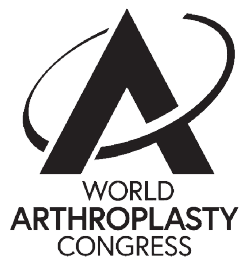


# 4<sup>TH</sup> WORLD ARTHROPLASTY CONGRESS

Madrid • Spain

18-19 April, 2024



In collaboration with





**4<sup>TH</sup> WORLD  
ARTHROPLASTY  
CONGRESS**  
Madrid • Spain  
18-19 April, 2024



# 4<sup>TH</sup> WORLD ARTHROPLASTY CONGRESS

Madrid • Spain  
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# 4<sup>TH</sup> WORLD ARTHROPLASTY CONGRESS

Madrid • Spain  
18-19 April, 2024



## WELCOME ADDRESS

It is our great pleasure to invite you to the 4th World Arthroplasty Congress, to be held in Madrid, Spain on 18 and 19 of April 2024.

Building upon the success of the previous editions of the WAC, The European Knee Society in collaboration with the European Hip Society, The Hip Society and The Knee Society, as well as the International Orthopaedic Education Network have been working together to create a high-level scientific program about Hip and Knee arthroplasty. This a unique and original collaboration. Of course, top speakers from Asia-Pacific will also be part of the program.

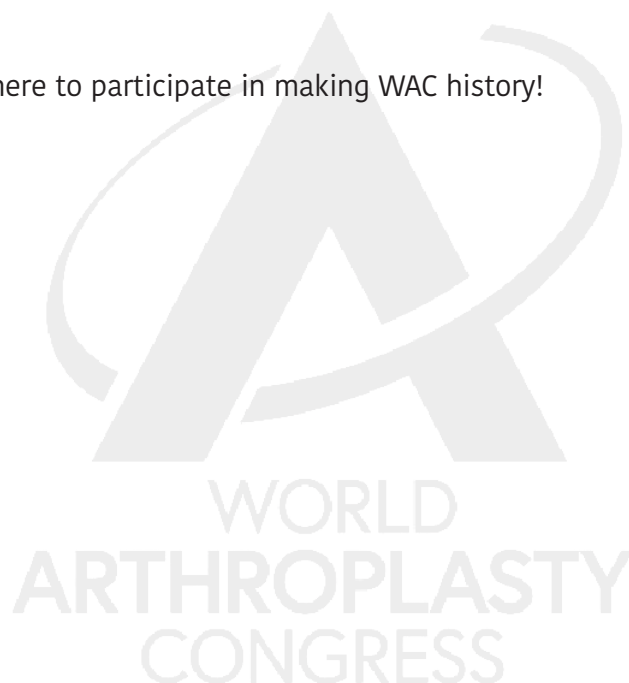
Sixty top faculty from across the world will lead sessions on the hottest topics in hip and knee arthroplasty. WAC stands for World Arthroplasty Congress and therefore speakers from Asia-Pacific will join there colleagues from Europe and the US.

With today's surgical environment being impacted by societal, political and economic constraints, this congress brings together leading experts to focus on the common goal of advancing the field of hip and knee arthroplasty and to improve patient care. It will also be a unique opportunity to interact, discuss and share thoughts about our common passion: hip and knee arthroplasty. General and deep-dive sessions will create this unique opportunity for delegates, faculty, and companies to interact at a global level.

Health care professionals can participate as delegates but can also submit their own unique research papers. Following a blinded double review by the world-leading expert in the field, your work can be selected for a podium presentation or as an e-poster, displayed during both days of the meeting. This 4th World Arthroplasty Congress will be an excellent opportunity to communicate your message to an eager and engaged audience.

We can't wait to welcome you in Madrid and see you there to participate in making WAC history!

**The WAC Organisation Committee**





# 4<sup>TH</sup> WORLD ARTHROPLASTY CONGRESS

Madrid • Spain  
18-19 April, 2024



## GENERAL INFORMATION

### WIRELESS INTERNET ACCESS

WiFi Internet access area will be available at the Congress

### SOCIAL EVENTS

#### WELCOME COCKTAIL / WAC Get Together & Meet the Expert

Exhibition Area

Thursday, April 18th, 18:30h to 19:30

### ACCOMMODATION DETAILS

Accommodation details and further announcements will be published closer to the event

### ECO-FRIENDLY and PAPERLESS

WAC2024 is a paperless, sustainable and environmental friendly Congress encouraging the use of recyclable material

### SMOKING

WAC2024 is a non-smoking congress

### ATTENDANCE

The Congress usually attracts between 800 and 1000 people from all over Europe and from all over the world

### EXHIBITION

Access to the exhibition is free for registered participants. The exhibition will be open on 18-19 April 2024 during the congress hours

### LUNCH AND REFRESHMENTS

Lunches are included in the participants' registration fee.

Coffee, tea will be available in the exhibition area during the breaks.

### LIABILITY

By registering for the Congress and/or by participating in the exhibition joined to the Congress, participants and exhibitors agree that WAC, the Organising Committee or the Congress Secretariat do not assume any responsibility for damage or injuries to persons or property during the Congress. Participants and exhibitors are advised to organize their own health, travel and personal insurances.

### LETTER OF INVITATION

Upon request, the Chairman of the Local Organising Committee will be pleased to send a personal letter of invitation to registered participants so as to enable participants to obtain visas for attending the Congress. These invitation letters cannot be considered as an offer of financial support by the organisers and will only be provided to registered participants once the payment has been received.



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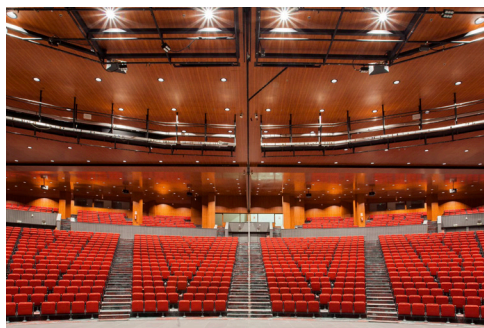
## GENERAL INFORMATION

### DATES

18-19 April, 2024

### VENUE

Madrid Marriott Auditorium Hotel & Conference Center  
Av. de Aragón, 400 • 28022 Madrid • Spain



### WEBSITE

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

### IMPORTANT DATES

#### Abstract Submission:

Opens: December 1st, 2023 / Closes: January 31st, 2024

#### Registration:

Opens: December 20th, 2023

Deadline for early bird registration: March 4th, 2024

### TECHNICAL SECRETARIAT

#### Registration-Abstract Submission

#### Sponsorship

TORRES PARDO S.L.

Nàpols, 187 2º, 08013 Barcelona, Spain

Tel. +34 93 246 35 66

#### Registration:

Contact: Carolina Rovira  
[c.rovira@torrespardo.com](mailto:c.rovira@torrespardo.com)



#### Sponsorship:

Contact: Desirée Muñoz  
[d.munoz@torrespardo.com](mailto:d.munoz@torrespardo.com)





## REGISTRATION FEES

	Early bird registration Until March 4th, 2024	Regular registration Until March 31st 2024	Late Fees & Onsite After April 1st 2024
<b>EKS Active and International Members</b>	FREE		
<b>Students, Residents, Allied Health*</b>	250€	275€	300€
<b>EKS Junior</b>	300€	350€	400€
<b>EHS TKS THS IOEN Members</b>	300€	350€	400€
<b>EKS Affiliate Members</b>	450€	550€	650€
<b>Non-Members</b>	650€	750€	850€
<b>Exhibitor's extra badge</b>	800€	800€	800€

\*Students, Residents and Allied Health must present a document proving their current situation.  
21% Spanish VAT included

### CANCELLATION POLICY

Cancelling 60 days prior to the Congress will involve a 20% penalty.

Cancelling between 60 days and 30 days prior to the Congress will involve a 50%

Cancellations due to visa refusal will receive a full refund. Presenting an official document proving the denial will be mandatory.

The name change can be managed by paying €25 + VAT for management fees.

All cancellation notices must be addressed in writing to the Technical Secretariat:

A. Ms. Carolina Rovira

Email: [c.rovira@torrespardo.com](mailto:c.rovira@torrespardo.com)



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## COMMITTEES

### SCIENTIFIC COMMITTEE



European  
Knee  
Society



International Orthopedic  
Education Network



#### EKS Chairpersons

Andrea Baldini  
David Barret  
Francesco Benazzo  
Michel Bonnin  
Gijs van Hellemond  
Sebastien Lustig  
Sebastien Parratte  
Emmanuel Thienpont  
Anders Troelsen

#### IOEN Chairpersons

Matt Abdel  
Bryan Springer  
Michael Meneghini  
Ray Kim  
Beth Gausden  
James Browne  
Jeremy M. Gililand  
Mark W. Pagnano  
Rafael J. Sierra  
Jonathan Vigdorichik

