervical Arthroplasty; Kinematic Rationale and Clinical Experience
Claudius Thomé (Medical University Innsbruck, Germany)
AUGUST 17 (Thursday)

13:50-15:05 [SY03] Symposium 3
Current Issues of Deformity Surgery

3F, Room A

Chairs
Han Jo Kim (Hospital for Special Surgery, USA)
Hak-Sun Kim (Yonsei University College of Medicine, Korea)
Seung-Hwan Yoon (Inha University College of Medicine, Korea)

13:50-14:02 [SY03-1]
Adult Deformity with OLIF51
Yoshihisa Kotani (Kansai Medical University Medical Center, Japan)

14:02-14:14 [SY03-2]
Minimally Invasive Techniques to Reduce Morbidity and Improve Alignment
Sam Yeol Chang (Seoul National University College of Medicine, Korea)

14:14-14:26 [SY03-3]
ACR for Treating Deformities
Michael Y. Wang (University of Miami Hospital, USA)

14:26-14:38 [SY03-4]
MIS (Thoracoscopy) in Pediatric Scoliosis with Tethering
Massimo Balsano (University and Hospital Trust, Italy)

14:38-14:50 [SY03-5]
Optimizing Value in Adult Spinal Deformity Surgery
Han Jo Kim (Hospital for Special Surgery, USA)

14:50-15:05 Discussion
## AUGUST 17 (Thursday)

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<tr>
<td>13:50-14:02</td>
<td><strong>[SY04-1]</strong>&lt;br&gt;Adjacent Segmental Pathology after Minimally Invasive TLIF - 1, 2, 5 and 10 Years Follow-Up</td>
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<td>Yung Park (National Health Insurance Service Ilsan Hospital, Korea)</td>
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<tr>
<td>14:02-14:14</td>
<td><strong>[SY04-2]</strong>&lt;br&gt;Minimally Invasive Lateral Fusion or OLIF...Which Is Best?</td>
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<td></td>
<td>Richard Hynes (The B.A.C.K. Center, USA)</td>
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<td>14:14-14:26</td>
<td><strong>[SY04-3]</strong>&lt;br&gt;Advancement of Intervertebral Cage Technology; How Did It Impact MIS Fusion?</td>
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<td>Tae-Keun Ahn (CHA University School of Medicine, Korea)</td>
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<td>14:26-14:38</td>
<td><strong>[SY04-4]</strong>&lt;br&gt;L5/S1 OLIF; Technical Consideration and Application</td>
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<td></td>
<td>Seung Won Park (Chung-ang University College of Medicine, Korea)</td>
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<td>14:38-14:50</td>
<td><strong>[SY04-5]</strong>&lt;br&gt;Complication Avoidance and Management in MI-TLIF</td>
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<td>Weerasak Singhatanadgige (King Chulalongkorn Memorial Hospital, Thailand)</td>
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<td>14:50-15:05</td>
<td>Discussion</td>
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<td>15:05-15:25</td>
<td>Refreshment Break with Exhibits</td>
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</tbody>
</table>
AUGUST 17 (Thursday)

15:25-16:25 [BP01] Best Paper 1

Chairs
Wataru Narita (Kameoka City Hospital, Japan)
Hansen A. Yuan (SUNY Upstate Medical University, USA)
Jin Sup Yeom (Seoul National University College of Medicine, Korea)
Jae Chil Jang (Soonchunhyang University College of Medicine, Korea)

15:25-15:35 [BP01-1]
Can We Control Lateral Shoulder Balance through Proximal Thoracic Curve Correction in Lenke Type 2 Adolescent Idiopathic Scoliosis?
Hyung Rae Lee (Uijeongbu Eulji Medical Center, Korea)

15:35-15:45 [BP01-2]
Rotational Changes Following Use of Direct Vertebral Rotation in Adolescent Idiopathic Scoliosis
Dong-Gune Chang (Inje University Sanggye Paik Hospital, Korea)

15:45-15:55 [BP01-3]
Time-Dependent Changes in Stiffness-Related Functional Disability (SRFD) after Long Segmental Fusion in Elderly Patients with Adult Spinal Deformity - Minimum 2-Year Follow-Up Results -
Se-Jun Park (Samsung Medical Center, Sungkyunkwan University School of Medicine, Korea)

15:55-16:05 [BP01-4]
Selective Thoracolumbar Fusion in Adult Spinal Deformity (ASD) Double Curves with Circumferential Minimally Invasive Surgery (CMIS): 2-Year Minimum Follow Up
Neel Anand (Cedars-Sinai Medical Center, USA)

16:05-16:15 [BP01-5]
Stable Long-Term Regional and Global Alignment in Patients Treated with Minimally Invasive Lateral Retropleural Thoracic Discectomy without Fixation
Steve Cho (Barrow Neurological Institute, USA)

16:15-16:25 [BP01-6]
Advancements in Cervical Myelopathy Treatment: Exploring Minimally Invasive Laminoplasty through Comparative Analysis
Wataru Narita (Kameoka Municipal Hospital, Japan)
AUGUST 17 (Thursday)

15:25-16:25 [BP02] Best Paper 2

Chairs
Muhammad Tariq Sohail (Doctors Hosp. & Medical Ctr., Pakistan)
Charles L Branch (Wake Forest University School of Medicine, USA)
Young-Yul Kim (The Catholic University of Korea College of Medicine, Korea)
Chun Kee Chung (Seoul National University College of Medicine, Korea)

15:25-15:35 [BP02-1]
Proximal Junction Uninstrumented Bone Fusion as a Feasible Additive Procedure to Delay or Prevent Proximal Junctional Kyphosis/Failure
Sungjae An (Korea University Anam Hospital, Korea)

15:35-15:45 [BP02-2]
Comparison of Fusion, Subsidence, and Clinical Results between 3D-Printed Porous Titanium Cage and Polyetheretherketone (PEEK) Cage in Posterior Lumbar Interbody Fusion: A Minimum of 2-Years Follow-Up
Sehan Park (Asan Medical Center, University of Ulsan College of Medicine, Korea)

15:45-15:55 [BP02-3]
Revision Surgery of Upper Cervical Fusion to Correct Atlantoaxial Instability: A Retrospective Study of 19 Cases
Donghun Kim (Eunpyeong St. Mary’s Hospital, Korea)

15:55-16:05 [BP02-4]
Design and 3D Printing of Novel Titanium Spine Rods with Lower Flexural Modulus & Stiffness Profile with Optimised Imaging Compatibility
Naresh Kumar (National University Health System, Singapore)

16:05-16:15 [BP02-5]
The Corrective Criteria to Avoid Adjacent Segment Degeneration Following Surgical Correction for Lumbar Spondylolisthesis
Sung-Min Kim (Kyung Hee University Hospital at Gangdong, Kyung Hee University, Korea)

16:15-16:25 [BP02-6]
Efficacy of a Newly Designed Helical-Shaped 3D-Printed Titanium Cage for Cervical Vertebral Defect Healing in Rabbits
Mosharraf Hossain (Soonchunhyang University, College of Medicine, Bucheon Hospital, Bangladesh)
AUGUST 17 (Thursday)

Miscellaneous 1

Chairs
Hee Kit Wong (National University of Singapore, Singapore)
Jin Hwan Kim (Inje University College of Medicine, Korea)
Seung-Myung Moon (Hallym University College of Medicine, Korea)

15:25-15:30 [FP07-1]
Machine Learning-Based Measurement of the Regional and Global Spinal Parameters Using the Concept of Incidence Angle of Inflection Points
Sung Hoon Choi (Hanyang University Hospital, Korea)

15:30-15:35 [FP07-2]
Injectable Nanomaterial-Based Peptide Hydrogel: A Novel Therapeutic Approach for Intervertebral Disc Regeneration
Inbo Han (CHA Univ. School of Medicine, Korea)

15:35-15:40 [FP07-3]
Applying Bioglu® after Durotomy in Intradural Spinal Cord Tumor Causing Neurologic Deterioration
Sun Woo Jang (Asan Medical Center, Korea)

15:40-15:45 [FP07-4]
Monolithic 3D-Printed Silicon Nitride-PEEK Composite Cervical Cages Demonstrate Antimicrobial Effects in Vitro
Ryan Bock (SINTX Technologies, USA)

15:45-15:55 Discussion
## AUGUST 17 (Thursday)

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<tr>
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</table>
| 15:55-16:25 | **[FP08] Free Paper 8**  
Miscellaneous 2 | 5F,  
Room C |
| Chairs  | John Yunseo Choi (Spine Ortho Clinic, Australia)  
Kee-Won Rhyu (The Catholic University of Korea College of Medicine, Korea)  
Koang Hum Bak (Hanyang University College of Medicine, Korea) |
| 15:55-16:00 | **[FP08-1]**  
Does Posterior Lumbar Interbody Fusion Using 16 Degree Rectangular Shape 3-D Cage with Modified Smith-Peterson Osteotomy Provides Proper Segmental Lordosis? |        |
| Sung Bum Kim (Kyung-Hee University Medical Center, Korea) |
| 16:00-16:05 | **[FP08-2]**  
Comparative Analysis of the Occurrence Factors for Adjacent Segment Disease -With Patients Followed More than 10 Years after Lumbar Spinal Fusion- |        |
| Taejong Jeong (Sahmyook Seoul Medical Center, Korea) |
| 16:05-16:10 | **[FP08-3]**  
Short-Term Outcomes of B-Dyn Dynamic Fixation System in Treatment of Lumbar Degenerative Diseases |        |
| Ngoc Quyen Nguyen (108 Military Central Hospital, Vietnam) |
| 16:10-16:15 | **[FP08-4]**  
Sacroiliac Joint Injection for Management Sacroiliac Joint Pain after Lumbosacral Spinal Fusion Surgery: A Retrospective Study at One Center in Vietnam |        |
| Vo Thanh Nghia (Neurosurgery, Vietnam) |
| 16:15-16:25 | Discussion |        |
AUGUST 17 (Thursday)

