Thai Hip & Knee Society

Stanford MEDICINE | Department of Orthopaedic Surgery

THKS 2025

BRIDGING THE KNOWLEDGE

December 4-6, 2025

Sheraton Hua Hin Resort & Spa

Cha-am, Phetchaburi, Thailand


ICKHS 2025
Nonn Jaruthien

Welcome Message

Welcome Message from the THKS President

Dear Colleagues,

We are delighted to invite you to the 27th Annual Meeting of the Thai Hip and Knee Society (THKS), taking place December 4-6, 2025, in beautiful Hua Hin, Thailand.

This year's meeting is particularly special as we are collaborating with the renowned Stanford Department of Orthopaedic Surgery. Stanford's contributions to hip and knee expertise in Thailand, Southeast Asia, and globally are significant, and we are thrilled to partner with them.

Under the theme "Bridging the Knowledge", this meeting promises a valuable exchange of ideas between leading Asian and American experts. We will explore the latest trends in hip and knee arthroplasty and showcase cutting-edge technologies and innovations from the industry.

Hua Hin, a serene beach town just a 3-hour drive south of Bangkok, offers a relaxing and enjoyable experience. Beyond its beautiful coastline, Hua Hin boasts delicious local seafood, stunning national parks, and a variety of exiting activities. December is an ideal time to visit Thailand, with mild weather and minimal rainfall.

Mark your calendars and join us in Hua Hin!

With best regards,

Srihatach George Ngarmukos, MD
President of The Thai Hip and Knee Society

Welcome Message

Welcome Message from the Congress Chairman

Dear Colleagues,

On behalf of the organizing committee, I sincerely thank you for accepting our invitation to THKS 2025. We are truly honored to have you join us, and we greatly appreciate your time and expertise.

Dr. George, the President of the Thai Hip and Knee Society, was especially delighted to welcome you and the other esteemed speakers. He also hopes to invite more Stanford alumni to be part of the conference.

We look forward to an engaging and successful meeting together this year and truly appreciate your contribution to making it a memorable event.

Best regards,

Thana Narinsorasak, MD
Chairman of the THKS 2025 Organizing Committee

Welcome Message

Welcome Message from the Congress Co-chairman

Dear Colleagues,

As a meeting co-chairman, I would like to call forth and invite you to the 27th annual meeting of the Thai Hip and Knee Society (THKS) which will be held in collaboration with the Stanford Department of Orthopaedic Surgery. The meeting will be held form December 4th-6th 2025, in Hua Hin, Thailand.

For long time, Stanford have formed international connections with Thai Orthopedic society, in particular the THKS. However, this year's meeting will be the first formal joined conference between the two institutes. Several distinguished Stanford faculty members as well as leading hip and knee experts in Asia will be joining the conference, expanding and exchanging the essential and latest knowledge in hip and knee surgery.

We are looking forward to make this year's meeting to be most educative, innovative, and exciting ever.

Warm regards,

William J. Maloney, MD
Co-chairman of the THKS 2025 Organizing Committee

Message from the Editors

It is a great pleasure to welcome you to the Thai Hip & Knee Society (THKS) Annual Meeting 2025 and to present this year's abstract book, a testament to our continued pursuit of excellence in hip and knee surgery.

Under the theme "Bridging the Knowledge" through collaboration with the Stanford Medicine Department of Orthopaedic Surgery, this year's meeting highlights the power of international partnership and shared expertise in advancing innovation and improving patient outcomes. The exchange of knowledge between THKS and Stanford Orthopaedics marks a meaningful step toward integrating global best practices with our local experience, fostering growth and inspiring the next generation of orthopedic surgeons.

The studies and presentations compiled in this abstract book reflect the collective efforts, creativity, and scientific curiosity of our members and collaborators. Together, they embody our society's mission, to elevate standards of care, promote evidence-based practice, and strengthen collaboration across borders.

On behalf of the editorial team, I would like to express my heartfelt appreciation to all contributors and the organizing committee for their dedication and hard work in making this year's program a success. A special note of gratitude goes to Ms. Sunisa Sangdanjak, Secretary of THKS, for her tireless coordination and support throughout the process. May this book serve not only as a record of academic achievement but also as a bridge connecting ideas, expertise, and friendships that will shape the future of arthroplasty.

Atthakorn Jarusriwanna, MD
Piti Rattanaprechavej, MD
Artit Laoruengthana, MD
The Editors

Table of Contents

Organizing Committee

Congress Chairman

Thana Narinsorasak, MD

THKS President

Srihatach Ngarmukos, MD

Congress Co-chairman

William J. Maloney, MD

Vice-Chairman

Apisit Patamarat, MD

Saradej Khuangsirikul, MD

Siwadol Wongsak, MD

Piya Pinsornsak, MD

Secretary-General

Chavanont Sumanasrethakul, MD

Assistant Secretary-General

Chavarin Amarase, MD

Puthi Tantikosol, MD

Chayut Chaiperm, MD

Congress Facilities

Ukrit Chaweewannakorn, MD

Wasin Wichitpreeda, MD

Withawat Jaderojananont, MD

Kanik Suksupha, MD

Scientific Committee

Aasis Unnanuntana, MD, MSc

Natthapong Hongku, MD, MSc

Ekasame Vanitcharoenkul, MD, MSc

Krit Boontanapibul, MD

Puttipol Waipanya, MD

Publication

Artit Laoruengthana, MD

Piti Rattanaprechavej, MD

Registration

Tulpong Ampool, MD

Patcharavit Ploynumpon, MD

Sponsorship & Exhibition

Chavarat Jarungvittayakon, MD

Nattapol Tammachote, MD

Ittiwat Onklin, MD

Nithid Sri-utenchai, MD

Social Events

Boonchana Pongcharoen, MD

Thakrit Chompoosang, MD

Varah Yuenyongviwat, MD

Nonn Jaruthien, MD

Promotion & Website Publication

Danai Heebthamai, MD

Pichayut Wattanapreechanon, MD

Pakpoom Somrak, MD

International Speaker Affiliation

Kriskamol Sithitool, MD

Buncha Athikraimongkol, MD

Stanford Faculties

William J. Maloney, MD

Boswell Professor and Chairman of Orthopaedic Surgery
Department of Orthopaedic Surgery,
Stanford University School of Medicine
Stanford, CA, USA

Stuart B. Goodman, MD, PhD

The Robert L. and Mary Ellenburg Professor of Surgery
Department of Orthopaedic Surgery,
Stanford University School of Medicine
Stanford, CA, USA

James I. Huddleston, III, MD

Professor of Orthopaedic Surgery
Department of Orthopaedic Surgery,
Stanford University School of Medicine
Stanford, CA, USA

Christopher S. Mow, MD

Clinical Professor of Orthopaedic Surgery
Department of Orthopaedic Surgery,
Stanford University School of Medicine
Stanford, CA, USA

Derek F. Amanatullah, MD, PhD

Associate Professor of Orthopaedic Surgery
Department of Orthopaedic Surgery,
Stanford University School of Medicine
Stanford, CA, USA

International Speakers

Azeta Arif, MD, MKes
Indonesia

Young-Yool Chung, MD, PhD
South Korea

Henry Fu, MBBS, FRCS
Hong Kong

Seung-Beom Han, MD, PhD
South Korea

Yutaka Inaba, MD, PhD
Japan

Mel S. Lee, MD, PhD
Taiwan

Young-Wook Lim, MD, PhD
South Korea

Masaaki Matsubara, MD, PhD
Japan

Yasuharu Nakashima, MD, PhD
Japan

Atsuko Sato, MD, PhD
Japan

Joo-Hyoun Song, MD, PhD
South Korea

Sang-Jun Song, MD, PhD
South Korea

Doo-Hoon Sun, MD, PhD
South Korea

Jose Fernando Syquia, MD, MBA
The Philippines

Je-Hyun Yoo, MD, PhD
South Korea

Scientific Program Overall

The 27th Annual Meeting of Thai Hip & Knee Society (THKS)
in Collaboration with Department of Orthopaedic Surgery, Stanford University
December 4-6, 2025 at Sheraton Hua Hin Resort & Spa, Thailand

Thursday, December 4, 2025 (Day 1)

Time	Room A	Time	Room B	Time	Room C
08.30-10.30	**Registation**	08.30-10.30	**Registration**	08.30-10.30	**Registration**
10.30-12.00	Panel Discussion: Complex Primary Hip Arthroplasty			10.30-12.00	Workshop: Stryker
12.00-13.00	**Lunch Symposium: Taicho**	12.00-13.00	**Lunch Symposium: Zimmer**	12.00-13.00	**Workshop Room Preparation**
13.00-14.30	The Future Trend in Hip Arthroplasty	13.00-14.30	Debate (TH)	13.00-14.30	Workshop: Johnson & Johnson
14.30-15.00	**Coffee Break**	14.30-15.00	**Coffee Break**	14.30-15.00	**Coffee Break**
15.00-15.30	THKS Highlight Lectures				
15.30-16.30	**Opening Ceremony**				
Faculty Dinner (By Invitation)					

Friday, December 5, 2025 (Day 2)

Time	Room A	Time	Room B	Time	Room C
08.30-10.00	The Future Trend in Knee Arthroplasty	08.30-10.00	Lessons and Learns from My Cases	08.30-10.00	THKS Fellows Paper Presentation I
10.00-10.30	**Coffee Break**	10.00-10.30	**Coffee Break**	10.00-10.30	**Coffee Break**
10.30-12.00	THKS-Stanford Symposium: Advanced Concept in Hip and Knee Arthroplasty I	10.30-12.00	Free Paper Presentation	10.30-12.00	THKS Fellows Paper Presentation II
12.00-13.00	**Lunch Symposium: Amgen**	12.00-13.00	**Lunch Symposium: TRB Chemedica**	12.00-13.00	**Mini Symposium: LG**
13.00-14.30	THKS-Stanford Symposium: Advanced Concept in Hip and Knee Arthroplasty II	13.00-14.30	Panel Discussion: Practical Points in Hip Fracture Management (TH)	13.00-14.30	THKS Fellows Paper Presentation III
14.30-15.00	**Coffee Break**	14.30-15.00	**Coffee Break**	14.30-15.00	**Workshop Room Preparation**
15.00-16.30	THKS-Stanford Alumni: Experience Sharing and Potential Networking with Future Collaboration in Asia-Pacific Region	15.00-16.30	Panel Discussion: Complex Primary Knee Arthroplasty	15.00-16.30	Workshop: B. Braun
Presidential Dinner (By Invitation)					

Saturday, December 6, 2025 (Day 3)

Time	Room A	Time	Room B	Time	Room C
08.30-10.00	Panel Discussion: Revision Knee Arthroplasty	08.30-10.00	Advanced Adult Reconstruction Course I (TH)	08.30-10.00	Workshop: Zimmer
10.00-10.30	**Coffee Break**	10.00-10.30	**Coffee Break**	10.00-10.30	**Workshop Room Preparation**
10.30-12.00	VDO Surgical Demonstration: Hip and Knee Arthroplasty	10.30-12.00	Advanced Adult Reconstruction Course II (TH)	10.30-12.00	Workshop: Johnson & Johnson
12.00-13.00	**Lunch Symposium: Yuanhua Robotics, Perception & AI Technologies**	12.00-13.00	**Lunch Symposium: Viatris**	12.00-13.00	**Mini Symposium: b-ONE Ortho**
13.00-14.30	Panel Discussion: Revision Hip Arthroplasty	13.00-14.30	Advanced Adult Reconstruction Course III: Case-based (TH)	13.00-14.30	**Workshop Room Preparation**
14.30-16.00	**Coffee Break**	14.30-16.00	**Coffee Break**	14.30-16.00	Workshop: Smith & Nephew
16.30-18.30	**THKS Fellowship Graduation and Closing Ceremony**				

Scientific Program

Scientific Program (Day 1)					
Thursday, December 4, 2025					
Time	**Room A**	**Time**	**Room B**	**Time**	**Room C**
08.30-10.30	**Registration**	08.30-10.30	**Registration**	08.30-10.30	**Registration**
10.30-12.00	**Panel Discussion:** **Complex Primary Hip Arthroplasty** **Moderators:** ***Srihatach Ngarmukos, Saradej Khuangsirikul*** **Panelists:** *Apisit Patamarat, Thana Narinsorasak, Chavanont Sumanasrethakul, Ukrit Chaweewannakorn, Varah Yuenyongviwat, Chavarat Jarungvittayakon*			**10.30-12.00**	**Workshop: Stryker**
10.30-10.50	A Patient Presented with Dysplasia Hip *Pakpoom Somrak*				
10.50-11.10	A Patient Presented with Hip Pain and Ankylosed Hip *Puttipol Waipanya*				
11.10-11.30	A Patient Presented with Hip Pain After Acetabluar Fracture Fixation *Ittiwat Onklin*				
11.30-11.50	A Patient Presented with Failed Internal Fixation of Proximal Femur *Patcharavit Ploynumpon*				
11.50-12.00	Questions and Answers				
12.00-13.00	**Lunch Symposium: Taicho**	12.00-13.00	**Lunch Symposium: Zimmer**	12.00-13.00	**Workshop Room Preparation**
13.00-14.30	**The Future Trend in Hip Arthroplasty** **Moderators:** ***Satit Thiengwittayaporn, Yasuharu Nakashima***	**13.00-14.30**	**Debate (TH)** **Moderators:** ***Thana Narinsorasak, Siwadol Wongsak***	**13.00-14.30**	**Workshop: Johnson & Johnson**
13.00-13.10	Spinopelvic Relationships in THR Dislocation *Joo-Hyoun Song*		Image-based versus Imageless Robotic-assisted TKA		
13.10-13.20	What Has Been Achieved in THA with CT-based Robotic: Present and Future *Atsuko Sato*	13.00-13.15	Imageless robotic-assisted TKA *Ekasame Vanitcharoenkul*		
13.20-13.30	Unmasking the "Unseen" Dormant State of Infection Allows the Prediction of Infection Free Implant Survival *Derek Amanatullah*	13.15-13.30	Image-based robotic-assisted TKA *Supakit Kanitnate* Vote		
13.30-13.40	Optimal Acetabular Component Placement and Robotic Accuracy in Total Hip Arthroplasty for Dysplastic Hips *Yasuharu Nakashima*	13.30-13.45	Revision Femoral Component in Periprosthetic Fracture After THA: Vancouver B2 Affirm *Atthakorn Jarusriwanna*		
13.40-13.50	Arthroplasty in Unstable Intertrochanteric Fractures: Prosthetic Selection and Proper Surgical Techniques *Apisit Patamarat*	13.45-14.00	Oppose *Chavarin Amarase* Vote		
13.50-14.00	Hip Arthroplasty Through DAA for Hip Fractures in the Elderly *Young-Yool Chung*		Medial Compertment OA Knee in Elderly Patients		
14.00-14.10	Effect of Stem Position and Length on Bone-stem Constructs After Cementless Hip Arthroplasty: A Finite Element Analysis *Je-Hyun Yoo*	14.00-14.15	TKA *Pruk Chaiyakit*		
14.10-14.20	Porous Coating Cup with Directed Energy Deposition (DED) Based 3D Printing *Young-Wook Lim*	14.15-14.30	UKA *Boonchana Pongcharoen* Vote		
14.20-14.30	Questions and Answers				
14.30-15.00	**Coffee Break**	14.30-15.00	**Coffee Break**	14.30-15.00	**Coffee Break**

Thursday, December 4, 2025

Time	Room A	Time	Room B	Time	Room C
15.00-15.30	**THKS Highlight Lectures** **Moderators:** ***Thanainit Chotanaphuti, Satit Thiengwittayaporn***				
15.00-15.15	Arthroplasty Trend in 2025 *Puthi Tantikosol*				
15.15-15.30	Update in the International Consensus Meeting (ICM) 2025 *Atthakorn Jarusriwanna*				
15.30-16.30	**Opening Ceremony**				

Scientific Program (Day 2)

Friday, December 5, 2025

Time	Room A	Time	Room B	Time	Room C
08.30-10.00	**The Future Trend in Knee Arthroplasty** **Moderators:** ***Viroj Larbpaiboonpong, Chavanont Sumanasrethakul***	**08.30-10.00**	**THKS Symposium: Lessons and Learned From My Cases** **Moderators:** ***Artit Laoruengthana, Boonchana Pongcharoen***	**08.30-10.00**	**THKS Fellows Paper Presentation I** **Moderators:** ***Pornchai Mulpruek, Patcharavit Ploynumpon***
08.30-08.40	Robotic-assisted Unicompartmental Knee Arthroplasty: How to Perform It Properly *Satit Thiengwittayaporn*	08.30-08.40	My Most Challenging Case Knee Arthroplasty Case 1 *Varah Yuenyongviwat*	08.30-08.37	Effect of Posterior Osteophytes Removal on Coronal Soft Tissue Balance with CT-based Robotic-assisted TKA: Functional Alignment with Tibia Cut First Technique *Tonanakan Khunhon*
08.40-08.50	Persistent Horizontal Joint Line: the Universal Functional Alignment Concept *Viroj Larbpaiboonpong*	08.40-08.50	Knee Arthroplasty Case 2 *Rapeepat Narkbunnam*	08.37-08.44	Impact of Greater Trochanteric Overhang to Femoral Stem Position in Hip Replacement *Sukhum Sthitwaroj*
08.50-09.00	Cementless Total Knee Replacement: What Is Our Experience So Far? *Henry Fu*	08.50-09.00	Hip Arthroplasty Case 1 *Wiboon Wanitcharoenporn*	08.44-08.51	Factors Affecting Extended Length of Hospital Stay for Patients Ongoing Total Knee Arthroplasty *Kittipong Diewwattanawiwat*
09.00-09.10	Advancing Robotic-assisted in Revision Total Knee Arthroplasty *Thakrit Chompoosang*	09.00-09.10	Hip Arthroplasty Case 2 *Phonthakorn Panichkul*	08.51-08.58	Impact of Design on Clinical Outcomes in Total Knee Arthroplasty: A Comparative Study of Gradual-radius and Single-Radius Femoral Prostheses *Nut Boonyawiroj*
09.10-09.20	Simultaneous Bilateral Total Knee Arthroplasty: Present and Future Trend *Thana Narinsorasak*	09.10-09.15	Questions and Answers My Terrible Case Knee Arthroplasty Case 1 *Kamolsak Sukhonthaman*	08.58-09.05	Validity of the New Motion Analysis Tool for the Assessment of Knee Range of Motion in Patients with Knee Osteoarthritis: A Comparative Study *Thanakrita Siripullop*
09.20-09.30	Arthroplasty and Bone Health: Time for a Paradigm Shift? *Aasis Unnanuntana*	09.25-09.35	Knee Arthroplasty Case 2 *Krit Boontanapibul*	09.05-09.12	A Comparison of the Efficacy and Complications Between Intraosseous and Peri-articular Multimodal Analgesic Cocktail Injections After Primary Total Knee Arthroplasty: A Randomized Controlled Trial *Warunyoo Suttikadsanee*
09.30-09.40	Re-revision Total Knee Arthroplasty with Metaphyseal Sleeve *Saradej Khuangsirikul*	09.35-09.45	Hip Arthroplasty Case 1 *Chavarat Jarungvittayakon*	09.12-09.19	Analysis of Osteoarthritis Patient Classification Using CPAK Classification and Its Impact on Total Knee Arthroplasty *Sahapap Tadee*
09.40-09.50	Advance in Pain Management for Total Knee Arthroplasty: The Role of Multimodal Analgesic Approaches *Azeta Arif*	09.45-09.55	Hip Arthroplasty Case 2 *Warakorn Jingjit*	09.19-09.26	Preoperative Planning that Considers Pelvic Tilt Enhances the Accuracy of Standing Acetabular Cup Positioning in Total Hip Arthroplasty Using Imageless Navigation *Piyapon Noimeunwai*
09.50-10.00	Questions and Answers	09.55-10.00	Questions and Answers	09.26-09.33	Comparison of Patellar Radiographic Outcomes Between Mechanical and Kinematic Planning in Functional Aligned MAKO Robotic-assisted Total Knee Arthroplasty *Napat Leelamanthep*
				09.33-09.40	An Outcome Comparison of Anterior Knee Pain Between Patella Resurfacing and Nonresurfacing in Subvastus Approach Total Knee Arthroplasty *Thanakorn Udomdirekkul*
				09.40-09.47	The Outcome of Mid Substance MCL Release in Varus Knee Patients Using Robotic Assisted CR-TKA *Sakon Donnimitsakul*
				09.47-10.00	Questions and Answers
10.00-10.30	**Coffee Break**	10.00-10.30	**Coffee Break**	10.00-10.30	**Coffee Break**

Friday, December 5, 2025

Time	Room A	Time	Room B	Time	Room C
10.30-12.00	**THKS-Stanford Symposium: Advanced Concept in Hip and Knee Arthroplasty I** **Moderators:** ***William Maloney, Srihatach Ngarmukos***	**10.30-12.00**	**Free Paper Presentation** **Moderators:** ***Weerachai Kosuwon, Pichayut Wattanapreechanon***	**10.30-12.00**	**THKS Fellows Paper Presentation II** **Moderators:** ***Surapoj Meknavin, Chaturong Pornrattanamaneewong***
10.30-10.38	Osteonecrosis – Bench to Bedside *Stuart Goodman*	10.30-10.37	Surgical Drain Has No Benefits in Hemiarthroplasty for Femoral Neck Fractures in Elderly Patients *Dae-Kyung Kwak*	10.30-10.37	Efficacy of Transdermal Patch in Reducing Post-operative Pain After Total Knee Arthroplasty: Placebo-controlled Trial *Warachai Jongjirasiri*
10.38-10.46	The Concept of Preoperative Planning for Crowe III and Some Simple Techniques for Leg Lengthening to Realize This *Masaaki Matsubara*	10.37-10.44	Total Hip Arthroplasty for Pathologic Fractures of the Femoral Neck Due to Tophaceous Gout: A Unique Case of Gout *Jung-Mo Hwang*	10.37-10.44	Comparison of Different Dexamethasone Doses for Pain Reduction After Total Knee Arthroplasty: A Randomized Controlled Trial *Pongsakorn Authasilapakit*
10.46-10.54	Philosophy of Knee Alignment in Total Knee Arthroplasty: Current Concept *James Huddleston*	10.44-10.51	Comparison Incidence Rates of Urinary Tract Infection and Postoperative Urinary Retention Between Initial and Intra Operative Indwelling Urinary Catheter in Fracture Around the Hip Patients with Surgery in 48 hours: A Randomized Controlled Trials *Pacharapol Natee*	10.44-10.51	Radiologic Evaluation of Knee Phenotypes Based on the Coronal Plane Alignment of the Knee Classification in Thai Population *Thanupat Kulsinsap*
10.54-11.02	Isometric Position of PCL in Cruciate-Retaining Knee Prosthesis *Thanainit Chotanaphuti*			10.51-10.58	What Risk Factors Could Lead to Needing UKA on the Opposite Knee for a Patient Who Previous Underwent UKA? *Rachata Boonthosang*
11.02-11.10	Preop Optimization: Fast Track and Efficiency *Christopher Mow*				
11.10-11.15	Questions and Answers				
11.15-11.23	Cementless Knee Replacement: Has the Time Finally Come? *William Maloney*	10.51-10.58	Hemiarthroplasty for Unstable Intertrochanteric Hip Fractures: A Systematic Review and Meta Analysis *Zeremy Tang Jin Wey*	10.58-11.05	The Study of Intermittent Intravenous Nefopam Efficacy After Robotic-assisted Total Knee Arthroplasty *Supasit Kirdsuwan*
11.23-11.31	Challenging Cases of UKA Failure: Lessons for the Future *Sang-Jun Song*	10.58-11.05	Effects of Transcutaneous Electrical Nerve Stimulation on Pain Reduction After Cementless Bipolar Hemiarthroplasty *Panna Yuthasilp*	11.05-11.12	The Efficacy of Ultrasonic Bath Sonicator in Removing Biofilms from Polyethylene Liner *Bhuwad Chinwatanawongwan*
11.31-11.39	Robotics Reduces the Use of Detrimental Liners During Total Knee Arthroplasty *Derek Amanatullah*	11.05-11.12	Efficacy of Pericapsular Nerve Group Block (PENG) Compared to Local Infiltration Analgesia (LIA) After Total Hip Arthroplasty: A Systematic Review and Meta-Analysis of Randomized Controlled Trials *Ryan Loke*	11.12-11.19	The Impact of Bisphosphonate Use on Early Postoperative Complications Following Hip Arthroplasty for Fragility Femoral Neck Fractures *Woramate Rangsarannon*
11.39-11.47	Double Set-up in DAIR: Optimizing Infection Control and Implant Retention *Piya Pinsornsak*			11.19-11.26	Impact of Sterilizing the Pre-Molded Antibiotic Cement Spacers on MIC Antibacterial Efficacy *Rungroj Sadchaphaiboonkit*
11.47-11.55	Artificial Intelligence in Hip and Knee Arthroplasty: From Prediction to Precision Surgery *Ukrit Chaweewannakorn*	11.12-11.19	Comparison of Pain and Functional Performance Between Crystalline Glucosamine Sulfate and Diacerein in Early Knee OA Patients *Chavarin Amarase*	11.26-11.33	Comparison of Accuracy in Prosthetic Position and Efficacy Between CT-based Robotic Assisted Total Knee Arthroplasty (RA-TKA) and Conventional Total Knee Arthroplasty *Yot Tanariyakul*
11.55-12.00	Questions and Answers	11.19-11.26	Cadaveric Biomechanical Evidence for Safer Pinning Techniques in Robotic Total Knee Arthroplasty: Intra- vs. Extra-Incisional Approaches *Alexander Shao-Rong Pang*	11.33-11.40	Development and Validating Deep Learning Model for Hip Arthroplasty Templating Using Anteroposterior Hip Radiograph *Tanapol Janyawongchot*
		11.26-11.33	Comparison of Serum Systemic Inflammatory Biomarkers in Bone-Milling Robotic-assisted Total Knee Arthroplasty and Conventional Total Knee Arthroplasty: A Prospective Randomized Controlled Trial *Peeranut Jittangtrong*	11.40-11.47	The Effects of Treatment for End-Stage Osteoarthritis of Knee Patients Awaiting Surgery Using Intra-articular Hyaluronic Acid Injections Combined with Non-Steroidal Anti-Inflammatory Drugs (NSAIDs): A Randomized Controlled Trial *Pakpoom Sutthinunchai*
		11.33-11.40	Biomechanical Superiority of Intra-Incisional Pin Placement in Minimizing Pin-site Fractures in Robotic Total Knee Arthroplasty: A Sawbone Study *Ethan Tew*	11.47-12.00	Questions and Answers
		11.40-11.47	Reliability and Validity of the Thai Version of the Intermittent and Constant Osteoarthritis Pain (ICOAP): Knee Questionnaire *Witchaporn Witayakom*		
		11.47-11.54	Postoperative Pain and Blood Loss of Non-use Compared to Partial-use of a Tourniquet in Bilateral Total Knee Replacement: A Randomized Controlled Trial *Thada Wipatasinlapin*		
		11.54-12.00	Questions and Answers		
12.00-13.00	**Lunch Symposium: Amgen**	12.00-13.00	**Lunch Symposium: TRB Chemedica**	12.00-13.00	**Mini Symposium: LG**

Friday, December 5, 2025					
Time	**Room A**	**Time**	**Room B**	**Time**	**Room C**
13.00-14.30	**THKS-Stanford Symposium: Advanced Concept in Hip and Knee Arthroplasty II** **Moderators:** ***James Huddleston, Rapeepat Narkbunnam***	**13.00-14.30**	**Panel Discussion: Practical Points in Hip Fracture Management (TH)** **Moderators:** ***Varah Yuenyonviwat, Rit Apinyankul*** **Panelists:** *Sakkadech Limmahakhun, Natthapong Hongku, Atthakorn Jarusriwanna, Chavarin Amarase, Ekasame Vanitcharoenkul, Yingyong Suksathien* Point Discussion - Optimal Timing for Surgery - Pre-operative Evaluation: General Conditions - Prosthetic Selection - VTE Prophylaxis - Intraoperative Consideration - Post-operative Rehabilitation - Prevention of Contralateral Hip Fracture - Osteoporosis Treatments	**13.00-14.30**	**THKS Fellows Paper Presentation III** **Moderators:** ***Danai Heebthamai, Ittiwat Onklin***
13.00-13.08	The Wagner Prosthesis for Complex Total Hip Arthroplasty *Stuart Goodman*			13.00-13.07	Outcomes of Hip Surgery Using the Direct Anterior Approach at Bangkok Hospital *Tanapat Laohasakthaworn*
13.08-13.16	Robotic-assisted Total Hip Arthroplasty: Man versus Machine *Srihatach Ngarmukos*			13.07-13.14	A Comparative Study on the Analgesic Efficacy and Side Effect Profile of Mirogabalin versus Pregabalin for Postoperative Pain Management Following Total Knee Arthroplasty: A Randomized Controlled Trial *Puttipong Wongpradit*
13.16-13.24	How to Prevent Hip Instatbility After Total Hip Arthroplasty *James Huddleston*				
13.24-13.32	Preoperative Prediction for Periprosthetic Bone Loss and Individual Evaluation of Bisphosphonate Effect After THA Using AI *Yutaka Inaba*			13.14-13.21	Knee Stability After Total Knee Arthroplasty, Comparing Contemporary-designed Total Knee Arthroplasty Between Cruciate-retaining and Bi-cruciate Stabilized Prostheses *Arnakorn Premsiri*
13.32-13.40	Updates in Management of Periprosthetic Femoral Fractures After Total Hip Arthroplasty *Seung-Beom Han*			13.21-13.28	Evaluation of Hip-Knee-Ankle Angle After Robotic-assisted TKA Using the Controlled Distal Femoral Cut Technique *Thanapat Limchuchua*
13.40-13.45	Questions and Answers				
13.45-13.53	Trends in Total Joint Replacement in the USA: Are They Supported by the Literature? *William Maloney*			13.28-13.35	Comparison of Functional Implant Position and Clinical Outcome between Robotic THA vs Conventional THA *Danupol Sriruk*
13.53-14.01	Virtual Reality in Orthopaedics: Application of AR/VR in TKA/THA *Christopher Mow*			13.35-13.42	Efficiency of the Phyathai Co-Morbidity Index in Managing Preoperative Risk and Reducing Postoperative Complications Following Total Knee and Total Hip Arthroplasty at Phyathai 2 Hospital *Thitiwat Ussadamongkol*
14.01-14.09	Artificial Intelligence in Knee Arthroplasty *Siwadol Wongsak*				
14.09-14.17	The Hidden Downside of Applying AI in Orthopaedic Surgery *Derek Amanatullah*			13.42-13.49	Coronal Plane Alignment of the Knee (CPAK) and Joint Line Obliquity: Correlation with Good Clinical Outcomes in Medial Unicompartment Knee Arthroplasty *Anawat Thawaranont*
14.17-14.25	Evolution of Surface Coating Technology in Orthopedic Artificial Joints: Application of DED 3D Printing *Doo-Hoon Sun*			13.49-13.56	Comparative Study Between 5-Degree Valgus Distal Femoral Cut and Controlled Distal Femoral Cut in TKA: Improve Mechanical Alignment Technique *Sirawit Valaiphatchara*
14.25-14.30	Questions and Answers			13.56-14.03	The Efficacy of Low-Level Laser on Post-operative Pain and Range of Motion After Bilateral Total Knee Arthroplasty *Naruecha Jirasirisuk*
				14.03-14.10	Efficacy of Repeated High-Dose versus Intermediate-Dose Intravenous Dexamethasone in Reducing Pain After Bilateral Total Knee Arthroplasty: A Randomized Clinical Trial *Katawut Kumplean*
				14.10-14.30	Questions and Answers
14.30-15.00	**Coffee Break**	14.30-15.00	**Coffee Break**	14.30-15.00	**Workshop Room Preparation**