#### Hip Society

Michael Bolognesi  
William Hamilton  
Charles Nelson  
Scott Sporer

#### Knee Society

Henry Clarke  
Daniel Berry  
Craig Della Valle  
Fares Haddad





# PROGRAM AT A GLANCE

THURSDAY, APRIL 18th			
	AUDITORIUM		ROOM BRISTOL-OXFORD
	TKA	TKA+THA	THA
08:00h-10:00h	<b>THE QUEST TO THE FORGOTTEN KNEE</b> Moderators: David Barrett (UK) Michael Bolognesi (USA)		<b>PLANNING AND BIOMECHANICS</b> Moderators: William Hamilton (USA) Bryan D. Springer (USA)
10:00h-10:30h	Coffee break		
10:30h-12:30h		<b>HIP AND KNEE: OPTIMIZING THE PROCESS</b> Moderators: Michael Meneghini (USA) Anders Troelsen (Denmark)	<b>TKA+THA SHORT PRESENTATIONS SESSION I</b> Moderators: Thomas Heyse (Germany) Stefano Petrillo (Italy)
12:30h-13:15h	Lunch: Buffet among exhibits		
13:15h-14:30h	Industry sessions (dessert and coffee) <i>go to page 65</i>		
14:30h-16:30h	<b>CAN WE RESTORE NORMAL BIOMECHANICS WITH KNEE ARTHROPLASTY?</b> Moderators: Francesco Benazzo (Italy) Michael Meneghini (USA)		<b>WHICH IMPLANT FOR WHICH PATIENT?</b> Moderators: Raymond H. Kim (USA) Fares Haddad (UK)
16:30h-17:00h	Coffee break		
17:00h-18:30h		<b>HIP AND KNEE SESSION: THE DARK SIDE OF ARTHROPLASTY</b> Moderators: Craig De La Valle (USA) Elifterios Tsiridis (Greece)	<b>TKA+THA SHORT PRESENTATIONS SESSION II</b> Moderators: Cécile Batailler (France) Michael Hirschmann (Switzerland)
18:30h-19:30h	COCKTAIL AMONG EXHIBITS : Meet the Expert		
FRIDAY, APRIL 19th			
07:00h-08:00h	Breakfast with the Masters		
	AUDITORIUM		ROOM BRISTOL-OXFORD
	TKA	TKA+THA	THA
08:00h-10:00h	<b>THE BIG WAC 2024 ALIGNMENT DEBATE</b> Moderators: Sébastien Parratte (UAE) Henry Clarke (USA)		<b>THE COMPLEX PRIMARY THA</b> Moderators: Dan J. Berry (USA) Jean-Noel Argenson (France)
			<b>WHY THA FAILS IN 2024?</b> Moderators: James Browne (USA) Jeremy Gilliland (USA)
10:00h-10:30h	Coffee break		
10:30h-12:30h		<b>HIP AND KNEE: ASSISTIVE TECHNOLOGY</b> Moderators: Elizabeth B. Gausden (USA) Sebastien Lustig (France)	<b>TKA+THA SHORT PRESENTATIONS SESSION III</b> Moderators: Nick London (UK) Stefano Marco Polo Rossi (Italy)
12:30h-13:15h	Lunch: Buffet among exhibits		
13:15h-14:30h	Industry sessions (dessert and coffee) <i>go to page 65</i>		
14:30h-15:30h	<b>WHEN THINGS GET COMPLICATED (Technique + Videos)</b> Moderators: Emmanuel Thienpont (Belgium) Mark Pagnano (USA)		<b>WHEN THINGS GET COMPLICATED (Technique + Videos)</b> Moderators: Robert Hube (Germany) Rafael Sierra (USA)
15:30h-16:00h	Coffee break		
16:00h-18:00h	<b>STRATEGY IN REVISION</b> Moderators: Andrea Baldini (Italy) Charles L. Nelson (USA)		<b>TECHNIQUES IN ACETABULAR REVISION</b> Moderators: Michel Bonnin (France) Fabio Catani (Italy)
			<b>TECHNIQUES IN STEM REVISION</b> Moderators: Jonathan Vigdorichik (USA) William Hamilton (USA)
18:00h-18:30h	FAREWELL - Adjourn. Thank you speeches by the 3 Presidents		



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## FACULTY - LIST OF SPEAKERS

Tarik Ait Si Selmi, France

Jean-Noël Argenson, France

Andrea Baldini, Italy

David Barrett, UK

Francesco Benazzo, Italy

Daniel Berry, USA

Friedrich Boettner, USA

Michael Bolognesi, USA

Michel Bonnin, France

James Browne, USA

Fabio Catani, Italy

Henry Clarke, USA

Justin Cobb, UK

José Cordero, Spain

Craig Della Valle, USA

Eduardo García-Rey, Spain

Elizabeth B. Gausden, USA

Jeremy Gililland, USA

Fares Haddad, UK

Andreas Halder, Germany

William Hamilton, USA

Thomas Heyse, Germany

Michael Hirschmann, Switzerland

Robert Hube, Germany

Theofilos Karachalios, Greece

Raymond H. Kim, USA

Vicente Leon Muñoz, Spain

Nick London, UK

Sebastien Lustig, France

Michael Meneghini, USA

Charles L. Nelson, USA

Mark Pagnano, USA

Sébastien Parratte, UAE

Andrew Price, UK

Ashok Rajgopal, India

Ola Rolfson, Sweden

Stefano Marco Paolo Rossi, Italy

Hannes Rüdiger, Switzerland

Rafael Sierra, USA

Elhadi Siriali, France

Scott M. Sporer, USA

Bryan D. Springer, USA

Emmanuel Thienpont, Belgium

Anders Troelsen, Denmark

Elefterios Tsiridis, Greece

Gijs Van Hellemond, The Netherlands

Jan Victor, Belgium

Jonathan Vigdorichik, USA

Philip Winnock de Grave, Belgium

Luigi Zagra, Italy



**SCIENTIFIC PROGRAM**  
**THURSDAY, APRIL 18th**

**4<sup>TH</sup> WORLD  
ARTHROPLASTY  
CONGRESS**  
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## SCIENTIFIC PROGRAM • THURSDAY, APRIL 18th

### AUDITORIUM

#### AUDITORIUM • 08:00-10:00h • TKA THE QUEST TO THE FORGOTTEN KNEE

Moderators:

David Barrett (UK), Michael Bolognesi (USA)

#### 20% dissatisfied after TKA: is this still true in 2024?

Elizabeth B. Gausden (USA)

#### UKA versus TKA for OA:

#### Where are we today? A world perspective

Nick London (UK)

#### UKA is the best option, let's embrace it

Anders Troelsen (Denmark)

#### The lateral OA is another story

Jean-Noel Argenson (France)

#### How I manage isolated patellofemoral OA?

Michael Bolognesi (USA)

#### Bicompartmental resurfacing: can we do more?

Emmanuel Thienpont (Belgium)

#### I can achieve a forgotten knee with TKA: this is how I do it

Sébastien Parratte (UAE)

#### What should we tell arthroplasty patients about doing sports?

Friedrich Boettner (USA)

Selected abstracts (*go to page 22*)

Discussion

#### WORDS OF WISDOM Consensus statement

Moderator: Andrew Price (UK)

### ROOM BRISTOL-OXFORD

#### ROOM BRISTOL-OXFORD • 08:00-10:00h • THA PLANNING AND BIOMECHANICS

Moderators:

William Hamilton (USA), Bryan D. Springer (USA)

#### Predicting the outcome and patient selection in hip arthroplasty

Luigi Zagra (Italy)

#### Restoration of hip architecture with THA:

#### Does it influence outcomes?

Andreas Halder (Germany)

#### How I plan a primary THA?

James Browne (USA)

#### Does the surgical approach really matter?

#### What do we really know?

Tarik Ait Si Selmi (France)

#### 3D planning in THA: What are we missing with traditionnal 2D planning?

Elhadi Sariali (France)

#### Achieving hip stability in primary THA

Charles L. Nelson (USA)

#### Biomechanics of double mobility cups

Sebastien Lustig (France)

#### Spino-pelvic algorithm

Jonathan Vigdorichik (USA)

Selected abstracts (*go to page 24*)

Discussion

#### WORDS OF WISDOM Consensus statement

Moderator: Michel Bonnin (France)



EXHIBITION AREA • 10:00-10:30h Coffee break



## SCIENTIFIC PROGRAM • THURSDAY, APRIL 18th

### AUDITORIUM

#### AUDITORIUM • 10:30-12:30h • TKA+THA HIP AND KNEE: OPTIMIZING THE PROCESS

Moderators:

Michael Meneghini (USA)

Anders Troelsen (Denmark)

#### Primary arthroplasty in the obese

Henry Clarke (USA)

#### Patients risk factors in primary arthroplasty:

#### What should we screen for and treat before arthroplasty?

Bryan D. Springer (USA)

#### How I do:

#### pain management for the Outpatient

William Hamilton (USA)

#### Safety concerns?

Jan Victor (Belgium)

#### Is there a limit to efficiency?

Ashok Rajgopal (India)

#### Outpatient?

Craig De la Valle (USA)

#### Patients viewpoint?

Friedrich Boettner (USA)

#### Modern anticoagulation protocols in 2024

Stefano Rossi (Italy)

#### Is self-rehabilitation enough after arthroplasty?

Raymond H. Kim (USA)

Selected abstracts (*go to page 22*)

#### Discussion

#### WORDS OF WISDOM Consensus statement

Moderator: Charles L. Nelson (USA)

### ROOM BRISTOL-OXFORD

#### ROOM BRISTOL-OXFORD • 10:30-12:30h TKA+THA SHORT PRESENTATIONS SESSION I

Moderators:

Thomas Heyse (Germany)

Stefano Petrillo (Italy)

Selected Abstracts (*go to page 24*)

EXHIBITION AREA • 12:30-13:15h Lunch buffet among exhibits

EXHIBITION AREA • 13:15-14:30h Industry sessions - dessert and coffee (page 65)



## SCIENTIFIC PROGRAM • THURSDAY, APRIL 18th

### AUDITORIUM

#### AUDITORIUM • 14:30-16:30h • TKA CAN WE RESTORE NORMAL BIOMECHANICS WITH KNEE ARTHROPLASTY?

Moderators:

Paolo Adravanti (Italy)

Francesco Benazzo (Italy)

#### Understand the Knee Biomechanics?

What are the basic that every knee arthroplasty surgeons should know?

Jan Victor (Belgium)

Unicompartmental knee surgeons understand biomechanics better?