Trauma, Tumor & Infection 1

Chair: Ruey-Mo Lin (Tainan Municipal An-Nan Hospital, China Medical University, Taiwan)
Chang Hwa Hong (Soonchunhyang University College of Medicine, Korea)
Jeong-Yoon Park (Yonsei University College of Medicine, Korea)

16:25-16:30 [FP09-1]
Prognostic Factors in Spinal Intradural Hemangioblastoma: An Analysis of Surgical Outcomes and Tumor Characteristics
Hyun Jun Jang (Gangnam Severance Hospital, Korea)

16:30-16:35 [FP09-2]
Trends in Survival and Surgical Methods in Patients Surgically Treated for Metastatic Spinal Tumors: 25-Year Experience in a Single Institution
Han-Seok Yang (Samsung Medical Center, Sungkyunkwan University School of Medicine, Korea)

16:35-16:40 [FP09-3]
Bone Bridge Effect for the Treatment of Acute Osteoporosis Vertebral Compression Fractures: Multistrategic Approach Using Anabolic Versus Anti-Resorptive Agents
Ja-Yeong Yoon (Sun General Hospital, Korea)

16:40-16:45 [FP09-4]
Clinical Outcomes of Surgical Debridement Only in Pyogenic Spondylitis
Ohsang Kwon (Seoul National University Bundang Hospital, Korea)

16:45-16:55 Discussion
AUGUST 17 (Thursday)

Biomechanics

Chairs  Yung-Hsiao Chiang (Taipei Medical University Hospital, Taiwan)
        Sam Yeo Chang (Seoul National University College of Medicine, Korea)
        Hyeun Sung Kim (Nanoori Hospital, Korea)

16:25-16:30  [FP10-1]
Determining the Instantaneous Center of Rotation of the Cervical Spine via
Computer-Assisted Radiographic Analysis
Jae Hyuk Shin (St. Vincent’s Hospital, The Catholic University of Korea, Korea)

16:30-16:35  [FP10-2]
Biomechanical Comparison of Posterior Fixation Combinations with an
Allograft Spacer between the Lateral Mass and Pedicle Screws
Soo-Bin Lee (Catholic Kwandong University International St.Mary’s Hospital, Korea)

16:35-16:40  [FP10-3]
Exploring the Correlation between MRI Degenerative Stages of Intervertebral
Discs, Chemical Composition, and Biomechanical Properties of the Nucleus
Pulposus
Kuo-Yuan Huang (National Cheng Kung University Hospital, College of Medicine, National
Cheng Kung University, Taiwan)

16:40-16:45  [FP10-4]
The Effect of a New Tethering Device on the Biomechanics of Short-Segment
Fusion of the Lumbar Spine: A Finite Element Analysis
Natthaphat Viriya (Chulalongkorn University, Thailand)

16:45-16:55  Discussion
AUGUST 17 (Thursday)

Miscellaneous 3

Chairs: Worawat Limthongkul (Chulalongkorn University, Thailand)
        Jaewan Soh (Sahmyook Medical Center, Korea)
        Dosang Cho (Ewha Womans University College of Medicine, Korea)

16:25-16:30  [FP11-1]
Lumbar Arthroplasty for Treatment of Primary or Recurrent Lumbar Disc Herniation
Juan Amaya (Spine Ortho Clinic, Colombia)

16:30-16:35  [FP11-2]
The Result of Treating Myelopathy due to Cervical Disc Herniation with Anterior Cervical Discectomy and Fusion Surgery
Duy Nguyen Nhat (University of Medicine and Pharmacy, Vietnam)

16:35-16:40  [FP11-3]
Unconstrained Cervical Total Disc Replacement Not One Design Suits Every Patient. Case Report
Juan Amaya (Spine Ortho Clinic, Colombia)

16:40-16:45  [FP11-4]
How Would One Select Levels to be Instrumented in Metastatic Spine Tumour Surgery?
Naresh Kumar (National University Hospital, Singapore)

16:45-16:55  Discussion
AUGUST 17 (Thursday)

Trauma, Tumor & Infection 2

Chairs  Fan Tao (Capital Medical University, China)
Dong Ki Ahn (Seoul Sacred Heart General Hospital, Korea)
Sun Ho Lee (Sungkyunkwan University School of Medicine, Korea)

16:55-17:00  [FP12-1]
Effect of Preoperative Acupuncture and Epidural Steroid Injection on Postoperative Infection after Lumbar Spinal Surgery
Sahyun Sung (College of Medicine, Ewha Womans University Seoul Hospital, Korea)

17:00-17:05  [FP12-2]
Pharmacokinetic Interpretation of Applying Local Drug Delivery System for the Treatment of Deep Surgical Site Infection in the Spine
Ahmad Khalid Madadi (Inje University, Afghanistan)

17:05-17:10  [FP12-3]
Which Factors Are Associated with the Risk of Re-Operation after Percutaneous Vertebroplasty or Kyphoplasty for Thoracolumbar Vertebral Fracture? Analysis of the National Health Insurance Service Claims Data in Korea (2006-2017)
Sung-ryul Choi (Yonsei University College of Medicine, Korea)

17:10-17:15  [FP12-4]
Anatomical Consideration for Anterior Approach of Cervicothoracic Junction: A CT Image Analysis
Eugene Park (Kyungpook National University Hospital, Korea)

17:15-17:25  Discussion
AUGUST 17 (Thursday)

Value, Outcomes & Healthcare Economics  
3F, Room B

Chairs  Hee Kit Wong (National University of Singapore, Singapore)  
Hun-Kyu Shin (Sungkyunkwan University School of Medicine, Korea)  
Yong-Jun Cho (Hallym University College of Medicine, Korea)

16:55-17:00  [FP13-1]  
Woon Tak Yuh (Hallym University Dongtan Sacred Heart Hospital, Korea)

17:00-17:05  [FP13-2]  
Risk of Reoperation and Infection Rate after Spine Osteotomy and Fusion Compare with Spinal Fusion Alone  
Jaewon Shin (National Health Insurance Service, Korea)

17:05-17:10  [FP13-3]  
The Modified Frailty Index Can Predict the Postoperative Complications after Lumbar Spine Surgery  
Jiwon Park (Korea University Ansan Hospital, Korea)

17:10-17:15  [FP13-4]  
Does Epidural Steroid Injection Affect Osteoporosis in Patients with Denosumab Therapy?  
JunHan Kim (CHA Bundang Medical Center, CHA University, Korea)

17:15-17:25 Discussion
AUGUST 17 (Thursday)

Miscellaneous 4

Chairs  Michael Y. Wang (University of Miami Hospital, USA)
        Jae Hwan Cho (University of Ulsan College of Medicine, Korea)
        Yoon Ha (Yonsei University College of Medicine, Korea)

16:55-17:00  [FP14-1]
Risk Factors for Radiographic Progression of Proximal Junctional Fracture in Patients Undergoing Surgical Treatment for Adult Spinal Deformity
Choong-Won Jung (Samsung Medical Center, Sungkyunkwan University School of Medicine, Korea)

17:00-17:05  [FP14-2]
Case-Based Review of Surgical Treatment for Pediatric Sacrococcygeal Teratomas
Mohammad Mohsen Mosleh (Inje University Ilsan Paik Hospital, Graduate School of Medicine, Afghanistan)

17:05-17:10  [FP14-3]
Tandem Spinal Stenosis: A Proposed Algorithm Based on Systematic Review
Todsapon Chancharoenchai (Chulalongkorn University, Thailand)

17:10-17:15  [FP14-4]
Feasibility Assessment of an Expandable Lumbar Interbody Cage in Patients with High-Risk Factors for Subsidence: Preliminary Report
Byung-Il Yoon (Chung-Ang University Hospital, College of Medicine, Chung-Ang University, Korea)

17:15-17:25  Discussion

17:30  Welcome Reception 6F, STUDIO 1+2+3
AUGUST 18 (Friday)

08:00-08:30  [FP15] Free Paper 15  
Trauma, Tumor & Infection 3

Chairs  Paul Park (University of Tennessee Health Science Center, USA)  
       Jeong-Hyun Yoo (Seongnam Citizens Medical Center, Korea)  
       Chang-Il Ju (Chosun University College of Medicine, Korea)

08:00-08:05  [FP15-1]  
Optimal Surgical Methods for Solitary Metastasis of the Thoracolumbar Spine  
Chang-Min Ha (Samsung Medical Center, Sungkyunkwan University School of Medicine, Korea)

08:05-08:10  [FP15-2]  
Some Aspects of Dorsal Stabilization in Odontoid Fractures  
Konstantin Semkin (Simferopol Emergency Hospital, Russia)

08:10-08:15  [FP15-3]  
Application of Open Door Laminoplasty Following Intradural Tumor Resection in Cervical, Thoracic, and Lumbar Spine  
Andhika Yudistira (Universitas Brawijaya, Indonesia)

08:15-08:20  [FP15-4]  
Incidence and Treatment Trends of Infectious Spondylodiscitis in South Korea: A Nationwide Population-Based Study  
Hee Jung Son (Nowon Eulji Medical Center, Eulji University School of Medicine, Korea)

08:20-08:30  Discussion
# AUGUST 18 (Friday)

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<th>Speaker</th>
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| 08:00-08:30 | [FP16] Free Paper 16 | **Endoscopic Technologies & Techniques 3** | **Chairs**
Stephen Ryu (Stanford University Medical Center, USA)
Dae-Jung Choi (Himnaera Hospital, Korea)
Seung-Won Choi (Chungnam National University College of Medicine, Korea)

