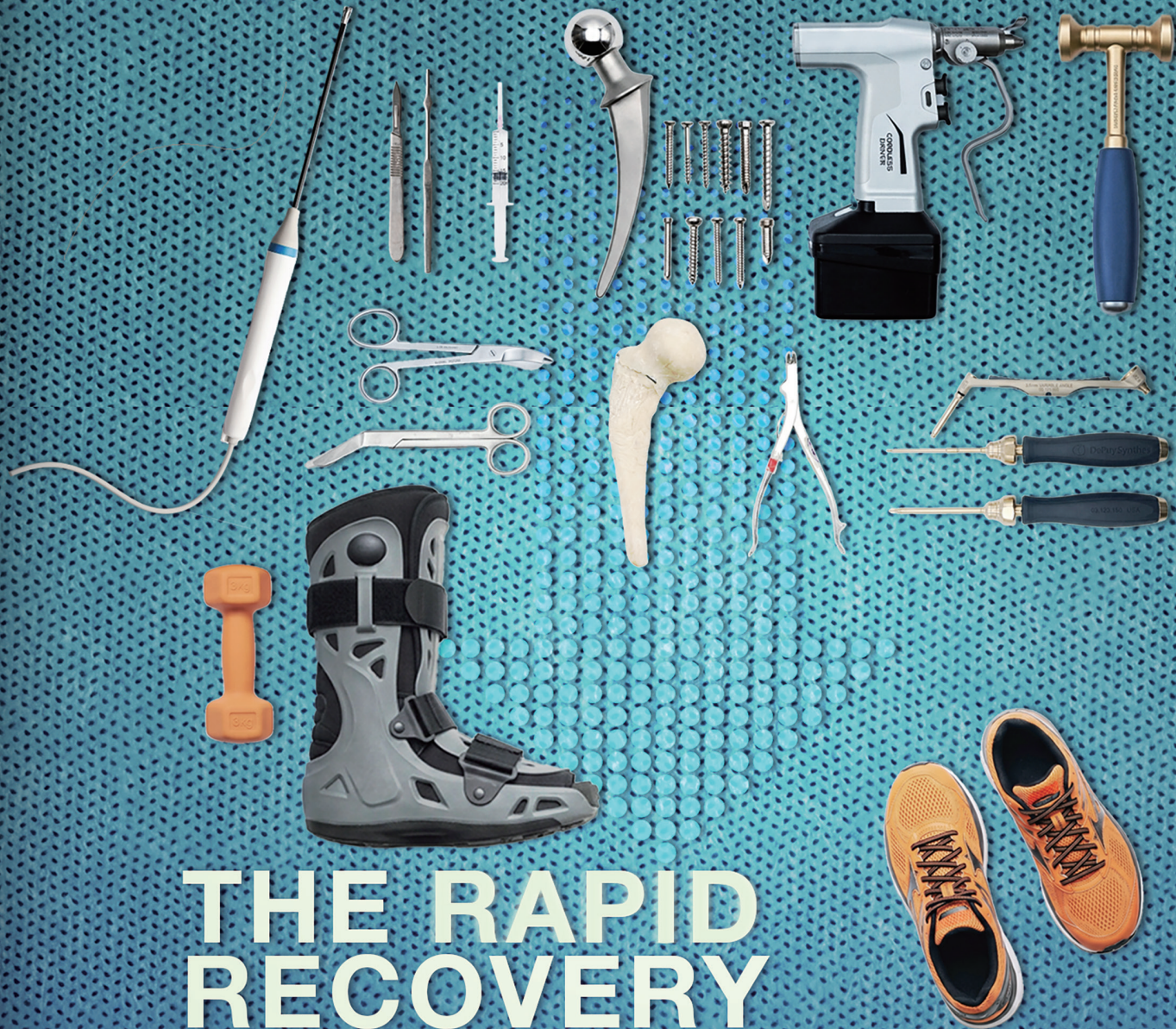


The Hong Kong Orthopaedic Association  
46th Annual Congress  
香港骨科醫學會  
第四十六屆年度大會



# THE RAPID RECOVERY REVOLUTION

OPTIMISING THE FAST  
TRACK TO FUNCTION

31 October - 1 November, 2026  
HKCEC 香港會議展覽中心

[www.hkoa.org/hkoa46](http://www.hkoa.org/hkoa46)

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## Welcome Message from the President of The Hong Kong Orthopaedic Association



Dear Fellows, Members, Distinguished Guests, and Colleagues,

It is my utmost honour and privilege to welcome you all to the **46th Annual Congress of the Hong Kong Orthopaedic Association (HKOA)**, held from **31 October to 1 November 2026** at HKCEC.

Following last year's momentous Diamond Jubilee celebrating six decades of excellence, we enter our **"60+1" milestone year** with renewed vitality, unity, and purpose. To mark this ongoing journey, we have spearheaded a series of impactful community engagement initiatives. In October, in close collaboration with our esteemed partner organisations, we hosted a series of public education talks during

**"Bone and Joint Action Week"** to promote public health awareness across Hong Kong.

Our central theme for 2026, **"The Rapid Recovery Revolution: Optimising the Fast Track to Function,"** embraces a holistic vision of the perioperative journey — encompassing stratification of advanced surgical options, modern technology applications and tailored rehabilitation regimens. Across every subspecialty, our shared mission is clear: restoring function and quality of life as safely and efficiently as possible. Complementing our scientific symposia, we are excited to feature a hands-on **Ultrasound Workshop on Musculoskeletal Joints**, designed to sharpen practical skills in joint assessment, point-of-care diagnostics, and clinical decision-making.

We are honoured to host an impressive lineup of distinguished overseas and local speakers from diverse subspecialties who will enrich this meticulously organised two-day programme. The Annual Congress continues to serve as a premier platform to reunite with cherished colleagues, cultivate new friendships, and exchange transformative ideas. This year, we are particularly honoured to welcome the **Royal College of Orthopaedic Surgeons of Thailand (RCOST)** as our guest society for the very first time. Having experienced their warm hospitality during the joint RCOST-COA-HKOA meeting in Pattaya in 2025, we are delighted to return the gesture. Joined by a distinguished faculty of local and international experts, their presence significantly enriches our dynamic two-day scientific programme.

I extend my deepest gratitude to the Organising Committee, under the exemplary leadership of Co-Chairpersons **Dr TT Chan** and **Dr Michelle Luk**, for their tireless effort, strategic vision, and dedication in bringing this congress to life. I also wish to thank our Past Presidents, senior mentors, and delegates for their enduring support and commitment to the advancement of orthopaedics in Hong Kong.

I wish you all an inspiring, enriching, and memorable 46th Annual Congress!

Warm regards,

**Dr Kam-kwong WONG**

**President**

**The Hong Kong Orthopaedic Association**

## Welcome Message from the Co-Chairpersons of the Organising Committee



Dear Fellows, Members, and Friends,

It is our pleasure to welcome you to the 46th Annual Congress of the Hong Kong Orthopaedic Association. This year, we gather from 31 October to 1 November 2026 at the Hong Kong Convention and Exhibition Centre – a truly special occasion to come together, share insights, and reconnect with one another.

Our theme for 2026 is **“The Rapid Recovery Revolution: Optimising the Fast Track to Function.”**

Across all orthopaedic subspecialties, our shared goal is to restore function and quality of life as safely and efficiently as possible. This year’s programme takes a holistic view of the entire perioperative journey – from preoperative optimisation to enhanced recovery protocols and ongoing rehabilitation.

The congress also offers a welcoming space to reconnect with old colleagues, meet new friends, and exchange ideas. This year, for the first time ever, we have invited our friends from the Royal College of Orthopaedic Surgeons of Thailand (RCOST) as our guest society.

Let us embrace the rapid recovery revolution – and support every patient’s journey toward better function and quality of life. We look forward to welcoming you warmly to Hong Kong.

Yours sincerely,

**Dr Tsang Tung CHAN and Dr Michelle Hilda LUK**

**Co-Chairpersons**

**HKOA 46th Annual Congress**

## Organising Committee



### Co-Chairpersons

Honorary Secretary  
Honorary Treasurer  
Scientific Subcommittee  
Co-Conveners

### Members

### Social Function Subcommittee Convener

### Publication, Publicity, ITAV & Venue Subcommittee Convener

### Extended Abstract Adjudicators

### Congress Secretariat

Tsang Tung CHAN  
Michelle Hilda LUK  
Marvin Man Ting CHUNG  
Ramon Lo YIU

Felix LEUNG  
Dennis Cham Kit WONG  
Gary Tze Wang CHAN  
Esther Man Wai CHOW  
Kevin Chi Him FOK  
Edwin Kwok Hang LAM  
Gloria Yan Ting LAM  
Janice Chi Kay LAU  
Sheung Wai LAW  
Moses Man Lung LI  
Samuel Ka Kin LING  
Lucci Lugee LIYEUNG  
Cho Yau LO  
Jonathan Patrick NG  
Edmund Leung Kai YAU

Lucci Lugee LIYEUNG  
Victor Chun Yiu LEUNG  
Peter Ho Ming LI

Tsz Lung CHOI  
Gabriel Ching Ngai LEUNG  
Calvin TSOI  
Kelvin Tze Kit WAN  
Patrick Pak Leung TSANG  
Ho Lam CHAI  
Shing Hing CHOI  
Tsz Lung CHOI  
Andrew Ka Hei FAN  
Raymond Kam Keung LAI  
Fiona Hoi Yan LAM  
Tze Ping LAM  
Lawrence Chun Man LAU  
Kenneth Wing Kin LAW  
Michelle Syn Yuk LEE  
Ka Hei LEUNG  
Lin Wing LOK  
Chun Man MA  
Graham Ka Hon SHEA  
Michael Siu Hei TSE  
Hon For TSUI  
Hin Keung WONG  
Man Kwan WONG  
Jerry Jiankun XU  
Edmund Leung Kai YAU  
Gary Wing Hang YIP  
Gloria Oi Yin CHAN  
Debbie Wing Han HO  
Pinky Lok Man LAM  
Winnie Ho Ting LI

## Overseas, Regional, and Local Faculties

### SPEAKERS FOR PLENARY SESSIONS AND CONCURRENT SESSIONS

**Assoc Prof Adinun APIVATGAROON**

Department of Orthopaedics  
Thammasat University  
Bangkok, Thailand



**Prof Paul BANASZKIEWICZ**

Consultant Orthopaedic Surgeon & Visiting Professor  
Northumbria University  
Queen Elizabeth Hospital  
Gateshead, United Kingdom



**Mrs Shea BYRNE**

Clinical Lead, Ortho-oncology Physiotherapist  
Royal National Orthopaedic Hospital  
London, United Kingdom



**Prof James DF CALDER**

Professor  
Department of Bioengineering, Imperial College London  
Consultant Orthopaedic Surgeon  
Fortius Clinic London  
United Kingdom



**Dr Ukrit CHAWEEWANNAKORN**

Department of Orthopaedics  
Police General Hospital  
Bangkok, Thailand



**Dr Yongsheng CHEN**

Head of Division & Senior Consultant  
Division of Orthopaedic Trauma Surgery  
Department of Orthopaedic Surgery  
Ng Teng Fong General Hospital  
Singapore



**Lt Col Asst Prof Roongrath CHITRAGRAN**

Department of Orthopaedics  
Phramongkutklao Hospital  
Bangkok, Thailand



**Dr Hwa Sen CHUA**

President of the Malaysian Hip and Knee Society  
Malaysia



**Dr Harvey Hui DU**

Chief  
Department of Foot and Ankle Surgery  
Beijing Jishuitan Hospital  
Capital Medical University  
Beijing



**Dr Piya KIATISEVI**

Department of Orthopaedics  
Lerdsin Hospital  
Bangkok, Thailand



**Dr Jinsu KIM**

Chief Executive Officer  
Sports Medicine Department, Surgery of Foot & Ankle  
Sejong Sports Medicine & Performance Center  
Seoul, Republic of Korea



**Asst Prof Nattha KULKAMTHORN**

Department of Orthopaedics  
Phramongkutklao Hospital  
College of Medicine Bangkok,  
Thailand



**Dr Peter LAM**

Foot and Ankle Surgeon  
Private Practice  
Orthopaedic and Arthritis Specialist Centre  
Sydney, Australia



**Dato' Dr Joon Kiong LEE**

Consultant at Beacon Hospital  
Malaysia



**Dr Gabriel Ka Po LIU**

Senior Consultant at University Spine Centre  
Adjunct Professor  
Department of Orthopaedic Surgery  
National University Hospital  
Singapore



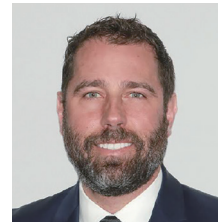
**Dr Ian LO**

Chief of Shoulder and Elbow Surgery  
University of Calgary  
Calgary, Canada



**Prof Sébastien LUSTIG**

Chair of the Department of Orthopaedics  
Hôpital de la Croix-Rousse - Hospices Civils de Lyon  
Lyon, France



**Dr Yasuaki NAKANISHI**

Lecturer, Orthopedic Surgeon  
Department of Orthopaedic Surgery and Postgraduate  
Clinical Training Center  
Nara Medical University  
Japan



**Prof Carsten PERKA**

Director, Center for Musculoskeletal Surgery, Charité – Universitätsmedizin Berlin  
President, German Association of Orthopaedics and Orthopaedic Surgery (DGOOC)  
Chairperson, AO Recon Steering Board  
Berlin, Germany



**Prof Chanakarn PHORNPHTKUL**

Department of Orthopaedics  
Chiang Mai University  
Chiang Mai, Thailand



**Prof Thipachart PUNYARATABANDHU**

Department of Orthopaedics  
Phramongkutklao Hospital  
Bangkok, Thailand



**Prof Govardhan RAMIA HARIGOVINDARAO**

Elected Vice President  
Indian Orthopaedic Association



**Dr Chang Ho SHIN**

Associate Professor  
Division of Pediatric Orthopaedics  
Department of Orthopaedic Surgery  
Seoul National University Children's Hospital  
Seoul National University College of Medicine  
South Korea



**Asst Prof Thongchai SUNTHARAPA**

Department of Orthopaedics  
Thammasat University  
Bangkok, Thailand



**Assoc Prof Dr Tulyapruet TAWONSAWATRUK**

Department of Orthopedics  
Faculty of Medicine Ramathibodi Hospital  
Mahidol University  
Bangkok, Thailand



**Prof Soshi UCHIDA**

Chief Professor  
Department of Orthopaedic Sports Medicine  
University of Occupational and Environmental Health  
Wakamatsu Hospital  
Kitakyushu, Japan



**Dr Thanut VALLEENUKUL**

Department of Orthopaedics  
Bhumibol Adulyadej Hospital  
Bangkok, Thailand



**Asst Prof Jidapa WONGCHAROENWATANA**

Department of Orthopaedic Surgery  
Faculty of Medicine Siriraj Hospital  
Mahidol University  
Bangkok, Thailand



**Dr Wen-Tien WU**

Head of Department of Orthopedics  
Hualien Tzu Chi Hospital  
Hualien



## LOCAL SPEAKERS – PLENARY SESSIONS AND CONCURRENT SESSIONS

Dr Chun Fung CHAN  
Dr Ying Kei CHAN  
Dr Shing Hing CHOI  
Dr Esther Ching San CHOW  
Dr Christian Xinshuo FANG  
Dr Margaret Woon Man FOK  
Dr Albert Yung Chak HSU  
Dr Carmen KUNG  
Dr Evelyn KUONG  
Dr Jacky Hiu Woo LAU  
Dr Keith LAU  
Dr Sheung Wai LAW  
Dr Kin Bong LEE  
Prof Frankie Ka Li LEUNG  
Dr Anderson Siu Ming LEUNG  
Dr Moses Man Lung LI  
Dr Cho Yau LO  
Dr Chun Man MA  
Dr Michael Chu Kay MAK  
Dr Anita NGAN  
Dr Yuk Chuen SIU  
Dr Chris TANG  
Dr Ning TANG  
Dr Michael Siu Hei TSE  
Dr Kam Lung TUNG  
Dr Ronald Man Yeung WONG  
Dr Chun Hoi YAN  
Prof Patrick Shu Hang YUNG

## OVERSEAS SPEAKERS – LUNCH SYMPOSIA

**Dr Yongsheng CHEN**  
Head of Division & Senior Consultant  
Division of Orthopaedic Trauma Surgery  
Department of Orthopaedic Surgery  
Ng Teng Fong General Hospital  
Singapore



**Prof Sébastien LUSTIG**  
Chair of the Department of Orthopaedics  
Hôpital de la Croix-Rousse - Hospices Civils de Lyon  
Lyon, France



**Dr Pil-whan YOON**  
Director of Hip Centre  
Seoul Now Hospital  
South Korea



## LOCAL SPEAKERS – LUNCH SYMPOSIA

### **Dr Amy Yim Ling CHEUNG**

Deputy Chief  
Division of Joint Replacement Surgery  
Department of Orthopaedics and Traumatology  
Queen Mary Hospital  
Hong Kong



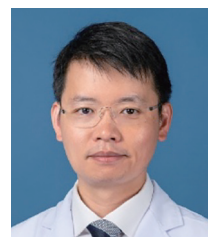
### **Dr Steve Man Hong CHEUNG**

Clinical Director of Robotic Surgery  
Hong Kong Adventist Hospital  
Hong Kong



### **Dr Henry FU**

Clinical Associate Professor and Chief  
Division of Joint Replacement Surgery  
Department of Orthopaedics and Traumatology  
The University of Hong Kong



### **Dr Gloria Yan Ting LAM**

Associate Consultant  
Department of Orthopaedics & Traumatology  
Alice Ho Miu Ling Nethersole Hospital  
Hong Kong



### **Dr Raymond Churk Lun YIP**

Director  
Spine Care Hong Kong  
Hong Kong



## **PRESIDENTS, REPRESENTATIVES, AND AMBASSADORS OF SISTER ASSOCIATIONS**

### **PRESIDENTS, REPRESENTATIVES**

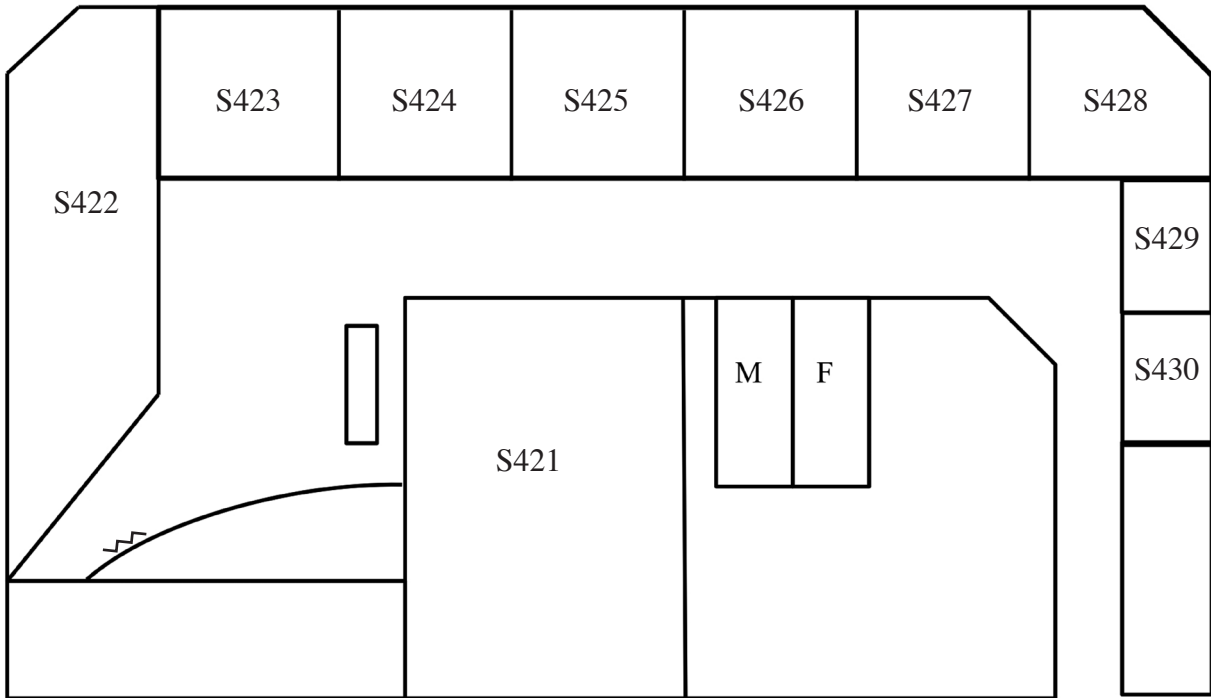
**Prof Paul BANASZKIEWICZ**, British Orthopaedic Association  
**Dr Marcelino T. CADAG**, Philippine Orthopaedic Association  
**Prof Wai-sin CHAN**, The Macau Orthopaedic Association  
**Dr Deri MULYAD**, Indonesian Orthopaedic Association  
**Mr Dawson Charles William MUIR**, New Zealand Orthopaedic Association  
**Dr Bimal Kumar PANDEY**, Nepal Orthopaedic Association  
**Prof Govardhan RAMIA HARIGOVINDARAO**, Indian Orthopaedic Association  
**Dr Sarah Sheena TOYAT**, Malaysian Orthopaedic Association  
**Prof Takuaki YAMAMOTO**, Japanese Orthopaedic Association  
**Dr Andy YEO**, Singapore Orthopaedic Association

### **AMBASSADORS, TRAVELLING FELLOWS**

**Dr Sun ASCHAITRAKOOL**, Royal College of Orthopaedic Surgeons of Thailand  
**Dr Yan-yu CHEN**, Taiwan Orthopaedic Foot & Ankle Society  
**Dr Muhammad IHSAN BIN MOHD TUSIRIN**, Malaysian Orthopaedic Association  
**Dr Yuki OKAZAKI**, Japanese Orthopaedic Association  
**Dr Vahe SAHAKIAN**, New Zealand Orthopaedic Association  
**Dr Chin-horng SU**, Taiwan Orthopaedic Foot & Ankle Society  
**Dr Thanawat TANTIMETHANON**, Thai Orthopedic Society for Sports Medicine  
**Dr Siravat TEERASUKAKUL**, Thai Orthopedic Society for Sports Medicine

Floor Plan

The Hong Kong Convention and Exhibition Centre



Registration: S429

Slide Preview: S430

Plenary Sessions: S421

Concurrent Sessions: S425, S426, S427, S428

Free Paper Sessions: S421, S425, S426, S427, S428

Opening Ceremony: S421

Award Paper Session: S421

E-poster Station: 

Award Poster Station: 

Lunch Symposia: S425, S426, S427, S428

Workshop: S428

## Programme at a Glance

### Saturday, 31 October 2026

|               |                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                         |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07:30 – 10:00 | <b>Free Paper Session I: Basic Sciences</b> Room S421<br><b>Free Paper Session II: Paediatric Orthopaedics I</b> Room S425<br><b>Free Paper Session III: Orthopaedic Rehabilitation, Hand</b> Room S426<br><b>Free Paper Session IV: Foot and Ankle, Others (08:00 – 10:00)</b> Room S427<br><b>Free Paper Session V: Adult Joint Reconstruction I (07:15 – 10:00)</b> Room S428 |                                                                                                                                                                                                                                                                                                         |
| 10:00 – 10:30 | <b>Coffee Break / Exhibition</b>                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                         |
| 10:30 – 12:00 | <b>Opening Ceremony and Presidential Lecture</b> Room S421                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                         |
| 12:00 – 13:00 | <b>Plenary Session I: Recovery Pathways in Modern Orthopaedics</b> Room S421                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                         |
| 13:00 – 14:00 | <b>Lunch / Lunch Symposia</b>                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                         |
| 14:00 – 15:45 | <b>Award Paper Session</b> Room S421                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                         |
| 15:45 – 16:15 | <b>Award Poster Session</b> Room S421 Foyer                                                                                                                                                                                                                                                                                                                                      | <b>Coffee Break / Exhibition</b>                                                                                                                                                                                                                                                                        |
| 16:15 – 18:00 | <b>Plenary Session II: Minimally Invasive and Tissue-Sparing Techniques</b> Room S421                                                                                                                                                                                                                                                                                            | <b>Concurrent Session I: Adult Joint Reconstruction</b> Room S428<br><b>Concurrent Session II: Orthopaedic Oncology</b> Room S427<br><b>Concurrent Session III: Orthopaedic Rehabilitation</b> Room S425<br><b>Concurrent Session IV: Royal College of Orthopaedic Surgeons of Thailand I</b> Room S426 |
| 18:00 – 18:30 | <b>Annual General Meeting of The Hong Kong Orthopaedic Association</b> Room S421                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                         |
| 18:30 – 22:00 | <b>Congress Banquet</b> Chancellor Room, 4/F, Old Wing                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                         |

### Sunday, 1 November 2026

|               |                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                      |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07:30 – 10:00 | <b>Free Paper Session VI: Trauma (08:30 – 10:00)</b> Room S421<br><b>Free Paper Session VII: Paediatric Orthopaedics II</b> Room S425<br><b>Free Paper Session VIII: Spine (08:00 – 10:00)</b> Room S426<br><b>Free Paper Session IX: Sports Medicine</b> Room S427<br><b>Free Paper Session X: Adult Joint Reconstruction II (07:15 – 10:00)</b> Room S428 |                                                                                                                                                                                                                                                      |
| 10:00 – 10:30 | <b>Coffee Break / Exhibition</b>                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                      |
| 10:30 – 12:00 | <b>Plenary Session III: Biology, Biomaterials and Biomechanics for Faster Healing</b> Room S421                                                                                                                                                                                                                                                             | <b>Concurrent Session V: Royal College of Orthopaedic Surgeons of Thailand II</b> Room S426<br><b>Concurrent Session VI: Trauma</b> Room S425<br><b>Concurrent Session VII: Spine</b> Room S427<br><b>Concurrent Session VIII: Hand</b> Room S428    |
| 12:00 – 13:00 | <b>Lunch / Lunch Symposia</b>                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                      |
| 13:00 – 14:30 | <b>Plenary Session IV: Enabling Technology and Data-Driven Care</b> Room S421                                                                                                                                                                                                                                                                               | <b>Concurrent Session IX: Orthopaedic Training</b> Room S426<br><b>Concurrent Session X: Paediatric Orthopaedics</b> Room S427<br><b>Concurrent Session XI: Sports Medicine</b> Room S428<br><b>Concurrent Session XII: Foot and Ankle</b> Room S425 |
| 14:30 – 15:00 | <b>Coffee Break / Exhibition</b>                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                      |
| 15:00 – 16:30 | <b>Plenary Session V: Looking Beyond the Pathway</b> Room S421                                                                                                                                                                                                                                                                                              | <b>Satellite Workshop: What can Handheld Ultrasound do? (15:00 – 17:00)</b> Room S428                                                                                                                                                                |
| 16:30 – 16:45 | <b>Closing Remarks</b> Room S421                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                      |

## Programme in Detail

### Saturday, 31 October 2026

| Time          | Venue | Session / Content                                                                                                                                                                                      | Speakers / Moderators / Panel      |
|---------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| 07:30 – 10:00 | S421  | Free Paper Session I: Basic Sciences                                                                                                                                                                   | Pauline PY LUI,<br>Kelvin WK YEUNG |
| FP1.1         |       | Smart AP1122 rescues inflammation-induced dysfunction in tendon-derived stem/progenitor cells and accelerates early tendon repair                                                                      | Chujun Deng                        |
| FP1.2         |       | Magnesium alleviates joint degeneration under iron-overload conditions via attenuation of ferroptosis-associated cartilage injury                                                                      | Jingliang Kang                     |
| FP1.3         |       | Genetic deletion of adiponectin exacerbated histopathological damage and gait impairment following collagenase-induced tendon injury                                                                   | Katie Tsz-yan Mok                  |
| FP1.4         |       | Extracellular vesicles from costal-cartilage derived stem cells promote tendon-bone healing in rat anterior cruciate ligament reconstruction model                                                     | Mingde Cao                         |
| FP1.5         |       | Novel mass spectrometry-based integrative spatial multi-omics approach for metabolic synovitis endotyping in osteoarthritis                                                                            | Lawrence Lau                       |
| FP1.6         |       | Mitochondria-targeted ergothioneine-loaded liposome-based reactive oxygen species-responsive composite hydrogel enhances fibrocartilage regeneration and tendon-bone healing after rotator cuff repair | Oliver Ting-see Ho                 |
| FP1.7         |       | Tconv-Treg cytokine coordination patterns across osteoarthritic synovium and synovial fluid                                                                                                            | Xueyou Zhang                       |
| FP1.8         |       | Magnesium activates Wnt5a in Grem1+ skeletal stem cells to prevent callus fibrosis                                                                                                                     | Jerry Jiankun Xu                   |
| FP1.9         |       | Investigation of the senotherapeutic effect of Maraviroc                                                                                                                                               | Bonan Zhang                        |
| FP1.10        |       | DHX36 regulates skeletal muscle stem cell ageing via modulating mitochondrial function                                                                                                                 | Xiaofan Guo                        |
| FP1.11        |       | Moderate tibial mechanical loading ameliorates cognitive dysfunction through suppressing osteoblast-derived lipocalin-2 in mouse models of Alzheimer's disease                                         | Hui Chen                           |
| FP1.12        |       | Oxidative stress drives maladaptive quadriceps fibre-type remodelling after anterior cruciate ligament injury despite surgical reconstruction                                                          | Jianting Li                        |
| FP1.13        |       | Low-dose micro- and nano-plastic exposure triggers neuromuscular junction degeneration via disruption of the agrin-LRP4 axis                                                                           | Qianjin Wang                       |
| FP1.14        |       | Mitigation of dexamethasone-induced muscle atrophy via microfluidics-mediated mitochondria transfer in adipose-derived mesenchymal stromal cells                                                       | Jeffrey Wan Hei Hui                |
| FP1.15        |       | Genome-wide CRISPR screening identifies key genetic regulators of myoblast senescence                                                                                                                  | Ziliu Wang                         |
| FP1.16        |       | Asymmetric fat infiltration and fibrosis in paraspinal muscles of adolescent idiopathic scoliosis: histological and single-nucleus transcriptomic insights                                             | Dongyue LI                         |

| Time          | Venue | Session/ Content                                                                                                                                                                                                                                                  | Speakers /<br>Moderators / Panel      |
|---------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 07:30 – 10:00 | S425  | Free Paper Session II: Paediatric Orthopaedics I                                                                                                                                                                                                                  | Adam YC LAU,<br>Prudence WH<br>CHEUNG |
| FP2.1         |       | Adolescent idiopathic scoliosis 20 years after fusion with hook-rod instrumentation: health-related quality of life deterioration and the need for long-term follow-up                                                                                            | Adam Yiu-Chung Lau                    |
| FP2.2         |       | Risk of curve progression in children with positive scoliosis screening and initial Cobb angle <20°                                                                                                                                                               | Cheuk-Kin Kwan                        |
| FP2.3         |       | Effect of Schroth exercises on postural balance in adolescents with idiopathic scoliosis                                                                                                                                                                          | Fion Wai Shan<br>Cheung               |
| FP2.4         |       | Shorter brace fabrication times for curves >30° is associated with curve regression in adolescent idiopathic scoliosis: a 2-year follow-up study                                                                                                                  | Victoria Yuk Ting Hui                 |
| FP2.5         |       | Pre-brace major curve magnitude and curve flexibility predicts bracing success in juvenile idiopathic scoliosis: a 2-year follow-up study                                                                                                                         | Victoria Yuk Ting Hui                 |
| FP2.6         |       | Development and validation of an artificial intelligence-assisted landmark detection model for Thumb Ossification Composite Index as the automated skeletal maturity assessment                                                                                   | Jamie Tsun Chiu                       |
| FP2.7         |       | Development of a bone microarchitecture phenotyping model based on high-resolution peripheral quantitative computed tomography data from 1213 adolescents and application of the model in predicting suboptimal peak bone mass in adolescent idiopathic scoliosis | Kenneth Guangpu<br>Yang               |
| FP2.8         |       | L4-S1 segments as the primary compensatory mechanism for sagittal changes in proximal lumbar spine after selective lumbar fusion surgery in Lenke 5C adolescent idiopathic scoliosis                                                                              | Natalie Chi Wai Leung                 |
| FP2.9         |       | Estimating body height growth in adolescent idiopathic scoliosis: which skeletal maturity method is the most accurate in predicting timing to peak growth and growth cessation?                                                                                   | Samuel Tin Yan<br>Cheung              |
| FP2.10        |       | Use of unsupervised machine learning in three-dimensional classification of adolescent idiopathic scoliosis: a systematic review                                                                                                                                  | Lois Ching-Tung Liu                   |
| FP2.12        |       | Can preoperative radiological parameters safely replace pulmonary function tests to guide management in adolescent idiopathic scoliosis patients undergoing spinal fusion?                                                                                        | Oscar Chun To Mak                     |
| FP2.13        |       | Comparative analysis of spinal deformity measurements across different patient positions in adolescent idiopathic scoliosis                                                                                                                                       | Tsz Yan So                            |
| FP2.15        |       | How do the material properties and design optimisation of three-dimension-printed scoliosis braces affect their manufacturing efficiency and clinical effectiveness compared to conventional braces?                                                              | Vincent Ho-Lam Wu                     |

| Time          | Venue | Session / Content                                                                                                                                                                               | Speakers / Moderators / Panel    |
|---------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| 07:30 – 10:00 | S426  | Free Paper Session III: Orthopaedic Rehabilitation, Hand                                                                                                                                        | Edwin KH LAM,<br>Michelle SY LEE |
| FP3.1         |       | Optimising recovery: the early effects of pre- and post-operative occupational therapy home visits on patients receiving total knee replacement in an enhanced recovery after surgery programme | Hiu Shing Chong                  |
| FP3.2         |       | Usage of tranexamic acid in transforaminal lumbar interbody fusion                                                                                                                              | Edwin Sun Wah Heung              |
| FP3.3         |       | Dietary protein intake and hip fracture risk among elderly people in Hong Kong: a quantitative analysis                                                                                         | See Ching Daniel                 |
| FP3.4         |       | Machine learning-based prediction of short-term clinical response to structured non-surgical treatment programme in patients with knee osteoarthritis                                           | Ioi Chit Cheung                  |
| FP3.5         |       | Negative pressure wound therapy to improve primary knee arthroplasties scar tissue healing: a randomised controlled trial                                                                       | Adrian Man Yui Lee               |
| FP3.6         |       | Effectiveness of pulsed electromagnetic field therapy for meniscal tears: a randomised double-blind controlled pilot trial                                                                      | Wing Ki May Wong                 |
| FP3.7         |       | Hip-mounted exoskeleton gait training as a safe and feasible intervention for geriatric hip fracture rehabilitation                                                                             | Wilson Wai-ching Lai             |
| FP3.8         |       | Smart lower-limb garment and online rehabilitation platform for in bed hip fracture recovery: a mixed methods feasibility study                                                                 | Cheuk-Kin Kwan                   |
| FP3.9         |       | Redefining early mobility: hands-free versus traditional ambulatory aids for postoperative non-weightbearing patients after ankle and foot surgeries                                            | Shutong Mo                       |
| FP3.10        |       | Targeted muscle reinnervation is associated with significant analgesic-sparing effects in Asian post-amputation patients: early utilisation and clinical outcomes                               | Augustine Kai Chun Chan          |
| FP3.11        |       | Ultrasound-guided versus open trigger finger release: a retrospective analysis of postoperative therapy utilisation and clinical efficacy                                                       | Chun Chit Cheung                 |
| FP3.12        |       | All-inside arthroscopic radial triangular fibrocartilage complex repair using cinch sutures and bone anchors: a case report and literature review                                               | Alexander Kai Yiu Choi           |
| FP3.13        |       | 17-year experience in arthroscopic capitulum fusion: comprehensive review of clinical outcomes                                                                                                  | Moya Kwan Hung Tsui              |
| FP3.14        |       | Retrospective review of mycobacterial hand infections: from clinical to pathology                                                                                                               | Kit Ci Chan                      |
| FP3.15        |       | Effectiveness of smartphone application to improve outcomes after trigger finger release: a randomised controlled trial                                                                         | Ka Mun Lam                       |
| FP3.16        |       | Digital replantation versus revision amputation after distal finger amputation: a retrospective study                                                                                           | Hollie Hoi Lum Pong              |
| FP3.17        |       | Arthroscopic bone grafting for scaphoid fracture non-union: a retrospective review of a 29-year, 170-case journey                                                                               | Michelle Kar-lam Li              |
| FP3.18        |       | Treatment options and clinical outcomes of ulnar-sided carpometacarpal fracture-dislocations: a systematic review                                                                               | Arthur Kwan Ho Lee               |
| FP3.19        |       | Correcting scaphoid deformity with computer navigation and arthroscopic bone grafting                                                                                                           | Michael Chu Kay Mak              |

| Time          | Venue | Session/ Content                                                                                                                                                                                                        | Speakers / Moderators / Panel |
|---------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 08:00 – 10:00 | S427  | Free Paper Session IV: Foot and Ankle, Others                                                                                                                                                                           | Stephanie KK LIU, Avery CHU   |
| FP4.1         |       | A retrospective comparison between fibular interlocking nailing and plating for Weber B and C fibular fractures in patients with ankle fracture                                                                         | Michelle Chui Yee Wong        |
| FP4.2         |       | Early outcomes of Infinity total ankle replacement: a retrospective review                                                                                                                                              | Cheuk Wai Wong                |
| FP4.3         |       | Early clinical outcomes of an ankle replacement system with tibial stem implant in a regional hospital setting                                                                                                          | Shui Wah Man                  |
| FP4.4         |       | Clinical application of proximal first metatarsal closing wedge osteotomy in foot and ankle deformity reconstruction: a case series and review                                                                          | Alan Chun Yin Chiu            |
| FP4.5         |       | Kirschner wires versus screws as fixation for minimally invasive hallux valgus surgery, a retrospective comparison study                                                                                                | Nicholas Sai Hang Kong        |
| FP4.6         |       | Does open reduction and internal fixation restore normal gait in ankle fracture patients? A retrospective study at 2 years post-surgery                                                                                 | Gabriella Chan                |
| FP4.7         |       | Markerless single leg hop kinematics reveal strength-related landing deficits in competitive athletes: a machine learning and correlation study                                                                         | Tianzhi Jiang                 |
| FP4.8         |       | Achilles tendon parameters in ultimate frisbee players                                                                                                                                                                  | Stephanie Ho-Ching Lau        |
| FP4.9         |       | Achilles tendon thermal asymmetry across healthy tendinopathy and rupture groups and its associations with patient-reported outcomes                                                                                    | Wen-jie Pan                   |
| FP4.10        |       | Effects of tendinopathy severity on postoperative outcomes following degenerative Achilles tendon ruptures                                                                                                              | Justin Shun-hang Lo           |
| FP4.11        |       | Markerless motion capture of single leg hop highlights functional deficits in Achilles tendinopathy and post-rupture repair patients                                                                                    | Jasmine Pui-yin Lo            |
| FP4.12        |       | The microflora profile in diabetic foot and the clinical implication of fungal infection                                                                                                                                | Esther Man-Wai Chow           |
| FP4.13        |       | Ambient artificial intelligence scribe in orthopaedic sports surgery: a randomised controlled trial demonstrating significant consultation efficiency with maintained patient satisfaction and therapeutic relationship | Jeremie Choo                  |

| Time          | Venue                                                                                                                                                                                                                             | Session/ Content                                   | Speakers / Moderators / Panel  |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------|
| 07:15 – 10:00 | S428                                                                                                                                                                                                                              | Free Paper Session V: Adult Joint Reconstruction I | Gerry CH HO,<br>Justin HL WONG |
| FP5.1         | Can unicompartmental knee arthroplasty achieve comparable early outcomes to total knee arthroplasty in non-ideal patients with medial compartment osteoarthritis? A retrospective comparative study                               | Ignatius Tsz Tsun Ip                               |                                |
| FP5.2         | Could unicompartmental knee arthroplasty be done in ambulatory basis? A pilot study on early outcomes, patient satisfaction, and selection paradoxes for day surgery                                                              | Yifei Ma                                           |                                |
| FP5.3         | Are we overtreating anteromedial osteoarthritis of knee? Matched comparison of same-stage bilateral Oxford unicompartmental knee arthroplasty and total knee arthroplasty in unicompartmental knee arthroplasty-eligible patients | Catherine Ka-hei Lam                               |                                |
| FP5.4         | Determinants of femoral and tibial sizing in Oxford Unicompartmental knee arthroplasty based on the Hong Kong Population                                                                                                          | Wai Shun Yau                                       |                                |
| FP5.5         | Lateral and patellofemoral compartment osteoarthritis progression in medial Oxford unicompartmental knee arthroplasty: a mid-term review                                                                                          | Jeremy Ho Pak Liu                                  |                                |
| FP5.6         | Change in mechanical tibiofemoral angle after Oxford unicompartmental knee arthroplasty and its influence on medium term outcome                                                                                                  | Ronald Wing-hei Siu                                |                                |
| FP5.7         | Does preoperative extreme varus deformity affect postoperative outcomes after Oxford unicompartmental knee arthroplasty? A propensity score-matched study                                                                         | Cham Kit Wong                                      |                                |
| FP5.8         | Joint line orientation change after Oxford unicompartmental knee arthroplasty: associated radiographic and surgical factors in a 130-knee single-centre series                                                                    | Gloria Yan-ting Lam                                |                                |
| FP5.9         | Ceramic-on-ceramic hip resurfacing: learning curve                                                                                                                                                                                | Jason Brockwell                                    |                                |
| FP5.10        | Determining optimal bone stock for screw placement in total hip arthroplasty for patients with developmental dysplasia of the hip utilising robotic-assisted computer stimulation                                                 | Augustine Kai Chun Chan                            |                                |
| FP5.11        | Aetiology of hip arthritis and indications for primary total hip arthroplasty in a Hong Kong population: a 15-year retrospective review                                                                                           | Martin Shun Sing Cheng                             |                                |
| FP5.12        | Distribution and determinants of computed tomography-measured native femoral version in a multicentre Hong Kong total hip arthroplasty cohort with >800 cases                                                                     | Steve Cheung                                       |                                |
| FP5.13        | Accuracy of acetabular cup positioning: augmented reality navigation versus robotic-assisted surgery                                                                                                                              | Tsz-Lung Choi                                      |                                |
| FP5.14        | 15- to 20-year follow-up of total hip replacement using highly crosslinked polyethylene and 36mm femoral heads                                                                                                                    | Amy Cheung                                         |                                |
| FP5.15        | Which design moves better? Biomechanical insights into dual mobility versus fixed bearing in primary hip arthroplasty                                                                                                             | Justin Bing-Kai Yeung                              |                                |
| FP5.16        | Methyl methacrylate detected in the breastmilk of an orthopaedic surgeon following cemented arthroplasty procedures                                                                                                               | Michelle Hilda Luk                                 |                                |
| FP5.17        | Can surgeons learn from artificial intelligence to improve outcomes? A novel artificial intelligence-powered analysis model of outcome predictors in robotic-assisted total knee arthroplasty                                     | Thomas Ka Chun Leung                               |                                |
| FP5.18        | Patient-reported outcomes of robotic and conventional total knee arthroplasty comparative analysis of Kunwu, Mako, and Velys in 175 cases from a tertiary referral centre                                                         | Wing Tung Ng                                       |                                |
| FP5.19        | Determining optimal ligament tensioning in imageless robot-assisted bicruciate-stabilised total knee replacement                                                                                                                  | Rex Wang Fung Mak                                  |                                |
| FP5.20        | Z-retractor and digital tensioner show comparable inter- and intra-rater reliability of ligament tension assessment in robotic-assisted total knee replacement                                                                    | Samuel Ho Sam Wong                                 |                                |
| FP5.21        | Effect of tibial sagittal alignment change on early to mid-term clinical outcomes following robotic-assisted total knee arthroplasty                                                                                              | Cham Kit Wong                                      |                                |
| FP5.22        | Influence of posterior tibial slope on functional outcomes: cruciate-retaining versus posterior-stabilised total knee replacement                                                                                                 | Tsz-hang Ma                                        |                                |
| FP5.23        | What is the tibial component slope target we should be aiming for in total knee arthroplasty? A 11-year survivorship analysis based on absolute targets versus native slope changes                                               | Michelle Hilda Luk                                 |                                |
| FP5.24        | Comparative accuracy of an open-platform robotic system versus three closed-platform single-implant systems in total knee arthroplasty: a multicentre analysis                                                                    | Rex Wang Fung Mak                                  |                                |
| FP5.25        | Artificial intelligence as a safe surgical gatekeeper: artificial intelligence versus experienced surgeons in predicting unicompartmental or total knee replacement candidacy                                                     | Yvonne Sum                                         |                                |
| FP5.26        | Effect of early detection and bladder decompression of postoperative urinary retention on bladder function recovery in total knee arthroplasty: a retrospective cohort study in a Hong Kong public hospital                       | Ying Lun Lau                                       |                                |
| 10:00 – 10:30 | Exhibition                                                                                                                                                                                                                        | Tea Break & Exhibition                             |                                |