Friday, December 5, 2025					
Time	**Room A**	**Time**	**Room B**	**Time**	**Room C**
15.00-16.30	**THKS-Stanford Alumni: Experience Sharing and Potential Networking with Future Collaboration in Asia-Pacific Region** **Moderators:** ***Stuart Goodman, Aasis Unnanuntana*** 15.00-15.10 Evolution of THKS-Stanford Collaboration: Past / Present / Future *Christopher Mow* What Did You Learn from Stanford Hip and Knee Fellowship Program? 15.10-15.20 Thailand's Perspective *Rapeepat Narkbunnam* 15.20-15.30 The Philippines' Perspective *Jose Fernando Syquia* 15.30-15.40 Taiwan's Perspective *Mel Lee* 15.40-15.50 Korea's Perspective *Doo-Hoon Sun* 15.50-16.00 Discussion 16.00-16.30 Panel Discussion: Experience Sharing and Future Networking **Panelists:** *Jose Fernando Syquia, Mel Lee, Young-Wook Lim, Rapeepat Narkbunnam, Rit Apinyankul, Krit Boontanapibul*	**15.00-16.30**	**Panel Discussion: Complex Primary Knee Arthroplasty** **Moderators:** *Nattapol Tammachote, Piti Rattanaprechavej* **Panelists:** *Wallob Samranvethya, Viroj Larbpaiboonpong, Pruk Chaiyakit, Artit Laoruengthana, Warakorn Jingjit, Khanin Iamthanaporn* 15.00-15.20 A Patient Presented with Knee Pain After Distal Femoral Fracture *Pichayut Wattanapreechanon* 15.20-15.40 A Patient Presented with Knee Pain and Extensor Mechanism Problem *Kanik Suksupha* 15.40-16.00 A Patient Presented with Severe Valgus Deformity *Wittawat Boonyanuwat* 16.00-16.20 A Patient Presented with Knee Pain and Previous History of Knee Infection *Jirayu Phaliphot* 16.20-16.30 Questions and Answers	**15.00-16.30**	**Workshop: B.Braun**

Scientific Program (Day 3)					
Saturday, December 6, 2025					
Time	**Room A**	**Time**	**Room B**	**Time**	**Room C**
08.30-10.00	**Panel Discussion: Revision Knee Arthroplasty** **Moderators:** ***Apisit Patamarat, Nattapol Tammachote*** **Panelists:** *James Huddleston, Surapoj Meknavin, Saradej Khuangsirikul, Wiboon Wanitcharoenporn, Piti Rattanaprechavej, Chaturong Pornrattanamaneewong* 08.30-08.50 A Patient Presented with Stiffness After TKA *Nuttawut Chanalithichai* 08.50-09.10 A Patient Presented with Severe Bone Defect Planned for Revision Total Knee Arthroplasty *Withawat Jaderojananont* 09.10-09.30 A Patient Presented with Redness and Wound Drainage After Total Knee Arthroplasty *Chayut Chaiperm* 09.30-09.50 A Patient Presented with History of Trauma and Distal Femoral Fracture After Total Knee Arthroplasty *Nikom Noree* 09.50-10.00 Questions and Answers	**08.30-10.00**	**Advanced Adult Reconstruction Course I (TH)** **Moderators:** ***Kritkamol Sithitool, Chavarin Amarase*** 08.30-08.38 How to Avoid Common Mistakes in Cup Positioning and Leg Length Discrepancy *Yuthana Kanasuk* 08.38-08.46 Dual Mobility Cups in Primary THA: When and Why? *Tulpong Ampool* 08.46-08.54 What's New in the Dysplastic Hip in Primary THA 2025 *Patcharavit Ploynumpon* 08.54-09.02 Cemented versus Cementless THA in 2025: Revisiting Registry Data and Indication *Theerawit Hongnaparak* 09.02-09.10 Questions and Answers 09.10-09.18 Pre-op Planning: From Imaging to Implant Selection in THA *Anuwat Pongkunakorn* 09.18-09.26 Revision THA for Instability: Algorithm and Surgical Options *Ittiwat Onklin* 09.26-09.34 Periprosthetic Fractures in THA: Classification and Treatment Options *Thanasak Yakumpor* 09.34-09.42 Osteolysis in Hip Arthroplasty: Mechanism, Diagnosis and Management *Puttipol Waipanya* 09.42-10.00 Questions and answers	**08.30-10.00**	**Workshop: Zimmer**
10.00-10.30	**Coffee Break**	10.00-10.30	**Coffee Break**	10.00-10.30	**Workshop Room Preparation**

Saturday, December 6, 2025					
Time	**Room A**	**Time**	**Room B**	**Time**	**Room C**
10.30-12.00	**VDO Surgical Demonstration: Hip and Knee Arthroplasty** **Moderators:** ***Viroj Kawinwonggowit, Thakrit Chompoosang***	**10.30-12.00**	**Advanced Adult Reconstruction Course II (TH)** **Moderators:** ***Chavarat Jarungvittayakon, Ekasame Vanitcharoenkul***	**10.30-12.00**	**Workshop: Johnson & Johnson**
	Knee Arthroplasty	10.30-10.38	Alignment Philosophy: Mechanical versus Kinematic versus Functional *Withawat Jaderojananont*		
10.30-10.40	Calipered Kinematic Alignment TKA *Kamolsak Sukhonthaman*				
10.40-10.50	Lateral Unicompartmental Knee Arthroplasty in Osteonecrosis Knee *Boonchana Pongcharoen*	10.38-10.46	The CPAK Classification System: How to Apply in Clinical Practice *Sakkadech Limmahakhun*		
10.50-11.00	MAKO-TKA in Posttraumatic Osteoarthritis with Extra-articular Deformity *Yot Tanariyakul*	10.46-10.54	Approach to Severe Varus Deformity in TKA: Stepwise Releasing *Danai Heebthamai*		
11.00-11.10	Revision Unicompartmental Knee Arthroplasty to Total Knee Arthroplasty Using Robotic-assisted Surgery *Patcharavit Ploynumpon*	10.54-11.02	Managing the Severe Valgus Knee in TKA: Key Strategies for Ligamentous Balancing *Nonn Jaruthien*		
		11.02-11.12	Questions and Answers		
		11.12-11.20	Patellofemoral Complications in TKA: Prevention and Management *Chayut Chaiperm*		
	Hip Arthroplasty				
11.10-11.20	Muscle Sparing Technique (ABSM) for Hip Replacement *Jirayu Phaliphot*	11.20-11.28	Knee Osteonecrosis: What You Need to Know? *Wittawat Boonyanuwat*		
11.20-11.30	No Trial Technique in Bipolar Hemiarthroplasty via Direct Anterior Approach *Chatchapol Ongkosit*	11.28-11.36	Algorithmic Evaluation of the Painful TKA *Wasin Wichitpreeda*		
11.30-11.40	Total Hip Arthroplasty with Triple Wiring Technique in Intertrochanteric Fracture *Thakrit Chompoosang*	11.36-11.44	Choosing the Right Revision Strategy: Algorithm for TKA Failures *Kritkamol Sithitool*		
11.40-11.50	Total Hip Arthroplasty in Protrusio Acetabuli *Piya Pinsornsak*	11.44-12.00	Questions and Answers		
11.50-12.00	Questions and Answers				
12.00-13.00	**Lunch Symposium: Yuanhua Robotics, Perception & AI Technologies**	12.00-13.00	**Lunch Symposium: Viatris**	12.00-13.00	**Mini Symposium: b-ONE Ortho**
13.00-14.30	**Panel Discussion: Revision Hip Arthroplasty** **Moderators:** ***Piya Pinsornsak, Ukrit Chaweewannakorn*** **Panelists:** *Derek Amanatullah, Aasis Unnanuntana, Siwadol Wongsak, Thakrit Chompoosang, Rit Apinyankul*	**13.00-14.30**	**Advanced Adult Reconstruction Course III: Case-based (TH)** **Moderators:** ***Piti Rattanaprechavej, Krit Boontanapibul***	13.00-14.30	**Workshop Room Preparation**
		13.00-13.20	Medial Compartment OA in Young Patients: HTO or UKA? *Kanik Suksupha*		
13.00-13.20	A Patient Presented with Severe Femoral Bone Loss Prepared to Revision Total Hip Arthroplasty *Burin Sutthapakti*	13.20-13.40	PJI After TKA: Approach/ Diagnosis and Classification/ Bone Defect Management/ Prosthetic Selection *Jirayu Phaliphot*		
13.20-13.40	A Patient Presented with Painful Hip After Hemiarthroplasty *Supakit Kanitnate*	13.40-14.00	Periprosthetic Fracture After TKA/ Classification & Management *Ongart Phruetthiphat*		
13.40-14.00	A Patient Presented with Severe Acetabular Bone Loss Prepared to Revision Total Hip Arthroplasty *Puthi Tantikosol*	14.00-14.20	Revision THA Approach: Bone Defect Management/ Prosthetic Selection *Nuttawut Chanalithichai*		
		14.20-14.30	Questions and Answers		
14.00-14.20	A Patient Presented with Recurrent Dislocation of THA *Wasin Wichitpreeda*				
14.20-14.30	Questions and Answers				
14.30-16.00	**Coffee Break**	14.30-16.00	**Coffee Break**	14.30-16.00	**Workshop: Smith & Nephew**
16.30-18.30	**THKS Fellowship Graduation and Closing Ceremony**				

Keokarn Award for Outstanding Publication

The Keokarn Award for Outstanding Publication is presented to recognize exceptional scientific contributions by Thai orthopedic surgeons, undertaken domestically. This prestigious award honors excellence in research, innovation, and advancement in the field of hip and knee surgery, reflecting the Society's commitment to promoting academic distinction and scientific integrity.

This year, we proudly congratulate all 20 distinguished recipients for their outstanding achievements, represented by 24 high-quality research publications published between November 1, 2024, and October 31, 2025, which contribute to the continued growth and global recognition of Thai orthopedic research.

1. Aasis Unnanuntana, MD, MSc

Faculty of Medicine Siriraj Hospital, Mahidol University
Bangkok, Thailand

High prevalence of symptomatic knee osteoarthritis among patients who have fragility hip fractures

Co-authors: Korawish Mekariya, Ekasame Vanitcharoenkul, Pojchong Chotiyarnwong, Nath Adulkasem
Journal: *The Journal of Arthroplasty.* 2025;40(8):2179-2185.e1.
DOI: 10.1016/j.arth.2025.01.016

Physical performance and patient-reported outcomes remain stable at 5 years after total knee arthroplasty

Co-authors: Pakpoom Ruangsomboon, Onlak Ruangsomboon, Chirathit Anusitviwat, Bheeshma Ravi
Journal: *Arthroscopy, Sports Medicine, and Rehabilitation.* 2025;7(3):101104.
DOI: 10.1016/j.asmr.2025.101104

2. Varah Yuenyongviwat, MD

Faculty of Medicine, Prince of Songkla University
Hat Yai, Thailand

Comparing silicone-coated self-adhesive absorbent polyurethane films with transparent absorbent films for bilateral hip dressing: a prospective randomized controlled trial

Co-author: Chirathit Anusitviwat

Journal: *Journal of Orthopaedic Surgery and Research.* 2025;20(1):129.
DOI: 10.1186/s13018-024-05448-7

Efficacy of weight-based low-dose intravenous dexamethasone for pain management following total knee arthroplasty: a retrospective case-matched study

Co-authors: Peranut Kitjakrancharoensin, Chirathit Anusitviwat, Khanin Iamthanaporn

Journal: *Orthopedic Reviews.* 2025;17:143092.
DOI: 10.52965/001c.143092

3. Anuwat Pongkunakorn, MD

Lampang Hospital
Lampang, Thailand

Cup positioning relative to the acetabular rim planned with three-dimensional computed tomography improves precision in total hip arthroplasty: a randomized controlled trial

Co-authors: Napon Wongkamthong, Rukthanin Ruktrakul

Journal: *Journal of Orthopaedic Surgery and Research.* 2025;20(1):318.
DOI: 10.1186/s13018-025-05704-4

Smartphone-based digital templating using presentation software enhances accuracy in equalizing leg length and femoral offset during bipolar hemiarthroplasty for femoral neck fracture

Co-authors: Siravat Teerasukakul, Siripong Tahwang, Wongsapat Prayatkul

Journal: *Archives of Orthopaedic and Trauma Surgery.* 2025;145(1):374.
DOI: 10.1007/s00402-025-05976-9

4. Pruk Chaiyakit, MD

Faculty of Medicine Vajira Hospital, Navamindradhiraj University
Bangkok, Thailand

Preservation of the infrapatellar fat pad during total knee arthroplasty reduces subacute postoperative anterior knee pain: a randomized controlled trial

Co-authors: Bunpreedee Petcharat, Ittiwat Onklin

Journal: *BMC Musculoskeletal Disorders.* 2025;26(1):734.
DOI: 10.1186/s12891-025-09003-1

5. Ongart Phruetthiphat, MD

Phramongkutklao Hospital
Bangkok, Thailand

Distribution and gender-specific differences of coronal plane alignment of healthy knee

Co-authors: Panukorn Pinijprapa, Charoenwat Uthaicharatratsame

Journal: *Journal of Orthopaedic Surgery and Research.* 2024;19(1):879.
DOI: 10.1186/s13018-024-05380-w

6. Saran Tantavisut, MD, PhD

Faculty of Medicine, Chulalongkorn University
Bangkok, Thailand

Topical tranexamic acid in hip and knee surgery: a meta-analysis of randomized-controlled trials

Co-authors: Sanzhar Artykbay, Pasawiss Tangwiwat, Paweena Susantitaphong

Journal: *EFORT Open Reviews.* 2025;10(7):454-465.
DOI: 10.1530/EOR-2024-0152

7. Rapeepat Narkbunnam, MD

Faculty of Medicine Siriraj Hospital, Mahidol University
Bangkok, Thailand

A comparative study of early postoperative pain: robotic-assisted versus conventional total knee arthroplasty

Co-authors: Keerati Charoencholvanich, Chaturong Pornrattanamaneewong, Ronnakit Udompanich, Kit Awirotananon

Journal: *International Orthopaedics.* 2025;49(6):1359-1364.
DOI: 10.1007/s00264-025-06451-1

8. Chaturong Pornrattanamaneewong, MD, MSc

Faculty of Medicine Siriraj Hospital, Mahidol University
Bangkok, Thailand

Imageless and image-based robotic-assisted total knee arthroplasty achieve equivalent radiographic accuracy: a randomised controlled trial

Co-authors: Rapeepat Narkbunnam, Yotsawadee Chorunchan, Keerati Charoencholvanich, Chaiwat Achawakulthep, Kit Awirotananon

Journal: *Knee Surgery, Sports Traumatology, Arthroscopy.* 2025 Oct 22.
DOI: 10.1002/ksa.70123

9. Krit Boontanapibul, MD

Faculty of Medicine, Thammasat University
Pathum Thani, Thailand

Analgesic efficacy and side effects of low-dose pregabalin as a modern multimodal agent for postoperative pain control after total knee arthroplasty: a prospective, double-blinded, randomized controlled trial

Co-authors: Seksan Kukreja, Punnawit Pinitchanon, Piya Pinsornsak

Journal: *The Journal of Arthroplasty.* 2025:S0883-5403(25)00819-8.
DOI: 10.1016/j.arth.2025.06.068

Distribution of coronal plane alignment of the knee and functional knee phenotype classification in the Thai arthritic population and correlation with other Asian populations

Co-authors: Sirada Phongpetra, Thun Osirichaivait, Krish Danghorachai, Nop Khongthon

Journal: *European Journal of Orthopaedic Surgery & Traumatology.* 2025;35(1):184.
DOI: 10.1007/s00590-025-04297-2

10. Atthakorn Jarusriwanna, MD

Faculty of Medicine, Naresuan University
Phitsanulok, Thailand

Comparison of three cryotherapy techniques for early post-TKA pain control in terms of efficacy and patient satisfaction: a randomized controlled trial

Co-authors: Keerati Charoencholvanich, Worawut Keesukpunt, Chaturong Pornrattanamaneewong, Rapeepat Narkbunnam

Journal: *Arthroplasty.* 2025;7(1):5
DOI: 10.1186/s42836-024-00287-7

11. Thakrit Chompoosang, MD

Rajavithi Hospital
Bangkok, Thailand

Comparative effects of mechanical and functional alignment in bilateral robotic total knee arthroplasty: a randomized controlled trial

Co-authors: Utain Ketkaewsuwan, Patcharavit Ploynumpon

Journal: *Arthroplasty.* 2025;7(1):25
DOI: 10.1186/s42836-025-00310-5

12. Nattaphon Twinprai, MD

Faculty of Medicine, Khon Kaen University
Khon Kaen, Thailand

AI classification of knee prostheses from plain radiographs and real-world applications

Co-authors: Prin Twinprai, Ongart Phruetthiphat, Krit Wongwises, Rit Apinyankul, Puripong Suthisopapan, Wongthawat Liawrungrueang

Journal: *European Journal of Orthopaedic Surgery & Traumatology.* 2025;35(1):107.
DOI: 10.1007/s00590-025-04238-z

13. Nimit Thongpulsawasdi, MD

Golden Jubilee Medical Center, Faculty of Medicine Siriraj Hospital, Mahidol University
Nakhon Pathom, Thailand

The impact of femoral flexion angle and tibial slope on knee gap in total knee arthroplasty

Co-authors: Varah Yuenyongviwat, Chirathit Anusitviwat, Tawan Intiyanaravut, Payap Payapanon

Journal: *Arthroplasty.* 2025;7(1):37.
DOI: 10.1186/s42836-025-00321-2

14. Burin Sutthapakti, MD

Buddhachinaraj Phitsanulok Hospital
Phitsanulok, Thailand

Efficacy of repeated high-dose versus intermediate-dose intravenous dexamethasone in reducing pain after bilateral total knee arthroplasty: a randomized clinical trial

Co-authors: Wiboon Wanitcharoenporn, Katawut Kumplean, Kritsada Sukha, Artit Laoruengthana

Journal: *Arthroplasty Today.* 2025;35:101852.
DOI: 10.1016/j.artd.2025.101852

15. Chatchapol Ongkosit, MD

Nong Bua Lamphu Hospital
Nong Bua Lamphu, Thailand

Direct anterior approach “No Trial Reduction Technique” in bipolar hemiarthroplasty for treatment of osteoporotic femoral neck fracture: surgical techniques and case series

Co-author: Weerachai Kosuwon

Journal: *Orthopedics.* 2025;48(2):74-78.
DOI: 10.3928/01477447-20241127-01

16. Nonn Jaruthien, MD

Faculty of Medicine, Chulalongkorn University
Bangkok, Thailand

Avoiding orthostatic intolerance during early ambulation after TKA: the impact of lying-to-standing time

Co-authors: Supparurk Suksumran, Chotetawan Tanavalee, Chavarin Amarase, Aree Tanavalee, Wirinaree Kampitak, Srihatach Ngarmukos
Journal: *Arthroplasty Today.* 2025;36:101905.
DOI: 10.1016/j.artd.2025.101905

17. Pichayut Wattanapreechanon, MD

Faculty of Medicine Vajira Hospital, Navamindradhiraj University
Bangkok, Thailand

Comparison of total blood loss between limited tourniquet use and conventional tourniquet use in total knee arthroplasty: a randomized controlled trial

Co-authors: Pruk Chaiyakit, Pheeranut Kabkaew, Natthapong Hongku
Journal: *BMC Musculoskeletal Disorders.* 2024;25(1):918.
DOI: 10.1186/s12891-024-08058-w

18. Witchaporn Witayakom, MD

Faculty of Medicine, Khon Kaen University
Khon Kaen, Thailand

Anatomical presentation of the nerve to vastus medialis within the adductor canal and femoral nerve branch insertions into thigh muscles: a cadaveric study

Co-authors: Sasithorn Saena, Kamolsak Sukhonthamarn, Weerachai Kosuwon, Rit Apinyankul
Journal: *Surgical and Radiologic Anatomy.* 2025;47(1):250.
DOI: 10.1007/s00276-025-03763-0

19. Atiwich Sangroungrai, MD

School of Medicine, Mae Fah Luang University
Chiang Rai, Thailand

Prophylactic wiring vs. non-wiring in hip arthroplasty: finite element and cadaveric analysis of proximal femur biomechanics

Co-authors: Vorawit Atipiboonsin, Kamolsak Sukhonthamarn, Nattaphon Twinprai, Thewarid Berkban, Surasith Piyasin, Teerawat Laonapakul, Ongart Phruetthiphat, Rit Apinyankul

Journal: *Arthroplasty.* 2025;7(1):47.
DOI: 10.1186/s42836-025-00331-0

20. Sirisak Chaitantipongse, MD

Faculty of Medicine Vajira Hospital, Navamindradhiraj University
Bangkok, Thailand

Optimizing surgical field visualization in total knee arthroplasty: a randomized controlled trial comparing esmarch bandages and simple leg elevation

Co-authors: Natthapong Hongku, Satit Thiengwittayaporn

Journal: *Journal of Orthopaedic Surgery and Research.* 2025;20(1):455.
DOI: 10.1186/s13018-025-05853-6

THKF Innovation Award

The THKF (Thai Hip & Knee Foundation) Innovation Award recognizes individuals who have made outstanding contributions to advancing hip and knee care through innovative ideas, impactful research, and novel clinical solutions. This award celebrates creativity, scientific excellence, and forward-thinking approaches that elevate the standards of orthopedic practice.

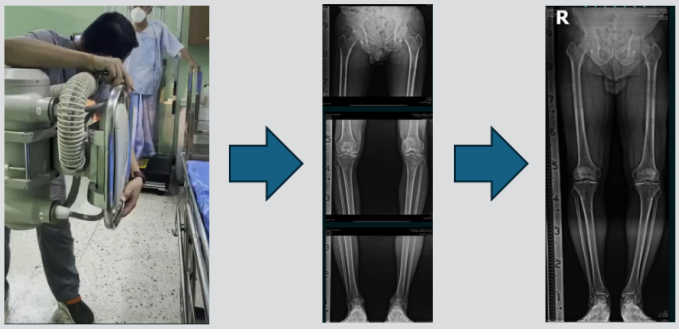
Recipients of the THKF Innovation Award embody the Foundation's mission to foster innovation, promote evidence-based practice, and inspire the next generation of hip and knee specialists.

Pakorn Srithongkul, MD

Chaophraya Yommarat Hospital
Suphan Buri, Thailand

"Hip to Toe ScanPro (RAPTOR): An Innovation for Whole-Body Radiography in Total Knee Arthroplasty and Spine Surgery"

This pioneering development enhances imaging capability, improves surgical planning, and represents a significant step forward in modern orthopedic practice.



Abstracts

Synopses and Abstracts
Stanford Speakers

Trends in Total Joint Replacement in the USA: Are they Supported by the Literature?

William J. Maloney, MD
Stanford University School of Medicine
Stanford, CA, USA

Trends - THR

In terms of femoral head size, 36 mm heads predominate. Dual mobility sockets peaked at 10.7% in 2019 and have gradually declined over the past few years. In contrast, 40 mm heads have grown. Ceramic femoral heads represent the vast majority of head material, regardless of head size – now reported in more than 80% of the cases if you exclude dual mobility sockets. Cobalt chrome femoral heads are now being used in less than 10% of cases with ceramicized femoral heads in about 10%. Metallic femoral heads are more commonly used in older patients.

In primary THR, cementless fixation is performed in about 95% of all cases, with cement fixation growing slowing especially in older patients. Cemented fixation had a significantly lower rate of revision in patients older than 65 as a result of lower rate of peri-prosthetic fractures.

Unlike the knee, robotics is growing slowly in THR representing only 6.6 percent of cases submitted while navigation has decreased from 5.1% to 2.8% from 2022 to 2023.

Trends - TKR

In the knee, posterior stabilized designs continue to decline now representing about one third of primary cases. AP stabilized designs continue to rise, now representing more than half of primary TKRs.

Patellar resurfacing continues to slowly decline with about 85% of patellae now being re-surfaced with no significant difference in revision rates.

Although cemented fixation still predominates in TKR, cementless fixation has grown more than 10-fold in the last decade without compromising fixation.

Nationally, the utilization of robotics for TKR has stabilized over the past year, there is a difference between companies. For the largest TKR company in the USA, robotic TKR is now reported at 67.5%.

In this symposium, we will examine some of these trends and try to ask the question – Does the Evidence Support the Trends?

Cementless Knee Replacement: Has the Time Finally Come?

William J. Maloney, MD
Stanford University School of Medicine
Stanford, CA, USA

Cementless TKR has been in the market place for more thank forty years. Although attractive because of the potential of long term biologic fixation, problems with failure to osseo-integrate, polyethylene wear accelerated secondary to poor tibial insert locking mechanisms and osteolysis historically limited cementless usage. Improved polyethylene has been on the market for more than twenty years and tibial insert locking mechanisms are no longer a problem. Most importantly, the last ten plus years has seen a new generation of 3D porous titanium coatings than have heightened interest in cementless TKR.

Conventional thinking suggests cemented fixation is adequate for all patients, however, this is not supported by the literature. Registries have documented that the failure rate with cemented fixation if up to 5 times higher in young patients compared to older patients. Young patients are the fastest growing segment of the TKR market. Cemented fixation is also problematic in the obese patient. Abdel et al showed a significantly higher rate of aseptic loosening in obese patients. The AJRR showed a correlation with BMI and failure of TKR.

Is cementless TKR a solution for these problematic patient? Recent data shows that may be the case. The AJRR has recently demonstrated that in the highest risk patients, males under the age of sixty-five, there is a clinically significant reduction in revision surgery using modern cementless designs. In the obese patients, several studies have shown that cementless TKR outperforms cemented designs when it comes to survivorship. In a prospective, randomized clinical trial, Nam et al demonstrated cementless TKR was equivalent to and in some areas superior to cemented TKR. Blood loss was the same in both groups. Cementless TKR was 13 minutes faster than cemented TKR. Early outcomes were equivalent. There was no increased pain in the cementless TKRs. At 2-4 years, all outcomes identical (or slightly favored cementless).

These data have led to a dramatic increase in porous coated total knees in the USA Ongoing follow-up will be required to determine the durability of fixation with modern porous coatings and determine if all designs are equivalent.

Future Treatments for Osteonecrosis: From Bedside to Bench to Bedside

Stuart B. Goodman, MD, PhD
Stanford University School of Medicine
Stanford, CA, USA

Osteonecrosis (ON), also known as avascular necrosis, describes a clinical condition in which the final common pathway is the death of the cellular components of bone. This chronic inflammatory disease leads to progressive collapse of bone and subsequent secondary degenerative arthritis. The condition afflicts younger individuals during their educational and working years; the cause of ON is multifactorial. The two most common etiologies include corticosteroid use and excessive alcohol intake. Osteonecrosis of the femoral head (ONFH) is the most frequent anatomical site however the disease is often multifocal, and may affect the knees, ankles, shoulders and other joints. The ARCO staging systems for ONFH are based on 1. whether the femoral head is still round and the presence of subchondral collapse and degenerative arthritis (Stages I-IV), and 2. the location and size of the ON lesion (Types 1-3). Early identification, classification of the stage and type of ONFH, and appropriate intervention are the keys for preserving the patient's own hip joint, rather than performing a total hip arthroplasty (THA), a joint sacrificing operation. However, according to data from our institution, and from large database studies in the USA, at least 75% of patients with ONFH are first diagnosed at the advanced stages such that joint replacement and not joint preservation procedures are subsequently performed.

We continue to perform clinical, translational, and basic science studies to understand the pathogenesis of ON, identify high risk populations, and devise cutting-edge investigations and treatments in an attempt to save rather than replace the patient's native joint.

Our studies have incorporated the following strategies:

- The clinical events that have resulted in ONFH are often too advanced to reverse, at first diagnosis. For example, longstanding alcohol abuse or corticosteroid use can lead to irreversible FH collapse. However, there are populations, such as newly diagnosed patients who will be undergoing chemotherapy for leukemia, organ transplantation, or lupus erythematosus, in whom high-dose corticosteroids are prescribed initially. One goal is to identify these high-risk patients early in their disease and provide novel imaging and clinical pathways so that the potential adverse effects of treatments leading to ON may be mitigated.
- The exact pathophysiology and timeline of events for corticosteroid associated ON are unknown. If these events were elucidated, then perhaps strategic interventions could be delivered to save the FH and potentially other joints. There are currently no universally accepted, evidence based pharmacological treatments for ON, which is often multifocal. It is possible that key events in the pathophysiology of ON may be modulated via novel pharmacologic treatments or minimally invasive surgical procedures once the biological mechanisms are further elucidated.
- The development of robust and authentic models of the biological events involved in ONFH using validated in vitro, in vivo and computer models will suggest optimal methods for diagnosis, classification and potential interventions. These preclinical studies using more standardized protocols may lead to the identification of specific biomarkers for ON. High throughput assays can then be employed to assess potential treatments quickly and more economically than longer more costly clinical trials involving diverse patient populations.

The above subjects will be addressed in this lecture, providing an up-to-date strategic plan to hopefully preserve the joints of these younger patients for their lifetime.

The Wagner Femoral Prosthesis for Complex Total Hip Arthroplasty

Stuart B. Goodman, MD, PhD
Stanford University School of Medicine
Stanford, CA, USA

Total hip arthroplasty (THA) can be particularly challenging in patients with small anatomic proportions, and in those with unusual anatomy of the proximal femur. These patients often have conditions such as hip dysplasia, juvenile idiopathic arthritis, Perthes disease, osteonecrosis, post traumatic deformity, dwarfism and others. In these cases, the surgeon may encounter difficulties related to appropriate sizing of the components, excessive anteversion of both the femur and acetabulum, and issues related to implant fixation when attempting to use more standard implants. The Wagner Cone (Zimmer Biomet, Warsaw, IN, USA) is a smaller, titanium alloyed (TiAl6NB7), monobloc, grit-blasted fluted stem with a 5° conical taper, that comes in both standard (135°) and high offset (125°) options. The symmetrical conical-shaped proximal end of this implant facilitates its placement in the appropriate degree of anteversion, thus addressing the often overly anteverted neck-shaft angle of the proximal femur in the above conditions.