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<th>Time</th>
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<th>Speaker</th>
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<tbody>
<tr>
<td>08:00-08:05</td>
<td>[FP16-1]</td>
<td><strong>How to Manage Intraoperative and Postoperative Bleeding in Unilateral Biportal Endoscopic Spine Surgery</strong></td>
<td>Yong Jin Park (Suncheon Hana Hospital, Korea)</td>
</tr>
<tr>
<td>08:05-08:10</td>
<td>[FP16-2]</td>
<td><strong>Learning Curve and Clinical Outcome of Biportal Endoscopic Transforaminal Lumbar Interbody Fusion</strong></td>
<td>Sang Bum Kim (Sejong Cheung Nam University Hospital, Korea)</td>
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<tr>
<td>08:10-08:15</td>
<td>[FP16-3]</td>
<td><strong>What Is the Real Cause of a Postoperative Spinal Epidural Hematoma in Hypertensive Patients?</strong></td>
<td>Young Rok Go (Seoul Sacred Heart General Hospital, Korea)</td>
</tr>
<tr>
<td>08:15-08:20</td>
<td>[FP16-4]</td>
<td><strong>Comparison of Minimal Invasive Versus Biportal Endoscopic Transforaminal Lumbar Interbody Fusion for Single-Level Lumbar Disease</strong></td>
<td>Ju Eun Kim (Baroseomyeon Hospital, Korea)</td>
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08:20-08:30 Discussion
## AUGUST 18 (Friday)

### 08:00-08:30  [FP17] Free Paper 17

**MIS 3**

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<th>Speakers</th>
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<tbody>
<tr>
<td>08:00</td>
<td>[FP17-1]</td>
<td>The Influence on Adjacent Lumbar Segment after Oblique Lumbar Interbody Fusion for Spondylolisthesis</td>
<td>Tae Shin Kim (Champodonamu Hospital, Korea)</td>
</tr>
<tr>
<td>08:05</td>
<td>[FP17-2]</td>
<td>Does Direct Decompression Necessary for Lateral Lumbar Interbody Fusion (LLIF)?: A Randomized Control Trial</td>
<td>Worawat Limthongkul (Chulalongkorn University and King Chulalongkorn Memorial Hospital, Thailand)</td>
</tr>
<tr>
<td>08:10</td>
<td>[FP17-3]</td>
<td>Risk Factors for Predicting &quot;Clinical&quot; Indirect Decompression Failure</td>
<td>Kaweekrai Anusart (Chulalongkorn University, Thailand)</td>
</tr>
<tr>
<td>08:15</td>
<td>[FP17-4]</td>
<td>Effect of Difference Hip Positions on Lumbar Lordosis in Single Lateral Position for Lateral Lumbar Interbody Fusion</td>
<td>Natavut Prasertkul (Chulalongkorn University and King Chulalongkorn Memorial Hospital, Thailand)</td>
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<td>08:20</td>
<td>Discussion</td>
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**Chairs**
Juan Uribe (Barrow Neurological Institute, USA)
Eun Seok Son (Keimyung University School of Medicine, Korea)
Je Hoon Jeong (Soonchunhyang University College of Medicine, Korea)
AUGUST 18 (Friday)

08:30-09:00  [FP18] Free Paper 18  
Emerging Technologies & Techniques 1

Chairs  Scott Blumenthal (Texas Back Institute, USA)  
Deuk Soo Jun (Gachon University College of Medicine, Korea)  
Sung Bae Park (Seoul National University College of Medicine, Korea)

08:30-08:35  [FP18-1]  
Multi-Pose-Based Convolutional Neural Network Model for Diagnosis of Patients with Central Lumbar Spinal Stenosis  
Chang-Hyun Lee (Seoul National University Hospital, Korea)

08:35-08:40  [FP18-2]  
Frontal Channel EEG-Based Biomarkers for Pain Severity Detection: Spectral Analysis, Phase-Amplitude Coupling, and Machine Learning Integration  
Seungjun Ryu (Daejeon Eulji University Hospital, Korea)

08:40-08:45  [FP18-3]  
Deep Learning Approach for Automatic Point Detection and Sagittal Alignment Analysis in Whole-Spine Lateral Radiographs  
Sung Hyun Noh (Ajou University Hospital, Korea)

08:45-08:50  [FP18-4]  
Comparative Study of Sagittal and Coronal Plane Balance of the Spine Measured Using a 3D Anthropometric Device and Spine X-Ray  
Tae Hoon Kang (SMG-SNU BRM Medical Center, Korea)

08:50-09:00  Discussion
AUGUST 18 (Friday)

08:30-09:00  [FP19] Free Paper 19  
Endoscopic Technologies & Techniques 4

Chairs  Richard Hynes (The B.A.C.K. Center, USA)  
        Kwang-Sup Song (Chung-ang University College of Medicine, Korea)  
        Dong Ah Shin (Yonsei University College of Medicine, Korea)

08:30-08:35  [FP19-1]  
Expansion of Application of Unilateral Biportal Endoscopy in Degenerative Thoracic Disease  
Hun-chul Kim (Daechan Hospital, Korea)

08:35-08:40  [FP19-2]  
Posterior Cervical Foraminotomy Using Endoscopic Spine Surgery  
Taehwan Chun (Samsung Grand Hospital, Korea)

08:40-08:45  [FP19-3]  
Is Surgeon’s Uniportal Experience Important for Unilateral Biportal Endoscopic Laminetomy? Comparative Analysis of Learning Curve Beginner and Uniportal Expert  
Young San Ko (Keimyung University, Korea)

08:45-08:50  [FP19-4]  
Percutaneous Endoscopic Lumbar Interbody Fusion B Transkambin or Posterolateral Approach? A Novel Technique-Expandable Tunnel for Protection of Exiting Root and Traversing Root  
Yi-Hung Huang (Chia Yi Christian Hospital, Taiwan)

08:50-09:00  Discussion
AUGUST 18 (Friday)

08:30-09:00  [FP20] Free Paper 20
MIS 4

Chairs  Anthony Yeung (DISC (Desert Institute for Spine Care), USA)
        Ki-Tack Kim (Dong Tan City Hospital, Korea)
        Jin-Sung Kim (The Catholic University of Korea College of Medicine, Korea)

08:30-08:35  [FP20-1]
A Comparative Analysis of Bi-Portal Endoscopic Spine Surgery and Unilateral Laminotomy for Bilateral Decompression in Multilevel Lumbar Stenosis Patients
Sub-Ri Park (Yonsei University College of Medicine, Korea)

08:35-08:40  [FP20-2]
An Expanded Surgical Corridor for Oblique Lumbar Interbody Fusion at L4/5: A Magnetic Resonance Imaging Study
Pakawas Praisarnti (Chulalongkorn University and King Chulalongkorn Memorial Hospital, Thailand)

08:40-08:45  [FP20-3]
Minimally Invasive Transforaminal Lumbar Interbody Fusion for Spondylolisthesis: 2 Years Results at Vietduc Hospital
Tien Nguyen Le Bao (Viet Duc Hospital, Vietnam)

08:45-08:50  [FP20-4]
A Less Sacrifice of Stabilizing Structure Treatment by Bilateral-Contralateral Decompression for Spinal Stenosis in Degenerative Spondylolisthesis Using Unilateral Biportal Endoscopy
Dong Hyun Lee (The Leon Wiltse Memorial Hospital, Korea)

08:50-09:00  Discussion
### AUGUST 18 (Friday)

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<th>Chairs</th>
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<tr>
<td>09:00-10:15</td>
<td><strong>[SY05] Symposium 5</strong>&lt;br&gt;Long Term Follow Up of ADR (Artificial Disc Replacement)**</td>
<td>3F, Room A</td>
<td>Jack Zigler (Texas Back Institute, USA)&lt;br&gt;Dong-Ho Lee (University of Ulsan College of Medicine, Korea)&lt;br&gt;Hyunchul Shin (Sungkyunkwan University School of Medicine, Korea)</td>
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<tr>
<td>09:00-09:12</td>
<td><strong>[SY05-1]</strong>&lt;br&gt;Long Term Outcomes in Lumbar Arthroplasty</td>
<td>3F, Room A</td>
<td>Jack Zigler (Texas Back Institute, USA)</td>
</tr>
<tr>
<td>09:12-09:24</td>
<td><strong>[SY05-2]</strong>&lt;br&gt;Long-term Result of Cervical Arthroplasty</td>
<td>3F, Room A</td>
<td>Ali Araghi (The Core Institute, USA)</td>
</tr>
<tr>
<td>09:24-09:36</td>
<td><strong>[SY05-3]</strong>&lt;br&gt;CDA vs. Fusion for Multilevel Cervical Pathologies</td>
<td>3F, Room A</td>
<td>Byung-Wan Choi (Inje University College of Medicine, Korea)</td>
</tr>
<tr>
<td>09:36-09:48</td>
<td><strong>[SY05-4]</strong>&lt;br&gt;Long-term Results and Controversies of Cervical TDR</td>
<td>3F, Room A</td>
<td>Keun Su Kim (Yonsei University College of Medicine, Korea)</td>
</tr>
<tr>
<td>09:48-10:00</td>
<td><strong>[SY05-5]</strong>&lt;br&gt;Nucleus Replacement on an Early Stage Technology</td>
<td>3F, Room A</td>
<td>Ali Araghi (The Core Institute, USA)</td>
</tr>
<tr>
<td>10:00-10:15</td>
<td>Discussion</td>
<td>3F, Room A</td>
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AUGUST 18 (Friday)

09:00-10:15 [SY06] Symposium 6
Endoscopic Decompression for Complex Spinal Pathologies:
Current State of the Art

Chairs
Keng-Chang Liu (Dalin Tzu Chi General Hospital, Taiwan)
Si Young Park (Yonsei University College of Medicine, Korea)
Choon Keun Park (Suwon Leon Wiltse Memorial Hospital, Korea)