| Time          | Venue | Session / Content                                                                                                                                                         | Speakers /<br>Moderators / Panel                   |
|---------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| 10:30 – 12:00 | S421  | <b>Opening Ceremony &amp; Presidential Lecture</b>                                                                                                                        | Master of Ceremonies:<br>Jane FAN,<br>Jonathan MAK |
| 10:30 – 10:40 |       | Welcome Address by Hong Kong Orthopaedic Association Annual Congress Co-Chairpersons                                                                                      | Tsang Tung CHAN<br>Michelle H LUK                  |
| 10:40 – 10:45 |       | Welcome Address by Hong Kong Orthopaedic Association President                                                                                                            | Kam Kwong WONG                                     |
| 10:45 – 11:00 |       | Speech of the Guest of Honour                                                                                                                                             | Thongchai<br>SUNTHARAPA                            |
| 11:00 – 11:15 |       | Guest Society Introduction and Souvenir Presentation                                                                                                                      | Kam Kwong WONG                                     |
| 11:15 – 11:45 |       | Presidential Lecture:<br>From rapid recovery to ambulatory surgery in hip and knee arthroplasty:<br>my recipe to make it a success                                        | Sébastien LUSTIG                                   |
| 11:45 – 12:00 |       | Souvenir Presentation and Group Photo                                                                                                                                     | Kam Kwong WONG                                     |
| 12:00 – 13:00 | S421  | <b>Plenary Session I: Recovery Pathways in Modern Orthopaedics</b>                                                                                                        | Tsang Tung CHAN,<br>Michelle H LUK                 |
| 12:00 – 12:20 |       | Infection therapy and diagnostics                                                                                                                                         | Carsten PERKA                                      |
| 12:20 – 12:40 |       | The evolution of hip preservation surgery: from open surgery to minimally<br>invasive and rapid recovery pathways                                                         | Soshi UCHIDA                                       |
| 12:40 – 13:00 |       | Where sarcoma rehabilitation challenges ‘rapid recovery’ models? What<br>does rapid recovery look like when recovery is inherently complex,<br>prolonged, and individual? | Shea BYRNE                                         |
| 13:00 – 14:00 |       | <b>Lunch Symposia</b>                                                                                                                                                     |                                                    |
| 13:00 – 14:00 | S425  | Lunch Symposium I (Sponsored by Solventum)                                                                                                                                |                                                    |
|               |       | From incision protection to complex wound management: advancing<br>orthopaedic care with negative pressure wound therapy                                                  | Yongsheng CHEN                                     |
|               | S426  | Lunch Symposia II (Sponsored by Johnson & Johnson)                                                                                                                        |                                                    |
|               |       | Rethink bleeding management in total hip arthroplasty to enhance recovery<br>outcomes                                                                                     | Pil-whan YOON                                      |
|               |       | Haemostasis in joint replacement surgery: strategies for simple cases and<br>complex challenges                                                                           | Amy YL CHEUNG                                      |
|               |       | Early experience in haemostats usage and bleeding management in total hip<br>arthroplasty cases                                                                           | Gloria YT LAM                                      |
|               |       | Rapid recovery starts in the operating room: rethinking bleeding<br>management to enhance recovery outcomes                                                               | Steve MH CHEUNG                                    |
|               | S427  | Lunch Symposia III (Sponsored by Stryker China Limited)                                                                                                                   |                                                    |
|               |       | THA5.0 key features and benefits                                                                                                                                          | Sébastien LUSTIG                                   |
|               |       | Hong Kong early experience on THA5.0                                                                                                                                      | Henry FU                                           |

| Time                 | Venue             | Session / Content                                                                                                                                                                                                                                                        | Speakers / Moderators / Panel   |
|----------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>14:00 – 15:45</b> | <b>S421</b>       | <b>Award Paper Presentation</b>                                                                                                                                                                                                                                          | Tsang Tung CHAN, Michelle H LUK |
| <b>AP01</b>          |                   | Adolescent idiopathic scoliosis 20 years after fusion with hook-rod instrumentation: health-related quality of life deterioration and the need for long-term follow-up                                                                                                   | Adam YC LAU                     |
| <b>AP02</b>          |                   | Prevalence of acetabular dysplasia in patients with idiopathic clubfoot at skeletal maturity: a multicentre retrospective study                                                                                                                                          | Brian SIU                       |
| <b>AP03</b>          |                   | Mortality and risk factors of fracture-related infection in 6629 geriatric hip patients                                                                                                                                                                                  | Victor HT YICK                  |
| <b>AP04</b>          |                   | Mitochondria-targeted ergothioneine-loaded liposome-based reactive oxygen species-responsive composite hydrogel enhances fibrocartilage regeneration and tendon-bone healing after rotator cuff repair                                                                   | Oliver TS HO                    |
| <b>AP05</b>          |                   | Clinical relevance of early quadriceps muscle fat infiltration following anterior cruciate ligament reconstruction                                                                                                                                                       | Jonathan P NG                   |
| <b>AP06</b>          |                   | Risk of curve progression in children with positive scoliosis screening and initial Cobb angle <20°                                                                                                                                                                      | Cheuk Kin KWAN                  |
| <b>AP07</b>          |                   | Functional alignment better restores native joint line but does not improve short-term functional outcomes compared to mechanical alignment in robotic-assisted total knee arthroplasty: a prospective double-blinded superiority randomised controlled trial            | Thomas KC LEUNG                 |
| <b>AP08</b>          |                   | Teriparatide administration 1-month preoperatively does not increase bone mineral density and insertional screw torque in lumbar spine fusion: a randomised controlled trial                                                                                             | Augustin KC CHAN                |
| <b>AP09</b>          |                   | Effect of tibial sagittal alignment change on early to mid-term clinical outcomes following robotic-assisted total knee arthroplasty                                                                                                                                     | Cham Kit WONG                   |
| <b>AP10</b>          |                   | Development of a bone microarchitecture phenotyping model based on high-resolution peripheral quantitative computed tomography data from 1213 adolescents and application of the model in predicting suboptimal peak bone mass in adolescent idiopathic scoliosis        | Kenneth G YANG                  |
| <b>AP11</b>          |                   | Manual superior transverse anatomic reconstruction approach versus robotic-assisted posterior approach in total hip arthroplasty: an international multicentre propensity-matched cohort study                                                                           | Thomas KC LEUNG                 |
| <b>15:45 – 16:15</b> | <b>S421 Foyer</b> | <b>Best Poster Presentation</b>                                                                                                                                                                                                                                          | Marvin MT CHUNG                 |
| <b>BP01</b>          |                   | Effects of pulsed electromagnetic field therapy on hamstring muscle properties and knee functions in anterior cruciate ligament reconstruction patients presenting with postoperative hamstring strength deficits: a double-blinded, placebo-controlled randomised study | Pauline PY LUI                  |
| <b>BP02</b>          |                   | Optimising risk counselling prior to rigid plate removal in paediatric forearm fractures: a retrospective cohort analysis                                                                                                                                                | Oscar TN MAK                    |
| <b>BP03</b>          |                   | Rehabilitation outcomes of conservatively treated isolated greater trochanteric fractures                                                                                                                                                                                | Tsz Hang MA                     |
| <b>BP04</b>          |                   | Comparison of rehabilitation outcomes between surgical and conservative treatments for non-displaced intertrochanteric proximal femur fractures                                                                                                                          | Rossetti HY LAM                 |
| <b>BP05</b>          |                   | Underarm bracing can achieve curve regression in selected large curves to avoid risk of adulthood deterioration or surgical thresholds in adolescent idiopathic scoliosis                                                                                                | Prudence WH CHEUNG              |
| <b>15:45 – 16:15</b> | <b>Exhibition</b> | <b>Tea Break &amp; Exhibition</b>                                                                                                                                                                                                                                        |                                 |

| Time                 | Venue       | Session / Content                                                                                                          | Speakers /<br>Moderators / Panel           |
|----------------------|-------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| <b>16:15 – 17:45</b> | <b>S421</b> | <b>Plenary Session II: Minimally Invasive and Tissue-Sparing Techniques</b>                                                | <b>Lucci L LIYEUNG,<br/>Esther MW CHOW</b> |
| 16:15 – 16:35        |             | Muscle-preserving C3 dome C7 reverse dome open door laminoplasty for myelopathy treatment                                  | Gabriel KP LIU                             |
| 16:35 – 16:55        |             | Minimally invasive surgical treatment for metatarsus adductus                                                              | Peter LAM                                  |
| 16:55 – 17:15        |             | Minimally invasive surgery for hallux valgus                                                                               | Jinsu KIM                                  |
| 17:15 – 17:35        |             | The humble screw: replacing major reconstruction for faster recovery in paediatric orthopaedics                            | Chang Ho SHIN                              |
| 17:35 – 17:45        |             | Panel Discussion & Q&A                                                                                                     | All Faculty                                |
| <b>16:15 – 17:35</b> | <b>S428</b> | <b>Concurrent Session I: Adult Joint Reconstruction</b>                                                                    | <b>Amy YL CHEUNG,<br/>Cheung Hong LEE</b>  |
| 16:15 – 16:30        |             | Dual mobility in hip arthroplasty: 50 years of French innovation, experience, and global impact                            | Sébastien LUSTIG                           |
| 16:30 – 16:35        |             | Q&A                                                                                                                        |                                            |
| 16:35 – 16:50        |             | Reconstruction of the abductor mechanism                                                                                   | Carsten PERKA                              |
| 16:50 – 16:55        |             | Q&A                                                                                                                        |                                            |
| 16:55 – 17:10        |             | A match made in heaven: robotic total hip replacement with hybrid fixation                                                 | Hwa Sen CHUA                               |
| 17:10 – 17:15        |             | Q&A                                                                                                                        |                                            |
| 17:15 – 17:30        |             | Arthroplasty practice in private sector                                                                                    | Chun Hoi YAN                               |
| 17:30 – 17:35        |             | Q&A                                                                                                                        |                                            |
| <b>16:15 – 17:45</b> | <b>S427</b> | <b>Concurrent Session II: Orthopaedic Oncology</b>                                                                         | <b>Arthur OF WOO,<br/>Gabriel CN LEUNG</b> |
| 16:15 – 16:45        |             | Sarcoma rehabilitation: when protocols are not enough                                                                      | Shea BYRNE                                 |
| 16:45 – 17:05        |             | Silencing the phantom: proactive nerve management in orthopaedic oncological amputations                                   | Anderson SM LEUNG                          |
| 17:05 – 17:25        |             | Rapid recovery or rapid failure: a case illustration                                                                       | Moses ML LI                                |
| 17:25 – 17:45        |             | Rapid rehabilitation after intercalary prosthetic reconstruction of distal femur: a sarcoma patient rehabilitation journey | Jacky HW LAU                               |
| 17:45 – 18:00        |             | Hong Kong Orthopaedic Association Orthopaedic Oncology Chapter Biennial General Meeting                                    |                                            |

| Time                 | Venue           | Session / Content                                                                                                                      | Speakers / Moderators / Panel                   |
|----------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| <b>16:15 – 17:45</b> | <b>S425</b>     | <b>Concurrent Session III: Orthopaedic Rehabilitation</b>                                                                              | Edwin KH LAM,<br>Raymond WK NG                  |
| 16:15 – 16:20        |                 | Brief overview of the challenges in geriatric hip fracture recovery in Hong Kong<br>Introduction of the four speakers and their topics | Moderators                                      |
| 16:20 – 16:35        |                 | The Hong Kong geriatric hip fracture key performance indicator: is achieving the target enough for recovery?                           | Sheung Wai LAW                                  |
| 16:35 – 16:40        |                 | Q&A                                                                                                                                    |                                                 |
| 16:40 – 16:55        |                 | Bridging the gap: an updated integrated hip fracture care pathway from hospital to community                                           | Keith LAU                                       |
| 16:55 – 17:00        |                 | Q&A                                                                                                                                    |                                                 |
| 17:00 – 17:20        |                 | New technologies to accelerate recovery and independence                                                                               | Anita NGAN                                      |
| 17:20 – 17:25        |                 | Q&A                                                                                                                                    |                                                 |
| 17:25 – 17:40        |                 | Fragility fracture network position on unrestricted weight-bearing after hip fracture surgery                                          | Joon Kiong LEE                                  |
| 17:40 – 17:45        |                 | Q&A                                                                                                                                    |                                                 |
| <b>16:15 – 18:00</b> | <b>S426</b>     | <b>Concurrent Session IV: Royal College of Orthopaedic Surgeons of Thailand I</b>                                                      | Cho Yau LO,<br>Felix LEUNG                      |
| 16:15 – 16:30        |                 | Unresectable giant cell tumour of the bone: management                                                                                 | Thipachart<br>PUNYARATABANDHU                   |
| 16:30 – 16:45        |                 | Achieving rapid and restored function through bone health optimisation in spine surgery                                                | Thanut VALLEENUKUL                              |
| 16:45 – 17:00        |                 | Fast-track recovery in spine surgery: optimising the entire patient journey                                                            | Roongrath CHITRAGRAN                            |
| 17:00 – 17:15        |                 | How to make rapid recovery for triangular fibrocartilage complex repair                                                                | Tulyapruet<br>TAWONSAWATRUK                     |
| 17:15 – 17:30        |                 | Preoperative pain management in femoral neck fracture                                                                                  | Ukrit<br>CHAWEEWANNAKORN                        |
| 17:30 – 17:45        |                 | Double infinity loop: a novel all-suture fixation technique for acromioclavicular joint dislocation                                    | Christian XS FANG                               |
| 17:45 – 18:00        |                 | Q&A                                                                                                                                    | All Faculty                                     |
| <b>18:00 – 18:30</b> | <b>S421</b>     | <b>Hong Kong Orthopaedic Association Annual General Meeting</b>                                                                        | All Members                                     |
| 18:30 – 22:00        | Chancellor Room | Cocktail Reception and Congress Banquet                                                                                                | Master of Ceremonies:<br>Jane FAN, Jonathan MAK |

**Sunday, 1 November 2026**

| <b>Time</b>          | <b>Venue</b> | <b>Session/ Content</b>                                                                                                                                                              | <b>Speakers /<br/>Moderators / Panel</b> |
|----------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| <b>08:30 – 10:00</b> | <b>S421</b>  | <b>Free Paper Session VI: Trauma</b>                                                                                                                                                 | Felix LEUNG,<br>Janice CK LAU            |
| <b>FP6.1</b>         |              | Mortality and risk factors of fracture-related infection in 6629 geriatric hip patients                                                                                              | Victor Hin Ting Yick                     |
| <b>FP6.2</b>         |              | Osteosarcopenia characteristics based on computed tomographic images: disease prediction and automatic segmentation                                                                  | Chaoran Liu                              |
| <b>FP6.3</b>         |              | Nail versus plate fixation for proximal humeral fracture: a retrospect cohort study                                                                                                  | Hoi Wang Li                              |
| <b>FP6.4</b>         |              | Avoiding delays in hip fracture surgery: how much should we optimise?                                                                                                                | Victor Yan Zhe Lu                        |
| <b>FP6.5</b>         |              | Silver-doped diamond-like carbon coating for orthopaedic implants: enhanced mechanical performance, antibacterial activity, and biocompatibility                                     | Ally Hei Yuet Wong                       |
| <b>FP6.6</b>         |              | Effects of vibration therapy and $\beta$ -hydroxy- $\beta$ -methylbutyrate supplementation in community-dwelling older adults with sarcopenia: a 6-month randomised controlled trial | Keith Yu Kin Cheng                       |
| <b>FP6.7</b>         |              | Divergent classification and 8-year prognostic performance of the Asian Working Group for Sarcopenia 2019 and 2025 sarcopenia definitions                                            | Keith Yu Kin Cheng                       |
| <b>FP6.8</b>         |              | Predictive modelling of clinical examination signs for radiographically occult hip fractures: towards a risk-stratified imaging pathway                                              | Yu Hei Choi                              |
| <b>FP6.9</b>         |              | A comparative cohort study of mechanical complications in Synthes proximal femoral nail antirotation and trochanteric femoral nail advanced                                          | Tsz Kin Chun                             |
| <b>FP6.10</b>        |              | Outcomes after arthroscopic lateral ulnar collateral ligament repair and accelerated rehabilitation in elbow fracture dislocations                                                   | Moya Tsui                                |

| Time          | Venue | Session/ Content                                                                                                                                                                                                        | Speakers/ Moderators/ Panel   |
|---------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 07:30 – 10:00 | S425  | <b>Free Paper Session VII: Paediatric Orthopaedics II</b>                                                                                                                                                               | Janus SH WONG,<br>Karen YEUNG |
| FP7.1         |       | Complete subtalar release in the era of Ponseti clubfoot treatment                                                                                                                                                      | Bobby Ng                      |
| FP7.3         |       | Coronal plane alignment of knee in paediatric and adolescent patients with anterior cruciate ligament tear, patella dislocation, and meniscus injuries                                                                  | Kerwin Kwok Yin Fu            |
| FP7.4         |       | Bone lengthening with intramedullary device is not associated with higher healthcare cost than external fixator: a multicentre cost analysis                                                                            | Tik-Chun Wong                 |
| FP7.5         |       | Blood loss in pelvic osteotomies: a multicentre retrospective study                                                                                                                                                     | Tsoi Wan Wong                 |
| FP7.6         |       | Risk factors for telescoping rod complications and revision in lower extremity osteogenesis imperfecta: a multicentre cohort study                                                                                      | Danyi Huang                   |
| FP7.7         |       | Pelvic and hip maturation after paediatric hip surgery involving iliac apophysis split: a quantitative study with average follow-up of 18 years                                                                         | Constance Chi Shun Kwok       |
| FP7.8         |       | Premature return to the sports is the most important predictor to graft rupture in paediatric and adolescent anterior cruciate ligament reconstruction                                                                  | Tsoi Ying Lee                 |
| FP7.9         |       | Prevalence of acetabular dysplasia in patients with idiopathic clubfoot at skeletal maturity: a multicentre retrospective study                                                                                         | Brian Siu                     |
| FP7.10        |       | Proximal femoral growth disturbance and acetabular remodelling after open reduction via medial versus anterior approach in developmental dysplasia of the hips: a long-term follow-up multicentre quantitative analysis | Chris Tin Jik Zhou            |
| FP7.11        |       | Risk factors for coxa vara in osteogenesis imperfecta patients after internal fixation for femoral fractures                                                                                                            | Kyle Hui                      |
| FP7.12        |       | Cross-cultural adaptation and validation of the traditional Chinese version of the Oxford Hip Score in orthopaedic patients with hip conditions                                                                         | Prudence Wing Hang Cheung     |
| FP7.13        |       | Combined botulinum toxin type A and casting in the management of equinus in children with cerebral palsy: an outcome correlation study                                                                                  | Fung Wan Ho                   |
| FP7.14        |       | Midterm outcomes of radial osteotomy in patients with multiple hereditary exostosis with average follow-up of 7 years                                                                                                   | Yau Mei Cheung                |
| FP7.16        |       | Atypical femur fracture in osteogenesis imperfecta: incidence and healing outcome in a South China cohort                                                                                                               | Yunfei Lin                    |
| FP7.17        |       | Quantification of femoral remodelling after proximal femoral varus osteotomy in skeletally immature patients: a multicentre study                                                                                       | Jaime Lam                     |
| FP7.18        |       | Delayed posterior interosseous nerve palsy in paediatric radial head and neck fractures<br>( <i>New Zealand Orthopedic Association Ambassador Paper</i> )                                                               | Vahe Sahakian                 |

| Time          | Venue | Session / Content                                                                                                                                                                               | Speakers / Moderators / Panel   |
|---------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 08:00 – 10:00 | S426  | Free Paper Session VIII: Spine                                                                                                                                                                  | Cyrus TK LAU,<br>Jodhy SY MAK   |
| FP8.1         |       | The time-dependent prognostic value of systemic biomarkers in spinal metastasis: a shift from host frailty to tumour biology                                                                    | Tsun Kit Lau                    |
| FP8.2         |       | To fuse or not to fuse? Anterior spinal fusion versus vertebral body tethering for treatment of Lenke 5 idiopathic scoliosis                                                                    | Augustine Kai Chun Chan         |
| FP8.3         |       | Clinical correlation of intraoperative neuromonitoring in 30 patients undergoing unilateral biportal endoscopic unilateral laminotomy for bilateral decompression: a retrospective cohort study | Wai Him Lam                     |
| FP8.4         |       | Retrospective review of enhanced recovery after surgery protocols in elective spine surgery outcomes                                                                                            | Leo Chung-hei Wong              |
| FP8.5         |       | Automated multi-frequency vibrometry for objective clinical assessment of dorsal column dysfunction in individuals with degenerative cervical myelopathy                                        | Karlen Ka-pui Law               |
| FP8.6         |       | Teriparatide administration 1-month preoperatively does not increase bone mineral density and insertional screw torque in lumbar spine fusion: a randomised controlled trial                    | Augustine Kai Chun Chan         |
| FP8.7         |       | Early clinical and radiological outcomes of biportal endoscopic transforaminal lumbar interbody fusion using biplanar expandable cages: 25 case series                                          | Karson Tam                      |
| FP8.8         |       | Minimally invasive versus open transforaminal lumbar interbody fusion: a 1-year prospective study                                                                                               | Andrew Lok Yin Wong             |
| FP8.9         |       | Case series: carbon fibre-reinforced peek pedicle screws in separation surgery for spinal metastases                                                                                            | Kyle Hui                        |
| FP8.10        |       | Quantitative anatomy of subaxial cervical lateral mass: an analysis of safe screw lengths and axial convergence angles for medially directed lateral mass screws                                | Phoebe Ching Kiu Law            |
| FP8.11        |       | Factors affecting slip reduction and segmental lordosis gain after oblique lateral lumbar interbody fusion for degenerative spondylolisthesis                                                   | Augustine Kai Chun Chan         |
| FP8.12        |       | Outcomes of scoliosis treated with magnetically controlled growing rods in patients with implant removal at skeletal maturity                                                                   | Kyle Hui                        |
| FP8.13        |       | Integrated spatial omics uncovers molecular drivers of muscle fibre transition: a new player of curve progression in adolescent idiopathic scoliosis                                            | Gen Tang                        |
| FP8.14        |       | Coronal balance on intraoperative prone radiographs does not always translate to postoperative standing radiographs in Lenke 1 adolescent idiopathic scoliosis                                  | Natalie Chi Wai Leung           |
| FP8.15        |       | Snapped epidural catheter: remove or retain? Proposed collaborative algorithm for decision making ( <i>Malaysia Orthopaedic Association Ambassador Paper</i> )                                  | Muhammad Ihsan Bin Mohd Tusirin |

| Time          | Venue | Session/ Content                                                                                                                                                                                                           | Speakers /<br>Moderators / Panel      |
|---------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 07:30 – 10:00 | S427  | Free Paper Session IX: Sports Medicine                                                                                                                                                                                     | Jonathan Patrick NG,<br>Andrew KH FAN |
| FP9.1         |       | Autologous minced cartilage implantation for degenerative cartilage lesions of the knee: a magnetic resonance imaging follow-up study                                                                                      | Eugene Pak Lin Ng                     |
| FP9.2         |       | Cartilage injury severity, not surgical timing, predicts mid- to long-term osteoarthritis progression following bucket-handle meniscus tears                                                                               | Rex Wang Fung Mak                     |
| FP9.3         |       | Small glenoid in reverse shoulder arthroplasty: a retrospective review on glenoid morphology in our local population                                                                                                       | Huk Yin Cheng                         |
| FP9.4         |       | Diagnostic accuracy of magnetic resonance imaging and associated risk factors for anterior labrum periosteal sleeve avulsion lesion                                                                                        | Victor Hin Ting Yick                  |
| FP9.5         |       | Case series: chevron tibial osteotomy our 8-year experience                                                                                                                                                                | Wing Cham Yu                          |
| FP9.6         |       | Effects of pulsed electromagnetic field therapy on quadriceps recovery and tunnel remodelling after anterior cruciate ligament reconstruction: a double-blinded randomised controlled trial                                | Cham Kit Wong                         |
| FP9.7         |       | The impact of preoperative acromioclavicular joint arthritis on clinical outcomes following reverse shoulder arthroplasty: a retrospective review                                                                          | Jerrick Ka Ho Lee                     |
| FP9.8         |       | Clinical relevance of early quadriceps muscle fat infiltration following anterior cruciate ligament reconstruction                                                                                                         | Jonathan Patrick Ng                   |
| FP9.9         |       | Navigating the tunnel trajectory in anterior cruciate ligament reconstruction: the predominant role of the tibial floor over the medial condyle wall                                                                       | Kevin Chi Him Fok                     |
| FP9.10        |       | Ambulatory anterior cruciate ligament reconstruction: a cost-effectiveness analysis                                                                                                                                        | Jonathan Patrick Ng                   |
| FP9.11        |       | Comparison of scapulohumeral rhythm in superior capsular reconstruction versus reverse shoulder arthroplasty: a fluoroscopic kinematic analysis                                                                            | Jonathan Patrick Ng                   |
| FP9.12        |       | Associations of circulating myokines with morphological and functional recovery after anterior cruciate ligament reconstruction: a prospective cohort study                                                                | Wing Kit Ng                           |
| FP9.13        |       | Factors affecting the accuracy of magnetic resonance imaging in estimating patellar tendon length: a 10-year retrospective analysis of anterior cruciate ligament reconstruction using bone-patellar tendon-bone graft     | Cham Kit Wong                         |
| FP9.14        |       | Do perioperative nonsteroidal anti-inflammatory drugs affect bone tunnel healing in anterior cruciate ligament reconstruction?                                                                                             | Victor Yan-Zhe Lu                     |
| FP9.15        |       | Feasibility and outcomes with accelerated rehabilitation protocol post-reverse shoulder arthroplasty                                                                                                                       | Jonathan Seng-Sung Mak                |
| FP9.16        |       | Comparison of isokinetic muscle recovery at 6 months after anterior cruciate ligament reconstruction: anterolateral ligament reconstruction versus iliotibial band tenodesis                                               | Muhnad Magdob                         |
| FP9.18        |       | Five-year clinical outcomes of microfracture augmented with hyaluronic acid-based scaffold for full-thickness cartilage defects of the knee                                                                                | Erika Rusli                           |
| FP9.19        |       | Morphological changes of femoral and tibial tunnels 6 months following anterior cruciate ligament reconstruction in patients evaluated by high-resolution peripheral quantitative computed tomography                      | Christine Hoi Yan Fu                  |
| FP9.20        |       | The H-STEM score for preoperative cemented versus cementless humeral fixation selection in primary reverse shoulder arthroplasty: a pilot study                                                                            | Hin Yin Chan                          |
| FP9.22        |       | A multi-objective optimisation framework for patient-specific preoperative planning in reverse shoulder arthroplasty                                                                                                       | Jonathan Patrick Ng                   |
| FP9.23        |       | High-resolution peripheral quantitative computed tomography analysis of bone oedema following anterior cruciate ligament injury                                                                                            | Victor Yan-zhe Lu                     |
| FP9.24        |       | Efficacy of bone marrow stimulation for localised cartilage lesions with medial meniscus posterior root tears in mild varus knees: a retrospective comparison ( <i>Japanese Orthopaedic Association Ambassador Paper</i> ) | Yuki Okazaki                          |

| Time          | Venue                                                                                                                                                                                                                                                         | Session / Content                                   | Speakers /<br>Moderators / Panel |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------|
| 07:15 – 10:00 | S428                                                                                                                                                                                                                                                          | Free Paper Session X: Adult Joint Reconstruction II | Rex WF MAK,<br>Martin SS CHENG   |
| FP10.1        | Midterm survivorship and precision analysis of robotic-assisted total hip arthroplasty                                                                                                                                                                        | Jane Fan                                            |                                  |
| FP10.2        | Manual superior transverse anatomic reconstruction approach versus robotic-assisted posterior approach in total hip arthroplasty: an international multicentre propensity-matched cohort study                                                                | Thomas Ka Chun Leung                                |                                  |
| FP10.3        | Long-term implant survival and patient survival following revision total hip arthroplasty: a cohort study with mean follow-up of 15 years                                                                                                                     | Victor Hin Ting Yick                                |                                  |
| FP10.4        | A novel spinopelvic adaptation after total hip arthroplasty using T4-L1-hip framework: a paired radiographic study with machine-learning-defined phenotypes of spinopelvic adaptation                                                                         | Lawrence Chun Man Lau                               |                                  |
| FP10.5        | Radiolucent lines in Attune S+ tibial baseplate: a clinical and radiological study with a minimum of 2-year follow-up                                                                                                                                         | Christopher Ian Lam                                 |                                  |
| FP10.6        | Comparison of Attune fixed bearing versus mobile bearing total knee arthroplasty in pain, range of motion, functional score, and survivorship: a minimum 2-year follow-up                                                                                     | Wang Kit Cyrus Chan                                 |                                  |
| FP10.7        | Functional alignment better restores native joint line but does not improve short-term functional outcomes compared to mechanical alignment in robotic-assisted total knee arthroplasty: a prospective double-blinded superiority randomised controlled trial | Thomas Ka Chun Leung                                |                                  |
| FP10.8        | Comparison of knee joint kinematics between revision stem and bicruciate-stabilised designs in primary total knee arthroplasty under restricted kinematic alignment                                                                                           | Yuet Ching Wong                                     |                                  |
| FP10.9        | Fixing a problem that isn't there? Mid-term outcomes of the modified tibial tray of a modern total knee arthroplasty system                                                                                                                                   | Michelle Hilda Luk                                  |                                  |
| FP10.10       | Robotic-assisted bicruciate-retaining total knee arthroplasty: medium-term outcomes and predictors of functional recovery                                                                                                                                     | Samuel Ho Sam Wong                                  |                                  |
| FP10.11       | Coronal plane alignment of the knee phenotype shift after robotic-assisted functional-alignment total knee arthroplasty: association with Knee Society Score in an Asian cohort                                                                               | Alex Yuning Zhang                                   |                                  |
| FP10.12       | Subvastus versus medial parapatellar approach in primary total knee arthroplasty: a propensity score-matched analysis of short-term outcomes                                                                                                                  | Tsz Kit Law                                         |                                  |
| FP10.13       | Comparative radiological and patient-reported outcomes of cemented versus cementless total knee arthroplasty using an image-free, saw-based robotic knee arthroplasty system                                                                                  | Edmund Chi Long Lam                                 |                                  |
| FP10.14       | Optogenetically controlled tissue-targeting adeno-associated virus combination for osteoarthritis gene therapy and prevention                                                                                                                                 | Wenxue Tong                                         |                                  |
| FP10.15       | Robotic-assisted patellofemoral joint optimisation in total knee arthroplasty: a pilot case series                                                                                                                                                            | Wai Hong Lau                                        |                                  |
| FP10.16       | Fate of the infected unicompartmental knee arthroplasty: a New Zealand joint registry study                                                                                                                                                                   | Elizabeth Wen Wei Cullen                            |                                  |
| FP10.17       | Could we switch the model of unicompartmental knee arthroplasty from inpatient care to ambulatory basis? Comparative cohort study of day surgery versus ward admission surgery                                                                                | Tin Sui Ko                                          |                                  |
| FP10.18       | Factors influencing successful same-day discharge after unicompartmental knee arthroplasty: a retrospective study                                                                                                                                             | Douglas See Lok Ho                                  |                                  |
| FP10.19       | Same-day discharge knee replacement: safe, effective, and efficient                                                                                                                                                                                           | Amy Cheung                                          |                                  |
| FP10.20       | How well are we aligning and balancing the knees with robots? A retrospective cohort comparing pre- and post-operative coronal plane alignment of the knee and robotic evaluation of articular laxity classifications                                         | Po Lin Peng                                         |                                  |
| FP10.21       | Perioperative use of glucagon-like peptide-1 receptor agonists in primary total knee arthroplasty: a scoping review of 59 267 patients                                                                                                                        | Sandra Wan                                          |                                  |
| FP10.22       | Optimising deep-learning binary classification of radiographic knee osteoarthritis using a novel balance-based Kellgren-Lawrence system                                                                                                                       | Chun Ho Lau                                         |                                  |
| FP10.23       | Revision risk varies across implant systems after primary total knee arthroplasty: is there a winner?                                                                                                                                                         | Xinyue Chang                                        |                                  |
| FP10.24       | High 2-week postoperative C-reactive protein after first-stage revision is associated with failed two-stage exchange for periprosthetic joint infection                                                                                                       | Victoria Yuk Ting Hui                               |                                  |
| FP10.25       | Association of type II diabetes mellitus and lower limb alignment                                                                                                                                                                                             | Justin Christopher Chan                             |                                  |
| FP10.26       | Investigating the prevalence, patterns, and predictors of joint-related nutraceutical supplement consumption among knee osteoarthritis patients in Hong Kong: a cross-sectional study                                                                         | Pui Kwong Cheung                                    |                                  |
| FP10.27       | Development of a clinical prediction rule for poor response to non-surgical intervention in end-stage knee osteoarthritis patients                                                                                                                            | Cham-Kit Wong                                       |                                  |
| 10:00 – 10:30 | Exhibition                                                                                                                                                                                                                                                    | Tea Break & Exhibition                              |                                  |

| Time                 | Venue       | Session/ Content                                                                                                                                                                                                          | Speakers/ Moderators/ Panel                                      |
|----------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| <b>10:30 – 12:00</b> | <b>S421</b> | <b>Plenary Session III: Biology, Biomaterials, and Biomechanics for Faster Healing</b>                                                                                                                                    | Jonathan Patrick NG,<br>Arthur KH MA                             |
| 10:30 – 10:50        |             | Augmentation of rotator cuff repair: what I do in 2026                                                                                                                                                                    | Ian LO                                                           |
| 10:50 – 11:10        |             | Meniscal root reconstruction, the anterior-medial collateral ligament portal to prevent meniscal tunnel cut-through                                                                                                       | Nattha KULKAMTHORN                                               |
| 11:10 – 11:30        |             | Digital intelligent techniques in limb reconstruction and foot and ankle surgery                                                                                                                                          | Harvey Hui DU                                                    |
| 11:30 – 11:50        |             | Evidence-based advances in Achilles tendon management: from diagnosis to return-to-sport in the elite athlete                                                                                                             | James DF CALDER                                                  |
| 11:50 – 12:00        |             | Q&A                                                                                                                                                                                                                       | All Faculty                                                      |
| <b>10:30 – 12:00</b> | <b>S426</b> | <b>Concurrent Session V: Royal College of Orthopaedic Surgeons of Thailand II</b>                                                                                                                                         | Keith HM WAN,<br>Victor CY LEUNG                                 |
| 10:30 – 10:45        |             | Posterior cruciate ligament avulsion: how should do: arthroscopic or miniopen                                                                                                                                             | Chanakarn PHORNPHTKUL                                            |
| 10:45 – 11:00        |             | Medial patellofemoral ligament reconstruction in outlier patellofemoral instability: do less, recover faster                                                                                                              | Adinun APIVATGARON                                               |
| 11:00 – 11:15        |             | Preserving the proximal tibial epiphyseal plate with a tibial polyethylene insert and pasteurised prosthetic composite for distal femur osteosarcoma in children                                                          | Piya KIATISEVI                                                   |
| 11:15 – 11:30        |             | Internal magnetic lengthening nails versus circular external fixation in paediatric limb lengthening: recovery, function, and outcomes                                                                                    | Jidapa<br>WONGCHAROENWATANA                                      |
| 11:30 – 11:45        |             | Restoration of function after hip surgery in skeletal dysplasia                                                                                                                                                           | Evelyn E KUONG                                                   |
| 11:45 – 12:00        |             | Q&A                                                                                                                                                                                                                       | All Faculty                                                      |
| <b>10:30 – 12:00</b> | <b>S425</b> | <b>Concurrent Session VI: Trauma</b>                                                                                                                                                                                      | Dennis KH YEE, Zareen CHIBA                                      |
| 10:30 – 10:50        |             | Management of bone defects in the tibia                                                                                                                                                                                   | Yongsheng CHEN                                                   |
| 10:50 – 11:00        |             | Q&A                                                                                                                                                                                                                       |                                                                  |
| 11:00 – 12:00        |             | Mapping the fix: an expert-guided journey through lower limb trauma<br>Panellists: YS CHEN, FKL LEUNG, SH CHOI, KB LEE, N TANG                                                                                            | Case Sharing:<br>Chun Fung CHAN, Ronald MY WONG, Yuk Chuen SIU   |
| <b>10:30 – 12:00</b> | <b>S427</b> | <b>Concurrent Session VII: Spine</b>                                                                                                                                                                                      | Chun Man MA, Michael SH TSE                                      |
| 10:30 – 10:45        |             | Oblique lateral lumbar interbody fusion or extreme lateral interbody fusion–anteroposterior as a modification of lateral lumbar interbody fusion in circumferential minimally invasive surgery for adult spinal deformity | Gabriel KP LIU                                                   |
| 10:45 – 11:00        |             | O-arm navigated sagittal realignment for adult lumbar spinal deformity                                                                                                                                                    | Wen-Tien WU                                                      |
| 11:00 – 11:10        |             | Posterior-only approach in adult spinal deformity                                                                                                                                                                         | Chris YK TANG                                                    |
| 11:10 – 11:40        |             | Case Discussion<br>Panellists: GKP LIU, WT WU, CYK TANG, CM MA, MSH TSE                                                                                                                                                   | Case Presenters:<br>Kam Lung TUNG,<br>Carmen KL KUNG, Cho Yau LO |
| 11:40 – 11:50        |             | Q&A                                                                                                                                                                                                                       | All Faculty                                                      |
| 11:50 – 12:00        |             | Hong Kong Orthopaedic Association Spine Chapter Biennial General Meeting                                                                                                                                                  | All Members                                                      |

| Time                 | Venue       | Session/ Content                                                                                         | Speakers/ Moderators/ Panel        |
|----------------------|-------------|----------------------------------------------------------------------------------------------------------|------------------------------------|
| <b>10:30 – 12:00</b> | <b>S428</b> | <b>Concurrent Session VIII: Hand – Minimally Invasive Surgery in Hand Surgery</b>                        | Michael CK MAK,<br>Michelle SY LEE |
| 10:30 – 10:45        |             | Ultrasound-guided carpal tunnel and trigger finger release                                               | Yasuaki NAKANISHI                  |
| 10:45 – 11:00        |             | Endoscopic cubital tunnel release                                                                        | Margaret WM FOK                    |
| 11:00 – 11:15        |             | Ultrasound guided tennis elbow release                                                                   | Michael CK MAK                     |
| 11:15 – 11:30        |             | Needle fasciotomy for Dupuytren contracture                                                              | Esther CS CHOW                     |
| 11:30 – 12:00        |             | Q&A                                                                                                      | All Faculty                        |
| <b>12:00 – 13:00</b> |             | <b>Lunch Symposium</b>                                                                                   |                                    |
|                      | <b>S428</b> | Lunch Symposium I (Sponsored by Amgen Hong Kong Limited)                                                 | Philip CHEUNG                      |
|                      |             | Vertebral fracture and bone health optimisation: a missed opportunity we can no longer ignore            | Raymond CL YIP                     |
| <b>13:00 – 14:30</b> | <b>S421</b> | <b>Plenary Session IV: Enabling Technology and Data-Driven Care</b>                                      | Gloria YT LAM,<br>Michael CK MAK   |
| 13:00 – 13:20        |             | Enabling technology and data-driven care: advanced navigation modalities in cervical deformity surgery   | Wen-Tien WU                        |
| 13:20 – 13:40        |             | Small implant, big consequences: the role of robotics in partial knee replacement                        | Hwa Sen CHUA                       |
| 13:40 – 14:00        |             | The small-incision revolution: ultrasound-powered precision in upper limb surgery                        | Yasuaki NAKANISHI                  |
| 14:00 – 14:20        |             | Selective nerve root block without any contrast                                                          | Thongchai SUNTHARAPA               |
| 14:20 – 14:30        |             | Q&A                                                                                                      | All Faculty                        |
| <b>13:00 – 14:30</b> | <b>S426</b> | <b>Concurrent Session IX: Orthopaedic Training</b>                                                       | Ronald MY WONG,<br>Tze Wang CHAN   |
| 13:00 – 13:20        |             | United Kingdom experience: final assessment and post-certificate of completion of training accreditation | Paul BANASZKIEWICZ                 |
| 13:20 – 13:40        |             | Competency-based medical education practicality and hurdles                                              | Albert YC HSU                      |
| 13:40 – 14:00        |             | Development of sports and exercise medicine                                                              | Patrick SH YUNG                    |
| 14:00 – 14:20        |             | Hong Kong College of Orthopaedic Surgeons Subspecialty Training                                          | Ying Kei CHAN                      |
| 14:20 – 14:30        |             | Q&A                                                                                                      | All Faculty                        |
| <b>13:00 – 14:30</b> | <b>S427</b> | <b>Concurrent Session X: Paediatric Orthopaedics</b>                                                     | Lucci L LIYEUNG                    |
| 13:00 – 13:30        |             | Sagittal deformity correction in ankle and hindfoot                                                      | Harvey Hui DU                      |
| 13:30 – 14:00        |             | Treatment of slipped capital femoral epiphysis and its complications                                     | Chang Ho SHIN                      |
| 14:00 – 14:30        |             | Q&A                                                                                                      | All Faculty                        |

| Time                 | Venue             | Session/ Content                                                                                                                                                                                                                                                                                           | Speakers/ Moderators/ Panel       |
|----------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <b>13:00 – 14:30</b> | <b>S428</b>       | <b>Concurrent Session XI: Sports Medicine</b>                                                                                                                                                                                                                                                              | Keith HM WAN, Ramon L YIU         |
| 13:00 – 13:20        |                   | Arthroscopic glenoid reconstruction with distal tibial allograft                                                                                                                                                                                                                                           | Ian LO                            |
| 13:20 – 13:40        |                   | From sidelines to spotlight: a game-changing hip preservation technique for dysplastic athletes                                                                                                                                                                                                            | Soshi UCHIDA                      |
| 13:40 – 14:00        |                   | The Latarjet odyssey: why doesn't Latarjet become obsolete with time?                                                                                                                                                                                                                                      | Nattha KULKAMTHORN                |
| 14:00 – 14:10        |                   | Intraoperative arthroscopic cold irrigation solution improves visual clarity during arthroscopic rotator cuff repair: a double-blind randomised controlled trial                                                                                                                                           | Thanawat TANTIMETHANON            |
| 14:10 – 14:20        |                   | Cadaveric biomechanical comparison of posterior tibial translation after all-inside posterior cruciate ligament reconstruction with adjustable suspensory cortical fixation versus conventional transtibial posterior cruciate ligament reconstruction with interference screw fixation in isolated injury | Siravat TEERASUKAKUL              |
| 14:20 – 14:30        |                   | Q&A                                                                                                                                                                                                                                                                                                        | All Faculty                       |
| <b>13:00 – 14:30</b> | <b>S425</b>       | <b>Concurrent Session XII: Foot and Ankle</b>                                                                                                                                                                                                                                                              | Angela WH HO, Samuel KK LING      |
| 13:00 – 13:15        |                   | Evolving management of navicular fractures in the elite athlete                                                                                                                                                                                                                                            | James DF CALDER                   |
| 13:15 – 13:30        |                   | Rapid recovery after endoscopic Zadek osteotomy for insertional Achilles tendinopathy                                                                                                                                                                                                                      | Yan-yu CHEN                       |
| 13:30 – 13:45        |                   | Surgical decision-making for rapid recovery after ankle ligament injury                                                                                                                                                                                                                                    | Jinsu KIM                         |
| 13:45 – 14:00        |                   | Rapid rehab after minimally invasive bunion correction surgery                                                                                                                                                                                                                                             | Peter LAM                         |
| 14:00 – 14:15        |                   | Rapid recovery after endoscopic talonavicular arthrodesis with minimally invasive lateral displaced calcaneal osteotomy in Muller-Weiss disease                                                                                                                                                            | Chin-horng SU                     |
| 14:15 – 14:30        |                   | Q&A & Hong Kong Foot and Ankle Society Annual General Meeting                                                                                                                                                                                                                                              | All Faculty & HKFAS Members       |
| <b>14:30 – 15:00</b> | <b>Exhibition</b> | <b>Tea Break &amp; Exhibition</b>                                                                                                                                                                                                                                                                          |                                   |
| <b>15:00 – 16:30</b> | <b>S421</b>       | <b>Plenary Session V: Looking Beyond the Pathway</b>                                                                                                                                                                                                                                                       | Kelvin TK WAN, Tze Wang CHAN      |
| 15:00 – 15:20        |                   | Bone health optimisation: the standard of care in orthopaedic surgery                                                                                                                                                                                                                                      | Joon Kiong LEE                    |
| 15:20 – 15:40        |                   | Diabetic foot salvage with transverse tibial transport: Singapore's early experience and lessons learnt                                                                                                                                                                                                    | Yongsheng CHEN                    |
| 15:40 – 16:00        |                   | De-implementation in hip and knee arthroplasty: when is it safe to do less                                                                                                                                                                                                                                 | Paul BANASZKIEWICZ                |
| 16:00 – 16:20        |                   | Ilizarov hip reconstruction with pelvic support osteotomy                                                                                                                                                                                                                                                  | Govardhan RAMIA<br>HARIGOVINDARAO |
| 16:20 – 16:30        |                   | Q&A                                                                                                                                                                                                                                                                                                        | All Faculty                       |
| <b>16:30 – 16:45</b> | <b>S421</b>       | <b>Closing Ceremony</b>                                                                                                                                                                                                                                                                                    | Co-Chairpersons                   |
| <b>15:00 – 17:00</b> | <b>S428</b>       | <b>Hands-on Ultrasound Demonstration Workshop</b>                                                                                                                                                                                                                                                          |                                   |
| 15:00 – 17:00        |                   | Ultrasonography: what can handheld ultrasounds do?                                                                                                                                                                                                                                                         | Peter KT SIU                      |

## Award Paper Session

### AP01

#### **Adolescent idiopathic scoliosis 20 years after fusion with hook-rod instrumentation: health-related quality of life deterioration and the need for long-term follow-up**

**Adam Yiu-Chung Lau, Wai-Wang Chau, Alec Lik-Hang Hung**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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### AP02

#### **Prevalence of acetabular dysplasia in patients with idiopathic clubfoot at skeletal maturity: a multicentre retrospective study**

**Brian Siu<sup>1</sup>, Evelyn Eugenie Kuong<sup>2</sup>, Michael Kai-tsun To<sup>3</sup>, Wang Chow<sup>2</sup>, Janus Siu-him Wong<sup>3</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*

<sup>2</sup>*Department of Orthopaedics and Traumatology, Hong Kong Children's Hospital*

<sup>3</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** Idiopathic clubfoot is associated with developmental dysplasia of the hip in early childhood. Prior studies have focused primarily on neonatal screening. Long-term outcomes of the hip remain poorly investigated, particularly regarding residual acetabular dysplasia at skeletal maturity.