Vicente Leon Muñoz (Spain)

Is it time to rediscover CR TKA?

Fabio Catani (Italy)

Medial-pivot TKA:

is it really a step toward normal kinematics?

Andrew Price (UK)

Dual-pivot TKA:

how is it different? Better?

Michael Meneghini (USA)

The third compartment: when is it overstuffed and when unstable?

David Barrett (UK)

The WAC Fixation debate:

Cemented TKA: Still the gold standard

Henry Clarke (USA)

Cementless TKA is the way to go

Michael Bolognesi (USA)

Selected abstracts (*go to page 23*)

Discussion

WORDS OF WISDOM Consensus statement

Moderator: Ashok Rajgopal (India)

### ROOM BRISTOL-OXFORD

#### ROOM BRISTOL-OXFORD • 14:30-16:30h • THA WHICH IMPLANT FOR WHICH PATIENT?

Moderators:

Raymond H. Kim (USA)

Fares Haddad (UK)

Cemented vs uncemented:  
what the registries say?

Ola Rolfson (Sweden)

Design concepts in uncemented stems

William Hamilton (USA)

Short vs conventional stems

Jonathan Vigdorichik (USA)

Bearing and head diameter:

What registries say?

Anders Troelsen (Denmark)

Practical consideration to choose your liner

Luigi Zagra (Italy)

Place of Hip Resurfacing in 2024

Fares Haddad (UK)

New perspective in hip resurfacing

Justin Cobb (UK)

Which implant/approach in the young very active patient? (bearing, approach)

Rafael Sierra (USA)

Which implant/approach in the elderly?

Elizabeth B. Gausden (USA)

Selected abstracts (*go to page 26*)

Discussion

WORDS OF WISDOM Consensus statement

Moderator: Bryan D. Springer (USA)



## SCIENTIFIC PROGRAM • THURSDAY, APRIL 18th

### AUDITORIUM

#### AUDITORIUM • 17:00-18:30h • TKA+THA HIP AND KNEE SESSION: THE DARK SIDE OF ARTHROPLASTY

Moderators:

Craig De La Valle (USA),  
Elifterios Tsiridis (Greece)

**How to identify the patient at risk for chronic  
pain before arthroplasty?**

Francesco Benazzo (Italy)

**How to manage nocturnal pain and sleep  
disturbance after knee arthroplasty**

Emmanuel Thienpont (Belgium)

**Infection: Our Unsolved Problem in Joint  
Replacement**

Dan J. Berry (USA)

**Do we still have a problem to diagnose infection  
in 2024?**

Michael Meneghini (USA)

**Treating infection : what did we learn during  
the last five years?**

Bryan D. Springer (USA)

**Future perspectives to limit complications in  
arthroplasty?**

Gijs Van Hallemond (The Netherlands)

**Discussion**

**WORDS OF WISDOM Consensus statement**

Moderator: Henry Clarke (USA)

### ROOM BRISTOL-OXFORD

#### ROOM BRISTOL-OXFORD • 17:00-18:30h TKA+THA SHORT PRESENTATIONS SESSION II

Moderators:

Cécile Batailler (France)  
Michael Hirschmann (Switzerland)

**Selected Abstracts** (*go to page 26*)

**EXHIBITION AREA • 18:30-19:30h Cocktail among exhibits: Meet the Expert**

**SCIENTIFIC PROGRAM**  
**FRIDAY, APRIL 19th**

**4<sup>TH</sup> WORLD  
ARTHROPLASTY  
CONGRESS**  
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## SCIENTIFIC PROGRAM • FRIDAY, APRIL 19th

Breakfast with the Masters • 07:00-08:00h

### AUDITORIUM

**AUDITORIUM • 08:00-10:00h • TKA**  
**THE BIG WAC 2024 ALIGNMENT DEBATE**

Moderators:

Sébastien Parratte (UAE), Henry Clarke (USA)

**Why alignment is important?**

**history of concepts**

Mark Pagnano (USA)

**I go mechanic**

Andreas Halder (Germany)

**I go kinematic**

Andrew Price (UK)

**I go restricted**

Michael Hirschman (Switzerland)

**I prefer inverse kinematic**

Philip Winnock de Graeve (Belgium)

**I go functional**

Sebastien Lustig (France)

**I go custom**

Michel Bonnin (France)

**Vote by the audience**

**Selected abstracts** (*go to page 28*)

**Discussion**

**WORDS OF WISDOM Consensus statement**

Moderator: Jan Victor (Belgium)

### ROOM BRISTOL-OXFORD

**ROOM BRISTOL-OXFORD • 08:00-09:00h • THA**  
**THE COMPLEX PRIMARY THA**

Moderators:

Dan J. Berry (USA), Jean-Noel Argenson (France)

**The dysplastic hip**

Rafael Sierra (USA)

**THA after fracture**

Charles L. Nelson (USA)

**THA in case of global laxity**

Hannes Rüdiger (Switzerland)

**Case based discussion**

Dan J. Berry (USA)

**ROOM BRISTOL-OXFORD • 09:00-10:00h • THA**  
**WHY THA FAILS IN 2024?**

Moderators:

James Browne (USA), Jeremy Gilliland (USA)

**Causes of THA failures in registers/literature**

Theofilos Karachalios (Greece)

**Which investigations in painful THA?**

(XR, CT-scan, MRI, Bone-scan, Spect-CT)

(focus on etiology/diagnostic)

Eduardo García-Rey (Spain)

**Diagnostic of a painful THA**

(focus on etiology/diagnostic)

Michael Bolognesi (USA)

**Groin pain after THA: which strategy?**

Ola Rolfson (Sweden)

**The instable THA: how to deal with**

Robert Hube (Germany)

**Case based discussion**

William Hamilton (USA)





## SCIENTIFIC PROGRAM • FRIDAY, APRIL 19th

### AUDITORIUM

#### AUDITORIUM • 10:30-12:30h • TKA+THA HIP AND KNEE: ASSISTIVE TECHNOLOGY

Moderators:

Elizabeth B. Gausden (USA),  
Sebastien Lustig (France)

**Do we really need assistive tools and can we make them cost-effective?**

Elefterios Tsiridis (Greece)

**Robotics: just a marketing tool?**

Fares Haddad (UK)

**AR: the new assistive tool?**

Michael Meneghini (USA)

**Tele-health for patients follow-up: gimmick or real game-changer?**

Friedrich Boettner (USA)

**Understanding Data in Arthroplasty in 2024**

James Brown (USA)

**The Revolution in Digital Instrumentation is Coming to Arthroplasty:**

**When Do You Get on the Bandwagon?**

Dan J. Berry (USA)

**Selected abstracts** (*go to page 28*)

**Discussion**

**WORDS OF WISDOM Consensus statement**

Moderator: Jean-Noel Argenson (France)

### ROOM BRISTOL-OXFORD

#### ROOM BRISTOL-OXFORD • 10:30-12:30h TKA+THA SHORT PRESENTATIONS SESSION III

Moderators:

Nick London (UK),  
Stefano Marco Polo Rossi (Italy)

**Selected Abstracts** (*go to page 30*)

**EXHIBITION AREA • 12:30-13:15h Lunch buffet among exhibits**

**EXHIBITION AREA • 13:15-14:30h Industry sessions - dessert and coffee (page 65)**



## SCIENTIFIC PROGRAM • FRIDAY, APRIL 19th

### AUDITORIUM

**AUDITORIUM • 14:30-15:30h • TKA**  
**WHEN THINGS GET COMPLICATED**  
**(Technique + Videos)**

Moderators:

Emmanuel Thienpont (Belgium),  
Mark Pagnano (USA)

**How I revise a UKA**

Thomas Heyse (Germany)

**How I revise aseptic loosening in TKA**

Sébastien Parratte (UAE)

**How I revise instability in TKA**

Andrea Baldini (Italy)

**How I revise the infected TKA**

Ashok Rajgopal (India)

**How I fix fractures in TKA**

Stefano Rossi (Italy)

**How I fix extensor mechanism problems in TKA**

Scott Sporer (USA)

**Discussion**

### ROOM BRISTOL-OXFORD

**ROOM BRISTOL-OXFORD • 14:30-15:30h • THA**  
**WHEN THINGS GET COMPLICATED**  
**(Technique + Videos)**

Moderator:

Robert Hube (Germany), Rafael Sierra (USA)

**Intraoperative femoral fractures**  
**(shaft, greater troch, calcar)**

Charles L. Nelson (USA)

**What if you ream too much?**

**Medial wall defects**

Eduardo García-Rey (Spain)

**What if the off the shell solution for**  
**acetabulum are not sufficient?**

Francesco Bennazzo (Italy)

**What if you are unable to get**  
**proper primary stability?**

Luigi Zagra (Italy)

**Can we revise a THA done through DAA**  
**via an anterior approach?**

Jeremy Gilliland (USA)

**How I do an ETO?**

Hannes Rüdiger (Switzerland)

**Discussion**



**EXHIBITION AREA • 15:30-16:00h Coffee break**



## SCIENTIFIC PROGRAM • FRIDAY, APRIL 19th

### AUDITORIUM

#### AUDITORIUM • 16:00-18:00h • TKA STRATEGY IN REVISION

Moderators:

Andrea Baldini (Italy),m  
Charles L. Nelson (USA)

#### What is an 'unstable' TKA? Algorithm

Mark Pagnano (USA)

#### Strategy in revision for instability. Algorithm

Ashok Rajgopal (India)

#### What is a loose TKA

Michael Hirschmann (Switzerland)

#### Strategy in revision for aseptic loosening (Zonal fixation)

Fares Haddad (UK)

#### What is a stiff TKA?

Jeremy Gililand (USA)