09:00-09:12 [SY06-1]
Endoscopic Cervical Decompression, Is It the Real Deal?
Vit Kotheeranurak (Chulalongkorn University & King Chulalongkorn Memorial Hospital, Thailand)

09:12-09:24 [SY06-2]
Biportal Endoscopic ULBD for Thoracic Spinal Stenosis Secondary to Ossified Ligamentum Flavum
Cheol Wung Park (Daejeon Woori Hospital, Korea)

09:24-09:36 [SY06-3]
Endoscopic Spine Fusion: Short and Long-Term Outcomes
Ju-Eun Kim (Baroseomyeon Hospital, Korea)

09:36-09:48 [SY06-4]
Endoscopic Spine Fusion: Inevitable Complications and Deal
Dong Hwa Heo (Champodonamu Hospital, Korea)

09:48-10:00 [SY06-5]
Modified Techniques for Full-Endoscopic Decompression Surgery
Chang-II Ju (Chosun University College of Medicine, Korea)

10:00-10:15 Discussion

10:15-10:35 Refreshment Break with Exhibits
AUGUST 18 (Friday)

Navigation and Robotics: Present and Future

Chairs
Yen-Mou Lu (Kaohsiung Medical University Hospital, Taiwan)
Stephen Ryu (Stanford University Medical Center, USA)
Sang-Bum Kim (Chungnam National University College of Medicine, Korea)
Eun Sang Kim (Sungkyunkwan University School of Medicine, Korea)

10:35-10:40 [PLO2-1]
Introduction: What’s Happening Now?
Stephen Ryu (Stanford University Medical Center, USA)

10:40-10:52 [PLO2-2]
Navigated LLIF
Paul Park (University of Tennessee Health Science Center, USA)

10:52-11:04 [PLO2-3]
Intraoperative CT Image-Based Navigation-Guided Surgery
Juan Uribe (Barrow Neurological Institute, USA)

11:04-11:16 [PLO2-4]
Robot-Guided Pedicle Screw Insertion
Sheeraz Qureshi (Weill Cornell Medical College, Cornell University, USA)

11:16-11:28 [PLO2-5]
Robotic Spine Surgery - “Learning Curve and Experience with 300 Cases”
Luthfi Gatam (Eka Hospital BSD, Indonesia)

11:28-11:40 [PLO2-6]
The Next Generation Robotic Spine Surgery in Korea and the Future
Seong Yi (Yonsei University College of Medicine, Korea)

11:40-11:55 Discussion

11:55-12:10 Group Photo
AUGUST 18 (Friday)

12:10-13:10 [LS04] Luncheon Symposium 4
GS Medical

Chair Keun Su Kim (Yonsei University College of Medicine, Korea)

12:10-12:40 [LS04-1]
Development and Advancement of Cervical Artificial Disc
Seung-Hwan Yoon (Inha University College of Medicine, Korea)

12:40-13:10 [LS04-2]
AIF vs TDR in Cervical Spondylosis
Young San Ko (Keimyung University School of Medicine, Korea)

12:10-13:10 [LS05] Luncheon Symposium 5
Medtronic Korea

Chair Seung Won Park (Chung-Ang University College of Medicine, Korea)

12:10-13:10 [LS05]
Single Position, Prone Lateral Surgery. Hype or Evolution?
Jacob Oh (Tan Tock Seng Hospital, Singapore)

12:10-13:10 [LS06] Luncheon Symposium 6
Dong-A ST

Chair Seok Woo Kim (Hallym University College of Medicine, Korea)

12:10-13:10 [LS06]
The Evidence of Limaprost in the Treatment, Lumbar Spinal Stenosis
Jae Keun Oh (Hallym University College of Medicine, Korea)
AUGUST 18 (Friday)

13:10-14:40 [SY07] Symposium 7
Update of Disc Arthroplasty

Chairs
Ali Araghi (The Core Institute, USA)
Seok Woo Kim (Hallym University College of Medicine, Korea)
Keun Su Kim (Yonsei University College of Medicine, Korea)

13:10-13:15 [SY07-1]
Introduction: What’s Happening Now?
Ali Araghi (The Core Institute, USA)

13:15-13:32 [SY07-2]
Clinical Evidence on Cervical Disc Arthroplasty (Prospective Multicenter Trial of Cervical Arthroplasty and Long-Term Case Presentation)
Claudius Thomé (Medical University Innsbruck, Germany)

13:32-13:49 [SY07-3]
Revision Cervical Arthroplasty
Scott Blumenthal (Texas Back Institute, USA)

13:49-14:06 [SY07-4]
Lessons Learned from the Failure of the Partial Disc Replacement
Chan Shik Shim (Wooridul Spine Centre, Healthpoint Hospital, UAE)

14:06-14:23 [SY07-5]
Osteolysis Related to TDR: Mechanical vs. Biological
Young-Yul Kim (The Catholic University of Korea College of Medicine, Korea)

14:23-14:40 Discussion
AUGUST 18 (Friday)

13:10-14:40  [SY08] Symposium 8  
Future Applications of Endoscopic Spine Surgery: What We Have and What Lies Ahead

Chairs  Anthony Yeung (DISC (Desert Institute for Spine Care), USA)  
Kwang-Sup Song (Chung-ang University College of Medicine, Korea)  
Chung-Kee Chough (The Catholic University of Korea College of Medicine, Korea)

13:10-13:22  [SY08-1]  
The Evolution of MIS Techniques for the Treatment of Spine and Brain with Enhanced VISUALIZATION and A.I  
Anthony Yeung (DISC (Desert Institute for Spine Care), USA)

13:22-13:34  [SY08-2]  
Advances in Lumbar Endoscopic Spine Surgery  
Hyun-Jin Park (Hallym University College of Medicine, Korea)

13:34-13:46  [SY08-3]  
Advanced in Endoscopy for Lumbar Foraminal Stenosis  
Dae-Jung Choi (Himnaera Hospital, Korea)

13:46-13:58  [SY08-4]  
Advances in Cervical Endoscopic Spine Surgery  
Seok-Bong Jung (Jinju Bon Hospital, Korea)

13:58-14:10  [SY08-5]  
High Complexity Endoscopic Spine Surgery for Complex Cases  
Junseok Bae (Wooridul Spine Hospital, Korea)

14:10-14:22  [SY08-6]  
Future of Spinal Endoscopy  
Kai-Uwe Lewandrowski (Center for Advanced Spine Care of Southern Arizona, USA)

14:22-14:40  Discussion

14:40-14:45  Break
AUGUST 18 (Friday)

14:45-16:00 [SY09] Symposium 9
Advances in Spinal Tumor: What’s New? What’s Coming?

3F, Room A

Chairs
Naresh Kumar (National University Hospital, Singapore)
Young Hoon Kim (The Catholic University of Korea College of Medicine, Korea)
Woo-Kyung Kim (Gachon University College of Medicine, Korea)

14:45-14:57 [SY09-1]
Collaborative Multicenter Studies on Spinal Cord Intramedullary Tumors and AVMs in Japan: Advancing Diagnosis, Treatment, and Understanding
Toshiki Endo (Tohoku Medical and Pharmaceutical University, Japan)

14:57-15:09 [SY09-2]
Surgery on Spine Metastasis over the Last 4 Decades – An Overview of Techniques and Strategy in Cancer Treatment
Christian Mazel (University Paris Nord Sorbonne, France)

15:09-15:21 [SY09-3]
Oligometastasis: Definition and Surgical Strategy
Hyungmin Kim (Seoul National University College of Medicine, Korea)

15:21-15:33 [SY09-4]
The Predictive Value of the Spinal Instability Neoplastic Score (SINS)
Sun Ho Lee (Sungkyunkwan University School of Medicine, Korea)

15:33-15:45 [SY09-5]
Surgical Tips and Pearls for Intramedullary Spinal Cord Tumors
Keung Nyun Kim (Yonsei University College of Medicine, Korea)

15:45-16:00 Discussion
AUGUST 18 (Friday)

14:45-16:00  [SY10] Symposium 10
Cutting Edge of Novel Technology in Spine Surgery

3F, Room B

Chairs
John Yunseo Choi (Spine Ortho Clinic, Australia)
Yung Park (National Health Insurance Service Ilsan Hospital, Korea)
Insoo Kim (Keimyung University School of Medicine, Korea)

14:45-14:57  [SY10-1]
Transforming Spine Surgery with the Metaverse: Can It be a Game-Changer in Healthcare?
Wataru Narita (Kameoka City Hospital, Japan)

14:57-15:09  [SY10-2]
Hansen A. Yuan (SUNY Upstate Medical University, USA)

15:09-15:21  [SY10-3]
Machine-Learning Model for Accurately Evaluating Preoperative and Postoperative Condition of Spine Surgery
Gun Woo Lee (Yeungnam University College of Medicine, Korea)

Pearls and Pitfalls of O-arm Navigation Guided Pedicle Screw Placement
Jae Hwan Cho (University of Ulsan College of Medicine, Korea)

15:33-15:45  [SY10-5]
Augmented Reality Assisted Pedicle Screw Fixation
Sang-Min Park (Seoul National University College of Medicine, Korea)

15:45-16:00  Discussion
AUGUST 18 (Friday)

Miscellaneous 5

Chairs  Gabriel Liu Ka Po (National University Hospital, Singapore)
        Sang-Min Park (Seoul National University College of Medicine, Korea)
        Il Sup Kim (The Catholic University of Korea College of Medicine, Korea)

14:45-14:50  [FP21-1]
The Radiographic Assessments of Spino-Pelvic Compensation Using Iot-Based Real-Time Ischial Pressure Adjustment
Min-Cheol Seok (Inje University Ilsan Paik Hospital, College of Medicine, Korea)