**Methods:** We conducted a multicentre retrospective study of 95 patients (190 hips) treated for idiopathic clubfoot between 1980 and 2015 at three tertiary centres in Hong Kong. Patients with syndromal, neuromuscular, or skeletal dysplasia-related conditions were excluded. All patients underwent standard Ponseti casting. Radiographic evaluation at skeletal maturity included acetabular angle, lateral centre-edge angle (LCEA), and Tönnis grade. The primary outcome was acetabular dysplasia, defined as an acetabular angle  $>45^\circ$ . Secondary outcomes included hip instability (LCEA  $<20^\circ$ ) and osteoarthritis (Tönnis grade  $\geq 2$ ). Results were compared with population controls.

**Results:** At a mean follow-up of 23 years, among 190 hips, 18% presented with acetabular dysplasia, 6% presented with hip instability, and 5% presented with osteoarthritis. Compared with population controls, patients with clubfoot demonstrated significantly increased acetabular angles ( $41.4^\circ$  vs  $37^\circ$  for men,  $42.4^\circ$  vs  $38^\circ$  for women) and reduced LCEA ( $30.2^\circ$  vs  $37^\circ$  for men,  $29.6^\circ$  vs  $33^\circ$  for women).

**Conclusion:** Nearly 20% of patients with idiopathic clubfoot demonstrated acetabular dysplasia at skeletal maturity; the rate is higher than that reported in childhood developmental dysplasia of the hip studies. These findings suggest that early screening alone may be insufficient, and longitudinal follow-up until adulthood may help identify patients who could benefit from hip preservation strategies and delay progression to osteoarthritis.

### AP03

#### **Mortality and risk factors of fracture-related infection in 6629 geriatric hip patients**

**Victor Hin Ting Yick<sup>1</sup>, Janus Siu Him Wong<sup>2</sup>, Shing Yat Yung<sup>1</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*

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#### AP04

**Mitochondria-targeted ergothioneine-loaded liposome-based reactive oxygen species-responsive composite hydrogel enhances fibrocartilage regeneration and tendon-bone healing after rotator cuff repair**

**Mingde Cao<sup>1</sup>, Oliver Ting-see Ho<sup>2</sup>, Shuai Yuan<sup>1</sup>, Yuhao Wu<sup>1</sup>, Patrick Shu-hang Yung<sup>1</sup>, Michael Tim-yun Ong<sup>1</sup>**

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#### AP05

**Clinical relevance of early quadriceps muscle fat infiltration following anterior cruciate ligament reconstruction**

**Jonathan Patrick Ng<sup>1</sup>, Mingde Cao<sup>2</sup>, Elvis Chun-sing Chui<sup>2</sup>, Michael Tim-yun Ong<sup>2</sup>, Patrick Shu-hang Yung<sup>2</sup>**

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#### AP06

**Risk of curve progression in children with positive scoliosis screening and initial Cobb angle <20°**

**Cheuk-Kin Kwan, Kenneth Guang-Pu Yang, Alec Lik-Hang Hung, Wayne Yuk-Wai Lee, Jack Chun-Yiu Cheng**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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#### AP07

**Functional alignment better restores native joint line but does not improve short-term functional outcomes compared to mechanical alignment in robotic-assisted total knee arthroplasty: a prospective double-blinded superiority randomised controlled trial**

**Thomas Ka Chun Leung<sup>1</sup>, Lawrence Chun Man Lau<sup>2</sup>, Michelle Hilda Luk<sup>1</sup>, Amy Cheung<sup>1</sup>, Ping Keung Chan<sup>2</sup>, Kwong Yuen Chiu<sup>2</sup>, Henry Fu<sup>2</sup>**

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## AP08

**Teriparatide administration 1-month preoperatively does not increase bone mineral density and insertional screw torque in lumbar spine fusion: a randomised controlled trial****Augustine Kai Chun Chan, Prudence Wing Hang Cheung, Jason Pui Yin Cheung***Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** High-quality evidence is limited regarding whether teriparatide administration 1 month before spine surgery improves bone mineral density (BMD) and how teriparatide relates to insertional screw torque.

**Methods:** This open-label, randomised clinical trial was conducted at a tertiary referral centre in Hong Kong. Patients aged >40 years who underwent lumbar spine fusion were assigned to either the teriparatide (receiving injection 1-month preoperatively) or control group using block randomisation in a 1:1 ratio. All received standardised radiographic measurement, computed tomography, and dual-energy X-ray absorptiometry preoperatively. The primary aim was to investigate whether teriparatide administration 1-month preoperatively improves BMD and how teriparatide relates to insertional screw torque. Secondary outcomes included associations between BMD and screw torque and between teriparatide administration and screw loosening and fusion.

**Results:** In total, 59 patients were randomised to either the teriparatide (n=29) or control group (n=30). The two groups were comparable in baseline BMD. No significant improvement in BMD was observed after teriparatide injection. The mean-adjusted insertional torque of screws was higher in the control group (n=181) than teriparatide group (n=182). L1-5 torque was correlated with vertebral level and lumbar BMD, T-score, and Z-score. Use of teriparatide was not associated with less screw loosening ( $p=0.898$ ) or higher fusion rates at 6 months ( $p=0.941$ ).

**Conclusion:** Administration of teriparatide 1 month before spine surgery did not improve BMD or increase screw insertional torque in lumbar fusion. A longer preoperative course of teriparatide may be needed for meaningful BMD improvements.

## AP09

**Effect of tibial sagittal alignment change on early to mid-term clinical outcomes following robotic-assisted total knee arthroplasty****Cham Kit Wong<sup>1</sup>, Jonathan Patrick Ng<sup>1</sup>, Rex Wang-Fung Mak<sup>1</sup>, Yan-Ting Lam<sup>2</sup>, Tsz-Lung Choi<sup>2</sup>, Michael Tim-yun Ong<sup>3</sup>, Patrick Shu-hang Yung<sup>3</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital*<sup>3</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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## AP10

### **Development of a bone microarchitecture phenotyping model based on high-resolution peripheral quantitative computed tomography data from 1213 adolescents and application of the model in predicting suboptimal peak bone mass in adolescent idiopathic scoliosis**

**Kenneth Guangpu Yang, Eric Cheuk-Kin Kwan, Wayne Yuk-Wai Lee, Alec Lik-Hang Hung, Tsz-Ping Lam, Jack Chun-Yiu Cheng, Adam Yiu-Chung Lau**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Adolescence is a critical period for bone accrual. Suboptimal peak bone mass increases the lifetime osteoporosis risk. High-resolution peripheral quantitative computed tomography (HR-pQCT) offers detailed three-dimensional assessment of bone microarchitecture, but its multidimensional output is difficult to interpret. This study derived HR-pQCT-based bone microarchitecture phenotypes in adolescents and applied the model to adolescent idiopathic scoliosis (AIS) patients to examine associations between disease severity and peak bone mass in early adulthood.

**Methods:** HR-pQCT scans of 1213 adolescents (611 healthy, 602 AIS) aged 10 to 18 years were retrospectively analysed. HR-pQCT measurements from the healthy cohort were used to train a Fuzzy C-Means clustering model to define phenotypes. AIS patients were assigned to phenotypes by the trained model. Among AIS patients, 190 had repeat HR-pQCT 5 to 8 years after age 18 years. Follow-up bone outcomes were compared across phenotypes.

**Results:** Three phenotypes were identified in the healthy cohort: normal bone, low-volume (low bone volume, high cortical volumetric bone mineral density [BMD]), and low-density (low cortical and trabecular volumetric BMD with impaired microarchitecture). The low-density phenotype was significantly more prevalent with increasing scoliosis severity. In girls, 25.33% of normals versus 57.14% of those with Cobb angle  $>40^\circ$  were classified as low-density phenotype. At early adulthood, AIS patients exhibited 11% lower total volumetric BMD, significantly lower cortical thickness and trabecular thickness.

**Conclusion:** The low-density phenotype is associated with greater AIS severity and suboptimal peak bone mass. The use of HR-pQCT for early risk stratification and targeted intervention is supported.

## AP11

### **Manual superior transverse anatomic reconstruction approach versus robotic-assisted posterior approach in total hip arthroplasty: an international multicentre propensity-matched cohort study**

**Thomas Ka Chun Leung<sup>1</sup>, Lawrence Chun Man Lau<sup>2</sup>, Michelle Hilda Luk<sup>2</sup>, Amy Cheung<sup>1</sup>, Ping Keung Chan<sup>2</sup>, Kwong Yuen Chiu<sup>2</sup>, Eleftherios Tsiridis<sup>3</sup>, Henry Fu<sup>2</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*

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## Award Poster Session

### BP01

#### **Effects of pulsed electromagnetic field therapy on hamstring muscle properties and knee functions in anterior cruciate ligament reconstruction patients presenting with postoperative hamstring strength deficits: a double-blinded, placebo-controlled randomised study**

**Pauline Po Yee Lui, Christine Hoi Yan Fu, Jonathan Patrick Ng, Michael Tim Yun Ong, Patrick Shu Hang Yung, Ssu-chi Chen**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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### BP02

#### **Optimising risk counselling prior to rigid plate removal in paediatric forearm fractures: a retrospective cohort analysis**

**Tin Ngo Oscar Mak<sup>1</sup>, Eric Cheuk-kin Kwan<sup>2</sup>, Yihua Ge<sup>2</sup>, Alec Lik-Hang Hung<sup>2</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

**Introduction:** Plate removal after paediatric forearm fracture fixation may introduce risks of surgical complications, including localised bone thinning and empty screw tracts predisposing to refracture. This study evaluated the complication profile in our hospital to improve parental counselling and optimise postoperative precautions.

**Methods:** We retrospectively reviewed 37 cases of paediatric forearm fractures managed via rigid plating at our hospital between 2015 and 2024. Of these, 19 underwent plate removal and 18 retained their plates. Serial radiographs were taken to assess implant location, cortical thinning, and refracture propagation paths.

**Results:** At 2-year follow-up, the plate retention group remained complication-free. Conversely, the plate removal group had three complications: one wound adhesion with hypertrophic scarring and two secondary refractures. Both refractures occurred within the distal third of the radius without major trauma. Fracture propagation occurred directly through an empty screw tract at the centre of localised bone thinning left behind by the plate, rather than the diaphyseal-metaphyseal junction, exhibiting a consistent apex-volar angulation.

**Conclusion:** Complication rates after plate removal were lower in our hospital than in international cohorts, likely due to a lower caseload in our hospital. However, plate removal inherently elevates refracture risks at screw holes and sites of cortical indentation, particularly in the distal third of the radius; postoperative protective bracing may be beneficial. Highlighting the risk of refracture during parental counselling may help manage expectations. Further prospective studies using high-resolution peripheral quantitative computed tomography are warranted to monitor bone microarchitecture recovery and define the optimal time frame for protection.

## BP03

### Rehabilitation outcomes of conservatively treated isolated greater trochanteric fractures

**Tsz Hang Ma<sup>1</sup>, Cheuk Kin Kwan<sup>1</sup>, Yu Hei Choi<sup>2</sup>, Wing Hong Liu<sup>2</sup>, Chaoran Liu<sup>1</sup>, Sheung Wai Law<sup>1</sup>, Ronald Man Yeung Wong<sup>1</sup>**

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<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

**Introduction:** Pelvis and hip radiographs are commonly used for the initial diagnosis of isolated greater trochanteric (GT) fractures, but they often fail to detect occult intertrochanteric extensions, which can be detected by advanced imaging such as magnetic resonance imaging and computed tomography. This study compared the clinical outcomes of conservatively managed isolated GT fractures initially diagnosed via X-ray to evaluate the necessity of routine advanced imaging.

**Methods:** This retrospective study reviewed 32 patients with isolated GT fractures who were conservatively managed at Tai Po Hospital between 2010 and 2021. Anteroposterior and lateral radiographs were used to make the initial diagnosis. Patients with radiographs revealing intertrochanteric extensions were excluded. Outcomes were compared between those allowed immediate full weight bearing (n=22) and those allowed restricted weight bearing (n=10). The primary outcome was fracture union at 6 months, and secondary outcomes included secondary displacement, mobility at discharge, length of hospital stay, discharge destination, and mortality rates at 3 months and 1 year.

**Results:** All patients achieved fracture union by 6 months without secondary displacements, and the mean hospital stay was 24.4 days. Patients with full weight bearing had better discharge mobility than those with restricted weight bearing (Modified Functional Ambulation Category:  $4.4 \pm 1.4$  vs  $3.0 \pm 1.7$ ,  $p=0.03$ ). There were no significant differences in other parameters.

**Conclusion:** Isolated GT fractures diagnosed on initial X-ray can be conservatively managed and allow full weight bearing. Further imaging to exclude intertrochanteric extensions may not be necessary. Larger randomised trials are needed to confirm these findings for future clinical application.

## BP04

**Comparison of rehabilitation outcomes between surgical and conservative treatments for non-displaced intertrochanteric proximal femur fractures****Rossetti Hiu Yin Lam<sup>1</sup>, Richard Ku<sup>1</sup>, Cheuk Kin Kwan<sup>1</sup>, Yu Hei Choi<sup>2</sup>, Sheung Wai Law<sup>1</sup>, Ronald Man Yeung Wong<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

**Introduction:** Fractures with <50% intertrochanteric extension can be conservatively managed, with minimal displacement risk. However, conservative management of trochanteric fractures with greater degree of intertrochanteric extension is less investigated. This study compared the clinical outcomes between surgical and conservative management of non-displaced trochanteric fractures (TOF) with >50% intertrochanteric extension diagnosed by magnetic resonance imaging (MRI).

**Methods:** A retrospective cohort study at a single tertiary trauma centre in Hong Kong was performed, including patients aged ≥60 years with MRI-identified non-displaced TOF with >50% intertrochanteric extension. Eight patients were managed conservatively, and 32 patients were managed with cephalomedullary nails. Primary outcomes included radiographic union at 3 months. Secondary outcomes included secondary displacement, mobility at discharge, length of hospital stay, and mortality rate at 3 months and 1 year.

**Results:** All fractures achieved union within 6 months without secondary displacement. Baseline demographics, sex distribution, and pre-injury mobility were comparable between groups. Conservative management showed no significant differences in 3-month or 1-year mortality, length of stay, rate of discharge to residential care, or mobility on discharge, compared with surgical management.

**Conclusion:** Conservative management may be a viable option for MRI-diagnosed non-displaced TOF. Given the limited sample size, further prospective randomised studies are needed to validate these findings.

## BP05

**Underarm bracing can achieve curve regression in selected large curves to avoid risk of adulthood deterioration or surgical thresholds in adolescent idiopathic scoliosis****Prudence Wing Hang Cheung, Andy Hon Fai Yee, Ricky Man Fung Luk, Archit Goyal, Jason Pui Yin Cheung***Department of Orthopaedics and Traumatology, The University of Hong Kong*

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## Free Paper Session I: Basic Sciences

### FP1.1

#### **Smart AP1122 rescues inflammation-induced dysfunction in tendon-derived stem/progenitor cells and accelerates early tendon repair**

**Chujun Deng<sup>1</sup>, Chi Ming Wong<sup>2</sup>, Pauline Po Yee Lui<sup>1</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

<sup>2</sup>*Department of Health Technology and Informatics, The Hong Kong Polytechnic University*

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### FP1.2

#### **Magnesium alleviates joint degeneration under iron-overload conditions via attenuation of ferroptosis-associated cartilage injury**

**Jingliang Kang, Hongwei Shao, Guangshuai Nie, Ningze Zhang, Zhenkang Wen, Yuanzhi Xu, Chenyang Xu, Jiankun Xu, Wenxue Tong, Ling Qin**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Iron overload may exacerbate osteoarthritis (OA) by promoting oxidative stress, ferroptosis-associated injury, and cartilage matrix degradation. Magnesium (Mg) has chondroprotective effects in conventional OA models, but its efficacy under iron-overload conditions remains unclear. We developed an injectable Mg-loaded dopamine-grafted Pluronic F127 hydrogel (Mg-Dop-F127) for sustainable local Mg<sup>2+</sup> delivery and iron chelation.

**Methods:** Synovial fluid from late-stage OA and non-OA donors was analysed for iron content. Primary human chondrocytes and cartilage explants were exposed to ferric ammonium citrate and interleukin-1 $\beta$  before Mg<sup>2+</sup> treatment. C57BL/6 mice received intraperitoneal iron dextran, followed by destabilisation of the medial meniscus surgery and intra-articular MgCl<sub>2</sub>, deferoxamine, or vehicle. Mg-Dop-F127 was evaluated for thermogelation, Mg<sup>2+</sup> release, iron-chelating capacity, and cytocompatibility.

**Results:** Iron levels were elevated in synovial fluid from OA patients. Iron overload with inflammatory stimulation reduced proteoglycan staining and COL2 expression, increased MMP13, and suppressed GPX4 in vitro and ex vivo. Mg improved matrix preservation, increased intracellular Mg<sup>2+</sup>, reduced labile iron, and partially restored COL2 and GPX4 expression. In vivo, MgCl<sub>2</sub> attenuated cartilage degeneration, improved OA scores, restored GPX4, and reduced MMP13 under iron-overload conditions. Mg-Dop-F127 formed a low-temperature (4°C) injectable solution that gelled at physiological temperature (37°C), with sustained Mg<sup>2+</sup> release and iron-binding capacity.

**Conclusion:** Mg alleviates joint degeneration under iron-overload conditions by reducing labile iron accumulation, suppressing ferroptosis-associated cartilage injury and preserving cartilage matrix, while Mg-Dop-F127 provides a local platform for sustained intra-articular Mg therapy.

### FP1.3

#### **Genetic deletion of adiponectin exacerbated histopathological damage and gait impairment following collagenase-induced tendon injury**

**Katie Tsz-yan Mok<sup>1</sup>, Pauline Po-yee Lui<sup>1,2</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

<sup>2</sup>*InnoHK Centre for Neuromusculoskeletal Restorative Medicine*

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#### FP1.4

### **Extracellular vesicles from costal-cartilage derived stem cells promote tendon-bone healing in rat anterior cruciate ligament reconstruction model**

**Mingde Cao, Yuhao Wu, Xueyou Zhang, Shuai Yuan, Patrick Shu-hang Yung, Michael Tim-yun Ong**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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#### FP1.5

### **Novel mass spectrometry-based integrative spatial multi-omics approach for metabolic synovitis endotyping in osteoarthritis**

**Lin Zhu<sup>1</sup>, Lawrence Lau<sup>2</sup>, Chunyi Wen<sup>3</sup>**

<sup>1</sup>*Department of Chemistry, Hong Kong Baptist University*

<sup>2</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*

<sup>3</sup>*Department of Biomedical Engineering, The Hong Kong Polytechnic University*

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#### FP1.6

### **Mitochondria-targeted ergothioneine-loaded liposome-based reactive oxygen species-responsive composite hydrogel enhances fibrocartilage regeneration and tendon-bone healing after rotator cuff repair**

**Mingde Cao<sup>1</sup>, Oliver Ting-see Ho<sup>2</sup>, Shuai Yuan<sup>1</sup>, Yuhao Wu<sup>1</sup>, Patrick Shu-hang Yung<sup>1</sup>, Michael Tim-yun Ong<sup>1</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

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#### FP1.7

### **Tconv-Treg cytokine coordination patterns across osteoarthritic synovium and synovial fluid**

**Xueyou Zhang, Mingde Cao, Jianting Li, Michael Tim-yun Ong, Patrick Shu-hang Yung**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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#### FP1.8

### **Magnesium activates Wnt5a in Grem1+ skeletal stem cells to prevent callus fibrosis**

**Jerry Jiankun Xu, Wenxue Tong, Delon Yu-sheng Hsueh, Ling Qin**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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## FP1.9

### Investigation of the senotherapeutic effect of Maraviroc

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**Bonan Zhang, Yang Li, Huating Wang**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** The absence of approved senotherapeutics limits the management of age-related functional decline. Maraviroc (MVC), an approved CCR5 antagonist originally for HIV treatment, is a prime candidate for drug repurposing with its anti-sarcopenia effects. This study investigates its broader senotherapeutic efficacy in mitigating overall biological ageing.

**Methods:** Naturally aged mice (18 months) received either MVC or dimethyl sulfoxide (control) for 6 months. At 24 months, functional assessments included grip strength, treadmill, rotarod, and CatWalk gait analysis. Body composition and muscle mass were evaluated via dual-energy X-ray absorptiometry and tibialis anterior mass. Cognition was tested using Y-maze. Biological age was calculated utilising an epigenetic clock derived from blood methylation sequencing.

**Results:** Following 6 months of treatment, MVC significantly attenuated age-associated functional decline. Compared to controls, MVC-treated mice exhibited superior musculoskeletal performance with enhanced grip strength, treadmill endurance, and rotarod stability. Bone density and tibialis anterior-to-bodyweight ratio confirmed the preservation of lean mass and favourable body composition. Cognitive preservation was evident in Y-maze. Furthermore, blood methylation sequencing epigenetic clock analysis demonstrated MVC-treated mice had a lower biological age compared to controls.

**Conclusion:** MVC demonstrates profound senotherapeutic efficacy in a naturally aged murine model, effectively preserving musculoskeletal integrity, motor function, and cognitive capacity while decelerating epigenetic ageing. Given its approved status, MVC bypasses typical early-stage safety hurdles, representing a highly promising translation-ready candidate for clinical interventions targeting age-related frailty and functional decline.

## FP1.10

### DHX36 regulates skeletal muscle stem cell ageing via modulating mitochondrial function

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**Xiaofan Guo, Feng Yang, Suyang Zhang, Xiaona Chen, Huating Wang**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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**FP1.11****Moderate tibial mechanical loading ameliorates cognitive dysfunction through suppressing osteoblast-derived lipocalin-2 in mouse models of Alzheimer's disease****Hui Chen, Sien Lin, Ling Qin***Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Alzheimer's disease (AD) is a leading cause of dementia, yet effective disease-modifying therapies remain unavailable. Lipocalin-2 (LCN2), a mechanosensitive hormone predominantly secreted by osteoblasts, has emerged as a potential mediator of neuroinflammation. However, whether skeletal mechanical stimulation modulates AD progression through osteoblast-derived LCN2 remains unclear.

**Methods:** A tibial loading model was established in wild-type and 5xFAD mice using different loading magnitudes. Serum LCN2 levels were measured by enzyme-linked immunosorbent assay. To determine the role of LCN2, recombinant LCN2 was administered to wild-type mice, whereas 5xFAD mice received an anti-LCN2 neutralising antibody. Cognitive function was evaluated by behavioural tests including the open field test, novel object test, and Morris maze test. Neuronal morphology was assessed histologically.

**Results:** Moderate tibial loading (5 N) significantly improved cognitive function and reduced circulating LCN2 in 5xFAD mice. In contrast, excessive loading further increased serum LCN2 and aggravated cognitive impairment. Recombinant LCN2 induced anxiety-like behaviour, learning and memory deficits, and neuronal structural damage in healthy mice. Conversely, neutralising circulating LCN2 significantly rescued cognitive deficits in 5xFAD mice.

**Conclusion:** LCN2 is a mechanosensitive endocrine mediator linking skeletal loading to cognitive function. Moderate mechanical loading confers neuroprotection, whereas excessive loading exacerbates AD progression, likely through differential regulation of circulating LCN2. These findings highlight the bone-brain axis as a potential therapeutic target and support optimised skeletal mechanical stimulation as a promising disease-modifying strategy for AD.

**FP1.12****Oxidative stress drives maladaptive quadriceps fibre-type remodelling after anterior cruciate ligament injury despite surgical reconstruction****Jianting Li, Sai-chuen Fu, Xueyou Zhang, Mingde Cao, Hongkai Jin, Michael Tim-yun Ong, Patrick Shu-hang Yung***Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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**FP1.13****Low-dose micro- and nano-plastic exposure triggers neuromuscular junction degeneration via disruption of the agrin-LRP4 axis****Qianjin Wang, Ronald Men Yeung Wong, Wing Hoi Cheung, Ning Zhang***Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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#### FP1.14

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##### **Mitigation of dexamethasone-induced muscle atrophy via microfluidics-mediated mitochondria transfer in adipose-derived mesenchymal stromal cells**

**Jeffrey Wan Hei Hui<sup>1</sup>, Qinru Xiao<sup>1</sup>, Belle Yu-Hsuan Wang<sup>2</sup>, Hiu Tung Jessica Lo<sup>1</sup>, Tsz Lam Yiu<sup>1</sup>, Yi-Ping Ho<sup>3</sup>, Wayne Yuk Wai Lee<sup>1</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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<sup>3</sup>*Department of Biomedical Engineering, The Chinese University of Hong Kong*

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#### FP1.15

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##### **Genome-wide CRISPR screening identifies key genetic regulators of myoblast senescence**

**Ziliu Wang**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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#### FP1.16

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##### **Asymmetric fat infiltration and fibrosis in paraspinal muscles of adolescent idiopathic scoliosis: histological and single-nucleus transcriptomic insights**

**Dongyue Li<sup>1</sup>, Gen Tang<sup>1</sup>, Kenneth Guangpu Yang<sup>2</sup>, Adam Yiu-Chung Lau<sup>2</sup>, Tsz Ping Lam<sup>2</sup>, Jack Chun-yiu Cheng<sup>2</sup>, Wayne Yuk-wai Lee<sup>2</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

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## Free Paper Session II: Paediatric Orthopaedics I

### FP2.1

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**Adolescent idiopathic scoliosis 20 years after fusion with hook-rod instrumentation: health-related quality of life deterioration and the need for long-term follow-up**

**Adam Yiu-Chung Lau, Wai-Wang Chau, Alec Lik-Hang Hung**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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### FP2.2

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**Risk of curve progression in children with positive scoliosis screening and initial Cobb angle <20°**

**Cheuk-Kin Kwan, Kenneth Guang-Pu Yang, Alec Lik-Hang Hung, Wayne Yuk-Wai Lee, Jack Chun-Yiu Cheng**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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### FP2.3

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**Effect of Schroth exercises on postural balance in adolescents with idiopathic scoliosis**

**Fion Wai Shan Cheung, Roland Wai Fung Cheung, Adam Yiu Chung Lau**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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### FP2.4

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**Shorter brace fabrication times for curves >30° is associated with curve regression in adolescent idiopathic scoliosis: a 2-year follow-up study**

**Victoria Yuk Ting Hui, Natalie Chi Wai Leung, Jedidiah Yui Shing Lui, Jason Pui Yin Cheung, Prudence Wing Hang Cheung**

*Department of Orthopaedics and Traumatology, Queen Mary Hospital*

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### FP2.5

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**Pre-brace major curve magnitude and curve flexibility predicts bracing success in juvenile idiopathic scoliosis: a 2-year follow-up study**

**Victoria Yuk Ting Hui, Jaimy Hin Yu So, Tsz Hin Tsang, Jason Pui Yin Cheung, Prudence Wing Hang Cheung**

*Department of Orthopaedics and Traumatology, Queen Mary Hospital*

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## FP2.6

### **Development and validation of an artificial intelligence–assisted landmark detection model for Thumb Ossification Composite Index as the automated skeletal maturity assessment**

**Jamie Tsun Chiu, Oscar Tin-ngo Mak, Kyle Ka-kwan Mak, Eric Cheuk-kin Kwan, Alec Lik-hang Hung, Adam Yiu-chun Lau, Tsz Ping Lam, Jack Chun-yiu Cheng**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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## FP2.7

### **Development of a bone microarchitecture phenotyping model based on high-resolution peripheral quantitative computed tomography data from 1213 adolescents and application of the model in predicting suboptimal peak bone mass in adolescent idiopathic scoliosis**

**Kenneth Guangpu Yang, Eric Cheuk-Kin Kwan, Wayne Yuk-Wai Lee, Alec Lik-Hang Hung, Tsz-Ping Lam, Jack Chun-Yiu Cheng, Adam Yiu-Chung Lau**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Adolescence is a critical period for bone accrual. Suboptimal peak bone mass increases the lifetime osteoporosis risk. High-resolution peripheral quantitative computed tomography (HR-pQCT) offers detailed three-dimensional assessment of bone microarchitecture, but its multidimensional output is difficult to interpret. This study derived HR-pQCT-based bone microarchitecture phenotypes in adolescents and applied the model to adolescent idiopathic scoliosis (AIS) patients to examine associations between disease severity and peak bone mass in early adulthood.

**Methods:** HR-pQCT scans of 1213 adolescents (611 healthy, 602 AIS) aged 10 to 18 years were retrospectively analysed. HR-pQCT measurements from the healthy cohort were used to train a Fuzzy C-Means clustering model to define phenotypes. AIS patients were assigned to phenotypes by the trained model. Among AIS patients, 190 had repeat HR-pQCT 5 to 8 years after age 18 years. Follow-up bone outcomes were compared across phenotypes.

**Results:** Three phenotypes were identified in the healthy cohort: normal bone, low-volume (low bone volume, high cortical volumetric bone mineral density [BMD]), and low-density (low cortical and trabecular volumetric BMD with impaired microarchitecture). The low-density phenotype was significantly more prevalent with increasing scoliosis severity. In girls, 25.33% of normals versus 57.14% of those with Cobb angle  $>40^\circ$  were classified as low-density phenotype. At early adulthood, AIS patients exhibited 11% lower total volumetric BMD, significantly lower cortical thickness and trabecular thickness.

**Conclusion:** The low-density phenotype is associated with greater AIS severity and suboptimal peak bone mass. The use of HR-pQCT for early risk stratification and targeted intervention is supported.

## FP2.8

### **L4-S1 segments as the primary compensatory mechanism for sagittal changes in proximal lumbar spine after selective lumbar fusion surgery in Lenke 5C adolescent idiopathic scoliosis**

**Natalie Chi Wai Leung, Prudence Wing Hang Cheung, Jason Pui Yin Cheung**

*Department of Orthopaedics and Traumatology, Queen Mary Hospital*

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**FP2.9****Estimating body height growth in adolescent idiopathic scoliosis: which skeletal maturity method is the most accurate in predicting timing to peak growth and growth cessation?****Samuel Tin Yan Cheung, Jason Pui Yin Cheung, Prudence Wing Hang Cheung***Department of Orthopaedics and Traumatology, The University of Hong Kong*

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**FP2.10****Use of unsupervised machine learning in three-dimensional classification of adolescent idiopathic scoliosis: a systematic review****Lois Ching-Tung Liu, Natalie Yeuk-Tung Chow, Kerry Jiaguo Wang, Eric Cheuk-Kin Kwan, Alec Lik-Hang Hung, Tsz-Ping Lam, Jack Chun-Yiu Cheng, Adam Yiu-Chung Lau, Kenneth Guangpu Yang***Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Traditional classification systems for adolescent idiopathic scoliosis (AIS) rely primarily on two-dimensional (2D) radiographic parameters. Although three-dimensional (3D) deformity better reflects the nature of AIS, its multidimensional characteristics are difficult to interpret clinically. This systematic review aimed to evaluate the use of unsupervised machine learning for 3D classification of AIS and its potential clinical application.

**Methods:** A systematic search of PubMed, Embase, and the Cochrane Library was conducted in accordance with PRISMA guidelines. Studies published between 2006 and 2025 that included patients with AIS and applied unsupervised machine learning techniques for 3D classification were eligible. A standardised data extraction form was used to collect study characteristics, patient demographics, 3D reconstruction methods, machine learning approaches, and clinical applications.

**Results:** Fifteen studies, with sample sizes ranging from 67 to 1776 patients, were included. EOS imaging and biplanar radiographs with 3D reconstruction were the most commonly used imaging modalities. K-means clustering was the most frequently applied method, followed by Fuzzy c-means clustering. The number of identified clusters varied substantially across studies. Cluster numbers included 6 with contrastive clustering, 5 to 13 with Fuzzy c-means, 2 to 11 with K-means, and 5 with Ward's method. There was a lack of critical clinical validation for the potential use of these clustering systems.

**Conclusion:** Unsupervised machine learning enables the identification of hidden 3D AIS subtypes. However, heterogeneity in cluster number, feature selection, and validation methods limit comparability across studies. Future work should develop standardised quality assessment frameworks to improve reliability and clinical translation.

**FP2.12****Can preoperative radiological parameters safely replace pulmonary function tests to guide management in adolescent idiopathic scoliosis patients undergoing spinal fusion?****Oscar Chun To Mak, Kenneth Guangpu Yang, Eric Cheuk Kin Kwan, Alec Lik Hang Hung, Wayne Yuk Wai Lee, Tsz Ping Lam, Jack Chun Yiu Cheng, Adam Yiu Chung Lau***Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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### FP2.13

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#### **Comparative analysis of spinal deformity measurements across different patient positions in adolescent idiopathic scoliosis**

**Tsz Yan So, Kenneth Guangpu Yang, Eric Cheuk Kin Kwan, Alec Lik Hang Hung, Wayne Yuk Wai Lee, Tsz Ping Lam, Jack Chun Yiu Cheng, Adam Yiu Chung Lau**

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### FP2.15

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#### **How do the material properties and design optimisation of three-dimension-printed scoliosis braces affect their manufacturing efficiency and clinical effectiveness compared to conventional braces?**

**Vincent Ho-Lam Wu, Tsz-Hang Ma, Kenneth Guang-Pu Yang, Cheuk-Kin Kwan, Wayne Yuk-Wai Lee, Alec Lik-Hang Hung, Tsz-Ping Lam, Jack Chun-Yiu Cheng, Adam Yiu-Chung Lau**

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## Free Paper Session III: Orthopaedic Rehabilitation, Hand

### FP3.1

#### **Optimising recovery: the early effects of pre- and post-operative occupational therapy home visits on patients receiving total knee replacement in an enhanced recovery after surgery programme**

**Hiu Shing Chong<sup>1</sup>, Michael Tim-yun Ong<sup>1</sup>, Florence Wai Yu Leung<sup>2</sup>, Patrick Shu-hang Yung<sup>1</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

<sup>2</sup>*Department of Occupational Therapy, Caritas Medical Centre*

**Introduction:** Total knee replacement (TKR) effectively treats end-stage knee osteoarthritis, yet optimising early recovery remains challenging. Enhanced recovery after surgery emphasises multidisciplinary peri-operative care, but the role of occupational therapy (OT) home visits remains underexplored, particularly in Hong Kong. This study examined whether an OT-led peri-operative community programme improves early functional outcomes following TKR.

**Methods:** This retrospective cohort study analysed 275 primary unilateral TKR patients under enhanced recovery after surgery between October 2020 and December 2025 categorised by community OT visit exposure: no visits (group 1, n=74), postoperative visits only (group 2, n=108), and both pre- and post-operative visits (group 3, n=93). Outcomes were assessed at baseline and ~3 months post-operation in terms of total active range of motion and modified Barthel Index, as well as Hong Kong Knee Injury and Osteoarthritis Outcome Score, numeric rating scale, Lawton Instrumental Activities of Daily Living, modified Vancouver Scar Scale, and World Health Organisation-Five Well-Being Index (Chinese version). Analysis of covariance was used to compare improvement scores, with covariates selected based on significant group differences or prior literature. Post-hoc Bonferroni test was used to identify pairwise differences.

**Results:** Group 3 showed greater improvements in total active range of motion ( $p=0.011$ ) and modified Barthel Index ( $p=0.013$ ) than group 1, with a stepwise trend across groups. Group 2 showed the superior improvements in Hong Kong Knee Injury and Osteoarthritis Outcome Score pain subscale ( $p=0.019$ ), and Lawton Instrumental Activities of Daily Living.

**Conclusion:** Peri-operative OT home visits may enhance early recovery and self-care independence by reducing environmental barriers and improving performance components. Longer follow-up is recommended to assess secondary outcomes.

### FP3.2

#### Usage of tranexamic acid in transforaminal lumbar interbody fusion

**Edwin Sun Wah Heung, Chong Hing Wong, Wai Lok Yeung**

*Department of Orthopaedics and Traumatology, Princess Margaret Hospital*

**Introduction:** Tranexamic acid (TXA) is increasingly used in spinal surgery to minimise blood loss. Although perioperative benefits and safety profile of TXA are well documented, variations persist in dosing regimens and surgical indications across published studies. Moreover, effects of TXA on postoperative rehabilitation outcomes remain inadequately established. This study aims to investigate these parameters in our patient cohort.

**Methods:** Cases undergoing open transforaminal lumbar interbody fusion at a single local institution between 2020 and 2024 were retrospectively reviewed. Differences in various parameters were analysed among three groups: no TXA, 1g TXA administered intravenously at induction, and 1g TXA administered intravenously at induction followed by a 1g TXA infusion over 8 hours. Parameters include intraoperative blood loss, operative time, intraoperative and postoperative complications, drain output, duration of drain placement, and reduction in haemoglobin levels. Length of hospital stay was also compared as an index of the effect of TXA on rehabilitation.

**Results:** TXA administration resulted in ~40% reduction in intraoperative blood loss and significantly reduced length of hospital stay. A further reduction in intraoperative blood loss of 49% was observed with TXA infusion; however, this did not reach statistical significance.

**Conclusion:** TXA is associated with a significant reduction in intraoperative blood loss and length of hospital stay in patients with spinal surgery. However, the optimal dosing regimen for TXA remains undetermined, as current evidence does not support a single superior protocol. Further studies with larger patient cohorts are warranted to establish the most effective dosing strategy for TXA.

### FP3.3

#### Dietary protein intake and hip fracture risk among elderly people in Hong Kong: a quantitative analysis

**See Ching Daniel, Man Yan Cheung, Cheuk Kin Kwan, Xinyu Duan, Xinxin He, Zenobia Yu Yin Chau**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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### FP3.4

#### Machine learning-based prediction of short-term clinical response to structured non-surgical treatment programme in patients with knee osteoarthritis

**loi Chit Cheung<sup>1</sup>, Linda Man Kuen Li<sup>2</sup>, Hoi Ying Ng<sup>2</sup>, Michael Tim-yun Ong<sup>1</sup>, Patrick Shu-hang Yung<sup>1</sup>**

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## FP3.5

**Negative pressure wound therapy to improve primary knee arthroplasties scar tissue healing: a randomised controlled trial****Adrian Man Yui Lee<sup>1</sup>, Cham-kit Wong<sup>2</sup>, Dhananjaya Sutanto<sup>1</sup>, Patrick Shu-hang Yung<sup>1</sup>, Michael Tim-yun Ong<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

**Introduction:** Negative pressure wound therapy (NPWT) can decrease lateral stress on incision and increase wound angiogenesis. Its application during laparoscopy and revision total knee arthroplasty (TKA) results in decreased seroma formation and surgical site infection. Its application during primary TKA decreases the incidence of blisters, but data on long-term skin rehabilitation were limited.

**Methods:** In a randomised, blinded trial, TKA patients were assigned to receive either NPWT or control dressings. Scar quality was assessed at 21st and 42nd days, and 3rd, 6th, and 12th months using Patient and Observer Scar Assessment Scale (POSAS), with lower score being better. Linear mixed method was used to analyse the difference of POSAS scores between NPWT and control dressing across different time points.

**Results:** Seventy participants (93 knees: 47 control, 46 NPWT) were evaluated. The two groups had no significant differences in demographics, hospital stay duration, and blister incidence. Linear mixed method of fixed effects showed significant effect of time ( $F=37.081$ ,  $p<0.001$ ) and allocation  $\times$  time ( $F=2.789$ ,  $p=0.029$ ). NPWT group had lower POSAS-Patient scores at day 21 ( $p=0.044$ ) and day 42 ( $p=0.031$ ). POSAS-Patient scores for both groups continued to decrease, with no significant difference between groups from the third month onwards.

**Conclusion:** NPWT significantly improves patient-perceived scar outcomes in primary TKA patients in the short term. Both groups experience continued decrease in scar severity, with comparable results starting from the third month. Patient-dependent factors may have greater effect on the scar maturity process.

### FP3.6

#### **Effectiveness of pulsed electromagnetic field therapy for meniscal tears: a randomised double-blind controlled pilot trial**

**Wing Ki May Wong, Wing Hei Lai, Sai Chuen Fu, Jonathan Patrick Ng, Michael Tim-yun Ong, Patrick Shu-hang Yung**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Meniscal tear is a common cause of knee pain and functional impairment. Although conservative treatment demonstrated clinical outcomes comparable to surgical treatment, intrinsic healing remains limited due to poor vascularity. Pulsed electromagnetic field (PEMF) therapy has shown potential to promote meniscal healing in preclinical model. Therefore, this study aimed to evaluate the efficacy of PEMF combined with home-based exercise in patients with meniscal tear.

**Methods:** This prospective, randomised, double-blinded, sham-controlled pilot trial recruited patients with magnetic resonance imaging-confirmed meniscal tears. Participants were randomised (in a 1:1 ratio) to receive either active or sham PEMF therapy in addition to a standardised 8-week home exercise programme. Primary outcomes included Knee injury and Osteoarthritis Outcome Score and Western Ontario Meniscal Evaluation Tool. Secondary outcomes included sit-to-stand, step-up, step-down tests, and knee temperature difference assessed by infrared thermography. Two-way repeated measures analysis of variance was used to evaluate time, group, and interaction effects.

**Results:** Thirteen participants completed the 8-week intervention in the PEMF group (n=6) or the sham group (n=7), with comparable baseline characteristics. Significant time effects were observed for all Knee injury and Osteoarthritis Outcome Score subscales, Western Ontario Meniscal Evaluation Tool, sit-to-stand, step-up, step-down, and infrared thermography outcomes (all  $p < 0.05$ ). Post hoc within-group analyses showed improvements in knee functional performance tests throughout the 8-week intervention in both groups. However, no significant group  $\times$  time interaction was observed.

**Conclusion:** Preliminary analysis demonstrated improvements in clinical outcomes over time, but no additional benefits of PEMF over sham treatment were observed. Further recruitment and long-term follow-up are required to provide more definitive evidence regarding the efficacy of PEMF.