Our Stanford adult reconstructive service began using this stem in 2006 and reported our initial experience of 49 cases performed between 2006 and 2011, with mean follow-up of 4 years (range 3-7 years) (Clin Orthop Relat Res 2016; 474:459–464). The Harris Hip Score improved from a mean of 41±9 to 85±10 ($p<0.01$) with minimal subsidence averaging 1.5±1.1 mm.

Recently, we reported a larger series comprising 144 primary THAs performed between 2006 and 2019 (Int Orthop 2023;47:117–124). The follow-up averaged 4.5 ± 3.4 years (range, 1-13 years). A diagnosis of hip dysplasia accounted for 52% of cases. Revision free survival was 97.9%. Subsidence of the femoral component was observed in 84 cases (58%); the mean distance of those that did subside was 2.8 ± 2.0 mm. Compared to the pre-operative values, the Harris Hip Scores, UCLA and WOMAC scores significantly improved at last follow-up ($p<0.001$, $p<0.003$, $p<< 0.001$ respectively). Equivalent findings were reported in 91 hips implanted between 2003 and 2017 in similarly challenging cases by a Canadian group. At follow-up averaging 7.8 years (range, 2.0–16.2 years), survivorship was 98.9% (Orthop Trauma: Surg Res 2023;109 103242). An Italian study of 100 Wagner femoral implants in patients with dysplastic hips showed a survivorship of 98.9% at 10 and 15 years. The Wagner Cone femoral component demonstrates excellent clinical outcomes and survivorship in patients with challenging proximal femoral anatomy as well in cases of 1° OA.

How to Prevent Instability After Total Hip Arthroplasty

James I. Huddleston, III, MD
Stanford University School of Medicine
Stanford, CA, USA

Instability remains one of the most common adverse events after primary total hip arthroplasty (THA). In a cohort of 81,871 hip revisions in the American Joint Replacement Registry (AJRR) from 2012-2021, instability was the second most common reason for revision (18.3%), trailing only infection (21.2%)[1]. Interestingly, the percentage of hip revisions for instability decreased in the AJRR from 17.2% in 2017 to 14.5% from 2017 to 2019[2].

A number of factors should be considered to optimize hip stability. Preoperatively, patients at high-risk for instability should be identified and counseled appropriately. Risk factors include those with abnormal spinopelvic mechanics, unusual anatomy, neurological conditions, hyperflexibility, etc. One should consider functional radiographic analysis (lateral xrays in standing and flexed seated positions) in patients with lumbar pathology. Intraoperatively, limb length and offset should be optimized. Large femoral heads and dual mobility articulations should be used selectively. Postoperatively, patients should be counseled regarding positions and activities to minimize instability.

Preoperative spinopelvic analysis is a critical portion of the planning for THA for dislocation in high-risk patients. It has been estimated that 81% of primary THA patients have a stiff lumbar spine[3]. Further, in another large cohort of primary THA patients, 13% met criteria for adverse spinopelvic mobility, and 17% had one static risk factor for instability (standing posterior pelvic tilt, lumbar stiffness, or severe sagittal deformity)[4]. It is my opinion that many hip revisions for reasons other than instability would also likely benefit from a spinopelvic analysis given how frequently arthritis of the hip and lumbar spine co-exist in the same patient. This opinion is informed in part by the fact that many patients revised for instability suffer recurrent instability[5-10].

Unmasking the "Unseen" Dormant State of Infection Allows the Prediction of Infection Free Implant Survival

Derek F. Amanatullah, MD, PhD
Stanford University School of Medicine
Stanford, CA, USA

Introduction: The conventional clinical criteria for diagnosing a periprosthetic joint infection (PJI) rely on acute inflammatory readouts such as erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and synovial white blood cell counts. These metrics only detect actively septic joint replacements and may miss detecting biofilm-embedded bacteria that suppress neutrophil signaling and persist as a "hidden" subset of implants with a dormant infection. We hypothesize that previously infected joint replacements have a high prevalence of dormant infection that can be distinguished from aseptic revision joint replacements by the persistent inflammatory response within synovial fluid and/or circulating plasma.

Methods: This is an observational cohort study using synovial fluid and plasma proteomics of 96 immuno-oncology mediators (Olink Proteomics, Sweden) with three-year clinical follow-up from a single academic medical center (Stanford University, USA). Thirty patients undergoing revision joint replacement: culture-positive actively septic joint replacements (n=7), aseptic revision joint replacements (n=12), and re-implantations of joint replacements previously classified as infection-free by 2018 Musculoskeletal Infection Society (MSIS) criteria (n=11). The identified biomarkers of dormant infection were correlated with the three-year incidence of infection relapse.

Results: Eight of eleven MSIS-cleared joint replacements (73%) clustered with culture-positive active infections despite normal ESR, CRP, and scant synovial neutrophils revealing the synovial inflammatory signature of dormant infection. A nine-analyte synovial panel distinguished dormant infection from truly aseptic cases with 100% specificity and positive predictive value (sensitivity 22%, negative predictive value 74%). Synovial CXCL5 over-expression was a universal hallmark of both active and dormant infection, whereas matched plasma profiles showed no discriminatory power for all immuno-oncology mediators tested. Dormant infections exhibited downregulation of granulocyte activation and T-cell proliferation pathways (FDR < 0.001), mirroring immune evasion programs seen in cancer microenvironments. After a mean of 3 years follow-up, infection relapse occurred in 22% of the biomarker-positive dormant infections, but relapse did not occur in any of the biomarker-negative aseptic cases.

Conclusion: Profiling of the persistent inflammatory response within the synovial fluid of two-stage re-implantations classified as "infection-free" by the MSIS criteria unmasked a clinically silent reservoir of biofilm-embedded bacteria that suppress clinical diagnostic criteria of active infection and define the novel clinical state of dormant infection. We used that profile to identify a novel culture-free panel of rule-out biomarkers for determining which re-implantations were safe from infection relapse. These findings challenge the use of conventional clinical diagnostic criteria - which are over-reliant on acute phase reactants and neutrophil recruitment - and creates a new prognostic clinical paradigm that now includes precision, immune-guided management of dormant infections likely present in many implant-associated infections.

Robotics Reduces the Use of Detrimental Liners During Total Knee Arthroplasty

Derek F. Amanatullah, MD, PhD
Stanford University School of Medicine
Stanford, CA, USA

Introduction: The techniques and technologies for performing a TKA have advanced over the past decade. Among the recent advancements, robotic-assisted TKA (rTKA) has emerged as a promising approach to enhance surgical preparation, precision, and performance of a TKA. Thick and constrained (i.e., detrimental) polyethylene liners influence the clinical outcomes of primary TKA. We hypothesized that preoperative coronal deformity would be associated with detrimental polyethylene liner use during TKA, and rTKA would attenuate that association.

Methods: A retrospective cohort analysis that included 408 TKAs was conducted comparing 190 rTKAs to 218 conventional TKAs in patients treated for primary knee osteoarthritis or other degenerative knee conditions between January 2015 and December 2023 with a mean follow-up of 4.0 ± 2.4 years. The study assessed the preoperative coronal deformity using long leg radiographs, complications, and the use of a detrimental (≥13 mm thick or varus/valgus constraint) polyethylene liner. Patient-reported outcome measures (PROMs) and clinical outcome data were also collected. Unadjusted and adjusted logistic regression models were used to analyze the data with significance set at $p < 0.05$.

Results: Detrimental liners were used in 62 cases (15%). Knees that received a detrimental liner had greater preoperative deformity (13° vs. 9°, p≤0.001) and were more common after cTKA (21%) when compared to rTKA (9%, p=0.002). A multivariate regression model indicated that rTKA significantly reduced the likelihood of using a detrimental liner by more than half (odds ration [OR]: 0.46, 95% confidence interval [CI]: 0.24-0.84, p=0.013). The magnitude of this effect indicated that treating 10 patients with rTKA to avoid using one detrimental liner. Higher preoperative deformity was associated with increased odds of receiving a detrimental liner (OR: 1.14, 95% CI: 1.09-1.20, $p < 0.001$) and this association was substantially mitigated by rTKA (OR: 0.41, 95% CI: 0.20-0.83, $p = 0.013$). No significant differences in PROMs were observed when using detrimental or standard liners: UCLA score change (3.2 ± 1.1 vs. 3.1 ± 1.0, $p = 0.54$), VR-12 PS change (11.8 ± 4.3 vs. 11.6 ± 4.1, $p = 0.62$), and VR-12 MS change (4.7 ± 3.0 vs. 4.6 ± 2.9, $p = 0.65$).

Conclusion: While no direct association with clinical outcome improvements was observed, rTKA significantly reduces the need for using detrimental liners, even in cases with higher preoperative deformity. Future research should focus on the long-term benefits and cost-effectiveness of using rTKA related avoiding the use of detrimental liners in deformity outliers.

The Hidden Downside of Applying AI in Orthopaedic Surgery

Derek F. Amanatullah, MD, PhD
Stanford University School of Medicine
Stanford, CA, USA

Artificial Intelligence (AI) is being incorporated into many aspects of daily life from smartphones to search engines. With the pace AI is being incorporated into healthcare, it is necessary for orthopaedic surgeons to reflect on how our field is being influenced. AI is agnostic to outcome and will have both a positive and negative effect on the next generation of trainees, educators, practitioners, consumers, and leaders. Without active contemplation of the future, orthopaedic surgery will be doomed to external forces, as it has been many times before related to patient reported outcomes, quality measures, reimbursement, etc. We take a dive deep into the future of orthopaedic surgery with AI and describe how AI could impact the training of the next generation of orthopaedic surgeons and the effect it may have on privacy. We must understand and directly influence how AI is used in healthcare or an external group - hospital, company, or maybe even our own patients - will decide for us!

Preop Optimization: Fast Track and Efficiency

Christopher S. Mow, MD
Stanford University School of Medicine
Stanford, CA, USA

As the number of THA and TKA cases worldwide continues to rise, so does the pressure on our ability to shorten the postoperative length of stay. The percentage of cases done as short stay (ie less than 2 nights) and outpatient (ie same day discharge) continues to rise sharply in the US. The migration of primary THA and TKA (and revision in some cases) to short stay is being driven by the need to lower costs and improve operational facilities, as it is easier to control resources in the outpatient setting than in the full-service hospital. This has necessitated the development and implementation of strict preoperative optimization and fast track efficiency protocols. By optimizing and educating patients preoperatively, many studies have shown decreased length of stay (LOS) postoperatively and improved outcomes with fewer complications, especially medical/non-surgical. In any health care system, the goal should be improved outcomes and lower morbidity while controlling costs. Recent data has shown mounting evidence regarding the risk factors associated with worse outcomes and proper steps to achieve adequate optimization for surgery. Patients are becoming more and more complex, and modifiable risk factors need to be identified, addressed and managed accordingly. Despite the growing body of literature around the positive impact of preoperatively managing modifiable risk factors, how best to intervene and to what degree preoperative intervention affects postoperative outcomes are still a work in progress (eg BMI and HgbA1c cutoffs). For future directions, the use of technology such as AI and machine learning based solutions for evaluation and screening are still a way off.

New Technologies in Total Knee Replacement Virtual Reality in Orthopaedics: Application of AR/VR in TKA/THA

Christopher S. Mow, MD
Stanford University School of Medicine
Stanford, CA, USA

Computer navigation was first introduced almost 30 years ago to improve accuracy of component placement in total knee replacement. Over the years, computer navigation has been shown by many studies to improve radiographic outcomes following TKA, with more accurate restoration of lower-limb mechanical alignment and decreased incidence the so-called outliers, or those that are outside of the +3 degree threshold of coronal alignment. Despite being widely commercially available for over 20 years, computer navigation for total knee replacement never gained widespread acceptance. More recently, robotic-assisted TKA has emerged as the next generation of technology with a passive, semi-active, or active use of a robot to assist with placement of cutting jigs or performance of the bony cuts. As with navigation, numerous studies have demonstrated improved resection accuracy and fewer radiographic outliers. However, numerous studies showing improved accuracy of component placement with technology assistance, meaningful clinical improvement, particularly as assessed by patient-reported outcome measures (PROMs), has not been clearly demonstrated when compared to standard TKA. Despite the potentially improved radiographic accuracy and outcomes, it has not been clearly demonstrated whether the use technology assistance in TKA is associated with clinically meaningful differences in outcomes. Augmented reality (AR) is another new technology of computer-assisted surgery whereby a computer-generated image is projected directly into the surgeon's field of vision to improve accuracy in implant placement. As new technologies continue to be introduced, surgeons must remain critical in evaluating the benefits.

Synopses and Abstracts
International Speakers

Advance in Pain Management for Total Knee Arthroplasty: The Role of Multimodal Analgesic Approaches

Azeta Arif, MD, MKes
Santosa Hospital Bandung Central
Bandung, Indonesia

Total knee arthroplasty (TKA) has made significant advancements, but managing postoperative pain remains a significant clinical challenge. The evolution of perioperative analgesic strategies for TKA necessitates ongoing reassessment of current data due to advancements in surgical techniques and pharmacology. Multimodal analgesia has become the norm for managing perioperative pain in TKA, however there are differences in its specific components and applications that can lead to difficulty in selecting the optimal analgesic approach.

Evaluating these pain management strategies is crucial for comprehending their advantages, limitations, and appropriate usage, which will enable the development of individualized perioperative analgesic plans. I am presenting a summary of current research on perioperative pain control in TKA and evaluating the effectiveness of various analgesic interventions.

Hip Arthroplasty for Hip Fractures in the Elderly

Young-Yool Chung, MD, PhD
Kwangju Christian General Hospital,
Kwangju, South Korea

Femoral intertrochanteric fractures commonly occur in elderly people. Osteosynthesis is the preferred treatment of choice. However, a high failure rate (3-16.5%) was reported after osteosynthesis in unstable intertrochanteric fractures. Arthroplasty could be considered a surgical option instead of osteosynthesis for treatment of unstable femoral intertrochanteric fractures in elderly patients with chronic medical diseases. Regarding early mobilization after surgery, superior functional outcomes for arthroplasty compared to osteosynthesis have been reported.

The direct anterior approach (DAA) was introduced as a less invasive surgical approach for use in total hip arthroplasty (THA); it is associated with reduced muscle damage and pain as well as more rapid postoperative recovery. With use of this less-invasive surgical approach patients are able to start rehabilitation sooner and avoid medical complications; therefore, its use is more important for elderly patients with hip fractures.

We believe that hemiarthroplasty through DAA could be a safe and reproducible surgical option for treatment of unstable intertrochanteric fractures in elderly patients without increasing the risk of complications.

Cementless Total Knee Replacement: What is Our Experience So Far?

Henry Fu, MBBS, FRCS
The University of Hong Kong School of Clinical Medicine
Hong Kong SAR, China

Cementless fixation has become widely accepted for total hip replacement, but has only recently regained attention for total knee replacement. Our talk would review the designs of modern cementless total knee arthroplasty, patient selection and latest evidence surrounding cementless TKA. We will present our experience of cementless TKA in Hong Kong over the past 6 years including surgical pearls and pitfalls.

Updates in Management of Periprosthetic Femoral Fractures After Total Hip Arthroplasty

Seung-Beom Han, MD, PhD
Korea University College of Medicine
Seoul, South Korea

Periprosthetic femoral fracture (PFF) after total hip arthroplasty (THA) is increasingly encountered with aging populations and wider use of cementless stems. Contemporary evidence shows that both implant design and management strategy critically influence outcomes. The overall incidence after primary THA remains <1%, yet the burden is substantial due to morbidity and reoperation.

Large national datasets indicate that stem geometry outweighs fixation method in predicting PFF—collarless single-wedge cementless stems carry the highest risk, whereas collared or composite-beam cemented designs are protective; low stem–canal fill and stovepipe femora (high CFI) further increase susceptibility.[1,2,3] In management, the Vancouver classification remains foundational, but recent data support individualized, stability-based decisions.

Type A fractures involving the greater (AG) and lesser (AL) trochanter are generally stable and managed nonoperatively, except in cases of > 2 cm migration, painful nonunion, or calcar extension compromising stem stability, where cerclage wiring or limited revision is indicated

B1 fractures (stable stems). Modern locking-plate constructs are effective when true stem stability and anatomic reduction are achieved. Wiring only proximal fixation is inadequate; bicortical (or tangential) locking screws around the stem (often via locking-attachment or variable-angle systems) provide superior stability to cables-alone or unicortical constructs. In addition, transverse/short-oblique patterns—especially at the stem tip—are mechanically disadvantaged, and single lateral plating may be insufficient. In these scenarios, orthogonal (dual) plating or lateral plate with cortical strut allograft can enhance torsional/axial stability and reduce failure risk.

B2/B3 fractures (loose stems ± poor bone). Modular fluted-tapered revision stems remain the standard with high union and durable fixation. That said, selective ORIF-only is a reasonable option in frail patients (high comorbidity/reduced physiological reserve) when fracture morphology permits stable reconstruction (e.g., contained fracture line, intact trochanteric buttress, achievable anatomic reduction) and when revision would pose prohibitive risk—offering shorter operative time, less blood loss, and shorter stay with comparable short-term union in several series/meta-analyses.

Prevention centers on appropriate stem geometry for host bone, optimized sizing to ensure proximal fill, early recognition/fixation of intraoperative cracks, and bone-health optimization. Overall, modern PFF care is shifting to risk-stratified, implant-specific decision-making: prevention via design and fill; treatment that balances mechanical stability with patient frailty and fracture pattern.

Porous Coating Cup with Directed Energy Deposition (DED) Based 3D Printing

Young-Wook Lim, MD, PhD
Seoul St. Mary's Hospital, The Catholic University of Korea College of Medicine
Seoul, South Korea

Introduction: Additive manufacturing (AM) enables the production of cementless acetabular cups with porous surfaces that facilitate early osseointegration. Directed energy deposition (DED), a form of AM, allows the direct welding of porous structures onto metal substrates without requiring a vacuum environment, offering advantages over conventional powder bed fusion methods. Despite growing interest in DED, no prospective clinical studies evaluating DED-based acetabular components have been published to date. This study assessed short-term outcomes of a DED-based 3D-printed acetabular cup in total hip arthroplasty (THA).

Methods: A total of 120 patients who underwent primary cementless THA using the Corentec Mirabo Z® acetabular cup were prospectively enrolled. Among them, 124 hips from 100 patients who had completed a minimum of 24 months of follow-up were included in the analysis. Clinical outcomes were assessed using the Harris hip score (HHS), WOMAC, EQ-5D-5L, and pain NRS. Radiographic evaluation included measurements of cup position, osseointegration, and detection of interfacial or polar gaps on CT and plain radiographs. Implant-related complications were also recorded.

Results: At a mean follow-up of 34.6 months, the implant survival rate was 99.3%, with one revision due to suspected osseointegration failure. The HHS improved from 56.6 to 91.4 at 24 months, and the NRS decreased from 6.2 to 1.1 (both $p < 0.001$). Interfacial gaps were observed in 58.1% of cases on CT, though most were <1 mm and not clinically significant. Common post-operative issues included greater trochanteric pain syndrome, squeaking, and iliotibial band tightness, all of which were resolved with conservative treatment.

Conclusion: DED-based 3D-printed acetabular cups demonstrated favorable short-term clinical and radiographic outcomes, with high survivorship and reliable early osseointegration in cementless THA.

The Concept of Preoperative Planning for Crowe III and Some Simple Techniques for Leg Lengthening to Realize This

Masaaki Matsubara, MD, PhD
Nissan Tamagawa Hospital
Tokyo, Japan

Among cases of osteoarthritis requiring limb lengthening, those associated with developmental dysplasia of the hip (DDH) and post-Perthes disease are notable. In particular, limb lengthening of over 30 mm may be necessary to correct limb length in some cases. This report introduces the techniques and intraoperative modifications performed in our department for 14 cases of over 30 mm limb lengthening over the past two years.

All patients were female with osteoarthritis due to DDH. One case was classified as Crowe II, 12 as Crowe III, and one as Crowe IV. The average leg lengthening was 33 mm (range: 30–44 mm), and no shortening osteotomy was performed. There were no cases of nerve palsy, such as sciatic nerve palsy, postoperatively, and the acetabulum was restored to its original position as much as possible.

Although leg length discrepancy can be identified during surgery in the supine position, correcting leg length in cases of Crowe III or higher is extremely challenging. In our department, all cases are performed in the lateral decubitus position using the modified Watson-Jones approach and a sandwich-type lateral decubitus fixation device. However, when further leg lengthening is required, both iliac crests are fixed with side plates to achieve the planned lengthening. An important consideration in leg lengthening is selecting a stem that does not exceed the original offset of the affected limb. We believe this allows for leg lengthening without causing neurological complications.

Optimal Acetabular Component Placement and Robotic Accuracy in Total Hip Arthroplasty for Dysplastic Hips

Yasuharu Nakashima, MD, PhD
Kyushu University School of Medicine
Fukuoka, Japan

Due to the anatomical deformities in dysplastic hips, precise adjustment of the acetabular cup position is essential in total hip arthroplasty (THA). This study evaluated the acceptable range of hip center elevation by analyzing its effects on range of motion (ROM), muscle recovery, and postoperative dislocation, and further assessed the accuracy of robotic-assisted cup placement.

1. ROM: Using computer simulation in 32 dysplastic hips (Crowe type II/III), bone coverage and ROM were evaluated according to the vertical center of rotation (V-COR). At the anatomic hip center, only 40.6% achieved adequate bone coverage (Cup-CE $\geq 0°$). Coverage improved up to a V-COR of 30–35 mm (90.6% satisfactory) but decreased beyond 40 mm. Higher V-COR reduced flexion and internal rotation, and the cutoff value for preserving these motions was 35 mm.

2. Muscle Strength: In 100 unilateral dysplastic hip patients, recovery of hip abductor strength was delayed in those with a high hip center (V-COR >30 mm) at 6 months postoperatively, although most patients recovered by 12 months.

3. Dislocation: In a cohort of 1,079 dysplastic hips, postoperative dislocation occurred in 0.9% of cases. V-COR was identified as an independent risk factor (odds ratio 3.1 per 5 mm), and receiver operating characteristic analysis indicated a dislocation risk threshold at 23.9 mm. These findings suggest that maintaining the hip center within approximately 25 mm of the interteardrop line is optimal for balancing bone coverage, ROM, and stability.

In a separate analysis of 179 dysplastic hip patients, manual (M-THA), CT-navigated (Navi-THA), and robotic-assisted (Robo-THA) techniques were compared. The Robo-THA group achieved the highest accuracy, with 92% of cases within 5 mm of the planned center of rotation and one-third fewer orientation errors. Robotic assistance enables precise, reproducible acetabular reconstruction within the acceptable range of hip center elevation, supporting improved functional outcomes in dysplastic hips.

What Has Been Achieved in THA with CT-based Robotic: Present, and Future?

Atsuko Sato, MD, PhD
Nissan Tamagawa Hospital
Tokyo, Japan

Robotic surgery has been developing in various fields in recent years, and in the field of orthopedic surgery, the number of THA using CT-based robotic system has increased dramatically. Currently, the only CT-based robotic-arm system available for THAin Japan is the Mako Total Hip (Mako) system of Stryker, and more than 325,000 Mako-assisted THA (Mako THA) have been performed worldwide.

In Japan, Mako THA has been covered by public health insurance for over five years since it was introduced in 2019, and over 15,000 THA procedures have been performed. The proportion of robotic-assisted THA procedures in the JOANR (Japanese Orthopaedic Association National Registry) has also been increasing year by year, rising from 1.89% in 2020 to 5.51%. Over 1120 cases of Mako THA have performed in our institution since 2019.

Mako is a CT-based system in which a robotic arm controls the procedure according to a 3D preoperative plan created based on CT images. In THA surgery, the haptic arm controls acetabular reaming and cup placement, and it has been reported to achieve extremely high accuracy in cup placement position and angle. Various reports indicate that the absolute error in placement is approximately 1.1 to 2.2 mm, and the absolute error in placement angle is approximately 1.1 to 2.5° for both radiographic inclination (RI) and radiographic anteversion (RA). There are also reports that there is almost no learning curve for accuracy, making it possible for even beginners to perform highly accurate surgery. Additionally, leg length and offset can be monitored in real time.

In our institution, all Mako THA have been performed using a modified Watson-Jones (antero-lateral) approach in the lateral position, and surgery can be performed normally using the MIS method. We investigated 1003 Mako THAs in our department between August 2019 and January 2025 about clinical results and postoperative complications. There was no dislocation (0%) and infection occurred in 2 joints (0.2%). Periprosthetic fractures were observed in 13 joints (1.3%), of which 8 joints (0.8%) had greater trochanteric fractures. Two joints (0.2%) were observed cup loosening, and cup revision was performed in both joints.

In this presentation, I would like to describe the clinical results of Mako THA in our department and multi-institutional survey in Japan, and discuss benefits and future prospects of robotic assisted THA.

Spinopelvic Relationships in Hip Dislocation

Joo-Hyoun Song, MD, PhD
St. Vincent's Hospital, The Catholic University of Korea College of Medicine
Suwon, South Korea

A long time ago, Lewinnek reported safe zone of acetabular cup against dislocation and it has been cited more than 2,000 publications in English language, so his safe zone has been accepted as a gold standard. However, recent articles have confirmed the poor accuracy of safe zone and cup position obtained at surgery, even if it were within safe zone, might not be satisfactory for functional spatial cup positioning during postural change. The dislocation has multifactorial causes and the functional stability is paramount. Recently, many authors pointed clear relationship between spine and pelvis and spine balance can alter outcomes of THRA. The 1st scenario of dislocation is an anterior impingement with THA in the sitting position which result in posterior dislocation in the patient with surgical fusion or excessive lordosis. The 2nd scenario is posterior impingement with THA in the standing position which result in anterior dislocation in patient with severe kyphotic deformity. So, we have to have strategies according to classification for spinopelvic relationships announced at 2018 American Association of Hip and knee surgeons annual meeting symposium.

We have to check standing and sitting L-spine lateral X-ray before surgery. For the patients with normal spinopelvic relationship, optimal anteversion and inclination is 40°±5°, 15~20°, respectively. For the patients with "stuck standing" stiffness, more inclination and anteversion is required and for the patients with "stuck sitting" stiffness, less anteversion and inclination is required. For old patients with abnormal spinopelvic relationship due to spine disease, it is better to use dual mobility articulation.

Challenging Cases of UKA Failure: Lessons for the Future

Sang-Jun Song, MD, PhD
Kyung Hee University College of Medicine
Seoul, South Korea

Conversion of unicompartmental knee arthroplasty (UKA) to total knee arthroplasty (TKA) has been reported to provide survivorship similar to that of primary TKA and clearly superior to that of revision TKA. However, the diagnosis of failure mode and intraoperative management of bone defects can be challenging, particularly when multiple factors contribute to failure.

This presentation introduces a series of UKA failure cases illustrating diagnostic and technical difficulties. In some patients, malalignment led to early progression of osteoarthritis. Others demonstrated unexpected severe wear and metallosis combined with ACL insufficiency. A history of recurrent hemarthrosis following lateral UKA and component malrotation also contributed to failure. Several patients exhibited overlooked primary causes or multiple combined mechanisms, emphasizing that UKA failure is rarely due to a single reason.

In my practice, conversion of UKA to TKA is characterized by aggressive use of autograft for bone defect reconstruction. Typically, femoral defects are contained, while tibial defects are uncontained. Sufficient autogenous bone can be harvested, allowing stable grafting without extensive use of metal augments. Tibial stems are routinely used to protect the graft during healing, while femoral stems, metal blocks, or metaphyseal augments are applied only when necessary. In difficult cases with poor bone quality or periprosthetic fracture, wire mesh with morselized bone graft effectively converts uncontained defects into contained ones.

These cases highlight the importance of accurate identification of the failure mechanism and meticulous bone management. Awareness of multiple potential causes, along with strategic use of autograft, can simplify the conversion procedure and minimize the need for metal augmentation. With proper surgical principles, UKA-to-TKA conversion can be performed smoothly—often as straightforward as a primary TKA.

Evolution of Surface Coating Technology in Orthopedic Artificial Joints: Application of DED 3D Printing

Doo-Hoon Sun, MD, PhD
Sun Medical Center
Daejeon, South Korea

Introduction: Surface technology plays a critical role in the long-term fixation of orthopedic joints. Conventional coatings such as titanium plasma spray (TPS) are widely used but have limitations, including weak bonding strength, risk of delamination, and restricted control of pore size and surface roughness. To overcome these issues, Z coating technology (Corentec, Cheonan-Si, South Korea) was developed using directed energy deposition (DED) 3D printing. This study evaluated Z coating with respect to hydrophilicity, mechanical and physical properties, biological response, animal models, and early clinical outcomes. Biological response was assessed based on findings reported by Jo et al. (2023), and clinical outcomes were derived from a prospective study reported by Bahk et al. (2025).

Methods: Z coating and TPS specimens were compared. Hydrophilicity was assessed by surface wetting tests. Mechanical and physical evaluations included tensile and shear strength, surface roughness, and friction coefficient against bovine bone. Biological response was analyzed using confocal microscopy and cell proliferation assays. In rabbit models, push-out strength was measured at 4 and 12 weeks. Clinical performance was evaluated in a prospective cohort of 124 Z-coated acetabular cups (120 patients) with a minimum follow-up of 2 years.

Results: Compared with TPS, Z coating demonstrated superior hydrophilicity. Mechanical testing revealed higher tensile and shear strengths, greater surface roughness, and an increased friction coefficient. Confocal microscopy confirmed enhanced biological response, with cell proliferation rising sharply from days 5 to 15 in Z-coated specimens, whereas TPS exhibited slower growth. In rabbits, Z coating showed significantly greater push-out strength than TPS at both 4 and 12 weeks. Clinical evaluation of 124 hips with Z-coated acetabular cups showed a survival rate of 99.3% at a mean follow-up of 34 months. The single revision was unrelated to the implant and was due to spinopelvic instability. Patient-reported outcomes, including the Harris Hip Score, WOMAC, and EQ-5D, improved significantly.

Conclusion: Z coating provides superior biological and mechanical performance compared with TPS. Early clinical outcomes are highly favorable, with excellent short-term implant survival and functional recovery. These findings suggest that Z coating has strong potential as a next-generation porous coating for orthopedic implants.

Effect of Stem Position and Length on Bone-stem Constructs After Cementless Hip Arthroplasty: A Finite Element Analysis

Je-Hyun Yoo, MD, PhD
Hallym University Sacred Heart Hospital, Hallym University College of Medicine
Anyang, South Korea

Introduction: There are concerns regarding initial stability and early periprosthetic fractures in cementless hip arthroplasty using short stems. This study aimed to investigate stress on the cortical bone around the stem and micromotions between the stem and cortical bone according to femoral stem length and positioning.

Methods: In total, 12 femoral finite element models (FEMs) were constructed and tested in walking and stair-climbing. Femoral stems of three different lengths and two different positions were simulated, assuming press-fit fixation within each FEM. Stress on the cortical bone and micromotions between the stem and bone were measured in each condition.