14:50-14:55  [FP21-2]
Spondylitis Treated with Best Effort of Conservative Therapy
Ryoo Fujisawa (Teine Keijinkai Hospital, Japan)

14:55-15:00  [FP21-3]
Comparative Experimental Study on Changes in Serum Bone Turnover Markers and Bone Mineralized Density According to Osteoporosis Drugs after Bony Manipulation in Rabbit Model
Ji-Won Kwon (Yonsei University College of Medicine, Korea)

15:00-15:05  [FP21-4]
Could a Simple X-Ray be a Screening Tool for Thoracic Ossification of Ligamentum Flavum?
Hyungjoo Kwon (Nowon Eulji Medical Center, Korea)

15:05-15:15  Discussion
### AUGUST 18 (Friday)

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<th>Time</th>
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<th>Room</th>
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<td>15:15-15:45</td>
<td>[FP22] Free Paper 22</td>
<td>5F,</td>
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<td></td>
<td>Cervical Degenerative 1</td>
<td>Room C</td>
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<td></td>
<td><strong>Chairs</strong></td>
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<td></td>
<td>Claudius Thomé (Medical University Innsbruck, Germany)</td>
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<td>Jae Jun Yang (Dongguk University Medical School, Korea)</td>
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<td>Dong-Wook Son (Pusan National University School of Medicine, Korea)</td>
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<tr>
<td>15:15-15:20</td>
<td>[FP22-1] Foraminal Decompression Technique during ACDF for Cervical Radiculopathy that Provides a Better Outcome: Total Uncinatectomy vs. Partial Uncoforaminotomy</td>
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<td>JooYoung Lee (Dong-A Medical Center, University of Dong-A College of Medicine, Korea)</td>
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<td>Kyung-Chung Kang (Kyung Hee University Hospital, Korea)</td>
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<tr>
<td>15:25-15:30</td>
<td>[FP22-3] Shoulder Traction as a Possible Risk Factor for C5 Palsy in Anterior Cervical Surgery: 8 Cadaveric Study</td>
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<td>Junhan Kwon (Yonsei University, Korea)</td>
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<td>15:30-15:35</td>
<td>[FP22-4] Lateral Deviation of the Hyoid Bone and Thyroid Cartilage Influences Prevertebral Soft Tissue Swelling and Dysphagia after Anterior Cervical Discectomy and Fusion</td>
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<td>Jun-Young Choi (Dongguk University Ilsan Hospital, Korea)</td>
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<td>15:35-15:45</td>
<td>Discussion</td>
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</table>
AUGUST 18 (Friday)

15:45-16:15 [FP23] Free Paper 23
Cervical Degenerative 2

Chairs: Warat Tassanawipas (Praram 9 Hospital, Thailand)
        Kyung-Soo Suk (Yonsei University College of Medicine, Korea)
        Choonghyo Kim (Kangwon National University School of Medicine, Korea)

15:45-15:50 [FP23-1]
Radiographical Pattern Following Multi-Level Anterior Cervical Discectomy and Fusion: 'Bony Buttress Formation'
Chang Hwa Ham (Korea University Guro Hospital, Korea)

15:50-15:55 [FP23-2]
The Changes in Neck Range of Motion after Laminoplasty According to Cervical Foraminal Stenosis
Woo-Seok Jung (National Health Insurance Service Ilsan Hospital, Korea)

15:55-16:00 [FP23-3]
Comparative Analysis of Surgically Treated Cervical Calcium Pyrophosphate Dihydrate Deposition Versus Cervical Ossification of the Yellow Ligament Presenting with Myelopathy
Patrick Timtiman (Gangnam Severance Hospital, Yonsei University College of Medicine, Philippines)

16:00-16:05 [FP23-4]
Reciprocal Changes in Radiological Parameters of Patients after Expansive Open-Door Laminoplasty: Preoperative Cervical Lordosis Is Inconsequential in K-Line Positive Cases
Junseung Lee (Inje University Haeundae Paik Hospital, Korea)

16:05-16:15 Discussion
AUGUST 18 (Friday)

Lumbar Degenerative 1

Chairs
Anthony Yeung (DISC (Desert Institute for Spine Care), USA)
Byung-Joon Shin (Soonchunhyang University College of Medicine, Korea)
Jae Keun Oh (Hallym University College of Medicine, Korea)

16:15-16:20  [FP24-1]
Evaluation of the Efficacy and Safety of 3D Printing Porous Titanium Cage with Non-Window Versus Window Type in a Single-Level Posterior Lumbar Interbody Fusion: A Prospective, Randomized, Multicenter Study
Dae-Woong Ham (Chung-Ang University Hospital, Korea)

16:20-16:25  [FP24-2]
Acute Phase Side Effects of Escherichia Coli-Derived Bone Morphogenetic Protein-2 in Lumbar Fusion Surgery
Hee Jung Son (Nowon Eulji Medical Center, Eulji University School of Medicine, Korea)

16:25-16:30  [FP24-3]
The Evaluation of Feasibility of Psoas, Paraspinal, and Gluteal Muscle Index as a Predictor for Diagnosing Sarcopenia in Patients with Degenerative Lumbar Disease
Dae-Woong Ham (Chung-Ang University Hospital, Korea)

16:30-16:35  [FP24-4]
Deep Learning Model for Prediction of OVF Collapse
Sung Bae Park (Seoul National University Boramae Medical Center, Korea)

16:35-16:45  Discussion
AUGUST 18 (Friday)

16:45-17:15 [FP25] Free Paper 25
Lumbar Degenerative 2

Chairs
Mathan Sakti Yudha (Gadjah Mada University, Indonesia)
Whan-Jeang Kim (Daejeon Hankook Hospital, Korea)
Ki-Jung Kim (Seoul National University College of Medicine, Korea)

16:45-16:50 [FP25-1]
Effect of Bone Morphogenetic Protein (BMP) on Time-to-Fusion after One-Level Transforaminal Lumbar Interbody Fusion Surgery (TLIF) Based on the Difference of Bone Density
Sang-Ho Kim (National Health Insurance Service Ilsan Hospital, Korea)

16:50-16:55 [FP25-2]
Mini-Open Intercostal Retroperitoneal Approach for Upper Lumbar Spine Lateral Interbody Fusion
Dong Wuk Son (Pusan National University Yangsan Hospital, Korea)

16:55-17:00 [FP25-3]
Subsidence after L5-S1 Transforaminal Lumbar Interbody Fusion (TLIF) Using 3D-Printed Porous Titanium Interbody Cage; Single Institution Case Series
Jungwoo Hur (Eunpyeong St.Mary’s Hospital, The Catholic University of Korea, Korea)

17:00-17:05 [FP25-4]
The Influence of Rheumatoid Arthritis on Higher Reoperation Rates over Time Following Lumbar Spinal Fusion: A Nationwide Cohort Study
Jin-Sung Park (Samsung Medical Center, Sungkyunkwan University School of Medicine, Korea)

17:05-17:15 Discussion

17:00 Cocktail Reception
3F, Lobby

18:00 Gala Dinner
3F, Room A+B
### AUGUST 19 (Saturday)

<table>
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<tr>
<th>Time</th>
<th>Session Description</th>
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<tbody>
<tr>
<td>08:00-08:30</td>
<td><strong>[FP26] Free Paper 26</strong> Cervical Degenerative 3</td>
</tr>
</tbody>
</table>
| Chairs   | Vit Kotheanurak (Chulalongkorn University & King Chulalongkorn Memorial Hospital, Thailand)  
            Jin-Sung Park (Sungkyunkwan University School of Medicine, Korea)  
            Moon-Jun Sohn (Inje University College of Medicine, Korea)  |
| 08:00-08:05 | **[FP26-1]** The Effect of Posterior Cervical Laminoplasty with Dome Laminotomy on Cervical Alignment and Disability in Patients with Cervical Spondylotic Myelopathy Patients  
            Sung Hoon Choi (Hanyang University Hospital, Korea)  |
| 08:05-08:10 | **[FP26-2]** Preliminary RCT Results Comparing Allograft and Novomax Cage in Anterior Cervical Discectomy and Fusion  
            Yanting Liu (Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Korea)  |
| 08:10-08:15 | **[FP26-3]** Effectiveness of Nasotracheal Intubation in Anterior Cervical Surgery Including C3 Lesions  
            Woonghee Han (Soonchunhyang Univ. Hospital, Korea)  |
| 08:15-08:20 | **[FP26-4]** Comparison of Basic Characteristics and Postoperative Outcomes of Patients with Cervical Myelopathy at an Early Age (<45 Years Old); How Is It Different from Conventional Myelopathy?  
            Yung Hong Lee (Hallym University Sacred Heart Hospital, Hallym University College of Medicine, Korea)  |
| 08:20-08:30 | Discussion                                                               |
AUGUST 19 (Saturday)

08:00-08:30  [FP27] Free Paper 27
Emerging Technologies & Techniques 2

3F
Room B

Chairs  Pham Anh Tuan (Nguyen Tri Phuong Hospital, Vietnam)
        Eung Ha Kim (Dong-gang Hospital, Korea)
        Sung-Uk Kuh (Yonsei University College of Medicine, Korea)

08:00-08:05  [FP27-1]
Transpedicular Intravertebral Augmentation Using Expandable Cage in
Kummell Disease: A Novel Anterior Column Support Technical Note
Kwang-Sup Song (Chung-Ang University Hospital, College of Medicine, Chung-Ang
University, Korea)

08:05-08:10  [FP27-2]
Surgical Complications and Incomplete Canal Widening of the Vertebral
Body Sliding Osteotomy to Treat Cervical Myelopathy
Sung Tan Cho (Ilsan Paik Hospital, Inje University, Korea)