#### Strategy in revision for the Stiff TKA

Charles L. Nelson (USA)

#### Revision for unexplained pain after knee arthroplasty

Emmanuel Thienpont (Belgium)

#### Re-revision TKA in 2024

Gijs Van Hellemond (The Netherlands)

Selected abstracts (*go to page 29*)

Discussion

#### WORDS OF WISDOM Consensus statement

Moderator: Francesco Bennazzo (Italy)

#### AUDITORIUM • 18:00-18:30h

Farewell Adjourn

Thank you speeches by the 3 Presidents

### ROOM BRISTOL-OXFORD

#### ROOM BRISTOL-OXFORD • 16:00-16:25h • THA TECHNIQUES IN ACETABULAR REVISION

Moderators:

Fabio Catani (Italy),  
Michel Bonnin (France)

#### Reconstruction with cage + allograft

Andreas Halder (Germany)

#### Reconstruction with porous-material cups

James Browne (USA)

#### Place of custom implants

Bryan D. Springer (USA)

#### ROOM BRISTOL-OXFORD • 16:25-18:00h • THA TECHNIQUES IN STEM REVISION

Moderators:

Jonathan Vigdorich (USA),  
William Hamilton (USA)

#### Extraction of well fixed uncemented stem

Michael Bolognesi (USA)

#### Extraction of the cement

Fabio Catani (Italy)

#### Classification of bone defects

Scott M. Sporer (USA)

#### Revision with monobloc stems

(proximal to distal)

Michel Bonnin (France)

#### Revision with modular implants

(distal to proximal)

Robert Hube (Germany)

#### Impaction grafting?

Eduardo García-Rey (Spain)

#### Revision with cemented stems?

José Cordero (Spain)

#### Periprosthetic femoral fractures

(B1, B2, B3 Vancouver)

Elizabeth B. Gausden (USA)

Discussion

#### WORDS OF WISDOM Consensus statement

Moderator: Micheael Bolognesi (USA)

# SELECTED ABSTRACTS

**4<sup>TH</sup> WORLD  
ARTHROPLASTY  
CONGRESS**  
Madrid • Spain  
18-19 April, 2024



## SELECTED ABSTRACTS • THURSDAY, APRIL 18th

### AUDITORIUM

#### THE QUEST TO THE FORGOTTEN KNEE

08:56 - 09:01

**208 Investigating risk factors for valgus subsidence in uncemented medial unicompartmental knee arthroplasty**  
(Alexander Gallant, Belgium)

09:02 - 09:07

**96 Radiological joint line changes are well tolerated in fixed and mobile bearing partial knee arthroplasties with comparable clinical results**  
(Çetin Isik, Turkey)

09:08 - 09:13

**195 Combined unicompartmental knee arthroplasty and anterior cruciate ligament reconstruction in patients with medial osteoarthritis and anterior cruciate ligament deficiency**  
(Stefano Petrillo, Italy)

09:14 - 09:19

**113 An analysis of national real-world data on reoperated medial unicompartmental knee arthroplasties**  
(Christian Bredgaard Jensen, Denmark)

09:20 - 09:25

**152 Broad selection criteria do not compromise the excellent outcomes and low revision rates associated with fixed-bearing partial knee arthroplasty**  
(Emily London, UK)

#### HIP AND KNEE: OPTIMIZING THE PROCESS

11:33 - 11:39

**65 Ecological burden of modern surgery: an analysis of total knee replacement's life cycle**  
(Christophe Jacquet, France)

11:40 - 11:46

**112 Half of all hip and knee arthroplasty patients may be potential day-case candidates: a nationwide register study of 166,730 procedures**  
(Christian Bredgaard Jensen, Denmark)

11:47 - 11:54

**52 Does intraoperative knee joint profound hypothermia reduce postoperative inflammation and enhances postoperative recovery after total knee arthroplasty?**  
(Andrea Baldini, Italy)

11:55 - 12:02

**344 Non-selective enhanced recovery after total hip and knee arthroplasty: experience of 1364 consecutive cases in a high-volume tertiary centre**  
(Deepak Menon, United Kingdom)

12:03 - 12:09

**180 Total hip arthroplasty in obese class 2 and 3 patients is a safe and feasible procedure**  
(Domenico Potestio, Italy)



## SELECTED ABSTRACTS • THURSDAY, APRIL 18th

### AUDITORIUM

#### CAN WE RESTORE NORMAL BIOMECHANICS WITH KNEE ARTHROPLASTY?

15:33 - 15:38

**17 The fate of unresurfaced patellae in contemporary total knee arthroplasty: early to mid-term results**

(R. Michael Meneghini, USA)

15:39 - 15:44

**209 Dynamic measurement of patellofemoral forces in the native and replaced knee-significant non physiological pressures revealed**

(Angela Brivio, UK)

15:45 - 15:50

**323 Reproducing the physiological asymmetric flexion gap in tka does not compromise clinical outcome compared to traditional symmetric gaps**

(Joaquin Moya-Angeler, Spain)

15:51 - 15:56

**57 Short term follow up of a novel 3d printed cementless TKA**

(Andrea Baldini, Italy)

15:57 - 16:02

**321 Tibial insert design significantly alters knee kinematics using a single cruciate retaining total knee implant**

(Martin Faschingbauer, Germany)

#### THE DARK SIDE OF ARTHROPLASTY

17:43 - 17:49

**102 Timing of preoperative intra-articular steroid injections and joint infection in hip arthroplasty: a single center series of 5,909 hip arthroplasties**

(Ante Prkic, The Netherlands)

17:50 - 17:56

**13 In search of the ideal combination of antiseptics for chemical debridement in periprosthetic joint infection surgery: an in vitro study**

(Miguel Márquez Gómez, Spain)

17:57 - 18:04

**130 Intraosseous vancomycin decreases the risk of periprosthetic joint infection after aseptic revision total knee arthroplasty**

(Mark Spangehl, USA)



## SELECTED ABSTRACTS • THURSDAY, APRIL 18th

### ROOM BRISTOL-OXFORD

#### PLANNING AND BIOMECHANICS

08:56 - 09:02

**251 Better planning and less dual mobility leads to decreased instability in high-risk (hip-spine 2b) patients (Jonathan Vigdorichik, USA)**

09:03 - 09:09 346

**Two-dimensional versus three-dimensional pre-operative planning in tha: results from a randomized controlled trial (Adam T Yassen, UK)**

09:10 - 09:16

**176 Physical activity following total hip arthroplasty. a randomized controlled trial comparing direct anterior versus posterolateral approach (Stijn Bolink, The Netherlands)**

09:17 - 09:23

**193 Spinal stiffness increases pelvic mobility – uncoupling native mechanics and explaining increased dislocation risk in patients with spinal stiffness (Jeroen Verhaegen, Belgium)**

09:24 - 09:30

**141 Monobloc dual mobility cup versus single mobility cup: a comparative study about 1,940 consecutive primary arthroplasties (Sebastien Lustig, France)**

#### TKA+THA SHORT PRESENTATIONS SESSION I

10:30 - 10:35

**234 Multimodal intraoperative neuromonitoring for safer leg lengthening during total hip arthroplasty in severe developmental dysplasia of the hip (Vincent Busch, The Netherlands)**

10:35 - 10:40

**88 Total hip arthroplasty without subtrochanteric femoral shortening osteotomy in patients with crowe 3 and 4 hip dysplasia (Çetin Isik, Turkey)**

10:40 - 10:45

**320 The knee-hip-spine trilemma in patients with severe congenital dysplasia of the hip undergoing total hip arthroplasty (Eduardo García-Rey, Spain)**

10:50 - 10:55

**402 High survival rate and satisfying functional outcomes of cemented dual mobility cups in revision total hip arthroplasty at mid-term (Cecile Batailler, France)**

10:55 - 11:00

**23 Serum metal ions in total hip arthroplasty with modular dual mobility cups: an observational prospective study (Ana Cruz Pardos, Spain)**

11:00 - 11:05

**149 Excellent 10-year survival rate and functional outcomes of monoblock dual mobility cup in primary tha: a cohort of 572 patients (Cecile Batailler, France)**

11:10 - 11:15

**190 Is the hip-spine association with tha outcome approach-dependent? – a prospective, multicenter study (Jeroen Verhaegen, Belgium)**





## SELECTED ABSTRACTS • THURSDAY, APRIL 18th

### ROOM BRISTOL-OXFORD

11:15 - 11:20

**100 Impact of prior spinal fusion surgery on complications and functional outcomes following total hip arthroplasty: a meta-analysis**

(Francisco Soler, Spain)

11:20 - 11:25

**191 Achieving cup target as per spinopelvic assessment is associated with improved the outcome - a prospective, multi-center study**

(Jeroen Verhaegen, Belgium)

11:25 - 11:30

**192 Can we identify patients with abnormal pelvic tilt using anteroposterior pelvic radiographs?**

(Jeroen Verhaegen, Belgium)

11:35 - 11:40

**357 Evolution and characteristics of nocturnal knee pain after knee arthroplasty: a prospective monocentric study**

(Gerald Delfosse, Belgium)

11:40 - 11:45

**312 Can we do simultaneous bilateral tka for patient with a bmi >40? a retrospective comparative study**

(Alexandre Le Guen, UAE)

11:45 - 11:50

**51 The early trajectories of patient reported outcomes are better for medial unicompartmental knee arthroplasty compared with total knee arthroplasty**

(Anne Louise Elkjær Christensen, Denmark)

11:55 - 12:00

**133 Impact and outcomes of image-based robotic-assisted total knee arthroplasty with functional positioning principles on the anterior compartment restoration**

(Sebastien Lustig, France)