Results: Stress concentration was observed on the medial and lateral interfaces between the cortical bone and stem. With neutral stem insertion, mean stress over a region of interest was greater at the medial than lateral interface regardless of stem length, which increased as the stem shortened. Mean stress increased in the varus-inserted stems compared to the stems inserted neutrally, especially at the lateral interface in contact with the stem tip. The maximum stress was observed at the lateral interface in a varus-inserted short stem. All mean stresses were greater in stair-climbing condition than walking. Each micromotion was also greater in shorter stems and varus-inserted stems, and in stair-climbing condition.

Conclusion: The stem should be inserted neutrally and stair-climbing movement should be avoided in the early postoperative period, in order to preserve early stability and reduce the possibility of thigh pain, especially when using a shorter stem.

Synopses and Abstracts
Thai Speakers

Arthroplasty and Bone Health: Time for a Paradigm Shift

Aasis Unnanuntana, MD, MSc
Faculty of Medicine Siriraj Hospital, Mahidol University
Bangkok, Thailand

Osteoporosis is increasingly recognized as a key determinant of outcomes in hip and knee arthroplasty. As populations age, up to half of arthroplasty candidates present with low bone mass and vitamin D deficiency. Poor bone quality predisposes to intraoperative fractures, implant subsidence, and early loosening, compromising functional recovery and implant longevity. Yet osteoporosis remains underdiagnosed and undertreated—only one in four eligible patients receive appropriate therapy before surgery. This gap underscores the need to integrate bone health into the perioperative pathway.

Bone health optimization (BHO) provides a structured framework to identify and treat metabolic bone disease before elective arthroplasty. Assessment should include dual-energy X-ray absorptiometry (DXA) with vertebral fracture assessment, serum calcium and vitamin D levels, and FRAX-based risk stratification. Preoperative correction of nutritional deficiencies and timely pharmacologic intervention are essential. Anabolic agents such as teriparatide enhance bone formation, while antiresorptive agents including denosumab or bisphosphonates preserve periprosthetic bone mineral density and reduce loosening.

Intraoperatively, surgical planning should account for bone quality when determining implant type, fixation method, and exposure technique. Gentle soft-tissue handling, minimal bone resection, and controlled impaction reduce cortical microdamage. Avoiding femoral notching and undersized components is critical to prevent stress risers and fractures. Cruciate-retaining (CR) designs are advantageous as they require less bone resection and may lower the risk of intraoperative fracture. Cemented fixation is preferable in high-risk osteoporotic patients, providing reliable stability and reducing early periprosthetic fracture risk. In complex or high-risk cases, short preoperative optimization—typically three to six months—can enhance bone strength and reduce complications.

Integrating bone health and surgical precision within standardized arthroplasty protocols can reduce periprosthetic fractures, improve fixation longevity, and lower revision rates. As the demographic landscape shifts toward an aging population, bone health must become a cornerstone of modern arthroplasty practice rather than a secondary concern.

Pre-operative Planning: From Imaging to Implant Selection in Total Hip Arthroplasty

Anuwat Pongkunakorn, MD
Lampang Hospital
Lampang, Thailand

Pre-operative planning in total hip arthroplasty (THA) is fundamental to achieving optimal functional outcomes and implant longevity. Successful THA relies on precise restoration of the patient's native hip biomechanics, including the center of rotation, femoral offset, and leg length. Thorough clinical assessment and meticulous imaging analysis form the foundation of accurate planning. Standardized anteroposterior pelvic radiographs with correct positioning and calibration, supplemented by cross-table lateral or CT scans when indicated, provide essential data for digital templating. Using templating software, the surgeon can determine acetabular cup size, inclination and anteversion angles, femoral stem alignment, and osteotomy level, allowing prediction of implant dimensions and limb correction before entering the operating room.

Choice of fixation depends on patient age, bone quality, and canal morphology. Cemented stems remain appropriate for elderly patients with osteoporotic bone, whereas cementless fixation is favored for younger, active individuals with good bone stock, enabling long-term biological ingrowth. Selection of bearing surfaces has evolved toward low-wear combinations such as ceramic-on-polyethylene and dual mobility constructs, which improve stability and reduce wear-related failure.

Modern advancements in digital and three-dimensional (3D) pre-operative planning now allow virtual simulation of component positioning and joint mechanics. Robotic and navigation systems link pre-operative templates to intra-operative execution, enhancing accuracy and reproducibility. As artificial intelligence and digital twin technology continue to develop, the surgeon's ability to deliver individualized, data-driven arthroplasty will further expand. Comprehensive pre-operative planning remains the essential step toward predictable and durable outcomes in THA.

Arthroplasty in Unstable Intertrochanteric Fractures: Prosthetic Selection and Proper Surgical Techniques

Apisit Patamarat, MD
Phra Nakhon Si Ayutthaya Hospital
Phra Nakhon Si Ayutthaya, Thailand

A hip fracture is a common condition among the elderly, particularly in those with fragile bones, and is associated with chronic illness, disability, and increased risk of mortality. Globally, approximately 4.5 million hip fractures occur each year. In Thailand, research indicated a rising trend in hip fractures, with an estimated annual increase of 2.02%. Intertrochanteric fractures (ITFs) account for about 50% of all hip fractures, with unstable types comprising 35-40% of all ITFs. The fixation failure rate is nearly 9.6%, depending on several factors, with one of the most critical being anatomical reduction. Complex fracture patterns involving three or four fragments (AO-OTA 31-A2/A3) and especially in type of basic cervical neck fracture, increase the risk of osteonecrosis of femoral head (ONFH), which occurs in approximated 1-2.4% of cases. Arthroplasty for unstable ITFs has been associated with lower rates of operative failure and reoperation, as well as improved functional outcomes due to the possibility of immediate weight bearing. However, it presents technical challenges in both the surgical procedure and prosthetic selection. Some studies suggest that hemiarthroplasty offers advantages such as less blood loss, lower cost, and shorter operation time compared with total hip arthroplasty (THA), though THA carries a significantly higher dislocation rate. There are three major surgical challenges in arthroplasty for unstable ITFs. The first involves adjusting limb length and femoral stem positioning, which may rely on the remaining bony fragments for reference. The second challenge is achieving secure initial fixation of femoral stem within the osteoporotic canal dependent on stem type and design. Both cementless and cemented stem show comparable mortality and complication rates from studies. The third challenge lies in the reduction and fixation of trochanteric fracture fragment to restore the abductor mechanism, maintain soft tissue tension, and achieve stable fixation, often using wiring technique.

In conclusion, arthroplasty plays an important role in the management of unstable intertrochanteric fractures, offering favorable functional outcomes through early mobilization and improved ambulation. Nevertheless, the procedure demands substantial surgical expertise and technical proficiency.

Update in the International Consensus Meeting (ICM) 2025

Atthakorn Jarusriwanna, MD
Faculty of Medicine, Naresuan University
Phitsanulok, Thailand

Periprosthetic joint infection (PJI) remains one of the most challenging complications in arthroplasty, prompting ongoing efforts to refine diagnostic criteria, classification systems, and treatment algorithms. The 3rd International Consensus Meeting on Musculoskeletal Infection (ICM 2025), held from May 8-10, 2025 in Istanbul, Türkiye, represented a landmark milestone in the global effort to combat musculoskeletal infection. This meeting brought together 1,205 delegates from over 100 countries, including 857 participants and 112 industry representatives, to review and synthesize evidence from more than 2,000 submitted questions focused on general, hip and knee, and additionally on shoulder, spine, and biofilm-focused workgroups.

The updated definition of PJI emphasizes a tier-based diagnostic framework integrating clinical features, microbiology, inflammatory markers, histopathology, and advanced imaging modalities. A multidisciplinary perspective underpins new recommendations for infection prevention, emphasizing intraoperative decontamination, antibiotic stewardship, and perioperative optimization of host immunity. The consensus discussions also explored a broad range of topics, including genetic predisposition, modifiable risk factors, nutritional optimization, prophylactic antibiotic strategies, intraoperative antisepsis, and the integration of artificial intelligence and anti-biofilm technologies in infection management.

On the treatment front, ICM 2025 introduces refined algorithms for debridement, antibiotics, and implant retention (DAIR); single-stage, 1.5-stage, and two-stage revision arthroplasty; and highlights emerging adjunctive strategies such as local antibiotic infusion, phage therapy, and anti-biofilm surface coatings. Key updates include evidence challenging the necessity of the traditional two-week antibiotic holiday, supporting earlier reimplantation in two-stage exchanges, and establishing minimum antimicrobial duration recommendations.

ICM 2025 thus represents a comprehensive, evidence-based evolution toward individualized and standardized care. By translating scientific advances into actionable recommendations, it continues to shape global standards for musculoskeletal infection management and foster international collaboration to improve outcomes in arthroplasty.

Patellofemoral Complications After Total Knee Arthroplasty: Prevention and Management

Chayut Chaiperm, MD
Bhumibol Adulyadej Hospital
Bangkok, Thailand

Patellofemoral complications remain a notable cause of suboptimal outcomes after total knee arthroplasty (TKA), representing approximately 10% of all postoperative complications. These problems, which can occur regardless of patellar resurfacing, include fracture, instability, clunk syndrome, anterior knee pain, and severe bone loss.

Identified risk factors include preoperative valgus deformity, obesity, lateral retinacular release, thin patella, and femoral or tibial component malrotation. Prevention focuses on maintaining a residual patellar thickness of at least 12 mm during resurfacing, avoiding unnecessary lateral release, and selecting prosthetic designs that promote optimal patellar tracking.

Management strategies are guided by the underlying pathology. Patellar fractures are treated non-operatively when both the extensor mechanism and implant stability are preserved, while disruption or loosening necessitates surgical intervention. Patellar instability should prompt assessment for component malrotation; revision is indicated if malalignment is confirmed. In other cases, medial patellofemoral ligament reconstruction or tibial tubercle medialization may be appropriate. Patellar clunk syndrome, typically associated with posterior-stabilized prostheses, is initially treated with physiotherapy, with arthroscopic excision reserved for persistent cases.

Persistent anterior knee pain requires thorough evaluation to exclude identifiable causes such as fracture, implant loosening, or impingement before considering secondary resurfacing, as up to 15% of cases remain idiopathic. In revision settings with severe patellar bone deficiency, reconstruction options include reimplantation with bone graft or cement augmentation, use of biconvex or trabecular metal implants, osteotomy, or extensor mechanism allograft. Patellectomy should be avoided due to loss of extensor strength.

Patellofemoral complications after TKA are multifactorial and often preventable through careful patient selection, precise surgical technique, and tailored management. When no clear etiology is identified, conservative treatment remains the safest option.

Approach to Severe Varus Deformity in TKA: Stepwise Releasing

Danai Heebthamai, MD
Phramongkutklao Hospital
Bangkok, Thailand

Varus deformity is the most common deformity of the degenerative osteoarthritis knee. Total knee arthroplasty corrects deformity to neutral mechanical alignment or anatomical axis in coronal plane. The medial soft tissue are contracted and lateral structures are laxity. To understand the structure anatomy must be reviewed before correcting deformity. A stepwise soft tissue release for varus deformity during total knee arthroplasty is crucial for restore limb alignment to balance flexion-extension gaps without over-releasing structures that could lead to instability.

Anatomy of knee stabilizers including dynamic knee stabilizers, static knee stabilizers, cruciate ligaments and extensor mechanism are structures to promote knee function with good stability. Total knee arthroplasty is the operation of bone cut and soft tissue release. During bone cut with gap balancing technique and measured resection technique, the soft tissue were evaluated and released to balance the flexion and extension gap.

Currently there are many techniques to perform medial soft tissue release. Depend on the severity of varus deformity in coronal plane including flexion contracture or recurvatum in sagittal plane, surgeon's experiences, soft tissue laxity of the patients and arthroplasty devices. No consensus for the best technique of medial soft tissue release.

The principle of medial soft tissue release is always be necessary sequentially and minimally and check balance simultaneously. The medial soft tissue structures are released from superficial to deep and to posterior structures and be careful of excessive releasing. They are subperiosteal release of superficial medial collateral ligament, deep medial collateral ligament release, pie-crusting procedure, multiple needle puncture, femoral origin release of the medial collateral ligament, semimembranosus release, posteromedial capsulotomy, lateral ligament advancement and medial epicondylar osteotomy, osteophyte removal or tibial reduction osteotomy. All techniques have advantages and disadvantage which have the potential to overcorrection and unacceptable gap balance.

PJI After TKA: From Diagnosis to Management

Jirayu Phaliphot, MD
Nakornping Hospital
Chiang Mai, Thailand

Periprosthetic joint infection (PJI) is one of the most serious complications following total knee arthroplasty (TKA), posing significant diagnostic and therapeutic challenges. This lecture provides a concise overview of current principles in diagnosing and managing PJI, tailored for orthopedic surgeons.

We begin with the latest diagnostic criteria, emphasizing practical use of the 2018 International Consensus Meeting (ICM) and 2021 European Bone and Joint Infection Society (EBJIS) guidelines. A systematic approach combining clinical evaluation, serological markers, and synovial fluid analysis is key to accurate diagnosis. Classification systems such as Tsukayama are introduced to guide treatment planning.

The core of the presentation focuses on surgical strategies. Prosthesis retention procedures like Debridement, Antibiotics, and Implant Retention (DAIR), including the Double DAIR protocol for complex cases, are discussed in detail. For cases requiring prosthesis removal, both one-stage and the gold-standard two-stage exchange arthroplasty are covered. Special attention is given to the second stage, including bone defect management and prosthesis selection to ensure stability and function.

Salvage procedures are also addressed for the most challenging scenarios. A case-based approach illustrates decision-making, considering factors such as infection acuity, organism virulence, implant stability, and patient-specific conditions.

The lecture concludes with a review of common diagnostic and treatment pitfalls, aiming to improve clinical outcomes and enhance patient care.

Medial Compartment OA in Young Patients: HTO or UKA

Kanik Suksupha, MD
Lerdsin Hospital
Bangkok, Thailand

Medial compartment osteoarthritis (OA) in younger patients remains a common and challenging condition that requires orthopedic surgeons to make careful treatment decisions. Because these patients are expected to live for many years after surgery, it is essential to select a procedure that provides durable results and preserves future treatment options. Currently, there is no established gold standard indicating whether high tibial osteotomy (HTO) or unicompartmental knee arthroplasty (UKA) is superior. Furthermore, patient age alone cannot serve as a definitive criterion for selecting the appropriate procedure, as both options have distinct advantages and limitations depending on patient-specific factors.

This session will discuss the management of medial compartment OA in two parts: the first focusing on HTO and the second on UKA. Emphasis will be placed on surgical techniques, key decision-making principles, strengths of each approach, and recommendations supported by current literature. Comparative outcomes regarding function, survivorship, and complications will also be reviewed to provide a balanced perspective.

Finally, the speaker will present two to three real-life, case-based scenarios that allow participants to apply theoretical knowledge to practical situations. These cases aim to enhance understanding and assist surgeons in choosing the most appropriate treatment tailored to individual patient profiles

Managing the Severe Valgus Knee in TKA: Key Strategies for Ligamentous Balancing

Nonn Jaruthien, MD
Faculty of Medicine, Chulalongkorn University
Bangkok, Thailand

Ligamentous balancing in the severe valgus knee remains one of the most technically demanding aspects of total knee arthroplasty (TKA). The combination of tight lateral soft tissues, attenuated medial stabilizers, and rotational malalignment often challenges even experienced surgeons. Achieving symmetrical and stable flexion–extension gaps require a structured, anatomy-based approach to soft-tissue management rather than reliance on bone cuts or implant constraint alone.

This presentation will focus on the principles and techniques of ligamentous balancing in valgus TKA. The discussion will emphasize understanding the pathoanatomy of contracted lateral structures—including the iliotibial band, lateral collateral ligament, popliteus tendon, and posterolateral capsule—and their sequential / selective release. Methods to assess gap symmetry and identify residual instability intraoperatively will be demonstrated, along with strategies to restore medial stability in the presence of insufficiency through selective tightening, grafting, or the use of constrained implants when necessary. Attention will also be given to avoiding over-release, flexion–extension mismatch, and patellar tracking issues.

With a systematic sequence of soft-tissue balancing, surgeons can achieve stable, well-aligned, and functional outcomes in severe valgus TKA. The session aims to provide practical, stepwise guidance that enhances intraoperative confidence and reproducibility in managing this complex deformity.

Revision Total Hip Arthroplasty: Bone Defect Management and Prosthetic Selection

Nuttawut Chanalithichai, MD
Princess Srisavangavadhana Faculty of Medicine, Chulabhorn Royal Academy
Bangkok, Thailand

Revision total hip arthroplasty (THA) presents a complex surgical challenge, often complicated by substantial bone loss and compromised bone stock. Successful outcomes rely on accurate assessment of bone defects and appropriate selection of reconstructive strategies and implants. The etiology of bone loss—whether due to aseptic loosening, osteolysis, infection, or mechanical failure—must be thoroughly identified to guide surgical planning.

Bone Defect Management: The Paprosky and AAOS classifications remain widely utilized frameworks for categorizing acetabular and femoral defects, respectively, facilitating communication and selection of reconstruction techniques. For acetabular reconstruction, options range from impaction bone grafting and structural allografts to the use of porous metal augments, cages, or custom triflange components. On the femoral side, techniques include the use of long cementless revision stems, modular tapered stems, impaction grafting, or proximal femoral replacement in cases of severe bone deficiency.

Prosthetic Selection: Prosthetic selection should aim to restore joint biomechanics, ensure stable fixation, and maximize bone preservation. The advent of highly porous titanium and tantalum materials has improved osseointegration and long-term stability. Computer-assisted preoperative planning and intraoperative imaging have further enhanced accuracy in component positioning and defect reconstruction.

Conclusion: Ultimately, the management of bone defects in revision THA requires a patient-specific, multidisciplinary approach integrating biomechanical principles, biological reconstruction, and advanced implant technology. Meticulous preoperative planning, intraoperative adaptability, and understanding of available reconstructive options are key determinants of successful outcomes and implant longevity.

What's New in the Dysplastic Hip in Primary THA 2025

Patcharavit Ploynumpon, MD
Rajavithi Hospital
Bangkok, Thailand

Primary total hip arthroplasty (THA) in the setting of developmental dysplasia of the hip (DDH) presents formidable challenges due to distorted anatomy, including acetabular bone deficiency, abnormal femoral morphology, and compromised soft-tissue envelopes. Achieving accurate component positioning, restoring the hip center of rotation, and ensuring long-term implant survivorship requires a sophisticated approach that goes beyond standard primary THA techniques.

This presentation will provide a comprehensive update on the latest advancements and evolving strategies for managing the dysplastic hip in 2025. The discussion will focus on the contemporary algorithm for treatment, from preoperative planning with 3D modeling to intraoperative execution. Key topics will include advanced techniques for acetabular reconstruction, such as the use of augments, as well as strategies for femoral preparation, including managing excessive anteversion with modular or custom stems. Emphasis will also be placed on the expanding role of robotic assistance and navigation in optimizing implant placement and restoring native biomechanics.

Revision Unicompartmental Knee Arthroplasty to Total Knee Arthroplasty Using Robotic-assisted Surgery

Patcharavit Ploynumpon, MD
Rajavithi Hospital
Bangkok, Thailand

The conversion of a failed unicompartmental knee arthroplasty (UKA) to a total knee arthroplasty (TKA) is an increasingly common and technically demanding revision procedure. Surgeons are often confronted with significant challenges, including bone loss, pre-existing component malalignment, soft-tissue scarring, and difficulty in re-establishing a correct joint line. These factors can compromise the accuracy of bone cuts and the stability of the final TKA construct.

This video demonstration will present a stepwise surgical technique for revising a UKA to a TKA utilizing robotic-assisted surgery. The presentation will detail critical aspects of the procedure, from preoperative planning and implant extraction to the management of bone defects. A central focus will be on leveraging robotic technology to overcome the typical challenges of conversion surgery. This includes accurately planning bone resections based on the patient's unique anatomy, dynamically assessing and achieving ligamentous balance throughout the range of motion, and ensuring optimal component alignment and rotation for a stable, well-functioning knee.

Double Set-up in DAIR: Optimizing Infection Control and Implant Retention

Piya Pinsornsak, MD
Faculty of Medicine, Thammasat University
Pathum Thani, Thailand

Debridement, Antibiotics, and Implant Retention (DAIR) is a cornerstone in the treatment of both early post-operative and acute hematogenous peri-prosthetic joint infections (PJI). The success of this treatment hinges on several crucial factors. Data shows that performing DAIR as early as possible yields a significantly higher success rate compared to delayed intervention.

To effectively eradicate the infection, it is vital to have patient optimization, accurate bacterial identification, proper antibiotic selection, and an adequate surgical debridement technique.

The double set-up is a critical element for maximizing the success of DAIR. This technique involves:

- Initial thorough debridement.
- Temporary wound closure.
- Re-prep and re-drape of the surgical field.
- Massive irrigation.
- Exchange of modular prosthetic components before final wound closure.

We will present a video demonstrating this surgical technique to illustrate how to optimize patient outcomes.

Arthroplasty Trend in 2025

Puthi Tantikosol, MD
Lerdsin Hospital
Bangkok, Thailand

Hip

- Fixation: Renewed role for cemented stems in fragile femurs to reduce early periprosthetic fracture; cementless appropriate in good bone with fracture vigilance.
- Instability: Dual-mobility for high-risk primary/revision THA (spinopelvic stiffness, prior instability).
- Spinopelvic planning: Standing & seated lateral views; patient-specific cup targets over fixed "safe zones."
- Direct anterior approach (DAA): Early recovery benefits balanced against higher wound-complication risk in obesity/anterior tissue depth; mitigation with lateralized incision, tension-free closure, and selective negative-pressure dressings.
- Technology: Robotic THA improves planning/accuracy in complex anatomy and during DAA learning; clinical advantages still evolving.

Knee

- Robotic/tech-assisted TKA: Fewer alignment outliers; mixed short-term PROMs; learning curve ≈17 cases before efficiency gains.
- Cementless TKA: Expanding in younger/good bone; continue surveillance of tibial micromotion and long-term survivorship.
- Medial-congruent polyethylene: Targets medial-pivot mechanics; RSA shows migration comparable to CR with similar or modestly better outcomes in some cohorts.

Perioperative Care: Outpatient/ERAS pathways; opioid-sparing multimodal analgesia; aspirin-first VTE prophylaxis for standard-risk primary TJA with escalation in higher-risk or revision cases.

Infection: Align EBJIS (3-tier) and ICM (weighted) frameworks; apply 2025 synovial WBC/PMN thresholds; follow AAOS/AAHKS dental CPG for selective prophylaxis.

Systems & Quality: Prior authorization and access implications; hold GLP-1 pre-op per anesthesia safety guidance; leverage PROMs/registries (AJRR/NORE) and UDI capture; incorporate sustainability (tray rationalization, low-flow anesthesia).

Osteolysis in Hip Arthroplasty: Mechanism, Diagnosis and Management

Puttipol Waipanya, MD
Bhumibol Adulyadej Hospital
Bangkok, Thailand

Osteolysis remains one of the most significant long-term complications after total hip arthroplasty (THA), often leading to aseptic loosening and implant failure. The condition is primarily initiated by wear debris generated from bearing surface articulation, including polyethylene, metal, or ceramic particles. These microscopic particles are phagocytosed by macrophages, which subsequently release proinflammatory cytokines such as TNF-α, IL-1, and IL-6. The resulting chronic immune response promotes osteoclastic activation and bone resorption around the prosthesis, resulting in progressive periprosthetic bone loss.

Diagnosis of osteolysis requires a combination of clinical assessment and imaging investigations. Plain radiographs are routinely used for surveillance but may underestimate lesion size. Computed tomography (CT) and magnetic resonance imaging (MRI) with metal artifact reduction sequences (MARS) are valuable for detecting early and asymptomatic lesions. Laboratory tests, including ESR and CRP, are essential to exclude infection in cases of suspected aseptic loosening.

Management strategies focus on both prevention and treatment. Preventive measures include optimizing implant design, improving polyethylene cross-linking, and using advanced bearing surfaces to minimize wear. Once osteolysis is detected, surgical intervention may be necessary. Options include debridement, bone grafting, and revision arthroplasty, depending on the extent of bone loss and component stability. Early detection through regular surveillance and timely intervention are critical to preserve bone stock and prolong implant longevity.

Understanding the underlying biological mechanisms and advances in diagnostic imaging will continue to enhance prevention and management strategies for osteolysis in hip arthroplasty.

The CPAK Classification System: How to Apply in Clinical Practice

Sakkadech Limmahakhun, MD, PhD
Faculty of Medicine, Chiang Mai University
Chiang Mai, Thailand

Introduction: Restoring constitutional alignment in total knee arthroplasty (TKA) remains a key determinant of postoperative function and patient satisfaction. Traditional mechanical alignment aims for a neutral limb axis, yet increasing evidence suggests that a single neutral target does not reflect the natural anatomical variation among patients. The Coronal Plane Alignment of the Knee (CPAK) classification was introduced to describe native alignment phenotypes and guide individualized surgical alignment strategies in TKA. By understanding CPAK, surgeons can integrate mechanical, kinematic, and functional alignment philosophies to achieve more patient-specific outcomes.

Description of the CPAK Classification: The CPAK system defines knee phenotypes using two parameters: the arithmetic hip-knee-ankle angle (aHKA), which quantifies the limb alignment, and the joint line obliquity angle (JLOA), which characterizes the joint line orientation relative to the ground. Combining these two variables yields nine distinct CPAK types, ranging from varus to valgus limb alignment and from apex distal to apex proximal joint line orientation. This classification reflects the natural diversity of knee morphology within the population and provides a reproducible framework for preoperative analysis and intraoperative balancing.

Clinical Application: In clinical practice, CPAK can be applied to preoperative imaging to identify the native knee phenotype and guide the choice of alignment philosophy—mechanical, restricted kinematic, or anatomical. Surgeons can anticipate soft-tissue behavior, tailor bone resections, and determine implant positioning based on the CPAK category. Incorporating CPAK into surgical planning promotes restoration of the patient's constitutional alignment, which has been associated with improved functional kinematics and patient satisfaction following TKA. As such, CPAK serves as a practical tool for achieving personalized, functionally optimized arthroplasty.

Robotic-assisted Unicompartmental Knee Arthroplasty: How to Perform It Properly?

Satit Thiengwittayaporn, MD
Faculty of Medicine Vajira Hospital, Navamindradhiraj University
Bangkok, Thailand

Introduction: Conventional unicompartmental knee arthroplasty (UKA) remains underutilized due to technical challenges, including variability in alignment, implant positioning errors, inconsistent soft-tissue tensioning, and a steep learning curve. Robotic-assisted UKA (RA-UKA), particularly imageless systems, has emerged to enhance surgical precision and reproducibility.

Objectives: To describe proper technique for robotic-assisted unicompartmental knee arthroplasty and highlight its clinical benefits, workflow principles, and key technical considerations.

Methods: The RA-UKA workflow includes CT-free registration, smart mapping, intraoperative gap assessment, real-time planning, precision milling, and iterative gap verification. Key surgical principles include maintaining joint line integrity, controlling tibial slope (4-7°), targeting consistent 1–2 mm gaps through the range of motion, and optimizing femoral/tibial component positioning to avoid overstuffing, edge loading, tibial spine impingement, and excessive bone resection.

Results: Evidence shows RA-UKA improves alignment accuracy, joint-line restitution, implant positioning reliability, and reduces outliers. Clinical outcomes demonstrate quicker recovery, higher functional scores, better return-to-sport rates, and reduced revision risk (≈3.9% vs 7.2% in conventional UKA). RA-UKA also shows a short learning curve (8–10 cases to steady performance) and favorable cost-effectiveness over 5-7 years.

Conclusion: Robotic-assisted UKA represents a workflow-driven paradigm that enhances precision, safety, reproducibility, and patient outcomes. Its benefits span alignment accuracy, soft-tissue balance, implant longevity, functional recovery, and economic value supporting its adoption as an effective modern approach for UKA.

Robotic-assisted Total Hip Arthroplasty: Man versus Machine

Srihatach Ngarmukos, MD
Faculty of Medicine, Chulalongkorn University
Bangkok, Thailand

Total Hip Arthroplasty (THA) is widely acknowledged as one of the most successful surgical interventions in history, effectively relieving pain and restoring mobility. The posterior approach remains the predominant technique, yet it is often criticized for two persistent and clinically significant complications: dislocation and leg-length inequality (LLI). Robotic-Assisted THA (RA-THA) systems provide enhanced precision during surgical execution, utilizing real-time, intraoperative guidance and haptic feedback. This technology leads to superior accuracy and reproducibility of the acetabular cup and femoral component positioning, directly addressing stability and leg-length equality. The combination of RA-THA with the established exposure of the posterior technique offers a promising strategy to overcome traditional limitations, potentially leading to reproducible and better outcomes.

Robotic Assistance in Revision Total Knee Arthroplasty

Thakrit Chompoosang, MD
Rajavithi Hospital
Bangkok, Thailand

Robotic assistance in revision total knee arthroplasty (rTKA) represents an emerging frontier in orthopedic surgery, aiming to enhance precision, reproducibility, and patient outcomes in complex cases. While robotic-assisted total knee arthroplasty (Ro-TKA) has shown clear benefits in primary procedures—including improved alignment, accuracy of component positioning, and superior radiographic outcomes—its application in revision surgery remains under investigation. Revision TKA presents unique challenges such as bone loss, malalignment, and difficulty in achieving optimal ligament balance and implant constraint. These factors make the accuracy and consistency provided by robotic systems particularly attractive.

Recent advances in imageless robotic platforms, such as the CORI system, have demonstrated feasibility and usability in revision settings. Advantages include avoidance of CT metal scatter, real-time assessment of ligament tension, and enhanced intraoperative flexibility through adjustable planning of component size, position, and joint line level. Early clinical experiences suggest improved mechanical alignment, restoration of limb axis, and optimized soft-tissue balancing. However, current evidence is limited to short-term studies and small case series, with a lack of long-term data comparing outcomes with conventional revision TKA.

Despite technical challenges—such as complex registration, distorted anatomy, and the need for specific workflows—robotic systems show promise in improving surgical accuracy and personalization. As technology evolves, integration with artificial intelligence, navigation, and custom implant design may further expand indications and optimize outcomes. Continued research and clinical validation are essential to define the precise role of robotics in revision TKA. Ultimately, robotic technology should be viewed not merely as an innovation but as a pathway toward advancing surgical knowledge and improving patient care.

Simultaneous Bilateral Total Knee Arthroplasty (SBTKA): Present and Future Trends

Thana Narinsorasak, MD
Bhumibol Adulyadej Hospital
Bangkok, Thailand

Simultaneous Bilateral Total Knee Arthroplasty (SBTKA) – performing both TKAs under the same anesthesia – offers notable logistical, economic, and rehabilitation advantages over Staged Bilateral TKA (StBTKA). Performing one anesthetic and preoperative workup reduces total hospital days, time away from work, and overall cost. Immediate symmetric rehabilitation of both limbs accelerates functional recovery and avoids the anxiety and attrition associated with returning for a second operation, as up to 37% of staged patients never undergo the second procedure.