## FP3.7

**Hip-mounted exoskeleton gait training as a safe and feasible intervention for geriatric hip fracture rehabilitation****Wilson Wai-ching Lai<sup>1</sup>, Alice Ting-fong Tse<sup>1</sup>, Kiho Masui<sup>1</sup>, Judy Wing-kay Yu<sup>1</sup>, Keith Tin-sing Lau<sup>1</sup>, Leo Chin-ting Cheung<sup>2</sup>**<sup>1</sup>*Department of Physiotherapy, Tai Po Hospital*<sup>2</sup>*Department of Physiotherapy, Alice Ho Miu Ling Nethersole Hospital*

**Introduction:** Postoperative hip fracture patients frequently have pain and muscle weakness that limit early rehabilitation. Conventional physiotherapy alone may not always allow patients to achieve the necessary amount of ambulation to optimise recovery. This pilot service aimed to evaluate the safety, feasibility, and preliminary effect of hip-mounted exoskeleton-assisted walking training.

**Methods:** This pilot service was implemented for patients in Tai Po Hospital who underwent surgical management for hip fractures. Inclusion criteria were ability to full weight-bearing, Modified Functional Ambulation Classification (MFAC) score  $\geq 2$ , walking tolerance  $\geq 10$ m, pre-morbid MFAC  $\geq 5$ , and resting numeric pain rating scale (NPRS) score  $< 5/10$ . Selected patients received conventional physiotherapy combined with hip-mounted exoskeleton gait training. MFAC, Elderly Mobility Scale, NPRS, and walking speed were assessed at baseline and post-intervention. Walking distance, patient satisfaction, and adverse events were also recorded.

**Results:** Seven patients with femoral neck fractures who underwent hemiarthroplasties (n=6) or screw fixation (n=1) were recruited. Three completed training, and four were still ongoing. In those who completed training, MFAC, Elderly Mobility Scale, and NPRS improved, with an increase in walking speed. No exoskeleton-related dislocations, periprosthetic fractures, wound complications, or serious adverse events occurred.

**Conclusion:** The integration of hip-mounted exoskeleton training into postoperative hip fracture rehabilitation is feasible, safe, and well tolerated, with encouraging early functional improvements. These early findings support ongoing implementation, providing a foundation for designing a comparative study to more robustly evaluate the safety and efficacy of hip fracture rehabilitation with hip-mounted exoskeleton rehabilitation.

## FP3.8

**Smart lower-limb garment and online rehabilitation platform for in bed hip fracture recovery: a mixed methods feasibility study****Cheuk-Kin Kwan<sup>1</sup>, Aalok Rai<sup>2</sup>, Annika Guez<sup>2</sup>, Xin-Xin He<sup>1</sup>, Xin-Yu Duan<sup>1</sup>, Chi-Wang Wong<sup>1</sup>, Zenobia Yu-Yin Chau<sup>1</sup>, Chi-Hon Chiu<sup>1</sup>, Sheung-Wai Law<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*<sup>2</sup>*UPLYFT (HK) Limited*

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### FP3.9

## **Redefining early mobility: hands-free versus traditional ambulatory aids for postoperative non-weightbearing patients after ankle and foot surgeries**

**Shutong Mo, Tin Sui Ko**

*Department of Orthopaedics and Traumatology, Kwong Wah Hospital*

**Introduction:** The literature suggests that hands-free crutches can optimise functional recovery following foot and ankle surgeries. This study tests whether a hands-free crutch achieves superior and accelerated functional recovery compared to conventional double crutch/frame for patients under strict postoperative non-weightbearing protocols following foot and ankle surgeries.

**Methods:** Patients requiring postoperative non-weightbearing walking following foot and ankle fracture surgery were prospectively recruited. Those with elevated fall risks or major complications were excluded. Patients followed either a hands-free crutch (i-Walker) or a conventional double crutch/frame protocol. Primary and secondary outcomes included the 6-minute walk distance, health-related quality of life (Short Form-12), the number and duration of outdoor activities.

**Results:** Of the 42 patients evaluated, 26 were in the i-Walker group and 16 in the conventional group. Independent samples *t* tests revealed that the i-Walker group achieved significantly better improvement in the 6-minute walk distance between week 2 and week 6 (79 vs 27,  $p=0.021$ ). This indicates that the i-Walker leads to a significantly superior progression in walking endurance. There were no significant differences in Short Form-12 scores (3.04 vs 3.13,  $p>0.7418$ ) and the number (2 vs 1.25,  $p=0.2328$ ) and duration (23.81 vs 15.72,  $p=0.9470$ ) of outdoor activities between i-Walker and conventional groups from week 2 to week 6.

**Conclusion:** The i-Walker accelerates improvements in functional mobility and walking endurance. Large-scale randomised trials are warranted to determine its therapeutic efficacy.

## FP3.10

**Targeted muscle reinnervation is associated with significant analgesic-sparing effects in Asian post-amputation patients: early utilisation and clinical outcomes**

**Augustine Kai Chun Chan<sup>1</sup>, Kelvin Sin Chi Cheung<sup>1</sup>, Raymond CH Yau<sup>2</sup>, Gabriel Ching Ngai Leung<sup>2</sup>, Margaret Woon Man Fok<sup>2</sup>**

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**Introduction:** To evaluate early clinical outcomes of targeted muscle reinnervation (TMR) for post-amputation pain in an East Asian population and to describe its utilisation in Hong Kong.

**Methods:** All patients who underwent major limb amputation with TMR at our institution from January 2017 to December 2024 were reviewed. Fourteen patients (16 TMR procedures) with at least 6 months of follow-up were case-matched to 16 control patients who underwent major limb amputation without TMR. Primary outcomes were post-amputation pain and analgesic use at the latest follow-up ( $\geq 6$  months). Secondary outcomes included operation time, length of hospital stay, and 30-day and 90-day readmission and reoperation rates.

**Results:** Overall TMR utilisation in Hong Kong was 0.46% (35/7529 major amputations) over 8 years. At the latest follow-up, only five (35.7%) patients in the TMR group required analgesics, whereas 12 (75.0%) patients in the control group required analgesics ( $p=0.030$ ). Opioid analgesic use (with or without other analgesics) was significantly lower in the TMR group than controls (7.1% vs 50.0%,  $p=0.013$ ). Residual limb pain, phantom limb pain, and neuropathic pain were numerically lower in the TMR group but did not reach statistical significance. Operation times, length of hospital stay, and 30-day and 90-day readmission and reoperation rates were comparable between groups ( $p>0.05$ ).

**Conclusion:** TMR was associated with significantly reduced analgesic use, especially opioids, without increasing surgical complications in our cohort of East Asians. The findings verify that clinical effectiveness of TMR could be reproduced in an Asian locality. Despite growing international evidence supporting TMR, its utilisation in Hong Kong remained very low.

### FP3.11

#### **Ultrasound-guided versus open trigger finger release: a retrospective analysis of postoperative therapy utilisation and clinical efficacy**

**Chun Chit Cheung, Marvin Man Ting Chung**

*Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** Open surgical release is an established and effective treatment for trigger finger, but postoperative swelling and palmar scarring often require rehabilitation. This study evaluated whether ultrasound-guided (USG) minimally invasive release reduces postoperative physical therapy (PT) and occupational therapy (OT) utilisation in a public healthcare setting without compromising clinical outcomes.

**Methods:** This single-centre retrospective cohort study reviewed 69 single-digit trigger finger releases between August 2023 and December 2025. Outcomes were compared between patients who underwent open release (n=43) and those who underwent USG minimally invasive release (n=26). Baseline demographics and Quinnell severity grades were comparable between groups ( $p>0.05$ ). Primary outcomes were allied health utilisation (number of PT/OT sessions and total therapy duration). Secondary outcomes included QuickDASH score changes, visual analogue scale pain reduction, and rates of residual triggering.

**Results:** USG minimally invasive release was associated with significantly lower therapy utilisation. The median numbers of PT sessions were 5 (interquartile range [IQR]=3-7) after open release and 3 (IQR=2-5.25) after USG minimally invasive release ( $p=0.009$ ), whereas the median numbers of OT sessions were 5 (IQR=3-7) and 3 (IQR=2-6.25), respectively ( $p=0.032$ ). The median numbers of total therapy sessions were 11 (IQR=8-14) and 5.5 (IQR=4-11), respectively ( $p=0.007$ ), and the median therapy durations were 7.9 weeks (IQR=4.3-12.1) and 4.35 weeks (IQR=2.3-8.8), respectively ( $p=0.006$ ). Clinical outcomes were comparable between groups, with no significant differences in QuickDASH improvement ( $p=0.893$ ), visual analogue scale pain reduction ( $p=0.455$ ), or residual triggering ( $p=1.000$ ).

**Conclusion:** USG minimally invasive release for trigger finger may reduce rehabilitation demand and shorten recovery duration while maintaining clinical efficacy, offering a practical strategy to improve service capacity in public healthcare systems.

### FP3.12

#### **All-inside arthroscopic radial triangular fibrocartilage complex repair using cinch sutures and bone anchors: a case report and literature review**

**Alexander Kai Yiu Choi, Charlotte Shek Kwan Chui**

*Department of Orthopaedics and Traumatology, Tuen Mun Hospital*

**Introduction:** Radial tear of triangular fibrocartilage complex (TFCC) refers to avulsion of TFCC from radius (Palmar 1d tear). Conventionally it was repaired by transosseous suture to the radius, which is technically difficult.

**Methods:** Borrowing concept from Bankart repair, a cinch suture provides simple yet secure grip over the fibrocartilage tear end. The volar rim tear was approached through 6R portal with a 70-degree micro SutureLasso. The Nitinol loop was retrieved and shuffled with a Number 2 FibreLink suture with a closed loop. A cinch suture was tightened over the tear end. After pre-drilling and passing the suture end back to 6U portal, TFCC was fixed to the bone with a 2.9 mm PushLock anchor. The process was repeated over the dorsal aspect with reversed portals.

**Results:** We reported a successful repair of radial tear with distal radioulnar joint diastasis and tear extending to the dorsal and volar radioulnar ligaments in a 37-year-old man. A near-normal range of motion without distal radioulnar instability was noted at 3 months, and the patient could return to work at 6 months.

**Conclusion:** There is paucity of studies on radial TFCC tear with limited feasible methods of repair. The current method provides a simple and practical minimally invasive option with secure repair, borrowing the concept of arthroscopic Bankart repair, which also works in the wrist.

**FP3.13****17-year experience in arthroscopic capitulum fusion: comprehensive review of clinical outcomes****Moya Kwan Hung Tsui<sup>1</sup>, Michelle Kar Lam Li<sup>1</sup>, Tsz Ching Chau<sup>1</sup>, Stephen Pui Kit Tang<sup>2</sup>, Michael Chu Kay Mak<sup>1</sup>, Pak Cheong Ho<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, Kwong Wah Hospital*

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**FP3.14****Retrospective review of mycobacterial hand infections: from clinical to pathology****Kit Ci Chan<sup>1</sup>, Michelle Kar Lam Li<sup>2</sup>, Chau Tsz Ching<sup>2</sup>, Michael Chu Kay Mak<sup>2</sup>, Pak Cheong Ho<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

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**FP3.15****Effectiveness of smartphone application to improve outcomes after trigger finger release: a randomised controlled trial****Ka Mun Lam, Aaron Wai Lun Woo, Esther Ching San Chow***Department of Orthopaedics and Traumatology, United Christian Hospital*

**Introduction:** Open trigger finger release is commonly performed. Effective postoperative patient education is important for early recovery. A smartphone application was developed to guide patients on wound care, pain management, and rehabilitation exercises.

**Methods:** This single-blinded, randomised controlled trial included patients who underwent open trigger finger release under local anaesthesia between June 2023 and June 2026 in a local hospital. The control group received standard verbal advice, whereas the intervention group additionally used the application. Outcomes evaluated at 2 and 6 weeks postoperatively included total active motion, grip strength, Quick-DASH, symptom scores, and subjective recovery experiences.

**Results:** In total, 72 patients were randomised (33 control, 39 intervention). Both groups demonstrated similar recovery trajectories in total active motion, grip strength, and symptom scores. The intervention group showed significantly better overall readiness for rehabilitation ( $p=0.035$ ) at 2 weeks postoperatively. Specifically, the intervention group reported greater understanding of postoperative home exercises compared to controls ( $p=0.002$ ). Anxiety regarding wound care and pain did not differ significantly. Patient feedback indicated high smartphone application usability and a strong likelihood of peer recommendation.

**Conclusion:** Although its clinical outcomes were similar to standard care, the smartphone application successfully improved early patient education. It significantly enhanced understanding and readiness for home exercises during the early rehabilitation phase, along with high user satisfaction.

### FP3.16

#### **Digital replantation versus revision amputation after distal finger amputation: a retrospective study**

**Hollie Hoi Lum Pong<sup>1</sup>, Esther Ching San Chow<sup>2</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Elizabeth Hospital*

<sup>2</sup>*Department of Orthopaedics and Traumatology, United Christian Hospital*

**Introduction:** Distal finger amputations can significantly affect hand function and appearance. Digital replantation and revision amputation are both established treatment options. This study compared clinical and patient-reported outcomes of both strategies in a regional hospital.

**Methods:** A retrospective review was conducted of all patients with distal finger amputation treated between January 2019 and August 2025. Patients managed with dressings, composite grafts, or flap reconstructions were excluded. Demographics, length of hospital stay, functional outcomes, psychiatric impact, time to return to work, and patient satisfaction were analysed and compared between the digital replantation and revision amputation groups.

**Results:** The replantation group included 20 patients with a survival rate of 85% (15 men, 5 women; mean age, 48.5 years). The revision amputation group included 12 patients (10 men, 2 women; mean age, 55.8 years). The mean hospital stay was longer after replantation than after revision amputation (14.2 vs 3.2 days,  $p<0.001$ ). Patient satisfaction was higher after replantation than after revision amputation (8.4 vs 7.1,  $p=0.032$ ). Grip strength and range of motion were better in the replantation group. Two patients in the revision amputation group developed psychiatric conditions related to the injury, whereas none were recorded in the replantation group. Time to return to work did not differ significantly between groups.

**Conclusion:** Digital replantation yields superior functional and satisfaction outcomes but requires longer hospitalisation, whereas revision amputation supports faster discharge with less optimal function and cosmesis. Both approaches can achieve acceptable results when individualised to patient and injury factors.

### FP3.17

#### **Arthroscopic bone grafting for scaphoid fracture non-union: a retrospective review of a 29-year, 170-case journey**

**Michelle Kar-lam Li, Pak-cheong Ho, Michael Chu-kay Mak, Wing-lim Tse, Leo Tsz-ching Chau**

*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

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## FP3.18

**Treatment options and clinical outcomes of ulnar-sided carpometacarpal fracture-dislocations: a systematic review****Arthur Kwan Ho Lee<sup>1</sup>, Marvin Man Ting Chung<sup>2</sup>, Wing Yuk Ip<sup>2</sup>**<sup>1</sup>*The University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** Fracture-dislocations of the fourth and fifth carpometacarpal (CMC) joints are complex hand injuries, for which heterogeneous treatment modalities and outcomes have been reported. This systematic review aims to consolidate the existing literature on treatment strategies, associated functional outcomes, and complications.

**Methods:** A systematic literature search of English-language studies published between January 2011 and June 2026 was conducted in Ovid Medline, Embase, and Cochrane Library. All primary research studies were identified and screened in accordance with PRISMA guidelines. Data extracted were represented qualitatively and analysed using descriptive statistics.

**Results:** A total of 33 studies comprising 458 ulnar-sided CMC fracture-dislocations were included. Most injuries were acute and occurred in the dominant hand of male patients. The most commonly reported treatment strategies were open reduction internal fixation (ORIF) with non-transarticular plate (n=139), ORIF with Kirschner wires (n=79), ORIF with trans-articular plate (n=55), and closed reduction with percutaneous pinning (n=54). Other treatment modalities included closed reduction and primary arthrodesis, combination of fixation modalities, ligament reconstruction, and suture button use. Functional outcomes were heterogeneously reported across treatment modalities, based on Disabilities of the Arm, Shoulder and Hand score, grip strength as percentage of the contralateral side, range of motion, and visual analogue scale for pain scores. Hardware breakage (n=9) was the most commonly reported complication and was the leading indication for re-operation (81.8%).

**Conclusion:** Although diverse management strategies exist for ulnar-sided CMC fracture-dislocations, treatment selection should be guided by a thorough understanding of their long-term functional outcomes and complication profiles.

### FP3.19

## Correcting scaphoid deformity with computer navigation and arthroscopic bone grafting

**Michael Chu Kay Mak**

*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

**Introduction:** Correcting scaphoid deformity using computer navigation combined with arthroscopic bone grafting aims to address the technical challenges of treating symptomatic scaphoid malunion and non-union. Surgeons must balance the risks of osteotomy in a healed bone with the difficulty of restoring native anatomy and achieving reliable union. This study presents the technique of scaphoid navigated deformity correction (S-NDC) and evaluates its clinical and radiographic outcomes.

**Methods:** From 2019 to 2025, six patients with symptomatic scaphoid malunion or non-union underwent S-NDC with arthroscopic bone grafting. Preoperative planning utilised bilateral wrist computed tomographic scans with three-dimensional reconstruction. The contralateral normal scaphoid was mirrored to guide deformity correction, prioritising articular congruity. Intraoperatively, a navigation system integrated with three-dimensional imaging enabled real-time registration and guidance. Navigated Kirschner wire placement allowed accurate tracking and execution of the planned correction. The proximal row was stabilised, and distal fragment realignment was achieved by advancing pre-positioned Kirschner wires along predefined trajectories under navigation. Arthroscopic debridement and cancellous bone grafting from the iliac crest were performed to address bone defects and enhance union. Postoperative computed tomographic scans were compared with preoperative planning models to assess the accuracy of deformity correction.

**Results:** The S-NDC technique enabled precise restoration of scaphoid morphology with satisfactory alignment in all cases. The mean root mean square was  $0.94 \pm 0.44$  mm.

**Conclusion:** Early results suggest that combining navigation with minimally invasive arthroscopic grafting is a feasible and accurate method for managing complex scaphoid deformities. This approach may improve reproducibility and reduce technical uncertainty in scaphoid reconstruction.

## Free Paper Session IV: Foot and Ankle, Others

### FP4.1

#### **A retrospective comparison between fibular interlocking nailing and plating for Weber B and C fibular fractures in patients with ankle fracture**

**Michelle Chui Yee Wong, Ming Hong Chau**

*Department of Orthopaedics and Traumatology, Princess Margaret Hospital*

**Introduction:** Fibular interlocking nailing has emerged as a minimally invasive alternative to plating for ankle fracture, particularly in patients with soft tissue compromise. Comparative outcome data between the two techniques remain limited. We hypothesised that nailing would have better functional outcome.

**Methods:** This retrospective cohort study included 53 patients who underwent surgical fixation of ankle fractures: 23 with nailing and 30 with plating. Baseline demographics, operative time, blood loss, complications (infection, non-union, revision fixation), functional outcomes (American Orthopaedic Foot and Ankle Society score, visual analogue scale score) and radiological outcomes (reduction quality, time to bone union) were compared at 1, 3, and 6 months postoperatively.

**Results:** The two groups were comparable in baseline demographics. Fracture patterns in the nailing group trended towards greater complexity with higher proportion of Weber C fibular fractures (34.8% vs 16.7%). The mean operative time and blood loss were comparable. Pain scores were significantly lower in the nailing group at 1 month (2.7 vs 3.2,  $p=0.013$ ) and 3 months (1.7 vs 2.3,  $p=0.046$ ). American Orthopaedic Foot and Ankle Society scores were higher in the nailing group at 1 and 3 months (76.1 vs 70.3,  $p=0.046$ ). Infection rates were similar (17.4% vs 13.3%,  $p>0.05$ ). Revision fixation occurred at a similarly low rate (4.3% vs 6.7%,  $p>0.05$ ). Radiographic reduction quality was predominantly satisfactory in both groups.

**Conclusion:** Fibular nailing offers comparable operative efficiency, reduction quality, and functional outcomes to plating, with advantage in early pain control and recovery. Revision fixation rates were equally low, reflecting the mechanical stability of nailing. This supports nailing as an effective alternative, but larger prospective studies are needed.

## FP4.2

### Early outcomes of Infinity total ankle replacement: a retrospective review

**Cheuk Wai Wong, Shui Wah Man, Zhen Wei Yang**

*Department of Orthopaedics and Traumatology, Queen Elizabeth Hospital*

**Introduction:** The Infinity Total Ankle System is the most commonly used system in the United Kingdom. It has shown good short- to mid-term outcomes in Caucasian patients. This retrospective review aims to assess the clinical outcomes in a Chinese population.

**Methods:** In total, 41 Infinity total ankle replacements performed between August 2021 and March 2025 at Queen Elizabeth Hospital, with a minimum of 1-year follow-up, were included in the analysis. The mean follow-up duration was  $2.4 \pm 1.0$  years. Primary outcomes were visual analogue scale (VAS) score for pain and American Orthopaedic Foot and Ankle Society (AOFAS) Ankle-Hindfoot Scale score, which were assessed preoperatively and then postoperatively at yearly intervals. Secondary outcomes were complications, reoperations, and implant survivorship.

**Results:** Both VAS and AOFAS scores improved significantly from preoperative to 1 year and 2 years postoperatively after which they remained stable. The VAS scores were  $7.4 \pm 0.9$  preoperatively,  $1.6 \pm 1.0$  at 1 year ( $p < 0.001$ ), and  $1.1 \pm 0.9$  at 2 years ( $p = 0.0019$ ), whereas the AOFAS scores were  $47.7 \pm 15.5$  preoperatively,  $89.4 \pm 5.7$  at 1 year ( $p < 0.001$ ), and  $91.1 \pm 5.4$  at 2 years ( $p = 0.02$ ). There were no cases of infection, fracture, or aseptic loosening. Two cases required re-operations: one for subtalar fusion and another for release of arthrofibrosis and Achilles tendon lengthening. There were no cases of revision. Implant survivorship was 100%.

**Conclusion:** Infinity total ankle replacement demonstrated excellent short- to mid-term outcomes in the Chinese population, with significant and sustained improvements in pain and function, low rates of complications and re-operation, and high implant survivorship.

## FP4.3

### Early clinical outcomes of an ankle replacement system with tibial stem implant in a regional hospital setting

**Shui Wah Man, Zeng Wai Yang**

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**Introduction:** The Stryker InBone II ankle replacement system was introduced in late 2024 for both primary and revision total ankle replacements. This retrospective cohort study evaluates the early clinical outcomes of patients treated with this system for end-stage ankle arthritis.

**Methods:** Between January 2025 and May 2026, 10 consecutive InBone II ankle replacements were performed at Queen Elizabeth Hospital, Hong Kong, by a single senior surgeon. Two of these cases involved revision procedures. Demographic data, pre- and post-operative American Orthopaedic Foot and Ankle Society scores and pain scores were collected. Patient satisfaction was assessed postoperatively. Statistical analysis was performed using Student's *t* test to determine the significance of clinical improvements.

**Results:** The mean patient age was 71 years. All patients demonstrated significant improvement in pain and function following surgery. The mean American Orthopaedic Foot and Ankle Society score increased from 56.9 to 90.3 (out of 100), whereas the mean pain score improved from 18 to 38 (out of 40). Both improvements were highly significant ( $p < 0.0001$ ). All patients reported satisfaction with their early clinical outcomes.

**Conclusion:** The InBone II total ankle replacement system appears to be an effective option for managing end-stage ankle arthritis, including revision cases. These findings highlight encouraging short-term outcomes; long-term follow-up is required to confirm its durability and sustained patient benefit. Future studies will address these outcomes.

## FP4.4

**Clinical application of proximal first metatarsal closing wedge osteotomy in foot and ankle deformity reconstruction: a case series and review****Alan Chun Yin Chiu, Ming Hong Chau, Stephanie Ka Ki Liu***Department of Orthopaedics and Traumatology, Princess Margaret Hospital*

**Introduction:** Proximal first metatarsal closing wedge osteotomy is a powerful yet less recognised adjunct technique for correcting multiplanar foot and ankle deformities. This case review presents an evaluation of the clinical and radiological outcomes of this technique used as an adjunct procedure in various complex foot and ankle reconstructions.

**Methods:** Four patients (mean age, 64.75 years) underwent either dorsal or plantar closing wedge osteotomy of the first metatarsal base between November 2024 and July 2025. The technique involved a small medial incision. The osteotomy was performed with either a side-burr or a mini-sawblade, and the cortical hinge was kept intact. The closing wedge osteotomy was subsequently fixed with a medial plate, screws, or staples. This procedure can be performed as an adjunct to major reconstructions such as total ankle replacement or triple arthrodesis. All patients were evaluated with numerical pain rating scale, radiological outcome, functional score, and complications with a minimum of 12-month follow-up.

**Results:** All four patients achieved complete radiographic bony union at a mean of 5 months (range, 3-7 months). Significant pain reduction was observed. No wound complications, implant-related complaints, nerve irritation, non-union, or revision surgery occurred. All patients demonstrated improved ambulatory capacity and returned to satisfactory functional status.

**Conclusion:** Proximal first metatarsal closing wedge osteotomy offers reliable correction, with satisfactory union rates and a low complication profile, when used as an adjunct in foot and ankle deformity correction. This technique provides a versatile alternative to procedures such as the Lapidus procedure or Cotton osteotomy.

## FP4.5

**Kirschner wires versus screws as fixation for minimally invasive hallux valgus surgery, a retrospective comparison study****Jun Horng Tan<sup>1</sup>, Nicholas Sai Hang Kong<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*<sup>2</sup>*Department of Medicine, The University of Hong Kong*

**Introduction:** Kirschner wires and screws are methods of fixation for minimally invasive hallux valgus surgery. However, few studies directly compared the two. This study compares their clinical/radiographic outcomes.

**Methods:** A retrospective comparative analysis of 77 feet (20 Kirschner wire, 57 screws) was conducted. To eliminate learning curve bias, the first 30 screw cases were excluded. Outcomes included hallux valgus angle (HVA) and intermetatarsal angle (IMA) changes from baseline to 1 year, as well as American Orthopaedic Foot and Ankle Society (AOFAS) functional scores, surgical times, radiation exposure, and complication rates.

**Results:** Both Kirschner wire and screw cohorts achieved excellent improvement in HVA (27.1° vs 23.3°,  $p=0.076$ ) and IMA (10.4° vs 10.0°,  $p=0.444$ ). However, the Kirschner wire group demonstrated significantly superior AOFAS scores (96.8 vs 88.2,  $p<0.001$ ). When isolating primary hallux valgus procedures (excluding lesser toe surgeries), Kirschner wire group required significantly less intraoperative radiation (78.3 vs 194.9 seconds,  $p=0.001$ ) and showed a trend towards faster operative times (45.3 vs 61.8 mins,  $p=0.087$ ). Although the overall complication rates lacked statistical power due to small sample size, 11.1% of the remaining screw cohort experienced hardware impingement, and 7.4% required secondary removal. The Kirschner wire group had a 5.0% superficial pin tract infection rate.

**Conclusion:** Both fixation methods did not significantly differ in 1-year HVA and IMA correction. Kirschner wire fixation provides superior AOFAS scores, and significantly lower radiation exposure, while avoiding the risks of symptomatic hardware impingement.

## FP4.6

### **Does open reduction and internal fixation restore normal gait in ankle fracture patients? A retrospective study at 2 years post-surgery**

**Gabriella Chan, Sheryl Man, Tianzhi Jiang, Lok Ting Man, Samuel Ka-Kin Ling**

*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

**Introduction:** Ankle fractures alter gait biomechanics as demonstrated by multi-segment foot models of postoperative open reduction and internal fixation (ORIF). This study hypothesises ORIF restores gait biomechanics in patients with ankle fracture and establishes the use of gait analyses as a surrogate for functional return.

**Methods:** Seven patients who underwent ORIF at Prince of Wales Hospital between January and May 2024 were recruited; controls were employees of the Department of Orthopaedics and Traumatology who had no lower limb injuries within 24 months. Gait was assessed using a treadmill (Zebris Medical) with an integrated pressure sensor sampling. Outcome measures included spatiotemporal gait, plantar-pressure, force, and centre of pressure parameters across each gait cycle. Group differences were analysed with the Mann-Whitney *U* test; Cohen's *d* was reported as the effect size. *P* values were adjusted using the Benjamini-Hochberg procedure. The significance level was set at  $\alpha=0.05$ . Data were reported as mean $\pm$ standard deviation.

**Results:** Compared with the control group (*n*=8), the ORIF group (*n*=7) showed longer toe contact time and earlier time-to-peak-force. A moderate-to-large effect size ( $p=0.05$  to  $<0.10$ ) suggested protective loading strategies. Yet, these differences did not reach statistical significance due to limited sample size.

**Conclusion:** This pilot study emphasises the restoration of gait parameters 2 years following ORIF with integration of protective loading strategies compared to control groups. The outcome measures can be utilised in future studies to assess the timing of recovery and to compare different treatment modalities, including non-surgical approaches and various surgical techniques.

## FP4.7

**Markerless single leg hop kinematics reveal strength-related landing deficits in competitive athletes: a machine learning and correlation study****Tianzhi Jiang, Rachel Lok Ting Man, Bruma Sai-Chuen Fu, Patrick Shu-hang Yung, Samuel Ka-Kin Ling***Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Ankle sprains are common in sport and often lead to persistent movement control problems. Single leg hop (SLH) kinematics, captured by markerless motion capture system, may provide an objective measure of residual dysfunction. This study aimed to identify the most discriminative SLH kinematic features for ankle sprain history using machine learning, and to correlate these features with strength to assess clinical validity.

**Methods:** Forty-one competitive athletes (9 with recent ankle sprain, 22 healthy, 10 with other lower-limb injuries) performed SLH trials. The markerless motion capture system extracted hip-knee coordination metrics (continuous relative phase and vector coding), performance measures (hop distance, deceleration, timing), and joint angles. A random forest classifier with group-aware cross-validation identified the most discriminative features. Pairwise correlations (Benjamini-Hochberg false discovery rate correction) were computed between these features and strength measures.

**Results:** Machine learning identified landing deceleration, timing of peak knee flexion, hop distance, coordination variability, and shock-absorption coupling as top discriminators. After false discovery rate correction, landing deceleration correlated negatively with hip abduction ( $r = -0.30$ ) and adduction ( $r = -0.25$ ) strength. Hop distance correlated positively with hip abduction strength and jump performance. Anti-phase coupling correlated with group, indicating the sprain group exhibited less shock-absorbing coordination. Statistical parametric mapping analysis revealed no significant time-windows of difference.

**Conclusion:** SLH metrics, particularly landing deceleration, hop distance, and shock-absorbing coordination, are correlate with hip strength and jump performance. The link between landing deceleration and hip abduction strength is clinically actionable, offering a practical screening tool to guide targeted rehabilitation before return to sport.

## FP4.8

### Achilles tendon parameters in ultimate frisbee players

**Stephanie Ho-Ching Lau, Wenjie Pan, Patrick Shu-hang Yung, Samuel Ka-Kin Ling**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Ultimate frisbee (UF) is a high-intensity sport characterised by intermittent sprinting, jumping, and cutting movements. These actions require significant agility, speed, and coordination, making UF an ideal model for studying athletic performance and movement mechanics associated with increased risk of Achilles tendinopathy (AT). Although injury epidemiology studies exist, studies focusing on AT in UF are limited. This study aims to identify prevalence and severity of AT in Hong Kong UF players and evaluate associated Achilles tendon characteristics.

**Methods:** This cross-sectional study included 30 Hong Kong UF team members. Demographics and UF participation data were recorded. Primary outcomes were self-reported AT prevalence and Victorian Institute of Sports Assessment-Achilles score. Secondary outcomes included tendon thickness, cross-sectional area, vascularity, resting angle, and isometric calf strength. Participants were stratified into current AT, recovered AT, and no AT groups.

**Results:** The prevalence of AT in Hong Kong UF players was 30% (n=9, 95% confidence interval [CI]=16.7%-47.9%). Significant inter-group difference was found in Victorian Institute of Sports Assessment-Achilles score (p=0.010) and dominant limb vascularity (p=0.011); other outcomes showed no significant differences (p>0.05). Significant risk factors were body mass index (odds ratio=2.053, 95% CI=1.071-3.933, p=0.030) and years of experience (odds ratio=1.628, 95% CI=1.033-2.564, p=0.036).

**Conclusion:** AT is prevalent among elite Hong Kong UF players who present with symptoms and functional impairments. Dissociation between subjective reports and objective assessments underscores the importance of prioritising clinical symptoms and functional limitations over morphological or biomechanical changes in injury evaluation. These findings support implementation of targeted Achilles tendon injury prevention programmes and highlight necessity of proactive monitoring, particularly in players with higher body mass index and greater experience.

## FP4.9

## Achilles tendon thermal asymmetry across healthy tendinopathy and rupture groups and its associations with patient-reported outcomes

**Wen-jie Pan, Man-Chung So, Bruma Sai-Chuen Fu, Samuel Ka-kin Ling, Patrick Shu-Hang Yung**

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**Introduction:** Infrared thermography is utilised to visualise distribution of skin temperature and may provide insights into underlying perfusion and metabolic activity. In healthy Achilles tendons (AT), minimal lateral differences are observed. However, rupture and subsequent healing process can alter perfusion and inflammatory responses. This study investigates whether thermal asymmetry varies among healthy individuals, those with tendinopathy, and patients with tendon rupture, whether increased asymmetry correlates with poorer patient-reported outcomes.

**Methods:** Resting AT thermograms were obtained using forward-looking infrared camera. Region of interest included the entire tendon. Temperature difference was calculated as left minus right side in healthy participants and affected minus non-affected side in unilateral symptomatic participants. Group differences were assessed using Kruskal-Wallis tests. Associations with Victorian Institute of Sports Assessment-Achilles score were examined in tendinopathy and with Achilles Tendon Total Rupture Score in rupture. In rupture, temperature difference was also compared beyond 12 months after surgery.

**Results:** Analysis included 111 participants (55 healthy, 14 with tendinopathy, 42 with rupture). The median temperature difference was 0°C in healthy control and tendinopathy groups and 0.45°C in the rupture group. Group differences were significant ( $p < 0.001$ ) due to greater asymmetry in rupture than healthy participants ( $p < 0.001$ ). Temperature difference was not associated with Victorian Institute of Sports Assessment-Achilles score in tendinopathy ( $\rho = -0.10$ ,  $p = 0.729$ ). In rupture, greater temperature elevation was associated with poorer Achilles Tendon Total Rupture Score ( $\rho = -0.37$ ,  $p = 0.019$ ). Within 12 months postsurgery, asymmetry was greater at initial measurement than after 12 months (1.4°C vs 0.3°C,  $p = 0.0016$ ).

**Conclusion:** Thermal asymmetry was most pronounced following acute ruptures and particularly evident during early postoperative phase. Thermography may serve as a valuable adjunct in postoperative follow-up, offering precise insights into healing process and informing tailored rehabilitation strategies.

#### FP4.10

### Effects of tendinopathy severity on postoperative outcomes following degenerative Achilles tendon ruptures

**Justin Shun-hang Lo, Wen-jie Pan, Clement Ching-yuen Chan, Bruma Sai-chuen Fu, Samuel Ka-kin Ling, Patrick Shu-hang Yung**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Achilles tendon rupture can leave lasting functional impairment despite surgical repair. Prognosis seems more related to tendon quality at injury than to surgical technique. Victorian Institute of Sports Assessment-Achilles (VISA-A) is a validated Achilles-specific questionnaire with a Chinese version and is the routinely collected outcome. This study examined whether the severity of preoperative Achilles tendon structural changes on ultrasound predicts long-term postoperative function measured by VISA-A.

**Methods:** We conducted a retrospective study of adult patients ( $\geq 18$  years) who underwent Achilles tendon repair between 2015 and 2025 at Prince of Wales Hospital, Hong Kong, and were followed up for at least 12 months. Preoperative ultrasonography classified Achilles tendon structural abnormalities as mild-to-none or moderate-to-severe according to routine reporting (tendon thickening, echotexture, and neovascularisation). VISA-A scores were compared between groups using a two-tailed Mann-Whitney  $U$  test ( $\alpha=0.05$ ). Age, body mass index, and postoperative time did not differ significantly between groups on Mann-Whitney  $U$  test.

**Results:** Twenty-five patients were analysed: 16 with mild-to-none and 9 with moderate-to-severe abnormalities. The median VISA-A scores of the two groups were 90 (interquartile range=16.75) and 65 (interquartile range=44), respectively. Patients with mild-to-none abnormalities had significantly higher VISA-A scores ( $U=23.5$ ,  $Z=-2.753$ ,  $p=0.0059$ ).

**Conclusion:** Preoperative Achilles tendon structural degeneration observed via ultrasound correlates with decreased long-term VISA-A scores, regardless of age, body mass index, or postoperative duration. Ultrasound-detected tendon structural abnormalities thus serve as a valuable prognostic marker, aiding in patient counselling and setting realistic postoperative expectations.

## FP4.11

**Markerless motion capture of single leg hop highlights functional deficits in Achilles tendinopathy and post-rupture repair patients**

**Jasmine Pui-yin Lo, Bruma Sai-chuen Fu, Wen-jie Pan, Tian-zhi Jiang, Clement Ching-yuen Chan, Samuel Ka-kin Ling, Patrick Shu-hang Yung**

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**Introduction:** Achilles tendinopathy (AT) and post-rupture repair (AR) impair lower-limb function; however, patient-reported outcomes and physical examinations may miss compensatory strategies during high-load activities. Markerless motion analysis may offer more precise functional assessment. This study examined whether single leg hop kinematics differ among healthy individuals, AT, and AR groups, and explored their relationships with clinical outcomes.

**Methods:** We analysed 179 single leg hop trials from 38 participants (14 healthy, 12 with AT, 12 with AR) using markerless motion analysis system. Variables included continuous relative phase (CRP) variability and mean CRP during take-off, anterior-posterior trunk displacement, and displacement magnitude. Group differences were tested with Kruskal-Wallis and Mann-Whitney post hoc tests. Correlations between patient-reported outcome measures, strength, hop performance, and pain were assessed using Spearman analysis with false discovery rate correction. Analysis of covariance was adjusted for age, sex, body mass index.

**Results:** Knee-ankle CRP variability during take-off was higher in AR than healthy group ( $p=0.005$ ), with a similar trend in the AT group ( $p=0.077$ ), indicating impaired propulsion coordination. Trunk displacement was greater in the AR than healthy ( $p=0.0018$ ) and AT ( $p=0.0079$ ) group, suggesting reduced landing control. The mean CRP variability did not differ between groups. Trunk displacement correlated with dorsiflexion strength ( $r=-0.75$ ), plantarflexion strength ( $r=-0.45$ ), hop height ( $r=-0.66$ ), and hop distance ( $r=-0.68$ ). No kinematic variable correlated with patient-reported outcome measures after correction. Trunk displacement remained significant after adjustment.

**Conclusion:** Distinct deficits were identified: AT primarily affected take-off coordination, whereas AR was associated with greater trunk instability during landing. These measures relate to objective physical capacity and are sometimes subclinical, not detected by patient reports. These findings support their values as complementary functional assessment tools in rehabilitation.

## FP4.12

### The microflora profile in diabetic foot and the clinical implication of fungal infection

**Esther Man-Wai Chow<sup>1</sup>, Samuel Ka-Kin Ling<sup>2</sup>**

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**Introduction:** The chronic hyperglycaemic microenvironment in diabetes predisposes the wound to microbial infection and poor healing. There is a growing recognition of mycotic colonisation, and its impact on diabetic feet is uncertain. In this review, diabetic feet treated with surgery were studied to reveal the microbial profile and the significance of fungal infection.

**Methods:** Diabetic patients admitted for lower limb wound or infection treatment between September 2024 and September 2025 were included. The aetiologies, diabetic control, risk factors, microbial culture, and outcomes were reported. Further analysis was performed in cases complicated by fungal infection to study the association with diabetes and infection control.

**Results:** Forty diabetic patients were included. The most common cause of surgical treatment was foot gangrene (65%), followed by ulceration (30%). The proximal amputation rate was 57.5%; 95% of cases had positive microbial cultures, and 30 types of bacteria were identified, with the most common pathogens included *Enterococcus* (n=10), *Klebsiella* (n=9), and *Corynebacterium* (n=9). Polymicrobial infection was 82%, and the mean number of isolated pathogens was 3.5 (range, 2-9). Fungal culture was positive in 20% of patients with *Candida* as the most common species. Glycated haemoglobin level ( $7.9 \pm 0.5$  vs  $9.4 \pm 1.5$ ) and number of isolated bacteria ( $3.4 \pm 0.6$  vs  $3.5 \pm 1.8$ ) were higher in the fungal-positive cases. Although there was no significant difference in proximal amputation rate, the time for wound healing was longer in fungal-positive cases.

**Conclusion:** Fungal infection is often overlooked in diabetic patients and potentially complicates the diabetic foot pathology. Early awareness in fungal infection management may alter the disease progress, but these findings require further validation.

## FP4.13

### **Ambient artificial intelligence scribe in orthopaedic sports surgery: a randomised controlled trial demonstrating significant consultation efficiency with maintained patient satisfaction and therapeutic relationship**

**Jeremie Choo, Fattah Lee, Erika Rusli, Derrick Guo**

*Department of Orthopaedics, Woodlands Hospital Singapore*

**Introduction:** Documentation in orthopaedic sports surgery clinics consumes significant consultation time and contributes to provider burnout. Ambient artificial intelligence (AI) scribes may reduce this burden while preserving the physician-patient relationship, but evidence for their efficacy and safety in this setting remains limited. This study compared AI-assisted versus traditional manual documentation across consultation duration, patient satisfaction, and perceived therapeutic relationship. Secondary outcomes included privacy concerns and willingness to continue AI use.

**Methods:** This prospective randomised controlled trial was conducted with balanced 1:1 randomisation (32 AI-assisted, 32 traditional) in an orthopaedic sports surgery clinic. Primary outcome was consultation duration; secondary outcomes included patient satisfaction (10-item validated scale), qualitative patient experience interviews (n=32, 100% response rate), and spontaneous privacy concerns. Inter-rater reliability was strong (Cohen's  $\kappa=0.82$ ).

**Results:** AI assistance reduced overall consultation time by 42.1% ( $5.47 \pm 3.36$  vs  $9.44 \pm 4.93$  minutes,  $p=0.0004$ ). Repeat visits showed the largest reduction (55.6%,  $p<0.001$ , Cohen's  $d=1.53$ ); initial consultations showed a 27.8% reduction approaching significance ( $p=0.121$ ). Satisfaction remained high and equivalent across groups (mean=4.6/5.0,  $p>0.05$  on all domains). Thematic analysis (saturation at 25 interviews) found that 81.3% reported positive experiences, 75.0% perceived consultations as unhurried, 71.9% felt personal connection was maintained or enhanced, and 100% were willing to use AI again. No patient spontaneously raised privacy or security concerns.

**Conclusion:** Ambient AI scribes significantly improved consultation efficiency, especially in repeat visits, without compromising satisfaction, therapeutic rapport, or raising safety/privacy concerns—supporting their use as a patient-centred efficiency tool in orthopaedic sports surgery.

## Free Paper Session V: Adult Joint Reconstruction I

### FP5.1

**Can unicompartmental knee arthroplasty achieve comparable early outcomes to total knee arthroplasty in non-ideal patients with medial compartment osteoarthritis? A retrospective comparative study**

**Ignatius Tsz Tsun Ip, Tin Sui Ko, Lewis Ng, Yifei Ma**

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### FP5.2

**Could unicompartmental knee arthroplasty be done in ambulatory basis? A pilot study on early outcomes, patient satisfaction, and selection paradoxes for day surgery**

**Tin Sui Ko, Yifei Ma, Lewis Ng, Ignatius Tsz Tsun Ip**

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### FP5.3

**Are we overtreating anteromedial osteoarthritis of knee? Matched comparison of same-stage bilateral Oxford unicompartmental knee arthroplasty and total knee arthroplasty in unicompartmental knee arthroplasty-eligible patients**

**Catherine Ka-hei Lam<sup>1</sup>, Gloria Yan-ting Lam<sup>2</sup>, Tsz-lung Choi<sup>2</sup>, Rex Wang-fung Mak<sup>2</sup>, Cham-kit Wong<sup>3</sup>, Jonathan Patrick Ng<sup>3</sup>, Michael Tim-yun Ong<sup>1</sup>, Patrick Shu-hang Yung<sup>1</sup>**

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<sup>3</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

**Introduction:** Unicompartmental knee arthroplasty (UKA) and total knee arthroplasty (TKA) are used for anteromedial osteoarthritis of knee. This study compared perioperative burden and mid-term outcomes between bilateral Oxford UKA (OUKA) and TKA in OUKA-eligible patients.

**Methods:** We retrospectively reviewed patients who underwent same-stage bilateral TKA or medial OUKA between 2016 and 2023. A 1:1 matched cohort was constructed. OUKA-eligible TKA patients were matched to OUKA patients by operation era, sex, age and preoperative Knee Society Function Score.