12:00 - 12:05

**135 Achieving better clinical outcomes after total knee arthroplasty in valgus knee deformity: the role of alignment strategies**

(Cecile Batailler, France)

12:05 - 12:10

**44 Comparison of the thermal bone damage done by the oscillating saw and bone mill burr during total knee arthroplasty**

(Sanjay Bhalchandra Londhe, India)

12:15 - 12:20

**128 Management of preoperative extension deficit in the robotic-assisted tka with kinematic alignment**

(Joaquin Moya-Angeler, Spain)

12:20 - 12:25

**169 Measuring the change in fixed flexion deformity following robotic-arm assisted unicompartmental knee arthroplasty**

(Warran Wignadasan, UK)

12:25 - 12:30

**175 Augmented reality-assisted personalized alignment in total knee arthroplasty: a cpak classification-based approach**

(Philippe Peter Van Overschelde, Belgium)



## SELECTED ABSTRACTS • THURSDAY, APRIL 18th

### ROOM BRISTOL-OXFORD

#### WHICH IMPLANT FOR WHICH PATIENT?

15:33 - 15:39

**138 Collared stems are a protective factor against early periprosthetic fractures in THA. Multivariate analysis in a cohort of 1,623 patients**  
(Sebastien Lustig, France)

15:47 - 15:54

**39 Excellent results of large-diameter ceramic-on-ceramic bearing in total hip arthroplasty at minimum ten-year follow-up**  
(Gautier Beckers, Canada)

15:55 - 16:02

**228 Low wear with vitamin-e infused hxlpe after 14 years – a randomized rsa study with 36mm and 32mm ceramic heads**  
(Stephan Maximilian Röhrli, Norway)

16:03 - 16:09

**224 A retrospective analysis of metal-on-metal hip arthroplasties within the largest italian register data: what we should consider during follow-up?**  
(Corrado Ciatti, Italy)

#### TKA+THA SHORT PRESENTATIONS SESSION II

17:00 - 17:05

**71 Blood flow restriction therapy improves quality of life and functionality in dissatisfied knee arthroplasty patients: a prospective cohort study**  
(Lenka Stroobant, Belgium)

17:05 - 17:10

**25 Ideal timing of reimplantation in patients with periprosthetic knee infections undergoing two-stage exchange: a diagnostic scoring system**  
(Giovanni Balato, Italy)

17:10 - 17:15

**289 International delphi consensus on wound closure and dressing management in total knee and total hip arthroplasty**  
(Pablo Sanz Ruiz, Spain)

17:20 - 17:25

**27 Blood loss and transfusion rate in patients undergoing two-stage exchange in infected tka using bipolar sealer. A propensity score-matched study**  
(Enrico Festa, Italy)

17:25 - 17:30

**26 Knee function and quality of life with an articulating spacer. can we identify an ideal candidate for the 1.5-stage?**  
(Giovanni Balato, Italy)

17:30 - 17:35

**229 Clinical outcomes following primary total hip replacement: do we need to wait for severe radiographic osteoarthritis?**  
(Elizabeth B. Gausden, USA)

17:40 - 17:45

**119 No radiographic evidence of tibial component loosening two years after bone grafting the tibial plateau in ka tka**  
Alexander Johannes Nedopil, USA)



## SELECTED ABSTRACTS • THURSDAY, APRIL 18th

### ROOM BRISTOL-OXFORD

17:45 - 17:50

**55 Robotic assisted tka achieves desired alignment but not better outcomes**  
(Ashok Rajgopal, India)

17:50 - 17:55

**81 Restoration of pre-arthritis joint line does not reproduce natural knee kinematics: a gait analysis evaluation following primary total knee arthroplasty**  
(Indelli Pier Francesco, Italy)

18:00 - 18:05

**143 One and two-stage revisions of total hip arthroplasties, based on strict guidelines, are effective strategies to treat complex chronic infections**  
(Jean Baltzer, France)

18:05 - 18:10

**271 Revisiting 90-day antibiotic prophylaxis after two-stage treatment for PJI**  
(R. Michael Meneghini, USA)

18:10 - 18:15

**19 Are culture-negative two-stage exchange arthroplasties associated with inferior treatment success?**  
(R. Michael Meneghini, USA)



## SELECTED ABSTRACTS • FRIDAY, APRIL 19th

### AUDITORIUM

#### THE BIG WAC 2024 ALIGNMENT DEBATE

08:49 - 08:54

**206 Three-dimensional-based natural alignment phenotype classification system: description for use in planning for deformities during total knee arthroplasty**  
(Robert Marchand, USA)

08:55 - 09:00

**241 Do different alignments require different implant designs? an in-silico biomechanical study**  
(Bernardo Innocenti, Belgium)

09:01 - 09:06

**247 Surgically relevant knee phenotypes (modified cpak): population-level analysis using deep learning measurements**  
(Jonathan Vigdorchik, USA)

09:07 - 09:12

**103 No mcl elongation in valgus osteoarthritic knees enables use of ka tka and attainment of high clinical outcome scores**  
(Alexander Johannes Nedopil, USA)

09:13 - 09:18

**73 Patient-individual tka combined with patient-individual coronal alignment requires less ligament releases than conventional TKA**  
(Carsten O. Tibesku, Germany)

09:19 - 09:24

**389 Widening of tibial resection boundaries increases the rate of femoral component valgus and internal rotation in functionally aligned TKA**  
(Britt Ollivier, Belgium)

#### HIP AND KNEE: ASSISTIVE TECHNOLOGY

11:12 - 11:17

**329 Tibial alignment and the paradox of imageless navigation and robotics: a cadaveric study**  
(Hannes Vermue, Belgium)

11:18 - 11:23

**131 Advancing precision in tka: introducing a validated classification for evaluating bone resection accuracy in image-based robotic-assisted surgery versus conventional techniques**  
(Cecile Batailler, France)

11:24 - 11:29

**122 Robotic-assisted total knee arthroplasty (tka) implemented with a tensor: differences between mechanical and functional alignment**  
(Federica Rosso, Italy)

11:30 - 11:35

**173 What is the optimal joint laxity in robotic-assisted medial unicompartmental knee replacement?**  
(Filippo Leggieri, Italy)

11:36 - 11:41

**95 Accuracy and learning curve of augmented reality-based portable navigation system in total hip arthroplasty using anterolateral supine approach**  
(Takaaki Fujishiro, Japan)

11:42 - 11:47

**345 A prospective randomized controlled trial comparing computerised tomography-based planning with conventional total hip arthroplasty versus robotic-arm assisted total hip arthroplasty**  
(Andreas Fontalis, UK)



## SELECTED ABSTRACTS • FRIDAY, APRIL 19th

### AUDITORIUM

11:48 - 11:53

**249 Prediction of pelvic tilt on anteroposterior pelvic radiographs: a deep learning-enabled analysis**

(Jonathan M Vigdorich, USA)

11:54 - 11:59

**188 Robotic surgery with functional evaluation 3d software for total hip replacement mitigates spinopelvic mobility effect on impingement**

(Andrea Marcovigi, Italy)

### STRATEGY IN REVISION

16:56 - 17:01

**107 Revision unicompartmental knee arthroplasty to total knee arthroplasty. is it as good as primary total knee arthroplasty?**

(Nils Meissner, Germany)

17:02 - 17:07

**369 Clinical and radiological criteria for the diagnosis of loosening in knee arthroplasty: an international delphi consensus study**

(George Samuel Buijs, The Netherlands)

17:08 - 17:13

**403 Extensor mechanism allografts after total knee arthroplasty: a challenging procedure with high risk of complications**

(Sébastien Lustig, France)

17:14 - 17:19

**277 What are the potential implant cost savings of regional revision knee replacement networks?**

(Alex Matthews, UK)

17:20 - 17:25

**151 Association between postoperative fixation and later aseptic loosening in revision total knee arthroplasty with hybrid fixated tibial components**

(Simon Van Laarhoven, The Netherlands)



## SELECTED ABSTRACTS • FRIDAY, APRIL 19th

### ROOM BRISTOL-OXFORD

#### TKA+THA SHORT PRESENTATIONS SESSION III

10:30 - 10:35

**67 Retrospective analysis of 149 peri thea vancouver b2 fractures treated by unipolar or bipolar revision surgery**  
(Christophe Jacquet, France)

10:35 - 10:40

**54 C. difficile infection prior to total knee arthroplasty independently increases the risk of prosthetic joint infection**  
(Joshua S Bingham, USA)

10:40 - 10:45

**332 Results of 62 gender pfps at 6 years average follow-up**  
(Franck Remy, France)

10:50 - 10:55

**150 Influence of manufacturing characteristics of highly cross-linked polyethylenes on femoral head penetration in total hip replacement**  
(Eduardo Garcia-Rey, Spain)

10:55 - 11:00

**214 A prospective double-blinded randomised controlled trial comparing the direct superior approach versus posterior approach for total hip arthroplasty**  
(Mohammed Usman Khan Wazir, UK)

11:10 - 11:15

**101 The impact of allergies on patient-reported outcomes after total hip and knee arthroplasty: a systematic review and meta-analysis**  
(Francisco Soler, Spain)

11:15 - 11:20

**215 Robotic-arm assisted versus conventional manual total hip arthroplasty: accuracy of implant positioning and restoration of native hip biomechanics**  
(Mohammed Usman Khan Wazir, UK)

11:25 - 11:30

**279 Modular stem in revision hip arthroplasty: a three-step technique**  
(Francesco Pirato, Italy)

11:35 - 11:40

**111 The influence of arthroplasty center type on day-case surgery implementation and feasibility**  
(Christian Bredgaard Jensen, Denmark)