The global frequency of SBTKA continues to rise, driven by improved perioperative protocols and risk-mitigation strategies. Historically, SBTKA carried higher risks of cardiopulmonary events, venous thromboembolism (VTE), and blood loss compared to unilateral or staged procedures. Modern practice has markedly improved safety through key measures: routine tranexamic acid (TXA) use, preference for regional/neuraxial anesthesia, optimized fluid and blood management, and in some centers, two surgical teams operating concurrently to shorten total anesthesia and tourniquet time.

Appropriate patient selection remains essential. Exclusion criteria include ASA $\geq$ 3, age > 80 with comorbidities, cardiac or pulmonary disease, poor left ventricular function, morbid obesity (BMI > 40 kg/m^2), renal insufficiency, and severe COPD. The ideal candidates are younger, healthy patients motivated for simultaneous rehabilitation.

Future trends emphasize precision and process optimization. The integration of robotic and computer-assisted surgery, Enhanced Recovery After Surgery (ERAS) pathways, and refined risk-assessment models will enhance safety and efficiency. Continued research, particularly randomized controlled trials, is required to confirm long-term outcomes and cost-effectiveness compared to staged approaches.

In summary, SBTKA is a high-value option for well-selected patients, contingent upon rigorous perioperative management. Its evolution toward precision-based protocols promises to make simultaneous bilateral TKA an increasingly safe and efficient solution for bilateral knee osteoarthritis.

Position of Medial Femoral Condyle Related to PCL Tightness in Knee Osteoarthritis

Thanainit Chotanaphuti, MD
Phramongkutklao Hospital
Bangkok, Thailand

Introduction: In the normal knee, the medial pivot pattern is observed, where the medial femoral condyle remains relatively fixed during flexion from 90° to 120°, and begins to roll back after 130° of flexion. At 90° of flexion, the medial tibiofemoral contact point (CP) is located around the midpoint of the ACL insertion, or approximately 68 ± 6% from the anterior tibial plateau. When the knee flexes to 120°, the CP moves posteriorly by about 1.4 ± 2.3 mm. The posterior cruciate ligament (PCL) is nearly isometric below 135° of flexion, with tension beginning at 90° and reaching a maximum at 120°. The femoral attachment of the PCL plays a key role in determining CP translation. Knee osteoarthritis (OA) is a whole-joint disease involving degenerative changes in the cartilage, meniscus, and ligaments. The PCL shows degeneration starting from its proximal portion, leading to reduced elasticity and functional tightness, which alters knee biomechanics. Consequently, in OA knees, the CP may shift more posteriorly during flexion between 90° and 120°. However, evidence regarding PCL tightness in knee OA remains limited. Therefore, this study aims to evaluate the classification of PCL tightness and its related factors.

Objectives: This study aims to classify PCL tightness in knee osteoarthritis based on the translation of the medial tibiofemoral contact point during 90–120° of knee flexion.

Methods: This prospective study included patients with knee osteoarthritis who underwent total knee arthroplasty at the Department of Orthopaedics, Phramongkutklao Hospital. Demographic data, including sex, age, Kellgren–Lawrence grade, and range of motion, were collected. The medial tibiofemoral contact point during 90°-120° of knee flexion was identified and classified according to the degree of PCL tightness.

Results: A total of 168 patients with knee osteoarthritis who underwent total knee arthroplasty between October 2025, and September 2026 were included in this study. The distribution of PCL stations −1, 0, 1, 2, and 3 was 0.60%, 14.29%, 30.36%, 35.71%, and 19.05%, respectively. Accordingly, PCL station 2 represented the most prevalent classification of PCL tightness. One-way analysis of variance (ANOVA) revealed a statistically significant association between PCL station and range of motion ($p < 0.05$). Moreover, Spearman's rho correlation analysis demonstrated a negative correlation between PCL station and flexion contracture.

Conclusion: This study classified PCL tightness in patients with knee osteoarthritis and found that the most common classification was PCL station 2. Furthermore, one-way ANOVA revealed a statistically significant difference between PCL station and range of motion ($p < 0.05$), while Spearman's rho correlation analysis demonstrated a negative correlation between PCL station and flexion contracture. In the future, the PCL tightness classification may help improve intraoperative evaluation during total knee arthroplasty and provide insights into the related clinical factors identified in this study.

Periprosthetic Femoral Fractures

Thanasak Yakumpor, MD
Faculty of Medicine, Burapha University
Chon Buri, Thailand

Periprosthetic femoral fractures (PPF) are a devastating complication after total hip arthroplasty (THA). As the number of primary and revision THAs increases globally, so too does the incidence of these complex fractures, posing significant challenges to orthopedic surgeons. PPFs are defined as fractures occurring around the components of a pre-existing hip replacement, and they are associated with high morbidity, mortality, and revision rates.

The foundational principle for managing these fractures is accurate classification, which guides subsequent treatment. The Vancouver Classification System is the most widely accepted and utilized system, categorizing fractures based on three key features: the location of the fracture relative to the implant stem, the stability of the femoral component, and the quality of the surrounding bone stock.

Treatment decisions are dictated by this classification. Type A fractures often allow for non-operative management or internal fixation. Type B1 fractures, involving a stable stem, are typically managed with open reduction and internal fixation (ORIF) using cables and specialized periprosthetic plates.

The most challenging categories are Type B2 and Type B3. Type B2 fractures, where the stem is loose, necessitate revision arthroplasty, usually with a long, distally fixing implant that bypasses the fracture site by at least two cortical diameters. Type B3 fractures demand the most complex reconstructive approach, involving revision arthroplasty with an allograft-prosthesis composite or specialized fixation techniques due to the severely compromised bone stock. Type C fractures, remote from the prosthesis, are typically treated as standard femoral shaft fractures, while ensuring the fixation does not compromise the tip of the hip implant.

Successful outcomes rely on meticulous preoperative planning, an understanding of implant stability, careful selection of fixation devices, and the preservation of biological healing potential. The treatment goal remains the restoration of function, union of the fracture, and stability of the hip implant.

Cemented versus Cementless THA in 2025: Revisiting Registry Data and Indication

Theerawit Hongnaparak, MD
Faculty of Medicine, Prince of Songkla University
Hat Yai, Thailand

Cemented total hip arthroplasty offers several benefits, particularly for older patients. It has demonstrated superior long-term survivorship and lower revision rates compared to cementless or hybrid fixation, making it a preferred choice for this demographic. Cemented fixation also reduces the risk of periprosthetic fractures, especially in osteoporosis-affected elderly patients, and provides better short-term outcomes, including pain relief. Additionally, cemented implants tend to be more cost-effective. However, there is a noted association between cemented femoral stems and a higher early mortality risk, possibly linked to bone cement implantation syndrome.

Cementless total hip arthroplasty offers superior long-term success (better survivorship and lower revision rates) compared to cemented THA for younger, more active patients with good bone quality. Furthermore, its long-term stability relies on biological bone ingrowth, which necessitates sufficient bone stock. Whereas, for older patients, some data suggests a higher risk of revision with cementless constructs compared to cemented ones.

Ideal indications for cemented THA:

- Older patients, especially those over 75 years.
- Patients with low bone density (osteoporosis).
- Elderly patients with a femoral neck fracture.

Ideal indications for cementless THA:

- Younger, more active patients with high functional demands.
- A good-quality, non-osteoporotic femoral canal.
- Patients with a long life expectancy who want to return to an active lifestyle.

Dual Mobility Cups in Primary THA: When and Why?

Tulpong Ampool, MD
Bumrungrad International Hospital
Bangkok, Thailand

Dual Mobility (DM) Total Hip Arthroplasty (THA) was developed to address the problem of hip dislocation after conventional hip replacement. It combines the advantages of two designs: the low-friction arthroplasty by Charnley, which uses a small femoral head to reduce wear, and the large-head concept by McKee–Farrar, which lowers the risk of dislocation. The DM system incorporates a mobile polyethylene liner between the femoral head and the acetabular shell, providing a wider range of motion and enhanced stability, similar to the principle of mobile bearing in total knee arthroplasty (TKA).

The main indications for using Dual Mobility THA include patients at high risk of dislocation, such as those with post-traumatic hip fractures, elderly individuals over 65 years of age, patients with neuromuscular diseases, and those with abductor muscle weakness or other causes of joint instability. It is also beneficial in revision surgeries, particularly for cases of recurrent dislocation after a previous THA.

In primary THA, Dual Mobility can decrease the dislocation rate and improve joint stability, offering better outcomes in selected cases. However, it should not be considered the first-line choice for all hip arthroplasties. The fixed-bearing design remains the gold standard for most patients because of its long-term durability and proven clinical results.

Artificial Intelligence in Hip and Knee Arthroplasty: From Prediction to Precision Surgery

Ukrit Chaweewannakorn, MD
Police General Hospital
Bangkok, Thailand

Artificial intelligence (AI) is becoming increasingly integrated into the field of orthopedic surgery, specifically in hip and knee arthroplasty. This technology has the potential to improve surgical outcomes, reduce complications, and enhance patient care. AI algorithms can assist in preoperative planning, intraoperative decision-making, and postoperative monitoring. This review explores the current applications of AI in hip and knee arthroplasty, including image analysis, robotic-assisted surgery, predictive modeling, and personalized rehabilitation protocols. The challenges and limitations of AI in orthopedic surgery are also discussed, along with future directions for research and clinical implementation. Overall, AI has the potential to revolutionize the field of hip and knee arthroplasty, leading to more precise, efficient, and personalized surgical interventions.

Persistent Horizontal Joint Line Concept

Viroj Larbpaiboonpong, MD
Police General Hospital
Bangkok, Thailand

New Persistent Horizontal Joint Line (PHJL) concept is proposed as a universal methodology for achieving the best implant longevity in Total Knee Arthroplasty (TKA), potentially replacing the current Hip-Knee-Ankle (HKA) alignment principle in all situations. While the traditional HKA alignment provides a standard load distribution for implant survival in most TKA cases during preoperative planning and in the supine intraoperative position, however its reliability is compromised in complex scenarios. For instance, the HKA concept proves unreliable if the patient presents with concomitant ankle and/or foot deformities. Upon the patient's return to functional knee ambulation, the resulting unbalanced load on the tibial component may lead to early aseptic loosening and subsequent implant failure. Therefore, HKA alignment is not universally suitable for all TKA procedures. In contrast, the PHJL concept is designed to provide universally functional load balance in TKA irrespective of preoperative knee, ankle, or foot deformities, thereby promoting superior long-term implant longevity.

Research Abstracts
Free Papers

A-002

Cadaveric Biomechanical Evidence for Safer Pinning Techniques in Robotic Total Knee Arthroplasty: Intra- vs Extra-Incisional Approaches

Alexander Shao-Rong Pang[1], Stuart B. Goodman[2], Matthew Song Peng Ng[3], Calvin Chan[2], Siaw Meng Chou[4], Zi Qiang Glen Liau[3]

[1]NUS Yong Loo Lin School of Medicine, Singapore

[2]Stanford University School of Medicine, Stanford, CA, USA

[3]National University Hospital, Singapore

[4]Nanyang Technological University School of Mechanical and Aerospace Engineering, Singapore

Introduction: Robotic-assisted total knee arthroplasty (rTKA) offers enhanced precision but introduces new challenges, including the risk of pin-site fractures from tracker fixation. This study aims to biomechanically evaluate the effects of intra-incisional versus extra-incisional pinning on torsional rigidity to failure and fracture propagation patterns in cadaveric femurs and tibias. We hypothesize that intra-incisional pinning confers higher torsional resistance strength.

Methods: Twenty matched cadaveric femurs and tibias were randomized to intra-incisional (metaphyseal) or extra-incisional (diaphyseal) pinning. Specimens were cemented into jigs and subjected to torsional load-to-failure. Real-time data for torque, rotation, and time were recorded. Fracture patterns, pin-site involvement, and torsional rigidity, calculated as the slope of the linear elastic region (Nm/rad), were determined. Torque was defined using the equation: $T = r \times F \times \sin(\theta)$, where r is the lever arm, F is the applied force, and θ is the angle of application. p-value <0.05 was considered statistically significant.

Results: Extra-incisionally pinned femurs exhibited an 80% fracture rate, including 60% pin-site fractures, compared to 20% fractures with no pin-site involvement in the intra-incisional group. Mean femoral torsional rigidity was significantly higher (p=0.007) in the intra-incisional group (13.7 Nm/rad, 95% CI:9.32-18.1) versus the extra-incisional group (3.69 Nm/rad, 95% CI:-2.39-9.78). In the tibia, one pin-site fracture (20%) occurred in the extra-incisional group, with none in the intra-incisional group. Intra-incisional tibias also demonstrated higher mean torsional rigidity (8.24 Nm/rad, 95% CI:6.68-9.81) compared to extra-incisional tibias (4.42 Nm/rad, 95% CI:-0.79-9.63). Overall, 80% of extra-incisional specimens fractured versus 30% in the intra-incisional group (p=0.0123). We postulate: 1. Quantitatively, the tibial metaphysis, where intra-incisional pins are inserted, has a comparatively wider diameter, increasing the moment arm (r) and thus torsional strength; 2. The metaphyseal region, rich in cancellous bone, also allows for improved load distribution and elastic deformation before failure.

Conclusion: Our intra-incisional pinning technique offers biomechanical advantages over extra-incisional pinning, including significantly greater torsional rigidity and reduced fracture risk. These findings support our intra-incisional pin placement technique being safer, particularly as post operative patients undergo early full weight bearing mobilization and may experience high torsional forces when pivoting during ambulation, or from accidental falls.

A-003

Reliability and Validity of the Thai Version of the Intermittent and Constant Osteoarthritis Pain (ICOAP): Knee Questionnaire

Witchaporn Witayakom, Kamolsak Sukhonthamarn, Rit Apinyankul, Weerachai Kosuwon

Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

Introduction: The OARSI/OMERACT initiative developed the Intermittent and Constant Osteoarthritis Pain (ICOAP) questionnaire for patients with hip and knee osteoarthritis (OA). We aimed to develop a Thai version of the ICOAP: Knee Questionnaire using a multi-language translation and cross-cultural adaptation method and assessed its reliability and validity.

Methods: Seventy-five patients (20 males), aged 40 years or older and were diagnosed with knee osteoarthritis, completed the developed questionnaire, the pain subscale of the Thai version of the Knee Osteoarthritis Outcome Score (KOOS), and the Visual Analog Scale (VAS) for pain. We conducted a retest of the Thai ICOAP: Knee Questionnaire via phone between 48 and 72 hours after the initial test. The intraclass correlation coefficient (ICC) was used to assess test-retest reliability. Cronbach's alpha was used to evaluate internal consistency, and Spearman's rank correlation was used to assess construct validity.

Results: The test-retest reliability of the Thai ICOAP total score demonstrated good reliability (ICC = 0.864). For internal consistency, the Thai ICOAP showed satisfactory reliability, with a Cronbach's alpha of 0.915. The Thai ICOAP total score exhibited a strong negative correlation with the Thai KOOS pain subscale ($r = -0.811$, $p < 0.001$) and a strong positive correlation with the VAS ($r = 0.742$, $p < 0.001$).

Conclusion: The Thai version of the ICOAP: Knee Questionnaire demonstrated good reliability and validity. This questionnaire can be used to assess pain symptoms in patients with knee osteoarthritis.

A-006

Postoperative Pain and Blood Loss of Non-use Compared to Partial-use of a Tourniquet in Bilateral Total Knee Replacement: A Randomized-control Trial

Thada Wipatasinlapin, Surapon Atiprayoon, Yutthana Khanasuk, Pariwat Taweekitikul

Queen Savang Vadhana Memorial Hospital, Si Racha, Thailand

Introduction: Background The use of a tourniquet in total knee arthroplasty (TKA) remains a topic of debate. There are research studies supporting its use, and supporting operations without using a tourniquet. While TKA with a tourniquet may reduce the blood loss and operating time, but it has been found to be associated with more complications and more postoperative pain. Latest evidences suggest that the most debating tourniquet-use technique is between NTU (Non-tourniquet usage) and BOO (Before Osteotomy in Operation), which involves using a tourniquet before starting the bone cutting, until wound closure. Despite numerous meta- analysis and randomized-control trial, there is still no conclusive evidence on the most effective method of using a tourniquet. Previous studies often lack a crossover design, which could introduce confounding variables. Therefore, we designed a protocol which was a randomized-control trial with a crossover design, specifically studying the outcomes of tourniquet use in the bilateral total-knee arthroplasty of each limb in the same patient, aiming to provide clearer insights into the benefits of different tourniquet techniques. Objectives To compare the effects of non-use (NTU) and partial-use (before osteotomy to skin closure; BOO) of a tourniquet in staged bilateral total knee arthroplasty (TKA) on postoperative pain, blood loss and complications.

Methods: A prospective randomized-control trial with cross-over design was designed to compare the effect of NTU vs BOO in the patients underwent staged bilateral TKA. The opioid consumption and pain score were primary outcomes. Blood loss, the number of wound complications and postoperative complications were secondary outcomes.

Results: NTU group showed a significantly reduction in opioid consumption (14.8 ± 8.3 mg) as compared to that of BOO group (24.6 ± 10.8 mg) in the postoperative 24 hours. The postoperative pain score was significantly lower by the first, second, third and fourth day postoperative in NTU group (3.2, 3.9, 3.5, 2.3) compared to BOO group (4.3, 5.6, 4.8, and 4.1). There was no significant difference in blood loss between the groups. Early postoperative wound ecchymosis was found in BOO group (5 knees), more than in the NTU group (1 knee) with statistically significance.

Conclusion: Performing total knee arthroplasty (TKA) without using a tourniquet, can reduce particularly the magnitude difference in pain and opioid consumption better than using the tourniquet as well as lack of significant differences in blood loss. This will allow for future clinical implications to determine that NTU may be preferable due to reduced postoperative pain and fewer postoperative wound complications.

A-007

Comparison Incidence Rates of Urinary Tract Infection and Postoperative Urinary Retention Between Initial and Intra Operative Indwelling Urinary Catheter in Fracture Around the Hip Patients with Surgery in 48 Hours: A Randomized Controlled Trials

Pacharapol Natee, Ittiwat Onklin, Natthapong Hongku

Faculty of Medicine Vajira Hospital, Navamindradhiraj University, Bangkok, Thailand

Introduction: To evaluate the incidence rate of urinary tract infection (UTI) and postoperative urinary retention (POUR) between two different timelines of urinary catheterization which are the initial indwelling urinary catheter (IIC) group and intraoperative indwelling urinary catheter (IOC) group in hip fracture patients who underwent surgery either fracture fixation or hemiarthroplasty operation within 48 hours.

Methods: Between June 2023 and October 2024, 110 patients who met the eligible criteria were enrolled in the study. We prospectively randomized all patients into the IOC group (n=55) and the IIC group (n=55). The postoperative incidence of UTI and postoperative urinary retention (POUR) were compared and evaluated 24 hours postoperatively.

Results: The incidence of UTI was significantly higher in the IIC group (23.6%) than in the IOC group (9.1%). However, the incidence of POUR revealed no significant difference between the groups.

Conclusion: For hip fracture patients who underwent early hip fracture operation within 48 hours, performing of urinary catheterization intraoperatively (IOC) can reduce the incidence of UTI postoperatively without the problem with POUR compared to initially retaining the urinary catheter at admission (IIC).

A-008

Comparison of Serum Systemic Inflammatory Biomarkers in Bone-milling Robotic-assisted Total Knee Arthroplasty and Conventional Total Knee Arthroplasty: A Prospective Randomized Controlled Trial

Peeranut Jittangtrong, Natthapong Hongku, Satit Thiengwittayaporn

Faculty of Medicine Vajira Hospital, Navamindradhiraj University, Bangkok, Thailand

Introduction: The use of bone-milling in robotic-assisted total knee arthroplasty (RA-TKA) is regarded as a refined technique that enhances surgical precision while minimizing trauma to periarticular soft tissues. In contrast, conventional TKA relies on a saw blade, which is more likely to cause soft tissue injury. This prospective randomized controlled trial aimed to compare (1) serum systemic inflammatory biomarkers as the primary outcome, with secondary outcomes including (2) tourniquet time, (3) estimated blood loss, (4) radiographic alignment, and (5) clinical outcomes between bone-milling RA-TKA and conventional TKA.

Methods: A total of 60 patients were included: 30 patients underwent bone-milling robotic-assisted total knee arthroplasty, and 30 patients underwent conventional TKA; all procedures were performed by a single surgeon. Serum systemic inflammatory biomarkers, including interleukin-6, erythrocyte sedimentation rate, C-reactive protein, creatine kinase, and lactate dehydrogenase were measured preoperatively and postoperatively at 6 h, 1 d, 3 d, 2 weeks, and 6 weeks.

Results: Neither RA-TKA nor conventional TKA showed statistically significant differences in serum systemic inflammatory biomarker levels at any postoperative time point. Radiographic alignments were more accurate in the RA-TKA group. However, RA-TKA was associated with longer tourniquet times. The Knee Society Score and visual analogue scale scores showed no statistically significant intergroup differences.

Conclusion: Besides the more accurate radiographic alignment in the bone-milling RA-TKA compared to conventional TKA, there were no differences in soft tissue injury and short-term clinical outcomes.

A-011

Hemiarthroplasty for Unstable Intertrochanteric Hip Fractures: A Systematic Review and Meta Analysis

Zeremy Tang Jin Wey, Ryan Loke Wai Keong, Jonathan Jia En Boey, Alexander Ang Xi Xuan, Darren Keng Jin Tay

Singapore General Hospital, Singapore

Introduction: Unstable intertrochanteric hip fractures remain prevalent in the elderly with severe impacts on their functional abilities and quality of life. The optimal approach to such fractures has been between either hemiarthroplasty or internal fixation methods, with consensus yet to be reached. This review compares intraoperative and postoperative clinical outcomes of the two techniques.

Methods: We conducted a systematic review and meta-analysis, searching four international databases from inception until 2024 for studies reporting on more than five patients receiving either internal fixation (IF) or hemiarthroplasty (HA) for an unstable intertrochanteric hip fracture. Random-effects (DerSimonian and Laird) meta-analyses were conducted. The primary outcome was Harris Hip Score (HHS). Secondary outcomes included other intraoperative and postoperative clinical findings. We rated intra-study risk of bias using the ROBINS-I Tool and Cochrane Risk of Bias tool, and assessed the certainty of evidence using the GRADE approach.

Results: HHS for HA was significantly greater at the 3 and 6-month postoperative follow ups compared to IF, with a weighted mean difference of 13.9 (95% CI: 9.3 - 18.6) and 5.4 (95% CI: 1.2 - 9.6) respectively. Weighted mean differences of HHS for 12 and 24 months follow-ups were statistically insignificant. Intraoperatively, HA had a longer operation time by 10.4 minutes (95% CI: 3.4 - 17.5) and greater blood loss at 154.4mL (95% CI: 93.9 - 214.8). Post-operatively, HA had a higher relative risk of 1-year mortality rate at 1.6 (95% CI: 1.2 - 2.1). However, HA's relative risk of nonunion of fractures was lower at 0.4 (95% CI: 0.2 - 0.9). Otherwise, there is no difference in post-operative complications of deep vein thrombosis, surgical site infections, limb length deformity, periprosthetic fractures and prosthetic failure.

Conclusion: In conclusion, HHS in HA outscored IF in the short term up to 6 months, showing improved functional outcomes in the short term. 1-year postoperative mortality rate favour IF. Nonunion of fractures are lower in HA group, with other complications statistically insignificant. Intraoperatively, HA had greater blood loss and longer operative times. Patients who seek earlier functionality and mobilisation can consider the HA to achieve these goals.

A-012

Efficacy of Pericapsular Nerve Group Block (PENG) Compared to Local Infiltration Analgesia (LIA) After Total Hip Arthroplasty: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Ryan Loke[1], Jiawei Chen[1], Ethan Wong[1], Barry Wei Loong Tan[2]

[1]NUS Yong Loo Lin School of Medicine, Singapore

[2]National University Hospital, Singapore

Introduction: Pain management after total hip arthroplasty (THA) is crucial for patient recovery and satisfaction. Various analgesic techniques exist, including the pericapsular nerve group (PENG) block and local infiltration analgesia (LIA). This study aims to compare the efficacy of PENG and LIA in postoperative pain management following THA.

Methods: A random-effects meta-analysis of randomized controlled trials (RCTs) comparing PENG and LIA in primary THA was conducted. A systematic search of MEDLINE, Embase, Cochrane Library, and SCOPUS was performed up to October 24, 2024. Pain scores, opioid consumption, and secondary outcomes such as complications and postoperative nausea and vomiting (PONV) were analysed. Four RCTs were included, with 128 patients receiving PENG and 130 receiving LIA.

Results: Demographics, including age, BMI, ASA status, and surgery duration, were comparable. Pain scores at 6, 12, 24, and 48 h were higher in the PENG group but not statistically significant. At 24 h, cumulative opioid consumption was higher in the LIA group [4.23 mg (95% CI: 0.50–7.96) vs. 3.97 mg (95% CI: 0.24–7.70)] though not statistically significant ($p = 0.92$). At 48 h, PENG had higher cumulative opioid consumption [6.78 mg (95% CI: 1.04–12.52) vs. 6.18 mg (95% CI: 0.91–11.45)] though not statistically significant ($p = 0.88$). Secondary outcomes, including overall complication rates and PONV, showed no significant differences.

Conclusion: PENG and LIA are comparable in terms of their effectiveness post THA. LIA is non-inferior to PENG in terms of postoperative pain scores, cumulative opioid consumption, overall complication rates and rates of PONV.

A-014

Comparison of Pain and Functional Performance Between Crystalline Glucosamine Sulfate and Diacerein in Early Knee OA Patients

Chavarin Amarase, Aree Tanavalee, Srihatach Ngarmukos, Chotetawan Tanavalee, Nonn Jaruthien, Pakpoom Somrak

Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Introduction: Among symptomatic slow-acting drugs for osteoarthritis (SYSADOA) used to treat early knee osteoarthritis (OA), oral patented crystalline glucosamine sulfate (pCGS) and diacerein have gained popularity for controlling symptoms and slowing progression of the disease. Although studies have shown that pCGS and diacerein improve clinical outcomes, no study has compared the results between these two agents. We compared pain and functional performance between pCGS and diacerein in patients with early knee osteoarthritis (OA).

Methods: We retrospectively reviewed 275 patients with Kellgren-Lawrence (KL) grades I and II knee OA, who were continuously treated with either 1,500-mg pCGS per day or 100-mg diacerein per day for 1 year. The visual analogue scale (VAS) was used to assess pain, and the 5-time sit-to-stand test (5xSST), the time up-and-go test (TUGT), and the 3-minute walk distance test (3MWDT) were employed to evaluate functional performance outcomes at baseline, 12-week, 24-week, and 1-year follow-ups (FUs). Changes in all parameters were evaluated and compared between the two groups.

Results: At the final follow-up, 215 patients completed all evaluations, with an average age of 65 years, a BMI of 26.9 kg/m^2, and 75% being female. There were 129 patients receiving p-CGS and 86 receiving diacerein. The pCGS group showed significant improvements in VAS, 5xSST, and TUGT from the 12th week and significant improvement in 3MWDT from the 24th week. In contrast, the diacerein group showed significant improvements in TUGT from the 12th week and significant improvements in VAS, 5xSST, and 3MWDT from the 24th week. At 1-year FU, both groups had significantly improved VAS and all three functional performances without adverse events. However, there were no statistically significant differences in VAS, 5xSST, TUGT, and 3MWDT between the two groups at baseline and all three follow-up time points.

Conclusion: In early knee OA patients, according to individual baseline evaluations, pCGS provided faster and significantly improved VAS and 5xSST, as well as similar improvements in TUGT from the 12th week, compared to diacerein; however, there were no differences between the two groups. From the 24th week to one year, both agents provided similarly significant improvements in pain and all functional performance tests.

A-016

Effects of Transcutaneous Electrical Nerve Stimulation on Pain Reduction After Cementless Bipolar Hemiarthroplasty

Panna Yuthasilp, Ukrit Chaweewannakorn

Police General Hospital, Bangkok, Thailand

Introduction: To evaluate patient-oriented pain, rescue painkiller dosage, and patient satisfaction score in post-operative femoral neck fractures, comparing TENS and control.

Methods: A single-center, prospective randomized controlled trial was done from April 2023 to April 2025. The study included patients with femoral neck fractures who underwent cementless bipolar hemiarthroplasty. Participants were divided into 2 groups: the TENS group and the placebo group. In the placebo group, electrodes were placed similar to TENS, despite without energy delivery. The interventions were performed on consecutive post-operative days 1 to 3. All participants received around-the-clock pain controllers from day 0 to day 3. The visual analog scale (VAS) of pain was evaluated on day 1, before receiving interventions, on day 2, and day 3. The total dosage of rescue medicine, measured in milligrams of intravenous pethidine, and VAS of patient satisfaction score were evaluated on day 3. Multilevel mixed-effects linear regression was used to compare pain score between groups and according to time, and paired t-test was used to compare the cumulative pethidine dosage and the satisfaction score. The statistical significance was considered if p-value < 0.05.

Results: Fifty participants were included. The TENS and control groups showed statistically insignificant differences in pain score from day 1 to 3 (coefficient -0.52; 95% CI -1.09 - 0.05; p = 0.07); however the TENS group showed less pain score over time. Statistically insignificant differences in cumulative dosage of intravenous pethidine between both groups: 119 ± 53.17 mg and 135 ± 57.74 mg, respectively (p = 0.31). The satisfaction scores in the TENS and control groups were 7.52 ± 1.23 and 7.64 ± 1.19, respectively, which showed insignificant differences (p = 0.73).

Conclusion: Pain score, cumulative dosage of pethidine, and patient satisfaction showed statistically insignificant differences between groups, in contrast to previous studies. However, the cumulative dosage of pethidine was less in the TENS group clinically. Thus, our study may show the effectiveness of pain reduction in the TENS group.

A-021

Biomechanical Superiority of Intra-incisional Pin Placement in Minimizing Pin-site Fractures in Robotic Total Knee Arthroplasty: A Sawbone Study

Ethan Tew[1], Glen Liau[1], Alexander Pang[2], Matthew Ng[1], Siaw Meng Chou[3]

[1]National University Hospital, Singapore

[2]NUS Yong Loo Lin School of Medicine, Singapore

[3]Nanyang Technological University School of Mechanical and Aerospace Engineering, Singapore

Introduction: Robotic-assisted total knee arthroplasty (rTKA) is associated with improved precision but simultaneously carries new possible complications, including pin-site fractures resulting from tracker fixation. This study aims to biomechanically evaluate the differences in effects of intra-incisional and extra-incisional pinning in Sawbones® femurs and tibias. Specifically, we aim to look at (1) fracture morphology, in terms of (a) shortest total distance (TD) from fracture to pin-site, and (b) shortest mechanical axis distance (MAD) — distance that is parallel to mechanical axis — between pin-hole and fracture, and (2) intrinsic biomechanical properties in terms of rotational stiffness.