08:10-08:15  [FP27-3]
Early-Stage Chronic Venous Disorder as a Cause of Leg Pain Overlooked for
Lumbar Spinal Disease
DongHoon Yang (Pohang Stroke and Spine Hospital, Korea)

08:15-08:20  [FP27-4]
Diagnosis of Traumatic Thoracolumbar Fracture Using Deep Learning Model
with CT
Han Dong Lee (Ajou University, School of Medicine, Korea)

08:20-08:30  Discussion
AUGUST 19 (Saturday)

08:30-09:00  [FP28] Free Paper 28  Cervical Degenerative 4  

3F, Room A

Chairs  Toshiki Endo (Tohoku Medical and Pharmaceutical University, Japan)  
Byungho Lee (Yonsei University College of Medicine, Korea)  
Jae Taek Hong (The Catholic University of Korea College of Medicine, Korea)

08:30-08:35  [FP28-1]  
Cervical Foraminal Stenosis as a Risk Factor for Cervical Kyphosis Following Cervical Laminoplasty  
Joonoh Seo (Yonsei University Wonju College of Medicine, Korea)

08:35-08:40  [FP28-2]  
Bladder and Bowel Dysfunction in Patients with Spinal Compressive Myelopathy  
Jea Seok Park (Inje University Haeundae Paik Hospital, Korea)

08:40-08:45  [FP28-3]  
Clinical and Radiologic Outcomes of Anterior Sliding Osteotomy and Fusion (ASDF): A Single Center Experience  
Donghun Kim (Eunpyeong St. Mary’s Hospital, Korea)

08:45-08:50  [FP28-4]  
Restoration of Range of Motion Following Cervical Arthroplasty for Treatment of Severe Cervical Disc Degenerative Diseases: A 1-Year Follow-Up Study  
Yi-Syue Tsou (Taipei Medical University, Taiwan)

08:50-09:00  Discussion
AUGUST 19 (Saturday)

08:30-09:00  [FP29] Free Paper 29
Emerging Technologies & Techniques 3

Chairs: Weerasak Singhatanadgige (King Chulalongkorn Memorial Hospital, Thailand)
Sung-Soo Kim (Inje University College of Medicine, Korea)
Soobin Im (Soonchunhyang University College of Medicine, Korea)

08:30-08:35  [FP29-1]
Advantages of L5 Lamina Hook in Surgical Correction for Adult Spinal
Deformity and Its Indications
Billy Francis Hung (Kyung Hee University Hospital at Gangdong, Kyung Hee University,
Philippines)

08:35-08:40  [FP29-2]
Advantage of Single-Position Oblique Lumbar Interbody Fusion with
Percutaneous Pedicle Screw Instrumentation
Min-Gu Jang (Konyang University Hospital, Korea)

08:40-08:45  [FP29-3]
Detection of Cervical Foraminal Stenosis from Oblique Radiograph Using
Convolutional Neural Network Algorithm
Sehan Park (Asan Medical Center, University of Ulsan College of Medicine, Korea)

08:45-08:50  [FP29-4]
Three-Dimensional Quiz-Game-Based Education for Spine Surgical
Workforces
Seon-Jin Yoon (Severance Hospital, Korea)

08:50-09:00  Discussion

09:00-09:30  Refreshment Break with Exhibits
AUGUST 19 (Saturday)

09:30-10:45 [SY11] Symposium 11
Osteobiologics for Spine Fusion

Chair: Massimo Balsano (University and Hospital Trust, Italy)
Yong-Soo Choi (Kwangju Christian Hospital, Korea)
Youn-Kwan Park (Gachon University College of Medicine, Korea)

09:30-09:42 [SY11-1]
Nanotechnology in Spine Surgery
Muhammad Tariq Sohail (Doctors Hosp. & Medical Ctr., Pakistan)

09:42-09:54 [SY11-2]
Cell Survival in the Nucleus Pulposus and Affecting Factors: Does Physical Loading Plays Key-Role?
Jun-Seok Lee (The Catholic University of Korea College of Medicine, Korea)

09:54-10:06 [SY11-3]
An Overview on the Selection of Osteobiologics
Dae-Chul Cho (Kyungpook National University School of Medicine, Korea)

10:06-10:18 [SY11-4]
Basic Research for Intervertebral Disc Diseases; Basics and Clinical Application
Joo Han Kim (Korea University College of Medicine, Korea)

10:18-10:30 [SY11-5]
Bench to Bed: Osteobiologics
Sung Bae Park (Seoul National University College of Medicine, Korea)

10:30-10:45 Discussion
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<th>Time</th>
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<th>Title</th>
<th>Speaker</th>
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<tr>
<td>09:30-10:45</td>
<td>SY12</td>
<td>Symposium 12: Evolution and Development of Interbody Fusion</td>
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<td>3F, Room B</td>
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<td></td>
<td>Chairs</td>
<td>David Edis (Victorian Orthopaedic Spine Service, Australia)</td>
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<td>Jae Hyup Lee (Seoul National University College of Medicine, Korea)</td>
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<td>Yong Eun Cho (Suwon Leon Wiltse Memorial Hospital, Korea)</td>
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<tr>
<td>09:30-09:42</td>
<td>SY12-1</td>
<td>The Intervertebral Disc - Understanding His Physiology and Challenges in Regeneration or Reconstruction</td>
<td>Christian Mazel (University Paris Nord Sorbonne, France)</td>
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<tr>
<td>09:42-09:54</td>
<td>SY12-2</td>
<td>History and Development of Spinal Fusion Techniques</td>
<td>Sung Bum Kim (Kyung Hee University School of Medicine, Korea)</td>
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<td>09:54-10:06</td>
<td>SY12-3</td>
<td>Interbody Fusion in Spondylolisthesis</td>
<td>Shah Alam (Bangladesh Spine and Orthopedic Hospital, Bangladesh)</td>
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<tr>
<td>10:06-10:18</td>
<td>SY12-4</td>
<td>Current and Future of 3D Printing Cage for Better Interbody Fusion</td>
<td>Jeong-Yoon Park (Yonsei University College of Medicine, Korea)</td>
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<tr>
<td>10:18-10:30</td>
<td>SY12-5</td>
<td>Clinical Application of Expandable Cages in Lumbar Interbody Fusion</td>
<td>Charles L. Branch (Wake Forest University School of Medicine, USA)</td>
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<tr>
<td>10:30-10:45</td>
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<td>Discussion</td>
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### AUGUST 19 (Saturday)

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<th>Time</th>
<th>Session</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:45-11:15</td>
<td><strong>[FP30] Free Paper 30</strong></td>
<td>Lumbar Degenerative 3</td>
<td>3F, Room A</td>
</tr>
</tbody>
</table>

**Chairs**
- Mathan Sakti Yudha (Gadjah Mada University, Indonesia)
- Tae Gyun Kim (Wonkwang University School of Medicine, Korea)
- Junho Lee (Kyung Hee University School of Medicine, Korea)

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<tr>
<td>10:45-10:50</td>
<td><strong>[FP30-1]</strong></td>
<td>Risk Factors for Adjacent Segment Disease Following L5-Floating Minimally Invasive Oblique Lumbar Interbody Fusion</td>
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<td>Dong-Ho Kang (Seoul National University College of Medicine and Seoul National University Hospital, Korea)</td>
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<tr>
<td>10:50-10:55</td>
<td><strong>[FP30-2]</strong></td>
<td>Postoperative MRI Analysis of More than 400 Cases of OLIF: Hidden, But Not to be Overlooked Potential Complications</td>
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<td>Suhun Lee (Pusan National University Yangsan Hospital, Korea)</td>
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<td>10:55-11:00</td>
<td><strong>[FP30-3]</strong></td>
<td>The Fate of Pre-Existing L5-S1 Degeneration Following Oblique Lumbar Interbody Fusion of L4-L5 and Above</td>
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<td>Sam Yeol Chang (Seoul National University College of Medicine and Seoul National University Hospital, Korea)</td>
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<td>11:00-11:05</td>
<td><strong>[FP30-4]</strong></td>
<td>A Comparison between Cortical Bone Trajectory Screws and Traditional Pedicle Screws in Patients with Single-Level Lumbar Degenerative Spondylolisthesis: 5 Year Results</td>
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<td>Sung-ryul Choi (Yonsei University College of Medicine, Korea)</td>
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<td>11:05-11:15</td>
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- Gabriel Liu Ka Po (National University Hospital, Singapore)
- Hyoung-Yeon Seo (Chonnam National University Medical School, Korea)
- Inbo Han (CHA University School of Medicine, Korea)

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Woo-Keun Kwon (Korea University Guro Hospital, Korea University College of Medicine, Korea)

10:50-10:55 [FP31-2]
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Duong Tran Vu Hoang (Xuyen A General Hospital, Vietnam)

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Minseok Kang (Anam Hospital, Korea University College of Medicine, Korea)

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End Plate Spur: The Forgotten Pathology in Lumbar Foraminal Stenosis and How We Handle It Using BESS (Biportal Endoscopic Spine Surgery)
Yilun Huang (Seng Kang General Hospital Singapore, Singapore)

11:05-11:15 Discussion
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Lumbar Degenerative 4

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         Sung-Kyu Kim (Chonnam National University Medical School, Korea)
         Jin Hoon Park (University of Ulsan College of Medicine, Korea)

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Hyuk-joon Sohn (Keimyung University Dongsan Hospital, Korea)

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Radiographic and Clinical Outcomes after Stand-Alone Anterior Lumbar
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Steve Cho (Barrow Neurological Institute, USA)

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Sung Cheol Park (Bumin Hospital Seoul, Korea)

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Dae-Chul Cho (Kyungpook National University School of Medicine, Korea)

11:15-11:20  **[FP33-1]**  
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Hae-Dong Jang (Soonchunhyang University Bucheon Hospital, Korea)