11:40 - 11:45

**197 Implementation of outpatient hip and knee arthroplasty in a multicenter public healthcare setting**  
(Oddrún Danielsen, Denmark)

11:45 - 11:50

**189 Is outpatient joint arthroplasty safe in high volume academic center? a retrospective monocentric study using an institutional pathway**  
(Gérald Delfosse, France)

11:55 - 12:00

**178 The role of soft tissue thickness in good looking painful tka: a retrospective analysis based on pre-operative ctscan evaluation**  
(Matteo Innocenti, Italy)



## SELECTED ABSTRACTS • FRIDAY, APRIL 19th

### ROOM BRISTOL-OXFORD

12:00 - 12:05

**11 Safety, feasibility, reliability and diagnostic accuracy of a non-invasive quantified and visualized assessment of knee arthroplasty loosening**

(George Samuel Buijs, The Netherlands)

12:05 - 12:10

**56 Managing massive distal femoral bone loss in revision tkas using tm cones**

(Ashok Rajgopal, India)

12:15 - 12:20

**85 Complications and outcomes associated with two-stage treatment of periprosthetic total hip infection**

(R. Michael Meneghini, USA)

12:20 - 12:25

**18 Durability of primary tha with cementless stems without a collar in elderly patients age 75 and over**

(R. Michael Meneghini, USA)

# POSTERS

**4<sup>TH</sup> WORLD  
ARTHROPLASTY  
CONGRESS**  
Madrid • Spain  
18-19 April, 2024





## POSTERS

**5 Loosening of femoral stems. Identifying the clinical and radiological aspects that influence the risk of presenting peri-prosthetic fracture.**

Jaime Flores Gallardo

Hospital General Universitario Gregorio Marañón, Madrid, Spain

**6 Management of large femoral bone defects. The crucial role of the total femur.**

Jaime Flores Gallardo

Hospital General Universitario Gregorio Marañón, Madrid, Spain

**12 Uncertain value of additional imaging in the pathway of diagnosing loosening of total knee arthroplasty.**

George Samuel Buijs, Anne Kooijenga, Matthias Schafroth, Arthur Johan Kievit, Leendert Blankevoort  
Amsterdam UMC, Amsterdam, The Netherlands

**14 Outcomes of dual mobility bearings in revision total hip replacements: a case series.**

Christopher White (1), Waleed Abdalla (2), Prashant Awasthi (2), Farhad Iranpour (2), Padmanabhan Subramanian (2)

1. Imperial College Healthcare NHS Trust, London, United Kingdom

2. Royal Free London NHS Foundation Trust, London, United Kingdom

**15 Efficacy of pericapsular nerve group block (peng) in day-case total hip arthroplasty.**

Christopher White (1), Waleed Abdalla (2), Maseh Yakubi (2), Sagar Tiwitane (2), Paddy Subramanian (2)

1. Imperial College Healthcare NHS Trust, London, United Kingdom

2. Royal Free London NHS Foundation Trust, London, United Kingdom

**16 Mid-term survivorship and proms of 1,306 conforming dual pivot bearings in modern primary TKA.**

Sohum K. Patel (1), Leonard T. Buller (1), Evan R. Deckard (2), R. Michael Meneghini (1,2)

1. Indiana University School of Medicine, Indianapolis, United States

2. Indiana Joint Replacement Institute, Indianapolis, United States

**20 Efficacy of novel regional anesthetic techniques in day-case arthroplasty.**

Christopher White (1), Maseh Yakubi (2), Waleed Abdalla (2), Sagar Tiwantane (2), Paddy Subramanian (2)

1. Imperial College Healthcare NHS Trust, London, United Kingdom

2. Royal Free London NHS Trust, London, United Kingdom

**21 A comparative study of the trend of inflammatory markers following robotic unilateral and bilateral total knee replacement**

Amit Kumar Yadav (1), Vaibhav Bagaria (2), Anjali Tiwari (2)

1. Wrightington Hospital, Wigan, United Kingdom

2. Sir H.N Reliance Hospital, Mumbai, India

**22 Impaction bone grafting combined with lateral trabecular augments in acetabular revision surgery: a case-control study.**

Ana Cruz-Pardos, Eduardo Garcia-Rey

Hospital La Paz, Madrid, Spain



## POSTERS

### **30 Comparison of two different cementless constrained acetabular component in the treatment of hip fracture of geriatric patients with cognitive/neuromuscular disorders.**

Adnan Kantarci (1), Gökay Eken (2), Teoman Atici (1), Cenk Ermutlu (1)

1. Bursa Uludag University, Bursa, Turkey
2. Bursa Uludag University, Bursa, Türkiye

### **31 Comparing different cementing techniques of patellar component fixation in total knee arthroplasty: a biomechanical study.**

Alper Emre Dikici, Gökay Eken, Teoman Atici

1. Bursa Uludag University, Bursa, Turkey

### **32 Challenges and outcomes of unicompartmental knee arthroplasty in a hospital with a high prevalence of relatively smaller knee (Indian scenario).**

Abhishek Vadiraj Shetty (1), Mohammed Musheer Hussain (2), Mithun Shetty (3), Deepak K. Rai (4), Imthiaz Ahammed (4)

1. Yenepoya Medical College Hospital, Mangalore, India
2. Salford Royal Hospital, Manchester, United Kingdom
3. Manipal Hospital, Bangalore, India
4. Yenepoya Hospital, Mangalore, India

### **33 Effectiveness of a specialized rehabilitation protocol for unicompartmental knee arthroplasty: a retrospective study.**

Abhishek Vadiraj Shetty (1), Mohammed Musheer Hussain (2), Mithun Shetty (3), Deepak K. Rai (4), Imthiaz Ahammed (4)

1. Yenepoya Medical College, Mangalore, India
2. Salford Hospital, Manchester, United Kingdom
3. Manipal Hospital, Bangalore, India
4. Yenepoya Hospital, Mangalore, India

### **34 Intraoperative determination of proper acetabular cup size in primary total hip arthroplasty.**

Panagiotis K. Karampinas, Evangelos Sakellariou, Jordan Varsamos, John Vlamis, Spyros Pneumaticos  
General Hospital of Athens KAT, 3rd Orthopaedic Department University of Athens, Athens, Greece

### **35 Total knee arthroplasty in a patient with neurofibromatosis 1.**

Santiago L. Sanchez, Thomas W. Hodo, William F. Sherman, Edmund E. Anudu, Fernando L. Sanchez  
Tulane University Medical School, New Orleans, United States

### **37 Our experience with augmented reality navigation system in primary total knee arthroplasty.**

Evangelos sakellariou (1), Panagiotis K Karampinas (1), John vlamis (1), Michael Vavourakis (1), Stauros Alevrogiannis (2)

1. General Hospital of Athens KAT, 3rd Orthopaedic Department University of Athens, Athens, Greece
2. General Hospital Metropolitan Orthopaedic Department, Athens, Greece

### **40 Clinical outcomes of total knee arthroplasty in patients with hemophilic arthropathy – a prospective study.**

Gautier Beckers (1), Vincent Massé (1), Marc Isler (1), Pascal-André Vendittoli (2), Mina Morcos (1)

1. Hopital Maisonneuve Rosemont, Montreal, Canada
2. Clinique Orthopédique Duval, Laval, Canada



## POSTERS

### **41 Results of revision with long stems in periprosthetic hip fractures.**

Saadedine Hichem Amouri, Faouzi Djidi, Abdelhamid Bendifallah, Mustapha Yakoubi  
EHS Benaknoun, Algiers, Algeria

### **42 Application of machine learning to predict post-operative hyponatremia after hip hemiarthroplasty.**

Sanjay Bhalchandra Londhe (1), Ravi Vinod Shah (2), Shubhankar S Londhe (3), Viraj D Pandit (4), Anay R Shah (5)

1. Holy Spirit Hospital, Mumbai, India
2. Criticare Asia Hospital, Mumbai, India
3. Dr. Vishwanath Karad MIT World Peace University, Pune, India
4. Manipal Institute of Technology, Jaipur, India
5. D J Sanghvi College of Engineering, Mumbai, India

### **43 Incidence of soft tissue releases in first 100 robotic assisted total knee arthroplasty.**

Sanjay Bhalchandra Londhe (1), Ravi Vinod Shah (1), Clevio Desouza (1), Supreet Bajwa (2), Kunal Patel (1)

1. Criticare Asia Hospital, Andheri, Mumbai, India
2. Wokhardt Hospital, Mumbai Central, Mumbai, India

### **50 A novel prediction tool for fast-track knee arthroplasty: a prospective single centre experience**

Sameer Panchal (1), Aadil Sumer Momin (2), Vaibhav Bagaria (2)

1. Arrowe Park Hospital, Birkenhead/Merseyside, United Kingdom
2. Sir HN Reliance Hospital and Research Centre, Mumbai, India

### **53 Using 3D printed models simulation for total hip arthroplasty due to hip dysplasia**

Daniel Godoy-Monzon, Juan Jimenez, Esther Fernandez Sainz Rozas, Jose Manuel Pascual  
Hospitales Pascual, Cadiz, Spain

### **60 Personalized “blended” alignment in total knee arthroplasty with the use of mechanical instruments and angulated wedges.**

Leonardo Venzo, Giuseppe Polizzotti, Paolo Salari, Rosario Junior Saggiocco, Andrea Baldini  
Istituto Fiorentino di Cura e Assistenza (IFCA), Firenze, Italy

### **62 A new extramedullary guide for total knee replacement surgery.**

Corrado Ciatti, Pietro Maniscalco, Chiara Asti, Fabrizio Quattrini  
AUSL Piacenza, Piacenza, Italy

### **63 A novel technique of using the quadriceps tendon autograft to treat patellar tendon disruption following total knee replacement.**