Methods: Twenty paired Sawbones® femurs and tibias were randomized to either intra-incisional (metaphyseal) or extra-incisional (diaphyseal) pin placement. Each specimen was cemented into a jig and tested under torsional load-to-failure conditions. Real-time measurements of torque and angular displacement were collected. Rotational stiffness — calculated as the slope of the linear elastic region (Nm/rad) — was assessed. A p-value < 0.05 was considered statistically significant.

Results: 0% of intra-incisional pin-holes were involved in fractures under torsional load, compared to 70% of extra-incisional pin-holes. Mean TD from fracture to pin-hole for tibias was significantly shorter in the extra-incisional than intra-incisional group (0.22 cm, 95% CI:-0.39-0.83 vs 6.0 cm, 95% CI:4.56, 7.44. p=0.00947). The mean TD for femurs were also significantly shorter in the extra-incisional group (0.92 cm, 95% CI:-2.02-3.87 vs 5.32 cm, 95% CI:1.36-9.28. p=0.0451). Mean MAD was also significantly shorter in the extra-incisional group versus the intra-incisional group (0.34 cm, 95% CI:-0.6-1.28 vs 9.4 cm, 95% CI:7.94-10.86. p=0.0097). The mean MAD for femurs were also significantly shorter in the extra-incisional group than the intra-incisional group (1.25 cm, 95% CI:-2.73-5.23 vs 7.06 cm, 95% CI:2.13-11.99. p=0.0342). Mean tibial rotational stiffness in the intra-incisional group (1.25 Nm/deg, 95% CI:0.96-1.54) was greater than that in the extra-incisional group (1.12 Nm/deg, 95% CI:0.57-1.66), although statistically insignificant (p=1). Likewise, mean femur rotational stiffness in the intra-incisional group (2.52 Nm/deg, 95% CI:1.98-3.06) was greater than that in the extra-incisional group (2.34 Nm/deg, 95% CI:1.67-3.01), although statistically insignificant (p=0.548). These may be due to Type 2 error from a small sample size.

Conclusion: The clinical significance of our results demonstrates that fractures resulting from torsional forces do not involve intra-incisional pin holes (0%), compared to extra-incisional pin holes (70%). Intra-incisional pin holes also result in better rotational stiffness for both femur and tibia, although large sample sizes may be required to show statistical significance.

Research Abstracts
Korean Hip Society Traveling Fellows

Surgical Drain Has No Benefits in Hemiarthroplasty for Femoral Neck Fractures in Elderly Patients

Dae-Kyung Kwak, MD
Hallym University Sacred Heart Hospital, Hallym University College of Medicine
Anyang, South Korea

Femoral neck fracture is a common osteoporotic fracture in elderly patients and is effectively managed with arthroplasty. However, the benefits and risks of a surgical drain after arthroplasty in these patients are still debatable. Hence, we conducted this study to investigate the necessity of a surgical drain after hemiarthroplasty in elderly patients with femoral neck fracture. This study enrolled elderly patients (aged ≥ 70 years) who underwent cementless bipolar hemiarthroplasty for femoral neck fracture between April 2016 and December 2021. The patients were divided into two groups; the control group (199 patients) with a surgical drain after surgery performed between April 2016 and June 2020 and the study group (134 patients) with no surgical drain between July 2020 and December 2021.

The demographics, perioperative data, and postoperative complications were compared between the two groups. Estimated blood loss, perioperative transfusion volume and rate, and length of hospital stay were significantly lower in the study group than in the control group ($p < 0.001$, $p < 0.001$, $p = 0.008$, and $p < 0.001$, respectively). Although there were no significant intergroup differences in the length of intensive care unit stay and in-hospital, 1-month, and 1-year mortalities, the incidence of postoperative medical complications was significantly lower in the study group than the control group ($p = 0.001$). A surgical drain may be unnecessary after hemiarthroplasty in elderly patients with femoral neck fracture considering less blood loss and transfusion, lower incidence of postoperative medical complications, and shorter hospital stay in the study group with no surgical drain.

Total Hip Arthroplasty for Pathologic Fractures of the Femoral Neck Due to Tophaceous Gout: A Unique Case of Gout

Jung-Mo Hwang, MD
Chungnam National University School of Medicine
Daejeon, South Korea

A 48-year-old man visited the emergency room with right hip pain that started abruptly while walking out of the bathroom. Computed tomography showed an intraosseous mass in the femoral neck. The patient had a 15-year history of gout and had numerous bilateral tophi in his hands, feet, knees, and elbows. After operation, we diagnosed a pathological fracture due to intraosseous tophi. Patients with hip pain who have many subcutaneous tophi and long-standing gout should be diagnosed carefully. Peri-hip joint pain caused by gout is uncommon, however, if a patient complains of pain, a simple X-ray may be required. If intraosseous tophi are present, appropriate treatment (e.g., strict hyperuricemia control with or without prophylactic internal fixation), may be required before fracture occurs.

Research Abstracts
THKS Fellows

Coronal Plane Alignment of the Knee (CPAK) and Joint Line Obliquity: Correlation with Good Clinical Outcomes in Medial Unicompartment Knee Arthroplasty

Anawat Thawaranont, MD
Faculty of Medicine, Chulalongkorn University
Bangkok, Thailand

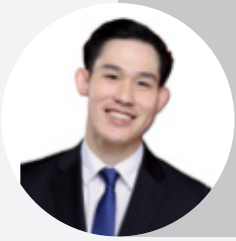
Introduction: Coronal Plane Alignment of the Knee (CPAK) classification integrates the arithmetic hip-knee-ankle angle (aHKA) and joint line obliquity (JLO) to describe native coronal limb phenotypes. Although CPAK has been widely studied in total knee arthroplasty (TKA), its correlation with outcomes in medial unicompartmental knee arthroplasty (UKA) remains unclear.

Introduction: To identify the most common CPAK types associated with good clinical outcomes following medial UKA and to determine whether postoperative joint line orientation angle (JLOA) correlates with functional results.

Methods: A retrospective review was conducted on 200 patients who underwent medial UKA between 2014 and 2022. Demographic, radiographic, and functional data—including Knee Society Knee Score (KSKS), Knee Society Function Score (KSFS), and Forgotten Joint Score-12 (FJS-12)—were analyzed. Postoperative alignment parameters were measured using scannogram at 3 months, including LDFA, MPTA, aHKA, JLOA, and CPAK type. Good clinical outcome thresholds were defined as KSKS ≥ 70.5, KSFS ≥ 67.5, and FJS-12 ≥ 72.9. Statistical analyses used Mann-Whitney U with Bonferroni correction and Pearson correlation for reliability.

Results: Of 200 cases, CPAK Types 1 and 4 were most prevalent among patients achieving good outcomes (~30% each). Ninety-three percent met all functional thresholds. There were no significant differences in KSKS, KSFS, or FJS-12 between CPAK types. A JLOA > 3° showed no adverse correlation with outcomes. Radiographic measurement reliability was excellent ($r > 0.87$). Subgroup analyses revealed that Type 4 predominated in fixed-bearing implants, while Type 1 was more common in mobile-bearing UKA.

Conclusion: Good functional outcomes after medial UKA were observed across multiple CPAK phenotypes, suggesting that UKA may tolerate greater variability in coronal alignment and joint line orientation than TKA. Surgeons need not restore a specific CPAK type, provided soft-tissue balance and kinematics are maintained. Future work should refine CPAK-based planning for robotic or personalized alignment strategies.



Knee Stability After Total Knee Arthroplasty, Comparing Contemporary-designed Total Knee Arthroplasty Between Cruciate-retaining and Bi-cruciate Stabilized Prostheses

Arnakorn Premsiri, MD
Faculty of Medicine, Chulalongkorn University
Bangkok, Thailand

Introduction: Posterior cruciate ligament (PCL) insufficiency is a recognized contributor to anteroposterior (AP) instability following cruciate-retaining (CR) total knee arthroplasty (TKA). The Journey II TKA system (Smith & Nephew, Inc.) features a medial-pivot design that replicates physiological knee motion by constraining the medial compartment while permitting lateral translation. It is available in both CR and bi-cruciate stabilized (BCS) configurations. The BCS design incorporates a bi-cruciate substitution mechanism to enhance AP stability. This study aimed to compare AP stability between CR and BCS prostheses using stress radiography.

Methods: This ambidirectional cohort study included 30 patients who underwent TKA with the Journey II system, equally divided into CR and BCS groups. Evaluations were conducted 1–2 years postoperatively. Outcome measures included AP stress radiographs obtained using the Telos Stress Device, patient-reported outcome measures (PROMs) [Knee Society Scores (KSS) and Forgotten Joint Score (FJS)], performance-based outcomes [Timed Up and Go (TUG), Five-Times Sit-to-Stand (5TSTS), and Three-Minute Walk Test (3MWT)], and knee range of motion (ROM).

Results: The BCS group demonstrated significantly greater AP stability than the CR group, with mean differences of –2.39 mm in anterior translation ($p = 0.001$), –1.40 mm in posterior translation ($p = 0.025$), and –3.79 mm in total AP laxity ($p < 0.001$). Postoperative knee flexion was also significantly greater in the BCS group (119.87° vs. 115.13°, $p = 0.029$). However, no significant differences were observed in PROMs or performance-based outcomes. Regression analysis showed no correlation between AP stability and postoperative ROM.

Conclusion: Although the medial-pivot design may not fully mitigate PCL insufficiency in CR prostheses, the observed differences in sagittal stability do not appear to influence functional or patient-reported outcomes.

Efficacy of Ultrasonic Bath Sonicator in Biofilm Removal from Polyethylene Liners in Periprosthetic Joint Infection

Bhuwad Chinwatanawongwan, MD
Faculty of Medicine Ramathibodi Hospital, Mahidol University
Bangkok, Thailand

Introduction: Prosthetic joint infection (PJI) is a serious complication after arthroplasty. When the polyethylene (PE) insert becomes infected, replacement is usually required; however, in cases where the original PE is obsolete or no compatible insert is available, complete implant conversion may be necessary—posing higher surgical risks. A practical decontamination method that enables safe PE reuse would therefore be valuable. Ultrasonic bath sonication (UBS) may enhance biofilm removal through acoustic cavitation.

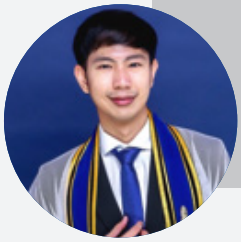
Primary Objective: to evaluate residual biofilm on PE (OD_{600}) after different decontamination methods.

Secondary Objective: to determine viable bacterial counts (CFU/mL) after treatment.

Methods: Ultra-high-molecular-weight polyethylene (UHMWPE) coupons (1×1 cm, 3 mm) were inoculated with Staphylococcus epidermidis using a protocol optimized from a prior pilot study. Biofilm formation was achieved by incubation at 37 °C with shaking at 180 rpm for 24 h, followed by 3 h static incubation and then shaking at 100 rpm for 72 h. Samples were divided into five groups: negative control, positive control, 10% povidone-iodine (10 min), sonication in normal saline (10 min), and sonication in 10% povidone-iodine (10 min).

Results: Biofilm formation was highest in the positive control (OD_{600} = 3.10 ± 0.25) and lowest in the sonication-only group (0.19 ± 0.03). CFU counts were markedly reduced after povidone treatment (6.25×10^1 CFU/mL) and completely eliminated in the sonication + povidone group (0 CFU/mL).

Conclusion: A sequential two-step decontamination protocol is recommended: ultrasonic bath sonication in normal saline for 10 minutes to disrupt biofilm, followed by ultrasonic sonication in 10% povidone-iodine for 10 minutes to eradicate remaining bacteria. This simple, reproducible, and low-cost method may serve as an effective decontamination strategy for polyethylene components, particularly when replacement inserts are unavailable, potentially reducing the need for full implant system conversion in selected PJI cases.



Comparison of Functional Implant Position and Clinical Outcome between Robotic THA vs Conventional THA

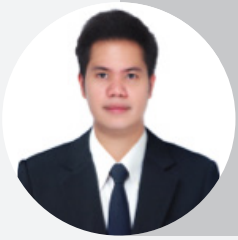
Danupol Sriruk, MD
Rajavithi Hospital
Bangkok, Thailand

Introduction: Component malposition in THA has been associated with an increased risk of dislocation. The use of robotic systems may improve the accuracy of component positioning. Therefore, the researchers aimed to compare the functional implant position and postoperative clinical outcomes between robotic-THA and conventional-THA

Methods: A retrospective review was conducted on data from 128 consecutive patients who underwent THA, including 65 robotic-THA using the MAKO Stryker® system and 63 conventional-THA. Both groups were used Accolade II cup and Trident II stem, performed by single surgeon using posterior approach between 2022-2024. Preoperative CT scans were obtained for both groups to plan component placement before surgery. We measured the cup inclination, cup anteversion, stem anteversion and combined anteversion from postoperative CT scan, with assessments based on the Lewinnek safe zone. Operative time, blood loss, complication and the Forgotten Joint Score-12 were collected and analyzed.

Results: Cup inclination showed a significantly better result in the robotic-THA ($p<0.001$), But no significant difference in cup anteversion, stem anteversion and combined anteversion ($p= 0.41, 0.37, 0.72$) between both groups. Operative time was significantly longer in the robotic-THA group (80.98±24.54 vs 55.98±16.12 min, $p<0.001$) and postoperative blood loss was also significantly higher (244.62±82.02 vs 180.16±57.87 ml, $p<0.001$). No complications were found in either group. No significant difference in the FJS-12 ($p=0.72$). There was no significant difference in age, gender, side and diagnosis between groups.

Conclusion: The results showed that robotic-THA was superior to the conventional-THA in the placement of cup inclination, which is an important parameter that plays a significant role in the long-term success of THA. However, robotic-THA had a longer operative time and higher postoperative blood loss



Efficacy of Repeated High-dose versus Intermediate-dose Intravenous Dexamethasone in Reducing Pain After Bilateral Total Knee Arthroplasty: A Randomized Clinical Trial

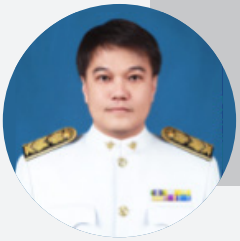
Katawut Kumplean, MD
Buddhachinaraj Phitsanulok Hospital
Phitsanulok, Thailand

Introduction: The optimal dose of intravenous (IV) dexamethasone for bilateral one-stage total knee arthroplasty (BTKA) remains controversial. Therefore, this study aimed to evaluate the efficacy of administering repeated high-dose IV dexamethasone compared to repeated intermediate-dose dexamethasone for BTKA.

Methods: In this randomized, triple-blinded, clinical trial of forty-six patients who underwent BTKA were randomly divided into two groups. The high-dose group received 16 mg of IV dexamethasone before surgical incision and a repeated dose at 24 hours postoperatively. The intermediate-group received 8 mg of dexamethasone at the same time points. The outcomes measured included visual analog scale (VAS) for pain intensity during motion and at rest, morphine consumption (MC), knee flexion angle, knee strength, knee circumference, Timed Up and Go (TUG), frequency of postoperative nausea and vomiting (PONV), high-sensitivity C-reactive protein (hs-CRP), blood glucose levels (BGL), and complications.

Results: No significant differences were found between groups regarding VAS, except the high-dose group reporting lower VAS during motion only at 24 hours postoperatively (mean difference: -0.9, $P<0.001$). The high-dose group had lower overall MC during the hospital stay (mean difference: -2.22 mg, $P=0.030$) and smaller knee circumference at 24 and 72 hours ($P<0.05$). However, the difference in VAS and MC did not reach the minimal clinically important difference (1.8 points and 10 mg). No significant differences were found between groups regarding functional recovery outcomes and biomarkers.

Conclusion: Repeated high-dose IV dexamethasone provides comparable clinical outcomes to the intermediate-dose IV dexamethasone. Therefore, intermediate-dose IV dexamethasone may be sufficient for controlling pain and inflammatory response in BTKA setting.



Factors Affecting the Extended Length of Hospital Stay for Patients Ongoing Total Knee Arthroplasty

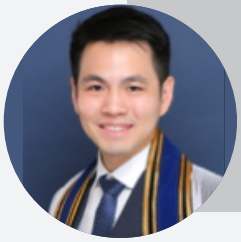
Kittipong Diewwattanawiwat, MD
Faculty of Medicine Vajira Hospital, Navamindradhiraj University
Bangkok, Thailand

Introduction: A high unmet need for total knee arthroplasty (TKA) reflects the rising demand for effective management of knee osteoarthritis. Understanding the factors that influence the length of hospital stay is crucial for optimizing patient outcomes, developing effective clinical practice guidelines, and enhancing bed availability.

Methods: This retrospective cohort study recruited 699 TKA patients from Vajira Hospital medical records from 2021 to 2024. The univariate analysis, chi-square test was used to explore the associations between gender, age, body mass index, systemic diseases, health benefit schemes, the American Society of Anesthesiologists (ASA) classification, anesthesia type, respirator use, rehabilitation day, knee ankle angle, albumin, vitamin D, erythrocyte sedimentary rate, C-reactive protein, urine analysis, TKA type, patella resurfacing, operative time, tourniquet time, blood loss, pulse lavage irrigation and length of hospital stay. Dependent variables with p-values < 0.050 for their associations with independent variables in the chi-square test were entered into the logistic regression model.

Results: Logistic regression revealed that ASA III (OR =5.40, CI: 2.28-12.78, p<0.001), cancer (OR =4.35, CI: 1.30-14.59, p=0.017), low vitamin D level (OR =1.53, CI: 1.05-2.23, p=0.029), operative time ≥ 180 minutes (OR =2.81, CI:1.26-6.27, p=0.012) were associated with increased length of hospital stay while spinal and adductor canal anesthesia (OR =0.46, CI: 0.25-0.88, p=0.018) and postoperative rehabilitation on day 1 (OR =0.15, CI: 0.08-0.28, p<0.001) were associated with decreased length of hospital stay. The model was statistically significant and correctly explained 72.2% of the variance in the length of hospital stay.

Conclusion: Patients undergoing TKA with lower physical health status and longer operative durations were found to have an increased length of hospital stay. Spinal anesthesia with an adductor canal block was the preferred technique for reducing hospital stay.



Comparison of Patellar Radiographic Outcomes Between Mechanical and Kinematic-planning in Functional-aligned MAKO Robotic-assisted Total Knee Arthroplasty

Napat Leelamanthep, MD
Faculty of Medicine Siriraj Hospital, Mahidol University
Bangkok, Thailand

Introduction: Despite advances in surgical technique, patellofemoral complications remain a cause of dissatisfaction following total knee arthroplasty (TKA). Robotic-assisted functional alignment (FA) offers patient-specific component positioning and may reduce the need for soft tissue release. Whether beginning FA from a mechanical-starting plan (MA-starting plan) or a kinematic-starting plan (KA-starting plan) affects patellar tracking has not been fully established.

Methods: We retrospectively reviewed 96 patients undergoing FA robotic-assisted TKA with the MAKO system between January and December 2024. Patients were allocated into MA-starting plan (n=48) and KA-starting plan (n=48) groups. All received cemented cruciate-retaining implants without patellar resurfacing. Outcomes included patellar tilt angle (primary) on 3-month postoperative skyline radiographs. Secondary outcomes were patellar height ratio and intra-operative assessments of implants' alignment, bone cuts, and medial flexion gap. Patellar maltracking was defined as tilt ≥10°.

Results: Mean patellar tilt angle was 7.17° ± 2.43° in the MA-starting group and 8.63° ± 3.50° in the KA-starting group ($p = 0.02$). Mean patellar height ratio was 0.892 ± 0.066 versus 0.878 ± 0.059 ($p = 0.147$). Intra-operative analysis showed implants' alignment and bone cuts were comparable, but the medial flexion gap was slightly tighter in the KA-starting group (0.52 ± 0.45 mm vs 0.92 ± 0.57 mm, $p < 0.001$).

Conclusion: In FA robotic-assisted TKA, both MA-starting and KA-starting strategies produced equivalent patellar tracking at 3 months. The tighter medial flexion gap observed in the KA-starting group may explain the small, non-significant increase in lateral tilt. Either approach can be applied without compromising patellofemoral mechanics.

The Efficacy of Low-level Laser on Postoperative Pain and Range of Motion After Bilateral Total Knee Arthroplasty

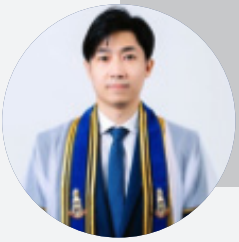
Naruecha Jirasirisuk, MD
Rajavithi Hospital
Bangkok, Thailand

Introduction: Total knee arthroplasty (TKA) is a procedure that can significantly improve the quality of life in OA knee patients. Nevertheless, moderate to severe pain following TKA can affect rehabilitation and patient satisfaction. The painkillers can lead to side effects. Low-level laser therapy (LLLT) is a non-invasive treatment that helps reduce pain and tissue swelling. In this study, we investigated the efficacy of low-level laser therapy (LLLT) on pain and range of motion after bilateral primary total knee arthroplasty.

Methods: The prospective randomized clinical trial, single-center, single-surgeon, was performed bilateral primary TKA via mid vastus approach with 2 groups of 16 patients. The LLLT (810 nm,500 mW) group received LLLT postoperatively and the control group received laser in turn-off mode for the same length of time as the LLLT group. The visual analog scale pain scoring and range of motion (ROM) were recorded preoperative and postoperative on day2, day3 and month3. Furthermore, postoperative complications due to LLLT and opioid consumption on day 2 and 3 were also documented.

Results: The preoperative demographic data, VAS scoring and ROM were similar between groups. Compared with the control group, the LLLT group had significantly less pain on postoperative day2, day3 and 3 month (6.00±1.46 vs 7.56±1.55, 4.88±1.31 vs 6.31±1.58 and 2.69±1.35 vs 4.13±1.50, P value= 0.006, 0.009 and 0.008) and greater ROM on postoperative day2 and day3 (80.63±20.16 vs 62.50±21.76 and 94.69±16.88 vs 73.75±20.37, P value = 0.021 and 0.004). In addition, the amount of opioid consumption in the LLLT group was significantly lower than the control group (P value<0.001) and no complications from LLLT.

Conclusion: According to this study, Low level laser therapy is effective in reducing pain, improving range of motion, decreasing opioid consumption and there are no complications from LLLT in acute postoperative bilateral total knee arthroplasty.



Impact of Design on Clinical Outcomes in Total Knee Arthroplasty: A Comparative Study of Gradual-radius and Single-radius Femoral Prosthesis

Nut Boonyawiroj, MD
Faculty of Medicine, Chiang Mai University
Chiang Mai, Thailand

Introduction: This retrospective study aimed to compare the clinical outcomes of total knee arthroplasty (TKA) using the GRADIUS femoral design versus the single-radius femoral design.

Methods: A total of 180 patients who underwent TKA with either the GRADIUS femoral design (90 patients, GR group) or the single-radius femoral design (90 patients, multi-radius group) for degenerative osteoarthritis were included. Clinical outcome measurements included range of motion (ROM) of the knee, Knee and Osteoarthritis Outcome Score (KOOS), and flexion contracture. These data were collected from electronic medical records and compared between the two groups.

Results: In univariate analysis, improvements in ROM and KOOS scores were not significantly different between the GR group and the single-radius group at 6 months and 1-year follow-up.

Conclusion: The GRADIUS femoral design did not demonstrate any advantages in terms of clinical outcomes or ROM compared with the single-radius femoral design in TKA.

The Effects of Treatment for End-stage Osteoarthritis of Knee Patients Awaiting Surgery Using Intra-articular Hyaluronic Acid Injections Combined with Non-steroidal Anti-inflammatory Drugs (NSAIDs): A Randomized Controlled Trial

Pakpoom Sutthinunchai, MD
Bhumibol Adulyadej Hospital
Bangkok, Thailand

To evaluate efficacy and safety of intra-articular hyaluronic acid (HA) combined with Tenoxicam compared with HA alone in patients with End-stage osteoarthritis of knee (OA).

This randomized controlled trial enrolled 80 patients diagnosed with End-Stage Osteoarthritis of knee. Participants were randomly allocated into two groups. Group 1 (HA + Tenoxicam): received a single intra-articular injection of HA combined with Tenoxicam 2 mL (20 mg). Group 2 (HA alone): received a single intra-articular injection of HA.Both groups utilized Hyruan One (BDDE Crosslinked Sodium Hyaluronate Gel 60 mg/3 mL), delivered in pre-filled 3 mL syringes under aseptic technique. All injections were performed by a single orthopedic surgeon and both groups received oral diaceric acid 50 mg daily. Pain and function were assessed using the Visual Analogue Scale (VAS) and the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) at baseline, 1 week, and 1-month, 3-month and 6-month post-treatment.

Results: Baseline characteristics did not differ between groups. At 1 week, the HA+Tenoxicam group showed significantly greater improvements in pain and function (VAS and WOMAC, both $p<0.001$) compared with HA alone. At 1 month, the between-group difference remained significant for pain (VAS $p=0.02$) but was not significant for function (WOMAC $p=0.25$) At 3 and 6 months post-treatment, both groups maintained clinical improvement from baseline without significant differences between groups ($p > 0.05$). No serious adverse events occurred; minor local reactions were comparable between groups.

Conclusion: Intra-articular injection of hyaluronic acid combined with Tenoxicam provided superior short-term improvements in pain and functional outcomes compared with hyaluronic acid alone. The analgesic benefit remained significant at 1 month, while both groups maintained comparable clinical improvements at 3 and 6 months. Both regimens were well tolerated, and no serious adverse events occurred. These findings suggest that a single HA + Tenoxicam injection may serve as an effective and safe alternative for patients with end-stage osteoarthritis of knee requiring rapid pain relief.

Preoperative Planning that Considers Pelvic Tilt Enhances the Accuracy of Standing Acetabular Cup Positioning in Total Hip Arthroplasty Using Imageless Navigation

Piyapon Noimeunwai, MD
Maharat Nakhon Ratchasima Hospital
Nakhon Ratchasima, Thailand

Introduction: Postoperative standing pelvic anteroposterior radiographs often show higher abduction and anteversion angles than intraoperative measurements. This discrepancy was associated with preoperative posterior pelvic tilt, which contributed to increased anterior instability. This study examined whether using the preoperative standing pelvic tilt angle to calculate tilt-adjusted acetabular cup orientation during surgery improves the accuracy of achieving the targeted standing cup position.

Methods: We retrospectively reviewed 96 consecutive primary THAs using imageless navigation. The initial 46 cases were defined as “anatomical planning (AP)”. The following 50 cases were categorized as “functional planning (FP)”, which involves adjusting the acetabular cup position according to preoperative standing pelvic tilt measured on lateral standing pelvic radiographs. The accuracy of target cup positioning on postoperative standing pelvic radiographs was compared between the two groups.

Results: The target standing abduction angle of $40^{\circ} + 10^{\circ}$ was achieved in 98% of AP and 100% of FP groups ($p=0.31$). The target standing abduction angle of $40^{\circ} + 5^{\circ}$ was achieved in 70% of AP and 100% of FP groups ($p<0.001$). The target standing anteversion angle of $15^{\circ} + 10^{\circ}$ was achieved in 90% of AP and 100% of FP groups ($p=0.02$). The target standing anteversion angle of $15^{\circ} + 5^{\circ}$ was achieved in 54% of AP and 94% of FP groups ($p<0.001$)

Conclusion: The FP group achieves standing acetabular cup position targets more accurately than AP group. We developed a simple method to define a patient-specific target for acetabular cup orientation using imageless navigation and enhanced postoperative standing acetabular cup position.

Comparison of Different Dexamethasone Doses for Pain Reduction After Total Knee Arthroplasty: A Randomized Controlled Trial

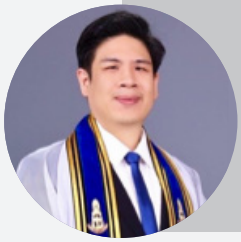
Pongsakorn Authasilapakit, MD
Faculty of Medicine Siriraj Hospital, Mahidol University
Bangkok, Thailand

Introduction: To compare the maximum pain scores at rest (VAS Pain at rest) during the first 48 hours between the group receiving 10 mg intravenous dexamethasone compared with the group receiving 5 mg.

Methods: In a randomized control trial, 92 patients were divided into DM and non-DM groups by stratified randomization (40:60). Subsequently, they were randomized to receive either 10 mg or 5 mg dexamethasone injection. Patients underwent primary total knee arthroplasty (TKA) surgery. All patients received spinal block and adductor canal block anesthesia, and all received identical post-operative pain management protocols including paracetamol with codeine, NSAIDs, pregabalin, and nefopam. They could request morphine 2 mg IV PRN every 2 hours as rescue analgesic when pain score ≥ 4 (VAS). Pain assessment was conducted using the visual analogue scale (VAS) every 4 hours up to 48 hours. Additionally, patients were evaluated for walking distance, range of motion, morphine consumption, nausea and vomiting symptoms, blood sugar levels, and follow-up appointments at 2 weeks to assess for complications.

Results: This preliminary study compared two drug dosages - Group 1 (5 mg) and Group 2 (10 mg) - across multiple outcomes: (1) Pain Management: Both groups showed equivalent pain reduction at rest and during motion through 48 hours post-surgery ($p > 0.05$ all-time points). (2) Range of Motion: No significant differences in flexion ($p = 0.080$) or extension ($p = 0.053$-0.087) between groups. (3) Mobility: Day 1 ambulation favored the 5 mg group (100% vs 55%, $p = 0.088$). By days 2-3, both groups achieved similar rates (93.8%). (4) Safety: One stroke occurred (6.7%). Blood glucose and vomiting rates were comparable between groups.

Conclusion: This preliminary study demonstrates that 5 mg and 10 mg dosages show equivalent efficacy in pain reduction and functional recovery with no statistically significant differences. Therefore, the 5 mg dose may be sufficient and could potentially reduce the risk of adverse effects associated with higher dosages. further controlled clinical trials are needed to confirm these preliminary findings.



A Comparative Study on the Analgesic Efficacy and Side Effect Profile of Mirogabalin versus Pregabalin for Postoperative Pain Management Following Total Knee Arthroplasty: A Randomized Controlled Trial

Puttipong Wongpradit, MD
Faculty of Medicine, Thammasat University
Pathum Thani, Thailand

Introduction: Gabapentinoids are widely used as adjuvants in multimodal analgesia after total knee arthroplasty (TKA). Pregabalin has demonstrated efficacy in reducing postoperative pain but is often limited by adverse effects, particularly dizziness and somnolence. Mirogabalin, a novel gabapentinoid with unique binding kinetics, has shown improved tolerability in neuropathic pain. However, evidence regarding its role in postoperative pain management following TKA remains limited.