**Results:** Thirty patients were included in each cohort. The mean final follow-up durations were 67.9 months after OUKA and 75.8 months after TKA. The final Knee Society Function Score, Knee Society Knee Score, and Oxford Knee Score were comparable. Satisfactory Oxford Knee Score was achieved in 81.5% of OUKA patients and 66.7% of TKA patients. OUKA was associated with shorter inpatient stay ( $3.5 \pm 1.4$  vs  $4.6 \pm 2.1$  days,  $p=0.026$ ), similar operative time ( $157.6 \pm 22.7$  vs  $162.8 \pm 53.1$  minutes,  $p=0.604$ ), lower haemoglobin drop ( $2.0 \pm 0.8$  vs  $2.5 \pm 1.4$  g/dL,  $p=0.116$ ), and lower transfusion rate (3.3% vs 6.7%). Early complication rates within first 6 weeks were 0% after OUKA and 6.7% after TKA.

**Conclusion:** In OUKA-eligible patients with anteromedial osteoarthritis of knee, OUKA achieved comparable mid-term function with shorter hospitalisation and lower blood loss, transfusion, and early complications. TKA may represent greater perioperative burden without superior mid-term benefit.

**FP5.4****Determinants of femoral and tibial sizing in Oxford Unicompartmental knee arthroplasty based on the Hong Kong Population****Wai Shun Yau<sup>1</sup>, Alexander Justin Fan<sup>1</sup>, Tsz Yu Mak<sup>1</sup>, Yan Nok Ke<sup>1</sup>, Cham Kit Wong<sup>2</sup>, Jonathan Patrick Ng<sup>2</sup>, Rex Wang-Fung Mak<sup>2</sup>, Michael Tim-yun Ong<sup>3</sup>, Patrick Shu-hang Yung<sup>3</sup>**<sup>1</sup>*The Chinese University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>3</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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**FP5.5****Lateral and patellofemoral compartment osteoarthritis progression in medial Oxford unicompartmental knee arthroplasty: a mid-term review****Jeremy Ho Pak Liu<sup>1</sup>, Rex Wang Fung Mak<sup>2</sup>, Wai-Wang Chau<sup>3</sup>, Ronald Wing Hei Siu<sup>1</sup>, Yan Ting Lam<sup>1</sup>, Cham Kit Wong<sup>1</sup>, Tsz Lung Choi<sup>1</sup>, Michael Tim-Yun Ong<sup>3</sup>, Patrick Shu-Hang Yung<sup>3</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>3</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Adjacent compartment degeneration has been cited as a potential cause of revision for unicompartmental knee arthroplasty (UKA). In this study, we investigate the mid- to long-term radiological osteoarthritis (OA) progression of mobile bearing UKA and the predisposing demographic or anatomical factors.

**Methods:** This retrospective study included 201 patients (mean age, 69.2 years) with complete radiographic data who underwent Oxford UKA between 2018 and 2021 with a mean follow-up duration of 60 months (range, 11-99 months). Pre- and post-operative Kellgren-Lawrence (KL) grades for patellofemoral joint (PFJ) and medial and lateral compartments were assessed. Functional scores and radiographical parameters were measured. Ordinal logistic regression was performed to identify predictors of PFJ KL progression and lateral KL progression.

**Results:** PFJ progression occurred in 56.9% of patients (45.5% progressed by one grade, 10.9% by two grades). Significant predictors were a lower preoperative PFJ KL grade (grade 1: odds ratio [OR]=42.4,  $p<0.001$ ; grade 2: OR=11.8,  $p<0.001$ ), and medial KL grade 2 (OR=3.0,  $p=0.019$ ) and grade 3 (OR=2.0,  $p=0.036$ ) compared to grade 4. Preoperative joint line orientation angle did not predict PFJ progression. Lateral progression was uncommon (19.3% progressed by one grade, none by 2+ grades). The mean body mass index was 27.92, and was positively correlated with higher KL grade pre- and post-operatively. Overall revision rate was 0.995% ( $n=2$ ).

**Conclusion:** Radiological progression of lateral compartment OA remained low in mid-term follow-up. Milder preoperative PFJ and medial compartment OA were strongly associated with greater radiological OA progression of PFJ compartment.

## FP5.6

### Change in mechanical tibiofemoral angle after Oxford unicompartmental knee arthroplasty and its influence on medium term outcome

**Ronald Wing-hei Siu<sup>1</sup>, Gloria Yan-ting Lam<sup>1</sup>, Tsz Lung Choi<sup>1</sup>, Rex Wang-fung Mak<sup>1</sup>, Cham Kit Wong<sup>2</sup>, Jonathan Patrick Ng<sup>2</sup>, Michael Tim-yun Ong<sup>3</sup>, Patrick Shu-hang Yung<sup>3</sup>**

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**Introduction:** Correction of the mechanical tibiofemoral angle (mTFA) after medial Oxford unicompartmental knee arthroplasty (OUKA) is variable. Substantial residual varus – particularly in patients with preoperative varus  $\geq 15^\circ$  – raises concerns regarding longer-term outcomes. This study evaluates changes in mTFA and their association with medium-term clinical results.

**Methods:** A retrospective review of medial OUKA procedures performed between 2018 and 2019 at Alice Ho Miu Ling Nethersole Hospital was conducted. Cases with both pre- and post-operative mTFA measurements from standing long-leg radiographs were included. Clinical outcomes, including the Knee Society Knee Score, Knee Society Functional Score, and Oxford Knee Score, were recorded.

**Results:** Seventy-two patients (115 medial OUKAs) were analysed, with a mean follow-up duration of 55 months. The mean preoperative mTFA was  $-9.98^\circ \pm 4.10^\circ$  varus, and the mean postoperative mTFA was  $-4.18^\circ \pm 4.03^\circ$  varus, representing a mean correction of  $5.80^\circ$  towards neutral ( $p < 0.0001$ ). Pre- and post-operative mTFA were positively correlated ( $r = 0.57$ ). Among the 115 knees, 18 (15.7%) had high preoperative varus ( $\geq 15^\circ$ ), with a mean preoperative mTFA of  $-16.5^\circ \pm 1.9^\circ$ , corrected to  $-8.1^\circ \pm 4.2^\circ$ . Significant improvements were observed in Knee Society Knee Score, Knee Society Functional Score, and Oxford Knee Score at medium-term follow-up, with no association between outcomes and either postoperative mTFA or the magnitude of correction.

**Conclusion:** Medial OUKA resulted in significant correction of mTFA and favourable medium-term clinical outcomes, regardless of residual varus alignment or degree of correction.

## FP5.7

### Does preoperative extreme varus deformity affect postoperative outcomes after Oxford unicompartmental knee arthroplasty? A propensity score-matched study

**Cham Kit Wong<sup>1</sup>, Jonathan Patrick Ng<sup>1</sup>, Rex Wang-Fung Mak<sup>1</sup>, Mingde Cao<sup>2</sup>, Yan-Ting Lam<sup>3</sup>, Tsz-Lung Choi<sup>3</sup>, Michael Tim-yun Ong<sup>2</sup>, Patrick Shu-hang Yung<sup>2</sup>**

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## FP5.8

**Joint line orientation change after Oxford unicompartmental knee arthroplasty: associated radiographic and surgical factors in a 130-knee single-centre series****Gloria Yan-ting Lam<sup>1</sup>, Tsz Lung Choi<sup>2</sup>, Rex Wang-fung Mak<sup>1</sup>, Cham Kit Wong<sup>2</sup>, Jonathan Patrick Ng<sup>2</sup>, Michael Tim-yun Ong<sup>3</sup>, Patrick Shu-hang Yung<sup>3</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>3</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Joint line orientation angle (JLOA) tends to tilt more medially after Oxford unicompartmental knee arthroplasty (OUKA). This study analysed the factors associated with this orientation change and assessed its impact on medium-term functional outcomes.

**Methods:** A retrospective review was conducted for patients who underwent medial OUKA for anteromedial osteoarthritis between 2018 and 2019. Pre- and post-operative radiological parameters (JLOA, medial proximal tibial angle [MPTA], lateral distal femoral angle, hip-knee-ankle angle) and intraoperative data (surgeon, spigot size, bearing thickness) were collected. Clinical outcomes – including Knee Society Functional Score, Knee Society Knee Score, and Oxford Knee Score – were evaluated at a mean follow-up of 52 months.

**Results:** We reviewed 130 OUKAs (94 patients). The mean JLOA medially shifted from  $-1.0^\circ \pm 2.0^\circ$  preoperatively to  $-1.7^\circ \pm 2.4^\circ$  postoperatively ( $p=0.008$ ). Preoperative JLOA predicted a large change ( $\Delta\text{JLOA} > 3^\circ$ ,  $p=0.005$ ). Multivariate analysis identified preoperative MPTA ( $p=0.001$ ) and spigot size ( $p=0.03$ ) as independent predictors of postoperative JLOA. Postoperative lateral distal femoral angle strongly correlated with postoperative JLOA ( $r=0.49$ ,  $p<0.0001$ ). Although absolute postoperative JLOA did not correlate with clinical scores, knees with  $>3^\circ$  of medial joint line correction ( $\Delta\text{JLOA} < -3^\circ$ ) achieved significantly greater Knee Society Functional Score gain than those with smaller changes ( $33.1 \pm 15.1$  vs  $24.0 \pm 18.7$ ,  $p=0.012$ ).

**Conclusion:** Postoperative JLOA is independently influenced by preoperative MPTA and spigot size. Absolute postoperative tilt does not compromise medium-term outcomes; instead, a moderate medial corrective shift ( $\Delta\text{JLOA} < -3^\circ$ ) yields superior functional gains.

## FP5.9

### Ceramic-on-ceramic hip resurfacing: learning curve

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**Jason Brockwell**

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**Introduction:** Ceramic-on-ceramic hip resurfacing is a new procedure suitable for women and smaller patients who had poor results with metal hip resurfacings. Several companies are developing ceramic hip resurfacings, and many hip arthroplasty surgeons are considering using them.

**Methods:** The new MatOrtho ReCerf ceramic resurfacing is very similar to the MatOrtho Adept metal resurfacing and quite similar to the Smith & Nephew Birmingham Hip Resurfacing – all have cemented femoral and cementless acetabular components. After performing over 500 Birmingham Hip Resurfacing cases, the author commenced ReCerfs in March 2026 via the usual capsular-sparing posterior approach. Patients included both sexes, aged 40 to 60 years; mostly were unilateral and mostly had osteoarthritis. Patients were allowed full weight bearing using crutches for 6 weeks and restricted to 3000 steps/day for 3 months to protect the posterior repair and the femoral neck.

**Results:** Results were not as good as the preceding Birmingham hips. Two cups were not fully seated on the intraoperative image and subsequently slipped, resulting in a change in reaming technique. They were not revised. Two cups were malpositioned on intraoperative image and required intraoperative repositioning, which may stress the ceramic-titanium interface. One patient had an epileptic convulsion 1 week post-operation tearing the soft tissue repair and required re-repair. Magnetic resonance imaging showed incomplete soft tissue healing in some patients.

**Conclusion:** Ceramic resurfacing is an appealing procedure for younger patients but is more technically demanding than conventional total hip replacement. There is a steep learning curve.

## FP5.10

**Determining optimal bone stock for screw placement in total hip arthroplasty for patients with developmental dysplasia of the hip utilising robotic-assisted computer stimulation****Augustine Kai Chun Chan<sup>1</sup>, Amy Cheung<sup>2</sup>, Thomas Ka Chun Leung<sup>2</sup>, Michelle Hilda Luk<sup>2</sup>, Lawrence Chun Man Lau<sup>1</sup>, Wai Hong Lau<sup>2</sup>, Ping Keung Chan<sup>1</sup>, Kwong Yuen Chiu<sup>3</sup>, Henry Fu<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*<sup>3</sup>*Department of Orthopaedics and Traumatology, Hong Kong Sanatorium & Hospital*

**Introduction:** Our study aims at determining the optimal bone stock available in hips with developmental dysplasia of the hip (DDH) for acetabular screw insertion using computer simulation.

**Methods:** This was a retrospective study involving consecutive patients who underwent primary total hip arthroplasty for osteoarthritis secondary to DDH in a single tertiary institution, utilising computer simulation for complex case analysis. Primary outcome was assessment of optimal location and maximum screw placement in different Crowe classes. Orientation was determined according to the acetabular clockface. Secondary outcomes were maximum cup size, optimal anteversion and inclination, and native femoral version.

**Results:** Eighteen hips (5 Crowe I, 3 Crowe II, 2 Crowe III and 8 Crowe IV) in 17 patients (one man, 16 women) were included. For the outer screws, the greatest screw length was demonstrated at 12 to 1 o'clock across all Crowe types. Crowe IV DDH demonstrated the shortest screw length except for 12 o'clock, where bone stock was maximal. For the inner screws, the maximum screw length was made possible with insertion at 11 to 12 o'clock. Crowe IV hips allowed for the smallest cup size. Native version was not significantly different between groups, despite Crowe IV hips having the highest native version at  $23.1^{\circ} \pm 22.0^{\circ}$ .

**Conclusion:** Best bone stock was consistently demonstrated across all Crowe types at 11 to 1 o'clock. Iliac screw insertion (9 to 3 o'clock) should be aimed superiorly (11 to 1 o'clock) directions. Ischial screws (6 to 9 o'clock) were best placed at 7 to 8 o'clock direction. Screw lengths were smallest with pubic screws (3 to 6 o'clock).

## FP5.11

### **Aetiology of hip arthritis and indications for primary total hip arthroplasty in a Hong Kong population: a 15-year retrospective review**

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**Introduction:** This study aims to update the indications for primary total hip arthroplasty (THA) in a Hong Kong population, comparing our findings to previous institutional data. Prior studies from our centre (1972-1997 and 1997-2010) identified avascular necrosis (AVN) as the leading indication for THA. Given the ageing population, increasing life expectancy, and advances in medical therapy for inflammatory conditions, we hypothesised a shift in aetiology away from AVN towards post-traumatic and osteoporotic indications.

**Methods:** A retrospective review was conducted using the Clinical Data Analysis and Reporting System to identify all primary THAs performed in the Hong Kong West Cluster between 2010 and 2024. The indication for surgery was determined by the operating surgeon, and clinical notes were individually reviewed to confirm the aetiology of AVN.

**Results:** A total of 949 primary THAs were identified, with a female predominance (57.2%). The mean patient age at surgery was 62.5±13.9 years, with male patients being significantly younger (58.9±14.3 years) than female patients (65.1±13.0 years). AVN remained the most common indication overall (41.8%), followed by osteoarthritis (11.6%) and post-traumatic arthritis (13.7%). In females, the leading causes were AVN (34.2%), osteoarthritis (19.8%), and post-traumatic arthritis (19.5%). In males, AVN (50.9%) was the predominant cause, followed by post-traumatic arthritis (9.6%) and ankylosing spondylitis (9.6%).

**Conclusion:** Contrary to our hypothesis, AVN remains the primary indication for THA in our population, mirroring findings from previous decades. Osteoarthritis and post-traumatic arthritis are significant contributors, particularly in females. The differences in aetiological distribution were not significant. A larger, multicentre study may be required to detect subtle temporal shifts in the indications for primary THA.

## FP5.12

### **Distribution and determinants of computed tomography-measured native femoral version in a multicentre Hong Kong total hip arthroplasty cohort with >800 cases**

**Lawrence Lau<sup>1</sup>, Steve Cheung<sup>2</sup>, Kenneth Law<sup>3</sup>, Justin Wong<sup>4</sup>, Alphon Ip<sup>5</sup>, Gloria Leung<sup>6</sup>, Perry Dao<sup>7</sup>, Chong YC<sup>8</sup>, Amy Cheung<sup>9</sup>, Henry Fu<sup>1</sup>**

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**FP5.13****Accuracy of acetabular cup positioning: augmented reality navigation versus robotic-assisted surgery****Tsz-Lung Choi<sup>1</sup>, Gloria Yan-Ting Lam<sup>2</sup>, Rex Wang-Fung Mak<sup>1</sup>, Cham-Kit Wong<sup>2</sup>, Jonathan Patrick Ng<sup>1</sup>, Michael Tim-Yun Ong<sup>3</sup>, Patrick Shu-Hang Yung<sup>3</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital*<sup>3</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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**FP5.14****15- to 20-year follow-up of total hip replacement using highly crosslinked polyethylene and 36mm femoral heads****Amy Cheung<sup>1</sup>, Lawrence Chun Man Lau<sup>2</sup>, Thomas Ka Chun Leung<sup>1</sup>, Michelle Hilda Luk<sup>1</sup>, Ping Keung Chan<sup>2</sup>, Kwong Yuen Chiu<sup>2</sup>, Henry Fu<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*

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**FP5.15****Which design moves better? Biomechanical insights into dual mobility versus fixed bearing in primary hip arthroplasty****Tianzhi Jiang<sup>1</sup>, Justin Bing-Kai Yeung<sup>2</sup>, Mingde Cao<sup>1</sup>, Patrick Shu-hang Yung<sup>1</sup>, Michael Tim-yun Ong<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

**Introduction:** Total hip arthroplasty reliably relieves pain and restores function in end-stage hip disease, with growing interest in optimising hip mobility during demanding daily activities. Dual-mobility (DM) designs add polyethylene liner articulating within the acetabular shell, theoretically improving hip motion over conventional fixed-bearing (FB) designs by delaying prosthetic impingement. However, whether this advantage produces measurable differences in vivo kinematics, and whether these relate to patient-reported outcomes, remain unclear.

**Methods:** This study compared hip kinematics and functional outcomes between DM and FB groups. Sixteen patients were enrolled and assigned into DM and FB groups. Participants were asked to perform walking, stair negotiation, sit-to-stand, deep squat, and sock-wearing tasks. Kinematic cycles were normalised to 101 points and compared using one-dimensional statistical parametric mapping, whereas peak hip flexion and flexion range of motion (ROM) were compared using Mann-Whitney *U* tests. Associations with Hip Disability and Osteoarthritis Outcome Scores (HOOS) were assessed via Spearman correlations.

**Results:** Preoperative HOOS was similar between groups. During deep squatting, the DM group showed greater peak hip flexion (103.6° vs 71.6°,  $p=0.026$ ), although ROM differences were not significant. During sock-wearing, the DM group demonstrated greater peak flexion and ROM (both  $p<0.05$ ), with one-dimensional statistical parametric mapping confirming a significant difference spanning 47% to 100% of the cycle. HOOS correlated strongly with flexion measures ( $\rho=0.78-0.92$ ).

**Conclusion:** DM design was associated with greater functional hip flexion than FB design, most robustly during sock-wearing. These correlations support that improved mobility contributes to better perceived outcomes; nonetheless, larger, longer-term studies are needed.

#### FP5.16

### **Methyl methacrylate detected in the breastmilk of an orthopaedic surgeon following cemented arthroplasty procedures**

**Michelle Hilda Luk<sup>1</sup>, Ka-Man Wong<sup>2</sup>, Tsz-Ching Wan<sup>2</sup>, Thomas Ka Chun Leung<sup>1</sup>, Lawrence Chun Man Lau<sup>3</sup>, Amy Cheung<sup>1</sup>, Ping Keung Chan<sup>3</sup>, Kwong Yuen Chiu<sup>3</sup>, Henry Fu<sup>3</sup>**

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#### FP5.17

### **Can surgeons learn from artificial intelligence to improve outcomes? A novel artificial intelligence-powered analysis model of outcome predictors in robotic-assisted total knee arthroplasty**

**Thomas Ka Chun Leung<sup>1</sup>, Pengyu Lu<sup>2</sup>, Teng Zhang<sup>2</sup>, Xihe Kuang<sup>2</sup>, Lawrence Chun Man Lau<sup>2</sup>, Michelle Hilda Luk<sup>1</sup>, Amy Cheung<sup>1</sup>, Ping Keung Chan<sup>2</sup>, Kwong Yuen Chiu<sup>2</sup>, Henry Fu<sup>2</sup>**

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#### FP5.18

### **Patient-reported outcomes of robotic and conventional total knee arthroplasty comparative analysis of Kunwu, Mako, and Velys in 175 cases from a tertiary referral centre**

**Wing Tung Ng, Ping Keung Chan, Lawrence Chun Man Lau, Thomas Ka Chun Leung, Michelle Hilda Luk, Amy Cheung, Henry Fu**

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## FP5.19

**Determining optimal ligament tensioning in imageless robot-assisted bicruciate-stabilised total knee replacement****Rex Wang Fung Mak<sup>1</sup>, Cham Kit Wong<sup>2</sup>, Gloria Yan-Ting Lam<sup>2</sup>, Tsz Lung Choi<sup>2</sup>, Michael Tim-Yun Ong<sup>3</sup>, Patrick Shu-Hang Yung<sup>3</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital*<sup>3</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Robotic-assisted total knee arthroplasty (RATKA) enables precise dynamic ligament tension assessment, yet optimal numerical gapping thresholds remain undefined in bicruciate-stabilised designs. This study aimed to determine optimal medial and lateral gap sizes by correlating planned/achieved gaps with clinical outcomes.

**Methods:** All patients who underwent imageless RATKA between 2018 and 2025 at two regional hospitals were included. Intraoperative gaps (extension/flexion, medial/lateral) were recorded, along with pre- and post-operative Knee Society Score, Knee Function Score, and range of motion. Correlations and receiver operating characteristic analyses were used to identify predictive cut-offs. Subgroup analysis was performed to compare pre-resection and sequential balancing.

**Results:** A total of 255 imageless RATKAs were included. Mean follow-up was 17.9 months; Knee Society Score improved from 53.5 to 89.9. Larger planned medial extension gap correlated with poorer score ( $r=0.125$ ,  $p=0.047$ ) and reduced flexion ( $r=0.126$ ,  $p=0.046$ ). Receiver operating characteristic-defined medial extension gap  $>4.0$  mm was predictive of poor Knee Function Score (area under the curve [AUC]=0.694) and poor flexion (AUC=0.763). Medial flexion gap  $\leq 2.5$  mm predicted poor flexion (AUC=0.661). Lateral extension  $\leq 2.5$  mm showed weak correlations with poorer outcomes. Femoral external rotation weakly improved Knee Function Score and extension. Sequential balancing produced tighter medial gaps than pre-resection balancing (0.65 vs 1.10 mm,  $p<0.001$ ), but there was no clinical difference in patient-reported outcome measures or range of motion.

**Conclusion:** Medial extension  $>4$  mm and medial flexion  $\leq 2.5$  mm were independently associated with poorer functional scores and restricted flexion, respectively. Surgeons should consider these thresholds intraoperatively. Balancing technique did not affect outcomes, suggesting target gaps are more critical than method, although surgeon judgement remains essential.

## FP5.20

### **Z-retractor and digital tensioner show comparable inter- and intra-rater reliability of ligament tension assessment in robotic-assisted total knee replacement**

**Samuel Ho Sam Wong<sup>1</sup>, Cham Kit Wong<sup>1</sup>, Jonathan Patrick Ng<sup>1</sup>, Rex Wang-Fung Mak<sup>1</sup>, Mingde Cao<sup>2</sup>, Xin Yang<sup>2</sup>, Yan-Ting Lam<sup>3</sup>, Tsz-Lung Choi<sup>3</sup>, Michael Tim-yun Ong<sup>2</sup>, Patrick Shu-hang Yung<sup>2</sup>**

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**Introduction:** Accurate pre-resection ligament tension assessment is critical for achieving balanced soft-tissue gaps in robotic-assisted total knee arthroplasty (TKA). This study aimed to compare the inter- and intra-rater reliability of ligament tension assessments between the digital tensioner and the Z-retractor in imageless robotic-assisted TKA.

**Methods:** In this prospective study, 23 knees undergoing CORI-assisted TKA were assessed. Three specialist and three trainee surgeons each performed independent ligament tension evaluations using both a digital tensioner and a Z-retractor at the same operative setting, recording medial and lateral gap measurements at 0° (extension) and 90° (flexion). Intraclass correlation coefficients (ICC) were calculated.

**Results:** Both instruments demonstrated good-to-excellent intra-rater reliability across all positions (Z-retractor ICC range: 0.796-0.988; tensioner: 0.813-0.959). Inter-rater reliability was excellent for both devices (Z-retractor: 0.914-0.989; tensioner: 0.966-0.989). Among trainees, the Z-retractor showed excellent intra-rater reliability for medial measurements but only good reliability for lateral measurements (extension ICC=0.796; flexion ICC=0.831). The digital tensioner achieved excellent reliability in all trainee assessments except flexion lateral (ICC=0.917), and demonstrated superior consistency for extension lateral measurements (ICC=0.956). Bland-Altman analysis showed negligible bias for extension medial and flexion lateral gaps, with small but significant differences for extension lateral (+0.53 mm) and flexion medial (-0.90 mm).

**Conclusion:** Both devices provide comparable, good-to-excellent reliability for ligament tension assessment in imageless robotic-assisted TKA. The digital tensioner offers greater consistency in lateral extension measurements and may benefit less experienced surgeons.

## FP5.21

### **Effect of tibial sagittal alignment change on early to mid-term clinical outcomes following robotic-assisted total knee arthroplasty**

**Cham Kit Wong<sup>1</sup>, Jonathan Patrick Ng<sup>1</sup>, Rex Wang-Fung Mak<sup>1</sup>, Yan-Ting Lam<sup>2</sup>, Tsz-Lung Choi<sup>2</sup>, Michael Tim-yun Ong<sup>3</sup>, Patrick Shu-hang Yung<sup>3</sup>**

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## FP5.22

### **Influence of posterior tibial slope on functional outcomes: cruciate-retaining versus posterior-stabilised total knee replacement**

**Tsz-hang Ma<sup>1</sup>, Marco Cho-sang Chui<sup>2</sup>, Tsz-lung Choi<sup>3</sup>, Gloria Yan-ting Lam<sup>2</sup>, Rex Wang-fung Mak<sup>3</sup>, Cham-kit Wong<sup>2</sup>, Jonathan Patrick Ng<sup>3</sup>, Michael Tim-yun Ong<sup>1</sup>, Patrick Shu-hang Yung<sup>1</sup>**

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## FP5.23

**What is the tibial component slope target we should be aiming for in total knee arthroplasty? A 11-year survivorship analysis based on absolute targets versus native slope changes****Michelle Hilda Luk<sup>1</sup>, Thomas Ka Chun Leung<sup>1</sup>, Lawrence Chun Man Lau<sup>2</sup>, Amy Cheung<sup>1</sup>, Ping Keung Chan<sup>2</sup>, Kwong Yuen Chiu<sup>2</sup>, Henry Fu<sup>2</sup>**<sup>1</sup>Department of Orthopaedics and Traumatology, Queen Mary Hospital<sup>2</sup>Department of Orthopaedics and Traumatology, The University of Hong Kong

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## FP5.24

**Comparative accuracy of an open-platform robotic system versus three closed-platform single-implant systems in total knee arthroplasty: a multicentre analysis****Rex Wang Fung Mak<sup>1</sup>, Cham Kit Wong<sup>2</sup>, Gloria Yan-Ting Lam<sup>2</sup>, Tsz Lung Choi<sup>2</sup>, Jonathan Patrick Ng<sup>1</sup>, Chuan He<sup>3</sup>, Wei Chai<sup>4</sup>, Michael Tim-Yun Ong<sup>5</sup>, Patrick Shu-Hang Yung<sup>5</sup>**<sup>1</sup>Department of Orthopaedics and Traumatology, Prince of Wales Hospital<sup>2</sup>Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital<sup>3</sup>Ruijin Hospital, Shanghai Jiao Tong University School of Medicine<sup>4</sup>Fourth Medical Centre of PLA General Hospital<sup>5</sup>Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong

**Introduction:** Open-platform robotic systems offer implant flexibility in total knee arthroplasty (TKA). This study compares the radiological accuracy of an open-platform system, Yuanhua KUNWU (YH), with three closed-platform systems (VELYS, CORI, ROSA).

**Methods:** Retrospective analysis of 119 primary robotic TKAs (58 YH, 23 VELYS, 25 CORI, and 13 ROSA) was performed. Radiographic parameters (hip-knee-ankle angle [HKA], femoral component coronal alignment [FCCA], tibial component coronal alignment [TCCA], posterior tibial slope [PTS]) were independently measured by two observers. Accuracy was defined as planned-achieved deviation. Inter-rater reliability was assessed using intraclass correlation coefficient. Between-group comparisons were made using analysis of variance with Dunnett's post-hoc.

**Results:** Intraclass correlation coefficients were excellent for all parameters (0.903-0.975). YH was equivalent to ROSA across all metrics. YH matched CORI in FCCA and TCCA but significantly differed in HKA (-1.41°, p=0.004) and PTS (+1.98°, p<0.001). YH significantly differed from VELYS in all coronal parameters (HKA: -2.00°, p<0.001; FCCA: -1.93°, p<0.001; TCCA: -0.96°, p=0.022), but matched in PTS. Coronal differences reflect systematic algorithmic offsets. PTS targets varied markedly across platforms. Despite these differences, mean absolute errors remained <2° for all systems, and outlier rates exceeding the 3° threshold were low across all groups.

**Conclusion:** The open-platform robotic system achieved excellent radiological accuracy, validating its use across multiple implant designs without compromising surgical precision. Open-platform robotics enables implant flexibility without compromising accuracy; nonetheless, surgeons must account for platform-specific offsets.

#### FP5.25

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##### **Artificial intelligence as a safe surgical gatekeeper: artificial intelligence versus experienced surgeons in predicting unicompartmental or total knee replacement candidacy**

**Yvonne Sum, Thomas Ka Chun Leung, Lawrence Chun Man Lau, Michelle Hilda Luk, Amy Cheung, Ping Keung Chan, Kwong Yuen Chiu, Henry Fu**

*Department of Orthopaedics and Traumatology, Queen Mary Hospital*

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#### FP5.26

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##### **Effect of early detection and bladder decompression of postoperative urinary retention on bladder function recovery in total knee arthroplasty: a retrospective cohort study in a Hong Kong public hospital**

**Ying Lun Lau<sup>1</sup>, Michael Tim-yun Ong<sup>1</sup>, King Sum Wong<sup>2</sup>, Patrick Shu-hang Yung<sup>1</sup>**

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## Free Paper Session VI: Trauma

### FP6.1

#### Mortality and risk factors of fracture-related infection in 6629 geriatric hip patients

**Victor Hin Ting Yick<sup>1</sup>, Janus Siu Him Wong<sup>2</sup>, Shing Yat Yung<sup>1</sup>**

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### FP6.2

#### Osteosarcopenia characteristics based on computed tomographic images: disease prediction and automatic segmentation

**Chaoran Liu<sup>1</sup>, Mahdi Imani<sup>2</sup>, Wing-hoi Cheung<sup>1</sup>, Gustavo Duque<sup>2</sup>, Ronald Man Yeung Wong<sup>1</sup>**

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### FP6.3

#### Nail versus plate fixation for proximal humeral fracture: a retrospect cohort study

**Hoi Wang Li<sup>1</sup>, Jonathan Patrick Ng<sup>2</sup>**

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**Introduction:** The optimal surgical management for proximal humerus fractures remains debatable. This retrospective cohort study aims to compare the mid- to long-term (>2 years) clinical and radiological outcomes of locking plate fixation and intramedullary nailing for treatment of proximal humerus fractures.

**Methods:** 157 patients who underwent plate fixation (n=73) or intramedullary nailing (n=84) at Prince of Wales Hospital between 2013 and 2025 were analysed. Clinical outcomes included range of motion (ROM) at final follow-up, ROM impairment severity, complication and reoperation rates. Radiological outcome included neck-shaft angle at final follow-up.

**Results:** The mean age of patients was significantly higher in those treated with intramedullary nailing than in those treated with plate fixation (71.9±12.1 vs 63.9±14.3 years). There was no significant difference between the two groups in the forward flexion, abduction ROM, or complication rates (infection, avascular necrosis, malunion). There was no significant difference in neck-shaft angle.

**Conclusion:** Both plate fixation and intramedullary nailing provide comparable mid- to long-term functional and radiological outcomes. Other patient and surgeon factors should be taken into consideration when choosing surgical options.

#### FP6.4

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##### **Avoiding delays in hip fracture surgery: how much should we optimise?**

**Victor Yan Zhe Lu<sup>1</sup>, Pui Yan Wong<sup>2</sup>, Yu Hei Choi<sup>2</sup>, Wing Hong Liu<sup>2</sup>, Chaoran Liu<sup>1</sup>, Wing Hoi Cheung<sup>1</sup>, Sheung Wai Law<sup>1</sup>, Ronald Man Yeung Wong<sup>2</sup>**

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#### FP6.5

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##### **Silver-doped diamond-like carbon coating for orthopaedic implants: enhanced mechanical performance, antibacterial activity, and biocompatibility**

**Ally Hei Yuet Wong, Baoqi Li, Chaoran Liu, Chun Sing Chui, Wing Hoi Cheung, Ronald Man Yeung Wong**

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#### FP6.6

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##### **Effects of vibration therapy and $\beta$ -hydroxy- $\beta$ -methylbutyrate supplementation in community-dwelling older adults with sarcopenia: a 6-month randomised controlled trial**

**Keith Yu Kin Cheng, Furu Cai, Can Cui, Ning Zhang, Ronald Man Yeung Wong, Ling Qin, Sheung Wai Law, Timothy CY Kwok, Wing Hoi Cheung**

Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong

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#### FP6.7

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##### **Divergent classification and 8-year prognostic performance of the Asian Working Group for Sarcopenia 2019 and 2025 sarcopenia definitions**

**Keith Yu Kin Cheng, Zoey Tsz Lok Tsang, Vivian Wing Yin Hung, Furu Cai, Can Cui, Ning Zhang, Ronald Man Yeung Wong, Wing Hoi Cheung**

Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong

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#### FP6.8

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##### **Predictive modelling of clinical examination signs for radiographically occult hip fractures: towards a risk-stratified imaging pathway**

**Yu Hei Choi<sup>1</sup>, Pui Yan Wong<sup>2</sup>, Chaoran Liu<sup>2</sup>, Wing Hoi Cheung<sup>2</sup>, Eric Cheuk Kin Kwan<sup>2</sup>, Wing Hong Liu<sup>1</sup>, Sheung Wai Law<sup>2</sup>, Ronald Man Yeung Wong<sup>2</sup>**

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## FP6.9

**A comparative cohort study of mechanical complications in Synthes proximal femoral nail antirotation and trochanteric femoral nail advanced****Tsz Kin Chun, Karson Tam, Alvin Hok Yin Li***Department of Orthopaedics and Traumatology, Yan Chai Hospital*

**Introduction:** Geriatric intertrochanteric hip fractures are a major clinical challenge in orthopaedics. The Synthes Proximal Femoral Nail Antirotation (PFNA) has been widely used in Hong Kong. In recent years, the manufacturer introduced the Trochanteric Femoral Nail Advanced (TFNA) with the aims to enhance the stability of fixation and reduce complication rates. However, whether implant type influences postoperative mechanical failure remains unclear.

**Methods:** This retrospective, single-centre cohort study was conducted at Yan Chai Hospital in Hong Kong, including 269 patients with intertrochanteric fractures treated with cephalomedullary nailing between March 2023 and June 2025. Baseline demographics and radiological characteristics were compared between groups. Rates of mechanical complications were identified.

**Results:** Baseline characteristics were comparable between the PFNA and TFNA groups. The rate of mechanical failure was 4.4% (6/136) in the PFNA group and 6.0% (8/133) in the TFNA group, with no significant difference between groups ( $p=0.554$ ). On univariate analysis, reduction quality ( $p<0.001$ ) and blade position ( $p=0.031$ ) were significantly associated with mechanical failure, whereas implant type, age, tip-to-apex distance, sex, side, American Society of Anesthesiologists classification, fracture type, and neck-shaft angle were not. In multivariable logistic regression, implant type was not independently associated with failure. Poor reduction quality and poor blade position were independent predictors of mechanical failure.

**Conclusion:** PFNA and TFNA demonstrated comparable mechanical failure rates. Mechanical failure was primarily associated with poor reduction quality and blade position, suggesting that surgical technique and implant placement may be more important than implant type in fixation failure.

## FP6.10

### **Outcomes after arthroscopic lateral ulnar collateral ligament repair and accelerated rehabilitation in elbow fracture dislocations**

**Moya Tsui, Michael Chu Kay Mak, Michelle Li**

*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

**Introduction:** Following elbow fracture-dislocations, persistent posterolateral rotatory instability may result in recurrent dislocation or persistent subluxation. An arthroscopic stabilisation technique with lateral ulnar collateral ligament (LUCL) repair and fixation of sizeable fracture fragments was developed to facilitate early return to motion and fast-track rehabilitation. The safety concerning proximity to the radial nerve in cadaveric specimens and clinical outcomes in patients were analysed.

**Methods:** An arthroscopic technique of LUCL repair was developed, using an outside-in technique with an epidural needle to pass two pairs of sutures which were secured with knotless suture anchor. To assess the safety of this technique, the distance of the portals from the radial nerve was measured in four cadavers. Skin and subcutaneous tissue were removed to assess the repairs. A retrospective review of seven consecutive patients with posterolateral rotatory instability elbow fracture dislocations who received arthroscopic stabilisation was performed. Stability was assessed clinically and radiographically.

**Results:** The closest distance between the direct lateral portal and the radial nerve was 27.0 mm. There was no injury to the radial or posterior interosseous nerve in the four cadavers, and the LUCL was repaired by sutures in all specimens. Among the patients who received surgery, the mean follow-up duration was 12 months. There were no complications, and stability was achieved. The mean elbow extension was  $-5.7^\circ$ , and the mean flexion was  $131.4^\circ$ . In four patients, this motion was achieved by 8 weeks.

**Conclusion:** Arthroscopic stabilisation technique was safe, reproducible, and resulted in good restoration of motion.

## Free Paper Session VII: Paediatric Orthopaedics II

### FP7.1

#### Complete subtalar release in the era of Ponseti clubfoot treatment

**Bobby Ng**

*Private practice*

**Introduction:** Complete subtalar release is rarely required for most clubfeet treated in children. The Ponseti method has been reported to have high success rates worldwide. Open releases in various methods are seldom reported. We report two cases of clubfoot treatment in which the Ponseti treatment fails, requiring open release. Intraoperative findings reveal the risk factors of these patients.

**Methods:** A 14-year-old boy had bilateral clubfeet. He underwent Ponseti treatment but had recurrences at age 2 and 5 years, which were treated with elongation of the Achilles tendon. At age 14 years, he declined further Ponseti treatment. In another case, a girl with unilateral clubfoot was treated by the Ponseti method since birth. She had recurrences at age 1 year and 1 year and 10 months. Both of these severe cases were treated by complete subtalar release.

**Results:** At operation, the Achilles tendon elongation did not correct any deformity. The subtalar joint capsule restricted any correction. The tibialis posterior was fibrotic and probably caused the progressive recurrence of the deformity. Complete subtalar release allowed correction of the deformity.

**Conclusion:** In a small percentage of clubfeet in which the subtalar capsule fibrotic changes are severe and associated with fibrosis of the tibialis posterior, the risk of recurrence is high and Ponseti treatment would fail. Complete subtalar release would allow correction of these rare types of clubfeet.

### FP7.3

#### Coronal plane alignment of knee in paediatric and adolescent patients with anterior cruciate ligament tear, patella dislocation, and meniscus injuries

**Kerwin Kwok Yin Fu<sup>1</sup>, Evelyn Eugenie Kuong<sup>2</sup>, Michael Kai-tsun To<sup>3</sup>, Wang Chow<sup>2</sup>, Kevin Chi-Him Fok<sup>4</sup>, Tak Man Wong<sup>3</sup>, Janus Siu-Him Wong<sup>3</sup>**

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### FP7.4

#### Bone lengthening with intramedullary device is not associated with higher healthcare cost than external fixator: a multicentre cost analysis

**Tik-Chun Wong<sup>1</sup>, Keng Yuk Wong<sup>1</sup>, Justin Yung<sup>1</sup>, Evelyn Eugenie Kuong<sup>2</sup>, Chun Hin Wong<sup>2</sup>, Michael Kai-tsun To<sup>1</sup>, Wang Chow<sup>2</sup>, Janus Siu-him Wong<sup>1</sup>**

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## FP7.5

### **Blood loss in pelvic osteotomies: a multicentre retrospective study**

**Tsoi Wan Wong<sup>1</sup>, Evelyn Eugenie Kuong<sup>2</sup>, Michael Kai-Tsun To<sup>3</sup>, Wang Chow<sup>2</sup>, Janus Siu-him Wong<sup>3</sup>**

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## FP7.6

### **Risk factors for telescoping rod complications and revision in lower extremity osteogenesis imperfecta: a multicentre cohort study**

**Danyi Huang<sup>1</sup>, Janus Siu-him Wong<sup>2</sup>, Zhijia Tan<sup>3</sup>, Evelyn Eugenie Kuong<sup>4</sup>, Joanna Yuet-ling Tung<sup>5</sup>, Wang Chow<sup>4</sup>, Michael Kai-tsun To<sup>2</sup>**

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## FP7.7

### **Pelvic and hip maturation after paediatric hip surgery involving iliac apophysis split: a quantitative study with average follow-up of 18 years**

**Constance Chi Shun Kwok<sup>1</sup>, Evelyn Eugenie Kuong<sup>2</sup>, Prudence Wing-hang Cheung<sup>1</sup>, Michael Kai-tsun To<sup>1</sup>, Wang Chow<sup>2</sup>, Janus Siu-him Wong<sup>1</sup>**

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## FP7.8

### **Premature return to the sports is the most important predictor to graft rupture in paediatric and adolescent anterior cruciate ligament reconstruction**

**Tsoi Ying Lee<sup>1</sup>, Kelvin Chi-him Fok<sup>2</sup>, Tak Man Wong<sup>3</sup>, Evelyn Eunice Kuong<sup>4</sup>, Michael Kai-tsun To<sup>3</sup>, Wang Chow<sup>4</sup>, Janus Siu-him Wong<sup>3</sup>**

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## FP7.9

**Prevalence of acetabular dysplasia in patients with idiopathic clubfoot at skeletal maturity: a multicentre retrospective study****Brian Siu<sup>1</sup>, Evelyn Eugenie Kuong<sup>2</sup>, Michael Kai-tsun To<sup>3</sup>, Wang Chow<sup>2</sup>, Janus Siu-him Wong<sup>3</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, Hong Kong Children's Hospital*<sup>3</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** Idiopathic clubfoot is associated with developmental dysplasia of the hip in early childhood. Prior studies have focused primarily on neonatal screening. Long-term outcomes of the hip remain poorly investigated, particularly regarding residual acetabular dysplasia at skeletal maturity.

**Methods:** We conducted a multicentre retrospective study of 95 patients (190 hips) treated for idiopathic clubfoot between 1980 and 2015 at three tertiary centres in Hong Kong. Patients with syndromal, neuromuscular, or skeletal dysplasia-related conditions were excluded. All patients underwent standard Ponseti casting. Radiographic evaluation at skeletal maturity included acetabular angle, lateral centre-edge angle (LCEA), and Tönnis grade. The primary outcome was acetabular dysplasia, defined as an acetabular angle  $>45^\circ$ . Secondary outcomes included hip instability (LCEA  $<20^\circ$ ) and osteoarthritis (Tönnis grade  $\geq 2$ ). Results were compared with population controls.

**Results:** At a mean follow-up of 23 years, among 190 hips, 18% presented with acetabular dysplasia, 6% presented with hip instability, and 5% presented with osteoarthritis. Compared with population controls, patients with clubfoot demonstrated significantly increased acetabular angles ( $41.4^\circ$  vs  $37^\circ$  for men,  $42.4^\circ$  vs  $38^\circ$  for women) and reduced LCEA ( $30.2^\circ$  vs  $37^\circ$  for men,  $29.6^\circ$  vs  $33^\circ$  for women).

**Conclusion:** Nearly 20% of patients with idiopathic clubfoot demonstrated acetabular dysplasia at skeletal maturity; the rate is higher than that reported in childhood developmental dysplasia of the hip studies. These findings suggest that early screening alone may be insufficient, and longitudinal follow-up until adulthood may help identify patients who could benefit from hip preservation strategies and delay progression to osteoarthritis.