Ashok Rajgopal

Institute of Musculoskeletal Disorders & Orthopaedics, Medanta - The Medicity, Gurugram, India

### **66 Third- generation dual-mobility cup hip arthroplasty in the treatment of displaced femoral neck fractures in the elderly.**

Aleksandar Iliev (1,2), Nikolay Cherkezov (1,3)

1. UMHAT St Anna Sofia, Sofia, Bulgaria
2. Medical University-Pleven, Pleven, Bulgaria
3. Medical University-Sofia, Sofia, Bulgaria



## POSTERS

**68 Deeper flexion and male gender predict ability to squat and/or kneel after knee replacement. A study amongst south-east Asian population.**

Ervin Sethi, Kelvin Guoping Tan  
Tan Tock Seng Hospital, Singapore, Singapore

**74 Psychological and clinical issues in octogenarians and nonagenarians patients addressing elective total hip arthroplasty.**

Andrea Camera, Riccardo Tedino, Gabriele Cattaneo, Andrea Capuzzo, Stefano Biggi  
Clinica Città di Alessandria, Alessandria, Italy

**75 Low complication rate using tibial tubercle osteotomy in difficult exposure during total knee arthroplasty. A monocentric long-term experience.**

Andrea Camera, Riccardo Tedino, Gabriele Cattaneo, Andrea Capuzzo, Stefano Biggi  
Clinica Città di Alessandria, Alessandria, Italy”

**76 Restoring global offset in total hip arthroplasty with a 3 offset option double-tapered stem. A monocentric mid-term follow-up experience.**

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Clinica Città di Alessandria, Alessandria, Italy

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### **361 What are the reasons of pain after total knee arthroplasty?**

Valeriy Murylev (1,2), Semion Alekseev (1), Grigorii Kukovenko (1,2)

1. S.P.Botkin City Clinical Hospital. Arthroplasty center, Moscow, Russia
2. I M Sechenov The First Moscow State Medical University, Moscow, Russia

### **362 25-year-old with grade 3 coxarthrosis? Diagnostic-therapeutic management of villonodular synovitis.**

Alejandro Corredor Belmar, Celia Martínez García, Alejandro Castillo Sáez, Juan Andrés González García, Jose Pablo Puertas García-Sandoval

Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain

### **363 Early surgical intervention for advanced stage c perthes disease in a 14-year-old patient: a case report and treatment outcome.**

Alejandro Corredor Belmar, Celia Martínez García, Ana Belén Pagán Núñez, Eduardo Gómez Gil, César Salcedo Cánovas

Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain

### **364 Sickle cell disease presenting as avascular necrosis of the hip in a 13-year-old patient: a case report and diagnostic challenges.**

Alejandro Corredor Belmar, Celia Martínez García, Carlos Ortuño Quílez, Jose Joaquín García Tornero, Alberto Aller García-Alarcón

Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain

### **365 Periprocedural clinical outcomes of revision total hip arthroplasty (RTHA): comparison of component nuances based on the nsqip.**

Halil Ibrahim Bulut (1,2), Daniel Tomey (3)

1. Cerrahpasa School of Medicine, Istanbul University-Cerrahpasa, Istanbul, Turkey
2. Gulhane Military Medical Academy, Ankara, Turkey
3. Houston Methodist, Institute for Technology, Innovation & Education, Houston, United States

### **366 Periprocedural clinical outcomes of revision total knee arthroplasty (RTKA): comparison of isolated versus full component based on nsqip.**

Halil Ibrahim Bulut (1,2), Daniel Tomey (3)

1. Cerrahpasa School of Medicine, Istanbul University-Cerrahpasa, Istanbul, Turkey
2. Gulhane military medical academy, Ankara, Turkey
3. Houston Methodist, Institute for Technology, Innovation & Education, Houston, United States



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### **367 Predictors and risk factors of pulmonary embolism after total knee arthroplasty: a nsqip study.**

Halil Ibrahim Bulut (1,2), Daniel Tomey (3)

1. Cerrahpasa School of Medicine, Istanbul University-Cerrahpasa, Istanbul, Turkey
2. Gulhane military medical academy, Ankara, Turkey
3. Houston Methodist, Institute for Technology, Innovation & Education, Houston, United States

### **368 Comprehensive investigation on frequencies and effects of present at time of surgery factors in total hip replacement (THA).**

Halil Ibrahim Bulut (1,2), Daniel Tomey (3)

1. Cerrahpasa School of Medicine, Istanbul University-Cerrahpasa, Istanbul, Turkey, Istanbul, Turkey
2. Gulhane military medical academy, Ankara, Turkey
3. Houston Methodist, Institute for Technology, Innovation & Education, Houston, United States

### **370 Complications after unicompartmental knee arthroplasty.**

Stanislav Karamitev (1), Stoian Ivanov (2), Vladimir Stavrev (1), Keti Tokmakova (1)

1. Department of Orthopedics and Traumatology, Faculty of Medicine, Medical University Plovdiv, Plovdiv, Bulgaria
2. Department of Orthopedics and Traumatology, Faculty of Medicine, Medical University Varna, Varna, Bulgaria

### **371 Method of filling existing defect of the tibial bone during total knee arthroplasty.**

Stanislav Karamitev (1), Vladimir Stavrev (1), Keti Tokmakova (1), Petar Molchovski (1), Stoian Ivanov (2)

1. Department of Orthopedics and Traumatology, Faculty of Medicine, Medical University Plovdiv, Plovdiv, Bulgaria
2. Department of Orthopedics and Traumatology, Faculty of Medicine, Medical University Varna, Varna, Bulgaria

### **372 Predictors and risk factors of sepsis after revision total hip arthroplasty (RTHA).**

Halil Ibrahim Bulut (1,2), Daniel Tomey (3)

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### **373 Consensus on the definition of intra-operatively testing of knee arthroplasty loosening: an international Delphi consensus study.**

George Samuel Buijs (1), Matthias Ulrich Schafroth (1), Arthur Johan Kievit (1), Michael T. Hirschmann (2), Leendert Blankevoort (1)

1. Amsterdam UMC, Amsterdam, The Netherlands
2. Kantonsspital Baselland, Basel, Switzerland

### **374 Predictors and risk factors of unplanned reoperation after revision total hip arthroplasty: a nsqip study.**

Halil Ibrahim Bulut (1,2), Daniel Tomey (3)

1. Cerrahpasa School of Medicine, Istanbul University-Cerrahpasa, Istanbul, Türkiye
2. Gülhane Military Medical Academy, Ankara, Türkiye
3. Houston Methodist, Institute for Technology, Innovation & Education, Houston, United States



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### **375 Predictors and risk factors of pulmonary embolism after total hip arthroplasty: a nsqip study.**

Halil Ibrahim Bulut (1,2), Daniel Tomey (3)

1. Cerrahpasa School of Medicine, Istanbul University-Cerrahpasa, Istanbul, Turkey

2. Gulhane Military Medical Academy, Ankara, Turkey

3. Houston Methodist, Institute for Technology, Innovation & Education, Houston, United States

### **377 Three-compartment concept of TKA alignment - mismatch between joint lines in 83% of non-osteoarthritic and 88.8% of osteoarthritic knees.**

Silvian Hess (1), Sebastien Lustig (2), Heiko Graichen (3), George Mihai Avram (4), Michael T. Hirschmann (4)

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4. Department of Orthopaedic Surgery and Traumatology, Kantonsspital Baselland (Bruderholz, Liestal, Laufen), Basel, Switzerland

### **378 Tibia-first, gap-balanced patient-specific alignment restores bony phenotypes and joint line obliquity in varus and straight knees.**

Heiko Graichen (1), George Mihai Avram (2,3), Marco Strauch (1), Verena Kaufmann (1), Michael T. Hirschmann (2,3)

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3. DKF Research Unit, University of Basel, Basel, Switzerland

### **379 Anterior referencing versus posterior referencing in primary total knee arthroplasty: a meta-analysis of randomized controlled trials.**

Filippo Familiari (1,2), Francesco Napoleone (1), Ermes Giuzio (3), Roberto Simonetta (3), Giorgio Gasparini (1,2)

1. Department of Orthopaedic and Trauma Surgery, Magna Graecia University, Catanzaro, Italy

2. Research Center on Musculoskeletal Health, Magna Graecia University, Catanzaro, Italy

3. Division of Orthopaedic and Trauma Surgery, Villa del Sole Clinic, Catanzaro, Italy

### **380 Fracture of the femur on a bed treated with radiotherapy after resection of a synovial sarcoma, a clinical case report.**

Alejandro Corredor Belmar, Celia Martínez García, Eduardo Gómez Gil, Moisés Vallés Andreu, Carlos Ortuño Quílez

Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain

### **381 Intertrochanteric nail failure in a 94-year-old patient, a case report.**

Alejandro Corredor Belmar, Celia Martínez García, Jose Joaquín García Tornero, Alberto Aller García-Alarcón, Jose Pablo Puertas García-Sandoval

Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain

### **382 Otto has severe pain when walking. Case presentation of a 32-year-old man with “otto’s pelvis”.**

Alejandro Corredor Belmar, Celia Martínez García, Alejandro Castillo Sáez, Eduardo Gómez Gil, Luis José Clavel Rojo

60 Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain



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### **383 Customized 3D-printed porous titanium implants for revision hip arthroplasty in patients with acetabular defects.**

Stanislav Bondarenko (1), Vasyl Makarov (2), Olena Pryz (3), Svitlana Burburska (4)

1. Sytenko Institute of Spine and Joint Pathology of the National Academy of Medical Sciences of Ukraine, Kharkiv, Ukraine
2. Municipal City Clinical Hospital #16, Dnipro, Ukraine
3. Velta Medical LLC, Dnipro, Ukraine
4. Osteonica, Kyiv, Ukraine