Methods: We conducted a prospective, randomized controlled trial in patients aged 50 –85 years undergoing unilateral primary TKA. Participants were randomly assigned to receive either mirogabalin 5 mg twice daily or pregabalin 75 mg once daily for 6 weeks postoperatively. All patients underwent surgery performed by a single surgeon using a standardized minimally invasive medial parapatellar approach and received uniform multimodal analgesia, including spinal anesthesia, adductor canal block, and periarticular injection. The primary outcome was pain intensity measured by visual analog scale (VAS) at rest and during motion at 24, 48, and 72 hours, and at 2, 6 and 12 weeks. Secondary outcomes included morphine consumption, functional outcomes (KOOS, WOMAC, range of motion), adverse events (somnolence, dizziness, nausea/vomiting)

Results: Eighty -two patients were analyzed. Both groups demonstrated low postoperative VAS scores with no statistically significant differences at any time point. Morphine consumption, KOOS, WOMAC, range of motion, and length of stay were comparable. The incidence of dizziness was significantly lower in the mirogabalin group compared with pregabalin ($p < 0.003$). No significant differences were observed in somnolence, nausea, vomiting, or functional outcomes between groups.

Conclusion: Mirogabalin provides analgesic efficacy comparable to pregabalin following TKA while demonstrating a superior safety profile with a lower incidence of dizziness. These findings support the use of mirogabalin as a safe and effective alternative within multi modal postoperative pain management. Further studies with larger sample sizes and longer follow-up are warranted to confirm these results.

What Risk Factors Would Lead to Needing on the Opposite Knee for a Patient Previously Underwent UKA?

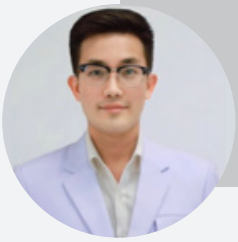
Rachata Boonthosang, MD
Faculty of Medicine, Thammasat University
Pathum Thani, Thailand

Introduction: Unicompartmental knee arthroplasty (UKA) is an effective treatment for appropriately selected osteoarthritis (OA) knee patients. OA of the knee is often bilateral. In some cases, only unilateral UKA is sufficient, but others may require sequential bilateral UKA. This study aims to identify risk factors associated with the need for sequential bilateral UKA.

Methods: We reviewed UKA patients at Thammasat University Hospital from 2011 to 2021. Patients were divided into two groups: those who underwent unilateral UKA and those who underwent sequential bilateral UKA. Propensity score matching was used, and risk factors were compared between the groups.

Results: A total of 43 patients were identified in each group. Significant risk factors for undergoing sequential bilateral UKA included age, UCLA activity score, VAS pain score, Kellgren–Lawrence (KL) and Ahlbäck grading, and anatomical tibiofemoral angle on the contralateral side ($P < 0.05$). Non-significant factors included BMI, gender, affected knee side, and Oxford Knee Score ($P > 0.05$).

Conclusion: In patients with bilateral knee OA, the key risk factors associated with the need for sequential bilateral UKA are older age, lower activity level, and greater OA severity in the contralateral knee. Identifying these risk factors preoperatively may support the consideration of simultaneous bilateral UKA, which could offer advantages in terms of recovery time and cost-effectiveness.



Impact of Sterilizing the Pre-molded Antibiotic Cement Spacers on MIC Antibacterial Efficacy

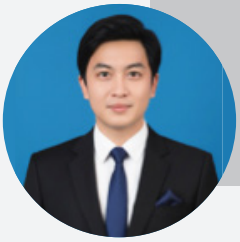
Rungroj Sadchaphaiboonkit, MD
Faculty of Medicine Ramathibodi Hospital, Mahidol University
Bangkok, Thailand

Introduction: Periprosthetic joint infection (PJI) is a major complication in joint replacement surgeries, often requiring a two-stage revision. The first stage involves placing an antibiotic-loaded cement spacer (ACS). Pre-operative sterilization of these spacers could reduce surgical time, but concerns remain about potential effects on their antibacterial activity. This study evaluates whether formaldehyde gas sterilization impacts the efficacy of vancomycin-loaded cement against Staphylococcus aureus.

Methods: In the experiment, sixteen spacers were created from Palacos® R cement with either 2g or 4g vancomycin. These were divided into sterilized and non-sterilized groups, with sterilized samples undergoing formaldehyde gas treatment to mimic hospital sterilization protocols. The antibacterial activity was assessed by measuring the minimum inhibitory concentration (MIC) against S. aureus at various intervals up to 28 days. Results showed that MIC values decreased over time across all groups, indicating a decline in antibacterial activity, but there were no significant differences between sterilized and non-sterilized samples at any time point.

Results: Importantly, even after 28 days, all MIC values remained above the MIC threshold needed to inhibit S. aureus, suggesting retained antibacterial potency. The findings imply that formaldehyde gas sterilization does not significantly compromise the efficacy of vancomycin-loaded cement spacers.

Conclusion: Pre-sterilization using formaldehyde gas appears viable without diminishing the antibacterial activity against S. aureus, supporting its potential for reducing surgical times in two-stage revisions for PJI. Nonetheless, further studies, including in vivo research, are necessary to confirm mechanical integrity, long-term antibiotic release, and broad-spectrum efficacy.



Analysis of Osteoarthritis Patient Classification Using CPAK Classification and Its Impact on Total Knee Arthroplasty

Sahapap Tadee, MD
Faculty of Medicine, Chiang Mai University
Chiang Mai, Thailand

Introduction: Total Knee Arthroplasty (TKA) is a common and effective treatment for end-stage knee osteoarthritis. While mechanical alignment has been the standard, it often overlooks individual patient anatomy. The Coronal Plane Alignment of the Knee (CPAK) classification offers a novel approach to categorize knee phenotypes for surgical planning. This study aimed to analyze the distribution of CPAK phenotypes both pre- and postoperatively, and to assess its impact on postoperative outcomes.

Methods: A retrospective study of 355 knees from 263 patients undergoing mechanically aligned TKA at Maharaj Nakorn Chiang Mai Hospital (2019–2023) was conducted. Pre- and postoperative full-leg radiographs were used to determine MPTA, LDFA, and calculate aHKA and JLO to classify CPAK phenotypes. Patient-reported outcomes (PROMs) including VAS for pain, ROM, and KOOS were recorded preoperatively and at 3, 6, and 12 months. Statistical comparisons were made using Mann-Whitney U tests.

Results: Mean patient age was 66.3 years; 74.1% were female. Preoperatively, CPAK phenotype I was most common (45.6%), while postoperatively, phenotype V was most frequent (34.4%). No significant differences in VAS, ROM, or KOOS were found when comparing phenotype V to others. However, combining postoperative phenotypes V and IV showed a significant KOOS improvement in 3 months ($p = 0.017$). Achieving neutral aHKA or JLO did not result in significant PROM differences.

Conclusion: The most common pre- and postoperative CPAK phenotypes were I and V, respectively. While postoperative CPAK phenotypes V and IV significantly improved functional outcomes, this improvement was only evident in KOOS scores during the first three months, particularly when compared to other alignments. Changing CPAK phenotypes to neutral aHKA and JLO postoperatively did not impact PROMs, including VAS, ROM, and KOOS.

The Outcome of Mid Substance MCL Release in Varus Knee Patients Using Robotic Assisted CR-TKA

Sakon Donnimitsakul, MD
Faculty of Medicine, Thammasat University
Pathum Thani, Thailand

Introduction: This study establishes a superficial medial collateral ligament (sMCL) release technique aimed at achieving optimal coronal alignment and balancing soft tissue during cruciate-retaining total knee arthroplasty (CR-TKA). Our purpose was to investigate the efficacy and safety of this technique through the application of robotic assistance.

Methods: We conducted a retrospective review of cases involving robotic-assisted CR-TKA for varus deformity, from January 2021 to January 2023. The medial soft tissue release involved a four-step approach: step 1; deep MCL release; step 2; release of the posteromedial corner and the semimembranosus. If the first 2 steps cannot achieve balancing step 3; midsubstance MCL release will be performed. Utilizing robotic assistance, we evaluated improvements in the medial gap and alignment after the midsubstance MCL release. Other clinical outcomes were recorded at the last follow-up (at least one year).

Results: A total of 71 cases of varus TKA were subjected to midsubstance MCL release. The average preoperative varus deformity measured 12.3 degrees, which was notably corrected to 2.1 degrees after the midsubstance MCL release. Additionally, the medial gap improved significantly, increasing from -5.7 mm to 3.2 mm in extension and from -1.9 mm to 2.7 mm in flexion. At the last follow-up, we did not observe any instances of clinical instability or the necessity for reoperation.

Conclusion: The midsubstance MCL release technique appears to be both a safe and effective method for correcting alignment and balancing soft tissue in patients with varus deformity undergoing CR-TKA. This approach represents a promising advancement in the surgical management of knee deformities.

Comparative Study Between 5-degree Valgus Distal Femoral Cut and Controlled Distal Femoral Cut in TKA: Improve Mechanical Alignment Technique

Sirawit Valaiphatchara, MD
Phramongkutklao Hospital
Bangkok, Thailand

Introduction: Accurate mechanical alignment technique in total knee arthroplasty (TKA) is essential for long-term implant survival and functional outcomes. The conventional mechanical alignment technique commonly uses a fixed 5-degree valgus distal femoral cut based on an intramedullary guide. However, anatomical variations in femoral shape can affect cutting accuracy. A modified technique—the controlled distal femoral cut—utilizes preoperative radiographic measurements to individualize bone resection.

Objectives: To compare postoperative mechanical alignment accuracy between the conventional 5-degree valgus distal femoral cut and the controlled distal femoral cut in mechanical alignment TKA.

Methods: This prospective comparative study included 185 patients (102 in the 5-degree valgus group and 83 in the controlled distal femoral cut group) undergoing mechanical alignment TKA for primary osteoarthritis. For the controlled distal femoral cut group, preoperative ortho-roentgenogram radiographs identified the femoral mechanical axis. A perpendicular line at the planned resection level was drawn, and medial and lateral resection thicknesses were measured along this line. These measurements were applied intraoperatively to adjust the intramedullary guide for individualized distal femoral resection. Postoperative alignment was evaluated using Hip-Knee-Ankle (HKA) angle, mechanical lateral distal femoral angle (mLDFA), and medial proximal tibial angle (MPTA). Neutral alignment was defined as HKA within 180° ± 3°.

Results: Baseline demographics were comparable between groups. Mean postoperative HKA was 178.73° ± 2.43° in the 5-degree valgus group and 178.41° ± 2.39° in the controlled distal femoral cut group. Outliers beyond ±3° were 26.5% and 22.9%, respectively. No significant differences were found in mLDFA or MPTA.

Conclusion: Both distal femoral cutting techniques achieved similar accuracy in restoring neutral mechanical alignment. The controlled distal femoral cut, which customizes bone resection based on individual radiographic anatomy, offers a practical, low-cost alternative to the conventional 5-degree valgus cut for mechanical alignment TKA.

Impact of Greater Trochanteric Overhang to Femoral Stem Position in Hip Replacement

Sukhum Sthitwaroj, MD
Faculty of Medicine, Chulalongkorn University
Bangkok, Thailand

Introduction: Accurate femoral stem alignment is critical for long-term success in total hip arthroplasty (THA) and hemiarthroplasty. Anatomical variations of the proximal femur, including greater trochanter (GT) position and canal morphology, may influence stem positioning. This study investigated the association between GT position and postoperative femoral stem alignment, as well as other radiographic and anatomical factors.

Patients who underwent either THA or hip hemiarthroplasty. Standardized anteroposterior pelvic ° internal rotation were used to assess GT overhang, femoral morphology, and postoperative stem alignment. Key variables included GT position group, neck-shaft angle, Dorr classification, canal bone ratio, canal flare index, canal-calcar ratio, and canal fill ratios (A–D). Both categorical and continuous predictors were analyzed using Pearson's correlation, ANOVA, and multivariable linear regression.

Results: GT position group (medial vs lateral) did not show a statistically significant association and all canal fill ratios (A–D) were significantly correlated with postoperative stem alignment. Multivariable, and canal fill ratio B were independent predictors of stem alignment. Varus malalignment was associated with lower neck-shaft angles and reduced canal fill ratios.

Conclusion: While greater trochanter position alone may not strongly predict femoral stem alignment, a comprehensive evaluation of proximal femoral morphology-particularly neck-shaft angle and canal fill ratios—provides more reliable predictive value. These findings support preoperative radiographic planning that incorporates multiple morphologic parameters to optimize stem placement, especially when using cementless designs.

The Study of Intermittent Intravenous Nefopam Efficacy After Robotic-assisted Total Knee Arthroplasty

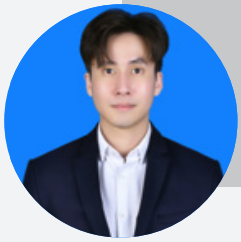
Supasit Kirdsuwan, MD
Faculty of Medicine, Prince of Songkla University
Hat Yai, Thailand

Introduction: Robotic-assisted total knee arthroplasty (TKA) has gained increasing popularity in recent years. One of its key advantages is its potential to reduce postoperative pain and enhance patient satisfaction. This study aims to investigate the administration of intravenous Nefopam as an adjunctive analgesic, focusing on its effects on postoperative outcomes including fentanyl consumption, visual numerical rating scale (VNRS) scores, and potential adverse effects.

Methods: This retrospective cohort study included 69 patients who underwent unilateral robotic-assisted TKA. Patients were divided into two groups: those who received intravenous Nefopam 20 mg every 8 hours for three doses, and those who did not receive Nefopam. The primary outcomes were fentanyl consumption and VNRS, while the secondary outcomes included the incidence of adverse drug reactions.

Results: The Nefopam group demonstrated significantly lower fentanyl consumption during the 0–12-hour (0 [0, 30] vs. 30 [0, 60], P = 0.011) and 12–24-hour (0 [0, 0] vs. 0 [0, 30], P = 0.015) postoperative periods. Additionally, VNRS scores in the Nefopam group were significantly lower during the 0–12-hour period (5.5 ± 4.5 vs. 8.5 ± 5.9, P = 0.022). No complications related to Nefopam administration were observed.

Conclusion: Intravenous administration of Nefopam following robotic-assisted TKA effectively reduces fentanyl consumption during the first 24 hours postoperatively and alleviates pain during the initial 12-hour period without associated complications. Therefore, Nefopam appears to be a beneficial and safe adjunct in multimodal postoperative pain management strategies.



Outcomes of Hip Surgery Using the Direct Anterior Approach at Bangkok Hospital

Tanapat Laohasakthaworn, MD
Bangkok Hospital
Bangkok, Thailand

Introduction: Total hip arthroplasty (THA) is an effective surgical treatment for hip osteoarthritis and hip fractures, particularly in the elderly population. The direct anterior approach (DAA) has recently gained popularity as a muscle-sparing technique that may enhance postoperative recovery, reduce dislocation risk, and minimize soft-tissue damage. However, data regarding its outcomes and complication rates in Thailand remain limited.

Objectives: To evaluate surgical outcomes, complications, and functional recovery following THA performed via the DAA in patients treated at Bangkok Hospital.

Methods: This retrospective study reviewed medical records of 1,151 patients who underwent THA using the DAA between January 2015 and April 2025. Collected data included patient age, operation time, intraoperative blood loss, leg length discrepancy (LLD), Harris Hip Score (HHS), dislocation rate, infection rate, and revision rate. Descriptive statistics were used to analyze outcomes.

Results: The mean patient age was 61.7 years. Average operative time was 75 minutes, with a mean blood loss of 233.32 mL. Mean leg length discrepancy was 0.33 cm, and the mean Harris Hip Score was 84.74, indicating good postoperative function. No dislocation was observed at one and three months postoperatively. Infection and revision rates were both 0.43%, reflecting excellent surgical safety and infection control.

Conclusion: The direct anterior approach for total hip arthroplasty provided favorable clinical outcomes, including good functional recovery, minimal blood loss, and low complication rates. The findings support the DAA as a safe and effective technique for THA when performed by experienced surgeons. Continued follow-up and multicenter studies are recommended to further validate these results in broader Thai populations.

Development and Validating Deep Learning Model for Hip Arthroplasty Templating Using Anteroposterior Hip Radiograph

Tanapol Janyawongchot, MD
Faculty of Medicine Ramathibodi Hospital, Mahidol University
Bangkok, Thailand

Introduction: Preoperative templating is a key step in hip arthroplasty, helping surgeons select appropriate implant sizes and reduce complications. Traditional acetate or digital templating methods depend heavily on surgeon experience and can be limited by cost and software availability. This study aimed to develop and validate a deep learning (DL) model using standard radiographs to predict implant sizes in hip arthroplasty.

Methods: We retrospectively reviewed patients who underwent primary hip arthroplasty with cementless CORAIL® femoral stems and PINNACLE® acetabular cups. The DL model was trained on 688 preoperative anteroposterior hip radiographs and externally validated on 98 additional cases. Its predictions were compared with a hybrid templating method (acetate templates overlaid on digital images). The actual implanted size was used as the reference standard. Accuracy, mean absolute error (MAE), and root mean square error (RMSE) were calculated, and logistic regression was used to assess patient factors influencing prediction accuracy.

Results: The DL model showed higher accuracy than the hybrid method for acetabular cup (88.9% vs. 83.3%) and femoral stem (85.7% vs. 81.6%) predictions, while the hybrid method performed better for the bipolar head (93.2% vs. 72.7%). MAE and RMSE values were similar between the two approaches, except for the bipolar head ($p < 0.01$). Female gender and shorter height showed trends toward improved accuracy, although not statistically significant.

Conclusion: Our findings show that a DL model trained on plain radiographs can reliably estimate implant sizes for hip arthroplasty. By reducing dependence on costly software and manual templating, this approach offers a practical and accessible tool for preoperative planning. With continued development and broader validation, such models could support more consistent and efficient surgical preparation in everyday orthopedic practice.

An Outcome Comparison of Anterior Knee Pain Between Patella Resurfacing and Non-resurfacing in Subvastus Approach Total Knee Arthroplasty

Thanakorn Udomdirekkul, MD
Police General Hospital
Bangkok, Thailand

Introduction: Total knee arthroplasty (TKA) is an effective treatment for end-stage postoperative anterior knee pain (AKP) remains common, and the role of patellar resurfacing in reducing Evidence regarding outcomes in subvastus approach is limited.

Objectives: To compare the prevalence of anterior knee pain and functional outcomes between patellar resurfacing (PR) and non-resurfacing (NPR) groups in primary TKA performed with subvastus approach.

Methods: We reviewed 200 patients who underwent subvastus TKA between 2020 - 2024 (PR, n = 100; NPR, n = 100). Outcomes at ≥12 months included AKP, VAS pain score, Kujala score, crepitus, and satisfaction assessed by telephone interview.

Results: Postoperative AKP was lower in PR than NPR groups (13% vs 21%, p = 0.132). VAS was slightly lower (2.1 ± 1.3 vs 2.4 ± 1.5, p = 0.214) and the Kujala score was higher (72.4 ± 8.9 vs 70.1 ± Crepitus rates were similar between groups (29% each, p = 1.000) and patient satisfaction was significantly higher in PR compared with NPR (37.1 ± 4.7 vs 35.3 ± 5.6, p = 0.013). Subgroup analysis of the Gemini prosthesis (n = 96) showed no difference in postoperative AKP between PR and NPR groups (p = 0.163). However, VAS was significantly lower in PR (2.0 ± 1.2 vs 2.4 ± 1.4, p = 0.041), and the Kujala score was significantly higher (61.4 ± 8.9 vs 56.3 ± 9.1, p = 0.001). Patient satisfaction was higher in PR, but not statistically significant (p = 0.078). In the Attune subgroup, no significant differences were found.

Conclusion: Patellar resurfacing in subvastus TKA was associated with lower AKP and higher satisfaction, though most differences were not statistically significant. Implant design may influence outcomes, suggesting that routine patellar resurfacing may not be universally required.

Validity of the New Motion Analysis Tool for the Assessment of Knee Range of Motion in Patients with Knee Osteoarthritis: A Comparative Study

Thanakrita Siripullop, MD
Faculty of Medicine, Chulalongkorn University
Bangkok, Thailand

Introduction: Accurate assessment of knee range of motion (ROM) is essential, as it represents a key objective outcome following knee arthroplasty. Various measurement methods have been described, including surgeon's visual estimation, goniometry, mobile applications, three-dimensional motion analysis, and radiostereometric analysis. Although radiographic measurement is considered the gold standard, its clinical use is limited by high cost and technical complexity. To address this limitation, we developed a novel inclinometer-based motion analysis tool (MAT) designed to provide accurate and practical ROM measurements in patients with knee osteoarthritis.

Methods: A cross-sectional comparative study was conducted involving 40 patients with knee osteoarthritis. Patients with global instability, neuromuscular disorders, or inability to cooperate were excluded. Knee flexion and extension angles were measured using a standard goniometer, the newly developed MAT, and knee lateral radiographs (KLR). Agreement and reliability analyses were performed, including inter-rater and intra-rater reliabilities, as well as subgroup analyses based on body mass index (BMI) and treatment type.

Results: The mean age of participants was 74 years, and the mean BMI was 25.7 kg/m^2. Treatment distribution included 15% nonoperative, 20% unicompartmental knee arthroplasty, and 65% total knee arthroplasty. The intraclass correlation coefficient (ICC) between MAT and KLR was 0.995, indicating excellent agreement. Inter-rater reliability ranged from 0.866 to 0.995, and intra-rater reliability ranged from 0.907 to 0.999. The mean absolute error was 3.917° for the goniometer and 1.042° for the MAT. Subgroup analysis showed no significant differences, except for reduced goniometric accuracy in patients with BMI $\geq$ 30 kg/m^2.

Conclusion: The newly developed inclinometer-based MAT demonstrated excellent accuracy, reproducibility, and practicality for measuring knee ROM compared with radiographic assessment. It offers a non-invasive and portable alternative suitable for both clinical evaluation and research applications. Further studies are warranted to assess its cost-effectiveness and validation in larger and obese populations.

Evaluation of Hip-knee-ankle Angle After Robotic-assisted TKA Using the Controlled Distal Femoral Cut Technique

Thanapat Limchuchua, MD
Phramongkutklao Hospital
Bangkok, Thailand

Introduction: Precise restoration of limb alignment is one of the most critical factors determining the success and longevity of total knee arthroplasty (TKA). Conventional mechanical alignment techniques, though well established, often overlook patient-specific anatomical variations and may result in residual malalignment of the hip–knee–ankle (HKA) axis. Such deviations are associated with uneven load distribution, pain, and early implant wear. Robotic-assisted TKA enhances accuracy in bone resection and component placement, and combining it with preoperative radiographic measurement may further improve precision by tailoring bone cuts to individual femoral morphology.

Objectives: To evaluate the accuracy of postoperative HKA angle and clinical outcomes in robotic-assisted TKA performed using the Controlled Distal Femoral Cut Technique, based on preoperative medial and lateral distal femoral thickness.

Methods: A prospective study was conducted in patients with primary varus-type osteoarthritis undergoing robotic-assisted TKA using the VELYS system (DePuy Synthes). Preoperative orthoroentgenograms defined patient-specific distal femoral cut depth. Postoperative HKA angle was measured on standing long-leg radiographs. Modified WOMAC scores were recorded pre- and six weeks post-operation. Statistical analysis used paired t-test with significance at $p < 0.05$.

Results: Postoperative HKA demonstrated a mean = −1.91 ± 2.26° with most cases maintained within 0 ± 3° of neutral. Functional outcomes improved significantly: WOMAC mean improvement = 18.84 ± 2.63 points (from 24.17 to 5.33).

Conclusion: Robotic-assisted TKA using the Controlled Distal Femoral Cut Technique achieved high precision in restoring mechanical alignment and significantly improved early functional outcomes. This method consistently maintained postoperative HKA within 0 ± 3°, supporting its value in individualized alignment restoration.

Radiologic Evaluation of Knee Phenotypes Based on the Coronal Plane Alignment of the Knee Classification in Thai Population

Thanupat Kulsinsap, MD
Police General Hospital
Bangkok, Thailand

Introduction: The Coronal Plane Alignment of the Knee (CPAK) classification, first introduced by MacDessi and colleagues, has become an increasingly important tool in describing knee phenotypes and planning total knee arthroplasty (TKA). Although CPAK has been evaluated in Western and several Asian populations, there are no published data from Thailand. Considering the high rate of varus alignment in Asian patients, documenting population-specific distributions may have significant implications for surgical outcomes.

Objectives: This study set out to determine the distribution of knee alignment phenotypes in Thai individuals using the CPAK framework, to compare findings between pre-arthritic and osteoarthritic cohorts, and to test the reproducibility of radiographic measurements across observers.

Methods: We conducted a cross-sectional study at Police General Hospital, Bangkok. Six hundred knees were evaluated, including 300 with radiographically normal joints and 300 with primary osteoarthritis. Eligible participants were aged 25–50 years (normal group) or over 50 years (osteoarthritic group). Standardized standing AP scannogram radiographs were obtained. Measurements included the Medial Proximal Tibial Angle (MPTA), Lateral Distal Femoral Angle (LDFA), Arithmetic Hip–Knee–Ankle Angle (aHKA), and Actual Joint Line Obliquity (aJLO). Knees were classified according to CPAK definitions. Two orthopedic surgeons repeated measurements four weeks apart to calculate intra- and inter-observer reliability using intraclass correlation coefficients (ICC).

Results: In the pre-arthritic group, CPAK type I was most frequent (28.2%), followed by type II (24.5%) and type V (14.1%). Among osteoarthritic knees, type I predominated (41.0%), followed by type II (20.1%) and type IV (15.0%). Overall, varus alignment with a distal apex joint line was the commonest pattern. Reliability testing demonstrated excellent reproducibility, with ICC values ≥0.96 for all key parameters.

Conclusion: This study provides the first description of CPAK distribution in a Thai cohort. Varus alignment with distal apex JLO emerged as the dominant phenotype in both normal and osteoarthritic knees. These findings underscore the importance of local population data for TKA planning and confirm that CPAK-based radiographic assessment is both practical and highly reliable.

Efficiency of the Phyathai Co-morbidity Index in Managing Preoperative Risk and Reducing Postoperative Complications Following Total Knee and Total Hip Arthroplasty at Phyathai 2 Hospital

Thitiwat Ussadamongkol, MD
Phramongkutklao Hospital
Bangkok, Thailand

Introduction: Total knee arthroplasty (TKA) and total hip arthroplasty (THA) are effective surgical procedures for improving pain and functional outcomes in patients with advanced joint disease. However, postoperative complications remain a major concern affecting surgical success and healthcare costs. The Phyathai Co-Morbidity Index (PCI) was developed as a preoperative risk assessment tool to evaluate patient comorbidities and predict possible postoperative complications.

Objectives: To evaluate the effectiveness of the Phyathai Co-Morbidity Index in predicting and reducing postoperative complications among patients undergoing total hip and total knee arthroplasty.

Methods: A retrospective cohort study was conducted using data from patients who underwent THA or TKA at Phyathai 2 Hospital between 2019 and 2024. A total of 701 patients were included after exclusion criteria (138 THA and 563 TKA). Statistical analysis was performed using descriptive statistics and Spearman's correlation, with a significance level set at $p < 0.05$.

Results: The mean age of THA and TKA patients was 66.22 ± 14.93 and 69.24 ± 8.15 years, respectively. The overall complication rate was 17.4% in THA and 5.2% in TKA. The mean Phyathai Co-Morbidity Index score was 4.87 ± 1.47 for THA and 3.96 ± 0.98 for TKA. A positive correlation was observed between PCI scores and complication rates in both groups: THA: $\rho = 0.183$ ($p = 0.032$), TKA: $\rho = 0.107$($p = 0.011$). Patients who experienced complications had significantly higher PCI scores compared with those without complications: THA: 5.46 ± 1.32 vs 4.75 ± 1.47 ($p = 0.030$), TKA: 4.41 ± 1.05 vs 3.94 ± 0.97 ($p = 0.011$)

Conclusion: Higher Phyathai Co-Morbidity Index scores were significantly associated with increased postoperative complications in both total hip and total knee arthroplasty. The Phyathai Co-Morbidity Index may serve as a useful preoperative risk assessment tool to guide surgical planning and multidisciplinary care for patients undergoing major orthopaedic surgery.

Effect of Posterior Osteophytes Removal on Coronal Plane Soft tissue balancing with CT Base Robotic Assist TKA: Functional Alignment with Tibia Cut First Technique

Tonanakan Khunhon, MD
Faculty of Medicine, Thammasat University
Pathum Thani, Thailand

Introduction: The management of posterior osteophytes in total knee arthroplasty (TKA) remains a topic of debate in quantitative data. This study investigates the quantitative effect of posteromedial femoral condyle osteophyte size on coronal gap balance in robotic-assisted TKA utilizing a tibia-first, functional alignment technique.

Methods: A prospective cohort study was conducted on patients undergoing primary robotic-assisted TKA in varus osteoarthritis. Using a standardized protocol, remove osteophyte anterior femur and tibia, medial and lateral extension and flexion gaps were measured with a tensioning device after tibial resection and again after the removal of posteromedial femoral osteophytes. Osteophyte size was preoperatively measured from CT scans and categorized.

Results: The study confirmed a significant correlation between osteophyte size and gap changes. For osteophytes smaller than 10 mm, gap increases were symmetrical and minimal (0.6-0.9 mm). However, for osteophytes larger than 10 mm, a significant and asymmetric increase in the medial extension gap was observed (2.0 ± 0.84 mm, p=0.015), while changes in the lateral extension and flexion gaps remained under 1 mm. This creates a predictable asymmetric laxity.

Conclusion: Posteromedial femoral osteophytes have a profound impact on gap balancing in functionally aligned TKA. While sub-centimeter osteophytes can be managed expectantly with symmetrical gap changes, larger osteophytes (>10 mm) consistently lead to asymmetric medial extension gap widening. Preoperative CT identification of large osteophytes is critical, allowing surgeons to proactively plan for a tighter medial extension gap to achieve the desired soft-tissue balance and avoid postoperative instability.

Efficacy of Transdermal Patch in Reducing Post-operative Pain After Total Knee Arthroplasty: Placebo-controlled Trial

Warachai Jongjirasiri, MD
Police General Hospital
Bangkok, Thailand

Introduction: Total knee arthroplasty (TKA) is one of the most frequently performed procedures in orthopedic surgery. Beyond proper surgical technique, effective postoperative pain control is a crucial factor determining patient outcome, once recognized by the American Pain Society as the body's fifth vital sign. Although various modalities are used for managing postoperative pain, the role of transdermal patches has not been extensively investigated in this setting, despite their widespread use over the past three decades. A primary advantage of transdermal delivery is the reduction of systemic side effects associated with oral medications. For example, oral Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) can cause adverse events such as gastritis, peptic ulcers, nausea, vomiting, hypertension, and renal impairment. Furthermore, transdermal patches provide more stable blood drug levels compared to oral administration, potentially reducing dosing frequency and increasing patient compliance.