## FP7.10

**Proximal femoral growth disturbance and acetabular remodelling after open reduction via medial versus anterior approach in developmental dysplasia of the hips: a long-term follow-up multicentre quantitative analysis****Chris Tin Jik Zhou<sup>1</sup>, Alfred Lok-hang Lee<sup>2</sup>, Evelyn Eugenie Kuong<sup>3</sup>, Michael Kai-tsun To<sup>4</sup>, Wang Chow<sup>3</sup>, Janus Siu-him Wong<sup>4</sup>**<sup>1</sup>*Faculty of Medicine, The Chinese University of Hong Kong*<sup>2</sup>*Department of Microbiology, Prince of Wales Hospital*<sup>3</sup>*Department of Orthopaedics and Traumatology, Hong Kong Children's Hospital*<sup>4</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*

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## FP7.11

### **Risk factors for coxa vara in osteogenesis imperfecta patients after internal fixation for femoral fractures**

**Kyle Hui, Cheuk Lam Tse, Tian Kangkang, Tan Zhijia, Janus Siu Him Wong, Michael Kai-Tsun To**  
*Department of Orthopaedics and Traumatology, The University of Hong Kong–Shenzhen Hospital*

**Introduction:** Postoperative coxa vara is an important complication after internal fixation for femoral fractures in patients with osteogenesis imperfecta (OI), but its risk factors remain incompletely defined. This study aimed to identify predictors of postoperative coxa vara in patients with OI undergoing femoral fixation.

**Methods:** We retrospectively reviewed 183 surgical cases from 133 patients with OI who underwent femoral fixation for femoral fractures at a tertiary referral centre between January 2012 and May 2026. Coxa vara was defined as a femoral neck-shaft angle  $<110^\circ$  on postoperative radiographs. Age at operation, genetic mutation, osteotomy location, lateral placement of nail, and duration of hip spica casting were analysed for association with coxa vara via mixed-effects logistic regression. Kaplan-Meier analysis was utilised to assess coxa vara-free survival over time, and exploratory analyses assessed mutation-specific associations with coxa vara development.

**Results:** Postoperative coxa vara occurred in 18% of cases. Lateral nail placement was the strongest predictor ( $p<0.001$ ). Subtrochanteric osteotomy ( $p=0.021$ ) and autosomal recessive OI (vs dominant,  $p=0.034$ ) also increased risk, with faster progression in the recessive group ( $p<0.001$ ). Age at surgery and hip spica duration were not significant. FKBP10 and WNT1 mutations were identified as potential risk factors.

**Conclusion:** Postoperative coxa vara in OI is influenced by both surgical mechanics and genetic subtype. Central implant positioning, careful selection of osteotomy level, and closer follow-up of patients with autosomal recessive mutations may help reduce risk and improve long-term femoral alignment.

## FP7.12

### **Cross-cultural adaptation and validation of the traditional Chinese version of the Oxford Hip Score in orthopaedic patients with hip conditions**

**Prudence Wing Hang Cheung<sup>1</sup>, Ricky Man Fung Luk<sup>1</sup>, Marcus Kin Long Lai<sup>2</sup>, Amy Cheung<sup>2</sup>, Michael Kai-Tsun To<sup>1</sup>, Wang Chow<sup>3</sup>, Evelyn Eugenie Kuong<sup>3</sup>, Janus Siu Him Wong<sup>1</sup>**

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## FP7.13

**Combined botulinum toxin type A and casting in the management of equinus in children with cerebral palsy: an outcome correlation study****Fung Wan Ho, Ching Man Yeung, Arthur King Hay Ma***Department of Orthopaedics and Traumatology, Tuen Mun Hospital*

**Introduction:** Dynamic equinus is a prevalent gait abnormality in spastic cerebral palsy (CP). Combining botulinum toxin type A (BoNT-A) with below-knee casting is a widely utilised treatment. Identifying how clinical variables correlate with patient-specific outcomes remains critical. This study evaluates the clinical efficacy of this combination therapy and analyses how patient-specific variables correlate with primary and secondary outcomes.

**Methods:** This retrospective study reviewed 55 paediatric patients (aged 4 to 12 years) with spastic CP (Gross Motor Function Classification System levels I to III) treated at a local centre between 2020 and 2024. All patients received gastrosoleus BoNT-A injections, with or without adjuvant below-knee casting. Patients with dystonic CP or incomplete datasets were excluded. Primary outcomes – including spasticity, passive ankle range of motion, and complications – were evaluated at baseline and 1, 3, and 6 months post-injection. Secondary outcomes included changes in the observational gait analysis score, ankle-foot orthosis compliance, and braceability.

**Results:** Significant improvements were observed in both spasticity and passive ankle dorsiflexion range of motion post-injection. Although these therapeutic benefits persisted up to 6 months, a clinical wear-off effect was noted by the final follow-up. A significant improvement was also demonstrated in observational gait analysis scores. However, no significant changes were observed in ankle-foot orthosis compliance or braceability.

**Conclusion:** Combined BoNT-A injection and below-knee casting significantly improve spasticity, passive ankle dorsiflexion, and observational gait in paediatric patients with dynamic equinus, although treatment efficacy diminishes by 6 months. Orthotic compliance and braceability were not significantly altered.

## FP7.14

**Midterm outcomes of radial osteotomy in patients with multiple hereditary exostosis with average follow-up of 7 years****Yau Mei Cheung<sup>1</sup>, Evelyn Eugenie Kuong<sup>2</sup>, Marvin Man-ting Chung<sup>1</sup>, Michael Kai-tsun To<sup>1</sup>, Wang Chow<sup>2</sup>, Janus Siu-him Wong<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Hong Kong Children's Hospital*

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## FP7.16

**Atypical femur fracture in osteogenesis imperfecta: incidence and healing outcome in a South China Cohort****Yunfei Lin<sup>1</sup>, Janus Siu-him Wong<sup>1</sup>, Zhijia Tan<sup>2</sup>, Evelyn Eugenie Kuong<sup>3</sup>, Joanna Yuet-ling Tung<sup>4</sup>, Wang Chow<sup>3</sup>, Michael Kai-tsun To<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong-Shenzhen Hospital*<sup>3</sup>*Department of Orthopaedics and Traumatology, Hong Kong Children's Hospital*<sup>4</sup>*Department of Paediatrics and Adolescent Medicine, Hong Kong Children's Hospital*

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**FP7.17**

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**Quantification of femoral remodelling after proximal femoral varus osteotomy in skeletally immature patients: a multicentre study**

**Jaime Lam<sup>1</sup>, Maria Pamela Ann Jamias Cayanan<sup>1</sup>, Jocelle Joanne Dema-Ala Brown<sup>1</sup>, Alfred Lok-hang Lee<sup>2</sup>, Evelyn Eugenie Kuong<sup>3</sup>, Michael Kai-tsun To<sup>1</sup>, Wang Chow<sup>3</sup>, Janus Siu-him Wong<sup>1</sup>**

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**FP7.18**

*New Zealand Orthopedic Association Ambassador Paper*

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**Delayed posterior interosseous nerve palsy in paediatric radial head and neck fractures**

**Vahe Sahakian, David McCombe, Kemble Wang**

**Background:** Nerve palsy following paediatric elbow trauma is not uncommon. However, delayed nerve palsy, with onset >24 hours following initial injury, is highly unusual. We report a case series of four children with delayed posterior interosseous nerve (PIN) palsy following radial head or neck fractures.

**Methods:** This is a retrospective case series from a paediatric tertiary referral centre. Four elbows in four children aged 6 to 17 years with delayed PIN palsy following radial head or neck fractures were identified over a 6-year period. Retrospective chart and imaging review were conducted. All patients were examined by a senior orthopaedic resident, fellow, or orthopaedic attending.

**Results:** Three patients sustained radial neck fractures, and one sustained a comminuted radial head fracture. All had intact PIN function at presentation, with PIN palsy developing between 2 and 9 days following injury, prior to undergoing any planned surgical intervention. Three of the four patients underwent open surgical treatment for their fractures, with concurrent PIN exploration and neurolysis. The PIN was in continuity in all cases, without disruption to the epineurium. Macroscopic features of compression noted at the arcade of Fröhse and the leading edge of the extensor carpi radialis brevis. At the latest follow-up, all patients had full recovery of PIN function.

**Conclusion:** Delayed PIN palsy following paediatric radial head/neck fracture is uncommon. Careful re-examination and documentation of neurology prior to fracture surgery is crucial to avoid misattribution of neurological deficits observed postoperatively to iatrogenic causes. The aetiology of delayed PIN palsy may be due to compression phenomenon at the leading edge of the extensor carpi radialis brevis and the arcade of Fröhse secondary to swelling within the extensor compartment, rather than direct traction or bony impingement of the nerve. The role of nerve exploration versus expectant management remains uncertain.

## Free Paper Session VIII: Spine

### FP8.1

#### The time-dependent prognostic value of systemic biomarkers in spinal metastasis: a shift from host frailty to tumour biology

**Tsun Kit Lau<sup>1</sup>, Wai Wang Chow<sup>2</sup>, Yu Chung Wong<sup>1</sup>, Kin On Kwok<sup>1</sup>, Sheung Wai Law<sup>1</sup>**

<sup>1</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

<sup>2</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Accurate survival prognostication is essential in managing spinal metastases. This study investigated the utility of preoperative systemic inflammatory and nutritional biomarkers – specifically the neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), and serum albumin – compared to traditional scoring systems (Tokuhashi) in predicting survival and functional mobility.

**Methods:** We retrospectively reviewed 100 patients who underwent surgical decompression and stabilisation for spinal metastasis. Optimal cohort-specific NLR and PLR thresholds were derived using receiver operating characteristic analysis. Multivariable Cox proportional hazards models evaluated early (12-month truncated) and long-term (5-year) overall survival. Secondary outcomes assessed the maintenance of independent ambulation.

**Results:** Receiver operating characteristic analysis established optimal thresholds of NLR >4.0 and PLR >225. Cox regression demonstrated a significant temporal shift in mortality drivers. In the 12-month model, acute systemic frailty drove early mortality, with NLR >4.0 ( $p=0.017$ ), PLR >225 ( $p=0.013$ ), and albumin <35 g/L ( $p=0.022$ ) acting as independent predictors. In the 5-year model, these systemic biomarkers lost significance, and the Tokuhashi score emerged as the sole independent predictor of long-term mortality ( $p=0.038$ ). Additionally, normal preoperative albumin ( $p=0.002$ ) and the absence of baseline motor deficits ( $p=0.001$ ) significantly predicted independent ambulation at 3 months.

**Conclusion:** The predictors of survival following spinal metastasis surgery are time-dependent. Early mortality and acute functional recovery are dictated by host systemic frailty and nutritional status, whereas long-term survival depends strictly on primary tumour biology. Preoperative nutritional optimisation represents a critical, modifiable risk factor in this vulnerable cohort.

## FP8.2

### To fuse or not to fuse? Anterior spinal fusion versus vertebral body tethering for treatment of Lenke 5 idiopathic scoliosis

**Augustine Kai Chun Chan<sup>1</sup>, Morgan Jones<sup>2</sup>, Michael Selby<sup>3</sup>, Per Trobisch<sup>4</sup>, David Marks<sup>2</sup>, Aaron Stevenson<sup>5</sup>, Chuck Lam<sup>2</sup>, Jwalant Mehta<sup>2</sup>, Kenny Kwan<sup>1</sup>**

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<sup>5</sup>*Division of Spinal Surgery, Royal Adelaide Hospital*

**Introduction:** Our study aims to compare clinical outcomes of anterior spinal fusion (ASF) with vertebral body tethering (VBT) and to determine if VBT could achieve similar surgical outcomes with a fusionless approach.

**Methods:** This was a multicentre retrospective study involving all idiopathic scoliosis patients who had Lenke 5 curves and were treated with either ASF or VBT at four tertiary spine centres. All patients were followed up for >2 years. Primary outcomes were changes in curve magnitude, T1-T12 kyphosis, and L1-S1 lordosis from preoperation to immediate postoperation to final follow-up. Secondary outcomes were instrumented segments, implant failure, postoperative complications and revision, and patient-reported outcome measures.

**Results:** 138 patients with Lenke 5 curves underwent either ASF (n=88) or VBT (n=50). The mean follow-up duration was 14.5±12.5 years. The mean preoperative curve magnitude was similar between groups (52.8° vs 50.6°). Immediate postoperative correction was higher with ASF (83.4% vs 72.7%). At final follow-up, correction rates were similar (61.3% vs 55.3%, p=0.166). Sagittal vertical axis was more negative in VBT at final follow-up (p=0.017), indicating more physiological alignment. 62.0% of VBT patients had tether breakage, whereas three ASF patients had rod breakages. One patient in both groups required revision posterior spinal fusion. Pulmonary complications occurred in 10.0% of VBT patients. Oswestry Disability Index, Scoliosis Research Society-22r and EuroQol 5-Dimension 5-Level scores were retrieved for 17.0% of ASF patients and were 16.2±16.4, 3.7±0.3, and 0.6±0.2, respectively.

**Conclusion:** Immediate curve correction was significantly higher with ASF. Correction rates at final follow-up were similar between groups. VBT carries higher risk of implant failure and pulmonary complications. VBT instrumentation generally required a higher upper and lower instrumented vertebra (longer instrumented segment).

## FP8.3

### Clinical correlation of intraoperative neuromonitoring in 30 patients undergoing unilateral biportal endoscopic unilateral laminotomy for bilateral decompression: a retrospective cohort study

**Wai Him Lam<sup>1</sup>, Cheuk Yin Tam<sup>1</sup>, Suk Ying Mak<sup>1</sup>, Jimmy Kit Yan Lau<sup>1</sup>, Ho Lam Chai<sup>2</sup>, Yuk Cheun Siu<sup>2</sup>, Cho Yau Lo<sup>2</sup>, Man Leung Siu<sup>1</sup>, Man Ma Chun<sup>2</sup>**

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**Introduction:** Unilateral biportal endoscopic unilateral laminotomy for bilateral decompression (UBE-ULBD) is a minimally invasive treatment for lumbar spinal stenosis. Multimodal intraoperative neuromonitoring ensures safety, but whether post-decompression signal gains correlate with clinical outcomes remains unclear.

**Methods:** We retrospectively reviewed 30 patients who underwent primary UBE-ULBD at Alice Ho Miu Ling Nethersole Hospital between January 2024 and December 2025. Percentage improvements of bilateral somatosensory evoked potential (SSEP) and motor evoked potential (MEP) amplitudes (baseline vs post-decompression) were correlated with 3-month postoperative visual analogue scale (VAS) and Oswestry Disability Index (ODI) score improvements using Spearman  $\rho$  and simple linear regression.

**Results:** All 30 patients successfully underwent the UBE-ULBD procedure. Clinical scores improved significantly: VAS decreased from a preoperative mean of  $8.4 \pm 1.1$  to  $2.1 \pm 0.9$  ( $p=0.008$ ), and ODI improved from  $64.2 \pm 12.5$  to  $16.5 \pm 10.2$  ( $p=0.012$ ). Mean intraoperative SSEP and MEP amplitudes demonstrated an approximate 48% to 55% improvement from baseline across both the right and left sides, with statistical significance varying across modalities ( $p=0.018-0.031$ ). However, correlation between bilateral MEP and SSEP improvements and postoperative improvements in ODI and VAS was poor.

**Conclusion:** UBE-ULBD yields significant postoperative clinical improvement for patients with spinal claudication. Intraoperative neuromonitoring demonstrated significant amplitude improvement following decompression. However, the magnitude of intraoperative improvements in SSEP and MEP did not correlate with postoperative clinical improvement, suggesting these neurophysiological changes do not have a direct predictive role for the extent of clinical recovery.

## FP8.4

### Retrospective review of enhanced recovery after surgery protocols in elective spine surgery outcomes

**Leo Chung-hei Wong<sup>1</sup>, Timmy Ka-chun Chu<sup>2</sup>, Pui-man Chan<sup>1</sup>, Ophelia Yue-ting Wan<sup>1</sup>**

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**Introduction:** Enhanced recovery after surgery (ERAS) pathways aim to optimise perioperative care and shorten hospital stay without compromising safety in elective surgery. International studies have shown that ERAS protocols in spine surgery can reduce length of stay, postoperative pain, and opioid use without increasing complications or readmissions. We implemented an ERAS protocol for elective spine surgery at Princess Margaret Hospital in 2021 and compared outcomes with a historical pre-ERAS cohort.

**Methods:** This retrospective cohort study included adult patients who underwent elective spine surgery between January 2018 and December 2025 without ERAS (January 2018 to February 2021) or with ERAS (February 2021 to December 2025). The primary outcome was total hospital length of stay (LOS), compared overall and by subgroups including spinal region, number of levels involved, and nature of surgery using Mann-Whitney *U* tests.

**Results:** A total of 331 patients were included (113 pre-ERAS, 218 ERAS). Overall LOS was significantly shorter in the ERAS group than in the pre-ERAS group (mean: 8.9 vs 13.7 days; median: 6 vs 12 days,  $p < 0.001$ ). In lumbar-only cases, ERAS similarly reduced LOS (mean: 8.2 vs 12.4 days,  $p < 0.001$ ), with smaller differences in cervical and multi-region surgery. ERAS implementation was also associated with reduced LOS without an observable increase in postoperative complications, including pneumonia, urinary tract infection, thromboembolic events, 28-day mortality, and unplanned readmission.

**Conclusion:** ERAS in elective spine surgery was associated with clinically significant reduction in LOS without an observable increase in complications, supporting wider adoption and further prospective evaluation in Hong Kong.

## FP8.5

**Automated multi-frequency vibrometry for objective clinical assessment of dorsal column dysfunction in individuals with degenerative cervical myelopathy****Karlen Ka-pui Law<sup>1</sup>, Tsui Chi Mak<sup>1</sup>, Prudence Wing Hang Cheung<sup>2</sup>, Graham Ka Hon Shea<sup>2</sup>, Chris Yuk Kwan Tang<sup>3</sup>, Chor Yin Lam<sup>2</sup>, Kenny Yat Hong Kwan<sup>2</sup>, Jason Pui Yin Cheung<sup>2</sup>, Paul Aarne Koljonen<sup>4</sup>**<sup>1</sup>*Department of Occupational Therapy, The Duchess of Kent Children's Hospital at Sandy Bay*<sup>2</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*<sup>3</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*<sup>4</sup>*Department of Orthopaedics and Traumatology, The Duchess of Kent Children's Hospital at Sandy Bay*

**Introduction:** Degenerative cervical myelopathy (DCM) causes progressive disability, yet early detection remains difficult. Impaired vibration perception may reflect early dorsal column dysfunction, but conventional testing is subjective and poorly standardised. This study aimed to validate automated multi-frequency vibrometry with the VibroSense Meter II for assessing objective vibrotactile perception threshold (VPT) in DCM.

**Methods:** In this prospective study, 50 Chinese adults with magnetic resonance imaging-confirmed DCM and 50 age-matched controls underwent VPT testing at 125/256/512 Hz in the upper limb and 8/32/125 Hz in the lower limb. Clinical severity was assessed using the Hong Kong Myelopathy Criteria (HKMC) and modified Japanese Orthopaedic Association score (mJOA). Cross-sectional area (CSA) <70 mm<sup>2</sup> was defined as DCM-at-risk.

**Results:** DCM patients had significantly higher VPTs than controls across all frequencies ( $p < 0.001$ ). VPTs correlated strongly with CSA ( $r = -0.532$  to  $-0.644$ ,  $p < 0.001$ ) and HKMC ( $r = -0.579$  to  $-0.800$ ,  $p < 0.001$ ), exceeding correlations with mJOA ( $r = -0.382$  to  $-0.576$ ). Multivariable regression explained 54.5% of CSA variance and 83.2% of HKMC variance (both  $p < 0.001$ ). Diagnostic performance was excellent, with the best discrimination at 512 Hz in the upper limb (area under the curve=0.98, cutoff=127.3 dB, sensitivity=0.98, specificity=0.94) and 125 Hz in the lower limb (area under the curve=0.93, cutoff=129.3 dB, sensitivity=0.94, specificity=0.86). The normal values of the Chinese participants in this study were consistent with the published Swedish norms.

**Conclusion:** Quantitative VPT is a sensitive indicator of dorsal column dysfunction in DCM, detecting deficits even in subclinical compression. Automated multi-frequency vibrometry may support earlier diagnosis, risk stratification, and monitoring, whereas multinational validation is needed to define population-specific cutoffs.

## FP8.6

### **Teriparatide administration 1-month preoperatively does not increase bone mineral density and insertional screw torque in lumbar spine fusion: a randomised controlled trial**

**Augustine Kai Chun Chan, Prudence Wing Hang Cheung, Jason Pui Yin Cheung**

*Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** High-quality evidence is limited regarding whether teriparatide administration 1 month before spine surgery improves bone mineral density (BMD) and how teriparatide relates to insertional screw torque.

**Methods:** This open-label, randomised clinical trial was conducted at a tertiary referral centre in Hong Kong. Patients aged >40 years who underwent lumbar spine fusion were assigned to either the teriparatide (receiving injection 1 month preoperatively) or control group using block randomisation in a 1:1 ratio. All received standardised radiographic measurement, computed tomography, and dual-energy X-ray absorptiometry preoperatively. The primary aim was to investigate whether teriparatide administration 1 month preoperatively improves BMD and how teriparatide relates to insertional screw torque. Secondary outcomes included associations between BMD and screw torque and between teriparatide administration and screw loosening and fusion.

**Results:** In total, 59 patients were randomised to either the teriparatide (n=29) or control group (n=30). The two groups were comparable in baseline BMD. No significant improvement in BMD was observed after teriparatide injection. The mean-adjusted insertional torque of screws was higher in the control group (n=181) than teriparatide group (n=182). L1-5 torque was correlated with vertebral level and lumbar BMD, T-score, and Z-score. Use of teriparatide was not associated with less screw loosening ( $p=0.898$ ) or higher fusion rates at 6 months ( $p=0.941$ ).

**Conclusion:** Administration of teriparatide 1 month before spine surgery did not improve BMD or increase screw insertional torque in lumbar fusion. A longer preoperative course of teriparatide may be needed for meaningful BMD improvements.

## FP8.7

**Early clinical and radiological outcomes of biportal endoscopic transforaminal lumbar interbody fusion using biplanar expandable cages: 25 case series****Karson Tam***Department of Orthopaedics and Traumatology, Yan Chai Hospital*

**Introduction:** Biportal endoscopic transforaminal lumbar interbody fusion (BE-TLIF) offers superior visualisation, but inserting traditional static cages through a narrow corridor risks iatrogenic nerve and endplate injury. Biplanar expandable cages, expanding in situ, mitigate these risks while maximising lordosis and reducing subsidence. We evaluated early outcomes and complication rates in a single surgeon's initial 25 consecutive patients treated with BE-TLIF with biplanar expandable cages.

**Methods:** A retrospective review of 25 consecutive patients treated with BE-TLIF for lumbar degenerative disease was conducted. Clinical outcomes (visual analogue scale for back/leg pain) and radiological parameters (Disc Height Index, segmental lordosis, cage subsidence) were assessed pre- and post-operatively. Perioperative data and surgical complications were meticulously recorded.

**Results:** The mean follow-up duration was  $14 \pm 4.3$  months. The mean operative time was  $215 \pm 70$  minutes, and the estimated blood loss was  $100 \pm 90$  mL. VAS back pain scores improved from  $5 \pm 1.2$  to  $2 \pm 1.3$  ( $p < 0.001$ ); VAS leg pain scores improved from  $5 \pm 1.4$  to  $1 \pm 1.1$  ( $p < 0.001$ ). The mean Disc Height Index significantly increased from  $23.3 \pm 6.5$  to  $29.7 \pm 4.4$  ( $p < 0.001$ ). Early complications included two incidental dural tears. Crucially, there were no epidural haematomas, implant-related complications, cage subsidence, cage migration, or revision surgeries.

**Conclusion:** The synergistic use of biplanar expandable cages in BE-TLIF is safe and highly effective. The collapsed profile accommodates the narrow corridor, mitigating insertion trauma. Although dural tears remain a learning curve risk, the magnified view and in-situ expansion facilitate precise endplate preparation and robust disc height restoration.

## FP8.8

### **Minimally invasive versus open transforaminal lumbar interbody fusion: a 1-year prospective study**

**Andrew Lok Yin Wong, Koon Yin Ng, Ho Ming Li, Kam Lung Tung, Siu Hei Michael Tse, Tik Koon Kwok, Kam Kwong Wong**

*Department of Orthopaedics and Traumatology, Kwong Wah Hospital*

**Introduction:** Open transforaminal lumbar interbody fusion (TLIF) is a widely performed operation for lumbar spondylolisthesis, with drawbacks being extensive soft tissue dissection required for screw insertion and facet resection. Hence, the minimally invasive surgery (MIS) technique was developed and gaining popularity in recent years despite steeper learning curve. This randomised controlled trial was conducted to compare intra- and post-operative parameters between these techniques in a 1-year period.

**Methods:** A total of 20 patients indicated for single-level TLIF were recruited between July 2022 and February 2024 and randomised into either open or MIS TLIF group. Surgery duration, blood loss, fluoroscopy time, total drain output, day of drain removal, hospitalisation duration, Oswestry Disability Index (ODI), visual analogue score (VAS) before surgery and at 3 months, 6 months, and 1 year postoperatively were compared.

**Results:** Significant differences were noted between groups in terms of length of surgery, fluoroscopy time, drain removal day, and total drain output. In addition, MIS TLIF had more favourable outcomes in terms of intraoperative blood loss and hospitalisation duration. MIS TLIF also had better ODI and VAS scores compared to open TLIF at 3 months and 6 months, with significant difference noted at 1 year. There were also significant differences within each group in improvements in ODI and VAS scores from preoperatively to 3 months, 6 months, and 1 year postoperatively; MIS TLIF had significantly greater improvement in both scores between time points.

**Conclusion:** MIS TLIF can be more advantageous than open TLIF; however, studies with larger sample size and longer follow-up may be required for definitive conclusion.

## FP8.9

**Case series: carbon fibre-reinforced peek pedicle screws in separation surgery for spinal metastases****Kyle Hui, Kenny Yat Hong Kwan***Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** Titanium pedicle screws produce significant artefacts on postoperative magnetic resonance imaging (MRI) and computed tomography (CT), limiting spinal canal visualisation after separation surgery and compromising radiotherapy planning. Carbon fibre-reinforced polyetheretherketone (CFR-PEEK) implants are radiolucent and offer a comparable-cost alternative. We present the first Hong Kong case series evaluating CFR-PEEK pedicle screws in separation surgery for spinal metastases, focusing on imaging quality and perioperative outcomes.

**Methods:** We retrospectively reviewed four patients (median age, 66 years) with thoracic or lumbar metastases from primary lung adenocarcinoma who underwent posterior separation surgery with CFR-PEEK pedicle screw instrumentation between March 2025 and June 2026. All patients were planned for postoperative stereotactic body radiotherapy. Postoperative magnetic resonance imaging (MRI) and computed tomographic (CT) myelograms, when available, were qualitatively assessed for peri-screw artefact and spinal canal visualisation.

**Results:** Postoperative MRI demonstrated clear spinal cord and dura visualisation. There was adequate tumour clearance circumferentially at all instrumented levels with no artefact interference. MRI alone provided sufficient diagnostic detail in all cases, suggesting that invasive CT myelography may be avoidable. Neurological function was preserved or improved in all patients. One patient required unplanned revision for infective loosening of an L1 screw at 3.5 months. At a mean follow-up of 7.1 months (range, 0.7-12.4), three patients were alive, and one died from systemic disease progression.

**Conclusion:** CFR-PEEK pedicle screws minimise imaging artefacts on MRI, facilitating radiotherapy planning after separation surgery. Their use may obviate the need for invasive CT myelography while maintaining clinical outcomes at a cost comparable to titanium fenestrated systems.

## FP8.10

**Quantitative anatomy of subaxial cervical lateral mass: an analysis of safe screw lengths and axial convergence angles for medially directed lateral mass screws****Phoebe Ching Kiu Law, Cho Yau Lo, Yuk Chuen Siu, Ho Lam Hollins Chai, Chun Man Ma***Department of Orthopaedics and Traumatology, North District Hospital*

**Introduction:** Cervical lateral mass screws remain a mainstay for instrumentation in posterior spinal fusion. Traditional trajectories emphasise a laterally divergent screw but can be limited by spinous processes, rod alignment, and laminectomy access. This study proposes a computed tomography-based method for medially directed screws aimed towards, but not through, the pedicle to improve screw length, alignment, and safety.

**Methods:** Preoperative three-dimensional cervical computed tomographic scans from Chinese patients aged >50 years were reviewed. Patients were excluded if anatomy was distorted by congenital cervical malformations, acute fractures or trauma, tumour, infection, or prior surgery and instrumentation. Entry point was determined following the Abumi technique. Axial convergence angle and maximum screw length were measured from C3 to C7 bilaterally.

**Results:** Similar measurements were yielded bilaterally and demonstrated no significant sex-based differences in either mean screw length or axial convergence angle. Our suggestion for a practical screw length would be 12 mm, with consideration of 11 mm in smaller corridors and 13 mm in larger ones. Regarding axial convergence angle, a reasonable target is ~38° to 41°, with 40° as a practical starting point.

**Conclusion:** In our Chinese adult cohort, this new lateral mass screw trajectory is anatomically feasible at C3-7 levels. However, this study is only hypothesis-generating and has multiple limitations. Future work should move beyond computed tomographic morphometry alone and focus on validation, reproducibility, and clinical applicability.

## FP8.11

### **Factors affecting slip reduction and segmental lordosis gain after oblique lateral lumbar interbody fusion for degenerative spondylolisthesis**

**Augustine Kai Chun Chan, Garvin Chi Chun Cheung, Jerry Chi Yan Ip, James Long Kin Lin, Jason Pui Yin Cheung, Prudence Wing Hang Cheung**

*Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** This study primarily aims to investigate factors associated with segmental lordosis gain and slip reduction after oblique lateral lumbar interbody fusion (OLIF) in degenerative spondylolisthesis.

**Methods:** Our study involved consecutive patients who underwent OLIF for degenerative spondylolisthesis. Patients were evaluated preoperatively, immediately postoperatively, and at 6 weeks, 3 months, 6 months, and 12 months postoperatively. Primary outcomes were relationships between factors with postoperative changes in segmental lordosis (SL) and slip reduction. Preoperative factors assessed were age, sex, and osteoporosis. Radiographic parameters included slip distance, disc height (DH), and global and segmental lordosis. Intraoperative factors were interbody cage sizing, cage lordosis, cage position, and immediate DH gain. Secondary aims included in-depth prediction analysis for optimal cut-offs for segmental lordosis gain and slip reduction. Receiver operating characteristic analysis with area under the curve (AUC) was used to determine cut-offs for SL gain and slip reduction.

**Results:** Fifty-six patients with 91 operated levels were included. Placing the interbody cage in the anterior/centre of the intervertebral space was associated with greater postoperative lordosis gain ( $r=0.261$ ,  $p=0.012$ ). Oversizing the interbody cage by 28% predicted  $\geq 4^\circ$  increase in immediate postoperative SL (AUC=0.657). An initial DH increase of  $\geq 4.5$  mm predicted lordosis gain of  $\geq 3^\circ$  (AUC=0.693). Placement of cages with lordosis  $\geq 7^\circ$  predicted suboptimal slip reduction  $\leq 3$  mm (AUC=0.660).

**Conclusion:** Oversizing the interbody cage in single-position OLIF by at least 30% will create a lordosis of  $\geq 4^\circ$ . SL of  $\geq 3^\circ$  could be effectively created with DH restoration of  $\geq 4.5$  mm. Interbody cage placement in the anterior/middle of the intervertebral space maximises lordosis gain, whereas placing the cage in the middle aids in slip reduction.

## FP8.12

**Outcomes of scoliosis treated with magnetically controlled growing rods in patients with implant removal at skeletal maturity****Kyle Hui, Kai Chun Augustine Chan, Kenny Yat Hong Kwan***Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** Magnetically controlled growing rods (MCGRs) are widely used to treat early-onset scoliosis (EOS). However, the optimal management at skeletal maturity – isolated implant removal versus posterior spinal fusion (PSF) – remains debatable. This study evaluated curve progression and factors associated with failure following MCGR removal at skeletal maturity in EOS patients.

**Methods:** This retrospective, single-centre study included eight patients with EOS who underwent MCGR removal at skeletal maturity. Patients were categorised into success (implant-free at final follow-up) and failure (requiring subsequent PSF) groups. Cobb angle trajectories, cumulative distraction lengths, rod exchange rates, complications, and skeletal maturity parameters were compared.

**Results:** At a mean follow-up of 71.6 months since removal, four patients required delayed PSF. In the failure group, the mean Cobb angle progressed from 32.7° immediately post-removal to 47.4° at a mean of 18.0 months post-removal. Following definitive fusion, these patients achieved a mean major Cobb angle of 24.3° at final follow-up. In the success group, the mean Cobb angle measured 32.3° immediately post-removal and progressed to 39.2° at last follow-up after a mean of 90.1 months. Failure cases were associated with greater cumulative rod distraction lengths, more frequent rod exchanges, and higher complication burden, with screw loosening or rod fractures observed exclusively in the failure group. Trends towards lower Risser scores at implantation and non-idiopathic aetiologies were also noted in the failure cohort.

**Conclusion:** MCGR removal at skeletal maturity carried a 50% failure rate. Success was associated with patients having higher skeletal maturity at implantation and uncomplicated distraction courses.

## FP8.13

**Integrated spatial omics uncovers molecular drivers of muscle fibre transition: a new player of curve progression in adolescent idiopathic scoliosis****Gen Tang<sup>1</sup>, Dongyue Li<sup>1</sup>, Guangpu Yang<sup>2</sup>, Adam Yiu-Chung Lau<sup>2</sup>, Huanxiong Chen<sup>3</sup>, Tsz Ping Lam<sup>2</sup>, Zhezhang Zhu<sup>4</sup>, Yong Qiu<sup>4</sup>, Jack Chun-yiu Cheng<sup>2</sup>, Wayne Yuk-wai Li<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>3</sup>*Department of Spine Surgery, The First Affiliated Hospital of Hainan Medical University*<sup>4</sup>*Department of Orthopaedic Surgery, Nanjing Drum Tower Hospital*

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## FP8.14

**Coronal balance on intraoperative prone radiographs does not always translate to postoperative standing radiographs in Lenke 1 adolescent idiopathic scoliosis****Natalie Chi Wai Leung, Victoria Yuk Ting Hui, Prudence Wing Hang Cheung, Jason Pui Yin Cheung***Department of Orthopaedics and Traumatology, Queen Mary Hospital*

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## **Snapped epidural catheter: remove or retain? Proposed collaborative algorithm for decision making**

**Muhammad Ihsan Bin Mohd Tusirin**

**Introduction:** A snapped epidural catheter is a rare but challenging complication (incidence ~0.002%), sparking debate on whether to surgically remove or conservatively retain the catheter fragment. Retained catheters pose long-term risks of infection, migration, and neurological complications, causing significant anxiety for the surgical and anaesthesia teams.

**Case report:** An 83-year-old man with multiple comorbidities presented with a closed left intertrochanteric femur fracture. During difficult, multiple attempts at combined spinal-epidural anaesthesia, the catheter snapped, leaving a 6-cm fragment deep in the tissue. Although the patient remained asymptomatic, immediate exploration was performed under general anaesthesia due to the fragment's length, the patient's diabetic status, and the infection risk from multiple insertion attempts. Intraoperative fluoroscopy failed to visualise the radiopaque catheter. Following a partial L4 laminectomy, the intact 6 cm fragment was successfully retrieved from the spinal canal. Severe degenerative spine changes (bridging spondylophytes and a thickened ligamentum flavum) likely caused the entrapment. The patient underwent the scheduled orthopaedic surgery immediately afterward and recovered with no neurological deficits.

**Conclusion:** Managing a snapped epidural catheter requires carefully balancing the risks of surgical extraction against potential long-term complications. Because guidelines vary, we propose a collaborative decision-making algorithm and checklist based on critical clinical questions to help anaesthetists and surgeons systematically determine the safest approach.

## Free Paper Session IX: Sports Medicine

### FP9.1

#### **Autologous minced cartilage implantation for degenerative cartilage lesions of the knee: a magnetic resonance imaging follow-up study**

**Eugene Pak Lin Ng<sup>1</sup>, Catherine Wing Yan Tam<sup>2</sup>, Dicken Wong<sup>2</sup>, Keith Hay Man Wan<sup>1</sup>, Christine Yuen Shan Lai<sup>1</sup>, Richard Hin Lun Lee<sup>1</sup>**

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**Introduction:** Degenerative cartilage lesions of the knee are a common cause of knee pain in the middle-aged population. Arthroscopic autologous minced cartilage implantation is a minimally invasive, joint-preserving technique for cartilage restoration; it involves harvesting healthy minced cartilage from non-weight-bearing surfaces of the knee, mixing the minced cartilage with platelet-rich plasma, and transferring the biological composite to the cartilage lesion.

**Methods:** Patients who received autologous minced cartilage implantation between 1 January 2024 and 31 December 2025 were included in the study. Follow-up magnetic resonance imaging (MRI) was arranged. Cartilage regeneration on MRI was assessed and graded using the Magnetic Resonance Observation of Cartilage Repair Tissue (MOCART 2.0) score, which assesses seven domains and ranges from 0 to 100. Scores were assessed by two independent radiologists and averaged for analysis. A MOCART 2.0 score of >60 was shown to be associated with favourable clinical outcomes.

**Results:** Nineteen patients received autologous minced cartilage implantation between 1 January 2024 and 31 December 2025. Sixteen patients received postoperative MRI. The median timing for follow-up MRI was 9 months. The averaged MOCART 2.0 score was 72.

**Conclusion:** Autologous minced cartilage implantation achieves satisfactory cartilage regeneration on follow-up MRI.

## FP9.2

### **Cartilage injury severity, not surgical timing, predicts mid- to long-term osteoarthritis progression following bucket-handle meniscus tears**

**Rex Wang Fung Mak<sup>1</sup>, Cham Kit Wong<sup>2</sup>, Jonathan Patrick Ng<sup>1</sup>, Michael Tim-Yun Ong<sup>3</sup>, Patrick Shu-Hang Yung<sup>3</sup>**

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**Introduction:** The prognostic value of surgical timing relative to biological factors in bucket-handle meniscus tears is debatable. We investigated whether time-to-surgery, tear zone, or cartilage injury severity predicts mid- to long-term radiographic osteoarthritis (OA) and return to play (RTP).

**Methods:** This was a retrospective review of 40 patients (mean age, 33.7 years) who underwent surgery for bucket-handle tears, with a mean follow-up duration of 120 (range, 61-186) months. Outcomes included Kellgren-Lawrence grade and 1-year RTP. Variables assessed for prognostic association included meniscal injury zone, intraoperative Outerbridge grade, concomitant anterior cruciate ligament reconstruction, athlete status, and chronicity (>6 and >12 weeks). Fisher's exact tests were used to assess associations.

**Results:** High-grade intraoperative cartilage injury (Outerbridge grades 3-4) universally predicted severe OA (Kellgren-Lawrence grade 3-4) [100% vs 13.3% for Outerbridge grades 0-2,  $p=0.0064$ ]. Meniscal zone showed significant but variable association ( $p=0.0399$ ). Chronicity showed no association with OA at 6 weeks ( $p=0.511$ ) or 12 weeks ( $p=0.824$ ) or with RTP ( $p=0.714$ ). Athlete status was significant ( $p=0.028$ ) but likely confounded by age and cartilage grade; concomitant anterior cruciate ligament reconstruction was not significant ( $p=0.363$ ).

**Conclusion:** Intraoperative cartilage injury severity is the dominant predictor of long-term OA after bucket-handle meniscus tears. Surgical timing within 12 weeks appears to have limited prognostic relevance for structural or functional outcomes relative to cartilage status. Prognostic counselling should place greater emphasis on the severity of baseline chondral injury rather than on the precise timing of surgical intervention.

## FP9.3

### Small glenoid in reverse shoulder arthroplasty: a retrospective review on glenoid morphology in our local population

Huk Yin Cheng<sup>1</sup>, Hin Yin Chan<sup>1</sup>, Jonathan Patrick Ng<sup>2</sup>, Rex Wang-Fung Mak<sup>3</sup>, Cham Kit Wong<sup>2</sup>, Michael Tim-Yun Ong<sup>1</sup>, Patrick Shu-Hang Yung<sup>1</sup>

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**Introduction:** Accurate characterisation of glenoid morphology is essential in reverse shoulder arthroplasty (RSA). Glenoids with poor bone stock are particularly vulnerable to implant-bone size mismatch, vault perforation, limited safe zones for screw fixation, and increased risk of implant loosening. This study aims to describe the glenoid morphology in patients who underwent RSA and to define small glenoid in RSA morphologically.

**Methods:** A single-centre, retrospective review of preoperative computed tomographic scans of 44 patients who underwent RSA between 2024 and 2026 was conducted. Patient demographics, glenoid width, height, inclination, version, and vault volume were measured and recorded. Analysis of glenoid morphology was performed to define small glenoid, and to clarify the relationship between glenoid width, height, and vault volume.

**Results:** In total, 13 male and 31 female patients were included. The mean glenoid version was  $-1.57^\circ \pm 8.7^\circ$ , and the mean glenoid inclination was  $1.6^\circ \pm 8.1^\circ$ . The mean glenoid width and height were  $2.18 \pm 0.33$  cm and  $3.43 \pm 0.36$  cm, respectively. The mean vault volume was  $10.45 \pm 2.97$  cm<sup>3</sup>. Small glenoid was defined as glenoid with vault volume <25th percentile at 8.14 cm<sup>3</sup>. Glenoid vault volume was best correlated to width ( $r=0.619$ ,  $p < 0.001$ ) and height ( $r=0.615$ ,  $p < 0.001$ ). In small glenoids, only glenoid width has significant positive correlation with vault volume ( $r=0.627$ ,  $p = 0.039$ ).

**Conclusion:** Understanding glenoid anatomy is critical in RSA. Vault volume can be reliably estimated by glenoid width, particularly in small glenoids. Careful baseplate selection and patient-specific instrumentation are recommended when performing RSA in small glenoids.

## FP9.4

### Diagnostic accuracy of magnetic resonance imaging and associated risk factors for anterior labrum periosteal sleeve avulsion lesion

Victor Hin Ting Yick, Kevin Chi Him Fok, Tak Man Wong

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**Introduction:** Anterior labrum periosteal sleeve avulsion (ALPSA) is a different pathological variant of the Bankart lesion, characterised by labrum displaced medially and rotated inferiorly. It is associated with more preoperative dislocations and postoperative recurrent dislocations. Accurate diagnosis is challenging and often requires magnetic resonance arthrogram (MRA). However, MRA is invasive and usually not available on first visit. This study evaluates the accuracy of magnetic resonance imaging (MRI) in diagnosing ALPSA lesions.

**Methods:** We conducted a retrospective case series of all primary arthroscopic repairs of anterior labral injuries at a tertiary orthopaedic trauma centre between 1 January 2024 and 31 December 2025. The primary outcome was MRI diagnosis accuracy compared to arthroscopic diagnosis. The secondary outcome was risk factors associated with ALPSA lesions.

**Results:** In total, 18 cases were included. Three patients were identified with ALPSA on MRI, whereas nine patients had ALPSA lesions confirmed arthroscopically. This gave MRI diagnostic sensitivity of 22% and accuracy of 56%. High-energy trauma, defined as direct contact, was identified as a risk factor for ALPSA lesion (87.5% vs 20%,  $p=0.015$ ). There was no significant correlation of ALPSA lesions with age, hand dominance injury, number of preoperative dislocations, or smoking status.

**Conclusion:** The study highlights the under-reporting of MRI findings in ALPSA lesions. High-energy injuries should raise higher level of suspicion, and more invasive investigations such as MRA should be arranged.

## FP9.5

### Case series: chevron tibial osteotomy our 8-year experience

**Wing Cham Yu, Tze-Kit Wan, Nin Tai Mak**

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## FP9.6

### Effects of pulsed electromagnetic field therapy on quadriceps recovery and tunnel remodelling after anterior cruciate ligament reconstruction: a double-blinded randomised controlled trial

**Cham Kit Wong<sup>1</sup>, Jonathan Patrick Ng<sup>2</sup>, Rex Wang-Fung Mak<sup>2</sup>, Michael Tim-yun Ong<sup>3</sup>, Patrick Shu-hang Yung<sup>3</sup>**

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## FP9.7

### The impact of preoperative acromioclavicular joint arthritis on clinical outcomes following reverse shoulder arthroplasty: a retrospective review

**Jerrick Ka Ho Lee<sup>1</sup>, Jonathan Patrick Ng<sup>2</sup>, Rex Wang-Fung Mak<sup>1</sup>, Cham Kit Wong<sup>2</sup>, Michael Tim-Yun Ong<sup>3</sup>, Patrick Shu-Hang Yung<sup>3</sup>**

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**Introduction:** Reversed shoulder arthroplasty (RSA) alters pectoral girdle kinematics, making postoperative range of motion (ROM) heavily reliant on adjacent small joint flexibility. The influence of pre-existing acromioclavicular joint (ACJ) degeneration on postoperative outcomes remains inadequately characterised. This study evaluates whether preoperative radiographic ACJ arthritis correlates with compromised postoperative ROM and inferior patient-reported outcomes.