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When Would One Not Do MIS Surgery in Metastatic Spine Surgery?  
Naresh Kumar (National University Hospital, Singapore)

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Jiun-Cheng Shiu (An-Nan Hospital-China Medical University, Taiwan)

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Ruey-Mo Lin (AnNan Hospital, China Medical University, Taiwan)

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Se-Jun Park (Samsung Medical Center, Sungkyunkwan University School of Medicine, Korea)

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Se-Jun Park (Samsung Medical Center, Sungkyunkwan University School of Medicine, Korea)

EP01-03  Midline Muscle-Sparing Approach for Circumferential Minimally Invasive Spine Surgery (cMIS) in Adult Spinal Deformity (ASD) Correction
Neel Anand (Cedars-Sinai Medical Center, USA)

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Hee-Woong Chung (Ajou University Hospital, Korea)

EP01-06  Defining Whole Spine Sagittal Alignment Parameters in Normal Population Using Machine Learning
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EP01-07  Defining Spino-Pelvic Alignment in Adult Population over 60 Years Old: Prospective Analysis of 214 Volunteers
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Sung-Min Kim (Kyung Hee University Hospital at Gangdong, Kyung Hee University, Korea)

EP01-10  Surgical Strategy-Oriented Classification for the Patients with Severe Dynamic Sagittal Imbalance  
Sung-Min Kim (Kyung Hee University Hospital at Gangdong, Kyung Hee University, Korea)

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Siyeon Kim (Gachon University, Gil Medical Center, Korea)

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Min-Gyu Lee (Keimyung University Dongsan Hospital, Korea)

EP01-13  Sagittal Parameters of Spine and Pelvis in Young Adults Using the EOS Imaging System: Prospective Study of 92 Asymptomatic Subjects  
Min-Gu Jang (Konyang University Hospital, Korea)

EP01-14  Surgical Treatment of Kimmerle Anomaly: Early Research Results  
Mansur Aliev (Samarkand State Medical University, Uzbekistan)

Donghun Kim (Eunpyeong St. Mary’s Hospital, Korea)

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Abdul Khaleque (Catholic University of Korea, Bangladesh)
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Chi Heon Kim (Seoul National University Hospital, Korea)

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JooYoung Lee (Dong-A Medical Center, University of Dong-A College of Medicine, Korea)

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Sehan Park (Asan Medical Center, University of Ulsan College of Medicine, Korea)

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Yong-Ho Lee (Yonsei University College of Medicine, Korea)

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Jun-Young Choi (Dongguk University Ilsan Hospital, Korea)

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Jun-Young Choi (Dongguk University Ilsan Hospital, Korea)

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Byeong-Jin Ha (Hanyang University Guri Hospital, Korea)

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Sungjae An (Korea University Anam Hospital, Korea)

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JooYoung Lee (Dong-A Medical Center, University of Dong-A College of Medicine, Korea)

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Eugene Park (Kyungpook National University Hospital, Korea)

EP04-07  Role of Icotec Carbon Fiber Implants for Spine Tumour Disease - A Multicentre Singapore Experience
Naresh Kumar (National University Health System, Singapore)

EP04-08  Deep Learning Model for Grading Metastatic Epidural Spinal Cord Compression on Staging CT
Naresh Kumar (National University Health System, Singapore)

EP04-09  Deep Learning Model for Classifying Metastatic Epidural Spinal Cord Compression on MRI
Naresh Kumar (National University Health System, Singapore)
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Chang Duk Yuk (Asan Medical Center, University of Ulsan College of Medicine, Korea)

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Farid Yudoyono (Hasan Sadikin Hospital, Faculty of Medicine, Universitas Padjadjaran, Indonesia)

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Hyun-Jin Ma (Daegu Wooridul Spine Hospital, Korea)

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Jungwoo Hur (Eunpyeong St.Mary’s Hospital, The Catholic University of Korea, Korea)

EP05-05 Two Cases in Which FED to the Thoracic Disc Was Performed without Drilling Bones
Ryoo Fujisawa (Teine Keijinkai Hospital, Japan)

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Ki-Han You (Hallym University College of Medicine, Kangnam Sacred Heart Hospital, Korea)

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Dongyun Kim (Saeum Hospital, Korea)
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Hee Chang Kwon (Wiltse Memorial Hospital, Korea)

Dae-Jung Choi (Himnaera Hospital, Korea)

Navigation Guided Endo-TLIF in Degeneration Lumbar Lesion And: Tips and Tricks
Yi-Hung Huang (Chia Yi Christian Hospital, Taiwan)

The Effect of Thrombin-Containing Local Hemostatics on Postoperative Spinal Epidural Hematoma in Biportal Endoscopic Spinal Surgery
Yongho Kim (Seoul Sacred Heart General Hospital, Korea)

Endoscopic Correction of Spinal Sagittal Imbalance
Won Joong Kim (Synergy Orthopedic Clinic, Korea)

Endoscopic Surgery + Flexible Rod = Awesome Results!
Sangyoup Han (Suwon Leon Wiltse Memorial Hospital, Korea)

Percutaneous Endoscopic Thoracic Discectomy; Case Report of Highly Migrated Thoracolumbar Disc Herniation
Youngmin Lee (Anyang Wiltse Memorial Hospital, Korea)

Full Endoscopic Transpedicular Approach for Highly Migrated Ruptured Disc
Yongsoo Choi (Wooridul Spine Hospital, Korea)
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Ji Soo Moon (Daegu Wooridul Spine Hospital, Korea)

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Dong Hyun Lee (The Leon Wiltse Memorial Hospital, Korea)

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Dong-Ho Kang (Seoul National University College of Medicine and Seoul National University Hospital, Korea)

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Jong-Hyeok Park (Incheon St. Mary's Hospital, The Catholic University of Korea, Korea)

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Yoonjoong Hwang (Korea University Ansan Hospital, Korea)

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Ho-Young Jung (Eunpyeong St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Korea)

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Hee Jung Son (Nowon Eulji Medical Center, Eulji University School of Medicine, Korea)
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Dong-Ho Kang (Seoul National University College of Medicine and Seoul National University Hospital, Korea)

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Taejong Jeong (Sahmyook Seoul Medical Center, Korea)

EP06-12  The Role of the Spine and Pelvic Balance in Determining the Tactics of Surgical Treatment of Lumbar Spondylolisthesis
Akobir Ibragimov (Republican Specialized Scientific and Practical Medical Center of Neurosurgery, Uzbekistan)

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Seung Jin Choi (Korea University Guro Hospital, Korea)

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Jun-Hoe Kim (Seoul National University Hospital, Korea)

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Naresh Kumar (National University Health System, Singapore)
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Byeong-Jin Ha (Hanyang University Guri Hospital, Korea)

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Dong Min Seo (Korea University Guro Hospital, Korea)

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Naresh Kumar (National University Health System, Singapore)
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Seung-Hyun Choi (Busan Korea Hospital, Korea)

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Nam-Su Chung (Ajou University Hospital, Korea)

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Clinical and Radiological Outcomes of Minimally Invasive Oblique Lumbar Interbody Fusion at L5-S1  
Hae-Dong Jang (Soonchunhyang University Bucheon Hospital, Korea)

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Tae Hoon Kang (SMG-SNU BRM Medical Center, Korea)

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Youngsuk Hwang (Keimyung University Dongsan Hospital, Korea)
Conrad Seoul Hotel, Seoul, Korea  |  August 16(Wed) - 19(Sat), 2023  

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Nodirbek Kadirbekov (Republicar Specialized Scientific and Practical Medical Center of Neurosurgery, Uzbekistan)

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Jessica Thor (Changi General Hospital, Singapore)

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Naresh Kumar (National University Health System, Singapore)

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Naresh Kumar (National University Health System, Singapore)

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Soon Do Wang (Soonchunhyang University Hospital Cheonan, Korea)
E-POSTER

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Sung Joon Yoon (Soonchunhyang University Cheonan Hospital, Korea)

Kyoung-Tae Kim (School of Medicine, Kyungpook National University, Korea)

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Jong-shin Lee (Samsung Medical Center, Sungkyunkwan University School of Medicine, Korea)

Naresh Kumar (National University Health System, Singapore)
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신개념 척추측만증보조기
Adjustment function Scoliosis

**INDICATION**
- 척추측만으로 인한 병변 시

**FUNCTION**
- 개방 분리형으로 통기성 및 착용감 우수
- 힌지에 각도표시가 있어서 교정각도를 정확히 설정
- 척추 안정부위에 관절형 힌지를 부착하여 강한 교정력 전달

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**Scoliosis (T.L.S.O type)**

**INDICATION**
- 척추측만증으로 인한 병변 시

- 자켓 형식으로 제작하여 착용이 간편
- 측면으로 인한 병변 부위에 패드를 사용하여 강한 교정력 전달

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**SL Corset - C001**

**INDICATION**
- 일반적인 요통 / 요추부 통증절성 / 요추부 수술 전·후

- 복강내압 상승효과
- 명암의 스트랩으로 조절 가능
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- 착용감 우수

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새롭고 튼튼한 붓을 형성시켜주는 포스테오® 1-3

Bone Formation Marker, Bone Biopsy, Bone Mineral Density를 통해
Anabolic 효과가 확인된 골 형성 촉진제 입니다.1245

Before FORSTEO®

Postmenopausal patient at baseline

After FORSTEO®

Same patient after 21 months

※ 제8세의 배 산경 결과를 보는 포스테오 간의 병리 조직의 Micro CT 이미지 (Micro CT image of iliac crest bone biopsies)

점막 환자 케이스는 일반 환자군에서의 임상적 결과와 같다를 할 수 있습니다.