Methods: This study aimed to evaluate the analgesic efficacy of a transdermal patch after TKA. A randomized, comparative study was conducted using a placebo patch (a local counterpain patch without active drug) as a control. Patients underwent randomization where the Esflurbiprofen patch was applied to one knee and the placebo patch to the contralateral knee, followed by a comparison of the results.

Results: The transdermal patch group showed a significantly better Visual Analog Scale (VAS) score compared to the placebo group at 24, 48, 72, and 96 hours, for both pain at rest and pain on motion. No complications were observed in either the transdermal or the placebo group throughout the study.

Conclusion: The transdermal patch effectively reduced pain after total knee arthroplasty. It represents a viable alternative for postoperative analgesia, particularly for patients who experience or are concerned about the systemic side effects associated with other pain control modalities.

A Comparison of the Efficacy and Complications Between Intraosseous and Peri-articular Multimodal Analgesic Cocktail Injections After Primary Total Knee Arthroplasty: A Randomized Controlled Trial

Warunyoo Suttikadsanee, MD
Faculty of Medicine, Thammasat University
Pathum Thani, Thailand

Introduction: Early postoperative pain control after total knee arthroplasty (TKA) plays a crucial role in patient satisfaction following surgery. Despite current multimodal pain management strategies, postoperative pain remains a concern for patients and can hinder the decision to undergo TKA. With the advent of intraosseous (IO) analgesic injections, the efficacy of IO multimodal analgesic cocktail administration compared to standard peri-articular (PA) injections remains controversial.

Methods: A prospective randomized controlled trial was conducted comparing 45 patients who received IO multimodal cocktail injection (5 mg of morphine, 30 mg of ketorolac, 20 ml of 0.5% bupivacaine, and 0.6 cc of 1:1000 epinephrine) with 45 patients who received standard PA cocktail injection. Postoperative Visual Analog Scale (VAS) for pain at rest and during motion, morphine consumption, functional outcomes, and postoperative complications were recorded.

Results: A total of 43 patients in each group completed the study. In the IO group, VAS for pain were significantly lower both at rest and during motion at 4, 6, and 12 hours, as well as 2 weeks postoperatively. The Timed Up and Go test was faster in the IO group at 48 hours but not at 2 weeks. However, morphine consumption, the time to start walking, the time to discharge, postoperative range of motion, and complications showed no differences up to 2 weeks.

Conclusion: Intraosseous multimodal cocktail injection resulted in better pain control compared to peri-articular injection during the early postoperative period, as well as improved function in the Timed Up and Go test at 48 hours after TKA, without increasing postoperative complications.

The Impact of Bisphosphonate Use on Early Postoperative Complications Following Hip Arthroplasty for Fragility Femoral Neck Fractures

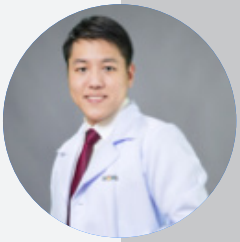
Woramate Rangsarannon, MD
Bhumibol Adulyadej Hospital
Bangkok, Thailand

Introduction: To evaluate femoral subsidence distance, post operative periprosthetic fracture and post operative contralateral hip fracture in 2 years between bisphosphonate group and non-bisphosphonate group for fragility femoral neck fractures

Methods: This retrospective observational study included 109 patients diagnosed with fragility displaced femoral neck fracture. Bisphosphonate group those who received bisphosphonate medication continuously for more than 1 yr are 66 patients, non-bisphosphonate group those who not received bisphosphonate medication, or not received bisphosphonate continuously for more than 1 yr are 43 patients. All patients were operated by fellowship-trained arthroplasty surgeons with cementless hemiarthroplasty or total hip arthroplasty. Radiographic outcomes were evaluated by 2 surgeons at the time follow-up 2, 6, 24, 48, 96 weeks post operatively. Statistical analyses were conducted using independent t-test and chi-square Fisher's exact test, with $p < 0.05$ considered significant.

Results: Demographic data and radiographic measurement included Dorr classification, Canal fill ratio has no significant differences between groups. The outcomes also have no significant differences between bisphosphonate group and non-bisphosphonate group in terms of femoral stem subsidence, periprosthetic femoral fractures, contralateral hip fracture in 2 years after postoperative time.

Conclusion: Antiosteoporosis drugs that treated for fragility hip fracture do not indicate short term advantage or disadvantage outcomes for femoral stem subsidence, periprosthetic femoral fractures, contralateral hip fractures. However, this study has limitations for low number of patients, short term follow-up time and other confounding factors. These findings require more studies for confirmation.



Comparison of Accuracy in Prosthetic Position and Efficacy between CT-based Robotic Assisted Total Knee Arthroplasty (RA-TKA) and Conventional Total Knee Arthroplasty

Yot Tanariyakul, MD
Faculty of Medicine, Thammasat University
Pathum Thani, Thailand

Introduction: Accurate implant positioning in total knee arthroplasty (TKA) is critical for optimal outcomes. Robotic-assisted TKA (RA-TKA) has been developed to improve component alignment and clinical results. This study compared the accuracy of tibial rotational alignment and clinical efficacy between CT-based RA-TKA and conventional TKA.

Methods: A retrospective study was conducted on 82 patients who underwent primary TKA by a single surgeon at Thammasat University Hospital. Patients were divided into two groups: CT-based RA-TKA (n=41) and conventional TKA (n=41). Radiographic outcomes included tibial rotational alignment (primary outcome), femoral and tibial component positioning, and hip-knee-ankle angle (HKAA). Clinical outcomes included range of motion (ROM), modified WOMAC score, Forgotten Joint Score (FJS), and complications.

Results: Tibial rotational alignment did not differ significantly between RA-TKA and conventional TKA (7.5° ± 3.0 vs 6.7° ± 6.1, p=0.456). However, RA-TKA demonstrated fewer outliers in femoral coronal, sagittal, and rotational alignment, as well as in HKAA. At final follow-up (mean 26 months), RA-TKA showed significantly greater ROM (132° ± 10 vs 125° ± 11, p=0.0035), lower WOMAC score (6 ± 7 vs 14 ± 13, p=0.0009), and higher FJS (88 ± 18 vs 75 ± 26, p=0.011). Complication rates were comparable between groups.

Conclusion: CT-based RA-TKA did not improve tibial rotational alignment compared with conventional TKA. However, it resulted in fewer component outliers and superior short-term clinical outcomes, supporting its potential role in primary TKA.

Research Abstracts Posters

A-001

High Prevalence and Key Risk Factors of Symptomatic Knee Osteoarthritis in Thailand's Aging Population: Insights from a Nationwide Community-based Study

Ekasame Vanitcharoenkul, Pojchong Chotiyarnwong, Aasis Unnanuntana, Nath Adulkasem

Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Introduction: This study aimed to determine the prevalence and associated risk factors of symptomatic knee OA among community-dwelling older adults across Thailand.

Methods: A cross-sectional study was conducted from March 2021 to August 2022 using stratified multistage sampling across six geographic regions. Community-dwelling adults aged ≥60 years were included. Symptomatic knee OA was diagnosed based on the American College of Rheumatology (ACR) clinical criteria. Demographic, clinical, and functional data—including comorbidities, quality of life, and fall risk—were collected and analyzed using multivariate logistic regression.

Results: Among 2,974 participants (mean age 69.2 years; 63.3% female), the prevalence of symptomatic knee OA was 53.8%. Prevalence was significantly higher among females (60.8%) and increased with advancing age and BMI. Multivariate analysis identified female sex, older age, and higher BMI as independent risk factors ($P < 0.01$). Participants with knee OA showed lower EQ-5D utility scores (0.848 vs. 0.925) and EQ-VAS scores (72.3 vs. 79.0) compared to those without symptomatic knee OA. The symptomatic knee OA group had higher prevalence of osteoporosis (31.7% vs. 27.4%, P=0.012) but lower prevalence of sarcopenia (15.2% vs. 20.6%, P=0.012). Half of the symptomatic knee OA participants were identified as having high fall risk, with 28.4% reporting falls within the past year. Comorbidities were not independently associated with symptomatic knee OA.

Conclusion: Symptomatic knee OA affects over half of Thailand's older adult population, with female sex, older age, and higher BMI as key risk factors. The condition is strongly associated with impaired quality of life and increased fall risk. These findings highlight the urgent need for targeted prevention and integrated management strategies to address knee OA in Thailand's rapidly aging society.

A-004

Reshaping Discoid Lateral Meniscus in Medial Open Wedge High Tibial Osteotomy may Adversely Affect the Lateral Compartment Osteoarthritis Progression

Sang-Woo Jeon

Ewha Womans University College of Medicine, Seoul, South Korea

Introduction: To investigate and compare the clinical outcomes, radiographic findings, and arthroscopic finding in second look in 2 year after MOHTO with reshaping versus leaving the discoid lateral meniscus intact during MOWHTO.

Methods: We reviewed the medical records of patients who underwent medial open wedge high tibial osteotomy (HTO) from 2010 to 2020 and identified those diagnosed with lateral discoid meniscus. The patients were categorized into two groups: those who underwent reshaping of the lateral discoid meniscus during HTO and those in whom the meniscus was left intact. Clinical outcomes, radiologic outcomes, and second-look arthroscopic findings at two years postoperatively were compared between the two groups.

Results: Among a total of 1,312 patients, 108 patients with discoid lateral meniscus tears were identified. They were categorized into the reshaping group (32 patients) and the non-reshaping group (76 patients). There was no significant difference in clinical outcomes between the two groups (n.s). Radiologic assessment revealed lateral compartment osteoarthritis (OA) progression in 6 patients in the reshaping group and 2 patients in the non-reshaping group ($p<0.01$). Arthroscopic second-look evaluation showed newly developed tears in the discoid lateral meniscus in 3 patients in the reshaping group and 1 patient in the non-reshaping group.

Conclusion: Reshaping discoid lateral meniscus in Medial open wedge high tibial osteotomy may adversely affect the lateral compartment osteoarthritis progression.

A-010

Metal-on-metal Hip Arthroplasties: What Have We Learned?

Corrado Ciatti[1,2], Luca Andriollo[3], Chiara Asti[2], Pietro Maniscalco[4], Calogero Puma Pagliarello[2], Fabrizio Quattrini[1]

[1]Department of Medicine and Surgery, University of Parma, Parma, Italy

[2]Local Health Authority of Piacenza (AUSL Piacenza), Piacenza, Italy

[3]Poliambulanza Foundation Hospital Institute, Brescia, Italy

[4]D'Annunzio University School of Medicine and Health Sciences, Chieti, Italy

Introduction: Previous research has emphasized the relevance of bearing surface choice in influencing the long-term survival of total hip arthroplasty (THA). Metal-on-metal (MoM) implants, in particular, have been associated with higher failure rates compared to other bearing types. The purpose of this study is to investigate whether MoM coupling represents a statistically significant risk factor for THA survival.

Methods: We analyzed data from the regional joint registry (Registro dell'Impiantologia Protesica Ortopedica, RIPO), which had a data accuracy of 97.2% in 2017. A retrospective evaluation was carried out on all MoM THAs implanted in our department between January 1, 2000, and December 31, 2011. The control group included all other THAs performed during the same period. In addition, all MoM THAs reported in the registry were reviewed.

Results: A total of 676 MoM THAs were included, with a mean patient age of 66.9 years. Among these, 598 had a head size >36 mm and 78 a head size <36 mm. Neck modularity was present in approximately half of the cases. All implants were cementless. We documented 69 revisions, primarily due to aseptic loosening (16 cases), implant breakage (9), and periprosthetic fracture (6). The Kaplan–Meier survival rate for MoM THAs was 87.2% at 15 years. Survival analysis showed a statistically significant difference ($p < 0.05$) when compared with other bearing surfaces. Male sex and larger head size were identified as significant risk factors. Improper cup positioning or orientation was also a strong predictor of failure.

Conclusion: Our findings support existing literature indicating reduced survival of MoM hip prostheses. Male sex and head size significantly affect outcomes ($p < 0.05$), whereas age and neck modularity do not ($p > 0.05$). Although not all MoM THAs perform poorly, more reliable bearing options are currently available. Larger head size requires particular attention, and patient body weight may also represent a potential risk factor, warranting further investigation.

A-015

Can Novel Intraoperative Radiographic Reference Lines during Direct Anterior Approach Total Hip Arthroplasty Improve the accuracy of acetabular Cup Inclination According to the Lewinnek Safe Zone?

Kotchapan Taibowornpitak[1], Payap Payapanon[1], Nimit Thongpulsawasdi[1], Ishthayapong Kanjanakeereewong[1], Tawan Intiyanaravut[1], Chaturong Pornrattanamaneewong[2]

[1]Golden Jubilee Medical Center, Faculty of Medicine Siriraj Hospital, Mahidol University, Nakhon Pathom, Thailand

[2]Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Introduction: Accurate positioning of the acetabular cup is essential for the long-term success of total hip arthroplasty (THA), as malposition can result in dislocation, impingement, wear, and loosening. Although the Lewinnek safe zone provides a widely accepted guideline, intraoperative fluoroscopic assessment during direct anterior approach (DAA) THA remains challenging due to the lack of standardized landmarks. To address this gap, we evaluated novel intraoperative radiographic reference lines based on the obturator foramen and acetabular teardrop, with the aim of defining a new intraoperative safe zone between these lines that facilitates cup inclination within the Lewinnek safe zone

Methods: A retrospective study was performed using 118 standardized anteroposterior radiographs of both hips in patients with hip disease (59 males, 59 females). The study was approved by the Institutional Review Board of faculty of medicine Siriraj Hospital (IRB no. 656/2568 (IRB2)). Inclination angles were measured from the inferior reference line to the inter-teardrop line and from the superior reference line to the inter-teardrop line. Two reference lines were defined: Inferior Reference Line (IRL): inferomedial of obturator foramen to inferior teardrop margin Superior Reference Line (SRL): inferomedial of obturator foramen to superior teardrop tip Inclination angles relative to the inter-teardrop horizontal line were measured three times by one principal investigator and independently by two additional raters. Intra- and inter-rater reliability was analyzed using intraclass correlation coefficients (ICC). Statistical analyses included descriptive statistics, independent t-tests for sex comparisons, and intraclass correlation coefficients (ICC). A p-value <0.05 was considered
statistically significant.

Results: A total of 118 standardized both-hip anteroposterior radiographs (59 males, 59 females; mean age 65.2 ± 14.7 years) were analyzed. The mean inclination angles were IRL: 39.2° ± 4.1 (Rt) and 39.7° ± 3.7 (Lt); SRL: 52.4° ± 3.8 (Rt) and 53.0° ± 3.5 (Lt), respectively. Intra-rater reliability was excellent, with ICC values >0.95 for both IRL and SRL measurements. Inter-rater reliability ranged from substantial to excellent (IRL ICC 0.912–0.922; SRL ICC 0.883–0.910; all $p<0.001$). Most cup inclination values fell within the Lewinnek safe zone, and no significant differences were observed between males and females.

Conclusion: These reference lines (IRL and SRL) provide a simple, reproducible, and highly reliable anatomical landmark for acetabular cup positioning during DAA-THA with intraoperative fluoroscopy. Their application may enhance cup inclination precision within the Lewinnek safe zone and reduce complications associated with malposition.

A-017

Comparative Study Between Lower versus Higher Tourniquet Pressure in Bilateral Subvastus Total Knee Arthroplasty; A Prospective Randomized Controlled Trial

Surasun Saiyat, Wasin Wichitpreeda

Police General Hospital, Bangkok, Thailand

Introduction: The primary objective is study the effects of using a tourniquet during bilateral TKA on pain levels at the site of the tourniquet and the surgical wound, and the ROM by applying different tourniquet pressures to each individual.

Methods: A prospective Randomized controlled trial will involve patients with bilateral OA knee, who undergo bilateral total knee replacement surgery using the Subvastus approach technique. A total of 14 patients will be included in the study. The participants will be divided into two groups: one group will use a low-pressure tourniquet (N=14) and the other group will use a high-pressure tourniquet (N=14). Both groups will undergo pain assessments by Visual Analog Scale(VAS) for the thigh and knee areas, and evaluation the ROM of knee by goniometer before surgery and after surgery on days 1– day 5 and two weeks.

Results: A total of 14 patients participated in the study, The study found that pain at the tourniquet site was significantly lower in the low-pressure tourniquet group after total knee replacement surgery on days 2-5 post-surgery and 2 weeks post-surgery, with P-values of 0.0258, 0.0002, <0.0001, <0.0001, and 0.0095 respectively (P-value < 0.05). Additionally, surgical site pain was significantly lower in the low-pressure tourniquet group on days 2-5 and 2 weeks after total knee replacement surgery, with P-values of <0.0001, 0.0001, 0.0001, <0.0001, and 0.005 respectively (P-value < 0.05). Regarding range of motion, the ability in flexion the knee was significantly better in the low-pressure tourniquet group on days 2-5 and 2 weeks post-surgery, with P-values of 0.0021, <0.0001, <0.0001, <0.0001, and <0.0001 respectively (P-value < 0.05). Furthermore, the ability to extend the knee was significantly better in the low-pressure tourniquet group on day 5 post-surgery, with a P-value of 0.0292 (P-value < 0.05).

Conclusion: The study shows that the use of a low-pressure tourniquet can significantly reduce complications, particularly in terms of pain at the tourniquet site and at the surgical site. Additionally, It helps patients achieve better rehabilitation, improving knee range of motion in flexion and extension.

A-018

Difference in Decreasing Hemoglobin Level and Blood Transfusion After Using Cement Plug Compare to Bone Plug in Bilateral TKA: a Randomized Control Trial Study

Phisut Manakittikij, Wasin Wichitpreeda, Wittawat Jaderojananon

Police General Hospital, Bangkok, Thailand

Introduction: To study the difference in decreasing hemoglobin level and blood transfusion rate after using cement plug compare to bone plug in bilateral TKA

Methods: This study included 43 patients (21 in cement group and 22 in bone group) who underwent bilateral TKA in police general hospital. Which hematocrit was followed up at post operative 2 hours, 24 hours and 72 hours and chance to get blood transfusion. Which use Pearson chi-square test, Unpaired t-test, Fisher's exact test, Mann-Whitney U-test to calculate the statistical outcome.

Results: Perioperative and Postoperative Outcomes There were no significant differences in the rate of blood transfusion between the groups ($p = 0.6595$). Postoperative hematocrit levels at 2, 24, and 72 hours were similar between the groups, although 72-hour HCT was slightly higher in the cement plug group with borderline significance (28.01 ± 2.37 vs. 26.54 ± 2.53; $p = 0.0556$). The decline in hematocrit was not statistically different (9.75 ± 2.90 vs. 10.43 ± 3.07; $p = 0.4601$).The drain volume at 24 hours was slightly lower in the cement plug group (245.45 ± 71.43 vs. 262.86 ± 97.12 mL), but the difference was not significant ($p = 0.5056$). Although the total blood loss appeared higher in the bone plug group (269.52 ± 96.91 vs. 215.95 ± 98.14 mL), this difference did not reach statistical significance ($p = 0.0792$), indicating a trend toward increased blood loss in the bone plug group

Conclusion: There were no significant differences between the groups in terms of perioperative blood loss, postoperative hematocrit levels, or blood transfusion rates, suggesting that both techniques are comparable in these aspects of patient care.

A-019

Evaluating the Safety of Intraosseous Regional Vancomycin and Its Effect on Local Tissue Viability: An Experimental Study in a Rat Model

Shanya Klanwarin, Kamolsak Sukhonthamarn, Umaporn Yordpratum, Vorawit Atipiboonsin, Chat Sumananont, Weerachai Kosuwon

Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

Introduction: Methicillin-resistant Staphylococcus aureus (MRSA) presents a significant challenge in arthroplasty. Systemic vancomycin often results in subtherapeutic joint concentrations and systemic toxicity, whereas intraosseous regional administration (IORA) delivers high local levels with reduced systemic exposure. Although effective as prophylaxis, the safety of IORA for treating infection remains uncertain.

Methods: Sixteen Wistar rats were inoculated with MRSA in the left knee to induce septic arthritis and randomized into four groups (n = 4 each): (1) control, (2) intraperitoneal vancomycin (IP, 88 mg/kg), (3) IORA 88 mg/kg (IORA 1.0), and (4) IORA 44 mg/kg (IORA 0.5). Treatments were administered daily for 7 days. WBC counts, serum chemistry, cultures, and histologic evaluation of liver, kidney, bone, and cartilage were performed.

Results: All rats developed elevated WBC levels post-infection. Following treatment, bacterial clearance was achieved in all antibiotic groups. The greatest WBC reduction occurred in IORA 1.0, followed by IORA 0.5 and IP. No evidence of liver or renal injury was observed on blood chemistry or histology. The percentage of non-viable osteocytes was highest in IORA 0.5 (34.4 ± 29.3), followed by IORA 1.0 (32.5 ± 42.1), IP (9.6 ± 2.6), and control (5.5 ± 1.5). The percentage of non-viable chondrocytes was highest in IORA 1.0 (10.5 ± 6.5), followed by IORA 0.5 (9.7 ± 5.7), control (6.9 ± 0.6), and IP (5.9 ± 0.3). Although overall ANOVA was not significant, IORA groups showed significantly greater osteocyte ($p = 0.013$) and chondrocyte ($p = 0.013$) non-viability than IP. No difference was observed between IORA doses.

Conclusion: IORA vancomycin demonstrated effective infection control comparable to systemic therapy but resulted in greater local cytotoxicity. These findings raise concerns about tissue viability following IORA and highlight the need for further studies to optimize dosing and evaluate long-term safety.

A-020

Comparative Study in Cosmetic Concern with Two Different Skin Closure After Primary Total Hip Arthroplasty

Jirakit Ekanankul, Withawat Jaderojananont

Police General Hospital, Bangkok, Thailand

Introduction: Staples and subcuticular sutures are commonly used wound closure techniques after surgical procedures. However, limited studies have directly compared these two methods in terms of cosmetic outcomes and patient satisfaction. This study aimed to compare cosmetic outcome and patient satisfaction between staples and sutures for wound closure.

Methods: This prospective randomized controlled trial included 36 patients randomized equally into staples and subcuticular suture groups. Baseline demographics, perioperative data, and postoperative outcomes were recorded. Cosmetic outcomes were evaluated using the Hollander Wound Evaluation Scale (HWES) and cosmetic visual analog scale (VAS) at 6-week and 3-month follow-ups. Wound complications and operative factors including wound closure time were also assessed.

Results: No significant differences were found between groups in terms of HWES, cosmetic VAS, or wound complication rates at both 6-week and 3-month follow-ups. Wound closure time was significantly shorter in the staple group ($p < 0.001$), but total operative time did not differ significantly between groups. Both groups demonstrated comparable cosmetic healing and patient satisfaction throughout the study period.

Conclusion: Staples and subcuticular sutures provide comparable cosmetic outcomes and patient satisfaction for wound closure at 3 months postoperatively. Although staples allow faster wound closure, both techniques are acceptable options without differences in wound healing or complications.

A-022

Postoperative Dislocation After Primary Total Hip Arthroplasty: A Comprehensive Analysis of Risk Factors and Surgical Considerations

Muhammad Anggoro Jati[1], Ismail Hadisoebroto Dilogo[2], Jamot Silitonga[3]

[1]Bogor City General Hospital, Bogor, Indonesia

[2]Cipto Mangunkusumo National General Hospital, Jakarta, Indonesia

[3]Fatmawati General Hospital, Jakarta, Indonesia

Introduction: Postoperative dislocation is a significant complication after primary total hip arthroplasty (THA), often resulting in functional decline, the need for revision surgery, and reduced quality of life. Although risk factors for dislocation have been extensively established, there is a scarcity of research from Southeast Asia, particularly in Indonesia, even as the frequency of THA is steadily increasing. This study sought to evaluate patient- and surgery-related risk factors for dislocation in total hip arthroplasty.

Methods: We conducted a retrospective case-control study involving 999 patients who underwent primary total hip arthroplasty (THA) between 2018 and 2024 at Dr. Cipto Mangunkusumo General Hospital and Fatmawati General Hospital in Jakarta. 46 patients experienced postoperative dislocation and were included in this study, whereas 65 matched individuals without dislocation served as controls. Data included demographics, comorbidities, surgical strategy, fixation technique, and postoperative outcomes. The positioning of the prosthetic was assessed using standardized anteroposterior pelvic radiographs. The analysed factors were age, sex, body mass index (BMI), trauma history, acetabular malposition, femoral head size, fixation method, duration of operation, femoral offset, hip flexion angle, and prior hip surgery.

Results: The study included 111 patients, of whom 46 experienced postoperative dislocation, while 65 did not. Statistically significant risk factors for dislocation included age over 60 years, female sex, a body mass index greater than 25, a traumatic diagnosis, malposition of the acetabular component, femoral head size, surgical duration exceeding 120 minutes, a posterior surgical approach, inadequate restoration of femoral offset, crossing legs or hip flexion greater than 90 degrees, and a history of prior hip surgery. Among these, malposition of the acetabular component was identified as the most dominant risk factor.

Conclusion: This multicenter study provides novel Indonesian evidence about the risk factors for dislocation following primary total hip arthroplasty (THA). Acetabular malposition was identified as the primary predictor, underscoring the critical need for precise component alignment. Tailored surgical planning, precise intraoperative positioning, and stringent postoperative measures are essential for reducing instability risk and improving long-term outcomes.

A-023

Shifting Paradigm for Total Knee Arthroplasty Approach in Indonesia: From Medial Parapatellar to Subvastus Approach, Is It Beneficial?

Muhammad Anggoro Jati[1], **A. Faiz Huwaidi**[2]

[1]Bogor City General Hospital, Bogor, Indonesia

[2]Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia

Introduction: In Indonesia, the medial parapatellar approach is the most commonly used technique for total knee arthroplasty (TKA). This approach provides excellent anatomical visualisation; however, the incision through the quadriceps tendon raises concerns regarding its impact on the extensor mechanism and long-term outcomes. The subvastus approach is an alternative that minimises potential damage to the extensor mechanism. Despite these advantages, the subvastus approach remains limited among hip and knee surgeons in Indonesia. This study aims to compare the outcomes of patients undergoing primary TKA using either the medial parapatellar or subvastus approach.

Methods: This prospective cohort study included 64 patients aged 57–72 years with a BMI of 23–32 kg/m^2, diagnosed with Kellgren-Lawrence Grade 3-4 knee osteoarthritis. Patients were consecutively enrolled and divided into two groups: the medial parapatellar group and the subvastus group. All surgeries were performed by a single hip and knee surgeon experienced in both approaches. Outcomes were assessed at 2 weeks, 6 weeks, 3 months, 6 months, and 12 months postoperatively.

Results: At the 2-week and 6-week follow-ups, patients in the subvastus group experienced significantly lower pain levels with Visual Analogue Scale (VAS) scores (mean 3.2 vs. 5.1 in the medial parapatellar group), and better functional outcomes with mean Knee Society Score (KSS) of 70 vs. 61. Additionally, the subvastus group had faster recovery times for straight leg raise (SLR), averaging 5 days compared to 8 days in the medial parapatellar group. Range of motion (ROM) improved more quickly in the subvastus group, an additional 10° of flexion at 6 weeks (mean ROM 110° vs. 100°). However, after 6 months, there were no significant differences in KSS, WOMAC, ROM, SLR time, or quadriceps strength between the two groups.

Conclusion: This study indicates that the subvastus approach provides better early functional outcomes. These findings suggest that the subvastus approach could potentially be a more widely adopted technique in Indonesia.

A-024

Early Functional Recovery and Surgical Time in Subvastus versus Mid-parapatellar Approaches for Total Knee Arthroplasty: A Meta-analysis

Muhammad Anggoro Jati[1], **Salman Azis Nizami**[2]

[1]Bogor City General Hospital, Bogor, Indonesia

[2]Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia

Introduction: There is still controversy regarding whether Subvastus (SV) approach for total knee arthroplasty (TKA) lead to better earlier recovery as well as compromising low limb alignment and prosthesis position compared with conventional mid-parapatellar (MP) approach. To pool the data, overcome the shortcomings and inaccuracies of single studies, the outcomes and radiographic assessments of SV approach and MP approach of RCT were evaluated through meta-analysis.

Methods: A systematic literature search was conducted in PubMed and Scopus using MeSH terms and free-text keywords related to total knee arthroplasty, subvastus or quadriceps-sparing approaches, and mid-parapatellar approaches. Reference lists were also manually screened to identify additional trials. Only randomized controlled trials involving adult patients undergoing primary total knee arthroplasty were included, while retrospective studies, conference abstracts, and reports with incomplete data were excluded. Two independent reviewers screened titles, abstracts, and full texts. Data extraction was performed using a standardized form to record study details, patient demographics, surgical technique, and clinical outcomes including Knee Society Score, range of motion and surgical time. Methodological quality was assessed using the Cochrane Risk of Bias 2.0 tool. Meta-analysis was performed with RevMan software, applying weighted mean differences or risk ratios with 95% confidence intervals, and heterogeneity assessed by the I^2 statistic.

Results: Eight prospective randomized controlled trials (RCTs) identified. Overall meta-analysis of RCTs identified the SV approach mainly was associated with similar Knee Society score within 6 weeks postoperatively (weighted mean difference [WMD] 1.22, P = 0.22), and improved range of motion 1–2 weeks postoperatively (WMD 0.73, P < 0.00002).. However, surgical and tourniquet time was significantly longer in QS group by both overall and subgroup meta-analysis.

Conclusion: Early results from the RCT shows that SV approach has non-inferior outcome despite its longer surgical time.

Diamond Sponsor

Johnson&Johnson MedTech

TAISHO PHARM. (THAILAND) CO., LTD.

ZIMMER BIOMET

Platinum Sponsor

AMGEN

TRB Chemedica (Thailand) Ltd

VIATRIS

RTI TECH

Gold Sponsor

B BRAUN

B-ONE ORTHO

LG Chem Life Sciences (Thailand) Ltd.

Meril

Smith+Nephew

stryker

Silver Sponsor

MENARINI

Bronze Sponsor

BJCHealthcare

Daiichi-Sankyo

lotus

Pfizer

Standard Sponsor

Abbott

Abbott Nutrition

American Taiwan Biopharm

DKSH

MEGA We care

Mölnlycke

PACIFIC HEALTHCARE

Thai Hip & Knee Society

4th Floor, Royal Golden Jubilee Building

2 Soi Phetchaburi 47 (Soi Sun Wichai), Phetchaburi Road, Bang Kapi, Huai Khwang, Bangkok 10310

https://thks.org

Email: secretarythaihipknee@hotmail.com

Thai Hip & Knee Society

THKA Thai Hip & Knee Association

EUROPEAN HIP SOCIETY

THKS 2026 HIGH PERFORMANCE ARTHROPLASTY

The 28th Annual Meeting of Thai Hip & Knee Society (THKS) in Collaboration with European Hip Society (EHS)

NOVEMBER 19-21, 2026

Sheraton Hua Hin Resort & Spa

Cha-am, Phetchaburi, Thailand