**Methods:** A retrospective review was conducted to evaluate 78 patients (mean age, 68 years) who underwent primary RSA at the Prince of Wales Hospital, Hong Kong, over a 4.5-year period. Preoperative radiographs were used to grade ACJ arthritis severity. Documented outcomes included postoperative ROM (flexion, abduction, external rotation, internal rotation score), patient-reported clinical scores (including American Shoulder and Elbow Surgeons Score, Constant-Murley Score, and visual analogue score), and complications.

**Results:** Preoperative radiographic ACJ arthritis was identified in 71.8% (56/78) of patients. Severe ACJ arthritis significantly correlated with poorer postoperative ROM, including limited active internal rotation (score: 2.4 vs 4.6,  $p < 0.05$ ) and abduction ( $108^\circ$  vs  $126^\circ$ ,  $p < 0.05$ ) compared to normal/mild profiles. Patient-reported outcomes revealed lower overall functional scores in high-grade ACJ arthritis cohorts (American Shoulder and Elbow Surgeons Score:  $69.4 \pm 6.8$  vs  $81.2 \pm 5.3$ ,  $p < 0.05$ ). No significant differences were noted regarding immediate postoperative complication rates ( $p > 0.05$ ).

**Conclusion:** Preoperative ACJ arthritis significantly correlates with inferior objective and subjective outcomes following RSA, serving as an inherent ceiling to global mobility. These findings warrant future research into concurrent distal clavicle excision during index RSA to bypass these rigid mechanical limitations and characterisation of compensatory sternoclavicular joint motion to predict global girdle kinematics.

## FP9.8

**Clinical relevance of early quadriceps muscle fat infiltration following anterior cruciate ligament reconstruction****Jonathan Patrick Ng<sup>1</sup>, Mingde Cao<sup>2</sup>, Elvis Chun-sing Chui<sup>2</sup>, Michael Tim-yun Ong<sup>2</sup>, Patrick Shu-hang Yung<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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## FP9.9

**Navigating the tunnel trajectory in anterior cruciate ligament reconstruction: the predominant role of the tibial floor over the medial condyle wall****Kevin Chi Him Fok<sup>1</sup>, Brian Lik Hang Leung<sup>1</sup>, Janus Siu Him Wong<sup>2</sup>, Kelvin Sin Chi Cheung<sup>2</sup>, Augustine Kai Chun Chan<sup>2</sup>, Tak Man Wong<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** During anterior cruciate ligament reconstruction, drilling faces two constraints: the vertical tibial floor (determined by knee hyperflexion) and the medial condyle wall. This study evaluated whether the notch width index (NWI) or intraoperative hyperflexion determines femoral tunnel positioning.

**Methods:** Forty-eight patients with preoperative magnetic resonance imaging and postoperative radiographs (<5 mm rotation) were evaluated. Parameters included NWI, femur-tunnel angle, graft shaft angle (GSA)—a surrogate for hyperflexion—and intra-articular tunnel footprint percentage from the posterior condyle. Exit sites were categorised into four progressive anterior-to-posterior quadrants (groups A to D). Receiver operating characteristic curve and linear regression analyses were conducted to evaluate structural dependencies.

**Results:** The medial constraint (NWI) showed no significant correlation with tunnel parameters, suggesting native anatomy does not determine orientation. Conversely, the vertical constraint (GSA) correlated strongly with intra-articular position ( $r=0.463$ ,  $p<0.001$ ). GSA differed significantly across exit sites ( $p<0.01$ ), with posterior quadrant placement (group D,  $n=11$ ) yielding a more acute GSA ( $36.8^\circ\pm5.8^\circ$ ) than anterior quadrants ( $p<0.05$ ). Receiver operating characteristic analysis accurately predicted unfavourable group D placement (area under the curve=0.943, cutoff=41.7°,  $p<0.001$ ). Regression analysis indicated that achieving a footprint just below the 25% threshold required a GSA of  $\leq 58.7^\circ$  ( $R^2=0.214$ ).

**Conclusion:** Notch width does not influence final tunnel geometry. Instead, the vertical trajectory is the primary determinant governing the tunnel path. To avoid far-posterior button placement while ensuring the footprint stays just below the 25% landmark, clinicians must target a narrow intraoperative window yielding a GSA between 41.7° and 58.7°.

## FP9.10

### **Ambulatory anterior cruciate ligament reconstruction: a cost-effectiveness analysis**

**Jonathan Patrick Ng<sup>1</sup>, Rex Wang Fung Mak<sup>2</sup>, Cham Kit Wong<sup>1</sup>, Michael Tim Yun Ong<sup>3</sup>, Patrick Shu Hang Yung<sup>3</sup>**

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**Introduction:** Anterior cruciate ligament (ACL) reconstruction has traditionally been performed as an inpatient procedure. However, modern advancements in minimally invasive surgical techniques, regional anaesthesia, and multimodal pain management protocols have accelerated a paradigm shift towards ambulatory settings. This study evaluates the health economics of this transition by conducting a comprehensive cost-effectiveness analysis of ambulatory versus inpatient ACL reconstruction.

**Methods:** A retrospective cohort study was conducted to analyse patient data from a tertiary-referral high-volume institution. Total direct medical costs—encompassing preoperative preparation, operating room utilisation, specialised anaesthesia, surgical implants, inpatient accommodation, and immediate postoperative recovery care—were systematically calculated. Health-related quality of life and quality-adjusted life years were assessed at baseline and 3 and 6 months postoperatively using the validated EuroQol-5 Dimension questionnaire. An incremental cost-effectiveness ratio was calculated to determine overall economic efficiency.

**Results:** The ambulatory cohort demonstrated a significantly lower mean total healthcare cost per patient compared to the inpatient cohort (~\$35 000 vs \$56 000,  $p < 0.001$ ). This financial variance was primarily driven by the elimination of overnight room charges and lower hospital resource utilisation. Functional recovery scores, patient satisfaction, complication rates, and net quality-adjusted life year gains showed no significant differences between the two groups at final follow-up. Consequently, ambulatory ACL reconstruction yielded an incremental cost-effectiveness ratio that strictly dominated inpatient care by delivering substantial cost savings while maintaining equivalent clinical efficacy.

**Conclusion:** Ambulatory ACL reconstruction represents a cost-effective strategy. It offers large financial savings for healthcare systems without compromising patient safety, clinical outcomes, or postoperative function.

## FP9.11

### Comparison of scapulohumeral rhythm in superior capsular reconstruction versus reverse shoulder arthroplasty: a fluoroscopic kinematic analysis

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**Introduction:** Massive irreparable rotator cuff tears disrupt the shoulder force couple, resulting in superior humeral head migration, and alter scapulohumeral rhythm (SHR). Superior capsule reconstruction (SCR) aims to restore superior glenohumeral stability while preserving native anatomy, whereas reverse shoulder arthroplasty (RSA) restores elevation via prosthesis-driven mechanics and deltoid retensioning. Both options yield favourable outcomes. Direct kinematic comparisons to investigate which option more closely restores native kinematics have not been done.

**Methods:** Patients treated with SCR or RSA for irreparable massive cuff tears were asked to perform active scaption. Dynamic fluoroscopy was used to quantify glenohumeral and scapulothoracic rotations. SHR was calculated at 30°, 60°, 90°, and full scaption, and was compared between the two cohorts.

**Results:** SCR demonstrated an SHR (4:1) towards a more physiologic, glenohumeral-driven pattern. In contrast, RSA demonstrated an SHR (8:1) with comparatively constrained glenohumeral motion and increased reliance on scapulothoracic upward rotation ( $p < 0.005$ ).

**Conclusion:** The segmental contributions and compensatory scapular strategies are different for RSA and SCR. This has important clinical implications on procedure selection, patient expectation management, and rehabilitation targets.

## FP9.12

### Associations of circulating myokines with morphological and functional recovery after anterior cruciate ligament reconstruction: a prospective cohort study

**Wing Kit Ng<sup>1</sup>, Xin Yang<sup>2</sup>, Mingde Cao<sup>2</sup>, Ioi Chit Cheung<sup>2</sup>, Patrick Shu-hang Yung<sup>2</sup>, Michael Tim-yun Ong<sup>2</sup>**

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**Introduction:** Persistent quadriceps atrophy and weakness are common after anterior cruciate ligament reconstruction (ACLR) despite rehabilitation. Myokines—including insulin-like growth factor-1 (IGF-1), brain-derived neurotrophic factor (BDNF), myostatin (MSTN), and interleukin-6 (IL-6)—regulate muscle growth, regeneration, and metabolism, yet their roles in post-ACLR recovery remain unclear. This study examined associations between circulating myokines and recovery of muscle strength, volume, and thickness following ACLR.

**Methods:** In this prospective cohort study, 29 patients who underwent ACLR were evaluated at 4 and 6 months postoperatively. Quadriceps strength was assessed using isokinetic dynamometry. Ultrasound measured the thicknesses of the rectus femoris, vastus lateralis, and vastus medialis, whereas magnetic resonance imaging quantified the quadriceps and hamstring volumes. Serum IGF-1, BDNF, MSTN, and IL-6 were measured via enzyme-linked immunosorbent assay. Repeated-measures analysis of variance, independent-samples t-tests, and Spearman correlations were performed.

**Results:** At 4 months, MSTN and IL-6 correlated positively with bilateral quadriceps volume ( $r = 0.532$ - $0.656$ ,  $p \leq 0.028$ ). BDNF negatively correlated with flexion limb symmetry index at 180°/s ( $r = -0.400$ ,  $p = 0.031$ ). At 6 months, IGF-1 and IL-6 correlated positively with extension limb symmetry index at 60°/s ( $r = 0.518$ - $0.607$ ,  $p \leq 0.021$ ). High BDNF ( $> 20$  ng/mL) was associated with greater injured-side flexion strength gains and extension strength ratio improvement. High IGF-1 ( $> 117$  ng/mL) showed a significant time  $\times$  group interaction for injured-side quadriceps volume ( $p = 0.027$ ).

**Conclusion:** Circulating myokines, particularly BDNF, MSTN, and IGF-1, are associated with morphological and functional recovery after ACLR and may serve as biomarkers for rehabilitation monitoring.

### FP9.13

#### **Factors affecting the accuracy of magnetic resonance imaging in estimating patellar tendon length: a 10-year retrospective analysis of anterior cruciate ligament reconstruction using bone-patellar tendon-bone graft**

**Cham Kit Wong<sup>1</sup>, Jonathan Patrick Ng<sup>1</sup>, Rex Wang-Fung Mak<sup>1</sup>, Michael Tim-yun Ong<sup>2</sup>, Patrick Shu-hang Yung<sup>2</sup>**

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### FP9.14

#### **Do perioperative nonsteroidal anti-inflammatory drugs affect bone tunnel healing in anterior cruciate ligament reconstruction?**

**Victor Yan-Zhe Lu<sup>1</sup>, Jonathan Patrick Ng<sup>2</sup>, Rex Wang-Fung Mak<sup>3</sup>, Cham-Kit Wong<sup>2</sup>, Michael Tim-Yun Ong<sup>1</sup>, Patrick Shu-Hang Yung<sup>1</sup>**

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### FP9.15

#### **Feasibility and outcomes with accelerated rehabilitation protocol post-reverse shoulder arthroplasty**

**Jonathan Seng-Sung Mak<sup>1</sup>, Jonathan Patrick Ng<sup>1</sup>, Rex Wang-Fung Mak<sup>2</sup>, Cham Kit Wong<sup>1</sup>, Michael Tim-Yun Ong<sup>3</sup>, Patrick Shu-Hang Yung<sup>3</sup>**

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**Introduction:** This study aims to determine patient outcomes following reverse shoulder arthroplasty (RSA) using accelerated postoperative rehabilitation protocol versus standard protocol, and to evaluate the effects of these rehabilitation approaches on RSA.

**Methods:** A retrospective cohort study was conducted of 78 patients who underwent RSA and received either accelerated or standard rehabilitation protocol. Parameters such as range of motion, pain levels, functional outcomes, and complication rates were compared between the cohorts at defined follow-up periods.

**Results:** Preliminary results suggest that the accelerated protocol may yield advantages over the standard approach in certain outcome measures. Accelerated rehabilitation demonstrated improved early postoperative function and range of motion without compromising safety or long-term outcomes. However, careful consideration is essential, as individual patient characteristics and surgical complexities may influence the appropriateness of each protocol.

**Conclusion:** Findings of this study may help guide future clinical decision-making regarding postoperative rehabilitation strategies following RSA, aiming to optimise patient outcomes and enhance recovery.

**FP9.16****Comparison of isokinetic muscle recovery at 6 months after anterior cruciate ligament reconstruction: anterolateral ligament reconstruction versus iliotibial band tenodesis****Muhnad Magdob***Department of Orthopaedics, Croix Rousse Orthopaedic Department and Sport Medicine*

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**FP9.18****Five-year clinical outcomes of microfracture augmented with hyaluronic acid-based scaffold for full-thickness cartilage defects of the knee****Erika Rusli, Jeremie Choo, Fattah Lee, Derrick Guo***Department of Orthopaedics, Woodlands Hospital Singapore*

**Introduction:** Chondral defects of the knee commonly cause pain and functional limitation, with limited healing potential. Microfracture augmented with a hyaluronic acid-based scaffold (MF-HAS) has shown short-term improvements; however, mid- to long-term durability data remain limited. This study evaluates MF-HAS outcomes at a minimum follow-up of 5 years, including robustness against attrition bias.

**Methods:** This is an extended follow-up of a previously reported cohort of 46 patients with grade IV cartilage ulcers treated with MF-HAS. Of these, 21 (10 men, 11 women; mean age, 56.24±8.77 years) were available at 5 years. Outcomes were assessed using the Knee Injury and Osteoarthritis Outcome Score at baseline, 1 year, and 5 years. Paired *t* tests were used to compare scores. A subgroup analysis was conducted to compare retained patients versus lost-to-follow-up patients, and a worst-case sensitivity analysis was performed, assuming no improvement in patients lost to follow-up.

**Results:** Significant improvements were seen across all Knee Injury and Osteoarthritis Outcome Score subscales at 1 and 5 years versus baseline ( $p<0.05$ ), greatest in pain and daily living subscales, with no deterioration between time points. Quality of life scores improved from 46.48±18.84 at 1 year to 52.19±19.58 at 5 years. Subgroup analysis confirmed baseline equivalence between groups, and the worst-case sensitivity analysis remained significant across all subscales ( $p\leq 0.003$ ).

**Conclusion:** MF-HAS produces improvements sustained at a minimum of 5 years, robust to attrition bias, without the decline reported with isolated microfracture. These findings are the first reported 5-year outcomes for MF-HAS, representing a promising microfracture-plus option for full-thickness cartilage ulcers of the knee.

## FP9.19

### **Morphological changes of femoral and tibial tunnels 6 months following anterior cruciate ligament reconstruction in patients evaluated by high-resolution peripheral quantitative computed tomography**

**Christine Hoi Yan Fu<sup>1</sup>, Jonathan Patrick Ng<sup>2</sup>, Patrick Shu Hang Yung<sup>1</sup>, Pauline Po Yee Lui<sup>1</sup>**

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## FP9.20

### **The H-STEM score for preoperative cemented versus cementless humeral fixation selection in primary reverse shoulder arthroplasty: a pilot study**

**Hin Yin Chan<sup>1</sup>, Huk Yin Cheng<sup>1</sup>, Jonathan Patrick Ng<sup>1</sup>, Rex Wang-Fung Mak<sup>2</sup>, Cham Kit Wong<sup>1</sup>, Michael Tim-Yun Ong<sup>3</sup>, Patrick Shu-Hang Yung<sup>3</sup>**

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**Introduction:** The choice between cemented and cementless humeral fixation in primary reverse shoulder arthroplasty (RSA) remains surgeon-dependent, with no validated preoperative decision-making tool. This study aimed to develop a preliminary point-based scoring system, H-STEM score, to guide fixation selection using preoperative parameters.

**Methods:** This single-centre retrospective cohort study included 36 consecutive patients who underwent primary RSA (22 cementless, 14 cemented). Five preoperative variables were evaluated: proximal humeral bone density (Hounsfield units [HU]), sex, deltoid tuberosity index (DTI), age, and body mass index (BMI). Univariate analysis was conducted to identify significant predictors. A scoring system was constructed using receiver operating characteristic (ROC)-derived and clinically guided cutoffs, weighted by predictor strength. ROC analysis was conducted to assess discriminative performance.

**Results:** Sex ( $p=0.005$ ), HU ( $p=0.003$ ), and DTI ( $p=0.023$ ) were significantly associated with fixation choice. Age and BMI did not reach significance but were retained based on biological plausibility and supporting arthroplasty literature. The H-STEM score comprised HU  $\geq 26$  (2 points), male sex (2 points), DTI  $\geq 1.41$  (1 point), age  $< 70$  years (1 point), and BMI  $\geq 25$  kg/m<sup>2</sup> (1 point); total scores ranged from 0 to 7. The area under the ROC curve was 0.87. At the optimal cutoff of  $\geq 4$ , sensitivity was 68.2% and specificity 92.9% (Youden's  $J=0.611$ ). Scores 0-3 favoured cemented fixation (65% cemented), whereas scores 4-7 favoured cementless (93.8% cementless).

**Conclusion:** The H-STEM score is a simple, reproducible preoperative tool demonstrating good discriminative ability for humeral fixation selection in primary RSA. External validation in a larger, multicentre cohort is warranted.

## FP9.22

**A multi-objective optimisation framework for patient-specific preoperative planning in reverse shoulder arthroplasty****Jonathan Patrick Ng<sup>1</sup>, Junlin Ye<sup>2</sup>, Eric Cheuk-kin Kwan<sup>2</sup>, Dennis Cham Kit Wong<sup>3</sup>, Xin Ye<sup>2</sup>, Long Fung Chan<sup>2</sup>, Ronald Man Yeung Wong<sup>2</sup>, Patrick Shu Hang Yung<sup>2</sup>, Elvis Chun Sing Chui<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*<sup>3</sup>*Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital*

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## FP9.23

**High-resolution peripheral quantitative computed tomography analysis of bone oedema following anterior cruciate ligament injury****Victor Yan-zhe Lu<sup>1</sup>, Dennis Cham-kit Wong<sup>1</sup>, Dhananjaya Sutanto<sup>2</sup>, Patrick Shu-hang Yung<sup>2</sup>, Michael Tim-yun Ong<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Approximately 78% of patients with anterior cruciate ligament (ACL) rupture have bone oedema on magnetic resonance imaging (MRI). Bone oedema represents fluid accumulation and bone marrow fracture degeneration. Prior studies had conflicting results on relationship between bone oedema with clinical outcomes.

**Methods:** ACL reconstruction patients with bone oedema on MRI were assessed for the oedema location using high-resolution peripheral quantitative computed tomography (HR-pQCT) scan at 2 weeks post-surgery. Bone parameters measured included bone mineral density (BMD), tissue mineral density, and trabecular number (TN). MRI was graded with the WORMS scoring system. Outcome measures included International Physical Activity Questionnaire at 2 weeks post-surgery and isokinetic knee extension and flexion at 4 months post-surgery. All outcomes were re-measured at 6 months post-surgery.

**Results:** In total, 37 patients who underwent ACL reconstruction were analysed. Using partial correlation analysis, bone oedema score on WORMS was correlated to BMD ( $r = -0.682$ ,  $p = 0.002$ ) and TN ( $r = -0.638$ ,  $p = 0.004$ ), whereas bone oedema was not correlated to the clinical outcomes on the first-round measurements. International Physical Activity Questionnaire score was correlated to both BMD ( $r = 0.455$ ,  $p = 0.022$ ) and TN ( $r = 0.430$ ,  $p = 0.032$ ). On multivariate multiple regression, TN was the strongest predictor for knee flexion strength and body weight for the first-round measurements. HR-pQCT variables were not related to the 6-month measurements.

**Conclusion:** Bone oedema may indicate bone microarchitecture damage, and HR-pQCT variables are correlated with outcomes. However, presence of bone oedema does not indicate poorer outcomes after ACL reconstruction, whereas TN is related to knee flexion strength, but no significant association was observed at 6-month follow-up.

### **Efficacy of bone marrow stimulation for localised cartilage lesions with medial meniscus posterior root tears in mild varus knees: a retrospective comparison**

**Yuki Okazaki<sup>1</sup>, Takayuki Furumatsu<sup>2</sup>, Koki Kawada<sup>1</sup>, Yusuke Yokoyama<sup>1</sup>, Tsubasa Hasegawa<sup>1</sup>, Toshiki Kohara<sup>1</sup>, Toshifumi Ozaki<sup>1</sup>**

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<sup>2</sup>*Department of Orthopaedic Surgery, Okayama Red Cross Hospital*

**Introduction:** Clinical outcomes in patients with medial meniscus posterior root tears (MMPRTs) and cartilage lesions have not been reported. Therefore, we investigated the effectiveness of bone marrow stimulation via microfracture on treating localised cartilage lesions with MMPRT and compared clinical outcomes between patients who underwent microfracture and those who did not.

**Methods:** We retrospectively evaluated clinical outcomes of 10 patients who underwent transtibial pullout repair and microfracture for MMPRT with cartilage lesions ( $\leq 1.5 \text{ cm}^2$ ) between November 2016 and September 2023 and 37 patients with similar demographic data who underwent pullout repair for MMPRT without moderate-to-severe cartilage lesions. All patients underwent second-look arthroscopy.

**Results:** At 1- and 3-year follow-ups, all clinical outcomes showed significant improvement, compared with preoperative outcomes. Second-look arthroscopy confirmed good meniscal healing. No significant group differences were observed preoperatively and at the 3-year follow-up in terms of demographic data, radiological parameters, clinical outcomes, or meniscal healing.

**Conclusions:** Transtibial pullout repair combined with microfracture yielded favourable clinical outcomes in patients with MMPRT and localised cartilage lesions in mildly varus knees, comparable to those in patients with MMPRT without cartilage lesions.

## Free Paper Session X: Adult Joint Reconstruction II

### FP10.1

#### Midterm survivorship and precision analysis of robotic-assisted total hip arthroplasty

**Jane Fan<sup>1</sup>, Thomas Ka Chun Leung<sup>1</sup>, Lawrence Chun Man Lau<sup>2</sup>, Michelle Hilda Luk<sup>1</sup>, Amy Cheung<sup>1</sup>, Ping Keung Chan<sup>2</sup>, Kwong Yuen Chiu<sup>2</sup>, Henry Fu<sup>2</sup>**

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### FP10.2

#### Manual superior transverse anatomic reconstruction approach versus robotic-assisted posterior approach in total hip arthroplasty: an international multicentre propensity-matched cohort study

**Thomas Ka Chun Leung<sup>1</sup>, Lawrence Chun Man Lau<sup>2</sup>, Michelle Hilda Luk<sup>2</sup>, Amy Cheung<sup>1</sup>, Ping Keung Chan<sup>2</sup>, Kwong Yuen Chiu<sup>2</sup>, Eleftherios Tsiridis<sup>3</sup>, Henry Fu<sup>2</sup>**

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### FP10.3

#### Long-term implant survival and patient survival following revision total hip arthroplasty: a cohort study with mean follow-up of 15 years

**Victor Hin Ting Yick<sup>1</sup>, Lawrence Chun Man Lau<sup>2</sup>, Kin Yau Wong<sup>3</sup>, Hongjian Hu<sup>3</sup>, Xinyao Liu<sup>4</sup>, Thomas Ka Chun Leung<sup>1</sup>, Michelle Hilda Luk<sup>1</sup>, Ping Keung Chan<sup>2</sup>, Amy Cheung<sup>1</sup>, Henry Fu<sup>2</sup>**

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### FP10.4

#### A novel spinopelvic adaptation after total hip arthroplasty using T4-L1-hip framework: a paired radiographic study with machine-learning-defined phenotypes of spinopelvic adaptation

**Lawrence Chun Man Lau<sup>1</sup>, Thomas Leung<sup>2</sup>, Will Lau<sup>2</sup>, Martin Cheng<sup>2</sup>, Michelle Hilda Luk<sup>2</sup>, Chan Lewis<sup>1</sup>, Amy Cheung<sup>2</sup>, Chiu Kwong Yuen<sup>1</sup>, Henry Fu<sup>1</sup>**

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### FP10.5

#### **Radiolucent lines in Attune S+ tibial baseplate: a clinical and radiological study with a minimum of 2-year follow-up**

**Christopher Ian Lam, Eugene Pak-Lin Ng, Cyrus Wang Kit Chan, Tin Sui Ko, Hing-Cheong Wong, Kam-Kwong Wong**

*Department of Orthopaedics and Traumatology, Kwong Wah Hospital*

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### FP10.6

#### **Comparison of Attune fixed bearing versus mobile bearing total knee arthroplasty in pain, range of motion, functional score, and survivorship: a minimum 2-year follow-up**

**Wang Kit Cyrus Chan, Pak Lin Eugene Ng, Tin Sui Ko, Hing Cheong Wong, Siu Tong Choi, Kam Kwong Wong**

*Department of Orthopaedics and Traumatology, Kwong Wah Hospital*

**Introduction:** Attune total knee arthroplasty (TKA) polyethylene inserts are available in two forms: fixed bearing (FB), in which the insert is locked onto the tibial baseplate, and rotating platform (RP), in which the insert rotates freely on the baseplate.

**Methods:** This study compares Attune FB versus RP TKAs performed at Kwong Wah Hospital between 1 January 2018 and 31 December 2023. All TKAs with the Attune system were included. Exclusion criteria were revision surgery or surgery for periprosthetic joint infection. Primary outcomes included visual analogue score, knee range of motion, Knee Injury and Osteoarthritis Outcome Score for Joint Replacement (KOOS-JR). Secondary outcomes included all-cause revision rate. Patients were reviewed at 12 and 24 months postoperatively and final follow-up.

**Results:** In total, 136 patients were included (50 in FB group, 86 in RP group). There were no significant differences between groups in terms of age, sex, body mass index, preoperative knee range of motion, and laterality; 13 (9.6%) patients were lost to follow-up. The RP group had lower visual analogue scores and KOOS-JR scores at all time points compared to the FB group. The lower KOOS-JR score in the RP group at final follow-up was significant (mean difference=1.7, 95% confidence interval=0.19-3.2,  $p<0.03$ ). The FB group had a larger knee range of motion at all time points; the difference was significant only at the final follow-up (mean difference=3.9°, 95% confidence interval=0.44°-7.3°,  $p<0.03$ ). All-cause revision rate was zero in both groups at all time points.

**Conclusion:** Attune RP TKA may yield superior functional score beyond 2-year follow-up compared to FB TKA.

### FP10.7

#### **Functional alignment better restores native joint line but does not improve short-term functional outcomes compared to mechanical alignment in robotic-assisted total knee arthroplasty: a prospective double-blinded superiority randomised controlled trial**

**Thomas Ka Chun Leung<sup>1</sup>, Lawrence Chun Man Lau<sup>2</sup>, Michelle Hilda Luk<sup>1</sup>, Amy Cheung<sup>1</sup>, Ping Keung Chan<sup>2</sup>, Kwong Yuen Chiu<sup>2</sup>, Henry Fu<sup>2</sup>**

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## FP10.8

**Comparison of knee joint kinematics between revision stem and bicruciate-stabilised designs in primary total knee arthroplasty under restricted kinematic alignment**

**Tianzhi Jiang<sup>1</sup>, Yuet Ching Wong<sup>2</sup>, Cham Kit Wong<sup>2</sup>, Jonathan Patrick Ng<sup>2</sup>, Rex Wang Fung Mak<sup>2</sup>, Yan Ting Lam<sup>3</sup>, Tsz Lung Choi<sup>3</sup>, Mingde Cao<sup>1</sup>, Patrick Shu-hang Yung<sup>1</sup>, Michael Tim-yun Ong<sup>1</sup>**

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**Introduction:** In primary total knee arthroplasty (TKA), severe bone loss or metaphyseal compromise usually requires revision stem fixation, raising concern that more complex fixation may compromise clinical and kinematic outcomes. With the introduction of a revision stem system compatible with the bicruciate-stabilised (BCS) component, selected severe primary knees can now be treated while retaining a BCS-compatible construct. This study aimed to determine whether patients requiring revision stem fixation achieve clinical outcomes and knee kinematic range of motion (ROM) comparable to standard BCS primary TKA.

**Methods:** This prospective observational study included 19 BCS and 7 revision stem TKA patients, all treated with robot-assisted restricted kinematic alignment. Clinical outcomes were assessed using the Knee Society Score and Knee Function Score at baseline and 12 months. Maximum knee flexion was measured clinically, whereas three-dimensional kinematics (flexion-extension, abduction-adduction, and internal-external ROM) were captured using a 16-camera Vicon system during walking, sit-to-stand, and stair negotiation at a mean of 32.1 months postoperatively. Between-group comparisons were made using Mann-Whitney *U* tests.

**Results:** Baseline Knee Society Score and Knee Function Score were comparable between groups, and both groups improved substantially at 12 months without significant differences. Maximum knee flexion was similar between BCS and revision stem TKA (103.6° vs 100.1°,  $p=0.177$ ). No significant differences were found in any kinematic ROM variable across all activities.

**Conclusion:** Despite greater baseline disease severity, patients with revision stem TKA achieved comparable maximum flexion, clinical scores, and kinematic ROM to those with standard BCS TKA. Larger prospective studies are warranted to confirm long-term relevance.

## FP10.9

**Fixing a problem that isn't there? Mid-term outcomes of the modified tibial tray of a modern total knee arthroplasty system**

**Michelle Hilda Luk<sup>1</sup>, Thomas Ka Chun Leung<sup>1</sup>, Lawrence Chun Man Lau<sup>2</sup>, Amy Cheung<sup>1</sup>, Ping Keung Chan<sup>2</sup>, Kwong Yuen Chiu<sup>2</sup>, Henry Fu<sup>2</sup>**

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## FP10.10

**Robotic-assisted bicruciate-retaining total knee arthroplasty: medium-term outcomes and predictors of functional recovery**

**Samuel Ho Sam Wong<sup>1</sup>, Cham Kit Wong<sup>1</sup>, Jonathan Patrick Ng<sup>1</sup>, Rex Wang-Fung Mak<sup>1</sup>, Mingde Cao<sup>2</sup>, Yan-Ting Lam<sup>3</sup>, Tsz-Lung Choi<sup>3</sup>, Michael Tim-yun Ong<sup>2</sup>, Patrick Shu-hang Yung<sup>2</sup>**

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## FP10.11

### Coronal plane alignment of the knee phenotype shift after robotic-assisted functional-alignment total knee arthroplasty: association with Knee Society Score in an Asian cohort

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**Introduction:** Functional alignment in robotic-assisted total knee arthroplasty (TKA) can alter coronal plane alignment of the knee (CPAK) phenotype during gap balancing within defined boundaries. How CPAK preservation versus alteration relates to Knee Society Score (KSS) after functional alignment in Asian varus-predominant cohorts is unclear.

**Methods:** We retrospectively analysed 126 knees in 92 patients who underwent Mako functional alignment TKA (cruciate-retaining, cementless Triathlon) at a local hospital between 2019 and 2022. Standing radiographs were assessed for medial proximal tibial angle and lateral distal femoral angle. MacDessi thresholds were used to determine CPAK. Primary outcome was 1-year KSS change. Multivariable linear regression with cluster-robust standard errors was conducted by comparing alteration versus preservation, adjusted for baseline KSS, sex, and age.

**Results:** Of the 126 knees, CPAK was altered in 92.1% and preserved in 7.9%. Preoperatively CPAK type I made up 51.6%; however, after surgery CPAK types V, IV, and VIII increased. Top transitions were: I→IV (n=20), I→V (n=18), and I→VIII (n=10). The mean KSS rose from 103.2 to 166.4; the mean change in arithmetic hip-knee alignment was +5.5° and the mean change in joint line obliquity was +7.0°. Alteration was associated with less KSS improvement (beta= -10.6, 95% confidence interval= -20.4 to -0.8, p=0.033) and lower one-year KSS (beta= -13.4, 95% confidence interval= -21.9 to -4.8, p=0.002). Continuous changes in arithmetic hip-knee alignment and joint line obliquity were not significant for KSS change.

**Conclusion:** In this Hong Kong Chinese Mako functional alignment TKA cohort, CPAK alteration was frequent and associated with less 1-year KSS gain (preserved n=10). One outcome instrument is not enough, especially when it is not fully patient-reported.

## FP10.12

**Subvastus versus medial parapatellar approach in primary total knee arthroplasty: a propensity score-matched analysis of short-term outcomes****Tsz Kit Law, Chun Yin Lee***Department of Orthopaedics and Traumatology, Tuen Mun Hospital*

**Introduction:** Subvastus (SV) approach preserves the quadriceps mechanism and may improve early recovery compared to the standard medial parapatellar (MP) approach. This study used propensity score matching (1:2) to compare short-term clinical outcomes between SV and MP approaches in primary total knee arthroplasty.

**Methods:** A retrospective analysis of patients who underwent primary total knee arthroplasty at two high-volume public hospitals was conducted. Propensity score matching was performed on age, sex, body mass index, preoperative pain score, flexion, and Knee Society Score (KSS). After matching, groups were compared for length of stay (LOS), pain scores, and KSS using independent *t* tests or Mann-Whitney *U* tests and two-way analysis of variance (group  $\times$  time) for repeated measures. Standardised mean differences confirmed adequate balance post-matching. Significance was set at  $\alpha=0.05$ .

**Results:** A total of 89 matched patients (30 SV, 59 MP) were analysed. Post-matching covariate balance was excellent (most standardised mean differences  $<0.2$ ). Total LOS was comparable between SV and MP approaches (7.67 [95% confidence interval=5.8-9.5 vs 8.53 [95% confidence interval=6.8-10.3] days, pooled  $p=0.570$ ). Both approaches yielded significant improvements in KSS and pain scores from before to after surgery (time effect  $p<0.0001$  in all). There were no significant group effects or group  $\times$  time interactions for KSS (Centre 1 interaction:  $p=0.758$ ; Centre 2:  $p=0.262$ ) or pain scores (Centre 1 interaction:  $p=0.437$ ; Centre 2:  $p=0.217$ ). Complication rates were comparable between two groups.

**Conclusion:** In this propensity score-matched cohort, the SV approach demonstrated comparable short-term outcomes to the MP approach in terms of LOS, pain relief, and KSS. Larger randomised trials are warranted to detect subtle differences in recovery trajectories.

## FP10.13

### **Comparative radiological and patient-reported outcomes of cemented versus cementless total knee arthroplasty using an image-free, saw-based robotic knee arthroplasty system**

**Edmund Chi Long Lam, Amy Cheung, Michelle Hilda Luk, Thomas Ka Chun Leung, Lawrence Chun Man Lau, Ping Keung Chan, Kwong Yuen Chiu, Henry Fu**

*Department of Orthopaedics and Traumatology, Queen Mary Hospital*

**Introduction:** Comparative literature remains deeply confounded by baseline demographic selection bias between cemented and cementless total knee arthroplasty (TKA). Modern image-free robotic saws may allow for ideal patient-specific alignment targets, counteracting historical manual cutting inaccuracies that compromise initial cementless stability. This study evaluated early component stability and short-term patient-reported outcome measures between balanced robotic cemented and cementless TKA cohorts.

**Methods:** From an institutional screening pool of 302 consecutive primary robotic TKAs, data from the first 72 patients were extracted for this interim analysis. Propensity score matching on age, body mass index, and American Society of Anesthesiologists status yielded 19 well-balanced case-control pairs (n=38). To establish a standardised baseline framework for future comparative studies of alternative robotic platforms, the prevalences of component interface alignments and radiolucent lines were quantified using the Modern Knee Society Radiographic Evaluation System. Group differences were evaluated via independent t tests and Fisher's exact tests.

**Results:** Propensity score matching achieved well-balanced baseline demographic equilibrium (standardised mean differences <0.20). Longitudinal radiographic tracking from 3 months to 1 year demonstrated exceptional component stability, showing zero structural alignment shift across both cohorts. Functional trajectories confirmed clinical non-inferiority, with no significant differences in pre-to-postoperative change scores ( $p \geq 0.185$ ). Validating its initial interface stability, the cemented Attune S+ baseplate demonstrated 0% incidence of radiolucent lines (0/8). Non-progressive radiolucent lines occurred in 14.3% (1/7) of cementless cases ( $p > 0.05$ ), with zero mechanical failures.

**Conclusion:** Neutralised selection bias, cementless robotic TKA yields outstanding early stability and non-inferior functional recovery. Furthermore, Modern Knee Society Radiographic Evaluation System screening confirms exceptional interface stability for the cemented Attune S+ baseplate.

## FP10.14

### **Optogenetically controlled tissue-targeting adeno-associated virus combination for osteoarthritis gene therapy and prevention**

**Wenxue Tong, Qiuli Qi, Jiankun Xu, Ling Qin**

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Osteoarthritis (OA) is characterised by degeneration of articular cartilage, inflammation, and osteophyte formation. The current treatments are still limited to physiotherapy and use of painkillers and anti-inflammatory drugs for relieving the symptoms. Joint replacement surgery or resurfacing may be recommended. It is expected that a combined therapeutic strategy will become an important research field for complete cure of OA, such as inhibiting catabolic metabolism (eg, anti-synovitis by expressing IL-1Ra) while promoting anabolic metabolism (eg, promoting cartilage regeneration by activating TGF- $\beta$  pathway). Moreover, the joint tissues undergo complicated pathological changes during OA; different tissues need different interventions. Thus, our first aim is to screen the novel cartilage-targeting (CT) adeno-associated virus (AAV) and synovium-targeting (ST) AAV by directed evolution. Optogenetics provides powerful tools for the light-controlled signalling pathway activity and gene expression. Thus, our second aim is to spatiotemporally control the TGF- $\beta$  pathway activity to add an on-off switch by incorporating the genes of light-responsive proteins into the TGF- $\beta$  receptor genes and packing by CT-AAV to induce cartilage regeneration and avoid malignancy, and to construct IL-1Ra constant expression system by packing by ST-AAV to anti-synovitis. After establishing the optogenetic controlled CT-AAV: TGF- $\beta$  system, and ST-AAV: IL-1Ra system, our third aim is to test the effect of this combined therapeutic strategy in a rat destabilisation of medial meniscus model. This project offers a new idea for OA gene therapy, and the application of optogenetics in traditionally challenging diseases.

## FP10.15

**Robotic-assisted patellofemoral joint optimisation in total knee arthroplasty: a pilot case series****Wai Hong Lau<sup>1</sup>, Thomas Ka Chun Leung<sup>1</sup>, Lawrence Chun Man Lau<sup>2</sup>, Michelle Hilda Luk<sup>1</sup>, Amy Cheung<sup>1</sup>, Ping Keung Chan<sup>2</sup>, Henry Fu<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** Postoperative patellar maltracking and anterior knee pain remain common complications of total knee arthroplasty. This pilot study evaluates the feasibility, safety, and short-term outcomes of a novel, objective robotic-assisted patellofemoral joint tracking algorithm to inform a future randomised controlled trial.

**Methods:** Twenty patients (mean body mass index, 27.1; 10.1° varus) underwent MAKO robotic-assisted total knee arthroplasty. The native tracking baseline was established after routine osteophyte removal. After trial component insertion, dynamic patellofemoral joint tracking was evaluated continuously from 0° to 90° flexion using a robotic tracker, and an array of >2 mm deviation at any point triggered a sequential protocol: (1) lateral release, (2) lateral facetectomy, and (3) patellar resurfacing. Key outcomes included 6-month radiographic angles, Kujala score, visual analogue scale scores, and complication/revision rates.

**Results:** Three (15%) patients triggered the protocol, successfully optimised via lateral release (n=2) and facetectomy (n=1); none required resurfacing. Radiographically, mean skyline tilt improved from 8.9°±4.5° to 2.4°±2.0° (p<0.01); lateral facet angle increased from 7.2°±6.0° to 11.9°±3.3° (p<0.01). Clinically, 6-month mean Kujala scores improved from 45.1±5.0 to 85.6±5.9 (p<0.01), and visual analogue scale score decreased from 7.5±1.3 to 1.4±1.1 (p<0.01). Complication and revision rates were 0%.

**Conclusion:** Implementing an objective, robotic-assisted patellofemoral tracking algorithm safely maintains physiological kinematics throughout flexion and minimises the need for secondary interventions. This standardised, data-driven approach yields excellent early clinical and radiographic outcomes, justifying progression to a definitive randomised controlled trial.

## FP10.16

**Fate of the infected unicompartmental knee arthroplasty: a New Zealand joint registry study****Elizabeth Wen Wei Cullen<sup>1</sup>, Chris Frampton<sup>2</sup>, Amir Sandiford<sup>3</sup>**<sup>1</sup>*Department of Orthopaedics, Southland Hospital, New Zealand*<sup>2</sup>*Department of Medicine, University of Otago, New Zealand*<sup>3</sup>*Department of Orthopaedics, Southland Hospital, New Zealand*

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## FP10.17

**Could we switch the model of unicompartmental knee arthroplasty from inpatient care to ambulatory basis? Comparative cohort study of day surgery versus ward admission surgery****Tin Sui Ko, Lewis Ng, Yifei Ma, Ignatius Tsz Tsun Ip***Department of Orthopaedics and Traumatology, Kwong Wah Hospital*

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## FP10.18

### **Factors influencing successful same-day discharge after unicompartmental knee arthroplasty: a retrospective study**

**Douglas See Lok Ho, Chi Kit Chiu, Chi Hei Ho**

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**Introduction:** Same-day discharge (SDD) after unicompartmental knee arthroplasty (UKA) is increasingly adopted to improve healthcare efficiency and patient-centred recovery. However, predictors of successful SDD, particularly in Asian populations, remain less investigated. This study aimed to identify independent factors associated with SDD success in a Hong Kong cohort.

**Methods:** A retrospective cohort study of 172 consecutive patients who underwent UKA at a single centre between 2020 and 2025 was conducted. Univariate and multivariate logistic regression were conducted to identify predictors of SDD success. Sensitivity analyses were performed, and temporal trends in SDD rates and 30-day readmission rates were evaluated.

**Results:** First-case scheduling and preoperative unaided mobility were independent predictors of SDD success. Higher preoperative Oxford Knee Score remained significantly associated with successful SDD in sensitivity analyses. SDD success rates showed a clear upward trend across the study period. No increase in 30-day readmissions was observed among patients who achieved SDD. Patient refusals accounted for a notable proportion of unsuccessful discharges.

**Conclusion:** First-case scheduling and favourable preoperative functional status are key modifiable factors associated with successful SDD after UKA. These findings support prioritised operating theatre scheduling and targeted prehabilitation to safely increase SDD rates. The absence of increased readmissions reinforces the safety of structured SDD pathways in appropriately selected patients. Implementation of such protocols may optimise resource utilisation in high-volume UKA centres.

## FP10.19

### **Same-day discharge knee replacement: safe, effective, and efficient**

**Amy Cheung<sup>1</sup>, Michelle Hilda Luk<sup>1</sup>, Nga Lun Sze<sup>2</sup>, Lawrence Chun Man Lau<sup>3</sup>, Thomas Ka Chun Leung<sup>1</sup>, Sai Kit Lin<sup>2</sup>, Ping Keung Chan<sup>3</sup>, Kwong Yuen Chiu<sup>3</sup>, Henry Fu<sup>3</sup>**

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## FP10.20

### **How well are we aligning and balancing the knees with robots? A retrospective cohort comparing pre- and post-operative coronal plane alignment of the knee and robotic evaluation of articular laxity classifications**

**Po Lin Peng<sup>1</sup>, Thomas Ka Chun Leung<sup>2</sup>, Lawrence Chun Man Lau<sup>3</sup>, Michelle Hilda Luk<sup>2</sup>, Amy Cheung<sup>2</sup>, Ping Keung Chan<sup>3</sup>, Kwong Yuen Chiu<sup>3</sup>, Henry Fu<sup>3</sup>**

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## FP10.21

**Perioperative use of glucagon-like peptide-1 receptor agonists in primary total knee arthroplasty: a scoping review of 59 267 patients****Sandra Wan, Lawrence Chun Man Lau, Thomas Ka Chun Leung, Michelle Hilda Luk, Amy Cheung, Henry Fu, Kwong Yuen Chiu, Ping Keung Chan***Department of Orthopaedics and Traumatology, Queen Mary Hospital*

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## FP10.22

**Optimising deep-learning binary classification of radiographic knee osteoarthritis using a novel balance-based Kellgren-Lawrence system****Chun Ho Lau<sup>1</sup>, Wing Ki Cheung<sup>2</sup>, Yin Tai Isaac Chung<sup>2</sup>, Yat Hong Kwan<sup>2</sup>, Jerone Chiu<sup>1</sup>, Ryon Sze Chun Lo<sup>1</sup>, Alvin Wong<sup>1</sup>, Thomas Ka Chun Leung<sup>2</sup>, Lawrence Chun Man Lau<sup>2</sup>, Henry Fu<sup>2</sup>**<sup>1</sup>*The University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*

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## FP10.23

**Revision risk varies across implant systems after primary total knee arthroplasty: is there a winner?****Xinyue Chang<sup>1</sup>, Michelle Hilda Luk<sup>2</sup>, Amy Cheung<sup>2</sup>, Lawrence Chun Man Lau<sup>1</sup>, Thomas Ka Chun Leung<sup>2</sup>, Henry Fu<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*

**Introduction:** In Hong Kong, implant choices are abundant for total knee arthroplasty (TKA), but evidence comparing primary TKA implant systems remains limited. This study compared early revision outcomes of commonly used primary TKA implant systems.