### **384 Robotic assisted total knee arthroplasty is associated with thinner and less constrained polyethylene inserts.**

Goksel Dikmen (1,2), Vahit Emre Ozden (1,2), Kayahan Karatug (1,2), Alisagib Dzhavadov (3,2), Remzi Tozun (1,2)

1. Acibadem MAA University, Department of Orthopedics and Traumatology, Istanbul, Turkey
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3. FSBI R R Vreden National Medical Research Center of Traumatology and Orthopedics of the Ministry of Health of the Russian Federation, Saint Petersburg, Russia

### **385 Hemiarthroplasty dislocation after hip fracture treatment - a multimodal pre and intraoperative protocol to prevent the disaster.**

Dan Arvinte, Manoj Sood

Bedfordshire Hospitals NHS Foundation Trust, Bedford, United Kingdom

### **386 Dislocation after total hip replacement for intracapsular hip fracture - does the surgical approach matter? – a prospective comparative study.**

Dan Arvinte, Manoj Sood

Bedfordshire Hospitals NHS Foundation Trust, Bedford, United Kingdom

### **387 Revision total hip arthroplasty for recurrent dislocation - reasons for optimism?**

Dan Arvinte, Narada Ranasinghe, Manoj Sood

Bedfordshire Hospitals NHS Foundation Trust, Bedford, United Kingdom

### **388 Evaluation of anatomical factors related to trochanteric bursitis; a study of 3.0t magnetic resonance imaging.**

Vahit Emre Özden (1,2), Göksel Dikmen (1,2), Emre Tuzuner (3), Kayahan Karaytug (1,2), Remzi Tozun (2)

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2. International Joint Centre (IJC), Acibadem Maslak Hospital, Istanbul, Türkiye
3. Acibadem MAA University, School of Medicine, Istanbul, Turkey

### **391 Total hip arthroplasty with acetabular augmentation for severe coxarthrosis secondary to slipped capital femoral epiphysis: a successful surgical approach.**

Alejandro Corredor Belmar, Celia Martínez García, Luis José Clavel Rojo, Antonio Valcárcel Díaz, Juan Fernando Navarro Blaya

Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain



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**392 Surgical management of posterior femoral osteochondroma in a patient with coxa profunda and legg-calvé-perthes disease: a case report.**

Alejandro Corredor Belmar, Celia Martínez García, Luis José Clavel Rojo, Antonio Valcárcel Díaz, Juan Fernando Navarro Blaya  
Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain

**393 Prosthetic loosening due to bone metastasis, a case report.**

Alejandro Corredor Belmar, Celia Martínez García, Ana Belén Pagán Núñez, Eduardo Gómez Gil, Andrés Bascuñana Más  
Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain

**394 Fixed bearing partial medial versus cruciate retaining total knee replacement outcomes at 5-years - a newly appointed single surgeon series.**

Leonidas Vachtsevanos, Katharine Vanessa Wilcocks  
Salisbury Hospital, Salisbury, United Kingdom

**395 Progressive gonalgia on ptr, a rare cause of prosthetic loosening.**

Alejandro Corredor Belmar, Celia Martínez García, Ana Belén Pagán Núñez, Juan Andrés González García, Alejandro Castillo Sáez  
Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain

**396 Knee extensor apparatus transplplantation with allograft on total knee prosthesis, clinical case series.**

Alejandro Corredor Belmar, Celia Martínez García, Carlos Ortuño Quílez, Alberto Aller García-Alarcón, José Pablo Puertas García-Sandoval  
Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain

**397 A history of cancer does not always indicate metastasis, case of amyloidoma detected in a subcapital fracture in a 54-year-old patient.**

Alejandro Corredor Belmar, Celia Martínez García, Moisés Vallés Andreu, José Francisco González Sánchez, José Joaquín García Tornero  
Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain

**398 The relevance of osteosyntheses knowledge to a knee arthroplasty surgeon.**

Gloria Adriana Magalhães, Pedro Miguel Campos, Pedro José Bizarro, Pedro Jorge Afonso  
Hospital de Vila Franca de Xira, Vila Franca De Xira, Portugal

**399 Total hip arthroplasty with acetabular augmentation for severe coxarthrosis secondary to a slipped capital femoral epiphysis: a successful surgical approach.**

Alejandro Corredor Belmar, Celia Martínez García, Luis José Clavel Rojo, Antonio Valcárcel Díaz, Juan Fernando Navarro Blaya  
Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain

**400 Proximal femoral replacement (PFR) in revision total hip replacement (THA) for non-neoplastic pathologies.**

Narada Ranasinghe Karuna Pathirannehelage, Dan Arvinte, Manoj Sood  
Bedford Hospital NHS trust, Bedford, United Kingdom



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**401 Risk factors of revision surgery in the elderly after total hip arthroplasty in a tertiary hospital in the Philippines.**

Ma. Angela Faustino Berris

St. Luke's Medical Center, Quezon City, Philippines

**404 Analysis of femur component external rotation in functionally aligned robotic assisted total knee arthroplasty.**

Sanjay Bhalchandra Londhe (1), Ravi Vinod Shah (1), Govind Kumar Baranwal (1), Ravi Teja Rudra Raju (2)

1. Criticare Asia Hospital, Mumbai, India

2. Apollo Health City, Hyderabad, India

**405 Pre-operative simulation and kinematic alignment technique reduces the risk of early dislocations in robotic-assisted THA.**

Pascal Kouyoumdjian (1,2), Omar Fendri (1), Moahammad Alsuwaidi (1), Rémy Coulomb (1)

1. University and Hospital Center of Nîmes, Nîmes, France

2. LMGC, Mechanical and Civil Engineering Laboratory, UMR 5508, Montpellier, France

**406 A personalized femoral anteversion simulated by a 3D planning integrating the lumbopelvic complex decrease the risk of impingement.**

Pascal Kouyoumdjian (1,2), Mohammad Alsuwaidi (1), Vincent Haignere (1), Rémy Coulomb (1)

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2. LMGC, Mechanical and Civil Engineering Laboratory, UMR 5508, Montpellier, France

**407 Short-term functional outcomes of robotic-assisted TKA are better with functional alignment compared to adjusted mechanical alignment.**

Pascal Kouyoumdjian (1,2), Jeffrey Michaud (1), Philippe Marchand (1), Rémy Coulomb (1)

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# LUNCH SYMPOSIA

**4<sup>TH</sup> WORLD  
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Madrid • Spain  
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# 4<sup>TH</sup> WORLD ARTHROPLASTY CONGRESS

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## LUNCH SYMPOSIA • Thursday, April 18th



THE ORTHOPAEDICS COMPANY OF *Johnson & Johnson*

### ROOM LONDRES

13:15-14:30h

#### The future of Knee Replacement: Personalized TKA with ATTUNE™ and VELYS™ Robotic-Assisted Solution

Moderator: David Barrett (UK)

#### Introductions & Agenda

David Barrett (UK)

#### The true benefit of robotics in Patient Specific Total Knee Surgery

Michael Hirschmann (Switzerland)

#### Surgeon experience and key learnings of introducing the VELYS Robotic Assisted Surgery device and the Patient Specific Alignment technique into practice

Pieter-Jan Vandekerckhove (Belgium)

#### Audience Q&A

David Barret (UK)



### ROOM ESTRASBURGO-BURDEOS-MARSELLA

13:15-14:30h

#### Rethinking Knee Revision Arthroplasty

Moderator: Gijs Van Hellemond (The Netherlands)

#### Revision TKA surgery-my practice

Cécile Batailler (France)

#### Challenges in revision surgery-what do we need to solve

Jan Victor (Belgium)

#### Imageless robotics: a paradigm shift in knee revision

Max Ettinger (Germany)



## LUNCH SYMPOSIA • Friday, April 19th

**stryker**

ROOM PARIS-TOULOUSE-LYON

13:15-14:30h

**Discover Functional Knee Positioning with Mako total knee 2.0**

Speakers: Fabio Catani (Italy)  
Fares Haddad (UK)  
Joan Leal (Spain)  
Sebastien Lustig (France)

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ROOM LONDRES

13:15-14:30h

**The future of patient satisfaction after knee replacement**

**How does the patient's psychological health contribute to post-operative satisfaction?**

Christoph H. Lohmann (Germany)

**Expanding indications for UKA, is this a way to improve patient satisfaction?**

Emmanuel Thienpont (Belgium)

**Is ligament balancing the key to future patient satisfaction in TKR?**

Libor Necas (Slovakia)

**Natural Knee Kinematics:**

**Dual-Pivot Articulation and Patient Satisfaction in TKA**

Michael Meneghini (USA)

 ZIMMER BIOMET

ROOM ESTRASBURGO-BURDEOS-MARSELLA

13:15-14:30h

**Advanced Personalisation in Hip and Knee Arthroplasty**

Speakers:

Jean-Noël Argenson (France)

Sébastien Parrate (United Arab Emirates)

Anders Troelsen (Denmark)

Stephan Vehmeijer (The Netherlands)

- **When we talk about Advanced Personalisation, what do you consider are the key elements?**
- **Starting with the implant, how is implant personalization enabling you as a surgeon and ultimately optimising patient outcomes?**
- **When we talk about personalization of the procedure, what does this mean to you?**
- **How does personalisation affect the overall patient experience?**

# EXHIBITION FLOOR PLAN



STANDS  6x5  4x3  3x2  Congress partner

- 1 ENTRANCE FROM THE HOTEL
- 2 CONGRESS ENTRANCE
- 3 TECHNICAL SECRETARIAT
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