References 1. Forsteo (parathyroid hormone 1-34) \(1 \times 3 \) on fractures and bone mineral density in postmenopausal women with osteoporosis. N Engl J Med. 2003 May 16;348(21):2025-34. [PMID: 12774069]
행사마다 출발점이 다릅니다.

MEET HER THERE

골절 위험이 높은 골다공증 환자의 치료 여정에
이벤티티®, 프롤리아®가 언제나 함께합니다.

최근 골절을 동반하거나 골밀도가 매우 낮은
초고위험 골다공증 환자는 골 형성을 위해
이벤티티®로 치료 시작해 주세요!1-3

골밀도가 낮거나 골절 위험요소가 있는
고위험군 골다공증 환자는 골 흡수를 막기 위해
프롤리아®로 치료 시작해 주세요!1-3


자세한 사항은 이론과 약물판매자와의 약물통신문서(https://nedrug.mfds.go.kr)를 통해 상세 제품정보를 참조하시기 바랍니다.

Product Information

AMGEN

합건코리아유한회사
서울특별시 중구 불사로5길 19, 2층 Tel. 02-3434-4899
CollaStat
Bioactive Collagen Hemostat

Key Features

✔ 뚜어난 지혈작용
콜라겐 단백질 입자의 팽창으로 인한 물리적 압박과
트롬빈의 혈액응고 작용의 시너지 효과로 신속하고 효과적인 지혈이 가능하며
수술시간이 단축됩니다.

✔ 최소한의 조작
다림티선의 독자적인 트롬빈 안정화 기술로 트롬빈 용액을 준비하는
과정 없이 주사기를 결합하여 혼합하는 최소한의 조작만으로 사용 준비가 가능합니다.

✔ 적용의 편리성
Flowable한 제품으로 불규칙한 표면이나 접근이 어려운 부위에 적용이 가능합니다.
Leukosan® Adhesive

Closing wounds, opening minds
High viscosity adhesive for precision bonding

- **High viscosity**: quick, easy and safe to apply, one layer is sufficient
- **No heat generation**: patient comfort
- **Express polymerization**: quick wound closure, lasting adaption
- **Flexible action**: flexes with skin, reliable adaption and protection
- **2-in-1 applicator**: optional precise and/or protective application
OPERATION HERO
FAST & EASY TO USE

Floseal
HEMOSTATIC MATRIX

ENHANCED, PREDICTABLE, PROVEN FUSION

i-FACTOR Bone Graft is the only biologic bone graft that combines a unique synthetic small peptide (P-15) and an anorganic bone mineral (ABM) to act as an attachment factor for osteogenic cells.

ATTRACT

P-15 facilitates and expedites ingrowth of bone by promoting the immigration of osteogenic cells.

ATTACH

The high affinity between osteogenic cells and P-15 enhances the physiological mechanism in which cells bind to i-FACTOR Bone Graft.

ATTRACT

P-15 enhances bone formation by facilitating cellular attachment which activates natural signalling, creating a microenvironment conducive to new bone formation.
리멤버, 리마틴

국내최초! 인습성을 개선한 특허받은 원료로
보다 안정적인 Limaprost, 리마틴

리마틴 정

[원료작용 및 분용] 정(약 100mg) 중 유해성: 크로마프로스트알파디스(Sup) ... 166.67/μg (크로마프로스트로서 Sup [생성] 최근의 과학 잡지 [효능효과] 1. 패혈증출혈종환(사과가름에 의한 해색, 동증, 말기 등의 헤혈증 증상의 개선) 2. 후천성 요법적간절비증(의료사지)에서 치료, 증상의 강화증상을 보이는 환자에 의한 지반증상(발작증, 하지저림) 및 보행능력의 개선 위의 효능효과 외에도 다른 물질에 의한 이상반응이 나타날 수 있음 [용법-용량] 1. 패혈증출혈종환(사과가름에 의한 해색, 동증, 말기 등의 헤혈증 증상의 개선에는 증상 생인 1일 3회, 1회 2정을 경구투여한다. 2. 후천성 요법적간절비증(의료사지에서 치료, 증상의 강화증상 보이는 환자에 의한 지반증상(발작증, 하지저림) 및 보행능력의 개선에는 증상 생인 1일 3회, 1회 1정을 경구투여한다. 침상, 증상에 따라 적절히 조절한다. [상용량의 주의사항- 이상반응] 1) 피부반: 메매로 발진, 소변갈 등이 나타날 수 있으므로 이러한 증상에는 두부를 증가하는 등의 적절한 조치를 미루지 말 것. 2) 흉통증: 두통 증상이 나타날 수 있으므로 허리 및 하체의 통증을 관찰하고, 이상증이 있는 경우 두부를 증가할 것. 3) 소화기: 매매로 천사, 구역, 복부발작, 복통, 위부부, 가슴열, 흉통, 구토, 구토에 구토, 복부부하감이 나타날 수 있다. 4) 간질: 매매로 AST(GOT), ALT(GPT) 증상 등의 간기능 이상이 나타날 수 있다. 5) 소변주: 매매로 상해증전, 두통 등 사자방면증, 저혈압이 나설 수 있다. 6) 기타: 대개로 두통, 인면부, 메매로 발진, 태아, 두통, 저혈압증, 저혈압, 하지저림(下肢綾細) 변형이 나타날 수 있다.

※ 지적된 내용은 자문의료사서를 참조하시기 바랍니다.

Samil

서울특별시 서초구 훈동로 155 (방배동, 삼일제약사옥) 고객상담실: 080-520-3131 / www.samil-pharm.com/

LMO_202303_001
Remodeling + Overflow Modeling Based Bone Formation
Proven Efficacy & Safety Medication over 10 years
Lumbar Spinal Canal Stenosis
OPALMON Tab.
악토넬®은 EC정(장용정)을 보유한 유일한 Risedronate 제제입니다.1
악토넬®은 적추 및 다양한 부위에서 빠른 골다공증 예방효과를 보였습니다.2

![골다공증 예방
약품 소개](#)

### 악토넬® 정 35mg

- 주 1회 경구투여
  - 아침식사 최소 30분 전에 복용하거나 또는 하루 중에 어떤 때라도 음식물이나 음료수의 섭취 전후로 최소 2시간 떨어져서 복용한다.

### 악토넬® EC정 35mg

- 주 1회 경구투여
  - 식사와 관계없이 경구투여

### 악토넬® 정 150mg

- 월 1회 경구투여
  - 충분한 음수를 위해 하루 중 처음으로 음식물 또는 음료수의 섭취 후 최소 30분 전에 복용한다.

<table>
<thead>
<tr>
<th>용법-용량</th>
<th>악토넬® 정 35mg</th>
<th>악토넬® EC정 35mg</th>
<th>악토넬® 정 150mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>효능-효과</td>
<td>1. 폐경 후 여성의 골다공증 치료와 예방  2. 남성의 골다공증 치료</td>
<td>폐경 후 여성의 골다공증 치료</td>
<td>폐경 후 여성의 골다공증 치료와 예방</td>
</tr>
<tr>
<td>약가 ①</td>
<td>5,048원/정</td>
<td>5,065원/정</td>
<td>18,714원/정</td>
</tr>
</tbody>
</table>

신경병증성 통증 치료, 리리카®와 함께

정약

리리카®
용법·용량의

* 리리카®의 시작: 정약 용량은 150 mg (75 mg BID), 최대 용량은 600 mg입니다. 단, 혈액응고를 요하는 환자를 포함하여 프레가말린의 1일 투여 용량을 신기능에 근거하여 조정해야 합니다.1,2


주요 사용사항:
1. 이 약물은 비호환성에 의한 급성 혹은 구조적인 혈액응고를 야기할 가능성이 있으므로 사용시 주의해야합니다.
2. 정사용은 150mg (75mg BID)로, 최대 용량은 600mg입니다. 
3. 구체적인 용량은 환자의 신기능 상태를 고려하여 조정해야 합니다.
4. 이 약물은 임신 중의 여성과 가꿀기 또는 복용하는 환자에서는 임시적으로 사용할 수 없습니다.

자세한 사용법은 제품설명서를 참조하십시오.
전 세계 사람들이 삶의 모든 단계에서 더 건강하게 살아갈 수 있도록 힘이 되는 기업

Viatris는 ‘Mylan’과 ‘Pfizer’의 사업부문인 Upjohn’이 만나 탄생한 새로운 글로벌 헬스케어 기업입니다.

OUR MISSION
Viatris는 헬스케어의 현재가 아닌 앞으로 나아가야 할 미래를 바라봅니다.
Viatris는 용기있게 행동하며 헬스케어 뉴조각 나날이 진화하는 전세계 대상으로 안정적인 서비스를 제공하는 독보적인 기업이 될 것입니다.
Viatris는 전 세계 사람들이 삶의 모든 단계에서 더 건강하게 살아갈 수 있도록 힘이 되는 기업입니다.
다음 3가지를 통해(via) 실천합니다:

ACCESS
어느 지역, 어떤 상황에서도 환자들에게 고품질의 신뢰할 수 있는 의약품 제공

LEADERSHIP
지속가능한 기업 운영 및 환자들의 건강을 개선하는 혁신 솔루션 개발

PARTNERSHIP
통합적 전문성을 활용하여 사람들을 제품 및 서비스에 연결

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EXCENDER

Expandable Lumbar interbody spacer

Minimize Disruption
EXCENDER features tapered the distal tip & 8mm initial height.

Restoration
EXCENDER provides restoration of sagittal alignment with up to 20°

Graft delivery
Graft chamber of EXCENDER allows to be packed with bone graft prior to insertion & In-situ Bone graft delivery is available after expansion.
Medtronic New Product Launch

Infuse™ Bone Graft
Transforming outcomes in lateral procedures.

Centerpiece™ 2.0
Plate Fixation System
Smaller screw with a strong hold

Adaptix™ Interbody System
nanoLOCK™ Surface Technology