**Methods:** A retrospective multicentre cohort study was conducted using the Clinical Data Analysis and Reporting System, including all primary TKAs performed between 2021 and 2024. Revision outcomes were evaluated using multivariable Cox regression models adjusted for patient characteristics (age and sex), clinical practice factors (hospital volume, use of enabling technology, patellar resurfacing, case complexity, and year of operation), and implant design factors (fixation, stability, and bearing type).

**Results:** A total of 11 269 primary TKAs were included, with a median follow-up duration of 2.7 years. The mean patient age was 71.2 years, and 69.2% were women. Crude revision rates were low across implant systems (Triathlon: 2.0%; Persona: 0.8%; NexGen: 0.7%; Journey II: 1.2%; Attune: 0.9%; others: 1.1%). Implant systems differed in enabling technology (navigation: 15.7%, robotics: 36.4%, conventional surgery: 47.8%), patellar resurfacing (46.7%), fixation (cemented: 91.5%, cementless: 8.5%), stability design (cruciate-retaining: 17.6%, posterior-stabilised: 81.7%, other constrained designs: 0.7%), and bearing type (fixed: 96.1%, mobile: 3.9%) [all  $p < 0.001$ ]. In the adjusted analysis, Persona (hazard ratio [HR]=0.42,  $p=0.006$ ), NexGen (HR=0.46,  $p=0.040$ ), and Attune (HR=0.40,  $p=0.020$ ) showed lower revision risk. Female sex (HR=0.50,  $p < 0.001$ ) and patellar resurfacing (HR=0.56,  $p=0.012$ ) were also associated with lower revision risk, whereas other adjusted factors were not associated with revision risk.

**Conclusion:** Commonly used primary TKA implant systems demonstrated differences in revision outcomes in clinical practice. Implant-system performance should be evaluated considering patient, clinical practice, and implant design factors.

#### FP10.24

### High 2-week postoperative C-reactive protein after first-stage revision is associated with failed two-stage exchange for periprosthetic joint infection

Victoria Yuk Ting Hui, Lawrence Chun Man Lau, Will Wai Hong Lau, Martin Shun Sing Cheng, Thomas Ka Chun Leung, Michelle Hilda Luk, Lewis Ping Keung Chan, Amy Yim Ling Cheung, Yuen Chiu Kwong, Henry Chun Him Fu

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#### FP10.25

### Association of type II diabetes mellitus and lower limb alignment

Lawrence Chun Man Lau<sup>1</sup>, Justin Christopher Chan<sup>1</sup>, Chun Pang Shum<sup>1</sup>, Martin Cheng<sup>2</sup>, Will Lau<sup>2</sup>, Thomas Leung<sup>2</sup>, Michelle Hilda Luk<sup>2</sup>, Lewis Chan<sup>1</sup>, Amy Cheung<sup>2</sup>, Henry Fu<sup>1</sup>

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#### FP10.26

### Investigating the prevalence, patterns, and predictors of joint-related nutraceutical supplement consumption among knee osteoarthritis patients in Hong Kong: a cross-sectional study

Joyce Cin Yan Ho, Pui Kwong Cheung, Kaai Ting Jerry Kong, Alex Yuning Zhang, Lawrence Chun Man Lau, Thomas Ka Chun Leung, Michelle Hilda Luk, Amy Yim Ling Cheung, Henry Fu, Ping Keung Chan

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**Introduction:** Knee osteoarthritis (KOA) is common in Hong Kong and imposes a substantial economic burden. With the high consumer spending on nutraceuticals in Hong Kong and their uncertain clinical benefit, this study aimed to characterise the burden of joint-related nutraceutical use.

**Methods:** Patients aged 50 years or older with KOA were recruited from the outpatient clinics of Queen Mary Hospital and MacLehose Medical Rehabilitation Centre. Data were collected regarding sociodemographic characteristics, clinical features, Western Ontario and McMaster Universities Index, Kellgren-Lawrence grade, comorbidities, and nutraceutical use. Six-month nutraceutical costs were estimated based on retail prices, dose, and frequency. Multivariable logistic regression and generalised linear models were used to identify predictors of nutraceutical use and cost, respectively.

**Results:** Among 390 KOA patients recruited, 43.1% were current users, 22.6% were previous users, and 34.4% were never users of nutraceuticals. Awareness most often came from friends, family, or relatives. The median 6-month nutraceutical cost was HK\$1093.44 (interquartile range=350.55-2336.00). Higher education level was significantly associated with nutraceutical use (adjusted odds ratio=2.170, 95% confidence interval=1.448-3.252,  $p<0.001$ ). Education level, Western Ontario and McMaster Universities Index physical function score, Kellgren-Lawrence grade 4, and hypercholesterolaemia were significantly associated with 6-month nutraceutical cost.

**Conclusion:** The observed level of nutraceutical consumption is high among Asian countries. Observed high peer influence and education level association may indicate that nutraceutical consumption is based on values and awareness rather than on pain. Long waiting times for medication may also encourage self-care behaviour.

## FP10.27

**Development of a clinical prediction rule for poor response to non-surgical intervention in end-stage knee osteoarthritis patients**

Hoi Ying Ng<sup>1</sup>, Linda Man Kuen Li<sup>1</sup>, Cham-Kit Wong<sup>2</sup>, Mingde Cao<sup>3</sup>, Ioi Chit Cheung<sup>3</sup>, Chloe Sze Man Leung<sup>1</sup>, Yin Chung Tsui<sup>1</sup>, Michael Tim-Yun Ong<sup>3</sup>, Patrick Shu Hang Yung<sup>3</sup>

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**Introduction:** This study aimed to develop a clinical prediction model for poor response to non-surgical intervention in end-stage knee osteoarthritis (KOA) patients, based on baseline patient characteristics.

**Methods:** We retrospectively included 600 patients who had a Knee Society Score of <65 and were enrolled in the structured non-surgical treatment programme for KOA between October 2021 and December 2025. We applied logistic least absolute shrinkage and selection operator regression to select the model variables and compared with logistic regression. Poor response was defined as failure to meet the minimal clinically important change of 1 in numerical pain rating score following the 6-week structured non-surgical treatment programme. The area under the receiver operating characteristic curve was used to quantify performance of the two models.

**Results:** A total of 256 (42.7%) patients were classified as poor responders. Six most powerful factors were included in the prediction models: Kellgren-Lawrence grading system, Knee Society Functional Assessment – walking subscore, Knee Injury Osteoarthritis Score – pain, quality of life, and activities of daily living subscores, and numerical pain rating score. Both regression models showed acceptable discrimination, with areas under the curve of 0.68 and 0.71, sensitivity of 0.68 and 0.76, and specificity of 0.61 and 0.57, respectively. Decision curve analysis suggested that the nomogram had value for clinical use when the threshold ranged between 10% and 80%.

**Conclusion:** We presented a new prediction model with acceptable diagnostic performance as a clinical tool to identify potential poor responders to physiotherapy in KOA patients. Measurements of these characteristics may flag the need for close monitoring or escalation to surgical care.

## Electronic Poster Presentations

### P01

#### **Osteochondromatosis of knee: a rare cause of joint pain and stiffness case report and review of literature**

**Bobby Ng**

*Private practice*

Synovial osteochondromatosis is a rare condition. It is an ill-defined condition with limited understanding in all aspects of its clinical presentation. Diagnosis can be difficult and requires special investigations. The rare nature of this condition leads to poor understanding and misunderstanding. We report a case to illustrate the management pitfalls of this condition. A 44-year-old man presented with left knee pain for 20 years. Past treatment included open excision 15 years ago with no improvement. He developed progressive increase of pain and numbness of toes. Examination showed the patient walking with a limp from limited swing phase, and the knee was in slight flexion during gait cycle. On standing the popliteal fossa was full palpation, and the popliteal artery was pounding like an aneurysm. X-rays did not adequately show the lesion. Magnetic resonance imaging localised the lesion. Operative treatment by open excision was performed. Wide open excision was performed. After arthrotomy, smooth surface was found obliterating the intercondylar notch. Intraoperative image intensification was required to enable piecemeal chisel excision of the firmly embedded lesion. Postoperatively, the patient was well and relieved of pain symptoms. The clinical appearance of the osteochondromatosis is misleading as it appears like normal cartilage surface making excision difficult. Navigation-guided procedure should be the treatment of choice to enable precise localisation and excision of such lesion.

### P02

#### **Occult femoral shaft fracture: a rare type of injury: a case report and review of literature**

**Bobby Ng**

*Private practice*

Most of the femoral shaft fractures in children are associated with major accidents such as traffic accidents, falls from heights, and competitive sports injuries. The diagnosis is straightforward. Occult femoral shaft fracture is rare and causes diagnostic challenges and management difficulties. A 2-year-old girl injured her right leg while she was pony riding with her mother. They fell off the pony forwards when the pony collapsed. Her mother fell on top of her and injured her thigh. They attended a local hospital; X-rays and computed tomographic scans did not detect any fracture. They returned home and the patient was seen 1 week after her injury. The patient was able to walk, and there was no swelling or tension in the thigh soft tissue. Three days later, while climbing up a shelf at home, the child fell and developed swelling and severe pain in her thigh. X-rays confirmed a transverse fracture of the femur. The patient had immediate hip spica application, and the fracture had healed uneventfully. Occult femoral shaft fractures are rare. Even occult fracture as part of non-accidental injury, skeletal examination is rare. A fracture that was not detectable on X-rays and computed tomographic scans has not been reported in the literature. There are limited data to guide treatment. Hip spica would be the treatment of choice. Discussion with parents is needed when it is applied in a prophylactic setting.

**P03****Ultrasound guided release of malunited avulsion fracture with correction of the finger stiffness****Sai Keung Chan***Private practice*

A 64-year-old man tripped and fell and had left little finger proximal interphalangeal joint (PIPJ) dislocation. He underwent closed reduction and splintage but was complicated by finger stiffness, with PIPJ range of motion of 5° to 30°. In revision surgery, a malunited displaced volar avulsion fragment was reduced after release with a needle under ultrasound guide and bone drilling with Kirschner wire. The left little finger PIPJ range of motion increased to 0° to 100°, and a full fist could be made. This case report showed that ultrasound can help fracture reduction with good result.

**P04****A rare case of pneumocephalus followed by incidental durotomy in revision lumbar discectomy****Arthur Kwok Hei Wong***Department of Orthopaedics and Traumatology, Princess Margaret Hospital*

Inadvertent durotomy during revision lumbar spine surgery can lead to rare but critical complications such as symptomatic pneumocephalus. A 43-year-old man with a 5-mm durotomy developed postoperative headache and tinnitus. Imaging confirmed frontal pneumocephalus caused by a negative-pressure, one-way valve effect from cerebrospinal fluid loss. Successful management involved urgent imaging, strict supine bed rest, and 100% non-rebreathing oxygen mask therapy for nitrogen washout, resulting in full resolution within 3 days. Early recognition and conservative management of this complication are vital to avoid emergency intracranial decompression.

**P05****Radiological and early clinical outcome in fibular nailing for Weber B fractures: a prospective evaluation of restoration of fibular anatomy****Sheryl Lok-Chi Man<sup>1</sup>, Lucci Lugee Liyeung<sup>1</sup>, Esther Man-Wai Chow<sup>1</sup>, Samuel Ka-Kin Ling<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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**P06****Effects of pulsed electromagnetic field therapy on hamstring muscle properties and knee functions in anterior cruciate ligament construction patients presenting with postoperative hamstring strength deficits: a double-blinded, placebo-controlled randomised study****Pauline Po Yee Lui, Christine Hoi Yan Fu, Jonathan Patrick Ng, Michael Tim Yun Ong, Patrick Shu Hang Yung, Ssu-chi Chen***Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

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## P07

### **Sustained release of three-dimensional microfibre-encapsulated adipose-derived stem cell extracellular vesicles via gelatin methacryloyl hydrogel enhances tendon repair over two-dimensional culture by promoting alternative macrophage polarisation**

**Pauline Po Yee Lui<sup>1</sup>, Haining Liu<sup>1</sup>, Tao Xu<sup>2</sup>, Jianwei Chen<sup>2</sup>**

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## P08

### **Fatty acid-binding protein 4 is a key driver in the pathogenesis of chronic tendinopathy**

**Pauline Po Yee Lui<sup>1</sup>, Shaowei Dong<sup>2</sup>, Chujun Deng<sup>1</sup>, Chi Ming Wong<sup>3</sup>**

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## P09

### **Optimising risk counselling prior to rigid plate removal in paediatric forearm fractures: a retrospective cohort analysis**

**Tin Ngo Oscar Mak<sup>1</sup>, Eric Cheuk-kin Kwan<sup>2</sup>, Yihua Ge<sup>2</sup>, Alec Lik-Hang Hung<sup>2</sup>**

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<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

**Introduction:** Plate removal after paediatric forearm fracture fixation may introduce risks of surgical complications, including localised bone thinning and empty screw tracts predisposing to refracture. This study evaluated the complication profile in our hospital to improve parental counselling and optimise postoperative precautions.

**Methods:** We retrospectively reviewed 37 cases of paediatric forearm fractures managed via rigid plating at our hospital between 2015 and 2024. Of these, 19 underwent plate removal and 18 retained their plates. Serial radiographs were taken to assess implant location, cortical thinning, and refracture propagation paths.

**Results:** At 2-year follow-up, the plate retention group remained complication-free. Conversely, the plate removal group had three complications: one wound adhesion with hypertrophic scarring and two secondary refractures. Both refractures occurred within the distal third of the radius without major trauma. Fracture propagation occurred directly through an empty screw tract at the centre of localised bone thinning left behind by the plate, rather than the diaphyseal-metaphyseal junction, exhibiting a consistent apex-volar angulation.

**Conclusion:** Complication rates after plate removal were lower in our hospital than in international cohorts, likely due to a lower caseload in our hospital. However, plate removal inherently elevates refracture risks at screw holes and sites of cortical indentation, particularly in the distal third of the radius; postoperative protective bracing may be beneficial. Highlighting the risk of refracture during parental counselling may help manage expectations. Further prospective studies using high-resolution peripheral quantitative computed tomography are warranted to monitor bone microarchitecture recovery and define the optimal time frame for protection.

## P10

**Rehabilitation outcomes of conservatively treated isolated greater trochanteric fractures**

**Tsz Hang Ma<sup>1</sup>, Cheuk Kin Kwan<sup>1</sup>, Yu Hei Choi<sup>2</sup>, Wing Hong Liu<sup>2</sup>, Chaoran Liu<sup>1</sup>, Sheung Wai Law<sup>1</sup>, Ronald Man Yeung Wong<sup>1</sup>**

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**Introduction:** Pelvis and hip radiographs are commonly used for the initial diagnosis of isolated greater trochanteric (GT) fractures, but they often fail to detect occult intertrochanteric extensions, which can be detected by advanced imaging such as magnetic resonance imaging and computed tomography. This study compared the clinical outcomes of conservatively managed isolated GT fractures initially diagnosed via X-ray to evaluate the necessity of routine advanced imaging.

**Methods:** This retrospective study reviewed 32 patients with isolated GT fractures who were conservatively managed at Tai Po Hospital between 2010 and 2021. Anteroposterior and lateral radiographs were used to make the initial diagnosis. Patients with radiographs revealing intertrochanteric extensions were excluded. Outcomes were compared between those allowed immediate full weight bearing (n=22) and those allowed restricted weight bearing (n=10). The primary outcome was fracture union at 6 months, and secondary outcomes included secondary displacement, mobility at discharge, length of hospital stay, discharge destination, and mortality rates at 3 months and 1 year.

**Results:** All patients achieved fracture union by 6 months without secondary displacements, and the mean hospital stay was 24.4 days. Patients with full weight bearing had better discharge mobility than those with restricted weight bearing (Modified Functional Ambulation Category:  $4.4 \pm 1.4$  vs  $3.0 \pm 1.7$ ,  $p=0.03$ ). There were no significant differences in other parameters.

**Conclusion:** Isolated GT fractures diagnosed on initial X-ray can be conservatively managed and allow full weight bearing. Further imaging to exclude intertrochanteric extensions may not be necessary. Larger randomised trials are needed to confirm these findings for future clinical application.

## P11

**Evaluating the regulatory role of macrophage on mitochondrial functions in tendon-derived stem cells**

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P12

## Neuromuscular junction and motor unit divergence in osteosarcopenia: single-fibre and deep-learning surface electromyography evidence

**Can Cui<sup>1</sup>, Shichen Qi<sup>2</sup>, Qianjin Wang<sup>1</sup>, Yee-ling Au<sup>1</sup>, Zhou Ke<sup>1</sup>, Ronald Man Yeung Wong<sup>1</sup>, Yong Hu<sup>2</sup>, Wing Hoi Cheung<sup>1</sup>**

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**Introduction:** Sarcopenia and osteoporosis frequently co-occur as osteosarcopenia, amplifying falls and fracture risk. Although both entail neuromuscular deterioration, whether neuromuscular junction transmission and motor unit integrity are differentially impaired across this spectrum remains unknown. We addressed this using single-fibre electromyography (EMG), nerve conduction studies, and deep-learning surface EMG decomposition.

**Methods:** Deep-learning surface EMG decomposition was first validated against single-fibre EMG in 43 older adults in terms of convolutional neural network-derived motor unit number estimation, firing rate, and motor unit action potential. The investigation was then extended to 72 participants stratified into normal, osteoporosis, sarcopenia, and osteosarcopenia groups who underwent single-fibre EMG, nerve conduction study, and interference analysis. Significance was set at  $p \leq 0.05$  by one-way analysis of variance.

**Results:** Sarcopenia showed elevated jitter ( $49.71 \pm 5.38$  vs  $40.73 \pm 6.30$   $\mu$ s,  $p=0.002$ ) and fibre density (3.03 vs 2.72,  $p=0.036$ ), with reduced motor unit number estimation (41 vs 129,  $p<0.0001$ ) and firing rate (18.1 vs 21.0 Hz,  $p=0.005$ ). Motor unit number estimation discriminated sarcopenia (area under the curve [AUC]=0.95) and correlated inversely with jitter ( $r=-0.711$ ,  $p=0.002$ ), whereas the convolutional neural network detected pathological jitter (AUC=0.93). Subsequent four-group analysis revealed that only sarcopenia exhibited significantly elevated jitter ( $p<0.001$ ) and fibre density ( $p<0.05$ ); osteoporosis and osteosarcopenia did not differ from controls in jitter, although both demonstrated reduced interference pattern ( $p<0.05$ ).

**Conclusion:** Neuromuscular junction impairment was specific to sarcopenia, as neither osteoporosis nor osteosarcopenia showed significant jitter elevation. The reduced interference pattern in osteoporosis and osteosarcopenia, however, indicates motor-unit recruitment deficits mechanistically distinct from neuromuscular junction transmission failure. Deep-learning surface EMG non-invasively captured both components (AUC=0.93-0.95), supporting its role in neuromuscular risk stratification.

## P13

**Comparison of rehabilitation outcomes between surgical and conservative treatments for non-displaced intertrochanteric proximal femur fractures****Rossetti Hiu Yin Lam<sup>1</sup>, Richard Ku<sup>1</sup>, Cheuk Kin Kwan<sup>1</sup>, Yu Hei Choi<sup>2</sup>, Sheung Wai Law<sup>1</sup>, Ronald Man Yeung Wong<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

**Introduction:** Fractures with <50% intertrochanteric extension can be conservatively managed, with minimal displacement risk. However, conservative management of trochanteric fractures with greater degree of intertrochanteric extension is less investigated. This study compared the clinical outcomes between surgical and conservative management of non-displaced trochanteric fractures (TOF) with >50% intertrochanteric extension diagnosed by magnetic resonance imaging (MRI).

**Methods:** A retrospective cohort study at a single tertiary trauma centre in Hong Kong was performed, including patients aged ≥60 years with MRI-identified non-displaced TOF with >50% intertrochanteric extension. Eight patients were managed conservatively, and 32 patients were managed with cephalomedullary nails. Primary outcomes included radiographic union at 3 months. Secondary outcomes included secondary displacement, mobility at discharge, length of hospital stay, and mortality rate at 3 months and 1 year.

**Results:** All fractures in both groups achieved union within 6 months without secondary displacement. Baseline demographics, sex distribution, and pre-injury mobility were comparable between groups. Conservative management showed no significant differences in 3-month or 1-year mortality, length of stay, rate of discharge to residential care, or mobility on discharge, compared with surgical management.

**Conclusion:** Conservative management may be a viable option for MRI-diagnosed non-displaced TOF. Given the limited sample size, further prospective randomised studies are needed to validate these findings.

## P14

### **A potential solution for hard-to-heal wounds: the application of artificial dermal substitutes in the management of infected posterior heel wounds**

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**Introduction:** Soft tissue defects in the posterior heel are challenging to manage due to the limited soft tissue reserve and suboptimal local blood supply. Traditionally, flaps are required to cover such defects when deep structures are exposed. Problems with donor-site morbidities and optimisation of functional and cosmetic outcomes remain a key challenge. Artificial dermal substitutes may serve as a potential solution to manage these wounds.

**Methods:** This case series included patients with posterior heel wounds treated with artificial dermal substitute between November 2023 and June 2026. The underlying pathologies, risk factors, complications, and healing progress were reviewed retrospectively.

**Results:** Eight patients, with a mean age of 64.1 years, were included. The aetiologies of wounds were pressure sores (n=2), injury (n=3), infection (n=2), and postoperative wound dehiscence (n=1). Six (75%) patients had a history of diabetes, and the mean glycated haemoglobin was 8.2. Achilles tendon and/or calcaneum was exposed in seven patients. Seven wounds were complicated by polymicrobial infection, and the most common pathogens were staphylococcus, pseudomonas, and corynebacterium. Infection control was achieved in five patients with a mean time of 60±47.4 days. Secondary procedures for wound closure or coverage were performed in four patients within 51±10.7 days without major flap reconstruction. Two patients died of heart failure and aspiration during the follow-up period. There was no amputation or adverse reaction in all patients.

**Conclusion:** Artificial dermal substitute can serve as safe temporary wound coverage in the infected posterior heel wounds. It has potential benefits to promote wound healing before infection clearance and enhance functional recovery compared to traditional dressings.

## P15

### **Chronic pain in old people and underlying mechanisms revealed by single-nuclei analysis of dorsal root ganglion from aged mice**

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## P16

### **Underarm bracing can achieve curve regression in selected large curves to avoid risk of adulthood deterioration or surgical thresholds in adolescent idiopathic scoliosis**

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## P17

**Impaired bone lymphatic function compromises fracture healing in diabetic mice****Yingluo Gu<sup>1</sup>, Zhaowei Jiang<sup>1</sup>, Jiakang Jin<sup>1</sup>, Haixing Wang<sup>2</sup>, Sien Lin<sup>3</sup>, Louis Wing Hoi Cheung<sup>1</sup>, Gang Li<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*<sup>2</sup>*Institute of Biomedicine and Biotechnology, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences*<sup>3</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*

**Introduction:** Skeletal lymphatic system is involved in bone fluid absorption, transport, and lymphangiocrine. Diabetes mellitus is a metabolic disorder associated with an increased risk of fractures and unsatisfactory therapeutic outcomes. However, the specific role of lymphatic system in diabetic bone healing remains unclear.

**Methods:** Tibial fracture models were established in C57, db/db (type-2 diabetes) and streptozotocin-induced (type-1 diabetes) mice. Callus formation and biomechanics were assessed by micro-computed tomography, X-ray, three-point bending, histology, and immunohistochemistry. Lymphatic function was evaluated by in vivo imaging system, flow cytometry, immunofluorescence, and quantitative real-time polymerase chain reaction. Single-cell RNA sequencing was also performed to explore cellular and molecular mechanisms.

**Results:** Inhibition of the lymphatic system in non-diabetic mice significantly reduced bone mechanical strength, induced heterogeneous mineralisation, decreased trabecular connectivity, and diminished cartilaginous callus area. Diabetic mice exhibited irregularly arranged cortical lymphatic vessels, impaired trabecular bone formation, and severely compromised biomechanical properties. Meanwhile, smaller local lymph nodes and impaired lymphatic drainage were also witnessed in the fracture site. Analysis of callus single-cell RNA sequencing dataset confirmed the presence of immune cells, chondrocytes, osteogenic cells, and endothelial cells. Notably, gene ontology analysis of lymphatic endothelial cells revealed impaired adhesion function in db/db callus, indicating a compromised structural and functional response during fracture healing.

**Conclusion:** The lymphatic system is indispensable for maintaining callus quality. Lymphatic dysfunction may serve as a critical driver of insufficient endochondral ossification, thereby resulting in fragile callus formation. Therapeutic strategies targeting lymphangiogenesis to accelerate the debris clearance and enhance endochondral ossification hold great promise in improving diabetic bone regeneration.

P18

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## **The PIEZO2-HIF1A axis regulates angiogenesis and interzone cavitation during human embryonic knee development**

**Kaixu Yu, Jiankun Xu, Wenxue Tong, Ling Qin**

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**Introduction:** Human knee morphogenesis relies on tightly coordinated interzone remodelling, angiogenesis, and cavitation during early embryogenesis. Dysregulation of these processes can result in congenital knee malformations. However, the molecular mechanisms linking mechanical sensing, hypoxic response, and vascular patterning during human knee development remain largely undefined.

**Methods:** We performed spatial transcriptomic profiling of four continuous human embryonic knee sections to map the spatial expression patterns of PIEZO2 and HIF1A. We further analysed their co-localisation and explored potential regulatory interactions within the developing knee interzone.

**Results:** We found that PIEZO2 and HIF1A exhibit highly specific co-expression pattern restricted exclusively to the embryonic knee joint interzone. This distinct spatial localisation suggests a mechanistic cascade in which mechanosensitive PIEZO2 may activate downstream HIF1A signalling, thereby regulating interzone cell apoptosis and local angiogenesis, a process essential for normal joint formation.

**Conclusion:** This study identifies a previously unrecognised interzone-specific PIEZO2-HIF1A regulatory axis during human knee development. Our findings reveal a novel molecular link connecting mechanical sensation, hypoxic signalling, vascular remodelling, and interzone cavitation. Together, these results provide new mechanistic insights into embryonic knee morphogenesis and offer a potential framework for understanding the pathogenesis of congenital knee developmental disorders.

## P20

**Evaluating the effectiveness of gamified sports injury education through community-based 'Pain Killer' board game workshops****Gladys Sin-Wing Ho, Samuel Ka-Kin Ling, Will Hin-Wai Wong***Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*

**Introduction:** Sports injuries are common among Hong Kong adolescents, yet structured sports medicine education at the secondary school level remains limited. Gamification has shown potential to improve health knowledge and attitudes among youth learners, but physical board games specifically designed for sports injury education have not been evaluated. This study evaluated the 'Pain Killer' board game, which was developed after the principal investigator visited over 25 organisations across Hong Kong, to identify local knowledge gaps.

**Methods:** A single-group pre-post design was used. Forty-four Form 4 and Form 5 students from Jockey Club Ti-I College participated in a 90-minute workshop on 19 to 20 March 2026. The workshop comprised a 10-minute pre-test, a 45-minute board game session, a 10-minute mini-lecture, a 15-minute group discussion, and post-test. Knowledge was assessed using a 15-item multiple-choice questionnaire; attitudes were assessed using a six-item post-test-only Likert scale (1-5). Data were analysed using paired-samples t test, with Cohen's d for effect size. Ethical approval was granted.

**Results:** The post-test knowledge scores were significantly higher than the pre-test scores ( $9.61 \pm 2.15$  vs  $8.41 \pm 1.81$ ,  $t(43)=4.179$ ,  $p<0.001$ ), with a medium-to-large effect (Cohen's  $d=0.630$ ). The greatest gains were in plantar fasciitis symptoms (+25.0) and ligament sprain treatment (+18.2). Post-workshop attitudes were positive across all six items ( $3.89 \pm 0.62$ ,  $\alpha=0.843$ ).

**Conclusion:** A single gamified board game workshop produced short-term significant improvements in sports medicine knowledge and positive attitudes among secondary school students, supporting board games as feasible tools for community sports injury education. Future studies should adopt controlled designs.

## P21

**Sensory nerves participate in the regulation of antibacterial immune response in fracture-related infection****Ranyang Tao, Baoqi Li, Xibang Zhao, Tao Huang, Chaoran Liu, Ronald Man Yeung Wong***Department of Orthopaedics and Traumatology, Prince of Wales Hospital*

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P22

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**A magnetically responsive smart biomaterial strategy for osteogenesis**

**Xiaoxu Xu, Qianjin Wang, Nan Hou, Ning Zhang, Ronald Man Yeung Wong, Elvis Chun-Sing Chui, Wing-Hoi Cheung**

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**Introduction:** Mechanical stimulation is a critical physical cue regulating bone regeneration. Low-magnitude high-frequency vibration has been demonstrated to promote osteogenic differentiation and enhance bone repair. However, conventional mechanical vibration primarily relies on external whole-body vibration devices. During this process, vibration signals inevitably attenuate and may simultaneously impose undesired mechanical stimulation on non-target tissues. To address these limitations, we propose an in situ localised mechanical stimulation strategy, in which a magnetically responsive biomaterial implanted at the target site generates dynamic mechanical stimulation under an external magnetic field, thereby transforming mechanical cue delivery from remote transmission to local in situ generation.

**Methods:** A magnetically responsive smart hydrogel was developed using gelatin methacryloyl as the primary matrix and dopamine-grafted oxidised carboxymethyl cellulose as a functional crosslinking component. Polydopamine-coated magnetic nanoparticles were incorporated into the hydrogel to confer magnetic responsiveness. Upon exposure to an alternating magnetic field, the magnetic nanoparticles induce dynamic deformation of the hydrogel network, providing continuous mechanical stimulation to surrounding tissues and mimicking a localised mechanical microenvironment analogous to low-magnitude high-frequency vibration.

**Results:** The hydrogel exhibited excellent cytocompatibility. Furthermore, in an animal model of fracture, the hydrogel remained stably retained at the fracture site and showed favourable local tissue compatibility, supporting its feasibility as an implantable mechanical stimulation platform for bone tissue engineering.

**Conclusion:** This study presents a new smart biomaterial strategy for precise regulation of the local mechanical microenvironment and provides a promising approach for the localised delivery of mechanical cues in bone tissue engineering.

## P23

### Combined low-magnitude high-frequency vibration and $\beta$ -hydroxy- $\beta$ -methylbutyrate attenuates age-related sarcopenia by improving muscle quality and mitochondrial homeostasis

**Qianjin Wang, Can Cui, Ning Zhang, Ronald Man Yeung Wong, Wing-Hoi Cheung**

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**Introduction:** Sarcopenia is characterised by age-related declines in skeletal muscle mass and function. This study investigated whether low-magnitude high-frequency vibration (LMHFV) combined with  $\beta$ -hydroxy- $\beta$ -methylbutyrate (HMB) could attenuate sarcopenia in an accelerated-aging mouse model.

**Methods:** Male SAMP8 (senescence-accelerated mouse prone 8) mice were allocated to control, LMHFV (35 Hz, 0.3 g, 20 min/day, 5 days/week), HMB (500 mg/kg/day, 5 days/week), or combined treatment groups. Interventions commenced at 6 months, with outcomes assessed at 8 and 10 months. Muscle mass, body composition, grip strength, ex-vivo contractility, intramuscular fat, and mitochondrial ultrastructure were evaluated. Mitochondrial membrane potential and reactive oxygen species were assessed in differentiated C2C12 myotubes.

**Results:** Four months later, combined treatment raised triceps surae wet weight and maintained lean mass, with no change in body weight. Grip strength and tetanic force improved and intramuscular fat accumulation decreased. There was less mitochondrial swelling, cristae disruption, and structural degeneration following treatment. Combined therapy increased expression of the mitochondrial fusion protein MFN2, whereas LMHFV and HMB reduced the fission-related protein DRP1. In C2C12 myotubes, HMB and combined treatment enhanced mitochondrial membrane potential, and combined treatment significantly reduced oxidative stress. Overall, the combined intervention improved muscle quantity, quality, contractile function, and mitochondrial homeostasis.

**Conclusion:** LMHFV combined with HMB attenuated sarcopenia by preserving muscle mass and function, reducing fat infiltration, and improving mitochondrial integrity and dynamics. This non-invasive mechanical and nutritional strategy merits further investigation and clinical translation for sarcopenia management.

**Acknowledgement:** The study was funded by CRF (21-230-CRF), GRF (14114822), and AoE (AoE/M-402/20).

## P25

### Patching and onlay techniques in managing dural tear in unilateral biportal endoscopy for lumbar spinal stenosis: a case series and literature review

**Suk Ying Mak<sup>1</sup>, Chuek Yin Tam<sup>1</sup>, Wai Him Lam<sup>1</sup>, Jimmy Kit Yan Lau<sup>1</sup>, Siu Man Leung<sup>1</sup>, Cho Yau Lo<sup>2</sup>, Chun Man Ma<sup>2</sup>**

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## P26

### **Rapid learning of thumb ossification composite index grading after a 30-minute training programme: a pilot reliability and feasibility study**

**Oscar Tin-ngo Mak<sup>1</sup>, Jamie Tsun Chiu<sup>1</sup>, Eric Cheuk-kin Kwan<sup>2</sup>, Kenneth Guangpu Yang<sup>2</sup>, Adam Yiu-chung Lau<sup>2</sup>, Tsz Ping Lam<sup>2</sup>, Jack Chun-yiu Cheng<sup>2</sup>, Alec Lik-hang Hung<sup>2</sup>**

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## P27

### **Cementless versus cemented total knee arthroplasty: a population-based study**

**Yichen Zhang<sup>1</sup>, Eunice Xiao<sup>1</sup>, Ka Chun Leung<sup>2</sup>, Lawrence Chun Man Lau<sup>1</sup>, Michelle Hilda Luk<sup>2</sup>, Amy Cheung<sup>2</sup>, Henry Fu<sup>1</sup>**

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<sup>2</sup>Department of Orthopaedics and Traumatology, Queen Mary Hospital

**Introduction:** The method of implant fixation—cemented versus cementless—remains one of the most debated topics in arthroplasty. Large-scale studies evaluating performance within Hong Kong's public healthcare infrastructure are lacking. This study compared clinical safety, resource utilisation, and implant durability of the two methods.

**Methods:** This retrospective cohort study extracted population data of primary total knee arthroplasties between 2021 and 2024. A cohort of 13 374 patients was obtained: 12 252 (91.6%) underwent cemented fixation and 1 122 (8.4%) underwent cementless fixation. Follow-ups were up to 60 months. Multivariable models were used to adjust for covariates.

**Results:** Prosthetic revision rates were 1.3% for cementless fixation and 0.8% for cemented fixation. In multivariable logistic regression, cemented fixation was not significantly associated with revision risk (odds ratio [OR]=0.782, p=0.402). Male sex (OR=2.203, p<0.001), non-high-volume hospitals (OR=1.757, p=0.007), and non-cruciate-retaining or posterior-stabilised designs (OR=2.652, p<0.001) independently predicted revision. Cemented fixation was independently associated with longer hospital stay ( $\beta$ =0.616 days, p<0.001) and increased 28-day readmission (OR=1.566, p=0.011).

**Conclusion:** Modern cementless implants achieve mid-term survivorship equivalent to the traditional cemented gold standard. Independent factors—male sex, lower hospital volume, and non-cruciate-retaining or posterior-stabilised designs—exert a far more significant influence on revision risk than the fixation method. Cementless fixation demonstrates distinct advantages regarding perioperative resource utilisation, correlating with a shortened hospital stay and a lower risk of acute post-discharge readmission.

## P28

**Case report of post-total hip arthroplasty iliopsoas impingement treated with arthroscopic iliopsoas tenotomy****Brian Lik Hang Leung<sup>1</sup>, Kevin Chi Him Fok<sup>1</sup>, Tak Man Wong<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*<sup>2</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*

Iliopsoas tendinitis with impingement due to mechanical irritation is a known cause of groin pain after total hip arthroplasty. Various surgical options have been reported for patients with refractory symptoms. Arthroscopic iliopsoas tenotomy has gained popularity in recent years. We report a case of a 65-year-old woman presenting with symptoms of debilitating left groin pain and reduced range of motion of her left hip due to iliopsoas impingement 2 years after total hip arthroplasty. Conservative treatments were attempted without significant improvement of her symptoms, which started to affect the patient's activities of daily living. Left hip arthroscopy was performed by outside-in technique via anterolateral and mid-anterior portals. Anterior hip capsule was debrided arthroscopically until iliopsoas muscle and tendon were identified. The iliopsoas tendon was then released at pelvic brim. Postoperatively the patient noted an immediate relief of impingement symptoms and a significant improvement in the range of motion of the left hip. The patient was able to resume all activities of daily living and exercises at 3 months postoperatively. In patients with refractory symptoms of iliopsoas impingement despite conservative management, arthroscopic iliopsoas tenotomy can be a safe and effective surgical option for symptom alleviation while avoiding more invasive surgical interventions such as open surgery or revision arthroplasty.

## P29

**Initiation of secondary fracture prevention following fragility distal radius fractures: a retrospective review****Sarah Sheena Toyat, Mohd Firdaus Mohd Aslam, Rashdeen Fazwi Muhammad Nawawi***Department of Orthopaedics, Hospital Selayang*

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## P30

**Deep learning for opportunistic knee bone mineral density estimation from high-resolution peripheral quantitative computed tomography scans: a proof-of-concept study****Xiaoli Liu<sup>1</sup>, Elvis Chun Sing Chui<sup>1</sup>, Ka Kwan Mak<sup>1</sup>, Jonathan Patrick Ng<sup>2</sup>, Dennis Cham Kit Wong<sup>3</sup>, Patrick Shu Hang Yung<sup>1</sup>, Michael Tim Yun Ong<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital*<sup>3</sup>*Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital*

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## P31

**Evaluation of a three-dimensional ultrasound reconstruction system for intraoperative navigation in distal humeral fractures****Elvis Chun Sing Chui<sup>1</sup>, Abudukelimu Kudelaiti<sup>1</sup>, Ziao Kuang<sup>1</sup>, Xiaoli Liu<sup>1</sup>, Wei Zhao<sup>2</sup>, Ronald Man Yeung Wong<sup>1</sup>, Patrick Shu Hang Yung<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong*<sup>2</sup>*Department of Orthopaedics, Southern University of Science and Technology Hospital,*

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**Neuromuscular and biomechanical profiles across playing positions in female footballers**

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**Introduction:** Research on female football players emphasises the importance of understanding positional differences in physical and performance characteristics. Previous studies have indicated that position-specific match demands may lead to variations in injury risks. This study aimed to investigate position-specific differences in neuromuscular and biomechanical profiles among female footballers using comprehensive test battery.

**Methods:** Female football players were classified into four groups: forward, midfielder, defender, and goalkeeper. Neuromuscular and biomechanical data were collected and analysed. Normality was verified using the Shapiro-Wilk test. One-way analysis of variance was applied, followed by Bonferroni post-hoc corrections when significant main effects were found.

**Results:** Thirty-five female footballers from Hong Kong Women's Football team (mean age,  $21.0 \pm 4.4$  years) including forwards ( $n=5$ ), midfielders ( $n=17$ ), defenders ( $n=8$ ), and goalkeepers ( $n=5$ ) were included. A significant position effect was observed for non-dominant hamstring-to-quadriceps ratio ( $p=0.021$ ). Post hoc analysis revealed that forwards exhibited significantly higher ratios than midfielders ( $0.873 \pm 0.365$  vs  $0.550 \pm 0.123$ ,  $p=0.021$ ). No significant differences were found between any other position pairs.

**Conclusion:** Neuromuscular and biomechanical profiles can serve as risk factors for sports injury. Sex disparities also significantly influence injury prevalence among athletes. Football, in particular, presents a unique set of injury risks that may vary according to the position played by the athlete. Forwards exhibit a superior hamstring-to-quadriceps balance on their non-dominant limb. This finding may imply that midfielders and defenders could benefit from targeted training interventions aimed at enhancing knee stability and subsequently reducing incidence of knee injuries.

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**Systematic review on conservative versus operative management for partial-thickness rotator cuff tears: recommended treatment algorithm and current limitations****Augustine Kai Chun Chan<sup>1</sup>, Kevin Chi Him Fok<sup>2</sup>, Brian Lik Hang Leung<sup>2</sup>, Kelvin Sin Chi Cheung<sup>1</sup>, Tak Man Wong<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital*

**Introduction:** Guidelines are not well-defined in management of partial-thickness rotator cuff tears (PTRCTs). We conducted a systematic review to compare clinical outcomes between operative and conservative treatment of PTRCTs, aiming to guide treatment decisions.

**Methods:** A literature search was conducted according to the PRISMA guidelines. Search strategy was designed specifically to capture studies reporting both conservative and operative treatment for PTRCTs. Study quality was assessed by the GRADE classification and Cochrane ROBINS-I tool for level of evidence and risk of bias, respectively. Primary clinical outcomes included pain scores, range of motion, and patient-reported outcome measures. Secondary outcomes included complications including tear progression and retear rates, revision surgery, and indications for treatment. A treatment algorithm was proposed.

**Results:** Five retrospective studies were included. Both operative and conservative treatment resulted in significant and comparable improvements in pain score, range of motion, and patient-reported outcome measures. Bursal-sided PTRCTs had lower pre-treatment scores, greater improvement in postoperative patient-reported outcome measures, and were more likely to require surgical repair. Patients with operative treatment were younger, had fewer medical comorbidities, and had tears associated with additional anatomical pathologies. Retear rates were similar between groups.

**Conclusion:** In young patients with bursal-sided tears or minimal surgical risk, early rotator cuff repair should be considered. Otherwise, we recommend an initial trial of conservative treatment of at least 6 months, as studies have shown no significant differences in outcomes between operative and conservative treatment. When conservative management fails, surgical repair should be considered. The few prospective studies indicate that high-quality research in terms of well-performed randomised trials is highly warranted.

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**Semaglutide preserves muscle function despite weight loss in a sarcopenic mouse model**

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**Introduction:** Sarcopenia is characterised by progressive declines in muscle strength and function. Beyond muscle loss, neuromuscular junction degeneration and mitochondrial dysfunction contribute substantially to impaired muscle performance. Semaglutide, a glucagon-like peptide-1 receptor agonist, is widely used for metabolic disorders and weight reduction, but its effects on skeletal muscle in older individuals remain controversial.

**Methods:** SAMP8 (senescence-accelerated mouse prone 8) mice were treated with semaglutide at two ageing stages (10 and 12 months) and two dose levels (123 and 41 µg/kg/day). Body composition was assessed by dual-energy x-ray absorptiometry. Muscle performance was evaluated using grip strength, endurance testing, and ex vivo contractile measurements. Mechanistic investigations included analyses of neuromuscular junction morphology, innervation status, and neurotransmission using whole-mount immunostaining, transmission electron microscopy, and electrophysiological assessments. Mitochondrial function was examined through markers of respiration, dynamics, morphology, and oxidative stress.

**Results:** Preliminary findings demonstrated dose-dependent reductions in food intake, body weight, fat mass, and lean mass following semaglutide treatment. Despite these changes, grip strength, endurance capacity, and ex vivo muscle contractile force were preserved. Muscle length and overall muscle mass showed minimal alterations, suggesting maintenance of functional performance despite reductions in body and lean mass.

**Conclusion:** Semaglutide induces significant weight loss while preserving muscle function in sarcopenic SAMP8 mice. Ongoing mechanistic studies are warranted to determine whether adaptations in neuromuscular junction stability and mitochondrial regulation contribute to the preservation of muscle performance, with potential implications for the use of glucagon-like peptide-1 receptor agonists in older adults at risk of sarcopenia.

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